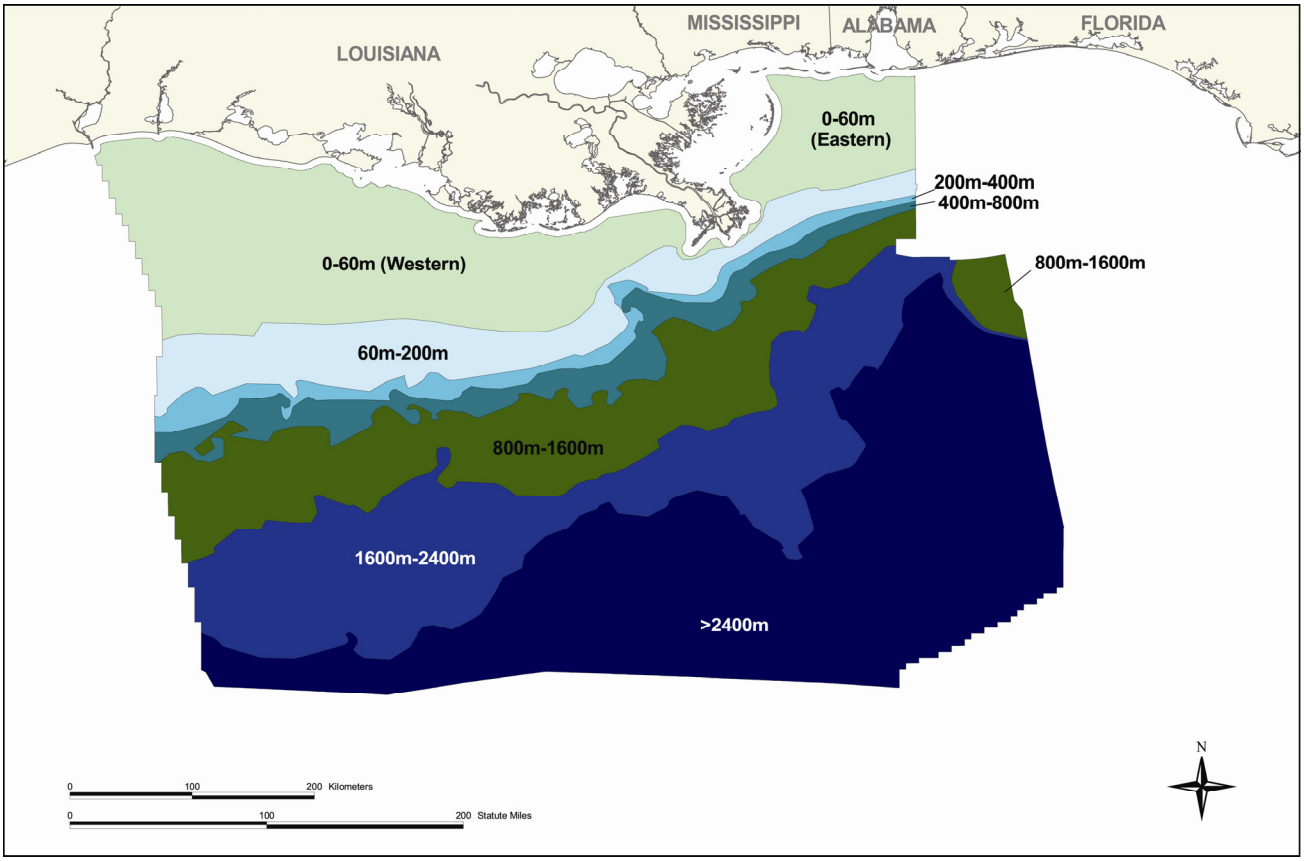
OCS EIS/EA
MMS 2009-053

Proposed Gulf of Mexico OCS Oil and Gas Lease Sale 213

Central Planning Area

Environmental Assessment



MMS
U.S. Department of the Interior
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 213 in the Central Planning Area (CPA) 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 CPA Lease Sales 205, 206, 208, 213, 216, and 222; and Western Planning Area (WPA) Lease Sales 204, 207, 210, 215, and 218 in the GOM (Multisale EIS). In September 2008, MMS filed with the 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 213, 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 213 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 necessitate a reanalysis of the impacts of proposed Lease Sale 213 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 213.

