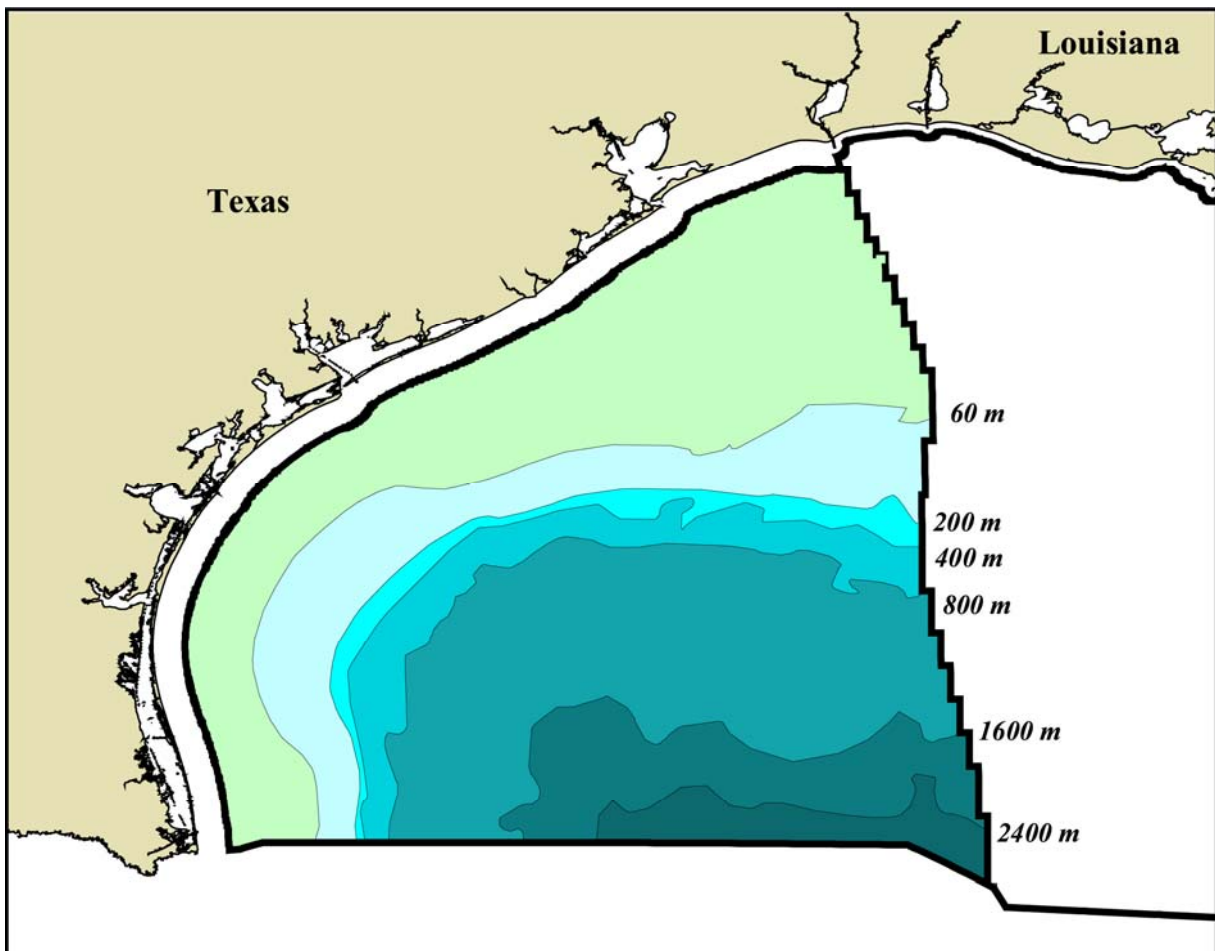




Proposed Gulf of Mexico OCS Oil and Gas Lease Sale 215

Western Planning Area

Environmental Assessment



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Author

Minerals Management Service
Gulf of Mexico OCS Region

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FINDING OF NO NEW SIGNIFICANT IMPACT

The U.S. Department of the Interior, Minerals Management Service (MMS) has prepared an environmental assessment (EA) for proposed Lease Sale 215 in the Western Planning Area (WPA) of the Gulf of Mexico (GOM) Outer Continental Shelf (OCS) to determine whether MMS can make a Finding of No New Significant Impact (FONNSI) or should prepare a second supplemental environmental impact statement (EIS).

In April 2007, MMS filed with the U.S. Environmental Protection Agency (USEPA) a Final EIS covering Western Planning Area (WPA) Lease Sales 204, 207, 210, 215, and 218; and Central Planning Area Lease Sales 205, 206, 208, 213, 216, and 222 in the GOM (Multisale EIS). In September 2008, MMS filed with USEPA a Final Supplemental EIS covering CPA Lease Sales 208, 213, 216, and 222; and WPA Lease Sales 210, 215, and 218 in the GOM (Supplemental EIS). The Supplemental EIS covered the additional 181 South Area and analyzed any new information in the CPA and WPA. Because the Multisale EIS and the Supplemental EIS examined the environmental impacts of a sale nearly identical in size, nature, and potential level of development as proposed Lease Sale 215, the EA tiers off the Multisale EIS and the Supplemental EIS and incorporates these documents by reference. It also reexamines the potential environmental effects of proposed Lease Sale 215 and the alternatives based on any new information regarding potential impacts or issues that were not available at the time the Supplemental EIS was prepared.

The purpose of the EA is to analyze whether new information indicates that there are likely to be significant new impacts that were not addressed in the Multisale EIS and the Supplemental EIS. As part of the scoping process for the EA, MMS researched and reviewed new information to determine if any resources should be reevaluated or if the new information would alter conclusions of the Multisale EIS and the Supplemental EIS. No new information was found that would indicate any potentially new significant impact that would necessitate a reanalysis of the impacts of proposed Lease Sale 215 upon environmental or socioeconomic resources. The analyses, potential impacts, and conclusions detailed in the Multisale EIS and the Supplemental EIS apply for proposed Lease Sale 215.

Based on the analyses in the EA, no new significant impacts were identified for proposed Lease Sale 215 that were not already assessed in the Multisale EIS and the Supplemental EIS, nor is it necessary to change the conclusions of the kinds, levels, or locations of impacts described in those documents. Therefore, MMS has determined that a supplemental EIS is not required and is issuing this FONNSI.

Supporting Documents

Gulf of Mexico OCS Oil and Gas Lease Sales: 2009-2012; Central Planning Area Sales 208, 213, 216, and 222; Western Planning Area Sales 210, 215, and 218—Final Supplemental Environmental Impact Statement (USDIOI, MMS, 2008a) (available upon request)

Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western Planning Area Sales 204, 207, 210, 215, and 218; Central Planning Area Sales 205, 206, 208, 213, 216, and 222—Final Environmental Impact Statement; Volumes I and II (USDIOI, MMS, 2007a) (available upon request)



Director

MAR 23 2010

Date

TABLE OF CONTENTS

	Page
FIGURES	v
TABLES	vii
ABBREVIATIONS AND ACRONYMS	ix
1. OBJECTIVES OF THE ENVIRONMENTAL ASSESSMENT	1
2. PURPOSE OF AND NEED FOR THE PROPOSED ACTION.....	3
3. ALTERNATIVES INCLUDING THE PROPOSED ACTION	5
3.1. Alternative A—Proposed Action	5
3.2. Alternatives to the Proposed Action	6
3.3. Mitigation Measures	6
3.3.1. Summary of Stipulations Discussed in the Multisale EIS and the Supplemental EIS	7
3.3.2. Information to Lessees	7
3.3.3. Existing Mitigations	8
3.3.4. Notices to Lessees and Operators.....	9
3.3.5. Monitoring.....	10
4. RESOURCES AND IMPACT ANALYSIS	13
4.1. Update of Projections of Potential Activity from the Proposed Action	13
4.1.1. Offshore Impact-Producing Factors and Scenario	13
4.1.2. Coastal Impact-Producing Factors and Scenario.....	15
4.1.3. Hurricanes	16
4.2. Environmental and Socioeconomic Resources	19
4.2.1. Air Quality.....	20
4.2.2. Water Quality	22
4.2.3. Sensitive Coastal Environments.....	24
4.2.3.1. Coastal Barrier Beaches and Associated Dunes.....	24
4.2.3.2. Wetlands.....	27
4.2.3.3. Seagrass Communities	32
4.2.4. Sensitive Offshore Benthic Resources	34
4.2.4.1. Continental Shelf Benthic Resources	34
4.2.4.1.1. Topographic Features	34
4.2.4.2. Continental Slope and Deepwater Resources.....	36
4.2.4.2.1. Chemosynthetic Deepwater Benthic Communities.....	36
4.2.4.2.2. Nonchemosynthetic Deepwater Benthic Communities	38
4.2.5. Marine Mammals	40
4.2.6. Sea Turtles.....	43
4.2.7. Gulf Sturgeon	46
4.2.8. Coastal and Marine Birds.....	48
4.2.9. Fish Resources and Essential Fish Habitat.....	51
4.2.10. Commercial Fishing	53
4.2.11. Recreational Fishing.....	55
4.2.12. Recreational Resources	57

4.2.13. Archaeological Resources	60
4.2.14. Human Resources and Land Use.....	62
4.2.14.1. Land Use and Coastal Infrastructure.....	62
4.2.14.2. Demographics	64
4.2.14.3. Economic Factors.....	67
4.2.14.4. Environmental Justice	70
5. CONSULTATION AND COORDINATION	73
5.1. Scoping and Activities in Support of the Environmental Assessment for the Western Planning Area’s Proposed Lease Sale 215.....	73
5.2. Consultation and Coordination Calendar.....	74
6. REFERENCES CITED.....	77
7. PREPARERS	91

FIGURES

	Page
Figure 1. Gulf of Mexico Outer Continental Shelf Planning Areas, Proposed Lease Sale Area, and Locations of Major Cities.	3
Figure 2. Location of Proposed Stipulations.	5
Figure 3. Subareas of the Western Planning Area Zoned by Depth.	14
Figure 4. Status of Ozone Attainment in the Coastal Counties and Parishes of the Central and Western Gulf of Mexico (USEPA, 2009a).	20
Figure 5. Named Topographic Features in the Northern Gulf of Mexico.	34
Figure 6. Known Chemosynthetic Communities in the Northern Gulf of Mexico.	37
Figure 7. Economic Impact Areas in the Northern Gulf of Mexico.	65

TABLES

	Page
Table 1. Offshore Scenario Information Related to Proposed Lease Sale 215 over 40 Years.....	13
Table 2. Aggregate Average Lag in Months from Sales to First Spud for Leases Issued from 1983 to 1999	15
Table 3. Aggregate Average Lag in Months from Sales to First Production for Leases Issued from 1983 to 1999.....	15
Table 4. U.S. Domestic Landings for the Gulf of Mexico, Louisiana, and Texas for 2006-2008 (thousand pounds).....	54
Table 5. U.S. Domestic Landings for the Gulf of Mexico, Louisiana, and Texas for 2006-2008 (thousand dollars).....	54
Table 6. Species with Highest Annual Commercial Catch (finfish and shellfish) in Louisiana and Texas for 2006-2008	54
Table 7. Projected Employment* Associated with Proposed Lease Sale 215 by Economic Impact Area.....	69

ABBREVIATIONS AND ACRONYMS

5-Year Program	<i>Outer Continental Shelf Oil and Gas Leasing Program: 2007-2012</i>
ac	acre
APD	Application for Permit to Drill
API	American Petroleum Institute
bbbl	barrel
BBO	billion barrels of oil
CAAA	Clean Air Act Amendments of 1990
Call	Call for Information and Nominations
CD	Consistency Determination
CFR	Code of Federal Regulations
CIAP	Coastal Impact Assistance Program
COE	Corps of Engineers
CPA	Central Planning Area
CPRA	Coastal Protection and Restoration Authority
CPS	coastal political subdivision
CSA	Continental Shelf Associates
CZM	coastal zone management
EA	environmental assessment
EDP	exploration, development, and production
EFH	essential fish habitat
EIA	economic impact area
EIS	environmental impact statement
EPA	Eastern Planning Area
EPAct	Energy Policy Act of 2005
ESA	Endangered Species Act of 1973
FDEP	Florida Dept. of Environmental Protection
FEMA	Federal Emergency Management Agency
FONNSI	Finding of No New Significant Impact
FR	<i>Federal Register</i>
ft	feet
FWS	Fish and Wildlife Service
FY	fiscal year
GNOCDC	Greater New Orleans Community Data Center
GOM	Gulf of Mexico
GOMESA	Gulf of Mexico Energy Security Act of 2006
GOMR	Gulf of Mexico Region
GPS	global positioning system
GS	Geological Survey (also USGS)
ha	hectare
H ₂ S	hydrogen sulfide
km	kilometer
km ²	square kilometer
LA Hwy 1	Louisiana Highway 1
LA-SMWG	Louisiana Sand Management Working Group
LMA	labor market areas
LUMCON	Louisiana Universities Marine Consortium
m	meter
m ³	cubic meter
mi	mile
mi ²	square mile
MM5	Mesoscale Model 5
MMPA	Marine Mammal Protection Act of 1972
MMS	Minerals Management Service

MODU	mobile offshore drilling unit
MRFSS	Marine Recreational Fisheries Statistics Survey
Multisale EIS	<i>Gulf of Mexico OCS Oil and Gas Lease Sales: 2003-2007; Central Planning Area Sales 185, 190, 194, 198, and 201; Western Planning Area Sales 187, 192, 196, and 200; Final Environmental Impact Statement; Volumes I and II</i>
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service (also known as NOAA Fisheries)
nmi	nautical mile
NO _x	nitrogen oxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	Department of Commerce agency also known as NMFS
NOAA-OE	National Oceanic and Atmospheric Administration, Office of Ocean Exploration
NOI	Notice of Intent to Prepare an EIS
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NTL	Notice to Lessees and Operators
OCS	Outer Continental Shelf
PM _{2.5}	particulate matter smaller than 2.5 microns
PM ₁₀	particulate matter smaller than 10 microns
PSD	Prevention of Significant Deterioration
QOCSR	quality OCS revenues
ROV	remotely operated vehicle
RP	Recommended Practice
RPM	reasonable and prudent measure
SO ₂	sulphur dioxide
Supplemental EIS	<i>Gulf of Mexico OCS Oil and Gas Lease Sales: 2009-2012; Central Planning Area Sales 208, 213, 216, and 222; Western Planning Area Sales 210, 215, and 218—Final Supplemental Environmental Impact Statement</i>
Tcf	trillion cubic feet
UAH	University of Alabama, Huntsville
U.S.	United States
U.S.C.	United States Code
USCG	U.S. Coast Guard
USDOC	U.S. Department of Commerce
USDOI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey (also GS)
WPA	Western Planning Area
yd ³	cubic yard
yr	year

1. OBJECTIVES OF THE ENVIRONMENTAL ASSESSMENT

This environmental assessment (EA) addresses one proposed Federal action: oil and gas Lease Sale 215 in the proposed lease sale area of the Western Planning Area (WPA) of the Gulf of Mexico (GOM) Outer Continental Shelf (OCS) as scheduled in the *Outer Continental Shelf Oil and Gas Leasing Program 2007-2012 (5-Year Program)* (USDOJ, MMS, 2007b). This EA incorporates by reference all of the relevant material in the multisale environmental impact statement (EIS) from which it tiers (i.e., *Gulf of Mexico OCS Oil and Gas Lease Sales: 2007-2012; Western Planning Area Sales 204, 207, 210, 215, and 218; Central Planning Area Sales 205, 206, 208, 213, 216, and 222—Final Environmental Impact Statement; Volumes I and II* (Multisale EIS) (USDOJ, MMS, 2007a)). This EA also incorporates by reference all of the relevant material in the Supplemental EIS from which it tiers (i.e., *Gulf of Mexico OCS Oil and Gas Lease Sales: 2009-2012; Central Planning Area Sales 208, 213, 216, and 222; Western Planning Area Sales 210, 215, and 218—Final Supplemental Environmental Impact Statement* (Supplemental EIS) (USDOJ, MMS, 2008a)). This EA has been prepared to aid in the determination of whether or not new available information indicates that the proposed lease sale would result in new significant impacts not addressed in the Multisale EIS or the Supplemental EIS. The Minerals Management Service (MMS) is preparing a Coastal Zone Management Consistency Determination (CD) for proposed Lease Sale 215, per the requirements of 15 CFR 930 Subpart C. Analyses in this EA are incorporated by reference into the CD, as appropriate, for resources and uses for each of the affected States.

In preparation for this EA, the U.S. Department of the Interior (USDOJ), MMS reexamined the potential environmental effects of proposed Lease Sale 215 and the alternatives based on any new information regarding potential impacts and issues not available at the time MMS published the Multisale EIS in April 2007 and the Supplemental EIS in September 2008. If new information that was derived from Internet searches and the review of scientific reports and studies was found that indicated a resource or resources should be reevaluated, a reanalysis of the impacts of proposed Lease Sale 215 upon those environmental or socioeconomic resources would be necessary. Otherwise, the analyses of potential impacts and conclusions detailed in the Multisale EIS and the Supplemental EIS would still apply for proposed Lease Sale 215.

Federal regulations allow for an agency to analyze related or similar proposals in one EIS (40 CFR 1502.4). The MMS prepared a single EIS for the five WPA lease sales because Lease Sales 204, 207, 210, 215, and 218 and their projected activities are very similar, especially with respect to impact-producing factors. The multisale approach focuses the National Environmental Policy Act (NEPA) EIS process on the differences between the proposed lease sales and new information and issues. Although the Multisale EIS addressed five proposed WPA lease sales and the Supplemental EIS addressed three proposed lease sales, the Secretary of the Interior (Secretary) makes a separate decision for each lease sale.

The Multisale EIS and the Supplemental EIS can be obtained from the Minerals Management Service, Gulf of Mexico OCS Region, Attention: Public Information Office (MS 5034), 1201 Elmwood Park Boulevard, Room 114, New Orleans, Louisiana 70123-2394 (1-800-200-GULF) or viewed on the MMS Internet website at <http://www.gomr.mms.gov>. A list of libraries and other repositories that have copies of the Multisale EIS and the Supplemental EIS and their locations is also available on the MMS Internet website at <http://www.gomr.mms.gov/homepg/regulate/environ/libraries.html>.

2. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

Purpose of the Proposed Action

The purpose of this proposed action (WPA Lease Sale 215) is to offer for lease all unleased blocks in the proposed lease sale area (**Figure 1**) that may contain economically recoverable oil and natural gas resources. The proposed lease sale would provide qualified bidders the opportunity to bid upon and lease acreage in the proposed lease sale area in order to explore, develop, and produce oil and natural gas.

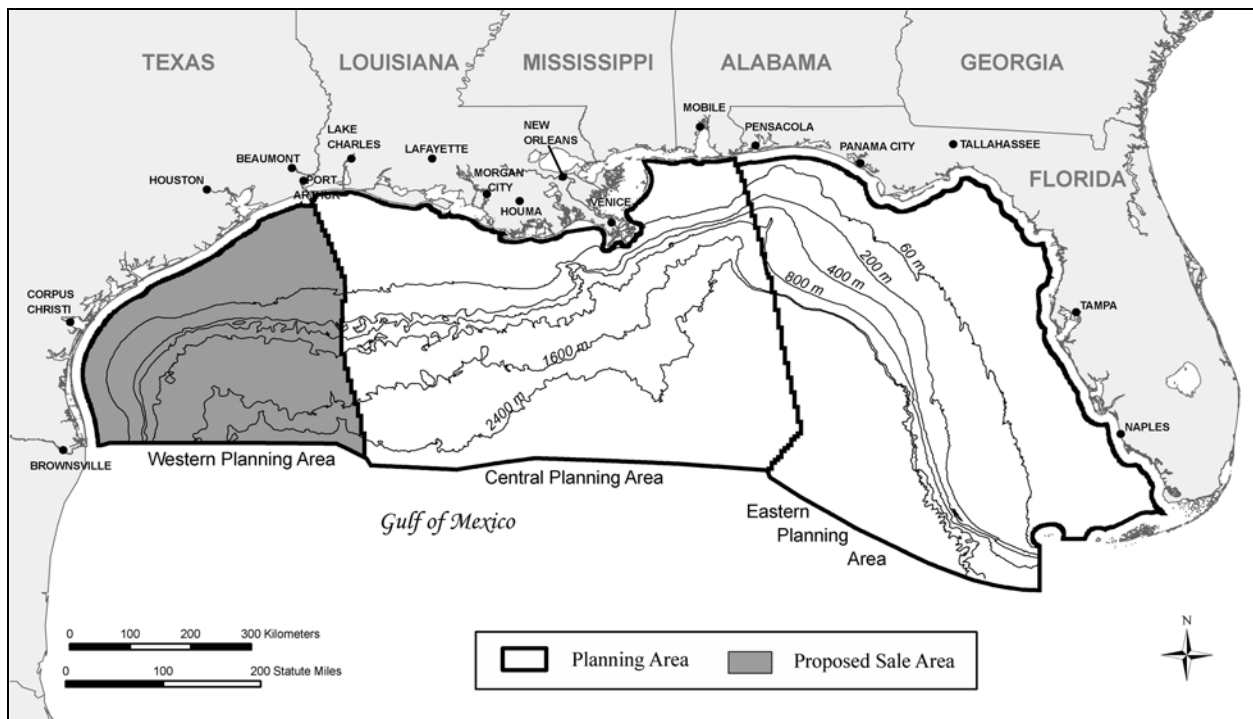


Figure 1. Gulf of Mexico Outer Continental Shelf Planning Areas, Proposed Lease Sale Area, and Locations of Major Cities.

Need for the Proposed Action

The GOM constitutes one of the world's major oil- and gas-producing areas and has proved to be a steady and reliable source of crude oil and natural gas for more than 50 years. Oil from the GOM would help reduce the Nation's need for oil imported from distant and volatile oil-producing regions of the world and would help reduce the environmental risks associated with overseeing the transport of oil in tankers. Natural gas is not transported easily, making domestic production especially desirable. The need for domestic natural gas reserves is also based upon its use as an environmentally preferable alternative to oil for generating electricity.

3. ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1. ALTERNATIVE A—PROPOSED ACTION

Alternative A (Preferred Alternative)—The Proposed Action: This alternative would offer for lease all unleased blocks within the WPA for oil and gas operations (**Figure 2**), with the following exceptions: (1) whole and partial blocks that are within the boundary of the Flower Garden Banks National Marine Sanctuary; and (2) whole and partial blocks that lie within the 1.4-nautical mile (nmi) buffer zone north of the continental shelf boundary between the U.S. and Mexico for Sales 204, 207, 210, and 215 only.

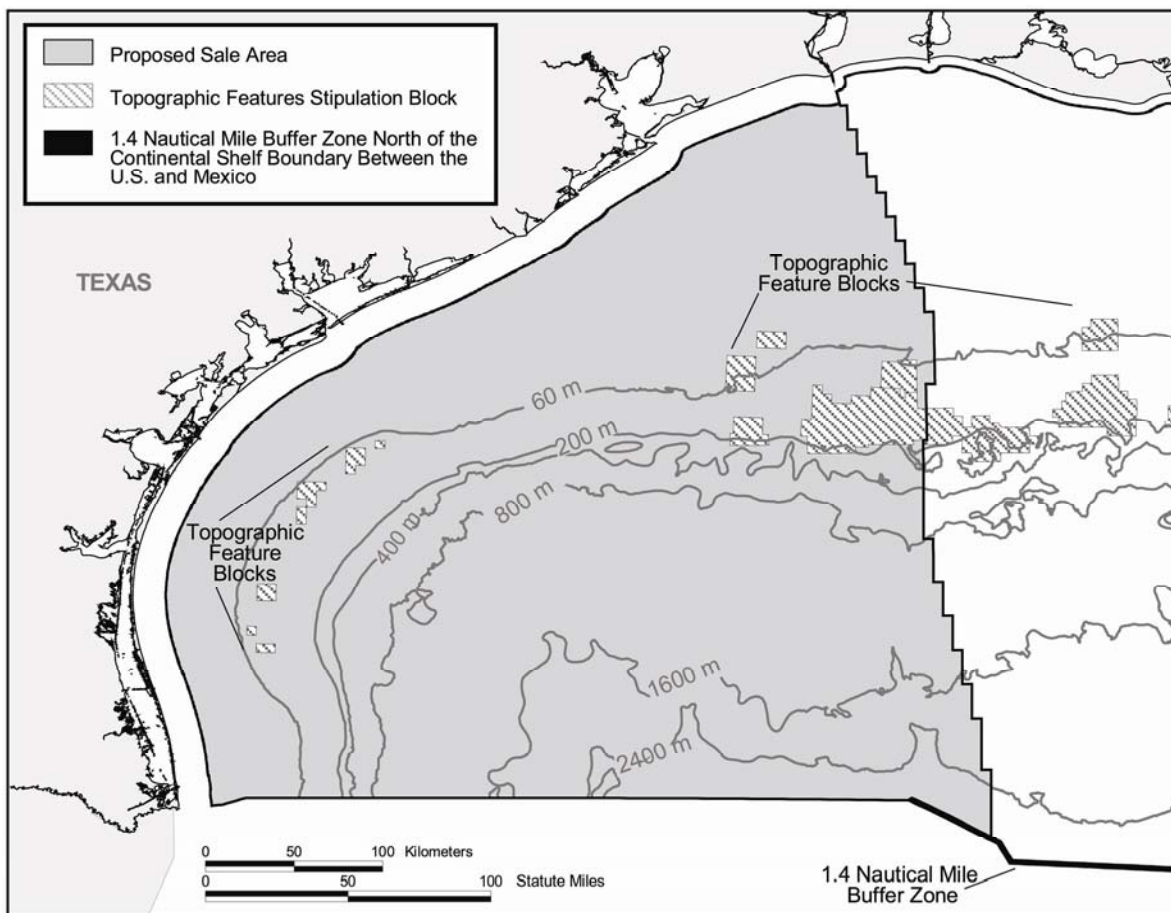


Figure 2. Location of Proposed Stipulations.

The WPA sale area encompasses about 28.6 million acres (ac) located 3 leagues (9 miles [mi]; 14 kilometers [km]) offshore Texas and extends to the limits of the U.S. Outer Continental Shelf where water depths are up to 10,978 feet (ft) (3,346 meters (m)). The estimated amount of resources projected to be developed as a result of one proposed WPA lease sale is 0.242-0.423 billion barrels of oil (BBO) and 1.644-2.647 trillion cubic feet (Tcf) of gas (USDOJ, MMS, 2007a; Table 4-1).

The analyses of impacts summarized below and described in detail in Chapters 4.2.1.1 and 4.4 of the Multisale EIS and Chapter 4.1 of the Supplemental EIS are based on the development scenario. This scenario is a set of assumptions and estimates on the amounts, locations, and timing for OCS exploration, development, and production operations and facilities, both offshore and onshore. A detailed discussion of the development scenario and major related offshore, coastal, and accidental impact-producing factors is included in Chapters 4.1.1, 4.1.2, and 4.3 of the Multisale EIS and Chapter 3 of the Supplemental EIS.

3.2. ALTERNATIVES TO THE PROPOSED ACTION

The following alternatives were included for analysis in the Supplemental EIS. As explained in Chapter 2.1.3.2 of the Supplemental EIS, the Use of a Nomination and Tract Selection Leasing System Alternative analyzed in the Multisale EIS was not included for analysis due to an ongoing MMS study on alternative approaches to leasing (Opaluch et al., in preparation). A detailed analysis of this alternative is presented in Chapter 4.2.1.3 of the Multisale EIS.

Alternative B—The Proposed Action Excluding the Unleased Blocks Near Biologically Sensitive Topographic Features: This alternative would offer for lease all unleased blocks in the WPA, as described for the proposed action for Alternative A, and in addition exclude all other blocks in the WPA subject to the Topographic Features Stipulation. A detailed analysis of Alternative B is presented in Chapter 4.2.1.2 of the Multisale EIS.

Alternative C—No Action: This alternative is the cancellation of WPA Lease Sale 215. The opportunity for development of the estimated 0.242-0.432 BBO and 1.644-2.647 Tcf of gas that could have resulted from a proposed WPA lease sale would be precluded or postponed. Any potential environmental impacts resulting from a proposed lease sale would not occur or would be postponed. Other sources of energy would substitute for the lost production. Principal substitutes would be additional imports, conservation, additional domestic onshore production, and switching to other fuels. These alternatives, except conservation, have significant negative environmental impacts of their own and are analyzed in the Final EIS for the 5-Year Program (USDOJ, MMS, 2007c).

The MMS published a report that examined previous exploration and development activity scenarios (USDOJ, MMS, 2007d). The MMS compared forecasted activity with the actual activity that has resulted in 14 WPA and 14 Central Planning Area (CPA) lease sales between 1992 and 2005. The report shows that many lease sales contribute to the present level of OCS activity, and any single lease sale accounts for only a small percentage of the total OCS activities. Like other lease sales, proposed Lease Sale 215 would contribute to maintaining the present level of OCS activity in the Gulf of Mexico. For example, in 2006 over half of the oil and gas production was the result of lease sales before 1992. An average lease in the WPA contributed 2 percent of oil production and 2 percent of gas production. For wells drilled annually, the contribution that resulted from lease sales before 1999 exceeded the contribution from leases in sales after 1999. For the installation of production structures in the WPA, the contribution of installations that resulted from lease sales after 1999 has greatly exceeded the contribution from lease sales that occurred before 1999. Exploration and development activity, including service-vessel trips, helicopter trips, and construction, that would result from proposed Lease Sale 215 would replace activity resulting from existing leases that have reached or are near the end of their economic life.

If proposed Lease Sale 215 would be cancelled, the resulting development of oil and gas would most likely be postponed to a future sale; therefore, the overall level of OCS activity in the WPA would only be reduced by a small percentage.

3.3. MITIGATION MEASURES

Proposed Lease Sale 215 and all subsequent activities resulting from it are subject to the existing regulations and proposed lease stipulations designed to reduce environmental risks. Lease stipulations are legally binding restrictions and operating requirements that, if adopted, become part of lease contracts. Chapter 2.3.1.3 of the Multisale EIS and Chapter 2.2.2.1 of the Supplemental EIS analyzed four environmental or military stipulations proposed to be applied to leases resulting from WPA Lease Sale 215: Topographic Features; the Military Areas; the Protected Species; and the Naval Mine Warfare Area. The Naval Mine Warfare Area is no longer applicable to the WPA Lease Sale Area by memorandum dated April 3, 2009, from the Department of the Navy. The Law of the Sea Convention Royalty Payment Stipulation is also applicable to Lease Sale 215, although it is not an environmental or military stipulation.

Chapter 2.3.1.3 of the Multisale EIS and Chapter 2.3.1.3 of the Supplemental EIS discuss the effectiveness of these stipulations. Additional stipulations or mitigation requirements to be included in Lease Sale 215 will be described in the Final Notice of Sale for Lease Sale 215.

3.3.1. Summary of Stipulations Discussed in the Multisale EIS and the Supplemental EIS

Four environmental and military mitigations, referred to as lease stipulations, were included for analysis in the Multisale EIS and the Supplemental EIS. These stipulations were developed as the result of scoping efforts over a number of years for the continuing OCS Program in the GOM and are expected to be part of the proposed action if Lease Sale 215 goes forward. These stipulations and their effectiveness are described in more detail in the Multisale EIS and the Supplemental EIS. Any stipulations or mitigation requirements to be included in Lease Sale 215 will be described in detail in the Final Notice of Sale for Lease Sale 215. Stipulations or mitigation requirements, in addition to those analyzed in the Multisale EIS and the Supplemental EIS, can also be developed and applied, and they will also be described in the Final Notice of Sale. The **Naval Mine Warfare Area Stipulation** that included blocks considered crucial to the Naval Mine and Anti-Submarine Warfare Command operations that were at one time deferred from leasing are no longer subject to restriction after August 31, 2009. The following environmental and military stipulations are applicable to Lease Sale 215:

- The **Topographic Features Stipulation** protects the biota of the topographic features from adverse effects due to routine oil and gas activities, including physical damage from anchoring and rig emplacement and the potential toxic and smothering effects from muds and cuttings discharges. The Topographic Features Stipulation has been included in leases since 1973 and has effectively prevented damage to the biota of these banks from routine oil and gas activities such as anchoring. Monitoring studies have demonstrated that the shunting requirements of the stipulation are effective in preventing the muds and cuttings from impacting the biota of the banks. Although deferral of blocks with topographic features has been analyzed as an alternative in EIS's and EA's for all recent WPA and CPA sales, this alternative has never been selected. The topographic highs on and near these blocks are often associated with salt domes, which are attractive areas for hydrocarbon exploration. Instead, blocks on the topographic features have been offered for lease with a stipulation that has proven effective in protecting sensitive biological resources.
- The **Protected Species Stipulation** has been applied to all blocks leased in the GOM since December 2001. This stipulation was developed in consultation with the U.S. Department of Commerce (USDOC), National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (FWS) in accordance with Section 7 of the Endangered Species Act of 1973 (ESA) and is designed to minimize or avoid potential adverse impacts on federally protected species. See Chapter 2.3.1.3.4 of the Multisale EIS and Chapter 2.2.1.3 of the Supplemental EIS for more information on this stipulation.

3.3.2. Information to Lessees

The Final Notice of Sale Package for Lease Sale 215 will include a list of Information to Lessees (ITL) paragraphs designed to inform potential bidders of applicable requirements of Federal agencies other than MMS, as well as emerging OCS concerns that could apply to the sale. In addition to this ITL list, an ITL proposed for Lease Sale 215 was developed to inform bidders of a commercial waste disposal site that was developed in the GOM by the U.S. Environmental Protection Agency (USEPA) during the 1970's to allow for the seabed disposal of thousands of barrels of chemical wastes. The location and contents of most of the barrels are unknown, with much of the material actually deposited outside of the disposal site boundary. Even though the program is now inactive, the waste barrels remain on the seabed and still represent a potential hazard to nearby OCS oil and gas operations. During the requisite hazard surveys and pipeline pre-surveys, the disposed material is typically detected as sonar targets and/or magnetic anomalies and, most often, they are identified correctly as waste barrels. During MMS's site-specific NEPA review of each of the operators' and applicants' subsequent operation submittals, the proposed activities are assigned mitigation/conditions of approval that entail avoidance of the disposed

material by several meters and, in the case of the ruptured waste barrels, decontamination procedures if subsea equipment comes into accidental contact with the substances.

The following precautionary ITL for the inactive disposal areas are applicable to Lease Sale 215:

Commercial Waste Disposal Area ITL: Bidders are cautioned as to the existence of an inactive commercial waste disposal site that covers portions of East Breaks, shown on the map “Stipulations and Deferred Block, Sale 215” included in the Notice of Sale package. The disposal site was established in the 1970’s to facilitate USEPA permitting for the seafloor deposition of thousands of steel barrels containing chemical wastes, which according to limited USEPA documentation, consist mostly of chlorinated hydrocarbons and liquid metal salts. The exact locations of all the waste material are unknown since the geospatial data were not collected when the barrels were jettisoned; therefore, hundreds of barrels have been detected during hazards surveys conducted on blocks over 10 mi (16 km) away from the designated disposal site boundary. For that reason, lessees are advised that the aforementioned blocks associated with the disposal site and most blocks neighboring its boundary that are included in this sale should be considered potentially hazardous to drilling and platform/pipeline placement and may require precautions appropriate for the potential hazards.

3.3.3. Existing Mitigations

Chapter 2.2.2.2 of the Multisale EIS and Chapter 2.1.2.2 of the Supplemental EIS discuss mitigations that would be applied by MMS. Mitigations have been identified, evaluated, or developed through previous MMS lease sale NEPA review and analysis. Many of these mitigations have been adopted and incorporated into regulations and/or guidelines governing OCS exploration, development, and production activities. The MMS rigorously reviews all plans for OCS activities (e.g., exploration and development plans, pipeline applications, and structure-removal applications) to ensure compliance with established laws and regulations. Existing mitigations must be incorporated and documented in plans submitted to MMS. The MMS enforces operational compliance with these mitigations through the MMS on-site inspection program.

Mitigations that are a standard part of the MMS program ensure that the operations are always conducted in an environmentally sound manner. For example, mitigations ensure that site-clearance procedures eliminate potential snags to commercial fishing nets and require surveys to detect and avoid archaeological sites and biologically-sensitive areas such as topographic features and chemosynthetic communities.

Mitigations identified by MMS are also incorporated into OCS operations through cooperative agreements or efforts with industry and various State and Federal agencies. These mitigations include NMFS’s Observer Program to protect marine mammals and sea turtles during explosive removals, labeling operational supplies to track possible sources of accidental debris loss, development of methods of pipeline landfall to eliminate impacts on barrier beaches, and semiannual beach cleanup events.