Based on the analyses in the EA, no new significant impacts were identified for proposed Lease Sale 213 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 (USDOI, 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 (USDOI, MMS, 2007a) (available upon request)

Director

10/30/09

Date

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ABBREVIATIONS AND ACRONYMS

5-Year Program	*Outer Continental Shelf Oil and Gas Leasing Program: 2007-2012*
ac	acre
APD	Application for Permit to Drill
API	American Petroleum Institute
bbl	barrel
BBO	billion barrels of oil
BO	Biological Opinion
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
CSA	Continental Shelf Associates
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
CZM	coastal zone management
DOD	Department of Defense
EA	environmental assessment
EDP	exploration, development, and production
EFH	essential fish habitat
EIA	economic impact area
EIS	environmental impact statement
EPA	Eastern Planning Area
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	*Federal Register*
ft	feet
FWS	Fish and Wildlife Service
GMAQS	Gulf of Mexico Air Quality Standards
GNOCDC	Greater New Orleans Community Data Center
GOM	Gulf of Mexico
GOMR	Gulf of Mexico Region
GPS	global positioning system
GS	Geological Survey (also USGS)
ha	hectare
km	kilometer
LCA	Louisiana Coastal Area
LDNR	Louisiana Dept. of Natural Resources
LED	Louisiana Economic Development
LMA	labor market areas
LUMCON	Louisiana Universities Marine Consortium
m	meter
mi	mile
MMPA	Marine Mammal Protection Act of 1972
MMS	Minerals Management Service
MODU	mobile offshore drilling unit
MRFSS	Marine Recreational Fisheries Statistics Survey
Multisale EIS	*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*

NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service (also known as NOAA Fisheries Service)
nmi	nautical mile
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries Service	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
NRS	National Response Center
NTL	Notice to Lessees and Operators
OCD	Offshore and Coastal Dispersion
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
ROV	remotely operated vehicle
RP	Recommended Practice
RPM	reasonable and prudent measure
SEA	site-specific environmental assessment
SO_2	sulphur dioxide
Supplemental EIS	*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*
Tcf	trillion cubic feet
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)
VGP	vessel general permit
WPA	Western Planning Area

1. OBJECTIVES OF THE ENVIRONMENTAL ASSESSMENT

This environmental assessment (EA) addresses one proposed Federal action: oil and gas Lease Sale 213 in the proposed lease sale area of the Central Planning Area (CPA) 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) (USDOI, MMS, 2007b). This EA incorporates by reference all of the relevant material in the Multisale environmental impact statement (EIS) from which it tiers (*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) (USDOI, MMS, 2007a). This EA also incorporates by reference all of the relevant material in the Supplemental EIS from which it tiers (*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) (USDOI, 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 213, 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 (USDOI), MMS reexamined the potential environmental effects of proposed Lease Sale 213 and the alternatives based on any new information regarding potential impacts and issues not available at the time MMS published the Supplemental EIS in September 2008. New information was reviewed 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 necessitate a reanalysis of the impacts of proposed Lease Sale 213 upon any of the environmental or socioeconomic resources. The analyses, potential impacts, and conclusions detailed in the Multisale EIS and the Supplemental EIS apply for proposed Lease Sale 213.

Federal regulations allow for an agency to analyze related or similar proposals in one EIS (40 CFR 1502.4). Since CPA Lease Sales 205, 206, 208, 213, 216, and 222 and their projected activities are very similar, MMS prepared a single EIS for the six lease sales. 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 six proposed CPA lease sale actions and the Supplemental EIS addressed four 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 website at http://www.gomr.mms.gov. A list of libraries that have copies of the Multisale EIS and the Supplemental EIS and their locations is also available on the MMS Internet website.

2. PURPOSE OF AND NEED FOR THE PROPOSED ACTION

Purpose of the Proposed Action

The purpose of this proposed action (CPA Lease Sale 213) 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. On July 14, 2008, the President modified an Executive Order, thereby making additional acreage available for leasing in the CPA. This sale area includes two new areas, which are identified in **Figure 1**. The additional areas represent less than 1 percent of the total CPA and are greater than 100 miles (mi) (161 kilometers (km)) from the coast of Florida. These areas were examined in the *Outer Continental Shelf Oil and Gas Leasing Program: 2007-2012* (5-Year Program; USDOI, MMS, 2007a); however, they were not examined in the Multisale EIS or the Supplemental EIS. The reanalysis of the scenario data with the additional acreage concluded that the scenario for the proposed CPA lease sale presented in the Supplemental EIS would not change. The additional acreage will be examined throughout this EA as part of the analysis for the entire CPA sale area. 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.