Site-specific mitigations are also applied by MMS during plan reviews. The MMS determined that many of these site-specific mitigations were consistently applied and used these to develop a list of “standard” mitigations. There are currently over 120 standard mitigations that MMS may apply during the postlease process. The wording of a standard mitigation is developed by MMS in advance and may be applied whenever conditions warrant. Standard mitigation text is revised as often as necessary (e.g., to reflect changes in regulatory citations, agency/personnel contact numbers, and internal policy). Site-specific mitigation categories include air quality, archaeological resources, artificial reef material, chemosynthetic communities, Flower Garden Banks, topographic features, military warning areas, Naval mine warfare areas, hydrogen sulfide, drilling hazards, remotely operated vehicle surveys, geophysical survey reviews, and general safety concerns. Site-specific mitigation types include advisories, conditions of approval, hazard survey reviews, inspection requirements, notifications, post-approval submittals, reminders, and safety precautions. In addition to standard mitigations, MMS may also apply nonrecurring mitigations that are developed on a case-by-case basis.

Compensatory mitigation does exist for OCS-related impacts and is discussed in Chapter 3.3.5.2 of the Multisale EIS. In addition to over \$1 billion Louisiana has received from Federal offshore 8(g)

revenues from Fiscal Years (FY) 1986-2005, the coastal state received millions of dollars from funds such as the Land and Water Conservation Fund and the National Historic Preservation Fund.

Section 384 of the Energy Policy Act of 2005 (EPA) established the Coastal Impact Assistance Program (CIAP), which authorized funds to be distributed to OCS oil- and gas-producing states to mitigate the impacts of OCS oil and gas activities. Under Section 384 of EPA, MMS shall disburse \$250 million for each FY from 2007 through 2010 to eligible producing States and coastal political subdivisions (CPS's). The funds allocated to each State are based on the proportion of qualified OCS revenues (QOCSR) offshore the individual State to the total QOCSR from all States; the FY 2007 and FY 2008 allocations are based on FY 2006 QOCSR, while the FY 2009 and FY 2010 allocations are based on FY 2008 QOCSR. The EPA requires a minimum allocation of 1 percent to each State and provides that 35 percent of each State's allocation shall be shared by its CPS's. The total allocation to Louisiana and Texas for the period of 2007-2009 is \$248,459,486 and \$84,236,539, respectively. Although CIAP is a funding source administered by MMS, it is the responsibility of local and State agencies to submit projects for funding consideration. This money will be shared among Alabama, Alaska, California, Louisiana, Mississippi, and Texas and shall be used for one or more of the following purposes:

- projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands;
- mitigation of damage to fish, wildlife, or natural resources;
- planning assistance and the administrative costs of complying with this section;
- implementation of a federally-approved marine, coastal, or comprehensive conservation management plan; and
- mitigation of the impact of OCS activities through funding of onshore infrastructure projects and public service needs.

Beginning in 2017, the Gulf of Mexico Energy Security Act of 2006 (GOMESA) provides for the sharing of qualified OCS revenues from all Gulf leases issued after December 20, 2006. In accordance with GOMESA, Texas, Louisiana, Mississippi, and Alabama will receive additional OCS revenues from leases issued as a result of WPA Lease Sale 215 beginning in 2017. The Act states these funds are also to be used for the purposes listed above.

Unless Congress specifically earmarks funds for compensatory mitigation (e.g., GOMESA [revenue sharing], the Energy Policy Act of 2005 [CIAP funding], the Land and Water Conservation Fund, and the National Historic Preservation Fund), revenue collected by MMS must go to the general fund.

The MMS participates in the Louisiana Sand Management Working Group (LA-SMWG), which is composed of representatives from Federal, State, and local governments, academia, and industry, and serves to assist all parties in planning and decisionmaking for the use of Federal sand for beach nourishment, coastal restoration, and wetlands protection projects along the Louisiana coast. Since the first meeting in 2003, the LA-SMWG has evolved to act as a general forum to discuss issues related to coastal restoration and OCS sand resources. Although LA-SMWG does not distribute compensatory mitigation for coastal impacts, it does serve as a means for parties that are planning projects under CIAP (e.g., to better understand the requirements for accessing OCS sand).

3.3.4. Notices to Lessees and Operators

The MMS issues Notices to Lessees and Operators (NTL's) to provide clarification, description, or interpretation of a regulation; to provide guidelines on the implementation of a special lease stipulation or regional requirement; or to convey administrative information. A detailed listing of current GOM OCS Region NTL's is available through the MMS, Gulf of Mexico OCS Region's Internet website at http://www.gomr.mms.gov/homepg/regulate/regs/ntls/ntl_lst.html or through the Region's Public Information Office at (504) 736-2519 or 1-800-200-GULF. The MMS issued several NTL's related to the 2007 hurricane season, which are discussed in **Chapter 4.1.3**. Several NTL's provide guidance on monitoring requirements and are described in the following section.

3.3.5. Monitoring

The MMS requires post-activity submittals for several activities, including seismic surveys and installation and decommissioning operations. Post-activity submittals allow MMS to monitor compliance with mitigations and to determine the effectiveness of those mitigations. The MMS is continually revising applicable mitigations to allow the GOM Region to more easily and routinely track mitigation compliance and effectiveness. A primary focus of this effort is requiring post-approval submittal of information within a specified timeframe after a triggering event that is currently tracked by MMS (e.g., end of operations reports for plans, construction reports for pipelines, and removal reports for structure removals).

In addition to compliance monitoring, MMS's Environmental Studies and Research Monitoring involves a repeated sampling of the environment over time to establish baseline conditions, determine natural variability, and assess changes and trends due to human activities. The MMS conducts this type of monitoring through its Environmental Studies Program to determine the extent to which activities caused by or permitted by MMS, such as development of offshore oil and gas, sand and gravel, and methane hydrate resources, affect the human, marine, and coastal environments. As a part of the Environmental Studies Program, the GOM Region has funded more than 350 completed or ongoing environmental studies.

The following describes some of these monitoring activities.

Protected Species NTL's

The Protected Species Stipulation is embodied in NTL's 2007-G02, 2007-G03, and 2007-G04, which instruct lessees and operators on how to implement these mitigations.

Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program (NTL 2007-G02)

NTL 2007-G02, "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program," details information on ramp-up procedures, observation methods, and reporting requirements to be followed by the seismic industry during certain geological and geophysical survey operations. The conditions prescribed under the NTL aid in reducing the chance of harassment to nearby marine mammals and sea turtles. The report data received from the companies is being used by MMS to monitor the effectiveness of current mitigations.

Marine Trash and Debris Awareness and Elimination (NTL 2007-G03)

NTL 2007-G03, "Marine Trash and Debris Awareness and Elimination," provides guidance to prevent intentional and/or accidental introduction of debris into the marine environment. Operators are prohibited from deliberately discharging containers and other similar materials (i.e., trash and debris) into the marine environment (30 CFR 250.300(a) and (b)(6)) and are required to make durable identification markings on equipment, tools, containers (especially drums), and other material (30 CFR 250.300(c)). An annual report that describes the marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year is to be provided to MMS by January 31 of each year.

Vessel Strike Avoidance and Injured/Dead Protected Species Reporting (NTL 2007-G04)

NTL 2007-G04, "Vessel Strike Avoidance and Injured/Dead Protected Species Reporting," explains how operators must implement measures to minimize the risk of vessel strikes to protected species and report observations of injured or dead protected species. Vessel operators and crews must maintain a vigilant watch for marine protected species and slow down or stop their vessel to avoid striking protected species. Crews must report sightings of any injured or dead protected species (marine mammals and sea turtles) immediately, regardless of whether the injury or death is caused by their vessel, to the Marine Mammal and Sea Turtle Stranding Hotline or the Marine Mammal Stranding Network. In addition, if it

was their own vessel that collided with a protected species, MMS must be notified within 24 hours of the strike.

Accurate and complete reporting of the results of the mitigations is important. Only through diligent and careful reporting can MMS, and subsequently NMFS, determine the need for and effectiveness of mitigations. Information on observer effort and seismic operations are as important as animal sighting and behavior data.

Biologically Sensitive Areas of the Gulf of Mexico (NTL 2004-G05)

The Topographic Features Stipulation is embodied in the comprehensive NTL 2004-G05, “Biologically Sensitive Areas of the Gulf of Mexico.” In addition to existing stipulated areas for biological features, this NTL establishes a new category of protected area termed “Potentially Sensitive Biological Features.” These are hard-bottom features not protected by a biological lease stipulation that are of moderate to high relief (about 8 ft (2.4 m) or higher), provide surface area for the growth of sessile invertebrates, and have the potential to attract large numbers of fish. These features would be located outside any “No Activity Zone” of any of the named topographic features (banks) stipulated blocks. Following the completion of any activity that proposed disturbance of the seafloor within a specified distance of topographic features or potentially sensitive biological features, operators must submit a map showing the location of the seafloor disturbance relative to these features.

Site Clearance (NTL 98-26)

NTL 98-26, “Minimum Interim Requirements for Site Clearance (and Verification) of Abandoned Oil and Gas Structures in the GOM,” provides the guidelines for removing bottom debris and gear after structure decommissioning and removal operations. These mitigations ensure that site-clearance procedures eliminate potential snags to commercial fishing nets and require surveys to detect and avoid archaeological sites and biologically-sensitive areas such as topographic features and chemosynthetic communities.

Once all bottom-founded components are severed and the structures/wells are removed, operators must verify that the seafloor is clear of obstructions and the site has been returned to prelease conditions. Platforms are cleared within a 1,320-ft-radius circle (400-m) centered on the platform geometric center. Single well caisson and well protectors are cleared within an area of a 600-ft-radius circle (183-m) centered on the well. Site-clearance verification must take place within 60 days after structure-removal operations have been conducted. Procedures include sonar surveys and/or trawling the cleared site by a licensed “shrimp” trawler to ensure that no “hangs” exist.

Remotely Operated Vehicle Surveys (NTL 2008-G06)

On May 26, 2008, MMS issued NTL 2008-G06, “Remotely Operated Vehicle (ROV) Surveys in Deepwater.” The NTL provides guidance for ROV surveys and reports in water depths greater than 400 m (1,312 ft). Twenty-one grid areas were developed, primarily on the basis of benthic communities, to ensure a broad and systematic analysis of deep water and to depict areas of biological similarity. These grid areas cover the CPA and WPA lease sale areas.

Operators must submit an ROV survey plan with each exploration plan submitted in each grid area and with the Development Operations Coordination Document for the first surface structure proposed in each grid area. The ROV surveys will serve several purposes. In addition to monitoring the effects of the particular plans for which they are required, the surveys will improve our overall knowledge of benthic habitats in deep water and provide more information on the seafloor in deep water. The surveys will also provide information on the distribution and accumulation of mud and cuttings and thereby possibly help us to develop and refine mitigations.

Seafloor Monitoring

The Seafloor Monitoring Program in the GOM Region began in 1997 as a way to assess industry compliance with mitigations applied to offshore activities, which typically consist of avoidance criteria of seafloor features. The Seafloor Monitoring Program Team is comprised of a pool of scientific divers from MMS that, since its inception, has ranged in number from five to eight members. At present, the

team consists of three biologists, three archaeologists, and one geologist. In addition to monitoring industry compliance with environmental mitigations, the Seafloor Monitoring Team also supports the MMS Environmental Studies Program by conducting contract inspections and oversight of fieldwork.

Since 1997, the Seafloor Monitoring Team has completed 71 field investigations to verify archaeological and biological mitigations, to inspect industry activity on pipeline and well-site construction, and to support the MMS Environmental Studies Program.

Long-Term Monitoring at the Flower Garden Banks National Marine Sanctuary

Following the designation of the Flower Garden Banks as a National Marine Sanctuary in 1992, MMS, in a partnership with NMFS and through consultation with academia and industry, implemented a program to monitor changes in coral populations and growth, as well as explore other important factors associated with these reefs. These monitoring studies have demonstrated that the shunting requirements of the Topographic Features Stipulation are effective in preventing the muds and cuttings from impacting the biota of the banks. Through establishment of the Flower Garden Banks National Marine Sanctuary, MMS made substantial progress in implementing many of the recommendations of previous monitoring reports.

During the 1998-2001 period, analysis of monitoring data indicated that the Flower Garden Banks were healthy and productive (Dokken et al., 2003). This monitoring effort was designed to assess the health of the coral reefs, evaluate changes in coral population levels, measure coral and algae cover and growth rates, and investigate other community characteristics. The goal of the program is to address concerns related to both gradual and punctuated degradation of these unique offshore ecosystems. Such data are useful in assessing the impacts of industrial activities, as well as their value to resource management. No significant impact from oil/gas production activity has been documented after Sanctuary designation.

Long-term monitoring has continued on a yearly basis at both banks through an equal partnership with MMS and NMFS. This monitoring not only expands MMS's knowledge and understanding of the Flower Garden Banks ecosystem, but it also improves the foundation from which management decisions are made.

In addition, another MMS study, *Post-Hurricane Assessment of Sensitive Habitats of the Flower Garden Banks Vicinity* (Robbart et al., 2009), investigated hurricane effects at the East Flower Garden, Sonnier, McGrail, Geyer, and Bright Banks.

Inspection Program

The Outer Continental Shelf Lands Act authorizes and requires MMS to provide for both an annual scheduled inspection and a periodic unscheduled (unannounced) inspection of all oil and gas operations on the OCS. The GOM Region has an extensive, detailed inspection program to ensure safe and environmentally sound offshore oil and gas operations. This program places MMS inspectors offshore on drilling rigs and production platforms on a daily basis on weekdays, weather permitting, as well as on weekends on an as-needed basis, to assure compliance with all regulatory constraints that allowed commencement of the operation.

4. RESOURCES AND IMPACT ANALYSIS

4.1. UPDATE OF PROJECTIONS OF POTENTIAL ACTIVITY FROM THE PROPOSED ACTION

In order to describe the level of activity that could reasonably result from a proposed lease sale, MMS develops exploration and development scenarios of onshore and offshore activity. These scenarios provide a framework for detailed analyses of potential environmental and socioeconomic impacts of a proposed lease sale. Any potential effects on Texas and Louisiana’s coastal zone would be the result of exploration, production, and transportation activities that may be undertaken as a result of the exploration and development of leases obtained in the lease sale. Assumptions are made about the kinds and levels of such activities. These assumptions are analyzed in the Multisale EIS, Supplemental EIS, and in this EA for Lease Sale 215, and they are incorporated by reference. Projections of the number, probability, and size of accidental spills can be found in Chapter 4.3.1.5.1 of the Multisale EIS and Chapter 3.2.1 of the Supplemental EIS.

4.1.1. Offshore Impact-Producing Factors and Scenario

The Multisale EIS and the Supplemental EIS discuss projections for activities associated with a typical proposed WPA lease sale. The estimated amounts of resources projected to be leased, discovered, developed, and produced as a result of proposed WPA Lease Sale 215 are 0.242-0.432 BBO and 1.644-2.647 Tcf of gas. **Table 1** provides a summary of the major scenario elements of proposed Lease Sale 215 based upon offshore, subarea water depths (**Figure 3**) and includes related impact-producing factors. Chapter 4.1.1 of the Multisale EIS and Chapter 3.1 of the Supplemental EIS describe the offshore infrastructure and activities (impact-producing factors) associated with the proposed lease sales and with the OCS Program that could potentially affect the biological, physical, and socioeconomic resources of the GOM.

Table 1

Offshore Scenario Information Related to Proposed Lease Sale 215 over 40 Years

Activity	Offshore Subareas*							Total WPA**
	0-60	60-200	200-400	400-800	800-1600	1600-2400	>2400	
Wells Drilled								
Exploration and Delineation Wells	23-36	5-7	1	3-4	5-10	2-3	3-5	42-66
Development Wells	64-89	13-15	6-7	9-13	48-75	9-15	6-8	155-221
Oil Wells	3-5	2-2	1-2	6-8	29-45	6-9	3-5	51-76
Gas Wells	61-84	10-13	5-5	3-5	20-30	3-6	2-3	105-146
Workovers and Other Well Activities	392-539	77-91	35-42	56-77	294-455	56-91	35-49	945-1,344
Production Structures								
Installed	21-31	2	1	1	1-3	1-2	1	28-41
Removed Using Explosives	9-15	1	0	0	0	0	0	11-17
Total Removed	13-22	2	1	1	1-3	1	1	20-31
Method of Oil Transportation***								
Percent Piped	99%	100%	100%	100%	0% -50%	0% -100%	0 -100%	41% -> 99%
Percent Barged	1%	0%	0%	0%	0%	0%	0%	< 1%
Percent Tankered	0%	0%	0%	0%	0% -50%	0% -100%	0% -100%	0% -59%
Length of Installed Pipelines (km)#	60-420	NA	NA	NA	NA	NA	NA	130-760
Blowouts	1	0	0	0	0-1	0	0	1-2
Service-Vessel Trips (1,000 round trips)	23-33	3	1	16-17	18-51	16-33	16-17	94-155
Helicopter Operations (1,000 operations)	300-680	30-44	14-22	14-22	14-66	14-44	14-22	400-900

*See Figure 3.

**Subareas divided by water depth range in meters. Activity totals may not add up to the planning area total because of rounding.

***100% of gas is assumed to be piped.

#—Projected length of OCS pipelines does not include length in State waters.

NA means that information is not available.

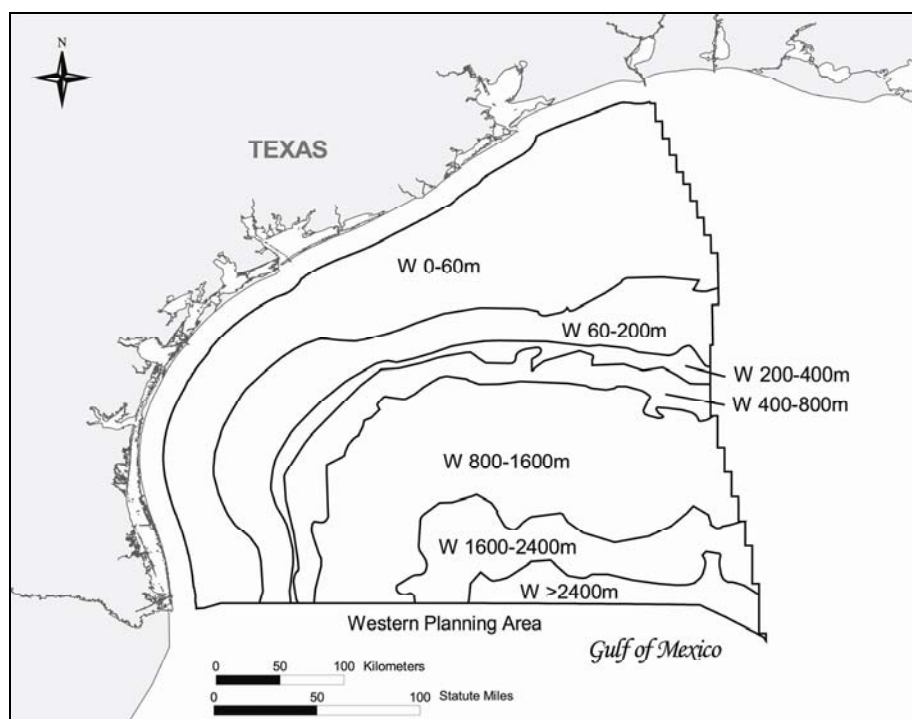


Figure 3. Subareas of the Western Planning Area Zoned by Depth.

The analyses of environmental and socioeconomic impacts in past EIS's and EA's were based on exploration and development activity scenarios that, in most cases, were overestimated. If the level of activity was overestimated, the environmental and socioeconomic impacts of a lease sale may have been overstated. Based on a recent analysis prepared by MMS, slightly over half of the time the actual activity fell below the lowest level of forecasted activity (USDOJ, MMS, 2007d). When within the forecasted range, the majority of time the actual activity was at or near the low end of the forecasted range. In addition, a single lease sale accounts for only a small percentage of the total OCS activities.

The examination of previously forecasted activity did not include the proposed lease sales addressed in the Multisale EIS and the Supplemental EIS. In late 2002, MMS contracted with Innovation & Information Consultants, Inc. to develop a model that would estimate oil and gas exploration and discovery, development, and production activity in the Gulf of Mexico. The Exploration, Development, and Production (EDP) model was delivered to MMS in 2004. The activity scenario presented in the Multisale EIS and the Supplemental EIS was the first developed with the EDP model. The proposed sales and their resulting activity had not yet taken place and, therefore, could not be included in the analysis.

Documentation of the EDP model and its subcomponents can be found in Ashton et al. (2004). As stated in the model's documentation, the EDP model "incorporates actual historical data, and allows easy comparison between the actual historical data, and the future model years." As the model was developed, modifications were made so that the model more accurately portrayed historical precedent.

The EDP model relies on more factors than previous modeling methods (Upton and Ashton, 2005). Constraints include leasing policy, rig availability, and resource assessment. Inputs include prices, costs, field characteristics, reserve growth, and policy variables. The production function is based on historical production data by field size and location. Another improvement over previously used modeling methods is that the EDP model defines undiscovered resources by field instead of a Gulfwide undiscovered resource volume.

An MMS-funded study to estimate physical and economic performance measures to characterize lease sales and development in the Gulf of Mexico can be used to further refine the scenario presented in the Multisale EIS and the Supplemental EIS (Iledare and Kaiser, 2007). The average lag of exploration and production from leases issued from 1983 to 1999 increased by water depth and decreased over time as shown in the **Tables 2 and 3**. Due to variation by water depth, exploration and production activity is

staggered over time taking on average 1.9-4.5 years after a lease sale before exploration begins and 3.4-8.3 years before first production. Therefore if activity as the result of a lease sale is assumed to be staggered over time, then the impacts and any strain on coastal infrastructure would also be staggered over time.

Table 2

Aggregate Average Lag in Months from Sales to First Spud for Leases Issued from 1983 to 1999

Water Depth	1983-1987	1985-1989	1990-1994	1995-1999
<60 m	29.3	27.8	25.8	22.9
60-200 m	30.5	31.0	36.0	27.2
200-900 m	40.4	46.4	42.9	30.0
>900 m	84.9	93.3	84.2	53.6

Source: Iledare and Kaiser, 2007.

Table 3

Aggregate Average Lag in Months from Sales to First Production for Leases Issued from 1983 to 1999

Water Depth	1983-87	1985-1989	1990-1994	1995-1999
<60 m	59.0	53.2	49.5	41.1
60-200 m	74.7	65.7	60.3	47.5
200-900 m	128.1	123.0	70.2	54.1
>900 m	180.6	176.9	105.9	99.6

Source: Iledare and Kaiser, 2007.

No new information has been found that necessitates a change to the offshore scenario presented in the Multisale EIS and the Supplemental EIS; therefore, the scenario still applies for proposed Lease Sale 215.

4.1.2. Coastal Impact-Producing Factors and Scenario

Chapter 4.1.2 of the Multisale EIS and Chapter 3 of the Supplemental EIS describe the onshore infrastructure and activities (impact-producing factors) associated with the proposed lease sales and with the OCS Program that could potentially affect the biological, physical, and socioeconomic resources of the GOM. Up to one new pipeline landfall and up to one new gas processing plant are projected as a result of an individual proposed lease sale. The MMS projected no other new coastal infrastructure as a result of a proposed lease sale.

The analyses of coastal infrastructure presented in the Multisale EIS and the Supplemental EIS and other previous EIS's and EA's concluded that no new solid-waste facilities would be built as a result of a single lease sale or as a result of the OCS Program. Recent research further supports these past conclusions that existing solid-waste disposal infrastructure is adequate to support both existing and projected offshore oil and gas drilling and production needs (Dismukes et al., 2007).

The MMS projected the number of Federal OCS landfalls that may result from proposed lease sales in order to analyze the potential impacts on wetlands and other coastal habitats. In the Multisale EIS and the Supplemental EIS and in other previous EIS's and EA's, MMS assumed that the majority of new Federal OCS pipelines would connect to the existing infrastructure in Federal and State waters and that very few would result in new pipeline landfalls. Therefore, MMS projected up to one pipeline landfall per lease sale; however, recent MMS analysis showed that even one landfall as a result of an individual lease sale may be unlikely (USDOJ, MMS, 2007e). Although there will be some instances where new pipelines may need to be constructed, there is nothing to suggest any dramatic shifts in the trends in new Federal OCS landfalls given the current outlook for Gulf of Mexico development, particularly in coastal Louisiana (Dismukes, personal communication, 2009). While there are some opportunities for new pipeline landfalls from increased production activity, many of those will be limited due to a number of factors associated with basic pipeline economics.

Since the publication of the Supplemental EIS in September 2008, one operational petroleum spill of $\geq 1,000$ barrels (bbl) occurred in the OCS. This spill is still under investigation by the U.S. Department of Transportation, but it is estimated to be approximately 1,500 bbl (USDOJ, MMS, 2009a). The spill occurred on July 25, 2009, in Ship Shoal Block 142 in the Eugene Island Pipeline System, and it has been added to MMS's historical database. An historical rate of spills is derived from the database; this rate is then used to estimate spills from future actions proposed by MMS (Anderson and LaBelle, 2000). The spill has not resulted in an increase in the projected spill rates based on the historical data. The spill did not make landfall; therefore, coastal resources were not impacted.

Much of the coastal infrastructure presented in the Multisale EIS and the Supplemental EIS was from the *OCS-Related Infrastructure in the Gulf of Mexico Fact Book* (The Louis Berger Group, Inc., 2004). An update of the fact book is currently in progress. The MMS has reviewed the draft version of the report and the new information collected for each infrastructure type. No new information has been found that necessitates a change to the onshore scenario presented in the Multisale EIS and the Supplemental EIS; therefore, the incremental effect of the proposed action remains unchanged and the scenario still applies for proposed Lease Sale 215.

4.1.3. Hurricanes

Spills Resulting from Hurricanes

The MMS has recently released an update on oil spillage resulting from damages caused by major hurricanes in the Gulf of Mexico from 2002 through 2008, i.e., Hurricanes Lili, Ivan, Katrina, Rita, Gustav, and Ike (USDOJ, MMS, 2009a). The following is a summary of the revisions.

As of September 2009, MMS has identified 231 spills of petroleum products of ≥ 1 bbl, totaling 25,600 bbl that were identified as having occurred during or soon after the storms and were lost from platforms, rigs, and pipelines on the Federal OCS (USDOJ, MMS, 2009b). There were no major spills caused by any of the 2002-2008 hurricanes. The U.S. Coast Guard (USCG) defines a major offshore spill as a spill of $\geq 2,381$ bbl (100,000 gallons) based on the volume of oil spilled, not impacts. A medium spill is defined by the USCG as 238-2,380 bbl, and a minor spill is defined as < 238 bbl. Of the 231 spills, 206 were minor and 25 were medium. Only five of the medium spills were $\geq 1,000$ bbl.

There were no accounts of environmental consequences resulting from spills from OCS facilities during the major hurricanes that occurred from 2002 through 2008:

- no spill contacts to the shoreline;
- no oiling of marine mammals, birds, or other wildlife;
- no large volumes of oil on the ocean surface to be collected or cleaned up; and
- no identified environmental impacts from any OCS spills from Hurricanes Lili (2002), Ivan (2004), Katrina (2005), Rita (2005), Gustav (2008), or Ike (2008).

Damage to Offshore Infrastructure Resulting from Hurricanes

During the past few years, the Gulf Coast States and GOM oil and gas activities have been impacted by several major hurricanes. Chapter 3.3.5.7.3 of the Multisale EIS and Chapter 3.1.1.3 of the Supplemental EIS summarized the latest reports by MMS on the damage to the OCS-related platforms, rigs, and pipelines caused by Hurricane Ivan, Katrina, and Rita. In 2006, however, the only hurricane to make landfall in the northern Gulf was Hurricane Humberto on September 13, 2006, near Houston, Texas. The 2007 hurricane season had no storm landfalls in the northern Gulf. In 2008, Hurricanes Ike and Gustav impacted Texas and Louisiana and destroyed 60 platforms in the Gulf of Mexico (USDOJ, MMS, 2008b).

In preparation for the 2007 hurricane season, MMS announced operational and administrative improvements that had been implemented to prepare oil and gas infrastructure in the GOM for the possibility of hurricanes during the 2007 season (USDOJ, MMS, 2007f). Both MMS and industry had to reassess what possible weather conditions could occur with a major hurricane moving through the GOM. The reassessment was done through American Petroleum Institute (API) committees in which MMS was

an active participant. The committees revised and updated the best practices and standards using the new information that had been collected following the 2005 hurricanes.

The MMS issued several NTL's in preparation of upcoming hurricane seasons. These NTL's are summarized as follows:

Hurricane and Tropical Storm Effects Reports (NTL 2007-G16)

The MMS issued NTL 2007-G16, "Hurricane and Tropical Storm Effects Reports," on May 14, 2007. The NTL provides clarification on using MMS's e-Well Permitting and Reporting System to report hurricane and tropical storm effects by specifying the information included in the various hurricane and tropical storm reports, updating contact information, and updating a regulatory citation. Under 30 CFR 250.192, operators must submit statistics to MMS regarding the evacuation of personnel and the curtailment of production because of hurricanes and tropical storms. The MMS has established the Facility Shut-in Report, three facility damage reports, and the Pollution Report to supplement and provide more detail about the required evacuation and production shut-in statistics. The MMS uses these data and information to work interactively with the USCG on rescue needs and to notify the news media and interested public entities that monitor shut-in production and hurricane and tropical storm damage. The MMS uses the data from the pollution report to identify environmental and manmade assets at risk, provide background data for natural resource damage assessments, assist the USCG in prioritization and coordination of oil-spill-response operations, and for status reports to public and private entities.

Pipeline Risers Subject to the Platform Verification Program (NTL 2007-G14)

The MMS issued NTL 2007-G14, "Pipeline Risers Subject to the Platform Verification Program," on May 7, 2007. The MMS has determined that new pipeline risers are subject to a separate verification process that necessitates the use of an independent Certified Verification Agent specifically for the pipeline riser. These pipeline risers are a critical component of any floating platform proposal and must meet stringent requirements for design, fabrication, and installation. Accordingly, MMS has developed the guidelines for the pipeline riser verification process as part of the platform verification program. The Certified Verification Agent's responsibilities include performance of an independent stress analysis, including extreme storm response for critical design conditions.

Contact with District Offices and the Pipeline Section Outside Regular Work Hours (NTL 2007-G12)

The MMS issued NTL 2007-G12, "Contact with District Offices and the Pipeline Section Outside Regular Work Hours," on April 4, 2007. The purpose of the NTL is to describe procedures that operators can use when contacting an MMS, GOM Region, District Office or the MMS, GOM Region, Pipeline Section outside of regular office hours. As required by 30 CFR 254.46(a), the National Response Center at (800) 424-8802 must immediately be notified if an offshore oil spill is observed.

Design of New OCS Platforms and Related Structures for Hurricane Conditions (NTL 2007-G26)

Hurricanes Ivan, Katrina, and Rita during the 2004 and 2005 hurricane seasons were detrimental to oil and gas operations on the OCS. The effects included significant structural damage to fixed and floating production platforms (123 fixed platforms and 1 floating platform were destroyed and dozens more suffered significant damage) and significant damage to semisubmersible and jack-up drilling rigs. Even though most of the approximately 3,000 OCS platforms that were exposed to hurricane force winds during these storms performed well, the MMS's GOM Region is concerned about the platforms that suffered significant structural damage, as well as the potential for future damage to key energy infrastructure on the OCS. Therefore, MMS issued NTL 2007-G26, "Design of New OCS Platforms and Related Structures for Hurricane Conditions," on October 1, 2007. The NTL provides guidance on designing new OCS platforms and related structures. In May 2007, API issued *Interim Guidance for Design of Offshore Structures for Hurricane Conditions* (API Bulletin 2INT-DG) to provide guidance on

how to use the updated metocean conditions in API Bulletin 2INT-MET for the design of new OCS platforms.

Assessment of Existing OCS Platforms and Related Structures for Hurricane Conditions (NTL 2007-G27)

Based on impacts to OCS platforms caused by Hurricanes Ivan, Katrina, and Rita as described above, MMS issued NTL 2007-G27, "Assessment of Existing OCS Platforms and Related Structures for Hurricane Conditions," effective October 1, 2007. The NTL provides guidance to ensure that certain existing OCS platforms and related structures are assessed to ensure their structural integrity by considering the specific environmental conditions at the platform location as required by 30 CFR 250.900(a). In May 2007, API issued *Interim Guidance for Assessment of Existing Offshore Structures for Hurricane Conditions* (API Bulletin 2INT-EX) to provide guidance on how to use the updated metocean conditions in API Bulletin 2INT-MET for the assessment of existing OCS platforms.

Guidelines for Moored Drilling Rig Fitness Requirements for Hurricane Season (NTL 2008-G09)

During Hurricanes Ivan, Katrina, and Rita, there were 19 moored rigs that experienced a total failure of station-keeping ability. In response, MMS issued NTL 2008-G09, "Guidelines for Moored Drilling Rig Fitness Requirements for Hurricane Season," on June 1, 2008. This NTL provides guidance on the information you must submit with Form MMS-123, Application for Permit to Drill (APD), to demonstrate the fitness of any moored drilling rig used to conduct operations in the Gulf of Mexico OCS during hurricane season. The MMS's GOM Region will use the recommendations in the API newly-developed Appendix K to the Third Edition of API Recommended Practice (RP) 2SK, *Gulf of Mexico Mooring Practice for Hurricane Season* (API RP 2SK, Appendix K) to guide the review and evaluation of the information and data that demonstrate the moored rig's capability to perform at the proposed location. The MMS regulations require stability, and in the NTL, the MMS's GOM Region recommends that operators follow the recommendations in API RP 2SK, Appendix K, as they prepare APD's to conduct drilling operations during hurricane season. Failure to follow the recommendations in API RP 2SK, Appendix K, may delay the approval of an APD or may result in disapproval. This guidance also applies to moored drilling rig operations conducted under Form MMS-124, Application for Permit to Modify (APM).

Guidelines for Tie-downs on OCS Production Platforms for Upcoming Hurricane Seasons (NTL 2009-G13)

During Hurricanes Ivan, Katrina, Rita, and Ike, there were seven platform rigs that experienced a total failure or were significantly damaged. Additionally, there were numerous reports of platform facilities, equipment, and drilling units that were tied-down but that had shifted.

In response, MMS issued NTL 2009-G13, "Guidelines for Tie-downs on OCS Production Platforms for Upcoming Hurricane Seasons," on May 20, 2009. The NTL provides guidance on the evaluation of tie-downs that operators will use on OCS production platforms to secure drilling and workover rigs and permanent equipment and facilities during hurricane season. As required by 30 CFR 250.900(a), operators must design, fabricate, install, use, maintain, inspect, and assess all platforms and related structures on the OCS to ensure their structural integrity for the safe conduct of drilling, workover, and production operations, considering the specific environmental conditions at the platform location. Accordingly, the MMS's GOM Region endorses the guidelines in API's *Bulletin 2TD, Guidelines for Tie-downs on Offshore Production Facilities for Hurricane Season, First Edition* (API Bulletin 2TD) to assist operators in the review and evaluation of the information and data that demonstrate the ability of the tie-downs to perform during a hurricane.

Guidelines for Jack-up Drilling Rig Fitness Requirements for Hurricane Season (NTL 2009-G10)

During Hurricanes Ivan, Katrina, Rita, and Ike, 12 jack-up rigs experienced a total failure of station-keeping ability. In response, MMS issued NTL 2009-G10, “Guidelines for Jack-up Drilling Rig Fitness Requirements for Hurricane Season,” on June 1, 2009. This NTL includes the provision for using a checklist to provide information regarding jack-up rig fitness, provides a guidance document statement, and updates contact information.

The purpose of this NTL is to provide guidance on the information operators must submit with Form MMS-123, Application for Permit to Drill (APD), to demonstrate the fitness of any jack-up drilling rig they will use to conduct operations in the Gulf of Mexico OCS during hurricane season. As required by 30 CFR 250.417(a), this information must demonstrate that the associated jack-up drilling rig is capable of performing at the proposed drilling location. The MMS’s GOM Region will use the recommendations in API’s *Recommended Practice 95J, Gulf of Mexico Jack-up Operations for Hurricane Season—Interim Recommendations, First Edition* (API RP 95J) to guide the review and evaluation of the information and data that demonstrate the jack-up rig’s capability to perform at the proposed location.