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 imports and reduce the environmental risks associated with oil tankering. Natural gas is generally considered to be an environmentally preferable alternative to oil in terms of both production and consumption.

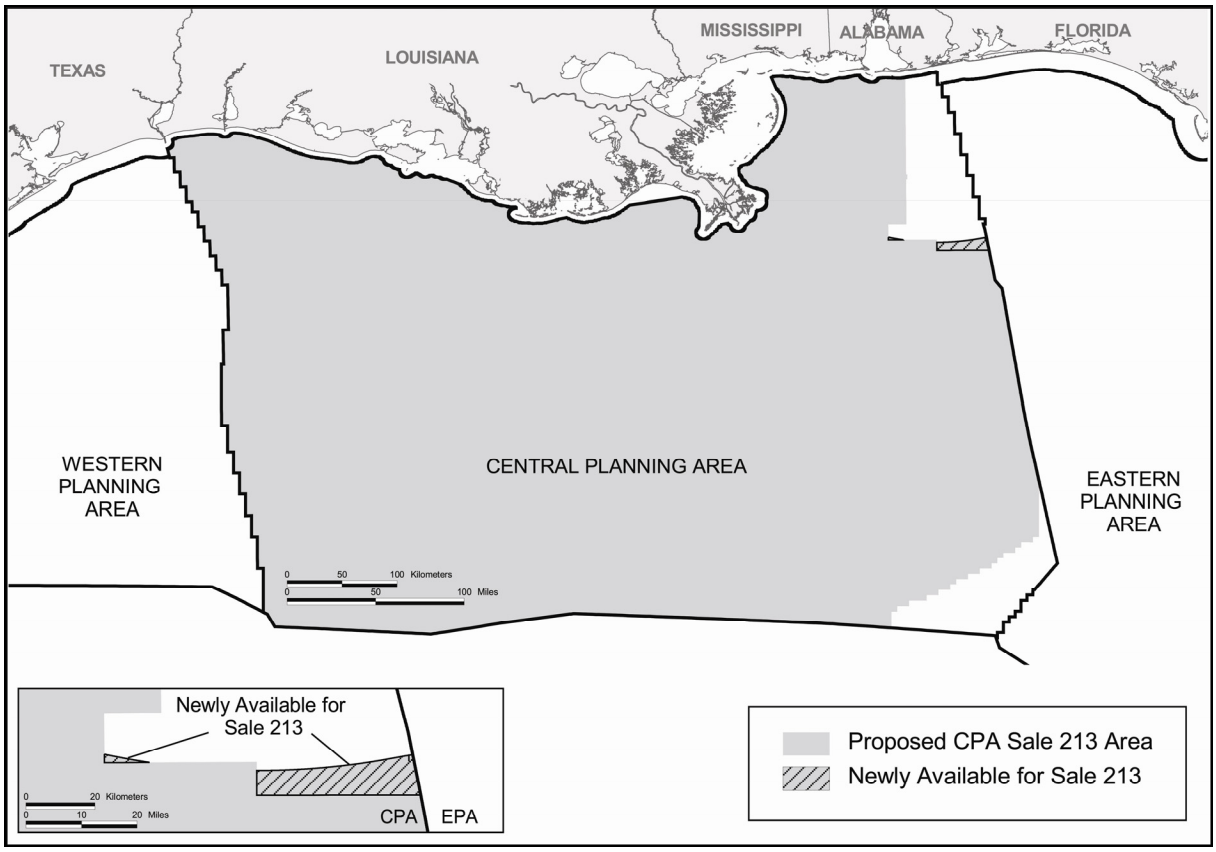

Figure 1. Gulf of Mexico Outer Continental Shelf Planning Areas, and Proposed Lease Sale Area.

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 CPA for oil and gas operations (**Figure 2**), with the following exceptions:

(1) blocks that were previously included within the Eastern Planning Area (EPA) and that are within 100 mi of the Florida coast;

(2) blocks that are beyond the U.S. Exclusive Economic Zone in the area known as the northern portion of the Eastern Gap; and

(3) 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.