Global Positioning Systems for Mobile Offshore Drilling Units (NTL 2009-G16)

The effects of several hurricanes in the past few years have been detrimental to OCS oil and gas operations in the Gulf of Mexico. These effects included structural damage to fixed production platforms, platform rigs, semisubmersibles, jack-up rigs, and other equipment and facilities. Moreover, a major concern for MMS is the problem of a mobile offshore drilling unit (MODU) being moved off location by a storm event. When an MODU is displaced by a storm event, there are potentially serious consequences if it strikes or otherwise damages other facilities, pipelines, or vessels. In March 2009, an incident occurred that involved a large oil tanker striking a missing jack-up rig that had drifted off location and sunk during Hurricane Ike in 2008. A global positioning system (GPS) device provides a method to locate and track a displaced MODU during and after a storm event. This NTL only involves the aspect of using real-time GPS tracking while the MODU is still afloat.

The purpose of this NTL is to provide guidance and requirements for the following:

- outfitting all MODU’s that are moored, including jack-up rigs, with multiple GPS transponders that are installed and operational by July 1, 2009;
- providing the MMS’s Gulf of Mexico Region with access to real-time GPS location data; and
- contacting the MMS’s Gulf of Mexico Region’s Continuity of Operations Plan office when a MODU moves off location during a storm event.

4.2. ENVIRONMENTAL RESOURCES AND SOCIOECONOMIC CONDITIONS

A detailed impact analysis of the routine, accidental, and cumulative impacts of a typical WPA lease sale on the environmental and socioeconomic resources can be found in Chapters 4.2.1, 4.4, and 4.5 of the Multisale EIS, respectively and in Chapter 4.1 of the Supplemental EIS. The following chapters provide a summary of these potential impacts of proposed Lease Sale 215 on each environmental and socioeconomic resource and the conclusions of the analyses. The cumulative analysis considers environmental and socioeconomic impacts that may result from the incremental impact of proposed Lease Sale 215 when added to all past, present, and reasonably foreseeable future human activities, including non-OCS activities, as well as all OCS activities (OCS Program).

New information discovered since publication of the Multisale EIS and the Supplemental EIS is also presented below. This information was evaluated to determine if reanalysis of the impacts of proposed Lease Sale 215 was necessary. No new information was found that would necessitate a reanalysis of the impacts of proposed Lease Sale 215 upon environmental resources or socioeconomic conditions. The analyses and potential impacts detailed in the Multisale EIS and the Supplemental EIS apply for proposed Lease Sale 215. New information was found that further supports or elaborates on analyses or

information presented in the Multisale EIS and the Supplemental EIS, but it does not change the conclusions of any of the analyses in the Multisale EIS and the Supplemental EIS.

4.2.1. Air Quality

The description of air quality in the Gulf of Mexico can be found in Chapter 3.1.1 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on air quality can be found in Chapters 4.2.1.1.1, 4.4.1, and 4.5.1 of the Multisale EIS, respectively and in Chapter 4.1.1 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS and new information from updated sources. Figure 3-1 of the Multisale EIS presents the air quality status (i.e., ozone nonattainment) in the Gulf Coast as of September 2005. **Figure 4** shows the current status of these coastal counties as of July 31, 2009 (USEPA, 2009a). The nonattainment areas are the same areas discussed in the Multisale EIS and the Supplemental EIS, thereby showing that these areas have not changed over time.

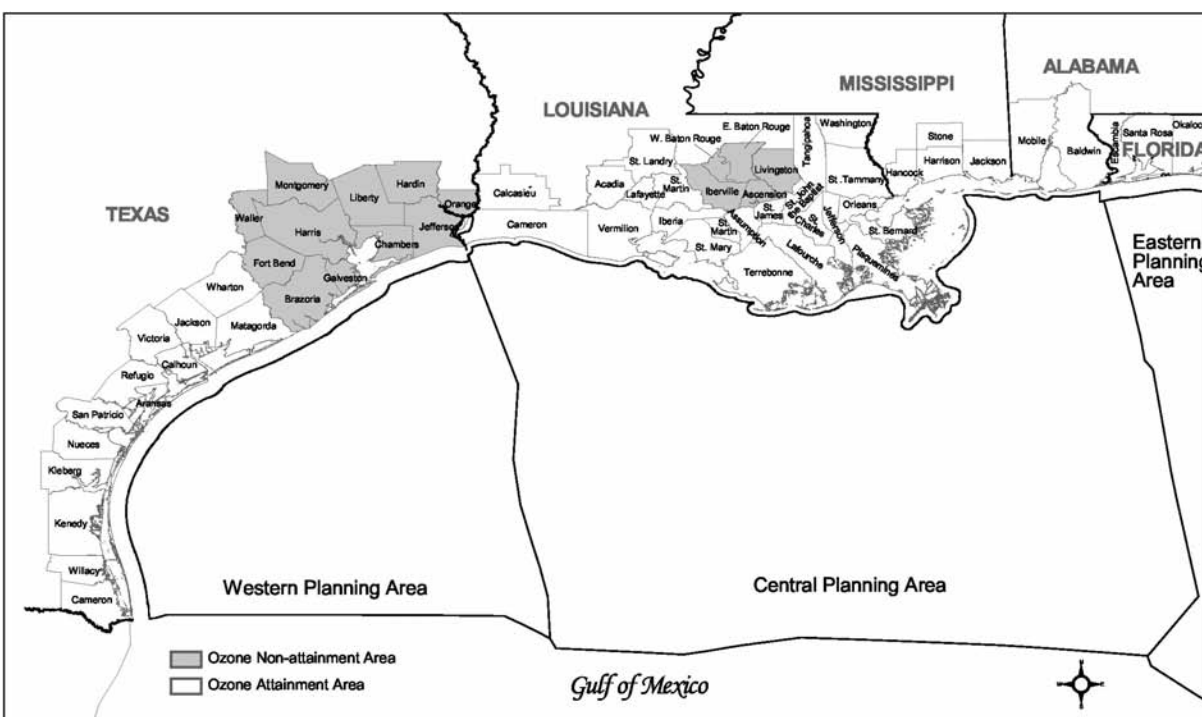


Figure 4. Status of Ozone Attainment in the Coastal Counties and Parishes of the Central and Western Gulf of Mexico (USEPA, 2009a).

The following routine activities associated with proposed Lease Sale 215 would potentially affect air quality: platform construction and emplacement; platform operations; drilling activities; flaring; venting; seismic-survey and support-vessel operations; pipeline laying and burial operations; storage and transfer of fuels and oil/gas processing; and accidental releases from the surface. Supporting materials and discussions are presented in the Multisale EIS in Chapters 3.1.1 (description of the coastal air quality status of the Gulf coastal area), 4.1.1.6 (air emissions), and 4.1.1.9 (hydrogen sulfide). The parameters of this analysis are emission rates, surface winds, atmospheric stability, and the mixing height.

Emissions of pollutants into the atmosphere from the routine activities associated with proposed Lease Sale 215 are projected to have minimal impacts on onshore air quality because of the prevailing atmospheric conditions, emission heights, emission rates, and the distance of these emissions from the coastline. Impacts from proposed Lease Sale 215 activities are expected to be well within the National Ambient Air Quality Standards (NAAQS).

Portions of the Gulf Coast have ozone levels that exceed the Federal air quality standard, but the cumulative contribution from proposed Lease Sale 215 is very small. New information published since the Multisale EIS and the Supplemental EIS was obtained from USEPA's Airtrends website. This information states that ozone levels in southeast Texas are on a declining trend because of air-pollution control measures that have been implemented by Texas (USEPA, 2009b). This downward trend is expected to continue as a result of local as well as nationwide air-pollution control efforts. Proposed Lease Sale 215 would have only a small effect on ozone levels in ozone nonattainment areas and would not interfere with the States' schedule for compliance with the NAAQS.

Accidents involving high concentrations of H₂S could result in deaths as well as environmental damage. Other emissions of pollutants into the atmosphere from accidental events as a result of proposed Lease Sale 215 are not projected to have significant impacts on onshore air quality because of the prevailing atmospheric conditions, emissions height, emission rates, and the distance of these emissions from the coastline. Emissions of pollutants into the atmosphere from the activities associated with the cumulative scenario are not projected to have significant effects on onshore air quality because of the prevailing atmospheric conditions, emission rates and heights, and the resulting pollutant concentrations.

The Offshore and Coastal Dispersion modeling results show that increases in onshore annual average concentrations of NO_x, SO₂, and PM₁₀ are estimated to be less than the maximum increases allowed in the Prevention of Significant Deterioration (PSD) Class II areas. The modeling results indicate that all concentrations are below the maximum allowable PSD increments. The incremental contribution of emissions resulting from proposed Lease Sale 215 (as analyzed in Chapter 4.2.1.1 in the Multisale EIS) to the cumulative impacts is not significant and is not expected to alter onshore air quality classifications.

The Gulf Coast has significant visibility impairment from anthropogenic emission sources. Area visibility would be expected to improve somewhat as a result of regional and national programs to reduce emissions. The cumulative contribution to visibility impairment from proposed Lease Sale 215 is also expected to be very small.

Ozone concentrations in the Baton Rouge, Beaumont-Port Arthur, and Houston-Galveston areas exceed Federal standards. However, the contribution from OCS activities to these ozone levels is very small (see also the Final EIS for the 5-Year Program; USDOJ, MMS, 2007c). Ozone levels are expected to decline due to local as well as nationwide emission control measures. Emissions from the proposed Lease Sale 215 activities would contribute very little to the cumulative impact from all pollution sources.

The MMS is responsible for assessing the potential impacts of air pollutant emissions from offshore oil and gas exploration, development, and production sources in the OCS. This responsibility is driven by the OCS Lands Act, which directs the MMS to regulate OCS emission sources to assure that they do not significantly affect onshore air quality. The MMS air quality regulations are contained in 30 CFR 250.302 through 304. In particular, MMS is responsible for determining if air pollutant emissions from oil and natural gas platforms and other sources in the Gulf of Mexico influence the ozone attainment (and nonattainment) status of onshore areas. This responsibility was mandated by the Clean Air Act Amendments of 1990 (CAAA).

In addition, the CAAA requires MMS to coordinate air pollution control activities with USEPA. Thus, there will be a continuing need for emission inventories in the Gulf of Mexico and modeling in the future, especially with the implementation of the 8-hour ozone standard. Under provisions of the CAAA, the USEPA Administrator, in consultation with the Secretary of the Interior and the Commandant of the USCG, will establish the requirements to control air pollution in OCS areas of the Pacific, Atlantic, Arctic, and eastward of 87° 30' W. longitude in the Gulf of Mexico (40 CFR 55).

As stated in the Multisale EIS and the Supplemental EIS, MMS conducted the Gulf of Mexico Air Quality Study (Systems Applications International et al., 1995) to assess the emissions of offshore oil and gas platforms and their associated emissions. To develop a base year 2000 inventory of criteria pollutant and greenhouse gas emissions for all OCS oil and gas production-related sources in the Gulf of Mexico, MMS collected activity data from platform operators during the year 2000 (Wilson et al., 2004). The 2000 emission inventory has been updated by a 2005 emission inventory, which is now available (Wilson et al., 2007). A 2008 emission inventory is ongoing and will be available August 2010, along with procurement for a 2011 emission inventory.

Additionally, a 5-year meteorological database has been completed. This database will be used by industry and MMS in point-source modeling in plans analysis to ensure there are no significant impacts on onshore areas (Douglas and Hudischewskyj, 2008).

The MMS is conducting an ongoing synthesis study that will consolidate all MMS air quality studies, meteorological studies, and emissions studies into one database, which is more suitable for analysis (Davis-Noland, in press (a) and (b); Douglas et al., in press (a) and (b)). Also, general analysis is being done on 8-hour ozone nonattainment coastal areas and the Breton Class I area to ensure there are no significant impacts to onshore areas (Douglas et al., in press (a) and (b)). The USEPA issued a new ozone 8-hour standard of 75 parts per billion, which became effective on March 12, 2008 (USEPA, 2009c).

The MMS is coordinating with the University of Alabama, Huntsville (UAH) on the MMS's Satellite Data Assimilation project to test a newly developed, physically consistent, method for assimilating satellite temperatures into the Mesoscale Model 5 (MM5) meteorological model preprocessors. Since the MM5 meteorological model is too complex and time consuming to test software algorithms, a one-dimensional model has been developed to quickly test the new formulation and isolate the results. The UAH continues to coordinate with USEPA on the new algorithm development and model enhancements as the transition proceeds from MM5 to the Weather Research and Forecast model. The UAH is collaborating with NOAA/USEPA's Atmospheric Modeling Division to make this project's satellite data and assimilation techniques available to the air quality modeling community. If the satellite assimilation technique is implemented in Weather Research and Forecast model, it would likely result in meteorological improvements, which would translate into air quality model improvements, resulting in better air quality model assessments of OCS impacts to adjacent onshore areas. The MMS's support of UAH research has resulted in one published technical article, one Ph.D. dissertation, and a final report (Biazar et al., in preparation). The MMS has also funded the operating cost for two radar wind profilers, situated in data sparse coastal areas, to provide additional meteorological data for use in meteorological/air quality models to improve the accuracy of regional air quality modeling impacts assessments. Texas and Louisiana are in attainment of the criteria pollutant PM_{2.5} (USEPA, 2009d).

Conclusion

The MMS has reexamined the analysis for air quality presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. This reexamination included the updated nonattainment coastal ozone maps, updated emissions inventory information, updated USEPA AirTrends website, and updated Satellite Data Assimilation study. No new information was discovered that would alter the impact conclusion for air quality presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on air quality is not required. The new and updated information only confirms prior resource status and impacts. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.2. Water Quality

A description of water quality in coastal and marine waters can be found in Chapter 3.1.2 of the Multisale EIS. An analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on water quality can be found in Chapters 4.2.1.2, 4.4.2, and 4.5.2 of the Multisale EIS, respectively, and in Chapter 4.1.2 of the Supplemental EIS. The following includes a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS. Additionally, the most recent information available was sought during the preparation of this EA for Lease Sale 215. A broad Internet search for relevant new information, as well as a search for scientific journal articles, was conducted using a publicly available search engine. The websites for Federal and State agencies, the Gulf of Mexico Alliance, and other organizations were also reviewed for newly released information. The Gulf of Mexico Alliance, a partnership between the Gulf States, was organized in 2005 as a collaborative means to solve regional problems to implement the U.S. Ocean Action Plan. Although new research and ongoing monitoring information is continuously available from many sources about various water quality parameters in the Gulf of Mexico, only new information (i.e., information not already summarized by the Multisale EIS and the Supplemental EIS) was included. Updated Federal reports and regulations were included if available. Any new or updated information, along with the summary information from the Multisale EIS and the Supplemental EIS, is discussed so that this new information is put into context. In most cases, the latest water quality findings are evident from the date of their respective citations.

The primary impacting sources to water quality in coastal waters from routine operations are point-source and storm-water discharges from land-based support facilities, maintenance dredging of navigation canals, pipeline installations, and vessel discharges while in coastal waters. On December 18, 2008, USEPA signed the final Vessel General Permit, and it became effective on December 19, 2008. This permit is in addition to already existing National Pollutant and Discharge Elimination System (NPDES) permit requirements and now increases the NPDES regulations so that discharges incidental to the normal operation of vessels operating as a means of transportation are no longer excluded unless exempted from NPDES permitting by Congressional legislation (USEPA, 2008a). The impacts on coastal water quality from proposed Lease Sale 215 should be minimal as long as all existing regulatory requirements are followed.

The primary impacting sources to marine water quality during exploration activities are discharges of drilling fluids and cuttings. During installation activities, the primary impacting sources to water quality are sediment disturbance and turbidity. Impacting discharges during production activities include produced water and supply-vessel discharges. Regulations are in place to limit the levels of contaminants in these discharges. During platform removal, sediment disturbance, gaseous by-products of explosives, or abrasive grit from cutting are the impacting discharges. Impacts on marine waters from routine activities associated with proposed Lease Sale 215 should be minimal as long as regulatory requirements are followed.

Accidental events associated with proposed Lease Sale 215 that could impact water quality include spills of oil and refined hydrocarbons, spills of chemicals or drilling fluids, and collisions and loss of well control that result in spills. Water quality is altered and degraded by oil spills through the increase of petroleum hydrocarbons and their various transformation/degradation products in the water. The extent of impact from a spill depends on the behavior and fate of oil in the water column (e.g., movement of oil and the rate and nature of weathering), which, in turn, depends on oceanographic and meteorological conditions at the time. Smaller spills (<1,000 bbl) are not expected to significantly impact water quality in marine and coastal waters. Larger spills, however, could impact water quality, especially in coastal waters. Chemical spills, the accidental release of synthetic-based fluids, and blowouts are expected to have temporary localized impacts on water quality.

Coastal water quality can be cumulatively impacted by inputs that are transported through river inflows. These inputs include hydrocarbons, trace metals, sediment, and nutrients from human activities. Cumulative impacts on the water quality of the marine environment result from the addition of discharges from exploration and production activities to a relatively pristine environment. The incremental contribution of proposed Lease Sale 215 to the cumulative impacts on marine water quality is not expected to be significant as long as all regulatory requirements are followed.

The overall coastal condition of the Gulf Coast was evaluated from 2001 to 2002 by USEPA and was rated as fair to poor (USEPA, 2008b). Specifically, water quality was rated as fair while sediment quality and the coastal habit index, a rating of wetlands habitat loss, which both affect water quality, were rated as poor. The USEPA also conducted similar evaluations from 1990 to 1996 (USEPA, 2001) and again from 1997 to 2000 (USEPA, 2005). Water quality was poor overall in the first Coastal Condition Report but increased to fair overall in the latter reports. Conversely, sediment quality was generally fair in the first two reports and decreased to poor in the last report. The Barataria/Terrebonne Estuary near Port Fourchon, which is a common service base, was ranked fair in terms of water quality (USEPA, 2007a) and was assessed as having moderately high eutrophic conditions by NOAA (Bricker et al., 2007). The Galveston Bay estuary system was ranked poor in terms of water quality and fair to poor in terms of sediment quality (USEPA, 2007a); Galveston Bay was individually characterized as having moderately low eutrophic conditions (Bricker et al., 2007). The estuarine area of the Coastal Bend Bays, which includes Corpus Christi Bay, was ranked fair in terms of water quality and poor in terms of sediment quality (USEPA, 2007a), while Corpus Christi Bay alone was characterized as moderately eutrophic (Bricker et al., 2007).

The leading source of contaminants that impair coastal water quality is urban runoff. Urban runoff can include suspended solids, heavy metals and pesticides, oil and grease, and nutrients. Urban runoff increases with population growth, and the Gulf Coast region has experienced a 103 percent population growth since 1970 (USDOC, NOS, NOAA, 2008). Other pollutant source categories include agricultural runoff, municipal point sources, industrial sources, hydromodification, and shipping.

The U.S. Environmental Protection Agency's NPDES general permit for the Western GOM (GMG290000, which authorizes and regulates discharges to surface water during drilling and production)

was reissued and became effective on October 1, 2007 (USEPA, 2007b). The permit will expire on September 30, 2012. The USEPA was a cooperating agency on the Multisale EIS, and USEPA relied on the Multisale EIS and the Supplemental EIS in reissuing the permit.

The zone of hypoxia on the Louisiana-Texas shelf occurs seasonally and is affected by the timing of the Mississippi and Atchafalaya Rivers' discharges carrying nutrients to the surface waters. The hypoxic conditions last until local, wind-driven circulation mixes the water again. During the mapping cruise of July 18-23, 2009, the hypoxic zone measured 8,000 square kilometers (km²) (3,000 square miles [mi²]) (LUMCON, 2009). This was far smaller than the forecasted amount of 22,000-25,000 km² (7,500-8,500 mi²) (LUMCON, 2009), as well as smaller than the 20,720 km² (8,000 mi²) dead zone area reported last year (LUMCON, 2008). However, the dead zone was "thicker" (i.e., higher volume) than normal this year and was severely low in oxygen, with values usually less than 0.5 milligrams per liter. Factors that may have contributed to the smaller than predicted average area of the dead zone include (1) below average flow of the Mississippi River in July, (2) the timing of the single research cruise, (3) weather conditions prior to and during the cruise including wind and wave conditions, and (4) the optimization of the forecast models (i.e., the models are optimized for long-term conditions, not short-term conditions) (LUMCON, 2009). The primary waste stream associated with oil and gas exploration and production is produced water (Veil et al., 2004), and the contribution of produced water to hypoxic conditions is minimal. The amount of oxygen-demanding pollutants in produced water was determined for produced water discharged into the hypoxic zone (Veil et al., 2005) as a requirement for the Region 6 reissued NPDES general permit. Existing hypoxia models were used to analyze the potential incremental impacts to the hypoxia from produced-water discharges. The USEPA determined that the potential impact on the hypoxia from produced-water discharges was insignificant (Bierman et al., 2008; USEPA, 2007c). Therefore, proposed Lease Sale 215 should continue to have insignificant impacts on the Gulf of Mexico hypoxic zone.

Conclusion

The MMS has reexamined the analysis for water quality presented in the Multisale EIS and the Supplemental EIS, based on all the information from the recent governmental and academic findings presented above. While new information discloses cumulative impacts on coastal water quality as a result of human terrestrial activities, river inflows, and continuing wetland loss, no new information was discovered that would alter the incremental or cumulative impact conclusion presented in the Multisale EIS and the Supplemental EIS for the proposed action; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on water quality is not required. The new information confirms prior resource status and the projected impacts of proposed Lease Sale 215. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.3. Sensitive Coastal Environments

4.2.3.1. Coastal Barrier Beaches and Associated Dunes

The description, physical location, and formative processes that create the various coastal beaches and barrier island complexes are described in Chapter 3.2.1.1 of the Multisale EIS. A description of integrated shoreline environments, the barrier islands, and the dune zones that comprise and delineate the various vegetated habitats along these mainland and barrier beaches can also be found in Chapter 3.2.1.1 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on barrier islands and coastal beaches can be found in Chapters 4.2.1.3.1, 4.4.3.1, and 4.5.3.1 of the Multisale EIS and Chapter 4.1.3.1. of the Supplemental EIS., respectively.

A variety of routine activities required to support proposed Lease Sale 215 include pipeline emplacements, navigation channel use and dredging, and construction or continued use of oil and gas infrastructure. These activities are expected to be restricted to temporary and localized disturbances of the coastal barrier beaches and associated dunes. The 0-1 pipeline landfalls projected in support of proposed Lease Sale 215 are not expected to cause significant impacts on barrier beaches because of the use of non-intrusive installation methods. The projected 0-1 gas processing plant would not be expected to be constructed on barrier beaches. The use of existing facilities built inland may, through natural storm-driven erosion and shoreline recession, be located in the barrier beach and dune zone and may contribute to the erosion there. Proposed Lease Sale 215 may contribute to the extended use of these

facilities. No facilities are expected to be constructed on barrier beaches. Channel and inlet maintenance that is needed, as well as erosion protection works (jetties) required to assure access to the production and supply facilities, may contribute to minor and localized impacts on adjacent barrier beaches due to sediment deprivation. This would likely occur in the sediment starved coasts of Louisiana. Based on use, proposed Lease Sale 215 would account for a very small percentage of these impacts, which would occur whether proposed Lease Sale 215 is implemented or not. Strategic placement of dredged material from channel maintenance, channel deepening, or related actions can mitigate adverse impacts upon those localized areas. Proposed Lease Sale 215 is not expected to adversely alter barrier beach configurations significantly beyond existing, ongoing impacts in localized areas downdrift of artificially jettied and maintained channels.

No significant impacts on the physical shape and structure of the barrier beaches are expected as a result of accidental events associated with proposed Lease Sale 215. The primary accidental impacts that may be associated with proposed Lease Sale 215 would be the probability of offshore or coastal oil spills contacting the barrier or coastal beaches. The probabilities of proposed-action-related spills occurring in OCS waters and contacting various parishes and counties are provided in Chapter 4.3.1 of the Multisale EIS. The risk of offshore spills $\geq 1,000$ bbl occurring and contacting barrier beaches within 10 days is discussed in Chapter 4.3.1.8 of the Multisale EIS. Generally, the coastal, deltaic parishes of Louisiana have the highest risk of being contacted by an offshore spill resulting from proposed Lease Sale 215; Plaquemines Parish has the highest probability at 10-15 percent. Should a slick from such a spill make landfall, the volume of oil remaining in the slick is expected to be small and its condition degraded. Coastal spills in offshore coastal waters or in the vicinity of Gulf tidal inlets present a greater potential risk to barrier beaches because of their close proximity. Inland spills that occur away from Gulf tidal inlets are generally not expected to significantly impact barrier beaches and dunes.

The impact from tropical storm activity upon barrier islands has the potential to affect the distribution of oil from a spill that may reach these areas. The gentle slopes and cuts left by storms in the mainland barrier beaches can make these areas more vulnerable to spills. The passage of two powerful hurricanes in 2008 (Gustav and Ike) resulted in changes in barrier island topography, lowering beach elevation and, therefore, potentially increasing the probability for beach oiling farther up the beach in some locations along the Louisiana and Texas coasts. Hurricane Gustav had the greatest impact on the Louisiana coast, further degrading the easternmost barrier islands and beaches that had been initially impacted by Hurricanes Katrina and Rita. The more severe damages occurred along islands in the Isle Deniers chain, with major landloss leaving Wine Island as a small mound barely above the waterline. East Timbalier Island was also overtopped and heavily eroded, with Whiskey Island now divided in half by a deep channel. Raccoon Island lost over one-third of its mass and almost all of its elevation (Wold, 2008). The beach berms and dunes along Grand Isle were breached, heavily eroded, or washed away. The western Louisiana coast and northeastern Texas coast were impacted by Hurricane Ike. The beaches and low beach and dune systems (3-7 ft; 1-2 m) of western Louisiana were overtopped by the surge. Closer to the location of peak surge, just east of High Island, Texas, the flood waters were high enough to completely submerge the barrier islands as the surge flowed rapidly back into the Gulf of Mexico. The most extensive impacts to beaches and structures occurred immediately to the east of landfall, near the right eye wall, along the sandy spit of the Bolivar Peninsula, Texas. Although the Texas barrier islands and dunes are much higher (3-10 ft; 1-3 m) than those in Louisiana, they were easily overtopped and leveled by the approximately 16-ft (5-m) storm surge. The surge breached the beach ridge and dune system and subjected freshwater inland ponds to saltwater intrusion. West of Hurricane Ike's landfall, the differences in the storm surge, winds, and waves, as well as higher coastal elevations, all worked together to lessen the storm's impact on the coast. Galveston Island had partial seawall protection along the beachfront, lessening the erosion of shoreface to areas in front of the seawall. On the sandy beaches west of the seawall, peak dune elevations before the storm were 7-13 ft (2-4 m), roughly half of the elevation of the seawall. The coastal change along this unprotected stretch of Galveston Island was less than the visible impacts on the Bolivar Peninsula. Based on preliminary analysis of post-Hurricane Ike surveys and overflights, the Texas General Land Office (2009) reports that 64 percent of the Texas Gulf Coast is experiencing long-term critical erosion and both horizontal and vertical displacement of shoreline in many areas.

Should a spill contact a barrier beach, oiling is expected to be light, and sand removal during cleanup activities should be minimized. No significant impacts on the physical shape and structure of barrier beaches and associated dunes are expected to occur as a result of proposed Lease Sale 215.

Under the cumulative scenario, river channelization, sediment deprivation, tropical and extra-tropical storm activity, sea-level rise, and subsidence will continue to result in severe, rapid erosion of most shoreline landforms along the Louisiana coast. The Texas coast has experienced landloss because of a decrease in the volume of sediment delivered to the coast as a result of dams on coastal rivers, a natural decrease in sediment supply as a result of climatic changes during the past several thousand years, and subsidence along the coast. Texas is actively identifying erodible shoreline and barrier beaches and is funding restoration projects through their Coastal Erosion Planning and Response Act funds. Louisiana is continuing to initiate ongoing, State- and federally-sponsored coastal programs and projects through the Coastal Wetlands, Planning, Protection and Restoration Act, GOMESA, CIAP, and Louisiana Coastal Area programs, along with the federally-funded CIAP initiatives being finalized and managed by MMS. All of these programs will cumulatively protect, build, restore, and enhance coastal ecosystems, and they will attempt to reduce coastal landloss in general and will include assistance in coastal and barrier beach rehabilitation or restoration. Beach stabilization projects that involve the construction of seawalls, groins, and jetties are considered by some coastal geomorphologists and engineers to accelerate coastal erosion (Pilkey and Dixon, 1996). Beneficial use of maintenance dredged materials could be required to mitigate some of these impacts.

The impacts of oil spills from both OCS and non-OCS sources to the sand-starved Louisiana coast should not result in long-term alteration if the beaches are cleaned using techniques that do not significantly remove sand from the beach or dunes. The region around Galveston, Texas, and the Chenier Plain of Louisiana have the greatest risk of sustaining impacts from oil-spill landfalls because of their very high concentrations of oil production within 31 mi (50 km) of the coast. The cleanup impacts of these spills could result in short-term (up to 2 years) adjustments in beach profiles and configurations as a result of sand removal and disturbance during cleanup operations. Some contact to lower areas of sand dunes would be expected. These contacts would not result in significant destabilization of the dunes. The long-term stressors to barrier beach communities caused by the physical effects and chemical toxicity of an oil spill may lead to decreased primary production, plant dieback, and hence further erosion. Under the cumulative scenario, new OCS- and non-OCS-related pipeline landfalls are projected. These pipelines are expected to be installed using modern techniques, causing little to no impacts on the barrier islands and beaches. Existing pipelines, in particular those parallel and landward of beaches and placed on barrier islands using older techniques that left canals or shore protection structures, have caused and will continue to cause barrier beaches to narrow and breach.

Coastal barrier beaches have experienced severe adverse cumulative impacts from natural processes and human activities. Natural processes are generally considered the major contributor to these impacts, whereas human activities cause both severe local impacts as well as the acceleration of natural processes that deteriorate coastal barriers. Human activities that have caused the greatest adverse impacts are river channelization and damming, pipeline canals, navigation channel stabilization and maintenance, and beach stabilization structures. The deterioration of Gulf barrier beaches is expected to continue in the future. Federal, State, and parish governments have made efforts over the last 10 years to slow the landward retreat of Louisiana's Gulf shorelines. Proposed Lease Sale 215 is not expected to adversely alter barrier beach configurations beyond existing, ongoing impacts in localized areas downdrift of artificially jettied and maintained channels. Proposed Lease Sale 215 may extend the life and presence of facilities in eroding areas, thus prolonging erosion in those areas. Strategic placement of dredged material from channel maintenance, channel deepening, and related actions can mitigate adverse impacts upon those localized areas. Thus, the incremental contribution of proposed Lease Sale 215 to the cumulative impacts on coastal barrier beaches and dunes is expected to be very small.

A search was conducted for new information published since completion of the Multisale EIS and the Supplemental EIS. Various Internet sources were examined or revisited to determine any new information regarding barrier islands (FDEP, 2005 and 2007; Leadon, 2004; Texas General Land Office, 2007; USDOJ, GS, 2006 and 2007a; White et al., 2005 and 2007). No new information was discovered from these information sources. An Internet search of available literature and agency Internet sites and personal interviews with various Federal and State agency researchers and managers responsible for these coastal resources was conducted. The search found no additional information pertaining to Louisiana or Texas. The Texas Bureau of Economic Geology confirmed no further studies had been initiated by the State of Texas post-Rita (Tremplay, personal communication, 2007). Prior to Hurricane Rita, the Texas Bureau of Economic Geology had conducted a series of studies on the barrier islands, which is comprised of five different reports. The Bureau is currently preparing a report on the Upper Strand Plain near Clam

Lake and Padre Island. These studies are in the formative stages and drafts have not been released. Aerial photography of the flooded Texas coastal area following Hurricane Rita was examined, and previously flooded sites were visited post-Rita. Based on these observations, the majority of the flooded marshes are naturally reestablishing themselves, and the sediment distribution along the barrier island fringe seems to appear stable.

Conclusion

The MMS has reexamined the analysis for coastal beaches and barrier island complexes presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Although the studies of tropical storm activity have provided new information that alters the cumulative impacts on coastal beaches and barrier island complexes, the incremental effect of the proposed action on these resources is unchanged or only minimally changed. Therefore, the new information does not significantly change the description of the environmental effects of the proposed action on the coastal beaches and barrier island complexes described in the Multisale EIS and the Supplemental EIS. While there was some refinement of post-storm data of various storm impacts, no new information was discovered that would change the previous resource status or alter the impact conclusion for coastal beaches and barrier island complexes presented in the Multisale EIS and the Supplemental EIS. That is, while the resource conditions have changed considerably since the Multisale EIS and the Supplemental EIS, the effect of proposed Lease Sale 215, including the incremental contribution to the cumulative impacts, has not changed. Therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on coastal beaches and barrier island complexes is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.3.2. Wetlands

A detailed description of coastal wetlands can be found in Chapter 3.2.1.2 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on coastal wetlands can be found in Chapters 4.2.1.3.2, 4.4.3.2, and 4.5.3.2 of the Multisale EIS, respectively. Additional updated information can be found in Chapter 4.1.3.2 of the Supplemental EIS. The summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS is provided below; updated information is indicated by the date of the citations. A detailed explanation of the routine and accidental impact-producing factors can be found in Chapters 4.1 and 4.3 of the Multisale EIS, respectively, and in Chapter 4.1.3.2 of the Supplemental EIS. The following five pages summarize the impacts incorporated from the Multisale EIS and the Supplemental EIS.

The primary impacts resulting from routine activities associated with proposed Lease Sale 215 that could affect wetlands and marshes include pipeline emplacement, construction and maintenance, navigation channel use (vessel traffic), maintenance dredging, disposal of OCS-related wastes, and the use and construction of support infrastructure in these coastal areas. Other potential impacts that are indirectly associated with OCS oil and gas activities are wake erosion resulting from navigational traffic, levee construction that prevents necessary sedimentary processes, saltwater intrusion that changes the hydrology leading to unfavorable conditions for wetland vegetation, and vulnerability to storm damage from eroded wetlands. Simultaneously with manmade influences, there are natural causes of subsidence that contribute to wetland loss. Compaction and dewatering of deltaic mud lead to subsidence. Likewise, down-to-the-basin faulting (listric) is a characteristic of sediment loading for deltaic wedges such as the modern Mississippi Delta system (Dokka et al., 2006).

Wetland loss rates in coastal Louisiana are well documented to have been as high as 10,878 hectares/year (ha/yr) (42 mi²/yr) during the late 1960's. Studies have shown that the landloss rate in coastal Louisiana for the period 1972-1990 slowed to between an estimated 6,475 ha/yr (25 mi²/yr) (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993) and 9,072 ha/yr (35 mi²/yr) (USDOJ, GS, 1988). Over the next 50 years, Louisiana is projected to lose almost 17 mi² (4,403 ha) of coastline each year due to storms, sea-level rise, and land subsidence (Government Accountability Office, 2007). New information from a current study utilizes analysis from more temporally and methodologically consistent datasets and notes that the reduction in the rates of landloss after the 1970's was more rapid than previously estimated and that those rates remained relatively stable through 2004 (Barras et al., 2008). This study indicates that, for the period 1985-2004, the majority of the coastal

landloss occurred on the Deltaic Plain at a rate of 15-16 mi²/yr. For the same period, the Marginal Deltaic Plain showed a slight increase in land at a rate of 0.6 mi²/yr as a result of the growth of the Atchafalaya River and Wax Lake Delta Complex; however, the Chenier Plain loss rate remained fairly stable at 2 mi²/yr. The overall annual coastal loss rate for the period of 1985-2004 is estimated at 12 mi²/yr, and the annual coastal loss rate for period of 1984-2006 is 15 mi²/yr.

The impact of tropical storm activity on Texas and Louisiana's coastal wetlands has been well documented. To demonstrate the effects of Hurricanes Katrina and Rita, Barras et al. (2008) analyzed the wetland loss rates between 2004 and 2006. Hurricanes Katrina and Rita increased water area (indicating landloss) in coastal Louisiana by 219 mi² (576 km²) between 2004 and 2005, with a recovery of 21 mi² (54 km²) of marsh by 2006. This recovery reduced the estimated landloss by approximately 10 percent (Barras, 2006). Barras' (2009) post-hurricane analysis of land change during the years 2006-2008 encompasses the losses from Hurricanes Katrina, Rita, Ike, and Gustav. This analysis showed a total decrease in land area (increase in water) of 125 mi² (324 km²). This reduction, combined with the 2004-2006 land area reduction of 204 mi² (529 km²), results in a total decrease in land area of 328 mi² (853 km²) in coastal Louisiana since 2004. The analysis did consider some recovery may occur since the approximately 9 mi² (23 km²) of conversion to open water included flooded agricultural land and salt-burned flooded marsh.

The effect of tropical storms like Hurricane Rita upon the Texas barrier islands and shorelines left 30,000 ac (12,140 ha) of fresh and intermediate marshes along the northeast Texas coast at risk due to shoreline erosion, allowing more frequent wash over and inundation of freshwater marshes. While the developed portion of the Texas coast along Galveston and Bolivar Peninsula did not experience widespread washover and severe beach erosion due to Hurricane Rita like Louisiana, it did experience high, long-period waves that deposited cobble, sand, and rip rap inland. However, closer to landfall along the mostly undeveloped Texas Chenier Plain, wetland areas, including the Sea Rim State Park and the McFaddin and Texas Point National Wildlife Refuges (Gibeaut et al., 2008), were adversely affected.

Hurricane Gustav made landfall as a Category 2 storm near Cocodrie, Louisiana, pushing large surges of saline water into the fresh marshes and coastal swamps of Louisiana from Grand Isle westward. Areas of Lower Plaquemines and Lafourche Parishes had levees that were breeched or overtopped, trapping the saline storm water in the marshes and wooded swamps, thus inundating oak ridges, which were impacted by the standing storm water. Fresh and brackish marshes in the Point Au Chene, Salvador, and Pass a Loutre State Wildlife Management Areas suffered damage to the various wetland types as a result of rollover, blow over, scour, salt burn, and long-term inundation. Submerged aquatic vegetation is relatively sparse or spotty throughout the Louisiana coastal area and was heavily impacted throughout the coastal shallows. Hurricane Ike concentrated on Louisiana's western coast. The forested areas inundated by Hurricane Ike's floodwaters are nearly drained and most trees appear to have suffered minimal impacts. The Texas coast received the brunt of Hurricane Ike, which made landfall slightly east of Galveston. The resulting 13- to 15-ft (4- to 5-m) storm surges washed over the elevated western coastline of Texas from High Island, Texas, westward across the Bolivar Peninsula to the west side of Galveston Island. The storm surge basically removed the dune systems and significantly lowered the beach elevations along this portion of the Texas coast. The erosion and washover associated with Hurricane Ike's tidal surge breeched beach ridges, opening the inland freshwater ponds and their associated wetlands to the sea.

Effects of routine activities on coastal wetlands associated with proposed Lease Sale 215 are expected to be low. The loss of 0-8 ha (0-20 ac) of wetlands habitat is estimated as a result of 0-2 km (0-1.2 mi) of new onshore pipelines projected as a result of proposed Lease Sale 215. Maintenance dredging of navigation channels and canals is expected to occur with minimal impacts; proposed Lease Sale 215 is expected to contribute minimally to the need for this dredging. Alternative, dredged-material disposal methods can be used to enhance and create coastal wetlands. Vessel traffic associated with a proposed action is expected to contribute minimally to the erosion and widening of navigation channels and canals. The already eroded Louisiana barrier island chain was damaged significantly by Hurricanes Katrina and Rita, thus further lowering the protection afforded the mainland marshes and beaches from oil spills that these barrier features previously provided. Breton Island, one of the islands comprising the hard-hit Chandeleur barrier island chain, lost approximately 50 percent of its landmass (Hall, 2006). Overall, impacts from these sources are expected to be low and could be further reduced through mitigation, such as horizontal, directional (trenchless) drilling techniques to avoid damages to these sensitive habitats.

Secondary impacts on wetlands would be primarily from vessel traffic corridors and will continue to cause approximately 0.57-0.72 ha (1.40-1.77 ac) of landloss per year.

The USGS recently completed a study assessing canal widening rates in navigation canals used to access OCS facilities (Thatcher et al., in preparation). The study results support previous studies (Barras et al., 2003; Day et al., 2000) and note that erosion rates have slowed in recent years. When all navigation canals in the Gulf coastal regions that were being used for OCS purposes were examined, the study noted the canal widening rate slowed to -3.25 ft/yr (-0.99 m/yr) for the 1996/1998-2005/2006 time period compared with the -5.61 ft/yr (-1.71 m/yr) for the 1978/1979-1996/1998 time period (Thatcher et al., in preparation). Mean canal widening rates were highest in the Chenier Plain with a loss rate of -11.35 ft/yr (-3.46 m/yr) and were lowest in the alluvium geologic region, with loss rates of 0.88 ft/yr (0.27 m/yr). A recently completed salinity study funded by MMS examined the patterns of marsh deterioration as a function of hydrological connectivity along an OCS navigation canal (Steyer, 2008). The study was inconclusive and did not establish a direct relationship between marsh loss patterns and salinity due to the variability in marsh loss along the canal. The study did indicate that there may be some canal influence on the marshes, but the degree and distance of the influence was not detectable. The MMS is in the process of initiating a study to provide new information that will address the issue of connectivity between an OCS navigation canal and the adjacent marshes and what comprises the forcing influences that may cause salinity variations within these adjacent marshes.

The primary concern for potential impact from accidental activities associated with proposed Lease Sale 215 is related to oil spills. While there is a concern for offshore oil spills resulting from proposed Lease Sale 215, they are not expected to damage significantly wetlands along the Gulf Coast. If an inland oil spill related to proposed Lease Sale 215 occurs, however, some impact on wetland habitat would be expected. Although the impact may occur generally over coastal regions, the impact has the highest probability of occurring in and around Plaquemines and St. Bernard Parishes, Louisiana. Impacts on wetland habitats from an oil spill associated with activities related to Lease Sale 215 would be expected to be low and temporary. Although the probability of occurrence is low, the greatest threat to wetland habitat is from an inland spill resulting from a vessel accident or pipeline rupture. While a resulting slick may cause minor impacts on wetland habitat and surrounding seagrass communities, the equipment and personnel used to clean up a slick over the impacted area may generate the greatest impacts on the area. Associated foot traffic may work oil farther into the sediment than would otherwise occur. Close monitoring and restrictions on the use of bottom-disturbing equipment would be needed to avoid or minimize those impacts.

To identify the effects of the project on the various human and natural resources, as required by the NEPA process, MMS developed impact-producing factors for the project, based on the proposed methods of project implementation (implementation scenarios). In addition to the impact-producing factors, MMS developed the potential probability of oil-spill impacts on natural and human resources, based on OSRA modeling as well as additional historical oil-spill information and oceanographic science. As a result of these analyses, MMS identified concerns for the potential impacts of oil spills on the marine and coastal environments, specifically regarding the potential effects of oil spills on tourism, emergency response capabilities, spill prevention, the effect of winds and currents on the transport of oil spills, accidental discharges from both deepwater blowouts and pipeline ruptures, and oil spills resulting from past and future hurricanes.

Wetland losses resulting from storms, hurricanes, coastal development, subsidence, and manmade and natural erosion will continue. Although the net reduction in land from 2004 to 2008 (850 km²; 328 mi²) exceeds that from 1978 to 2004 (743 km²; 287 mi²) (Barras, 2009), it is likely that the 2004-2008 estimate cited in the Supplemental EIS will decrease if the coast is given time to recover from these hurricane seasons. Nevertheless, it is likely that the cumulative loss from these hurricane seasons will remain in some degree. An estimate of permanent losses cannot be made until several growing seasons have passed and the transitory impacts of the hurricanes are determined.

The cumulative analysis in the Multisale EIS considers the effects of impact-producing factors related to past WPA lease sales, the present proposed Lease Sale 215, and reasonably foreseeable lease sale programs in the WPA. Cumulative impacts to wetlands attributed to OCS activity occur with State oil and gas activities, other governmental and private projects and activities, and pertinent natural processes and events. As a result of these activities and processes, several impact-producing factors discussed in Chapter 4.5.3.2 of the Multisale EIS and in Chapter 4.1.3.2.4 of the Supplemental EIS will contribute to impacts on wetlands and associated habitat during the life of proposed Lease Sale 215.

The cumulative effects of human and natural activities in the coastal area have severely degraded the natural process of delta-building and sediment replenishment and have shifted the coastal area from a condition of net land building to one of net landloss (U.S. Dept. of the Army, COE, 2004). There is increasing new evidence of the importance of the effect of sea-level rise (or marsh subsidence) as it relates to the loss of marsh or changes in marsh types and plant diversity (Spalding and Hester, 2007). Spalding and Hester showed that the very structure of coastal wetlands will likely be altered by sea-level rise, as community shifts will be governed by the responses of individual species to new environmental conditions.

Subsidence rates may slow as a result of oil and gas depletion in onshore and nearshore areas that are producing. The magnitude of sea-level rise caused by global warming as a contributor to wetland loss is uncertain. Sea-level rise in any specific area takes into account that either the land sinks or the sea rises. In either case there would be a sea-level rise. Estimates of the magnitude of sea-level rise vary with the model used to project climatic scenarios into the future. Sea-level rise is likely to contribute to wetland loss over the next 40 years; however, the total acres lost attributed only to sea-level rise is unknown because multiple contributors occurring simultaneously affect the number of total acres likely to be lost in Louisiana. Coastal restoration of barrier islands and headland areas and sediment replenishment projects may slightly mitigate the effects of subsidence and hurricane storm surge on wetland loss over the next 40 years.

The effects of pipelines, canal dredging, navigation activities, and oil spills on wetlands are described in Chapters 4.2.1.1.3.2, 4.4.3.2, and 4.5.3.2 of the Multisale EIS and in Chapter 4.1.3.2 of the Supplemental EIS. Subsidence of wetlands is discussed in more detail in Chapter 4.1.3.3.1 of the Multisale EIS. Impacts from residential, commercial, and agricultural and silvicultural (forest expansion) developments are expected to continue in coastal regions around the Gulf. Existing regulations and development permitting procedures indicate that development-related wetland loss may be slowed and that very few new onshore OCS facilities, other than pipelines, will be constructed in wetlands. Impacts from State onshore oil and gas activities are expected to occur as a result of dredging for new canals, maintenance and usage of existing rig access canals and drill slips, and preparation of new well sites. Locally, subsidence may be due to the extraction of large volumes of oil and gas from subsurface reservoirs, although subsidence associated with this factor seems to have slowed greatly over the last three decades as the reservoirs are depleted. Indirect impacts from dredging new canals for State onshore oil and gas development (Chapter 4.1.3.3.3 of the Multisale EIS) and from maintenance of the existing canal network is expected to continue. Maintenance dredging of the OCS-related navigation channels displaces approximately 492,082,500 cubic meters (m^3) (643,619,611 cubic yards [yd^3]) of sediment per 35 years, of which 10 percent is attributed to the OCS Program. Federally maintained, non-OCS-related navigation channels are estimated to account for another estimated 36,576,500 m^3 (47,840,256 yd^3) of dredged material. Maintenance dredging of inshore, well-access canals is estimated to result in the displacement of another 5,014,300 m^3 (6,558,457 yd^3) of materials. Insignificant adverse impacts upon wetlands from maintenance dredging are expected because the large majority of the material would be disposed upon existing disposal areas. Alternative, dredged-material disposal methods can be used to enhance and create coastal wetlands. Depending upon the regions and soils through which they were dredged, secondary adverse impacts of canals may be more locally significant than direct impacts. Additional wetland losses generated by the secondary impacts of saltwater intrusion, flank subsidence, freshwater-reservoir reduction, and deeper tidal penetration have not been calculated due to a lack of quantitative documentation. The MMS has initiated a new study to document and develop data concerning wetland losses due specifically to OCS-related navigation canals.

A variety of mitigation efforts are initiated to protect against direct and indirect wetland loss. The non-maintenance of mitigation structures that reduce canal construction impacts can have substantial impacts upon wetlands. These localized impacts are expected to continue. Various estimates of the total, relative direct and indirect impacts of pipeline and navigation canals on wetland loss vary enormously. They range from a low of 9 percent (Britsch and Dunbar 1993) to 33 percent (Penland et al., 2001a and b) to estimates of greater than 50 percent (Turner et al., 1982; Bass and Turner, 1997; Scaife et al., 1983). A panel review of scientific evidence suggests that wetland losses directly attributable to all human activities account for less than 12 percent of the total wetland loss experienced since 1930 and approximately 29 percent of the total losses between 1955 and 1978 (Boesch et al., 1994). Of these direct losses, 33 percent are attributed to canal and spoil bank creation (10% of overall wetland loss). In Louisiana, deepening Fourchon Channel to accommodate larger, OCS-related service vessels has

occurred within a saline marsh environment and will afford the opportunity for the creation of wetlands with the dredged materials. Also, deepening the Corpus Christi and Houston Ship Channels is non-OCS related and should also afford the opportunity to create wetlands with dredged material. A variety of non-OCS-related pressures are generating a need to expand ports on the Mississippi Gulf Coast.

Based on preliminary historic landloss results from the MMS/USGS National Wetlands Research Center current coastal pipeline impacts study for the Louisiana area, the predicted landloss from the estimated 64 to 94 km (40 to 58 mi) of new OCS pipeline construction ranges from approximately 256 to 376 ha (633 to 929 ac) total over the 40-year analysis period. This estimate does not take into account the current regulatory programs, modern construction techniques and mitigations, or any new techniques that might be developed in the future. The modern construction techniques and mitigation measures result in zero (0) to negligible impacts on wetland habitats.

The MMS funded a study (Johnston et al., 2009) to determine the direct and indirect effects of existing OCS-related pipelines and navigation canals on landloss and wetland habitat change. The preliminary data from the study was included in the Multisale EIS. Findings from the completed study indicate that landloss was consistently higher in the vicinity of pipelines compared with more general, regional trends of landloss. However, the analysis was not able to disassociate trends uniquely related to pipeline or canal impacts from larger, regional trends related to a host of other contributing variables, such as other human activities or natural causes. Annual rates of landloss within 150 m (492 ft) to either side of OCS-related pipelines were highest in Louisiana, lowest in the Mississippi/Alabama coastal plain, and intermediate in Texas. Higher rates in Louisiana may be due to higher concentrations of pipelines and higher rates of subsidence. Johnston et al. (2009) noted also that the newer installation techniques for pipelines resulted in minimal to no long-term losses if the mitigation was properly executed and maintained. Other study findings indicated there were strong spatial trends in habitat change within 500 m (1,640 ft) to either side of OCS-related navigation channels from the 1950's to the 1990's in Louisiana and Texas, with minor changes in the Mississippi/Alabama coastal plain. Navigation canals had significant habitat impacts on the landscape, including significant widening. The study did not look at saltwater intrusion as a result of canals. A reduction of widening in recent years was noted, likely as a result of more aggressive management and the restoration of the canal edges to prevent erosion. Results indicate that management activities, including erosion protection and restoration along the edges of these canals, can significantly reduce canal-widening impacts on wetland loss. Besides the direct, uncontrollable impacts of a functioning navigation canal (i.e., saltwater intrusion), additional impacts can be mitigated with bank stabilization, and where possible, the beneficial use of dredged material (produced during maintenance dredging activities) to create wetland or upland habitats.

The cumulative effects of human and natural activities in the coastal area have severely degraded the deltaic processes and shifted the coastal area from a condition of net land building to one of net landloss. Deltaic Louisiana is expected to continue to experience the greatest loss of wetland habitat. Wetland loss is also expected to continue in other Gulf States, including Texas, but at slower rates. The loss of 0-8 ha (0-20 ac) of wetlands habitat is estimated as a result of 0-2 km (0-1.2 mi) of new onshore pipelines projected as a result of proposed Lease Sale 215. Secondary impacts from proposed Lease Sale 215 to wetlands would be primarily from vessel traffic corridors and will continue to cause approximately 2.25-3.61 ac/yr of landloss for proposed Lease Sale 215. However, effective mitigation and construction techniques have been and would be used to prevent or minimize landloss.

The Government Accountability Office (2007) published a report that provided lessons learned on wetlands restoration and shoreline stabilization techniques and methods that are available to retard landloss in Louisiana. This report assisted Louisiana in their wetland protection and restoration efforts. In addition, the State of Louisiana has made provision for wetlands protection and restoration part of the States' plan for hurricane protection. The Louisiana State legislature established the Coastal Protection and Restoration Authority (CPRA) and charged it with coordinating the efforts of local, State, and Federal agencies to achieve long-term and comprehensive coastal protection and restoration that integrates flood control and wetland restoration. The following four objectives were defined for the plan: reduce the risk to economic assets; restore sustainability to the coastal ecosystem; maintain a diverse array of habitats for fish and wildlife; and sustain Louisiana's unique heritage and culture. The Final Master Plan (State of Louisiana, CPRA, 2007) was submitted to the Louisiana legislature on April 30, 2007, and was approved on May 30, 2007.

A search of Internet information sources cited in the Supplemental EIS was conducted to determine if any new information was available. The latest reports and studies related to post-storm (hurricane)

landloss were obtained from Internet sources of USGS, the Texas General Land Office, and the Texas Bureau of Economic Geology. Various Internet sources were examined to assess recent information regarding wetland loss or potential new threats to coastal wetlands that may be pertinent to the WPA. A review of the latest reports and studies did not alter the findings of a study cited in the Supplemental EIS. One study indicated that coastal wetlands will likely be altered by sea-level rise, as community shifts will be governed by the responses of individual species to new environmental conditions (Spalding and Hester, 2007). While this information is not new, the study did explore, through the use of controlled experiments, how the variance in flooding regime, salinities, and the particular plant species involved may evolve in different coastal environments than presently exist. Other findings related to changes in State-mandated coastal policies addressing wetland protection, restoration, preservation, and development. John Barras with the USGS Wetland Resources Center noted that, while the current wetland loss numbers cited in the Multisale EIS have not changed significantly, marsh recovery (or land gain) varies from location to location (Barras, personal communication, 2007).

Conclusion

The MMS has reexamined the analysis for wetlands presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Although the studies of tropical storm activity have provided new information that alters the cumulative impacts on wetlands, the incremental effect of the proposed action on wetlands is unchanged or only minimally changed. Therefore, the new information mainly confirms previous resource description and projections and does not significantly change the description of the environmental effects of the proposed action on the wetlands described in the Multisale EIS and the Supplemental EIS. No new information was discovered that would alter the impact conclusion for wetlands presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on wetlands is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.3.3. Seagrass Communities

The description of the biology and distribution of seagrass can be found in Chapter 3.2.1.3 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on seagrass can be found in Chapters 4.2.1.1.3.3, 4.4.3.3, and 4.5.3.3 of the Multisale EIS, respectively. Additional updated information can be found in Chapter 4.1.3.3 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

The routine activities associated with proposed Lease Sale 215 that could adversely affect seagrass communities include construction of pipelines, canals, navigation channels, and shore facilities; maintenance dredging; vessel traffic (propeller scars, etc.); and oil spills, spill-response, and cleanup activities. Environmental permit requirements for locating pipelines will result in very minimal impact on seagrass if any new pipeline runs to shore due to proposed Lease Sale 215. Impacts from routine activities resulting from proposed Lease Sale 215 are expected to have negligible effects on seagrass communities.

Pipeline construction in coastal waters could temporarily elevate turbidity in nearby submerged vegetation beds, depending upon currents. If constructed, a pipeline landfall would temporarily elevate turbidity in submerged vegetation beds near the pipeline routes. The COE and State permit requirements are expected to require pipeline routes that avoid beds of high-salinity, submerged vegetation and to reduce turbidity impacts to within tolerable limits. Hence, impacts on submerged vegetation by pipeline installation are projected to be very small and short term.

After bottom sediments are disturbed by pipeline installation, they will be generally more easily suspended by storms than before the disturbance. Due to tidal flushing increased turbidity in estuaries is projected to be below significant levels.

Dredging generates the greatest overall risk to submerged vegetation, and hurricanes cause direct damage to seagrass beds, which may fail to recover in the presence of cumulative stresses. Maintenance dredging will not have a significant impact on existing seagrass habitat given that no new channels are

expected to be dredged as a result of proposed Lease Sale 215. Increased dredging is expected only in areas that do not support seagrass beds.

Vessel traffic will generally only pose a risk to seagrass when nearshore. Beds of submerged vegetation within a navigation channel's area of influence will have already adjusted their bed configurations in response to turbidity generated there. Very little, if any, damage would then occur as a result of typical channel traffic. Generally, propeller wash will not resuspend sediments in navigation channels beyond pre-project conditions.

Depending upon the submerged plant species involved, narrow prop scars in dense portions of the beds will take 1-7 years to recover. Scars through sparser areas will take 10 years or more to recover. The recovery period increases with the width of the scar. Extensive damage to a broad area or damage to an already stressed area may never recover (Sargent et al., 1995; Durako et al., 1992).

Accidental impacts associated with the proposed Lease Sale 215 that could adversely affect seagrass beds include oil spills associated with the transport and storage of oil. Most seagrass communities are located behind barrier islands. Because of the location of most seagrass communities, inshore oil spills pose the most severe threat. Such spills may result from either vessel collisions that release fuel and lubricants or from pipelines that rupture. If an oil slick settles into a protective embayment where seagrass beds are found, shading may cause reduced chlorophyll production and thinning of leaf density. Increased water turbulence due to storms or vessel traffic can break apart the surface sheen and disperse some oil into the water column, potentially causing some dieback of leaves for one growing season. It may take as much as 5-10 years of community succession before faunal composition resembles pre-impact conditions.

A search was conducted for new information published since completion of the Multisale EIS. Various Internet sources were examined to determine any recent information regarding seagrass. Sources investigated include the USGS National Wetlands Research Center, the USGS Gulf of Mexico Integrated Science Data Information Management System, Gulf of Mexico Alliance workshops in spring of 2007, Florida Department of Environmental Protection, USEPA, and coastal universities. Other sites were checked using general Internet searches based on major themes. New information was identified from these sources and is discussed below.

Workshops held by the Gulf of Mexico Alliance in the spring of 2007 revealed new studies of seagrass on the Texas coast. Hardegree (2007) highlighted declines in seagrass in Christmas Bay and the Lower Laguna Madre. He also analyzed propeller scarring, recovery, and regulation. The Texas Benthic Habitat Mapping Project is a survey seagrass along most of the Texas coast. The project covers 1,100 mi² (287,000 ha; 709,184 acres). Analyses are not complete but much of the data are available on the Internet from NOAA's Coastal Services Center (Harte Research Institute, 2009; USDOC, NOAA, 2009). Dr. Armitage of Texas A&M University at Galveston conducted preliminary investigations after the passage of Hurricane Ike in 2008. Seagrass in western Galveston Bay, including Christmas Bay, showed only minimal impacts from Hurricane Ike. There was some overwash and debris was deposited in the grassbeds, but not to the extent that it would smother and kill the seagrass beds; recovery is expected (Armitage, 2009).

Conclusion

The MMS has reexamined the analysis for seagrass presented in the Multisale EIS and the Supplemental EIS, in light of the additional information presented above. New information, as presented above, was discovered and reviewed since completion of the Multisale EIS and the Supplemental EIS and supports previous assessments. This new information indicates some decline in Texas seagrass populations and an ongoing problem with propeller scarring, thus demonstrating an increase in cumulative effects. However, the incremental contribution of proposed Lease Sale 215 to the numerous cumulative impacts to seagrass is not changed and is not expected to be significant. The implementation of proposed lease stipulations and mitigation policies currently in place further reduces the incremental contribution of the proposed action. No new information was discovered that would alter the resource description or impact conclusion for seagrass presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on seagrass is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.4. Sensitive Offshore Benthic Resources

4.2.4.1. Continental Shelf Benthic Resources

4.2.4.1.1. Topographic Features

The description of the biology of topographic features can be found in Chapter 3.2.2.1.2 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on topographic features can be found in Chapters 4.2.1.1.4.1.1, 4.4.4.1.2, and 4.5.4.1.2 of the Multisale EIS, respectively and Chapter 4.1.4.2 of the Supplemental EIS. A description of the Topographic Features Stipulation governing oil and gas activities near these features can be found in Chapter 2.4.1.3.1 of the Multisale EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

Potential OCS-related impacts include the anchoring of vessels, emplacement of oil and gas structures, operational discharges (drilling mud and cuttings, and produced waters), blowouts, oil spills, and removal of structures. Activities causing mechanical disturbance or direct contact represent the greatest threat to the topographic features. This would, however, be prevented by the continued application of the Topographic Features Stipulation. Named topographic features from the northern Gulf of Mexico are shown in **Figure 5**.

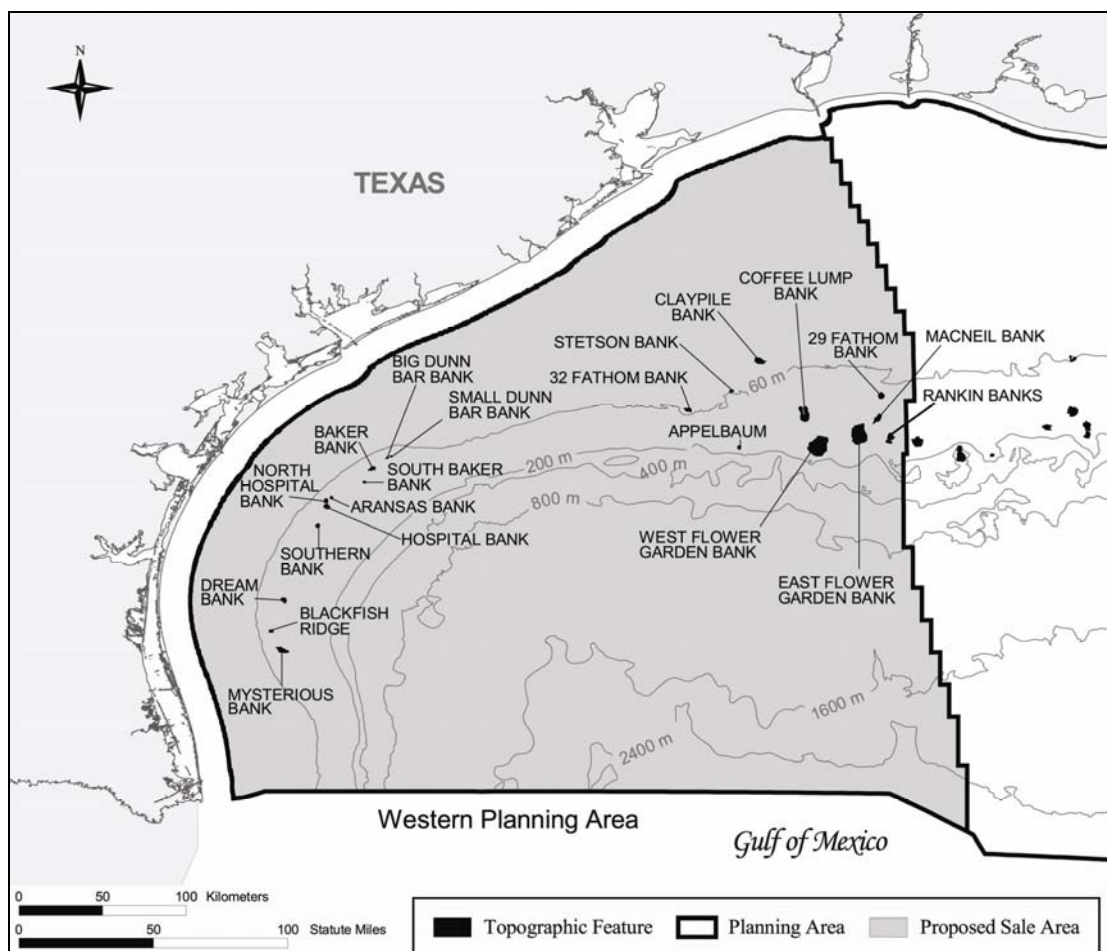


Figure 5. Named Topographic Features in the Northern Gulf of Mexico.

Non-OCS activities are thought to have the greatest potential of impacting the topographic features, particularly those that could mechanically disrupt the bottom (such as anchoring and treasure-hunting activities). Natural events such as hurricanes or the collapse of the tops of the topographic features

(through dissolution of the underlying salt structure) could cause severe impacts. Impacts from scuba diving, fishing, ocean dumping, and discharges or spills from tankering of imported oil are likely to have little or no impact on the topographic features because these activities are either controlled, prohibited, or take place on the surface; therefore, they would not pose a hazard to the Flower Garden Banks National Marine Sanctuary and other topographic features.

It is assumed that a resuspension of sediments or a subsurface oil spill following an accidental blowout could reach the biota of a topographic feature. If this were to occur, the impacts would be primarily sublethal with the disruption or impairment of a few elements at the local scale, but no interference to the general system performance would occur. Oil spills can cause damage to benthic organisms when the oil contacts organisms. In the unlikely event that oil from a subsurface spill would reach the biota of a topographic feature, the effects would be primarily sublethal for corals and much of the other fully developed biota. It is anticipated that potential recovery for such an event would occur within a period of 2 years (USDOC, NOAA, 2007a; Shigenaka, 2001; Rice et al., 1983). In the highly unlikely event that oil from a subsurface spill reached an area containing coral cover (e.g., Flower Garden Banks and Stetson Bank) in lethal concentrations, the impacted area would be small, but its recovery could take in excess of 10 years. However, due to the application of the proposed Topographic Features Stipulation, if adopted, blowouts would not occur in the immediate vicinity of the topographic features and associated biota because the stipulation creates a buffer zone. Therefore, there would be little impact on the features.

The incremental contribution of proposed Lease Sale 215 (as analyzed in Chapter 4.5.4.1.2 of the Multisale EIS) to the cumulative impact is negligible because the implementation of the Topographic Features Stipulation limits mechanical impacts and operational discharges. Furthermore, there is a low probability and low risk of accidental OCS-related events such as blowouts and oil spills occurring in the immediate vicinity of a topographic feature.

A search was conducted for new information published since completion of the Multisale EIS and the Supplemental EIS. Various Internet sources were examined to identify any recent information regarding topographic features. Sources investigated include USGS National Wetlands Research Center, NOAA, USEPA, and coastal universities. Other sites were found through general Internet searches.

One study that was ongoing when the Supplemental EIS was published has now been published. The findings of the study indicate small shifts in benthic cover, including an increase in algae and a decrease in sponges on Sonnier Bank (Rooker et al., 2007). They also report some shifts in fish community composition and extralimital occurrences of the hard coral *Acropora* that is typically found in tropical reef systems. Shifts of fish community structure were likely caused by Hurricane Rita in September 2005, and the identification of extralimital corals in the Flower Garden Banks has been suggested as evidence for warmer waters in the general area (Zimmer, et al., 2006).

The MMS has conducted studies of select topographic features since Hurricane Rita passed directly over the Flower Garden Banks and recently published the final reports. Long-term monitoring has continued on a yearly basis at the East and West Flower Garden Banks through an equal partnership between MMS and NOAA's National Marine Sanctuary program. This monitoring not only expands MMS's knowledge and understanding of the Flower Garden Banks ecosystem, but it also improves the foundation from which management decisions are made (Precht et al., 2008a and 2008b). Another MMS study, *Post-Hurricane Assessment of Sensitive Habitats of the Flower Garden Banks Vicinity* (Robbart et al., 2009), investigated hurricane effects at the East Flower Garden, Sonnier, McGrail, Geyer, and Bright Banks. Assessment of the East Flower Garden Bank reveals mechanical damage from Hurricane Rita and a significant bleaching event (up to 46% of corals). This was followed by an outbreak of coral disease affecting up to 8 percent of corals at the East Flower Garden Bank. These are the most severe recorded outbreaks of bleaching and disease at the Flower Garden Banks (Robbart et al., 2009; Precht et al., 2008a and 2008b). Other results suggest little hurricane damage to McGrail, Geyer, and Bright Banks but severe damage at Sonnier Bank (Robbart et al., 2009). Speculation is that Sonnier Bank was more affected because of its shallower depth and position on the east side of the storm track. It is also thought that repeated anchor damage has affected Sonnier Bank. Community recovery is expected to take at least 5 years if further anchor damage is prevented. Monitoring at the Flower Garden Banks in 2006 and 2007 showed good recovery of corals with no significant deterioration of community health (Precht et al., 2008a).

Hurricane Ike passed directly over the Flower Garden Banks as a Category 3 hurricane on September 12, 2008. Draft results from the MMS/NOAA Flower Garden Banks Long-Term Monitoring

Study indicate physical damage slightly less than that caused by Hurricane Rita (Zimmer et al., in preparation). About 0.6 percent of the corals were missing from the areas surveyed after Hurricane Ike versus about 1 percent that were missing following Hurricane Rita. Storm impacts were greater on the East Flower Garden Bank than on the West Flower Garden Bank.

Conclusion

The MMS has reexamined the analysis for topographic features presented in the Multisale EIS and the Supplemental EIS for this EA, based on the additional information presented above. New information, as presented above, was discovered and reviewed since completion of the Multisale EIS and the Supplemental EIS. This new information indicates a slight change in the status of cumulative impacts to topographic features. This new information documents the potential, somewhat severe impact caused by natural events, especially the cumulative impacts of hurricanes. However, OCS-related oil and gas impacts remain unchanged and previous assessments are still accurate. The incremental contribution of proposed Lease Sale 215 (as analyzed in Chapter 4.5.4.1.2 of the Multisale EIS) to the cumulative impact is negligible because the implementation of the Topographic Features Stipulation limits mechanical impacts and operational discharges. No new information was discovered that would alter the impact conclusion for topographic features presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on topographic features is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.4.2. Continental Slope and Deepwater Resources

4.2.4.2.1. Chemosynthetic Deepwater Benthic Communities

The description of the biology, life history, and distribution of chemosynthetic deepwater benthic communities can be found in Chapter 3.2.2.2.1 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on chemosynthetic communities can be found in Chapters 4.2.1.1.4.2.1, 4.4.4.2.1, and 4.5.4.2 of the Multisale EIS, respectively. Additional, updated information can be found in Chapter 4.1.5 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS. The location of known chemosynthetic communities in the northern Gulf of Mexico is shown in **Figure 6**.

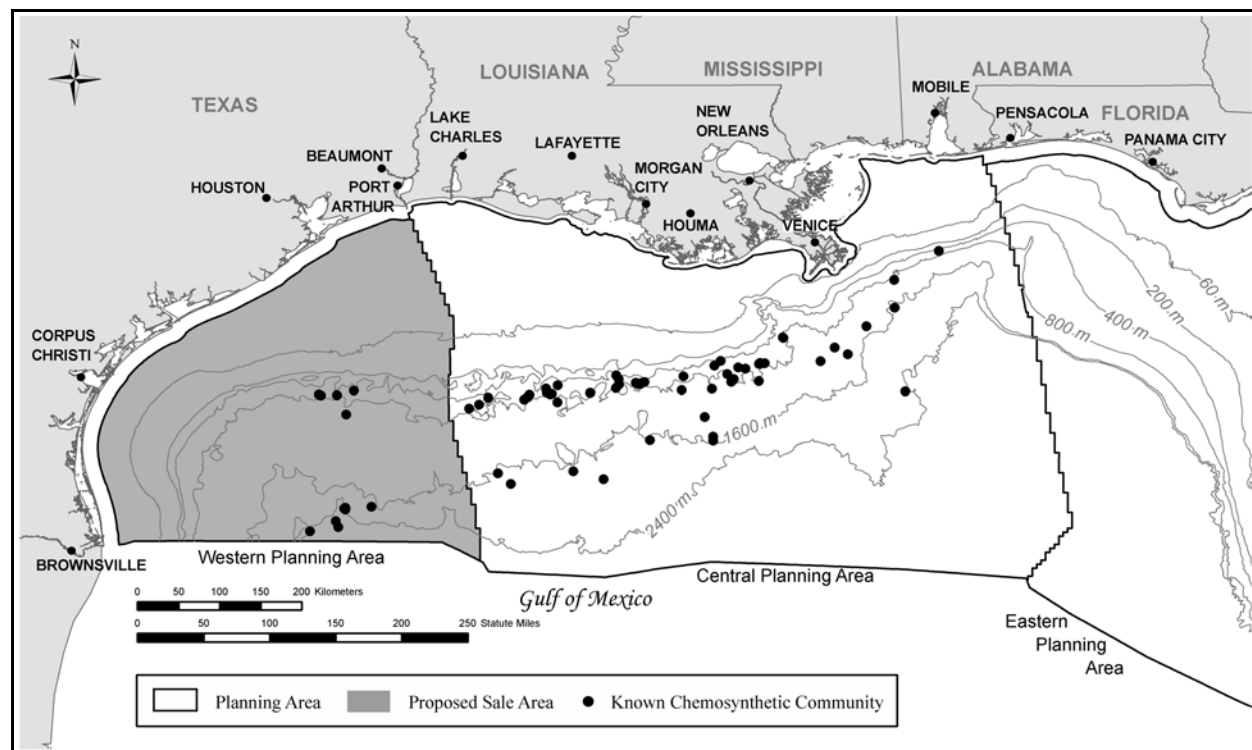


Figure 6. Known Chemosynthetic Communities in the Northern Gulf of Mexico.