The CPA sale area encompasses about 63 million acres (ac) of the CPA's 66.3 million ac. The estimated amount of resources projected to be developed as a result of any one proposed CPA lease sale is 0.807-1.336 billion barrels of oil (BBO) and 3.365-5.405 trillion cubic feet (Tcf) of gas.

The analyses of impacts summarized below and described in detail in Chapters 4.2.2 and 4.4 of the Multisale EIS and Chapter 3 of the Supplemental EIS are based on the development scenario, which 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 impact-producing factors is included in Chapters 4.1.1, 4.1.2, and 4.3 of the Multisale EIS.

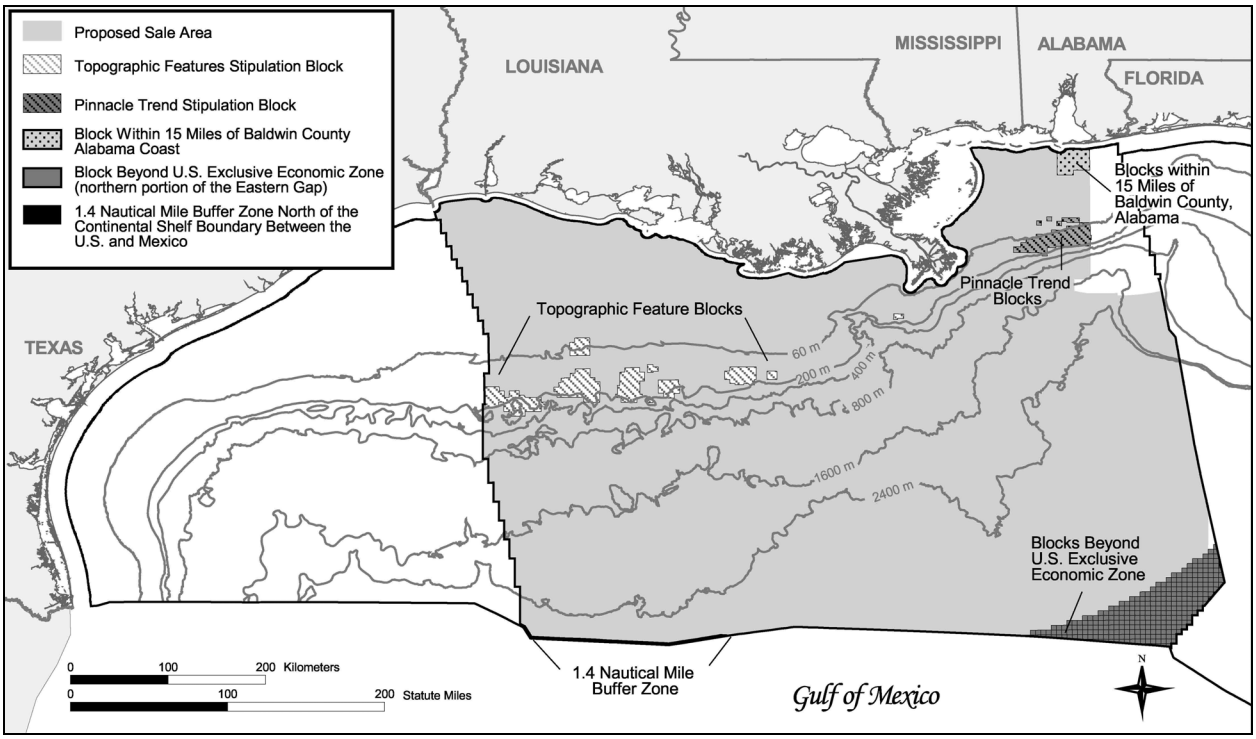

Figure 2. Location of Proposed Stipulations and Deferrals.

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 4.2.2.4 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 CPA, as described for the proposed action, with the exception of any unleased blocks subject to the Topographic Features Stipulation. A detailed analysis of Alternative B is presented in Chapter 4.2.2.2 of the Multisale EIS.

Alternative C—The Proposed Action Excluding the Unleased Blocks Within 15 Miles of the Baldwin County, Alabama, Coast: This alternative would offer for lease all unleased blocks in the CPA, as described for the proposed action, with the exception of any unleased blocks within 15 mi of the Baldwin County, Alabama, coast. A detailed analysis of Alternative C is presented in Chapter 4.2.2.3 of the Multisale EIS.