Chemosynthetic communities are susceptible to physical impacts from structure placement (including templates or subsea completions), anchoring, pipeline installation, or from a blowout depending on bottom-current conditions. The guidance provided in NTL 2000-G20 greatly reduces the risk of these physical impacts by establishing standardized avoidance procedures for potential chemosynthetic communities. These communities are identified during the plan and permit approval processes by examination of associated data such as geophysical survey records or photodocumentation.

If the presence of a high-density community was missed using existing procedures, potentially severe or catastrophic impacts could occur due to raking of the sea bottom by anchors and anchor chains from floating structures and partial or complete burial by mud and cuttings associated with pre-riser discharges or some types of riserless drilling. Variations in the dispersal and toxicity of synthetic-based drilling fluids may contribute to the potential areal extent of these impacts. The severity of such an impact is such that there would be incremental losses of productivity, reproduction, community relationships, and overall ecological functions of the community, and incremental damage to ecological relationships with the surrounding benthos. Impacts on chemosynthetic communities from any accidental release of oil would be a remote possibility.

Impacts on deepwater communities in the Gulf of Mexico from sources other than OCS activities are considered negligible. The incremental contribution of proposed Lease Sale 215 to the cumulative impact is expected to be slight, and to result from the effects of the possible impacts caused by physical disturbance of the seafloor and minor impacts from sediment resuspension.

Proposed Lease Sale 215 is expected to cause little damage to the ecological function or biological productivity of chemosynthetic communities. The application of guidelines in NTL 2000-G20 provides an avoidance distance of a minimum 1,500 ft (457 m) for chemosynthetic communities. This avoidance distance reduces impacts from drilling discharges and resuspended sediments.

The MMS conducted a search for new information published since completion of the Multisale EIS and the Supplemental EIS for this EA. The MMS also conducted a search of Internet information sources (including scientific journals) as well as interviews with personnel from academic institutions and governmental resource agencies to determine whether any new information was available for review that would shed any new light on the resource or the impact of proposed Lease Sale 215. In addition, there is an ongoing MMS/National Oceanic and Atmospheric Administration Office of Ocean Exploration

(NOAA-OE) co-sponsored research project, *Investigations of Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico*, specifically targeting chemosynthetic communities in the deep GOM (USDOI, MMS, 2006; Brooks et al., 2008 and 2009). New chemosynthetic communities have been discovered using the surveys required by the biological review process for plans or pipeline applications to determine the proximity of areas with potential chemosynthetic communities. This investigation targeted sites pinpointed by MMS biological review practices; results have provided ground-truthing that further verified these MMS review practices.

Conclusion

The MMS has reexamined the analysis for chemosynthetic communities presented in the Multisale EIS and the Supplemental EIS, including the additional information presented above. Little new information, other than the MMS/NOAA-sponsored study listed above, is available for deep-sea communities in the GOM since completion of the Multisale EIS and the Supplemental EIS. A review of available information indicates no change in the status or cumulative impacts to chemosynthetic communities. This new information supports previous assessments. The incremental contribution of proposed Lease Sale 215 to the numerous cumulative impacts to chemosynthetic communities is not changed and is not expected to be significant. This is largely due to the implementation of proposed mitigation policies currently in place. No new information was discovered that would alter the impact conclusion for chemosynthetic communities presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on chemosynthetic communities is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.4.2.2. Nonchemosynthetic Deepwater Benthic Communities

The description of the biology, life history, and distribution of nonchemosynthetic deepwater benthic communities can be found in Chapter 3.2.2.2.2 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on nonchemosynthetic communities can be found in Chapters 4.2.1.1.4.2.2, 4.4.4.2.2, and 4.5.4.2 of the Multisale EIS, respectively. Additional, updated information can be found in Chapter 4.1.5 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

Impacts on soft-bottom, benthic communities from drilling and production activities would occur as a result of physical contact (crushing, burial) resulting from structure placement (including templates or subsea completions), anchoring, and installation of pipelines regardless of their locations. Megafauna and infauna communities at or below the sediment/water interface would be impacted from the muds and cuttings normally discharged at the seafloor at the start of every new well prior to riser installation. The impact from muds and cuttings discharged at the surface over deep water is expected to be minimal. Drilling muds would not be expected to reach the bottom in significant accumulations beyond a few hundred meters from the well location, and cuttings discharged at the surface would be dispersed. Even in the near-field areas where burial of typical benthic infaunal communities occurred, recolonization from populations from neighboring soft-bottom substrate would be expected over a relatively short period of time for all size ranges of organisms, in a matter of days for bacteria, and probably less than 1 year for most all macrofauna species. Most benthic invertebrates have some adaptive strategy to avoid burial by sudden pulses of sediment having thicknesses less than approximately 1 ft (0.3 m) (USDOI, MMS, 2005; page 68).

Deepwater coral habitats and other potential hard-bottom communities not associated with chemosynthetic communities appear to be relatively rare. These unique communities are distinctive and similar in nature to protected topographic features on the continental shelf. Any hard substrate communities located in deep water would be particularly sensitive to impacts from OCS activities. Impacts on these sensitive habitats could permanently prevent recolonization with similar organisms inhabiting deepwater hard substrate. The MMS review process using geophysical surveys would identify any potential hard-bottom substrate in the area of influence of a particular action resulting from Lease Sale 215. Mitigations applied, as outlined in NTL 2000-G20, for chemosynthetic communities would also protect other deepwater reef communities.

Accidental events resulting from proposed Lease Sale 215 are expected to cause little damage to the ecological function or biological productivity of the widespread, typical, deep-sea, soft-bottom benthic communities. Some impact on benthic communities would occur as a result of an accidental blowout. Megafauna and infauna communities at or below the sediment/water interface would be impacted by the physical disturbance of a blowout or by burial from resuspended sediments. Even in situations where substantial burial of typical benthic communities occurred due to a blowout, recolonization by populations from neighboring substrate would be expected over a relatively short period of time for all size ranges of organisms in the same timeframes as described above.

Impacts on deepwater communities in the Gulf of Mexico from sources other than OCS activities are considered negligible. The incremental contribution of proposed Lease Sale 215 to the cumulative impact is expected to be slight, and to result from the effects of the possible impacts caused by physical disturbance of the seafloor and minor impacts from sediment resuspension.

Proposed Lease Sale 215 is expected to cause little damage to the ecological function or biological productivity of the widespread, typical, deep-sea, soft-bottom benthic communities. Impacts on other hard-bottom communities are expected to be avoided as a consequence of the application of the existing NTL 2000-G20 for chemosynthetic communities. The same geochemical conditions associated with the potential presence of chemosynthetic communities also results in the establishment of hard carbonate substrate that is generally avoided by burrowing infauna.

A search was conducted for new information published since completion of the Multisale EIS and the Supplemental EIS. A search of Internet information sources (including scientific journals) as well as interviews with personnel from academic institutions and governmental resource agencies was conducted to determine availability of new information.

Interest in deepwater corals has increased rapidly in the last decade as more coral systems are discovered worldwide and their importance in providing habitat for diverse communities is realized. The MMS recently published two studies on hard-bottom communities with an emphasis on the coral *Lophelia*. The following are summaries of the results of these two studies, which will be used to develop additional studies of hard-bottom habitats in the deep Gulf of Mexico and which will also enhance the ability of MMS to protect sensitive, deepwater biological features.

The report, *Characterization of Northern Gulf of Mexico Deepwater Hard-Bottom Communities with Emphasis on Lophelia Coral* (CSA, 2007), presents the results of a study of 10 sites on the northern Gulf of Mexico continental slope consisting of hard-bottom areas that generally include dense assemblages of the coral *Lophelia pertusa*. Study elements include geological characterization; biological characterization, imaging, and sampling; water chemistry; and physical oceanography including short-term and long-term current meter deployments. This was the first comprehensive study of the distribution of *Lophelia pertusa* and its biology and ecology in the Gulf of Mexico. Results suggest that *Lophelia pertusa* plays a significant role in the ecology of deepwater, hard-bottom habitats on the upper slope.

In addition, there is an ongoing MMS/NOAA-OE co-sponsored research project, *Investigations of Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico*, which also looked at other hard bottoms including nonchemosynthetic communities (USDOI, MMS, 2006; Brooks et al., 2009). New deepwater coral communities were discovered using the surveys required by the MMS biological review process for plans or pipeline applications to determine the proximity of areas with potential chemosynthetic communities that also incorporates hard bottom and potential deepwater coral habitats. This investigation targeted sites pinpointed by MMS biological review practices; results have provided ground-truthing that further validates these MMS review practices.

Conclusion

The MMS has reexamined the analysis for nonchemosynthetic deepwater benthic communities presented in the Multisale EIS and the Supplemental EIS, including the additional information presented above. Little new information, other than the MMS/NOAA-sponsored study described above, is available for deep-sea communities in the GOM since completion of the Multisale EIS and the Supplemental EIS. A review of available information indicates no change in the status of cumulative impacts to nonchemosynthetic deepwater benthic communities. This new information supports previous assessments. The incremental contribution of proposed Lease Sale 215 to the numerous cumulative impacts to nonchemosynthetic deepwater benthic communities is not changed and is not expected to be significant. This is largely due to the implementation of proposed mitigation policies currently in place.

No new information was discovered that would alter the impact conclusion for nonchemosynthetic deepwater benthic communities presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on nonchemosynthetic deepwater benthic communities is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.5. Marine Mammals

The description of the biology, life history, and distribution of marine mammals in the Gulf of Mexico can be found in Chapter 3.2.3 of the Multisale EIS. A detailed impact analysis of the routine, accidental and cumulative impacts of proposed Lease Sale 215 on marine mammals can be found in Chapters 4.2.1.5, 4.4.5, and 4.5.5 of the Multisale EIS, respectively. Similar information is included in Chapter 4.1.6 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

Potential effects on marine mammal species may occur from routine activities associated with proposed Lease Sale 215 and may be direct or indirect. The major impact-producing factors affecting marine mammals as a result of routine OCS activities include the degradation of water quality from operational discharges; noise generated by helicopters, vessels, operating platforms, and drillships; vessel traffic; explosive structure removals; seismic surveys; and marine debris from service vessels and OCS structures.

Small numbers of marine mammals could be killed or injured by a collision with a service vessel; however, current MMS requirements and guidelines for vessel operation in the vicinity of protected species should minimize this risk (the proposed Protected Species Lease Stipulation and NTL 2007-G04).

Marine mammal ingestion of accidentally released industry debris is a concern. Entanglement in debris could have serious consequences. A marine mammal could suffer diminished feeding and reproductive success, and potential injury, infection, and death from entanglement in lost packing materials or debris. Industry has made good progress in debris management on vessels and offshore structures in the last several years. The debris awareness training, instruction, and placards required by the proposed Protected Species Lease Stipulation and NTL 2007-G03 are intended to greatly minimize the amount of debris that is accidentally lost overboard by offshore personnel.

Noise associated with proposed Lease Sale 215, including drilling noise, aircraft, and vessels, may affect marine mammals by eliciting a startle response or by masking other underwater sounds necessary for proper feeding or reproductive success. However, many of the industry-related sounds are believed to be out of, or on the limits of, marine mammal hearing, and the sounds are also generally temporary. The continued presence of sperm whales in close proximity to some of the deepwater structures in the GOM tends to lessen the concern of permanent displacement by disturbances caused by activity in support of offshore drilling or production.

Seismic operations have the potential to harm marine mammals in close proximity to firing airgun arrays, especially if they are directly beneath airguns when surveying begins. The proposed Protected Species Lease Stipulation and several mitigation measures, including onboard observers and airgun shut-downs for whales in the exclusion zone, included in NTL 2007-G02, "Implementation of Seismic Survey Mitigation Measures and Protected Species Observer Program," minimize the potential of harm from seismic operations to marine mammals.

Marine mammal death or injury is not expected from explosive structure-removal operations. Existing mitigations and those recently developed for structures placed in oceanic waters should continue to minimize adverse effects to marine mammals from these activities.

Contaminants in waste discharges and drilling muds might indirectly affect marine mammals through food-chain biomagnification. Although the scope and magnitude of such effects are not known, direct or indirect effects are not expected to be lethal.

Routine activities related to Lease Sale 215, particularly when mitigated as required by MMS, are not expected to have long-term adverse effects on the size and productivity of any marine mammal species or population endemic to the northern GOM.

Accidental blowouts, oil spills, and spill-response activities potentially resulting from Lease Sale 215 could impact marine mammals in the GOM. Characteristics of impacts (i.e., acute vs. chronic impacts) depend on the magnitude, frequency, location, and date of accidents; characteristics of spilled oil; spill-response capabilities and timing; and various meteorological and hydrological factors. Chronic or acute

exposure may result in harassment, harm, or mortality to marine mammals. Studies have shown varying results. Marine mammals made no apparent attempt to avoid spilled oil in some cases (Smultea and Würsig, 1995); however, marine mammals have been observed apparently detecting and avoiding slicks in other reports (Geraci and St. Aubin, 1987). Exposure to hydrocarbons persisting in the sea following the dispersal of a large oil slick is likely to result in sublethal impacts (e.g., decreased health, reproductive fitness, and longevity; and increased vulnerability to disease) to marine mammals.

Activities considered under the cumulative scenario could affect protected cetaceans and sirenians (manatees). Manatees, known to have occurred in the warm waters of Lake Pontchartrain in the weeks before Hurricane Katrina (Louisiana Dept. of Wildlife and Fisheries, 2005a), are generally extralimital in western Louisiana and Texas and are rare in waters of the WPA. Protected marine mammals could be impacted by marine debris, contaminant spills and spill-response activities, vessel traffic, noise, seismic surveys, explosive structure removals, commercial fishing, capture activities, and pathogens.

The cumulative impact on marine mammals is expected to result in a number of chronic and sporadic sublethal effects (behavioral effects and nonfatal exposure to or intake of contaminants or debris) that may stress and/or weaken individuals and predispose them to infection from natural or anthropogenic sources. Few deaths are expected from potential impacts. Disturbance (e.g. noise) and/or exposure to sublethal levels of toxins and anthropogenic contaminants may stress animals, weaken their immune systems, and make them more vulnerable to parasites and diseases that normally would not be fatal. The net result of any disturbance would be dependent upon the size and percentage of the population likely to be affected, the ecological importance of the disturbed area, the environmental and biological parameters that influence an animal's sensitivity to disturbance and stress, or the accommodation time in response to prolonged disturbance (Geraci and St. Aubin, 1980). Collisions between marine mammals and ships, although expected to be rare events, could cause serious injury or mortality. Natural phenomenon, such as tropical storms and hurricanes, are impossible to predict, but they will occur in the GOM. Generally, the offshore species and the offshore habitat are not expected to be severely affected in the long term. Species that occupy more nearshore habitats, however, may suffer more long-term impacts. The effects of recent GOM hurricanes are difficult to assess, but major impacts to Gulf marine mammal populations have not been reported.

Effects of the incremental contribution of proposed Lease Sale 215, combined with non-OCS activities, may be deleterious to marine mammals occurring in the GOM. Biological significance of any mortality would depend, in part, on the size and reproductive rates of the affected stocks, as well as the number, age, and size of animals affected. However, potential impacts from Lease Sale 215 activities are not expected to result in mortality.

The ESA (16 U.S.C. 1631 *et seq.*), as amended (43 U.S.C. 1331 *et seq.*), establishes a national policy designed to protect and conserve threatened and endangered species and the ecosystems upon which they depend. The ESA is administered by FWS and NMFS. Section 7 of the ESA governs interagency cooperation and consultation. Under Section 7, MMS consults with FWS and NMFS to ensure that OCS activities under MMS jurisdiction do not jeopardize the continued existence of threatened or endangered species and/or result in adverse modification or destruction of their critical habitat.

The formal consultation with NMFS was concluded with receipt of the Biological Opinion dated June 29, 2007, and received by MMS on July 3, 2007 (USDOC, NMFS, 2007a). The Biological Opinion concludes that the proposed lease sales and associated activities in the GOM in 5-Year Program, which includes Lease Sale 215, are not likely to jeopardize the continued existence of threatened and endangered species under NMFS jurisdiction or destroy or adversely modify designated critical habitat.

Section 7(b)(4)(c) of the ESA specifies that, in order to provide an incidental take statement for an endangered or threatened species of marine mammal, the taking must be authorized under Section 101(a)(5) of the Marine Mammal Protection Act (MMPA). Since no incidental take of listed marine mammals is expected or has been authorized under Section 101(a)(5)(A) of the MMPA and/or its 1994 amendments (see ESA Section 7(b)(4)(C)), no statement on incidental take of endangered whales is provided and no take is authorized. Nevertheless, MMS must immediately notify (within 24 hours, if communication is possible) the NMFS' Office of Protected Resources should a take of a listed marine mammal occur.

On December 26, 2002, MMS petitioned NMFS for rulemaking under the MMPA for the taking, by harassment, of sperm whales incidental to the oil and gas industry's seismic surveys to discover oil and gas deposits offshore in the GOM. The NMFS published a notice of receipt of the application on March 3, 2003 (68 FR 9991). The MMS then submitted a revised petition on September 26, 2004, to

include the incidental take of other species of marine mammals. On July 30, 2004, MMS completed its final programmatic EA on the action. On November 18, 2004, NMFS published a Notice of Intent to Prepare an EIS, a notice of public meetings, and a request for scoping comments. The MMS and NMFS are working together as co-lead agencies on the EIS and, due to lengthy delays in the MMPA process, MMS is currently updating and revising its previously submitted petition for MMPA rulemaking. Following issuance of such regulations under the MMPA, NMFS will amend their opinion to include any authorized incidental take of sperm whales, as may be appropriate at that time.

The NMFS believes that a small number of listed species will experience adverse effects as the result of exposure to a large oil spill or ingestion of accidentally spilled oil over the lifetime of the action. Spilled oil resulting from proposed Lease Sale 215 could cause up to 11 nonlethal takes of marine mammals over the 40-year lifetime of the proposed lease sale. However, NMFS is not including an incidental take statement for the incidental take of listed species due to oil exposure. Incidental take, as defined at 50 CFR 402.02, refers only to takings that result from an otherwise lawful activity. The Clean Water Act (33 U.S.C. 1251 *et seq.*) as amended by the Oil Pollution Act of 1990 (33 U.S.C. 2701 *et seq.*) prohibits discharges of harmful quantities of oil, as defined at 40 CFR 110.3, into waters of the United States. Therefore, even though the Biological Opinion considered the effects on listed species by oil spills that may result from proposed Lease Sale 215, those takings that would result from an unlawful activity (i.e., oil spills) are not specified in this Incidental Take Statement and have no protective coverage under Section 7(o)(2) of the ESA.

The FWS and MMS consulted informally on the proposed 2007-2012 lease sales, which includes Lease Sale 215. As a result of the informal consultation, there were no new mitigations from FWS.

A report by Palka and Johnson (2007) presented the results of a study that compared dive patterns of sperm whales in the Atlantic Ocean with the dive patterns and social structure of sperm whales in the Gulf of Mexico. The Atlantic Ocean sperm whales may serve as a control population with little exposure to sounds of oil and gas industry activities when compared with GOM sperm whales off the Mississippi Delta. The study found GOM sperm whales follow a foraging and socializing cycle similar to that observed for the North Atlantic sperm whales, but North Atlantic sperm whales dive significantly deeper (an average of 924 m [3,031 ft] compared with 639 m [2,096 ft] for the GOM whales) when foraging.

Based on NOAA surveys, opportunistic sightings, whaling catches, and stranding records, sperm whales in the GOM occur year-round. Sperm whales appear to favor water depths of about 1,000 m (3,281 ft) and appear to be concentrated in at least two geographic regions of the northern GOM: an area off the Dry Tortugas and offshore of the Mississippi River delta (Maze-Foley and Mullin, 2006); however, distribution also appears influenced by occurrence and movement of cyclonic/anticyclonic currents in the GOM. The MMS published the results of the multiyear, multifaceted Sperm Whale Seismic Study in 2008. This comprehensive research greatly increased the knowledge of sperm whale distribution and behavior in the GOM and contributed substantially to the worldwide body of knowledge on sperm whales (Jochens et al., 2008)

Conclusion

The MMS has reexamined the analysis for marine mammals presented in the Multisale EIS and the Supplemental EIS, and we have considered the recent reports cited above and the other new information as found in publications by the Marine Mammal Society and the Acoustic Society of America and as referenced on the MarMam listserve (Marine Mammals Research and Conservation Discussion). Since consultation on protected species is an ongoing process, MMS reviews recent findings with NMFS and FWS to ensure their concurrence that no information exists that would alter the impact analysis conclusions in the Multisale EIS and the Supplemental EIS. The concurrence for proposed Lease Sale 215 was received from NMFS on December 3, 2009, and from FWS on December 8, 2009. None of the recent tropical storm activity alters the cumulative effects baseline for marine mammals; however, MMS will continue to monitor the data over the next several years to verify that the baseline will not be altered. Therefore, the incremental effect of the proposed action on marine mammals is unchanged and the description of the environmental effects of the proposed action on marine mammals described in the Multisale EIS and the Supplemental EIS remains unchanged. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.6. Sea Turtles

The description of the biology, life history, and distribution of sea turtles in the Gulf of Mexico can be found in Chapter 3.2.4 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on sea turtles can be found in Chapters 4.2.1.6, 4.4.6, and 4.5.6 of the Multisale EIS, respectively. Similar information is included in Chapter 4.1.7 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

Routine activities resulting from proposed Lease Sale 215 have the potential to harm sea turtles. These animals could be impacted by the degradation of water quality resulting from operational discharges; noise generated by seismic exploration, helicopter and vessel traffic, platforms and drillships; vessel collisions; and marine debris generated by service vessels and OCS facilities. Lethal effects are most likely to be from chance collisions with OCS service vessels and ingestion of plastic materials. Most OCS activities are expected to have sublethal effects.

Contaminants in waste discharges and drilling muds might indirectly affect sea turtles through food-chain biomagnification, but there is uncertainty concerning the possible effects. Rapid dilution of the discharges should minimize impact. Chronic sublethal effects (e.g., stress) resulting in persistent physiological or behavioral changes and/or avoidance of impacted areas from noise disturbance could cause declines in survival or fecundity and result in population declines; however, such declines are not expected. The required seismic operation mitigations, particularly clearance of the impact area of sea turtles prior to ramp-up, and the subsequent gradual ramping up of the airguns, should minimize the impact of rapid onset of, and close proximity to, very loud noise. Vessel traffic is a serious threat to sea turtles. Diligence on the part of vessel operators, as encouraged by the vessel strike mitigations, should minimize vessel/sea turtle collisions. Actual sea turtle impacts from explosive removals in recent years have been small. The updated pre- and post-detonation mitigations should ensure that injuries remain extremely rare. Greatly improved handling of waste and trash by industry, along with the annual awareness training required by the marine debris mitigations, is decreasing the plastics in the ocean and minimizing the devastating effects on sea turtles that may become entangled or ingest plastic, mistaking it for food. The routine activities of proposed Lease Sale 215 are unlikely to have significant adverse effects on the size and recovery of any sea turtle species or population in the GOM.

Accidental blowouts, oil spills, and spill-response activities resulting from proposed Lease Sale 215 have the potential to impact small to large numbers of sea turtles in the GOM, depending on the magnitude and frequency of accidents, the ability to respond to accidents, the location and date of accidents, and various meteorological and hydrological factors. Chronic or acute exposure may result in harassment, harm, or mortality of sea turtles occurring in the northern Gulf. Exposure to hydrocarbons persisting in the sea following the dispersal of an oil slick are expected to most often result in sublethal impacts (e.g., decreased health and/or reproductive fitness, increased vulnerability to disease) to sea turtles. Sea turtle hatchling exposure to, fouling by, or consumption of tarballs persisting in the sea following the dispersal of an oil slick would likely be fatal.

The majority of OCS activities are estimated to be sublethal (behavioral effects and nonfatal exposure to intake of OCS-related contaminants or debris). Chronic sublethal effects (e.g., stress) resulting in persistent physiological or behavioral changes and/or avoidance of impacted areas could cause declines in survival or productivity, resulting in either acute or gradual population declines. However, mitigations currently in place have, and will continue to, minimize sea turtle impacts.

Activities considered under the cumulative scenario may harm sea turtles and their habitats. Those activities include structure installation, water quality and habitat degradation, marine debris, vessel traffic, seismic surveys, explosive structure removals, contaminant spills and spill-response activities, natural catastrophes, pollution, dredge operations, vessel collisions, commercial and recreational fishing, human consumption, beach lighting, and power plant entrainment. Primary causes of sea turtle mortality are collision with vessels, ingesting or becoming entangled with marine debris (particularly plastic items), and interaction with fishing gear.

Natural phenomenon, such as tropical storms and hurricanes, are impossible to predict, but they will occur in the GOM. Generally, the offshore species and the offshore habitat are not expected to be severely affected in the long-term. However, species that occupy more nearshore habitats and those that use nearshore habitats for nesting may suffer more long-term impacts. Several major hurricanes have hit the Gulf Coast in the last several years. Storm impacts, including loss of nesting habitat, increased marine

debris, and spilled pollutants can be detrimental to sea turtles. Impacts from the storms to nesting activity can be hard to assess. Hurricane Katrina in 2005 decimated the northern Gulf Coast, including the Chandeleur Islands off of Louisiana/Mississippi. This barrier island chain was a significant loggerhead nesting site (Lohofener et al., 1990). Very little area that would be suitable for nesting remains above sea level. Subsequent storms have delayed any rebuilding of the Chandeleur Islands. Hurricanes Ike and Gustav in 2008 also occurred in areas utilized by sea turtles for nesting. Hurricane Ike hit the northern Texas coast where Kemp's ridley sea turtles have begun nesting in recent years after decades of nest and hatchling relocation from beaches in Mexico. The massive amount of storm debris from Hurricane Ike littered beaches well into south Texas, including Padre Island, which is a very important Kemp's ridley nesting habitat. Both the washing away of sand beaches and the proliferation of debris on nesting beaches can pose major barriers to successful nesting. Although the beach cleanup in Texas will be a long process, the 2009 nesting season showed that the turtles returned despite last year's destruction, with 197 Kemp's ridley nests counted (USDOJ, NPS, 2009). This was the highest number of nests counted in Texas to date, barely topping the previous record of 195 nests in 2008. The late August/September timeframe of most of the recent Gulf of Mexico storms was toward the end of the sea turtle nesting season (generally April/May to October). Many nests had successfully hatched prior to storm damage (Florida Fish and Wildlife Conservation Commission, 2008).

In response to a request by the Gulf of Mexico Fishery Management Council, NMFS issued an emergency closure for the bottom longline fishery in the eastern Gulf from May 18 through October 28, 2009 (*Federal Register*, 2009). This action was promulgated by recent observer data analysis that showed the number of sea turtle takes authorized in a 2005 Biological Opinion had been substantially exceeded. The affected fishery operates primarily off the west Florida shelf, which is an important sea turtle foraging habitat. A decline in the number of reproducing female loggerheads has been suggested as one of the reasons for recent declines in the annual loggerhead sea turtle nest counts in peninsular Florida. The bottom longline fishery takes sea turtles, including adult females, incidentally as bycatch. Further restrictions and/or mitigations may be required after the expiration of this closure. Although the area of greatest impact from this commercial fishing activity is not in the WPA, such impact to the loggerhead sea turtle population must be considered with cumulative impacts. Concern over declining numbers of loggerhead sea turtles is reflected in NMFS's second revision of the Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*), which replaced the previous 1991 report (USDOC, NMFS and USDOJ, FWS, 2008).

The incremental contribution of proposed Lease Sale 215 to the numerous cumulative impacts to sea turtles is not expected to be significant, especially due to mitigations currently in place. Most potential impacts from Lease Sale 215 are expected to be sublethal.

The ESA (16 U.S.C. 1631 *et seq.*), as amended (43 U.S.C. 1331 *et seq.*), establishes a national policy designed to protect and conserve threatened and endangered species and the ecosystems upon which they depend. The ESA is administered by FWS and NMFS. Section 7 of the ESA governs interagency cooperation and consultation. Under Section 7, MMS consults with FWS and NMFS to ensure that OCS activities under MMS jurisdiction do not jeopardize the continued existence of threatened or endangered species and/or result in adverse modification or destruction of their critical habitat.

The formal consultation with NMFS was concluded with the Biological Opinion dated June 29, 2007, and received by MMS on July 3, 2007 (USDOC, NMFS, 2007a). The Biological Opinion concludes that the proposed lease sales and associated activities in the GOM in the 2007-2012 OCS Leasing Program, which includes Lease Sale 215, are not likely to jeopardize the continued existence of threatened and endangered species under NMFS jurisdiction, or destroy or adversely modify designated critical habitat. The NMFS issued an Incidental Take Statement on sea turtle species; the Statement contains reasonable and prudent measures (RPM's) with implementing terms and conditions to help minimize take.

The NMFS has determined that the following RPM's are necessary and appropriate to minimize impacts of the incidental take of sea turtles from vessel operation.

- (1) The MMS must reduce the potential for sea turtles to be struck and injured by vessels operating in support of oil and gas development activities in the GOM.
- (2) The MMS must require the monitoring and reporting of any sea turtles struck or observed to have sign of vessel interaction to assess the actual level of incidental take in comparison with the anticipated incidental take.

In order to be exempt from liability for take prohibited by Section 9 of the ESA, MMS must comply with the following terms and conditions, which implement the RPM's described above. These terms and conditions are nondiscretionary.

The following terms and conditions implement RPM No. 1.

- (1) The MMS must implement NMFS measures to reduce the risk of accidental vessel strikes with sea turtles by use of its legal authorities to ensure implementation of, and compliance with NTL No 2007-G04.

The following terms and conditions implement RPM No. 2.

- (1) The MMS must make information available to vessel operators concerning species information on sea turtles in the GOM and reporting of vessel-struck, or injured and dead animals.
- (2) The MMS must ensure that all vessel-struck, or injured or dead turtles with indications of vessel interactions are reported to the Sea Turtle Stranding Network Coordinator in the nearest coastal state. Any takes of listed species shall be reported to the NMFS Southeast Regional Office within no more than 24 hours of the incident to takereport.nmfsser@noaa.gov. If an MMS action is responsible for the injured or dead animals (e.g., because of a vessel strike), MMS shall require the responsible parties to assist the respective salvage and stranding network as appropriate. Report dead or injured protected species to your local stranding network contacts.
- (3) The MMS must submit an annual report to NMFS Southeast Regional Office regarding the reports of vessel-struck sea turtles, and injured or dead sea turtles reported from oil and gas operators. Hardcopies of all annual reports will be submitted to the following address:

Assistant Regional Administrator for Protected Resources
National Marine Fisheries Service
263 13th Avenue South
St. Petersburg, FL 33701

The NMFS expects impacts on sea turtles in the proposed lease sale area as a result of OCS oil and gas leasing activities. Based on stranding records, incidental captures during recreational and commercial fishing operations, scientific surveys, and historical data, the five species of sea turtles are known to occur in GOM waters in and around the proposed lease sale area. The vessel strike avoidance requirements (NTL 2007-G04) will appreciably reduce the numbers of sea turtles that may be incidentally taken from routine offshore vessel operations associated with proposed Lease Sale 215; however, the available information on the relationship between these species and OCS oil and gas activities indicates that sea turtles may be killed or injured by vessel strikes as a result of proposed Lease Sale 215. Therefore, pursuant to Section 7(b)(4) of the ESA, NMFS anticipates incidental take as follows:

- 119 lethal takes (2.9 individuals annually, on average) and 238 nonlethal takes (5.9 individuals annually, on average) of loggerhead sea turtles over the 40-year lifetime of the 2007-2012 actions, including proposed Lease Sale 215.
- 10 lethal takes (1 individual every 4 years, on average) and 21 nonlethal takes (1 individual every 1.9 years, on average) of leatherback sea turtles over the 40-year lifetime of the 2007-2012 actions, including proposed Lease Sale 215.
- 13 lethal takes (1 individual every 3 years, on average) and 26 nonlethal takes (1 individual every 1.5 years, on average) of Kemp's ridley sea turtles over the 40-year lifetime of the 2007-2012 actions, including proposed Lease Sale 215.

- 38 lethal takes (1 individual every 1.1 years, on average) and 76 nonlethal takes (1.9 individuals annually, on average) of green sea turtles over the 40-year lifetime of the 2007-2012 actions, including proposed Lease Sale 215.
- 1 lethal take and 1 nonlethal take of a hawksbill sea turtle over the 40-year lifetime of the 2007-2012 actions, including proposed Lease Sale 215.

If the actual incidental take exceeds this level, MMS must immediately reinitiate formal consultation.

In accordance with the Incidental Take Statement, NMFS believes that a small number of listed species will experience adverse effects as the result of exposure to a large oil spill or ingestion of accidentally spilled oil over the lifetime of the 2007-2012 actions, including proposed Lease Sale 215. However, NMFS is not including an Incidental Take Statement for the incidental take of listed species due to oil exposure. Incidental take, as defined at 50 CFR 402.02, refers only to takings that result from an otherwise lawful activity. The Clean Water Act (33 U.S.C. 1251 *et seq.*), as amended by the Oil Pollution Act (33 U.S.C. 2701 *et seq.*), prohibits discharges of harmful quantities of oil, as defined at 40 CFR 110.3, into waters of the United States. Therefore, even though the Biological Opinion considered the effects on listed species by oil spills that may result from proposed Lease Sale 215, those takings that would result from an unlawful activity (i.e., oil spills) are not specified in the Incidental Take Statement and have no protective coverage under Section 7(o)(2) of the ESA.

As noted in the Multisale EIS and the Supplemental EIS, FWS and MMS consulted informally on lease sales to be conducted from 2007 through 2012, which includes Lease Sale 215. As a result, there were no new mitigations or Terms and Conditions from FWS.

Conclusion

The MMS has reexamined the analysis for sea turtles presented in the Multisale EIS and the Supplemental EIS and has considered the recent reports cited above and other new information. Since consultation on protected species is an ongoing process, MMS reviews recent findings with NMFS and FWS to ensure their concurrence with the MMS conclusion that no new information exists that would alter the impact analysis conclusions in the Multisale EIS and the Supplemental EIS. The concurrence for Lease Sale 215 was received from NMFS on December 3, 2009, and from FWS on December 8, 2009. While new information confirms that tropical storms and longline fishing cause significant cumulative impacts on sea turtles, the incremental contribution of proposed Lease Sale 215 to those cumulative impacts remains as described in the Multisale EIS and the Supplemental EIS and still will not have a population-level effect on the species. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS, including the cumulative effects analysis, still apply for proposed Lease Sale 215.

4.2.7. Gulf Sturgeon

The description of the biology, life history, and distribution of Gulf sturgeon can be found in Chapter 3.2.7.1 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on Gulf sturgeon can be found in Chapters 4.2.2.1.9.1, 4.4.9.1, and 4.5.9.1 of the Multisale EIS, respectively, and in Chapter 4.1.10.1 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

The NOAA Fisheries and FWS listed the Gulf sturgeon as a threatened species on September 30, 1991. Critical habitat was proposed on June 6, 2002, in the *Federal Register* and was designated on April 18, 2003.

Potential impacts on Gulf sturgeon and the designated critical habitat may occur from drilling and produced-water discharges, degradation of estuarine and marine water quality by nonpoint runoff from estuarine OCS-related facilities, vessel traffic, explosive removal of structures, and pipeline installation. The dilution and low toxicity of this pollution is expected to result in a negligible impact on Gulf sturgeon as a result of proposed Lease Sale 215. Vessel traffic, including vessels using navigation channels while in support of offshore activities, will generally only pose a risk to Gulf sturgeon when leaving and returning to port. In accordance with the designation of critical habitat by FWS and NOAA, these agencies excluded major navigation channels from Gulf sturgeon critical habitat because the benefits of

excluding these channels outweighed the benefits of including them as critical habitat. The FWS and NOAA concluded that this exclusion will not cause extinction of the species because the shipping channels may provide food resources needed in the winter months and because other large areas of prey and corridors for migration are available in the remainder of the units to prevent the extinction of the species (USDOJ, FWS, 2007b). The Gulf sturgeon's characteristics of bottom feeding and general avoidance of disturbance make the probability of vessel strike extremely remote. Explosive removal of structures as a result of proposed Lease Sale 215 will occur well offshore of Gulf sturgeon critical habitat and the riverine, estuarine, and shallow Gulf habitats where sturgeon are generally located. Environmental permit requirements and recent techniques for locating pipelines will result in a very minimal impact to Gulf sturgeon critical habitat if any pipeline is installed nearshore due to proposed Lease Sale 215. Impacts from routine activities resulting from proposed Lease Sale 215 are expected to have negligible effects on Gulf sturgeon and their designated critical habitat.