Alternative D—No Action: This alternative is the cancellation of CPA Lease Sale 213. The opportunity for development of the estimated 0.807-1.336 BBO and 3.365-5.405 Tcf of gas that could have resulted from a proposed CPA 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 production, and switching to other fuels. These alternatives, except conservation, have significant negative environmental impacts of their own, which are analyzed in the Final EIS for the 5-Year Program (USDOI, MMS, 2007c).

The MMS published a report that examined previous exploration and development activity scenarios (USDOI, MMS, 2007d). The MMS compared forecasted activity with the actual activity that has resulted in 14 WPA and 14 CPA lease sales. 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. In 2006, leases from 92 different sales contributed to GOM production, while an average CPA lease sale contributed to 2 percent of oil production and 2 percent of gas production in the CPA. In 2006, leases from 15 different sales contributed to the installation of production structures in the GOM, while an average CPA lease sale contributed to 6 percent of the installation of production structures in the CPA. In 2006, leases from 70 different sales contributed to wells drilled in the GOM, while an average CPA lease sale contributed to 4 percent of wells drilled in the CPA.

Like other lease sales, Lease Sale 213 would contribute to maintaining the present level of OCS activity in the Gulf of Mexico. Exploration and development activity, including service-vessel trips, helicopter trips, and construction, that would result from Lease Sale 213 would replace activity resulting from existing leases that have reached or are near the end of their economic life.

If Lease Sale 213 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 CPA would only be reduced by a small percentage, if any.

3.3. MITIGATION MEASURES

Proposed Lease Sale 213 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. The Multisale EIS and the Supplemental EIS analyzed seven stipulations proposed to be applied to leases resulting from CPA Lease Sale 213: Topographic Features Stipulation; the Live Bottom Stipulation; the Military Areas Stipulation; the Evacuation Stipulation; the Coordination Stipulation; the Blocks South of Baldwin County, Alabama, Stipulation; and the Protected Species Stipulation. Chapter 2.4.1.3 of the Multisale EIS and the Supplemental EIS discusses the effectiveness of these stipulations. Additional stipulations or mitigation requirements to be included in Lease Sale 213 will be described in the Final Notice of Sale for Lease Sale 213.

3.3.1. Summary of Stipulations Discussed in the Multisale EIS

Seven 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. These stipulations and their effectiveness are described in more detail in Chapter 2 of the Multisale EIS. Any stipulations or mitigation requirements to be included in Lease Sale 213 will be described in detail in the Final Notice of Sale for Lease Sale 213. Stipulations or mitigations requirements, in addition to those analyzed in the Multisale EIS, can also be developed and applied, and they will also be described in detail in the Final Notice of Sale.

The following environmental and military stipulations are applicable to Lease Sale 213:

- 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 **Military Areas Stipulation** has been applied to all blocks leased in military areas since 1977 and reduces potential impacts, particularly in regards to safety, but does not reduce or eliminate the actual physical presence of oil and gas operations in areas where military operations are conducted. The stipulation contains a "hold harmless" clause (holding the U.S. Government harmless in case of accident involving military operations) and requires lessees to coordinate their activities with appropriate local military contacts.
- 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 to federally protected species.
- The **Live Bottom (Pinnacle Trend) Stipulation** covers a small portion of the northeastern CPA sale area that is characterized by a pinnacle trend, which is classified as a live bottom under the stipulation. The MMS developed the stipulation to protect biological resources in the Pinnacle Trend in response to concerns that disturbing any of the series of topographic irregularities might adversely affect biological communities that have developed on the surfaces of the features and affect the habitat they provide for pelagic fishes. The stipulation requires avoidance of the features during the placement of oil and gas structures and the laying of pipelines. The stipulation has been adopted in CPA sales since 1990 and has been effective in protecting the features and resident biological communities from damage.
- The **Evacuation Stipulation** would apply to any lease in the easternmost portion of the CPA sale area. This stipulation was developed in consultation with the U.S. Department of Defense (DOD) to address specific potential use conflict issues

between oil and gas operations and military operations in the GOM. An evacuation stipulation has been applied to all blocks leased in this area since 2001. This stipulation would provide for the evacuation of personnel and the shut-in of operations during any events conducted by the military that could pose a danger to ongoing oil and gas operations. It is expected that these measures will serve to eliminate dangerous conflicts between oil and gas operations and military operations.