The Gulf sturgeon could be impacted by oil spills resulting from proposed Lease Sale 215. Contact with spilled oil could have detrimental physiological effects. The juvenile and subadult Gulf sturgeon, at a minimum, seasonally use the nearshore coastal waters and could potentially be at risk from both coastal and offshore spills. However, several factors influence the probability of spilled oil contact with Gulf sturgeon or their critical habitat. The likelihood of spill occurrence and subsequent contact with, or impact to, Gulf sturgeon and/or designated critical habitat is extremely low.

The Gulf sturgeon and its critical habitat can be cumulatively impacted by activities such as oil spills, alteration and destruction of habitat, and commercial fishing. The effects from contact with spilled oil will be sublethal and last for less than 1 month. Substantial damage to Gulf sturgeon critical habitat is expected from inshore alteration activities and natural catastrophes. As a result, it is expected that the Gulf sturgeon will experience a decline in population sizes and a displacement from their current distribution that will last more than one generation. Deaths of adult sturgeon are expected to occur from commercial fishing. The incremental contribution of proposed Lease Sale 215 to the cumulative impact is negligible because the effect of contact between sale-specific oil spills and Gulf sturgeon is expected to be sublethal and last less than 1 month.

A search was conducted for new information published since completion of the Multisale EIS and the Supplemental EIS. A search of Internet information sources as well as interviews with personnel from State and Federal resource agencies was conducted to determine the availability of recent information. Various Internet sources were examined to determine any recent information regarding Gulf sturgeon (Florida Fish and Wildlife Conservation Commission, 2007; USDOJ, FWS, 2007a and 2007b). No new information was discovered from these information sources.

State and Federal resource agencies were contacted and interviews conducted to investigate any recent published or unpublished data that may be available. Current information indicates that there may have been some displacement of sturgeon or possibly damage to their habitat in localized areas where tropical storm forces were strongest. The current sampling programs along the Gulf Coast indicate (at least anecdotally) that sturgeon are returning to the areas they occupied prior to Hurricane Katrina, which may indicate somewhat of a recovery of those areas (Paruka, personal communication, 2007). No changes in migratory patterns or blockages of migratory pathways have been noted. In general, the researchers noted that the sturgeon are normally found approximately 0.5 mi (0.8 km) from shore between the shoreline and the barrier islands with the bulk of the fish located in the CPA between Petit Bois, Dauphin, and Chandeleur Islands and from Perdido to Panama City as far as Fort Walton Beach (Slack, personal communication, 2007; Paruka, personal communication, 2007).

The NOAA indicates no changes in critical habitat have occurred, and they are working to develop an estimate of sturgeon habitat loss and a habitat suitability index for the species (Bolden, personal communication, 2007). They also have no data indicating that sturgeons are utilizing the deeper Gulf waters. In general, the mud substrates found in the Gulf waters do not support the appropriate benthic food source for Gulf sturgeon. Based on Gulf sturgeon population studies that recently analyzed data from coastal rivers along the Alabama and west Florida (especially Choctawhatchee) coasts indicate that sturgeon populations have recovered to pre-hurricane conditions (Paruka, personal communication, 2008). It was noted that Hurricanes Gustav and Ike did initially displaced some of the Gulf sturgeon in the Mississippi/Louisiana area much like what happened in Florida during Hurricane Katrina. Current surveys along the Mississippi coast indicate no permanent impact to critical habitat and acknowledged that the sturgeon has returned to their normal feeding and resting areas along the coastal rivers. Sampling

is not yet complete to see if the population has had any change in composition or if spawning has occurred this year (Slack, personal communication, 2008).

The MMS has consulted with NMFS for the proposed WPA and CPA lease sales in the 5-Year Program, which includes Lease Sale 215. The NMFS Biological Opinion signed on June 29, 2007, concludes that the proposed lease sales, including Lease Sale 215, and associated activities are not likely to jeopardize the continued existence of threatened and endangered species under NMFS jurisdiction or destroy or adversely modify designated critical habitat.

Conclusion

Based on interviews with the principal researchers and Gulf Sturgeon Recovery Team members (Paruka, 2008; Slack, 2008), who are currently monitoring Gulf sturgeon in the WPA, and based on their knowledge of any changes in recovery conditions, critical habitat, or population dynamics, there is no pertinent additional information that needs to be added to the EA at this time. In addition, the FWS and NMFS endangered species' websites were examined for any new information pertaining to Gulf sturgeon that would be relevant to this lease sale. The MMS has reexamined the analysis for the Gulf sturgeon presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new information was discovered that would change the status or description of the resource or alter the impact conclusion for the Gulf sturgeon presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on the Gulf sturgeon is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.8. Coastal and Marine Birds

The description of the biology, life history, and distribution of coastal and marine birds in the Gulf of Mexico can be found in Chapter 3.2.6 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on coastal and marine birds can be found in Chapters 4.2.1.1.7, 4.4.8, and 4.5.8 of the Multisale EIS, respectively. Additional, updated information can be found in Chapter 4.1.9 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

The majority of effects resulting from proposed Lease Sale 215 on endangered/threatened and nonendangered/nonthreatened coastal and marine birds are expected to be sublethal: behavioral effects, sublethal exposure to or intake of OCS-related contaminants or debris, temporary disturbances, and displacement of localized groups from impacted habitats. Chronic sublethal stress, however, is often undetectable in birds. As a result of stress, individuals may weaken, facilitating infection and disease; then, migratory species may not have the strength to reach their destination. Attraction to platform lights may result in the circling of platforms, collision with and subsequent stranding on the platform/vessel, and wasted use of important energy reserves that causes acute sublethal stress from energy loss, while stopovers on platforms would reduce energy loss. No significant habitat impacts are expected to occur directly from routine activities resulting from proposed Lease Sale 215. Secondary impacts from pipeline and navigation canals to coastal habitats will occur over the long-term and may ultimately displace species from traditional sites to alternative sites.

Oil spills from proposed Lease Sale 215 pose the greatest potential direct and indirect impacts on coastal and marine birds. Birds that are heavily oiled are usually killed. If physical oiling of individuals or local groups of birds occurs, some degree of both acute and chronic physiological stress associated with direct and secondary uptake of oil would be expected. Small coastal spills, pipeline spills, and spills from accidents in navigated waterways can contact and affect the different groups of coastal and marine birds, most commonly marsh birds, waders, waterfowl, and certain shorebirds. Lightly oiled birds can sustain tissue and organ damage from oil ingested during feeding and grooming or from oil that is inhaled. Stress, trauma, and shock enhance the effects of exposure and poisoning. Low levels of oil could stress birds by interfering with food detection, feeding impulses, predator avoidance, territory definition, homing of migratory species, susceptibility to physiological disorders, disease resistance, growth rates, reproduction, and respiration. Reproductive success can be affected by the toxins in oil. Indirect effects occur by fouling of nesting habitat, and displacement of individuals, breeding pairs, or populations to less favorable habitats. Competition may displace refugee seabirds from all habitats.

New research, experience, and testing will help the efficacy of the rehabilitation of oiled birds and probably improve scare methods that will keep birds away from an oil slick. Rehabilitation can be significant to the survival of threatened and endangered bird species.

Dispersants used in spill cleanup activity can have toxic effects similar to oil on the reproductive success of coastal and marine birds. The air, vehicle, and foot traffic that takes place during shoreline cleanup activity can disturb nesting populations and degrade or destroy habitat if not properly regulated.

Activities considered under the cumulative activities scenario will detrimentally affect coastal and marine birds. It is expected that the majority of effects from the major impact-producing factors on coastal and marine birds are sublethal (behavioral effects and nonfatal exposure to or intake of OCS-related contaminants or debris) and will usually cause temporary disturbances and displacement of localized groups inshore. The net effect of habitat loss from oil spills, new construction, and maintenance and use of pipeline corridors and navigation waterways will alter species composition and reduce the overall carrying capacity of disturbed area(s) in general.

The incremental contributions of proposed Lease Sale 215 (Chapters 4.2.1.1.7 and 4.4.8 of the Multisale EIS and Chapter 4.1.9.4 of the Supplemental EIS) to the cumulative impacts on coastal and marine birds is negligible because the effects of the most probable impacts, such as sale-related operational discharges and helicopters and service-vessel noise and traffic, are estimated to be sublethal, and some displacement of local individuals or groups may occur. It is expected that there will be little interaction between oil spills from proposed Lease Sale 215 and coastal and marine birds.

The cumulative effect of programmatic activities on coastal and marine birds is expected to result in a small but discernible decline in the numbers of birds with associated change in species composition and distribution. Some of these changes are expected to be permanent, as exemplified in historic census data, and to stem from a net decrease in preferred and/or critical habitat.

On June 28, 2007, FWS announced the removal of the bald eagle from the list of threatened and endangered species (USDOJ, FWS, 2007c). The FWS will work with State wildlife agencies to monitor eagles for at least 5 years. The FWS can propose to relist the species if it appears that bald eagles again need the protection of the Endangered Species Act. The bald eagle will continue to be protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Both Federal laws prohibit “taking”—killing, selling, or otherwise harming eagles, their nests, or eggs.

Seabird bycatch in longline fisheries before regulation caused severe global declines in many seabird species. However, with recent volunteer monitoring or mandatory observation, cumulative impacts for future bird bycatch of longline fisheries on marine birds in the northern Gulf of Mexico are expected to be negligible. The longline fisheries in the GOM comprise pelagic swordfish and tuna, demersal shark, demersal reef, and a slight overlap of the two demersal fisheries (fishermen who have permits for both fisheries). The total incidental seabird bycatch for the bottom longline fisheries was one gull of unidentified species, two brown pelicans, one herring gull, and two unidentified seabirds. Otherwise, observers or volunteer monitors found no interference of the shark and reef fish fisheries and their overlap for part or all of the period 2005-2008 (Hale and Carlson, 2007; Hale et al., 2007 and 2009; Scott-Denton, personal communication, 2009). For the pelagic longline fishery, the total incidental bird bycatch was one brown pelican and two unidentified seabirds from 1992 to 2005 (Beerkircher, personal communication, 2009). Observed or reported number of hauls or sets was 24-179 for 6- to 12-month periods for the bottom longline fisheries and 4,579 for 1995-2005 for the pelagic longline fishery. However, previous cumulative impacts have a delayed effect because of the long life span and correlated low annual reproductive effort of seabirds.

Little research has been done on the impacts of noise on wildlife, including the cumulative impacts on marine birds. The focus of research has been on impacts of ever-increasing anthropogenic noise on humans with relatively little biocentric investigation of wildlife impacts (Radle, 2007). Exceptions include a report on low-flying supersonic aircraft and Dry Tortugas sooty terns, which had a 99 percent failure in egg hatching in 1969 when impacts began; in contrast, a study on real and simulated sonic booms and wild turkeys caused no abnormal behavior affecting productivity (Radle, 2007). A study of boating noise and wintering bald eagles showed disruption of feeding and increasing investment of energy, in avoidance flights (Radle, 2007). Physiological responses of wildlife to noise include increased heart rate, altered metabolism, and hormone imbalance. Behavioral responses include head raising, body shifting, short trots, flapping of wings, panic, and escape. The coupling of these effects may cause bodily injury, energy loss, a decrease in food intake, habitat avoidance and abandonment, and reproductive losses (Radle, 2007).

Burger (1997) reported that exposure to small amounts of oil may weaken birds or decrease their body weight. In this condition, they may live for years without problems until they face a severe environmental stress that can cause higher mortality rates than in unexposed birds. Burger (1993) notes little or no correlation between spill volume and bird mortality; rather, the density of seabirds in the affected area, wind conditions, wave action, and distance to the shore may have more effect. Khan and Ryan (1991) note substantial mortality in seabirds after attempts at rehabilitation. Sublethal symptoms of contamination were numerous and substantial prior to the mortality. Similarly, numerous symptoms were found in dead birds on the shore and in birds dying after rehabilitation that were affected by the *Prestige* oil spill in Spain on November 19, 2002 (Balseiro et al., 2005). Final major impacts on European shags (*Phalacrocorax aristotelis*) from the *Prestige* spill probably came in 2003 from a decimated food supply of fish (Velando et al., 2005). As oil weathered, the exposure of seabirds to oil from the *Exxon Valdez* spill shifted from direct oiling to ingestion with food (Hartung, 1995).

Parsons (1994) provides the following unique before and after data for impacts of a spill on birds. Extensive shoreline and salt marsh were oiled by a January 1990 Exxon spill in the Arthur Kill and Kill van Kull estuaries of New York Harbor. Double-crested cormorants had reached their pre-spill population growth by 1991. Productivity of herring gulls remained unchanged by the spill. Most heron populations increased after the spill. Great black-backed gulls had a loss of abundance. Snowy egrets and glossy ibis used salt marsh and mud flat habitat, some of which was oiled. Black-crowned night heron and glossy ibis had delayed nesting after the spill, and along with snowy egret showed lower reproductive success after the spill. Egg laying and hatching were generally more successful than chick-rearing, due to food shortages for chicks. Waterfowl were not affected seriously, except for a short-term decline in mallards.

The piping plover (*Charadrius melodus*), listed as threatened, is a migratory shorebird that is endemic to North America. It winters on the Atlantic and Gulf Coasts from North Carolina to Mexico and in the Bahamas West Indies. Critical wintering habitat includes the land between mean low water and any densely vegetated habitat, which is not already used by piping plover. It has been hypothesized that specific wintering habitat, which includes coastal sand flats and mud flats in close proximity to large inlets or passes, may attract the largest concentrations of piping plovers because of a preferred prey base and/or because the substrate coloration provides protection from aerial predators due to chromatic matching, or camouflage (Nicholls and Baldassarre, 1990). This species remains in a precarious state given its low population numbers, sparse distribution, and continued threats to habitat throughout its range. About 2,299 birds were located on the U.S. wintering grounds during the 2001 census (Haig and Ferland, 2002). The results of the 2006 International Census have been published and, during that census, 226 piping plovers were counted at 26 sites along 201.7 km in Louisiana (Elliott-Smith et al., 2009). At last count, the species' Atlantic population was down to fewer than 1,800 pairs (Barcott, 2007).

The MMS conducted a search for new information published since completion of the Multisale EIS and the Supplemental EIS. A search of Internet bibliographic databases, as well as personal interviews with authors of references used in the Multisale EIS, was conducted to determine the availability of recent information since publication of the Multisale EIS. No new information was discovered from these information sources. The MMS also contacted and interviewed authors to investigate any recently published data that may be available since the Supplemental EIS. A large study of military aircraft and the impacts of noise on birds offshore of California is in preparation, but it is not expected to be available in the near future (Bowles, personal communication, 2009). Nisbet (personal communication, 2009) knows of no new information on the impacts of human disturbance on birds since his own work in 2000. Flint (personal communication, 2007) knows of no new published information in 2006-2007 on the impacts of trash and debris on marine birds, particularly those with which she was familiar in the Pacific, including albatrosses at Midway Island. Jankowski (personal communication, 2007) suggested several articles from online bibliographic databases.

Conclusion

The MMS has reexamined the analysis for coastal and marine birds presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Although new information may slightly alter the cumulative impacts to coastal and marine birds and their habitat, the incremental effect of the proposed action on coastal and marine birds is unchanged or only minimally changed. Therefore, the new information does not significantly change the description of the

environmental effects of the proposed action on coastal and marine birds as described in the Multisale EIS and the Supplemental EIS. No new information was discovered that would alter the impact conclusion for coastal and marine birds presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on coastal and marine birds is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.9. Fish Resources and Essential Fish Habitat

The description of the biology, life history, and distribution of fish resources and descriptions of essential fish habitat (EFH) can be found in Chapter 3.2.8.1 and 3.2.8.2 of the Multisale EIS, respectively. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on fish resources and EFH can be found in Chapters 4.2.1.1.8, 4.4.10, and 4.5.10 of the Multisale EIS, respectively, and Chapter 4.1.11 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

It is expected that coastal and marine environmental degradation from proposed Lease Sale 215 would have little effect on fish resources or EFH. The impact of coastal and marine environmental degradation is expected to cause an undetectable decrease in fish resources or in EFH. Fish resources and EFH are expected to recover from most, but not all, of the expected coastal and marine environmental degradation. Fish populations, if left undisturbed, will likely regenerate quickly, but any loss of wetlands as EFH would likely be permanent.

Routine activities such as pipeline trenching and OCS discharge of drilling muds and produced water would cause negligible impacts and would not deleteriously affect fish resources or EFH. At the expected level of impact, the resultant influence on fish resources would be negligible in fish populations or EFH. As a result, there would be little disturbance to fish resources or EFH.

Accidental events resulting from oil and gas development in the proposed Lease Sale 215 area of the GOM have the potential to cause some detrimental effects on fisheries and commercial fishing practices. A subsurface blowout would have a negligible effect on GOM fish resources. If spills due to proposed Lease Sale 215 were to occur in open waters of the OCS proximate to mobile adult finfish or shellfish, the effects would likely be nonfatal and the extent of damage would be reduced due to the capability of adult fish and shellfish to avoid a spill, to metabolize hydrocarbons, and to excrete both metabolites and parent compounds (recognizing that spill impacts are substantial when contacting fish eggs and larvae). The effect of proposed Lease Sale 215-related oil spills on fish resources is not expected to cause a measureable change in standing stocks of any population, landings, or value of those landings. Historically, there have been no oil spills of any size that have had a long-term impact on fishery populations.

Additional hard substrate habitat provided by structure installation in areas where natural hard bottom is rare will tend to increase or concentrate fish populations. Removal of these structures will eliminate that habitat except when decommissioning results in platforms being utilized as artificial reef material. This practice is expected to increase over time.

Activities resulting from other OCS Program and non-OCS events in the northern GOM have the potential to cause detrimental effects on fish resources and EFH. Impact-producing factors of the cumulative scenario that are expected to substantially affect fish resources and EFH include coastal and marine environmental degradation, overfishing, and to a lesser degree, coastal petroleum spills and coastal pipeline trenching. At the estimated level of cumulative impact from the OCS Program and non-OCS events, the resultant influence on fish resources is not expected to be easily distinguished from effects due to natural population variations, and the result on EFH is not expected to be easily distinguished from other sources of coastal degradation, both natural and manmade.

The incremental contribution of proposed Lease Sale 215's impacts on fish resources and EFH to the cumulative impact is small. The effects of impact-producing factors (coastal and marine environmental degradation, petroleum spills, subsurface blowouts, pipeline trenching, and offshore discharges of drilling muds and produced waters) related to proposed Lease Sale 215 are expected to be negligible (resulting in decreases in fish populations indistinguishable from natural population fluctuations) and almost undetectable among the other cumulative impacts. The cumulative impact of proposed Lease Sale 215 on EFH is expected to be undetectable, especially when considered in the light of years of major hurricane

impacts on coastal wetlands as in 2005 (Hurricanes Katrina and Rita) and 2008 (Hurricanes Gustav and Ike).

At the expected level of impact, the resultant influence on fish populations and EFH from proposed Lease Sale 215 would be small and indistinguishable from variations due to natural causes; however, wetland loss could occur due to a petroleum spill contacting inland areas. Any decreases in fish resources and/or standing stocks resulting from proposed Lease Sale 215 would probably require no more than one generation for fish resources to recover from the impacts. Recovery from any loss of wetland habitat to EFH would probably not occur.

The MMS conducted a search for new information published since completion of the Multisale EIS and the Supplemental EIS. A search of Internet information sources (including scientific journals) as well as interviews with personnel from academic institutions and governmental resource agencies was conducted by MMS to determine whether new information was available to review and whether it shed any new light on the resources or the impacts of proposed Lease Sale 215. Informational Internet websites include those from the Gulf of Mexico Fisheries Management Council and the NMFS Southeast Region. Some recent reports from NOAA have documented impacts from the 2005 hurricanes on fish and fishery habitat. One recent example is *Report to Congress on the Impacts of Hurricanes Katrina, Rita, and Wilma on Alabama, Florida, Louisiana, Mississippi, and Texas Fisheries*, which was published in July 2007 (USDOC, NMFS, 2007b). This report confirms the substantial impacts of the 2005 hurricanes to nearshore habitats, especially oyster reefs.

The Louisiana Dept. of Wildlife and Fisheries (2005b) estimated \$981 million in storm-related fisheries losses for Louisiana parishes affected by Hurricane Rita and \$1.29 billion losses projected for areas damaged by Hurricane Katrina for a total of \$2.27 billion. Offshore fisheries habitat sustained some impact, but not substantial.

In September 2008, Hurricanes Gustav and Ike made landfall on the Gulf Coast. Hurricane Gustav came ashore southwest of New Orleans as a Category 2 storm and Hurricane Ike made landfall as a Category 2 storm at Galveston. The Louisiana Dept. of Wildlife and Fisheries announced in April 2009 a \$15.7-million cooperative research program with NOAA to monitor the recovery of Louisiana commercial fisheries impacted by Hurricanes Katrina and Rita, Gustav, and Ike (Louisiana Dept. of Wildlife and Fisheries, 2009). These data, intended to be gathered from the commercial fishing industry, are not yet available. Caffey (personal communication, 2008), however, made a preliminary estimate that revenue losses from Hurricanes Gustav and Ike on Louisiana fisheries and aquaculture sectors would be in excess of \$98 million.

Hurricane damage sustained by the fisheries in Galveston Bay as a result of Hurricane Ike, with emphasis on the oyster reefs and fishery infrastructure, is documented by Haby et al. (2009). This report estimated losses in excess of \$31 million including private leases, docks, fuel systems, plants, and inventories in the oyster industry. Docks and fuel systems often serve multiple commercial as well as recreational fisheries.

The status of fish stocks in the Gulf of Mexico has also been tracked. Changes in the overfished status of FSSI stocks in the Southeast Region as of December, 2008 (USDOC, NMFS, 2009a) are listed below:

- Pink shrimp – Gulf of Mexico is now subject to overfishing
- Royal red shrimp – not overfished
- Gray trigger fish – Gulf of Mexico is overfished (previously unknown)

The red snapper and greater amberjack are also overfished.

No changes in stock status were noted as of the end of the first and second quarters (March and June) of 2009 (USDOC, NMFS, 2009b and c).

Conclusion

The MMS has reexamined the analysis for fish resources and EFH presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Although new information regarding factors affecting Gulf of Mexico fish resources and EFH was obtained and reviewed, all of the information obtained referenced natural factors that would affect fish populations, EFH, or the ability of

commercial fishermen to harvest or sell their catch. The contribution of proposed Lease Sale 215 to cumulative impacts is minimal. No new information was discovered that would alter the conclusions and impact description of proposed Lease Sale 215 in the Multisale and Supplemental EIS's and the contribution to the cumulative impacts of proposed Lease Sale 215 on fish resources and EFH as presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on fish resources and EFH is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.10. Commercial Fishing

The description of commercial fishing in the proposed Lease Sale 215 area can be found in Chapter 3.3.1 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on commercial fishing can be found in Chapters 4.2.1.1.9, 4.4.10, and 4.5.11 of the Multisale EIS, respectively, and Chapter 4.1.12 of the Supplemental EIS. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

Effects on commercial fishing from activities associated with proposed Lease Sale 215 could result from the installation of production platforms, underwater OCS obstructions, production platform removals, seismic surveys, subsurface blowouts, pipeline trenching, and petroleum spills. Activities such as seismic surveys and pipeline trenching will cause negligible impacts and will not deleteriously affect commercial fishing activities. Seismic surveys are not expected to cause long-term or permanent displacement of any listed species from critical habitat/preferred habitat or to result in the destruction or adverse modification of critical habitat or essential fish habitat. Operations such as production platform emplacement, underwater OCS impediments, and explosive platform removal will cause slightly greater impacts on commercial fishing.

Commercial fishermen would actively avoid the area of a spill. Even if fish resources successfully avoid spills, tainting (oily-tasting fish), public perception of tainting, or the potential of tainting commercial catches would prevent fishermen (either voluntarily or imposed by regulation) from initiating activities in the spill area. This, in turn, could decrease landings and/or the value of catch for several months. The effect of proposed Lease Sale 215-related oil spills on fish resources and commercial fishing is not expected to cause a measurable decrease in standing stocks of any population, commercial fishing efforts, landings, or value of those landings.

At the expected level of impact, the resultant influence on commercial fishing activities from proposed Lease Sale 215 would be indistinguishable from variations due to natural causes. As a result, there would be very little impact on commercial fishing. Proposed Lease Sale 215 is expected to result in no measurable change in activities, in pounds landed, or in the value of landings. Fishing activity will recover quickly from any oil-spill impacts.

The MMS conducted a search for new information published since completion of the Multisale EIS and the Supplemental EIS. A search of Internet information sources (including scientific journals) as well as interviews with personnel from academic institutions and governmental resource agencies was conducted by MMS to determine availability of new information. Internet searches for recent information on fisheries effects of Hurricanes Ike and Gustav and updated information on fisheries effects of Hurricanes Katrina and Rita included all publications of NOAA, the Gulf of Mexico Fishery Management Council, the Louisiana Department of Wildlife and Fisheries, Texas A&M University, Louisiana State University, and Texas Parks and Wildlife. Further information was obtained by interviewing Walter Keithley, PhD, Associate Professor of Agricultural Economics at Louisiana State University.

Some recent reports (USDOC, NMFS, 2005b; Louisiana Dept. of Wildlife and Fisheries, 2005b; Caffey, personal communication, 2008; Haby et al., 2009) have further documented impacts from the 2005 and 2008 hurricanes on fish and fishery habitat discussed above in **Chapter 4.2.9**.

In July 2009, NMFS published a preliminary report of the 2008 U.S. commercial fisheries (USDOC, NMFS, 2009d). **Tables 4 and 5** show the change in the commercial landings in the Gulf Coast States as a whole and in Louisiana and Texas specifically over the years 2006-2008. **Table 6** shows the change in the most abundant species of finfish and shellfish landed in Texas and Louisiana over the period 2006-2008.

Table 4

U.S. Domestic Landings for the Gulf of Mexico, Louisiana, and Texas for 2006-2008
(thousand pounds)

	2006 (thousand lb)	2007 (thousand lb)	Change	2007 (thousand lb)	2008 (thousand lb)	Change
GOM	1,362,326	1,402,955	3%	1,402,955	1,274,653	-10%
Louisiana	918,675	998,763	8%	998,763	915,956	-9%
Texas	117,132	87,912	-33%	87,912	73,048	-20%

Source: USDOC, NMFS, 2007d.

Table 5

U.S. Domestic Landings for the Gulf of Mexico, Louisiana, and Texas for 2006-2008
(thousand dollars)

	2006 (thousand \$)	2007 (thousand \$)	Change	2007 (thousand \$)	2008 (thousand \$)	Change
GOM	691,220	689,556	0%	689,556	659,104	-5%
Louisiana	278,292	288,952	4%	288,952	272,884	-6%
Texas	197,291	180,575	-9%	180,575	176,098	-3%

Source: USDOC, NMFS, 2007d.

Table 6

Species with Highest Annual Commercial Catch (finfish and shellfish) in Louisiana and Texas for 2006-2008

Year	Texas			Louisiana		
	Species	Thousand lb	Thousand \$	Species	Thousand lb	Thousand \$
2006	Black drum	2,212	2,013	Menhaden	689,852	36,441
2006	Red snapper	2,158	6,186	Buffalo fishes	3,780	736
2006	Brown shrimp	71,033	105,372	White shrimp	88,866	108,415
2006	White shrimp	31,525	58,214	Brown shrimp	48,007	38,832
2007	Black drum	1,687	1,658	Menhaden	789,621	41,368
2007	Red snapper	1,213	3,762	Buffalo fishes	3,868	729
2007	Brown shrimp	45,354	88,683	White shrimp	64,476	95,534
2007	White shrimp	27,161	56,852	Brown shrimp	42,128	43,816
2008	Black drum	1,468	1,363	Menhaden	738,092	45,768
2008	Red snapper	870	2,744	Buffalo fishes	3,127	612,691
2008	Brown shrimp	37,521	85,762	White shrimp	62,925	107,192
2008	White shrimp	25,223	67,941	Blue crab	39,667	30,809

Source: USDOC, NMFS, 2007d.

The Gulf Coast fishery as a whole experienced a 3 percent upward shift in pounds harvested between 2006 and 2007, with a 10 percent decline in pounds harvested from 2007 to 2008. Trends in Louisiana were similar with an 8 percent rise in pounds harvested between 2006 and 2007 and a 9 percent decline between 2007 and 2008. Texas, however, experienced a 33 percent decline in pounds harvested between 2006 and 2007 and a further 20 percent decrease between 2007 and 2008.

Most of the declines in harvest in Louisiana and Texas were the result of decreased shrimp catch as shown in **Table 6**. Between 2006 and 2007, the Texas shrimp fishery was reduced approximately 30 million pounds with another nearly 10 million pound decline between 2007 and 2008. Louisiana experienced a 21 million pound downturn in total shrimp catch between 2007 and 2008. Declines in the red snapper catch in Texas were the result of new commercial fishing limits designed to protect the red snapper population (USDOC, NMFS, 2007c).

Some of the decline in 2008 fisheries may have been the result of Hurricanes Gustav and Ike, which made landfall on the Texas and Louisiana coasts in September 2008, destroying marsh habitats that serve as nursery grounds for shrimp as well as vessels and infrastructure for the industry. This was in addition to the devastating hurricanes of 2005, i.e., Hurricanes Katrina and Rita. Much of the decline in fisheries, however, was due to the impact of imported foreign shrimp, which drove down the price and profitability of wild caught shrimp (Savoie, 2009).

Conclusion

The MMS has reexamined the analysis for commercial fishing presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Although new information regarding factors affecting Gulf of Mexico commercial fishing was obtained and reviewed, all of the information obtained was with respect to natural factors that either affected fish populations, EFH, or the ability of commercial fishermen to harvest or sell their catch. The contribution to cumulative impacts of proposed Lease Sale 215 is minimal. No new information was discovered that would alter the contribution of proposed Lease Sale 215 to the cumulative impacts on commercial fishing as presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on commercial fishing and EFH is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.11. Recreational Fishing

The description of the environment for recreational fishing is in Chapter 3.3.2 of the Multisale EIS. Detailed analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on recreational fishing is in Chapters 4.2.1.1.10, 4.4.11, and 4.5.12, respectively, and in Chapter 4.1.13 of the Supplemental EIS. The following is a summary of the impact analysis from the Multisale EIS and the Supplemental EIS.

With respect to routine events, the development of oil and gas in the proposed lease sale area could attract additional recreational fishing activity to structures installed on productive leases. Each structure placed in the GOM to produce oil or gas would function as a *de facto* artificial reef, attract sport fish, and improve fishing prospects in the immediate vicinity of platforms. This impact would last for the life of the structure until it is removed from the marine environment. Proposed Lease Sale 215 would therefore have a beneficial effect on offshore and deep-sea recreational fishing within developed leases accessible to fishermen. Short-term, space-use conflict could occur during the time that any pipeline is being installed. Impacts on recreational fishing because of OCS-related vessel wakes would be minor because, on average, vessel use associated with proposed Lease Sale 215 would represent a small percentage of total vessel use.

With respect to accidental events, the estimated number and size of potential spills associated with proposed Lease Sale 215's activities (Chapter 4.3.1.2 of the Multisale EIS) are unlikely to decrease recreational fishing activity but may divert the location or timing of planned fishing trips. Potential impacts on recreational fisheries due to accidental events as a result of proposed Lease Sale 215 would be minor to moderate. Based on the sizes of oil spills assumed for proposed Lease Sale 215, only localized and short-term disruption of recreational fishing activity might result (minor impact).

With respect to cumulative events, recreational fishing continues to be a popular nearshore and offshore recreational activity in the northeastern and central GOM. Concern for the sustainability of fish resources and marine recreational fishing has led to Federal legislation that established a fisheries management process that will include the identification and protection of EFH. The incremental contributions of proposed Lease Sale 215 (as analyzed in Chapter 4.2.1.1.10 in the Multisale EIS) to the cumulative impact on recreational fishing is positive, although minor due to the relatively small number of structures projected for the next 40 years. The cumulative impact of OCS and State oil and gas

activities and import tanker spills would be minor. Implementation of proposed Lease Sale 215 would attract some private and charter-boat recreational fishermen farther offshore to the vicinity of the developed lease blocks in pursuit of targeted species known to be associated with petroleum structures in deep water.

The MMS conducted a search for new information published since completion of the Multisale EIS and the Supplemental EIS. Research of recreational fishing revealed the following new information. Updated fishery information and statistics were searched through contact with Mark Fisher of Texas Parks and Wildlife; NOAA (NMFS) websites for commercial, recreational fisheries, and fisheries stock status; and the Gulf of Mexico Fishery Management Council website. Specific journals that were searched include *Coasts and Estuaries* and *Marine Ecology Progress Series*, as well as any other journal articles that came up in general searches.

The NMFS has published the 2008 Marine Recreational Marine Fisheries Statistics Survey (MRFSS) (USDOC, NMFS, 2009e). The MRFSS is the primary source for marine recreational fisheries statistics in U.S. waters. The survey combines random telephone interviews and onsite intercept surveys of anglers to estimate recreational catch and effort for inland, State, and Federal waters.

In 2007, a total of 3,561,577 recreational anglers in states across the Gulf Coast (excluding Texas) made 24,267,431 trips and caught nearly 168 million fish. In 2008, a total of 2,926,422 recreational anglers across the Gulf Coast (excluding Texas) made 24,108,842 trips and caught over 190 million fish. In 2007, 1,134,200 recreational anglers from Louisiana took 4,515,757 trips and caught nearly 35.5 million fish. In 2008, 1,084,198 total recreational anglers from Louisiana took 4,540,890 trips and caught slightly over 39 million fish.

Across the Gulf of Mexico in 2007 (excluding Texas), the most common fish caught by recreational anglers were herrings (36,214,866 total fish), spotted seatrout (30,611,531 total fish), pinfishes (11,803,929 total fish), saltwater catfishes (10,392,653 total fish), and red drum (9,030,204 total fish). In 2008, the most common fish caught across the Gulf of Mexico were herrings (44,652,270 total fish), spotted seatrout (32,564,976 total fish), pinfishes (16,110,566 total fish), red drum (9,700,431 total fish), and gray snapper (7,669,142 total fish).

In 2007, the most common fish caught in Louisiana by recreational anglers were spotted seatrout (16,737,820 total fish), red drum (5,749,780 total fish), saltwater catfishes (4,510,380), Atlantic croaker (2,029,064 total fish), and sand seatrout (1,699,568 total fish). In 2008, the most common fish caught in Louisiana by recreational anglers were spotted seatrout (19,803,897 total fish), red drum (6,378,031 total fish), saltwater catfishes (3,868,505 total fish), sand seatrout (2,307,118 total fish), and black drum (1,468,044 total fish).

Although MRFSS is the primary source for marine recreational fisheries statistics, the Texas Parks and Wildlife Department conducts separate surveys that are not directly comparable with NOAA surveys. The Texas Parks and Wildlife Department (Fisher, personal communication, 2009) reported that, in 2007, 34,606 recreational anglers spent over 6,139,138 hours fishing out of Texas ports. In 2008, that number dropped to 33,857 recreational anglers who spent 6,063,535 hours fishing out of Texas ports.

In 2007, the most commonly caught fish in Texas were spotted seatrout (415,770 total fish), red drum (289,080 total fish), sand seatrout (95,325 total fish), Atlantic croaker (95,243 total fish), and black drum (65,797 total fish). In 2008, the most commonly caught fish in Texas were spotted seatrout (920,110 total fish), red drum (267,359 total fish), sand seatrout (151,920 total fish), black drum (82,465 total fish), and southern flounder (64,403 total fish).

Examination of historical data shows that the dominant species taken recreationally by state (Texas and Louisiana) and across the Gulf of Mexico show little change in composition in the years 2000-2008, although the numbers of each species taken may vary from year to year.

Hurricanes Katrina and Rita impacted recreational fishing from the Florida Panhandle to the Texas border, with additional impacts felt in southern Florida. The hurricanes had a major impact on the supporting infrastructure that anglers require to go fishing (e.g., bait shops, docks and marinas, lodging, fuel, ice facilities, etc.). In addition to damages to boats and facilities, revenue losses associated with lost markets of products or services are occurring. When considered on a regional basis, these lost market channels constitute a considerable reduction in the levels of economic activity, income generation, employment creation, and tax collections.

Storm-related recreational fisheries losses in Louisiana were predicted to total \$421 million at the retail level (Louisiana Dept. of Wildlife and Fisheries, 2005b) during the year 2006. This figure included losses incurred by licensed charter and guide vessels operating in the severely affected parishes. In

addition, Hurricanes Katrina and Rita deposited extensive amounts of debris over various areas of the Gulf Coast (USDOC, NOAA, 2007b). Submerged marine debris poses a hazard to vessel traffic. The NOAA has conducted underwater surveys off the coasts of Louisiana, Mississippi, and Alabama. This information is being used by State and Federal agencies tasked with removing marine debris left by Hurricane Katrina.

Since the landfall of Hurricanes Katrina and Rita on the Texas and Louisiana coasts in August and September 2005, Hurricanes Ike and Gustav made landfall on the Texas and Louisiana coasts in September 2008. Hurricanes Gustav and Ike impacted recreational fishing all along the Louisiana coast and most of the Texas coast. A study of the effects of Hurricane Ike on the oyster industry in Galveston Bay (Haby et al., 2009) and estimates of the damage inflicted by Hurricane Gustav on Louisiana fisheries and aquaculture (Caffey, personal communication, 2008) are presented in **Chapter 4.2.9**.

Galveston Bay's vibrant and economically successful recreational fishing industry was severely crippled by Hurricane Ike. The industry that previously annually generated over \$300 million in direct retail sales and \$600 million in total economic impact suffered millions of dollars in damages with the widespread, massive destruction of its supporting infrastructure (Tompkins, 2009). Even before Hurricanes Gustav and Ike, fisheries in Louisiana were still struggling to recover from Hurricanes Katrina and Rita, which resulted in over \$528 million in losses (Louisiana Recovery Authority, 2008). The hurricanes of 2005 and 2008 had a major impact on the supporting infrastructure that anglers require to go fishing (e.g., bait shops, docks and marinas, lodging, fuel and ice facilities, etc.). In addition to damages to boats and facilities, revenue losses associated with lost markets of products or services are occurring. When considered on a regional basis, these lost market channels constitute a considerable reduction in the levels of economic activity, income generation, employment creation, and tax collections. Both Hurricanes Ike and Gustav added to the marine debris left by Hurricanes Katrina and Rita and have extended the marine debris removal efforts already underway.

Conclusion

The MMS has reexamined the analysis for recreational fishing presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Hurricanes Katrina, Rita, Ike, and Gustav are recent natural events that negatively impact the activity of recreational fishing and associated economic activities. While the severity of impacts should decline over time, they are still being felt. MMS finds that OCS-related activities contribute only minimally to cumulative impacts upon recreational fishing. Therefore, the incremental contribution of proposed Lease Sale 215 is not altered by the effect of tropical storms upon this activity. The much smaller incremental contribution from proposed Lease Sale 215 will not alter the conclusion regarding direct, indirect and cumulative impacts to recreational fishing as presented in the Multisale EIS and the Supplemental EIS, therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on recreational fishing is not required. The analysis and potential impacts of proposed Lease Sale 215 detailed in the Multisale EIS and the Supplemental EIS still apply.

4.2.12. Recreational Resources

The description of the environment for recreational resources can be found in Chapter 3.3.3 of the Multisale EIS and in Chapter 4.1.14.1 of the Supplemental EIS. Detailed analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on recreational resources can be found in Chapters 4.2.1.1.11, 4.2.2.1.13, 4.4.12, and 4.5.13 of the Multisale EIS and in Chapters 4.1.14.2, 4.1.14.3, and 4.1.14.4 of the Supplemental EIS, respectively. The following is a summary of the impact analysis from the Multisale EIS and the Supplemental EIS.

The northern GOM coastal zone is one of the major recreational regions of the U.S., particularly in connection with marine fishing and beach-related activities. The coastal beaches, barrier islands, estuarine bays and sounds, river deltas, and tidal marshes are used extensively and intensively for recreational activity by residents of the Gulf States and tourists from throughout the Nation, as well as from foreign countries. Commercial and private recreational facilities and establishments (such as resorts and marinas) also serve as primary interest areas and support services for people who seek enjoyment from the recreational resources associated with the GOM.

With respect to routine events, marine debris will be lost from time to time from OCS oil and gas operations resulting from proposed Lease Sale 215. The impact on Gulf Coast recreational beaches is expected to be minimal. Current industry waste-management practices, training, and awareness programs focused on the beach litter problem, and the OCS industry's continuing efforts to minimize, track, and control offshore wastes are expected to minimize potential for accidental loss of solid wastes from OCS oil and gas operations. Recreational beaches in Louisiana and Texas are most likely to be impacted by any waterborne trash. Service vessels are assumed to use established nearshore traffic lanes, and helicopters are assumed to comply with areal clearance restrictions at least 90 percent of the time. These actions tend to distance traffic from recreational beach users and, thereby minimize its effects. Therefore, the incremental increase in helicopter and vessel traffic is expected to add very little additional noise that may affect beach users. Proposed Lease Sale 215 is expected to result in nearshore operations that may adversely affect the enjoyment of some Gulf Coast beach uses; however, these will have little effect on the number of beach users.

With respect to accidental events, it is unlikely that a spill would be a major threat to recreational beaches because spill sizes are relatively small based on past data and any impacts would be short-term and localized. Should a spill contact a recreational beach, it would be in a degraded state from weathering processes that had acted upon it, and short-term displacement of recreational activity from the areas directly contacted by a spill would occur. Beaches directly impacted would be expected to close for periods of 2-6 weeks or until the cleanup operations were complete. Should a spill result in a large volume of oil contacting a beach or a large recreational area being contacted by an oil slick, visitation to the area could be reduced by as much as 5-15 percent for as long as one summer season, but such an event should have no long-term effect on tourism. Tarballs can lessen the enjoyment of the recreational beaches but should have no long-term effect on the overall use of beaches.

With respect to cumulative events, debris and litter derived from both offshore and onshore sources are likely to diminish the attractiveness of beaches and degrade the ambience of shoreline recreational activities, thereby negatively affecting the experience of using recreational beaches in the WPA. The incremental beach trash resulting from proposed Lease Sale 215 is expected to be minimal. Mitigation measures for oil and gas operator's trash and debris handling and labeling requirements for equipment are effective at minimizing OCS trash and debris from entering the water. Platforms and drilling rigs operating nearshore may affect the ambience of recreational beaches, especially beach wilderness areas. The sound, sight, and wakes of OCS-related and non-OCS-related vessels, as well as OCS helicopters and other light aircraft traffic, are occasional distractions that are noticed by some beach users. Oil that contacts the coast may preclude short-term recreational use of one or more Gulf Coast beaches at the park or community levels. Displacement of recreational use from impacted areas will occur, and a short-term decline in tourism may result. Beach use at the regional level is unlikely to change from normal patterns; however, closure of specific beaches or parks directly impacted by a large oil spill is likely during cleanup operations. The incremental contributions of proposed Lease Sale 215 (as analyzed in Chapter 4.2.2.1.13 of the Multisale EIS and in Chapter 4.1.14.4 of the Supplemental EIS) to the cumulative impact on recreational resources is minor due to the limited effect of increased helicopter, vessel traffic, and marine debris on the number of beach users.

Recreation and tourism are major sources of employment along the Gulf Coast. Table 4-9 of the Supplemental EIS presents employment in tourism-related industries in 2005 and is included here by reference. The data in Table 4-9 are a compilation of data from travel- and tourism-related industries in the County Business Patterns (USDOC, Bureau of the Census, 2007). Employment data are assumed to be in various travel-related industries, including: food and beverage stores, gas stations, general merchandise stores, passenger air transportation, transit and ground passenger transportation, scenic and sightseeing transportation, passenger car rental, travel arrangement and reservation services, arts/entertainment/recreation, and overnight accommodation and food services. The data are only for coastal counties and parishes because they potentially are affected by routine events, such as OCS-related air and vessel traffic, and accidental events, such as oil spills. This is different from the data for all counties and parishes in Labor Market Areas (LMA's) and Economic Impact Areas (EIA's) in Tables 3-15 and 3-16 in the Multisale EIS. The LMA's and EIA's extend inland geographically including inland counties and parishes not economically linked to the tourism and recreation of coastal counties. The data in Table 4-9 of the Supplemental EIS more correctly describes the level of tourism-related employment and establishments potentially affected by OCS activities.

The MMS conducted additional research during the preparation of this EA for proposed Lease Sale 215 to investigate recently available information since completion of the Supplemental EIS, including a broad Internet search, as well as a search for relevant, new scientific journal articles. In addition, the websites for Federal and State agencies, as well as other organizations, were reviewed for newly released information. Internet searches for recent information affecting recreational resources were conducted at the websites of Federal and State agencies, including the Federal Emergency Management Agency; U.S. Department of Homeland Security; U.S. Department of Commerce, Bureau of the Census, NOAA; U.S. Department of Energy, Energy Information Administration; U.S. Dept. of the Interior, Fish and Wildlife Service; U.S. Environmental Protection Agency; Louisiana Department of Environmental Quality; Texas Commission on Environmental Quality; and Louisiana Recovery Authority, Louisiana Office of Community Development. Further information was sought from other organizations and trade publications such as the American Gaming Association, American Petroleum Institute, Ocean Conservancy, *The Oil Drum*, *Rigzone*, and *The Energy Journal*. Updated Federal reports and regulations were included if available.

Beach visitation in Louisiana is low compared with other Gulf Coast States. Gambling is one of the most popular activities for nonresident visitors to Louisiana. In 2004, approximately 21 percent of nonresident visitors gambled on their trip to the State (Travel Industry Association of America, 2003-2005), down from 25 percent in 2002 and 23 percent in 2003.

There are 18 casinos in Louisiana (13 riverboats, 1 land-based, and 4 racetracks), several of which are located along Louisiana's coast in Lake Charles, Houma, and the New Orleans metropolitan areas. The casinos generated a gross casino gaming revenue of over \$2.5 billion and approximately \$626 million in gaming tax revenues. The taxes are allocated among the general fund, the City of New Orleans, public retirement systems, and a rainy day fund. It is estimated that Louisiana casinos admitted over 35 million visitors and employed approximately 17,268 workers in 2008 (American Gaming Association, 2009).

The Ocean Conservancy sponsors national and international beach cleanups, including annual events in Texas and Louisiana. The most recent data available is from the 2007 International Coastal Cleanup. The 2007 Texas event was coordinated by the Texas General Land Office and attracted 9,610 volunteers who covered 188.5 mi (303.4 km) of shoreline, removing 379,721 pounds of trash and debris. Approximately 69 percent of the trash resulted from land-based activities such as beach outings, sporting events, picnics, and festivals, as well as litter washed from parking lots, streets, and storm drains (Ocean Conservancy, 2008a). Prior to Hurricanes Katrina and Rita, the Louisiana Coastal Cleanup was sponsored by The Louisiana Dept. of Environmental Quality; however, since the hurricanes, several activities, including Beach Sweep, had to be shelved in favor of core tasks. Several communities have continued to conduct beach cleanup events, but the Louisiana Dept. of Environmental Quality is no longer the State coordinator for the Ocean Conservancy International Coastal Cleanup (Fisher-Brasher, personal communication, 2009). The most recent data available from the Ocean Conservancy showed that 413 volunteers covered 47.7 mi (76.8 km) of the Louisiana coast, collecting 5,483 pounds of trash. Approximately 75 percent of the debris resulted from land-based activities such as beach outings, sporting events, picnics, and festivals, as well as litter washed from parking lots, streets, and storm drains (Ocean Conservancy, 2008b). In 2006, 15.9 million residents and nonresidents 16 years and older participated in wildlife-associated recreation in the Gulf Coast States and spent approximately \$4.3 billion on hunting, \$9.5 billion on fishing, and \$6.9 billion on wildlife watching activities (USDOJ, FWS, and USDOC, Bureau of the Census, 2006). These figures are for the whole of each Gulf Coast State. The wildlife-associated recreation activities in the coastal counties/parishes presumably would constitute a small fraction of the total.

Conclusion

The MMS has reexamined the analysis for recreational resources presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Specific to the act of fishing for recreational purposes in the Gulf of Mexico, new information was obtained and reviewed and was discussed in the **Chapter 4.2.11** (Recreational Fishing). No new information was discovered that would alter the impact conclusion for recreational resources presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on recreational resources is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.13. Archaeological Resources

Archaeological resources are any material remains of human life or activities that are at least 50 years of age and that are of archaeological interest (30 CFR 250.105). The Archaeological Resources Regulation (30 CFR 250.194) provides specific authority to each MMS Regional Director to require archaeological resource surveys, analyses, and reports. Surveys are required prior to any exploration or development activities on leases within areas determined to have a high potential for archaeological resources (NTL's 2005-G07 and 2008-G20).

The description of archaeological resources (prehistoric and historic) can be found in Chapter 3.3.4 of the Multisale EIS and in Chapter 4.1.1.5 of the Supplemental EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on archaeological resources can be found in Chapters 4.2.1.1.12, 4.4.14, and 4.5.14 of the Multisale EIS and in Chapters 4.1.1.5.2-4.1.1.5.4 of the Supplemental EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

The greatest potential impact on archaeological resources as a result of proposed Lease Sale 215 would result from direct contact between an offshore activity (platform installation, drilling rig installation or pipeline emplacement, or dredging) and a prehistoric site located on the continental shelf or an historic shipwreck. The NTL for archaeological resource surveys in the GOM Region, NTL 2005-G07, specifies a 300-m linespacing for areas having the potential for containing prehistoric sites on the continental shelf, 50-m linespacing for remote-sensing surveys of leases within the areas having high potential for historic shipwrecks in water depths ≤ 200 m (656 ft), and 300-m linespacing of leases within the areas having high potential for historic shipwrecks in water depths >200 m (656 ft). NTL 2008-G20 updates the list of lease blocks that have been designated as having a high potential for containing archaeological resources and directs the operator to refer to the MMS website for the most current archaeological survey requirements for lease blocks in the Gulf of Mexico.

The archaeological survey and archaeological clearance of sites required before beginning oil and gas activities on a lease are expected to be highly effective at identifying possible archaeological resources. Since the survey and clearance provide a significant reduction in the potential for a damaging interaction between an impact-producing factor and an archaeological resource, there is a very small possibility of an OCS activity contacting an archaeological resource where surveys and analysis are completed. However, recent research on historic shipping routes suggests that the ultra-deepwater area of the GOM, from approximately 25° N latitude to 27.5° N latitude, were located along the historic Spanish trade route, which therefore increases the probability that an historic shipwreck could be located in this area (Lugo-Fernandez et al., 2007). Few lease blocks in this area currently require any sort of archaeological survey or assessment; therefore, the impacts to historic shipwrecks in these blocks may be greater. Should such contact occur, there would be damage to or loss of significant and/or unique archaeological information. In late 2008, MMS awarded a study to conduct archival research in order to develop a strategy for identifying and recognizing such sites in ultra-deepwater. The effect of OCS-generated debris swept from platforms during storms is a potential complicating factor for MMS analysts examining the sea bottom for ferromagnetic debris. Metallic debris can indicate the presence of a target that is not an archaeological resource (false positive). There is, however, still a requirement for the survey before bottom disturbing activities may take place. Targets need to be examined more closely to determine their origin. Other than to cause more complicated analyses of bottom signals that may end up being false positives the effect of debris from OCS infrastructure damaged during storms is not significant. Debris falling within the 1,320 ft (400 m) clearance radius of platforms and the 600 ft (183 m) clearance radius for well protectors and caissons are cleared upon decommissioning, as stated in the guidance provided for site clearance in NTL 98-26.

Spills, collisions, and blowouts are accidental events that can happen in association with a proposed activity in the Lease Sale 215 area. If an accidental event occurs as a result of one of these events, there could be an impact on archaeological resources. Oil spills have the potential to affect both prehistoric and historic archaeological resources. Impacts on historic resources would be limited to visual impacts and possibly physical impacts associated with spill cleanup operations. Impacts on prehistoric archaeological sites would be the result of hydrocarbon contamination of organic materials, which have the potential to date site occupation through radiocarbon dating techniques, as well as possible physical disturbance associated with spill cleanup operations. Since archaeological sites are protected under law, it is expected that any spill cleanup operations would be conducted in such a way as to cause little or no impacts on

archaeological resources. Visual impacts on coastal historic sites would be temporary and reversible; however, should an oil spill directly contact a coastal prehistoric site, unique or significant archaeological information could be lost, and this impact would be irreversible.

The cumulative analysis considers the effects of impact-producing factors related to Lease Sale 215. Those activities in the cumulative activity area include: trawling, sport diving, commercial treasure hunting, seismic exploration in State waters, and tropical storms on archaeological resources. Specific types of impact-producing factors associated with OCS activities that are considered in this analysis include drilling rig and platform emplacement, pipeline emplacement, anchoring, oil spills, dredging, new onshore facilities, and ferromagnetic debris. Archaeological surveys are assumed to be highly effective in reducing the potential for an interaction between an impact-producing activity and archaeological resources. Other users of the OCS, such as trawl fishers, may encounter snags and net losses from debris. There are, however, remedies available to commercial fishermen who can demonstrate their loss was due to OCS activity.

Onshore development associated with activities from proposed Lease Sale 215 could result in the direct physical contact between the construction of new onshore facilities or pipeline canals and previously unidentified historic or prehistoric sites. Direct physical contact with an historic site could cause physical damage to, or complete destruction of, information on the history of the region and the Nation. Direct physical contact with a prehistoric site could destroy fragile artifacts or site features and could disturb the archaeological context of the site. The result would be the loss of information on the prehistory of North America and the Gulf Coast region. Facilities that are projected to be constructed onshore as a result of proposed Lease Sale 215 must receive approval from the pertinent Federal, State, county/parish, and/or communities before construction may proceed. Protection of archaeological resources in these cases is expected to be achieved through the various approval processes involved. There is, therefore, no expected impact on historic or prehistoric sites that support Lease Sale 215 from onshore development.

Recent hurricane activity in the GOM is certain to have impacted archaeological resources in shallow water. In January 2007, MMS awarded a study to investigate the impacts that recent storm activity may have had on historic shipwrecks in the Gulf of Mexico. Remote-sensing surveys for this study were completed in May 2007 and dive operations were completed in October 2007. A final report of findings is expected in December 2010. Preliminary analysis of the remote-sensing surveys indicates that at least 3 of the 10 shipwrecks examined were affected by recent storm activity (PBS&J, in preparation). The results of this study would have no bearing on the lease sale but could assist in the interpretation of survey data collected by operators as part of their permit responsibilities.

A search was conducted for new information on hurricane activity in the GOM, published since completion of the Multisale EIS and the Supplemental EIS; however, little new information was identified. Yet, it is almost certain that any shipwrecks within the path of Hurricanes Katrina or Rita in shallow water were impacted to some extent by these storms. In September 2005 the National Park Service (NPS) conducted a study of sites along the Gulf Coast that were impacted by Hurricane Katrina (USDOJ, NPS, 2005). This assessment identified three types of damage that can occur to archaeological sites: tree throws; storm surge, scouring and erosion; and seabed shifting. On the OCS, the two primary types of damage would be associated with storm surge and seabed shifting. Damage from either of these activities could adversely affect both prehistoric and historic sites on the OCS.

A recently published report, *Archaeological and Biological Analysis of World War II Shipwrecks in the Gulf of Mexico: Artificial Reef Effect in Deep Water* (Church et al., 2007), documents the results of a multidisciplinary study that focused on the biological and archaeological aspects of seven World War II era shipwrecks in the north-central portion of the Gulf of Mexico. The study was funded by MMS and NOAA's Office of Ocean Exploration.

Seven shipwrecks, including a German U-boat and five Allied vessels, were investigated. The ships lie in water ranging from 122 to 1,981 m (400 to 6,500 ft) deep. The study found deep-sea wrecks act as artificial reefs, attracting far more species of plants and animals than expected. The finding indicates that oil and gas production platforms in deep water are likely to serve as hard surface, supporting hundreds of life forms.

Wrecks in moderate depths gave researchers clear evidence of many rare and uncommon invertebrate species in close proximity to the wrecks and on the wrecks themselves. The number of species and individuals declined rapidly in proportion to distance away from the wrecks, showing that these wrecks form an attractive habitat for many kinds of marine life. Wrecks at these intermediate depths had 50

percent more species than those in shallower water or deeper water. Shallower water wrecks, likely because of turbidity, and deeper water wrecks because of the extreme conditions of cold, darkness, and pressure, hosted a smaller number of species.

The scientists reported, among other findings, that the diversity of fish species generally decreases with depth. At the shallower water wrecks, where corals were growing, reef fishes were present. At the deepest water wrecks, below the photic zone of approximately 200 m (656 ft), no corals were found nor were community structure and fish density significantly different over the wrecks as opposed to away from them. Therefore, scientists conclude that, in the deepest water, the upper levels of offshore platforms will attract considerable marine life, but the platforms are not likely to attract fish at their deepest levels. The marine archaeology part of the study positively confirmed the identity of three wrecks and found a relationship among water depth, ship size, and the size of the debris field. The state of preservation of the wrecks was correlated with water depth. No wreck was found to be contaminating or adversely affecting the area around them.

Conclusion

The MMS has reexamined the analysis for archaeological resources presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new information was discovered that would alter the impact conclusion for archaeological resources presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on archaeological resources is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.14. Human Resources and Land Use

4.2.14.1. Land Use and Coastal Infrastructure

Land use and OCS-related coastal infrastructure in the analysis area are discussed in Chapters 3.3.5.1.2 and 3.3.5.8 of the Multisale EIS and in Chapter 4.1.16.1 of the Supplemental EIS and include the following: service bases, navigation channels, helicopter hubs, construction facilities, processing facilities, terminals, waste disposal and storage facilities, coastal pipelines, and coastal barging. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on land use and coastal infrastructure can be found in Chapters 4.2.1.1.13.1, 4.4.14.1, and 4.5.15.1 of the Multisale EIS and in Chapters 4.1.16.1.2, 4.1.16.1.3 and 4.1.16.1.4 of the Supplemental EIS, respectively. The following is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

To date, no new information has been found by MMS since publication of the Supplemental EIS that necessitates a change to the coastal infrastructure scenario presented in the Multisale EIS and the Supplemental EIS. Much of the coastal infrastructure information presented in the Multisale EIS and the Supplemental EIS was from the *OCS-Related Infrastructure in the Gulf of Mexico Fact Book* (The Louis Berger Group, Inc., 2004). An update of the fact book is currently in progress, and MMS has reviewed a draft version of the report and the new information collected for each infrastructure type. Information collected on the impacts of Hurricanes Gustav and Ike to coastal infrastructure found that impacts were minimal and only resulted in short-term disruptions to operations. While some new information was found, none of it significantly changes the description of the environmental effects or necessitates a change to the onshore scenario presented in the Supplemental EIS; therefore, the coastal infrastructure projections and impact analyses used in the Supplemental EIS are still considered to be the best available.

Proposed Lease Sale 215 would not require additional coastal infrastructure, with the exception of possibly one new gas processing facility and one new pipeline landfall, and would not alter the current land use of the analysis area. There may be some expansion at current facilities that may also include upgrades and replacement of existing facilities, but the land in the analysis area is sufficient to handle such development and the net land-use footprint would remain approximately the same. There is also sufficient land to construct a new gas processing plant in the analysis area, if necessary in the future.

The accidental events associated with Lease Sale 215 that would most likely impact coastal infrastructure and land use include oil spills, chemical spills, and vessel collisions. Both coastal or nearshore spills and vessel collisions could have short-term adverse effects on the operations of coastal infrastructure facilities, requiring cleanup of any oil or chemicals spilled. In general, the impacts from an

accidental event are not likely to last long enough to have any impact on the overall land use in the Gulf of Mexico analysis area.

Activities relating to the OCS Program and State production are expected to minimally affect the analysis area's land use. Land use in the analysis area will evolve over time; most changes are likely to occur as a result of general regional growth rather than activities associated with the OCS Program and State production. Projected new coastal infrastructure by state as a result of the OCS Program is shown in Table 4-9 of the Multisale EIS. While it is possible that up to 14 new, "greenfield" gas processing facilities could be developed, it is much more likely that a large share of the natural gas processing capacity that will be needed by the industry will be located at existing facilities, using future investments for expansions and/or to replace depreciated capital equipment. It is likely that few (if any) new plants would be developed along the WPA. Any changes to supporting infrastructure (mostly facility expansions, except for the 4-6 new pipeline shore facilities and any new, "greenfield" gas processing plants) are expected to be contained on available land. Most subareas in the analysis area have strong industrial bases and designated industrial parks to accommodate future growth in oil and gas businesses.

As stated in the Multisale EIS and the Supplemental EIS, Port Fourchon, Louisiana, is expected to experience significant impacts to its land use from OCS-related expansion. The port's 4,000-ac Northern Expansion is nearly complete and will essentially double its operational area. Port Fourchon serves as the primary support base for over 90 percent of existing deepwater projects. As a result of the increase in deepwater projects, the demand for support base facilities has increased from 2008 through 2009, despite the Nation's economic recession. New facilities at the port are leased as soon as they can be constructed (Offshore, 2009). Phase 1 of the Northern Expansion is a 700-ac site containing 520 ac with 21,000 linear feet of water frontage. Construction of 3,014 linear feet of bulkhead is nearly completed, but over 80 percent of total Phase 1 property is already leased (The Greater Lafourche Port Commission, 2009). On July 8, 2009, the new Louisiana Highway 1 (LA Hwy 1) fixed-span bridge over Bayou LaFourche connecting Port Fourchon and Leeville, Louisiana, was opened and marks partial completion of the first phase of improvements to LA Hwy 1 (TOLLROADSnews, 2009). The South Lafourche Leonard Miller Jr. Airport is also in the middle of a major expansion and recently completed extension of its runway to better accommodate increased air traffic (Offshore, 2009).

As stated in Chapter 4.1.2.1.7 of the Multisale EIS, MMS assumes that most new OCS pipelines will connect to existing pipelines in Federal and State waters, and result in few, if any, new pipeline landfalls. Up to one new pipeline landfall was projected as the result of proposed Lease Sale 215, and 32-47 new pipeline landfalls were projected as a result of the OCS Program from 2007 to 2046.

The MMS analyzed historical data to validate past scenario projections, including projects involving new pipeline landfalls (USDOJ, MMS, 2007e). This analysis confirms MMS's assumption that the majority of new pipelines constructed would connect to the existing infrastructure in Federal and State waters and that very few would result in new pipeline landfalls. Most pipeline landfalls in the GOM transport production resulting from more than one lease sale; therefore, an OCS pipeline landfall could rarely be attributed only to a single lease sale. Multiple factors have influenced the decrease in the number of new pipeline landfalls. Therefore, MMS's projection of up to one new pipeline landfall per lease sale may be too high. Although there will be some instances where new pipelines may need to be constructed, there is nothing to suggest any dramatic shifts would be expected in trends for new landfalls given the current outlook for GOM development, particularly in coastal Louisiana.

The term "pipeline shore facility" is a broad term describing the onshore location where the first stage of processing occurs for OCS pipelines carrying different combinations of oil, condensate, gas, and produced water. A pipeline shore facility may support one or several pipelines. In Chapter 4.1.2.1.5.1 of the Multisale EIS, no new pipeline shore facilities are projected as a result of proposed Lease Sale 215. As a result of the OCS Program, new shore facilities may be needed to support new larger oil pipeline landfalls. A total of 4-6 new pipeline shore facilities are projected as a result of the OCS Program from 2007 to 2046.

As stated in the Multisale EIS and the Supplemental EIS, Port Fourchon is expected to experience significant cumulative impacts on its land use from OCS-related expansion. Increased OCS-related usage from port clients, and ancillary business that rely on port clients, such as restaurants, gas stations, and overnight lodging, are expected to significantly impact LA Hwy 1 in Lafourche Parish. A major rebuilding and upgrade of LA Hwy 1 is currently underway. The first milestone of Phase 1A was achieved in July 2009 with the completion and opening of the new fixedspan bridge over Bayou Lafourche connecting Port Fourchon and Leeville, Louisiana (Offshore, 2009). Increased demand for

water by upgraded and expanded OCS port clients, ancillary businesses, and the temporary worker population for upgrading LA Hwy 1 will further strain Lafourche Parish's water system. It is assumed that the Louisiana Department of Natural Resources' existing procedures to identify potential regulatory and restoration conflicts will continue to be utilized, including current requirements that any project proposed within ¼ mi from either an active or proposed restoration project be reviewed to determine if it would interfere or have adverse effects on the restoration project (U.S. Dept. of the Army, COE, 2004). Therefore, new coastal infrastructure that may result from proposed Lease Sale 215 or the OCS Program would not interfere with active or proposed restoration projects.

The MMS has reexamined the analysis for land use and coastal infrastructure presented in the Multisale EIS and the Supplemental EIS. Much of the coastal infrastructure information presented in the Multisale EIS and the Supplemental EIS was from the *OCS-Related Infrastructure in the Gulf of Mexico Fact Book* (The Louis Berger Group, Inc., 2004). An update of the fact book is currently in progress, and MMS has reviewed a draft version of the report and the new information collected for each infrastructure type. Internet searches for recent information affecting land use and coastal infrastructure were conducted at the websites of Federal and State agencies, including the Federal Emergency Management Agency; U.S. Department of Homeland Security; U.S. Department of Commerce, Bureau of the Census and NOAA; U.S. Department of Energy, Energy Information Administration; U.S. Dept. of the Interior, Fish and Wildlife Service; U.S. Environmental Protection Agency; Louisiana Department of Environmental Quality; Texas Commission on Environmental Quality; and Louisiana Recovery Authority, Louisiana Office of Community Development. Further information was sought from other organizations and trade publications such as the The Greater LaFourche Port Commission, LA1 Coalition, *The Oil Drum*, *Rigzone*, *Offshore Magazine*, *TOLLROADnews*, and *The Energy Journal*.

Conclusion

The MMS has reexamined the analysis for land use and coastal infrastructure presented in the Multisale EIS and the Supplemental EIS, based on all the information presented above. While Hurricanes Gustav and Ike in 2008 caused some negative short-term impacts to land use and coastal infrastructure, the incremental and cumulative effect of proposed Lease Sale 215 remains unchanged. None of the new information would alter the impact conclusion for land use and coastal infrastructure presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on land use and coastal infrastructure is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.14.2. Demographics

The description of the environment for demographics is described in Chapter 3.3.5.4 of the Multisale EIS and in Chapter 4.1.16.2.1 of the Supplemental EIS. Detailed analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on demographics is presented in Chapters 4.2.1.1.13.2, 4.4.14.2, and 4.5.15.2 of the Multisale EIS and in Chapters 4.1.16.2.2, 4.1.16.2.3, and 4.1.16.2.4 of the Supplemental EIS, respectively. A search of Internet information sources as well as personal communication with regional and national economic experts was conducted to determine the availability of new information that would affect the impact analysis. The MMS found new information on the affected environment (specifically, baseline population and employment levels for some counties and parishes) but found no information that warranted changes to the estimates of the employment or population that would likely result from a proposed WPA lease sale or the OCS Program. Most central to the demographic impact analysis, MMS reviewed the new 2009 Wood & Poole data and found no substantial changes to the baseline population and employment projections that would alter the impact conclusions contained in the Multisale EIS and the Supplemental EIS (Woods & Poole Economics, Inc., 2009). The following is a summary of the impact analysis from the Multisale EIS and the Supplemental EIS with additional analysis based on the new information that was found.

Routine activities relating to proposed Lease Sale 215 are expected to affect minimally the analysis area's land use, infrastructure, and demography. These impacts are projected to mirror employment effects that are estimated to be negligible to any one EIA (**Figure 7**). Baseline patterns and distributions of these factors, as described in Chapter 3.3.5.4 of the Multisale EIS and in Chapter 4.1.16.2.1 of the Supplemental EIS, are expected to approximately maintain the same level. Changes in land use

throughout the analysis area are expected to be contained and minimal. The OCS-related infrastructure is in place and will not change as a result of proposed Lease Sale 215. Current baseline estimates of population growth for the analysis area show a continuation of growth, but at a slower rate.

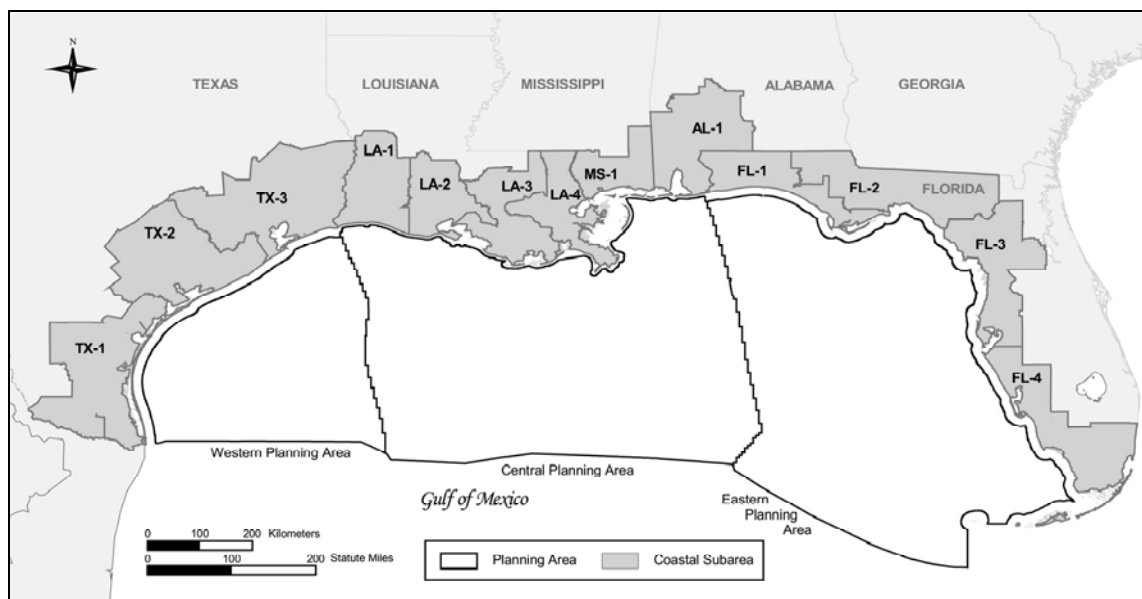


Figure 7. Economic Impact Areas in the Northern Gulf of Mexico.

Accidental events associated with proposed Lease Sale 215, such as oil or chemical spills, blowouts, and vessel collisions, would have no effects on the demographic characteristics of the Gulf coastal communities.

The cumulative effects of human and natural activities in the coastal area have severely degraded the deltaic processes of sediment replenishment and, on the delta plain, have shifted the coastal area of Louisiana from a condition of net land building to one of net landloss. As inland marshes and barrier islands erode or subside, without effective restoration efforts, the population in coastal communities in southern Louisiana is expected to shift to the more northern portions of parishes bordering the ocean and cause the populations in urban and suburban areas to increase and those in rural coastal areas to decline (U.S. Dept. of the Army, COE, 2004).

Cumulative activities related to the OCS Program are expected to affect minimally the analysis area's demography. Baseline patterns and distributions of these factors, as described in Chapter 3.3.5.4.1 of the Multisale EIS and in Chapter 4.1.16.2.1 of the Supplemental EIS, are not expected to change for the analysis area as a whole. The baseline population patterns are expected to change for the eight counties and parishes that were most negatively affected by the 2005 hurricane season (see Chapter 3.3.5.4 of the Multisale EIS and in Chapter 4.1.16.2.1 of the Supplemental EIS for a discussion of these changes). Some regions within Louisiana EIA's, Port Fourchon in particular, are expected to experience some impacts from increased population and demand on utilities and the education system as a result of an expanded labor force supporting OCS activity. As discussed in Chapter 4.2.1.1.13.2 of the Multisale EIS and in Chapter 4.1.16.2.2 of the Supplemental EIS, proposed Lease Sale 215 is expected to have an incremental contribution of less than 1 percent to the population level in any of the EIA's. Given the low level of population growth and industrial expansion associated with proposed Lease Sale 215, the baseline age and racial distribution pattern and educational status of people living in the impact area is expected to continue through the year 2046.

In the Supplemental EIS, MMS used data from Woods & Poole's *Complete Economic and Demographic Data Source* (Woods & Poole Economics, Inc., 2007) for baseline population and employment estimates over the 40-year life of a typical proposed WPA lease sale. The 2007 Woods & Poole data contained their revised estimates regarding the economic and demographic impacts of the 2005 hurricanes on the Gulf region (Woods & Poole Economics, Inc., 2007). According to the 2007 data, population, income, and employment declined from 2005 to 2006 by 76 percent in St. Bernard Parish,

Louisiana; 51 percent in Orleans Parish, Louisiana; 22 percent in Plaquemines Parish, Louisiana; 19 percent in Cameron Parish, Louisiana; 13 percent in Hancock County, Mississippi; and 11 percent in Harrison County, Mississippi. In each case, these losses were less than those that were in the Woods & Poole 2006 data used in the Multisale EIS. The 2007 data also revised estimates regarding counties and parishes that experienced population and employment gains because of Hurricane Katrina displacement: 9 percent in Pearl River County, Mississippi; 7 percent in Tangipahoa Parish, Louisiana; 5 percent in St. John the Baptist Parish, Louisiana; 5 percent in East Baton Rouge Parish, Louisiana; and 4 percent in St. Charles Parish, Louisiana from 2005 to 2006. In each case, these gains were less than those that were in the 2006 data used in the Multisale EIS.

As discussed in **Chapter 4.1.1**, the exploration and development activity scenarios used in the Multisale EIS and the Supplemental EIS for a typical WPA sale remain unchanged and are used for the analysis of proposed Lease Sale 215. Consequently, the population projections for a typical proposed WPA sale in Table 4-20 of the Multisale EIS are unchanged for proposed Lease Sale 215. The MMS reanalyzed the high-case population impacts on a percentage basis for the three EIA's that exhibited the highest impacts in the Multisale EIS and the Supplemental EIS (LA-2, LA-3, and LA-4) using the new 2009 Woods & Poole data. The revised population impacts on a percentage basis mirror those of the revised employment impacts on a percentage basis shown in **Table 7** in Chapter 4.2.14.3 below, and the impacts are not substantially different from those reported in the Multisale EIS and the Supplemental EIS. Thus, the potential population impacts described in the Multisale EIS and the Supplemental EIS and summarized above apply for proposed Lease Sale 215.

More recent information regarding current economic conditions in the GOM region, particularly as it relates to the recovery from recent hurricanes, is provided in this EA. However, this supplemental information does not in any way change the baseline population and employment projections used to analyze impacts of a typical WPA sale and the OCS Program, the methodologies used, or the impact conclusions presented in the Multisale EIS, the Supplemental EIS, and this EA. The MMS uses a methodology to measure incremental employment impacts over the life of a lease sale. This methodology recognizes that most of the employment that results from industry activities that take place subsequent to a lease sale is not generated until 4-7 years after the sale. In contrast, the supplemental information provided in this EA is related to current socioeconomic conditions. By using the annually updated, long-term projections of baseline population and employment from Woods & Poole Economics, Inc. (2007) to analyze impacts of a proposed lease sale, MMS is already capturing the types of short-term trends that are presented in the supplemental information.

The Brookings Institution and the Greater New Orleans Community Data Center (GNOCDC) report that the New Orleans area continues to recover post-Katrina. This past year, the fourth year of recovery, population growth picked up pace in the city of New Orleans, reaching 76.4 percent of pre-Katrina residences actively receiving mail, a 4.3 percentage increase from August 2008. From August 2008 to June 2009, Orleans Parish added 8,577 active residences compared with 5,345 added from August 2007 to June 2008. The large one-year expansion reflects a mix of new and returning residents. The New Orleans metro area as a whole is now home to nearly 90 percent of the pre-Katrina number of households receiving mail (The Brookings Institution and GNOCDC, 2009). According to the U.S. Census Bureau's 2008 population estimates, the following demographic changes have taken place in New Orleans since the year 2000: the proportion of population that is African American fell from 66.7 percent to 60.7 percent; the proportion of the population that is Asian increased from 2.3 percent to 2.9 percent; and the proportion that is Hispanic increased from 3.1 percent to 4.5 percent (GNOCDC, 2009).

While Hurricane Gustav caused widespread minor and moderate physical damage across a broad swath of Louisiana, Hurricane Ike had a devastating impact on a handful of parishes in south Louisiana. The parishes most heavily impacted by Hurricane Ike, in both relative and absolute terms, include Cameron, Jefferson, St. Mary, Terrebonne, and Vermilion (Louisiana Economic Development, 2008). Combined, the two storms flooded roughly 12,000-13,000 homes and damaged 150,000-300,000 homes, causing \$2-\$7 billion in housing damages (Louisiana Recovery Authority, 2009). While much of the damage resulted in only short-term displacement, many residents are still in temporary housing (some within and some outside of their home parish).

Hurricane Ike delivered a heavy blow to the communities along the upper Texas Gulf Coast. The 2.7 million workers in the counties of Harris, Galveston, Chambers, Orange, and Jefferson—those most affected by Hurricane Ike—represent 26.6 percent of the State's total employment and contribute \$123.5 billion to the State's economy (FEMA, 2008). Workforce shortages were already a problem in

many parts of the upper Texas Gulf Coast, which has only been exacerbated by disruption in the economy. The region, which already had a housing shortage, lost over 8,000 housing units due to the storm. Hurricane Ike flooded 75 percent of Galveston Island, causing an estimated \$3.2 billion worth of damage on the Island.

As of early September 2009, approximately 80 percent of Galveston's population has returned (City of Galveston, 2009). However, City officials estimate that 25-30 percent of citizens with flood damaged residences are still living outside of their homes, and 160 FEMA mobile homes are still occupied on the Island. In addition, 75 percent of Galveston's businesses have returned, although many are still operating at a reduced capacity (City of Galveston, 2009).

Analysis of the demographic impacts of Hurricanes Katrina, Rita, Gustav, and Ike will continue for some time. The MMS will continue to monitor studies and data updates as they become available.

Conclusion

The MMS has reexamined the analysis for demographics presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. The MMS found new information on the affected environment (specifically, baseline population and employment levels for some counties and parishes) but found no information that warranted changes to the estimates of the employment or population that would likely result from a proposed WPA lease sale or the OCS Program. A revised impact analysis based on the new baseline data showed that the incremental employment and population impacts (on a percentage basis) did not substantially change. Therefore, the potential population impacts detailed in the Multisale EIS and the Supplemental EIS and summarized above still apply for proposed Lease Sale 215. Proposed Lease Sale 215 is still expected to have an incremental contribution of less than 1 percent to the population level in any of the EIA's. Given the low level of population growth and industrial expansion associated with proposed Lease Sale 215, the baseline age and racial distribution pattern and educational status of people living in the impact area is expected to continue. No new information was discovered that would alter the impact conclusion for demographics presented in the Multisale EIS and the Supplemental EIS; therefore, a full new analysis of the potential impacts of proposed Lease Sale 215 on demographics is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.14.3. Economic Factors

The description of the current economic factors for the GOM analysis area can be found in Chapter 3.3.5.5 of the Multisale EIS and in Chapter 4.1.16.3.1 of the Supplemental EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 215 on economic factors can be found in Chapters 4.2.1.1.13.3, 4.4.14.3, and 4.5.15.3 of the Multisale EIS and in Chapters 4.1.16.3.2, 4.1.16.3.3, and 4.1.16.3.4, respectively. A search of Internet information sources as well as personal communication with regional and national economic experts was conducted to determine the availability of new information that would affect the impact analyses. The MMS found new information on the affected environment (specifically, baseline population and employment levels for some counties and parishes) but found no information that warranted changes to the estimates of the employment (or population) that would likely result from a proposed WPA lease sale or the OCS Program. Most central to the employment impact analysis, MMS reviewed the new 2009 Wood & Poole data and found no substantial changes to the baseline population and employment projections that would alter the impact conclusions contained in the Multisale EIS and the Supplemental EIS (Woods & Poole Economics, Inc., 2009). The following is a summary of the impact analysis from the Multisale EIS and the Supplemental EIS with additional analysis based on the new information that was found.

Should proposed Lease Sale 215 occur, there would be only minor economic changes in the Texas, Louisiana, Mississippi, Alabama, and Florida EIA's (**Figure 5**). Proposed Lease Sale 215 is expected to generate less than a 1 percent increase in employment in any of these subareas. This demand will be met primarily with the existing population and available labor force. Accidental events such as oil or chemical spills, blowouts, and vessel collisions could have modest, short-term adverse economic consequences. Negative, long-term economic and social impacts may be more substantial if fishing, shrimping, oystering, and/or tourism were to suffer or were to be perceived as having suffered because of the event.

The OCS Program will produce only minor economic changes in most of the individual EIA's. However, it is projected to substantially impact the Louisiana EIA's LA-2 and LA-3, with total OCS-related employment (direct, indirect, and induced) expected to peak at 20 percent and 8 percent of total employment, respectively. On a regional level, activities related to the OCS Program are expected to significantly impact employment in Lafourche Parish, Louisiana, within EIA LA-3. Therefore, the population, housing, roads (LA Hwy 1), water supply, schools, and hospitals in the parish will be affected and potentially strained.

In the Supplemental EIS, MMS used data from Woods & Poole's *Complete Economic and Demographic Data Source* (Woods & Poole Economics, Inc., 2007) for baseline population and employment estimates over the 40-year life of a typical proposed WPA lease sale. The 2007 Woods & Poole data contained their revised estimates regarding the economic and demographic impacts of the 2005 hurricanes on the Gulf region (Woods & Poole Economics, Inc., 2007). In the new data, population, income, and employment declined from 2005 to 2006 by 76 percent in St. Bernard Parish, Louisiana; 51 percent in Orleans Parish, Louisiana; 22 percent in Plaquemines Parish, Louisiana; 19 percent in Cameron Parish, Louisiana; 13 percent in Hancock County, Mississippi; and 11 percent in Harrison County, Mississippi. In each case, these losses were less than those that were in the Woods & Poole 2006 data used in the Multisale EIS. The 2007 data also revised data regarding counties and parishes that experienced population and employment gains because of Hurricane Katrina displacement: 9 percent in Pearl River County, Mississippi; 7 percent in Tangipahoa Parish, Louisiana; 5 percent in St. John the Baptist Parish, Louisiana; 5 percent in East Baton Rouge Parish, Louisiana; and 4 percent in St. Charles Parish, Louisiana from 2005 to 2006. In each case, these gains were less than those that were in the 2006 data used in the Multisale EIS.

As discussed in **Chapter 4.1.1**, the exploration and development activity scenarios used in the Multisale EIS and the Supplemental EIS for a typical WPA sale remain unchanged and are used for the analysis of proposed Lease Sale 215. Consequently, the employment projections for a typical proposed WPA sale used in the Multisale EIS (Tables 4-22 and 4-23) and the Supplemental EIS are unchanged for Lease Sale 215. The MMS reanalyzed the employment impacts for the three economic impact areas (EIA's) that exhibited the highest impacts on a percentage basis in the Multisale EIS and the Supplemental EIS using the new 2009 Woods & Poole data. As shown in **Table 7**, the employment impacts on a percentage basis for the three EIA's are not substantially different from those reported in the Multisale EIS and the Supplemental EIS. Thus, the potential employment impacts described in the Multisale EIS and the Supplemental EIS and summarized above apply for proposed Lease Sale 215.

Table 7

Projected Employment* Associated with Proposed Lease Sale 215 by Economic Impact Area

Calendar Year	Revised Baseline Employment Projections ¹			WPA Proposed Action Employment Estimates ²						Projected Employment Associated with Proposed Lease Sale 215 as Percent of Total Baseline Employment					
	LA2	LA3	LA4	LA2		LA3		LA4		LA2		LA3		LA4	
	In Thousands			Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
2010	330.93	695.07	740.74	133	225	171	278	84	143	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2011	334.94	705.03	747.75	413	643	533	762	286	415	0.1%	0.2%	0.1%	0.1%	0.0%	0.1%
2012	339.00	715.10	754.83	296	410	403	534	227	301	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
2013	343.13	725.35	761.98	281	443	383	542	222	307	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
2014	347.31	735.77	769.25	330	618	433	784	241	446	0.1%	0.2%	0.1%	0.1%	0.0%	0.1%
2015	351.55	746.34	776.60	228	370	252	408	113	191	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%
2016	355.86	757.08	784.05	267	593	285	684	128	356	0.1%	0.2%	0.0%	0.1%	0.0%	0.0%
2017	360.21	767.99	791.58	270	455	286	483	129	228	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%
2018	364.63	779.07	799.19	193	447	192	507	84	268	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%
2019	369.11	790.31	806.90	171	253	168	251	75	114	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2020	373.65	801.74	814.71	161	233	157	228	72	103	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2025	397.35	861.69	855.23	201	308	187	286	89	139	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
2030	422.75	926.60	898.36	208	330	181	284	93	148	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2035	449.99	996.98	944.28	205	319	171	264	92	144	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2040	479.17	1,073.34	993.17	163	244	136	202	76	113	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%

* Direct, indirect, and induced.

¹ Source: Woods & Poole Economics, Inc., 2009.

² Source: Tables 4-22 and 4-23 of the Multisale EIS; Model Year 1=Calendar Year 2010.

The Supplemental EIS presents additional information regarding economic conditions in the GOM region, particularly as it relates to the recovery from the 2005 hurricanes. More recent Katrina/Rita recovery information is provided below, as well as impact and recovery information from Hurricanes Gustav and Ike in Louisiana and Texas. However, this supplemental information does not in any way change the baseline population and employment projections used to analyze impacts of a typical WPA sale and the OCS Program, the methodologies used, or the conclusions presented in the Multisale EIS and the Supplemental EIS.

Louisiana’s seasonally adjusted unemployment rate improved to 7.4 percent in September 2009 from the August rate of 7.8 percent, with the State maintaining its ranking as the 18th lowest unemployment rate in the country, according to the Louisiana Workforce Commission (2009). The State’s unemployment rate is more than 2 percentage points better than the national rate of 9.8 percent and also beats the Southern regional rate of 9.3 percent (Louisiana Workforce Commission, 2009). Compared with the rest of the Nation, the New Orleans economy is weathering the current recession relatively well due in part to its rebuilding efforts from Hurricane Katrina and in part to its industry composition. The New Orleans metro area lost 0.9 percent of its jobs since June 2008, compared with the 4.1 percent lost nationally. The New Orleans metro area’s unemployment rate rose to 7.3 percent while it climbed to 9.5 percent for the Nation (The Brookings Institution and GNOCDC, 2009). While there are fewer unoccupied residences in Orleans, St. Bernard, and Jefferson Parishes this year, the scale of the blight remains high: 65,888; 14,372; and 11,516 residences, respectively (The Brookings Institution and GNOCDC, 2009). Rents in the area remain at 40 percent higher than pre-Katrina, putting them out of reach for many critical workers.

While Hurricane Gustav caused widespread minor and moderate physical damage across a broad swath of Louisiana, Hurricane Ike had a devastating impact on a handful of parishes in south Louisiana. Considering Gustav-related property losses as a proportion of the total property value in each parish, the most heavily impacted parishes by Hurricane Gustav include Assumption, Lafourche, and Terrebonne. The parishes most heavily impacted by Hurricane Ike, in both relative and absolute terms, include Cameron, Jefferson, St. Mary, Terrebonne, and Vermilion (Louisiana Economic Development, 2008). Combined, the two storms resulted in an estimated \$1.5-\$4.5 billion in damages to commercial structures,

property, and inventory (Louisiana Economic Development, 2008). While much of the damage resulted in only short-term business disruptions due to evacuations, power outages, and/or flooding, many businesses in the most heavily impacted areas of Hurricane Ike continue to face substantial challenges due to severe flooding and workforce housing issues.

Hurricane Ike adversely impacted the economies of communities along the upper Texas Gulf Coast. Harris, Galveston, Chambers, Orange, and Jefferson Counties were affected by Hurricane Ike and represent 26.6 percent of the State's total employment and contribute \$123.5 billion to the State's economy (FEMA, 2008). Workforce shortages in many parts of the upper Texas Gulf Coast have been exacerbated by this disruption in the economy. The region lost over 8,000 housing units due to the storm, contributing further to the existing housing shortage, and Hurricane Ike flooded 75 percent of Galveston Island, causing an estimated \$3.2 billion worth of damage on the Island.

As of early September 2009, approximately 80 percent of Galveston's population has returned (City of Galveston, 2009). However, City officials estimate that 25-30 percent of citizens with flood damaged residences are still living out of their homes, and 160 FEMA mobile homes are still occupied on the island. In addition, 75 percent of Galveston's businesses have returned, although many are still operating at a reduced capacity (City of Galveston, 2009).

Analysis of the employment impacts of Hurricanes Katrina, Rita, Gustav, and Ike will continue for some time. The MMS will continue to monitor studies and data updates as they become available.

Conclusion

The MMS has reexamined the analysis for economic factors presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. The MMS found new information on the affected environment (specifically, baseline population and employment levels for some counties and parishes) but found no information that warranted changes to the estimates of the employment (or population) that would likely result from a proposed WPA lease sale or the OCS Program. A revised impact analysis based on the new baseline data showed that the incremental employment impacts (on a percentage basis) did not substantially change. Therefore, the potential employment impacts detailed in the Multisale EIS and the Supplemental EIS and summarized above still apply for proposed Lease Sale 215.

No new information was discovered that would alter the impact conclusion for economic factors presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on economic factors is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

4.2.14.4. Environmental Justice

The description of the environment for environmental justice can be found in Chapter 3.3.5.10 of the Multisale EIS and in Chapter 4.1.16.4 of the Supplemental EIS. Detailed analysis of Lease Sale 215's routine, accidental, and cumulative impacts on environmental justice can be found in Chapters 4.2.1.15.4, 4.4.14.4 and 4.5.15.4 of the Multisale EIS and in Chapters 4.1.16.4.2, 4.1.16.4.3 and 4.1.16.4.4 of the Supplemental EIS, respectively. The following is a summary of the impact analysis from the Multisale EIS.

Because of the presence of an extensive and widespread support system for OCS and associated labor force, the effects of proposed Lease Sale 215 are expected to be widely distributed and, except in Louisiana, little felt. In general, the infrastructural needs generated by proposed Lease Sale 215 will be met by the existing support systems, and these effects will be negligible. In general, who will be hired and where new infrastructure might be located is impossible to predict. A new C-Port (multiservices port terminal facility) in Galveston may be developed and this would likely increase Texas' share of the effects. However, this would occur in an already highly industrialized area so its effects would be primarily economic. For these reasons, impacts related to proposed Lease Sale 215 are expected to be economic and have a limited but positive effect on low-income and minority populations. Given the existing distribution of the industry and the limited concentrations of minority and low-income people, proposed Lease Sale 215 is not expected to have a disproportionate effect on these populations.

Lafourche Parish, Louisiana, will experience the most concentrated effects of proposed Lease Sale 215; however, because the parish is not heavily low-income or minority and because the effects of road

traffic and port expansion will not occur in areas of low-income or minority concentration, these groups are not expected to be affected differentially.

Proposed Lease Sale 215 would help to maintain ongoing levels of activity rather than expand them. Future changes in activity levels will most likely be caused by fluctuations in oil prices and imports, and not be activities related to proposed Lease Sale 215. Routine impacts associated with proposed Lease Sale 215 are not expected to have disproportionate high/adverse environmental or health effects on minority or low-income populations.

With respect to accidental events, considering the low likelihood of an oil spill and the heterogeneous population distribution along the GOM region, accidental spill events associated with proposed Lease Sale 215 are not expected to have disproportionate adverse environmental or health effects on minority or low-income people.

In the GOM coastal area, the contribution of proposed Lease Sale 215 and the OCS Program to the cumulative effects of all activities and trends affecting environmental justice issues over the next 40 years is expected to be negligible to minor. The cumulative effects will be concentrated in coastal areas, and particularly, Louisiana. Most OCS Program effects are expected to be in the areas of job creation and the stimulation of the economy and are expected to make a small yet positive contribution to an area's economy. The contribution of the cumulative OCS Program to the cumulative impacts of all factors affecting environmental justice is expected to be minor (USDOJ, MMS, 2001); therefore, the incremental contribution of proposed Lease Sale 215 to the cumulative impacts would also be minor.

The MMS conducted a search for new information published since completion of the Multisale EIS and the Supplemental EIS. Analysis of FEMA storm damage data shows that Hurricane Katrina's impact was disproportionately borne by the region's African American community, by people who rented their homes, and by the poor and unemployed. More than one-third of the region's 1.7 million residents lived in areas that suffered flooding or moderate to catastrophic storm damage, according to FEMA. The majority of people living in damaged areas were in the City of New Orleans (over 350,000), with additional concentrations in suburban Jefferson Parish (175,000) and St. Bernard Parish (53,000) and along the Mississippi Coast (54,000). In the region as a whole, the disparities in storm damage are shown in the following comparisons (arranged in order of the degree of disparity): by race—damaged areas were 46 percent black, compared with 26 percent in undamaged areas; by housing tenure—46 percent of homes in damaged areas were occupied by renters, compared with 31 percent in undamaged communities; and by poverty and employment status—21 percent of households had incomes below the poverty line in damaged areas, compared with 15 percent in undamaged areas, and 7.6 percent of persons in the labor force were unemployed in damaged areas (before the storm), compared to 6.0 percent in undamaged areas. These comparisons are heavily influenced by the experience of the City of New Orleans. Outside the city, there were actually smaller shares of African American, poor, and unemployed residents in the damaged areas. Closer inspection of neighborhoods within New Orleans shows that some affluent white neighborhoods were hard hit, while some poor minority neighborhoods were spared. Yet, if the post-Katrina city were limited to the population previously living in areas that were undamaged by the storm—that is, if people were unable or unwilling to return to destroyed and damaged neighborhoods—New Orleans is at risk of losing more than 80 percent of its black population (Logan, 2007).

A more recent report on the New Orleans area recovery finds that some of this disparity among ethnic groups continues. Based on 2008 U.S. Bureau of the Census data, a Greater New Orleans Community Data Center report concludes the following: "According to the Census Bureau's 2008 population estimates, the proportion of the New Orleans population that is African American fell from 66.7 percent in 2000 to 60.7 percent in 2008. The proportion of the city's population that is Asian increased from 2.3 percent in 2000 to 2.9 percent in 2008 and the proportion that is Hispanic (of any race) increased from 3.1 percent to 4.5 percent. Statistical analyses of the Census Bureau's American Community Survey 2008 demographic profile for the New Orleans metro area as compared with Census 2000 indicate that the region is less poor with fewer adults lacking a high school diploma, fewer households with children, more one or two-person households, fewer households lacking vehicles, a larger share of the population that is foreign-born, a higher homeownership rate, and more homeowners without mortgages" (Plyer and Ortiz, 2009). Also, more recent problems with subsidence and coastal flooding may be being disproportionately borne by ethnic minorities and the poor (see for example, Houma Today, 2009).

The Multisale EIS states the following: "Evidence also suggests that a healthy offshore petroleum industry also indirectly benefits low-income and minority populations." One MMS study in Louisiana

found income inequality decreased during the oil boom and increased with the decline (Tolbert, 1995). The author's follow-up study of Abbeville, Louisiana, provides additional information concerning this point (Tolbert, 2006). The new study looked at Abbeville after the closure of an industrial plant, a major employer in the area. The 2006 study found that more reemployment opportunities existed within the community and surrounding area than is usually the case in rural locations because growth of the oil and gas industry has created a wide range of alternative, labor-market opportunities. Thus, one conclusion of the 2006 study is that, under certain circumstances, the petroleum industry is the source of sustainability from economic fluctuations in other sectors of the economy that directly and indirectly benefits residents across all socioeconomic statuses (Tolbert, 2006).

Conclusion

The MMS has reexamined the analysis for environmental justice presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. Proposed Lease Sale 215 would continue to make only a small incremental contribution to the factors affecting environmental justice. No new information was discovered that would alter the impact conclusion for environmental justice presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 215 on environmental justice is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 215.

5. CONSULTATION AND COORDINATION

5.1. SCOPING AND ACTIVITIES IN SUPPORT OF THE ENVIRONMENTAL ASSESSMENT FOR THE WESTERN PLANNING AREA'S PROPOSED LEASE SALE 215

The MMS performs ongoing external and internal scoping in order to determine the breadth and depth necessary for environmental analysis.

External Scoping: The scoping process for this EA was formally initiated on September 9, 2009, with the *Federal Register* notice announcing the preparation of an EA. In the notice, MMS requested that interested parties submit comments regarding any new information or issues that should be addressed in the EA. The comment period closed on October 9, 2009. Scoping and coordination efforts continue throughout the lease sale process and have been conducted since the publication of the Multisale EIS in 2007 and the Supplemental EIS in 2008:

- On March 1, 2007, in Pensacola, Florida, and on March 7, 2007, in Larose, Louisiana, public meetings were held to solicit comments regarding new information or issues that should be addressed in the Draft Supplemental EIS for EPA Lease Sale 224 held in March 2008.
- On July 24 and 26, 2007, public meetings were held to solicit comments regarding the Draft Supplemental EIS for EPA Lease Sale 224 in Pensacola, Florida, and Larose, Louisiana.
- On August 27, 2007, MMS published a Notice of Intent to Prepare a Supplemental EIS (NOI) on proposed Lease Sale 208, which would offer for sale approximately 5.8 million ac located in the southeastern part of the CPA ("181 South Area"). The Supplemental EIS would also address proposed oil and gas lease sales tentatively scheduled in 2009-2012 for the CPA and WPA. In the NOI, MMS requested interested parties to submit comments regarding any new information or issues that should be addressed in the Supplemental EIS. The comment period for the NOI closed on October 11, 2007.
- Scoping meetings were held on October 9, 2007 in Larose, Louisiana; October 10, in Baton Rouge, Louisiana; October 11 in Mobile, Alabama; and October 11 in Houston, Texas, to solicit comments regarding new information or issues that should be addressed in the Draft Supplemental EIS for CPA Lease Sale 208 in the area referred to as the "181 South Area," which was held on March 18, 2009.
- On September 9, 2009, MMS published a Notice of Preparation of an EA (NOP) on proposed Lease Sale 215. In the notice, MMS requested interested parties to submit comments regarding any new information or issues that should be addressed in the EA within 30 days. The MMS received a letter from the State of Louisiana Governor's Office on September 30, 2009; it offered no comments based upon the preliminary nature of the information provided in the NOP for WPA Lease Sale 215.
- Before a decision is made on the Final Notice of Sale, MMS will send the CD's for WPA Lease Sale 215 to the States of Texas and Louisiana, documenting the consistency of the proposed sale with the coastal zone management (CZM) program. The States' comments on the Lease Sale 215 CD's are due within 60 days. If no comments are provided, MMS presumes the State's concurrence with the CD pursuant to the provisions of regulations at 15 CFR 930.41(a). If comments are provided, MMS will respond to them.

Thirteen comment letters were received in response to the *Federal Register* notice announcing the availability of the Draft Supplemental EIS. Comments were received from Federal and State agencies,

organizations, and the general public. The comments received included requests for oil-spill updates; compensatory mitigation for environmental and socioeconomic impacts; avoidance of impacts to migratory birds, sea turtles, marine mammals, commercial fishing, and benthic resources; infrastructure maintenance; and hurricane impacts. Louisiana responded to the Draft Supplemental EIS with an 11-page letter contending that MMS is not conducting meaningful and comprehensive analyses of potential effects and that MMS is not adhering to the conditions agreed upon in the settlement of *Blanco vs. Burton*. As required by 40 CFR 1503.4, all comments on the Draft Supplemental EIS were responded to in the Final Supplemental EIS. Where appropriate, MMS supplemented, improved, or modified its analyses in the Final Supplemental EIS to address Louisiana's comments. Where requested information or analysis was already included in the Draft Supplemental EIS, the appropriate sections were referenced.

Internal Scoping: Internal scoping is an ongoing activity for all environmental projects and NEPA documents. Part of internal scoping involves reviewing resource estimates and oil-spill modeling results used in the preparation of the Multisale EIS to determine if they are still valid. The MMS, Gulf of Mexico Region's Office of Resource Evaluation reviewed the oil and gas resource projections and associated activities for WPA Lease Sale 215 and confirmed that they remain within the range of those projected by MMS for a "typical WPA lease sale." The MMS Headquarters' Oil-Spill Risk Analysis (OSRA) group confirmed that results from the OSRA model summarized in the Multisale EIS and presented in a separate MMS report (USDOJ, MMS, 2007g) are still valid for the proposed lease sale.

Internal scoping also requires MMS subject matter experts and analysts and NEPA coordinators to continuously update their knowledge base and incorporate three primary informational components into their analyses:

- (1) recent studies/reports;
- (2) monitoring results; and
- (3) related cumulative-impact data.

The MMS's resource analysts and NEPA coordinators take an active role in the preparation, execution, and peer review of studies and reports developed under MMS's Environmental Studies Program. Some MMS analysts are involved in studies within their areas of expertise, as well as managing contracts for work conducted by other Federal/State agencies and universities conducting research in support of GOM's mission. The MMS staff participates in protected species observation cruises, and a dive team examines the marine biological activity around OCS infrastructure and investigates archaeological sites. The information obtained from these studies, as well as other relevant, non-MMS research, was considered by each subject matter expert in their assessment for this EA. Appendix C of the Multisale EIS lists the GOM Region's studies published from 2003 to 2006. Technical summaries for MMS-sponsored studies are available on our Internet website (http://www.gomr.mms.gov/homepg/regulate/environ/techsumm/rec_pubs.html).

Cumulative analyses are prepared by MMS subject matter experts that consider activities that could occur and may adversely affect GOM resources, including proposed WPA Lease Sale 215, prior and future OCS lease sales, State oil and gas activities, and other governmental and private projects and activities. The MMS analysts are often responsible for reviewing GOM activities not associated with oil and gas operations. All information gained from cumulative analyses was considered by MMS analysts in their assessments for this EA.

5.2. CONSULTATION AND COORDINATION CALENDAR

A complete description of all consultation and coordination activities and meetings is included in Chapter 5 of the Multisale EIS and the Supplemental EIS. A brief summary of these events follows:

Multisale EIS Process	
<i>March 7, 2006</i>	The Notice of Intent (NOI) for the proposed 2007-2012 CPA and WPA lease sales was published in the <i>Federal Register</i> . A 45-day comment period was provided; it closed on April 21, 2006. Additional public notices were distributed via newspaper notices, mailed notices, and the Internet. The MMS received 65 scoping letters in response to the NOI, which are summarized in Chapter 5.3.1 of the Multisale EIS.
<i>March 28-30, 2006 April 6, 2006</i>	The MMS held scoping meetings in Houston, Texas; Harahan, Louisiana; Mobile, Alabama; and Tallahassee, Florida, to receive comments on the Draft EIS for the proposed 2007-2012 CPA and WPA lease sales. A summary of comments presented at the scoping meetings is provided in Chapter 5.3.1 of the Multisale EIS.
<i>April 28, 2006</i>	The Call for Information and Nominations (Call) for the proposed 2007-2012 lease sales was published in the <i>Federal Register</i> . A 30-day comment period was provided; it closed on May 30, 2006. The MMS received five comment letters in response to the Call, which are summarized in Chapter 5.3.3 of the Multisale EIS.
<i>December 5-7, 2006</i>	The MMS held public hearings in Houston, Texas; New Orleans and Larose, Louisiana; Panama City, Florida; and Mobile, Alabama, to receive comments on the Draft Multisale EIS for CPA Lease Sales 205, 206, 208, 213, 216, and 222, and WPA Lease Sales 204, 207, 210, 215, and 218. There were no speakers at the Houston, Mobile, and Larose hearings. One individual presented comments at the New Orleans hearing and 26 at the Larose hearing. The comments are summarized in Chapter 5.5 of the Multisale EIS.
<i>December 12, 2006</i>	The EFH programmatic consultation was initiated and completed for the 2007-2012 lease sales, including Lease Sale 207. The NMFS concurred by letter dated December 12, 2006, that the information presented in the Draft Multisale EIS satisfies the EFH consultation procedures outlined in 50 CFR 600.920, and as specified in our March 17, 2000, findings. Provided MMS proposed mitigations, previous EFH conservation recommendations, and the standard lease stipulations and regulations are followed as proposed, NMFS agrees that impacts on EFH and associated fishery resources resulting from activities conducted under the 2007-2012 lease sales would be minimal. Therefore, unless future changes to the proposed 2007-2012 lease sales are proposed or new information becomes available, no further EFH consultation is required for the 2007-2012 lease sales.
<i>June 28, 2007</i>	The FWS and MMS have consulted informally per FWS guidance. A draft copy of the Biological Assessment, prepared by MMS, was submitted as requested by FWS (USDOJ, MMS, 2007h). On June 28, 2007, MMS received oral confirmation from FWS that the consultation will remain informal; therefore there will be no new mitigations or Terms and Conditions from FWS. The final Biological Assessment and a request for a Letter of Concurrence were submitted to FWS on August 3, 2007. The FWS submitted a Letter of Concurrence dated September 14, 2007.
<i>June 29, 2007</i>	The NMFS Biological Opinion was signed on June 29, 2007, and was received by MMS on July 3, 2007. The Biological Opinion concludes that the proposed lease sales and associated activities in the GOM in the 2007-2012 OCS Leasing Program, including Lease Sale 207, are not likely to jeopardize the continued existence of threatened and endangered species under NMFS jurisdiction, or destroy or adversely modify designated critical habitat. The

	NMFS issued an Incidental Take Statement on sea turtle species, which contains reasonable and prudent measures with implementing terms and conditions to help minimize take.
Supplemental EIS Process	
<i>September 10, 2007</i>	The Call and NOI were published in the <i>Federal Register</i> . The general area of the Call only covers the 181 South Area. A 30-day comment period was provided for the Call; it closed on October 10, 2007. A 45-day comment period was provided for the NOI; it closed on October 25, 2007. The MMS received several comment letters in response to the Call and/or the NOI, which are summarized Chapter 5.4 of the Supplemental EIS.
<i>October 9-11, 2007</i>	The MMS held formal scoping meetings in Houston, Texas; Larose and Baton Rouge, Louisiana; and Mobile, Alabama. Scoping provides those with an interest in the OCS Program an opportunity to provide comments on the proposed actions.
<i>May 13-15, 2008</i>	The MMS held public hearings in Larose and Baton Rouge, Louisiana, and Mobile, Alabama, to solicit comments on the Draft Supplemental EIS. Attendees at the hearings included representatives from State and local governments, interest groups, industry, and the general public. All hearing comments received on the Draft Supplemental EIS were considered in the preparation of the Final Supplemental EIS. The comments presented at each of the public hearings are summarized in Section 5.6 of the Supplemental EIS.
<i>August 3, 2007</i>	<p>The final Biological Assessment and a request for a Letter of Concurrence were submitted to FWS on August 3, 2007. The FWS submitted a Letter of Concurrence dated September 14, 2007 (USDOJ, FWS, 2007d). The FWS concurred with the MMS determination that proposed actions of the 2007-2012 OCS Leasing Program were not likely to adversely affect the threatened/endangered species or designated critical habitat under FWS jurisdiction. Sea turtles are under FWS jurisdiction when on a nesting beach.</p> <p>The biological assessments prepared by MMS analyzed a typical year of OCS activity rather than a typical lease sale and did not exclude the 181 South Area. Therefore, concurrence letters will be requested annually from NMFS and FWS to determine whether or not the information and analyses in the biological assessments and the associated consultations under the ESA are still valid. The MMS requested the annual concurrence letters in November 2008. Concurrence letters were received from NMFS and the FWS, dated December 1, 2008, and December 5, 2008, respectively.</p>
WPA Lease Sale 215 EA Process	
<i>September 9, 2009</i>	The MMS published a Notice of Preparation of an EA on proposed WPA Lease Sale 215. In the NOP, MMS requested interested parties to submit comments within 30 days regarding any new information or issues that should be addressed in the EA.
<i>September 30, 2009</i>	The State of Louisiana Governor's Office offered no comments based upon the preliminary nature of the information provided in the NOP for WPA Lease Sale 215.

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7. PREPARERS

Supervisors

Gary D. Goeke, Chief, Environmental Assessment Section
Robert Martinson, NEPA/CZM Unit Supervisor, Senior Environmental Scientist

NEPA Coordination

Barry Obiol, GOM Region NEPA Coordinator, Senior Environmental Scientist
Jim Woehr, Headquarters' NEPA Coordinator, Environmental Specialist

Analysts and Professional Staff

Patrick Adkins, Information Management Specialist
Bruce Baird, Senior Environmental Scientist
Dave Ball, Marine Archaeologist
Robert Cameron, Meteorologist
Sindey Chaky, Social Scientist
Holli Ensz, Physical Scientist
Mike Gravois, Geographer
Larry M. Hartzog, Environmental Scientist
Nancy M. Kornrumpf, Program Analyst
Daniel (Herb) Leedy, Supervisor, Biological Sciences Unit
Harry Luton, Social Scientist
Margaret Metcalf, Supervisor, Physical Scientist
Deborah H. Miller, Technical Publications Editor
Tara Montgomery, Supervisor, Mapping and Automation Unit
David P. Moran, Environmental Scientist
Maureen Mulino, Marine Biologist
Erin O'Reilly, Physical Scientist
Carol Roden, Protected Species Biologist
Catherine A. Rosa, Environmental Assessment Program Specialist
James Sinclair, Marine Biologist
Kristen L. Strellec, Economist



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.