- The **Coordination Stipulation** would apply to any lease in the easternmost portion of the CPA sale area. This stipulation was developed in consultation with DOD to address specific potential use conflict issues between oil and gas operations and military operations in the GOM. A coordination stipulation has been applied to all blocks leased in this area since 2001. This stipulation would provide for the review of pending oil and gas operations by military authorities and could result in delaying oil and gas operations if military activities have been scheduled in the area that may put the oil and gas operations and personnel at risk.

- The **Blocks South of Baldwin County, Alabama, Stipulation** will be included only on leases south of and within 15 mi of Baldwin County, Alabama. For several years, the Governor of Alabama has continually indicated opposition to new leasing south and within 15 mi of Baldwin County but has requested that, if the area is offered for lease, a lease stipulation to reduce the potential for visual impacts be applied to all new leases in this area. Prior to the decision in 1999 on the Final Notice of Sale for Sale 172, the MMS, GOM OCS Regional Director, in consultation with the Geological Survey of Alabama/State Oil and Gas Board, developed a lease stipulation to be applied to any new leases within the 15-mi area to mitigate potential visual impacts. The stipulation specifies requirements for consultation that lessees must follow when developing plans for fixed structures. The stipulation has been continually adopted in annual Central GOM lease sales since 1999.

3.3.2. Information to Lessees

The Final Notice of Sale Package for Lease Sale 213 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. Two ITL's proposed for Lease Sale 213 were developed to inform bidders of two inactive offshore-disposal programs that resulted in multiple seafloor hazards in Mississippi Canyon. After World War II, the U.S. Armed Forces used the GOM as a primary disposal site for unused, excess, and hazardous munitions/ordnance consisting of an assortment of bombs, torpedoes, projectiles, and chemical ordnance; however, absent of regulations, most material was undocumented and uncharted. Similarly, a commercial waste disposal site was developed in the GOM by the Environmental Protection Agency (USEPA) during the 1970's to allow for the seabed disposal of thousands of barrels of chemical wastes. Like the disposed ordnance, 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 both programs are now inactive, the disposed ordnance and waste barrels remain on the seabed and still represent a potential hazard to nearby OCS oil and gas operations. However, during the requisite hazard surveys and pipeline pre-surveys, the disposed material is detected as sonar targets and/or magnetic anomalies and, most often, they are identified correctly as either ordnance or 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's for the inactive disposal areas are applicable to Lease Sale 213:

- **Ordnance Disposal Areas ITL:** Bidders are cautioned as to the existence of two inactive ordnance disposal areas in Mississippi Canyon, shown on the map "Stipulations and Deferred Blocks, Sale 213" included in the Notice of Sale Package. These areas were used to dispose of ordnance of unknown quantity and composition.

Water depths range from approximately 750 to 1,525 m (2,460 to 5,003 ft). Bottom sediments in both areas are soft, consisting of silty clays. Exploration and development activities in these areas require precautions commensurate with the potential hazards. The U.S. Air Force has released an indeterminable amount of unexploded ordnance throughout Eglin Water Test Areas 1 and 3. The exact locations of the unexploded ordnance are unknown, and lessees are advised that all lease blocks included in this sale within these water test areas should be considered potentially hazardous to drilling and platform and pipeline placement.

- **Commercial Waste Disposal Area ITL:** Bidders are cautioned as to the existence of an inactive commercial waste disposal site that covers all or portions of Mississippi Canyon, shown on the map "Stipulations and Deferred Block, Sale 213" 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 of the Supplemental EIS discuss mitigations that would be applied by MMS. Mitigations have been proposed, 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 pinnacles, topographic features, and chemosynthetic communities.

Some MMS-identified mitigations are incorporated into OCS operations through cooperative agreements or efforts with industry and various State and Federal agencies. These mitigations include NMFS' 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 to 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. 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, hard bottoms/pinnacles, military warning areas and Eglin water test 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.

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, GOM 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 providing guidance on monitoring requirements 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 track more easily and routinely 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 either conducts or requires 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 MMS uses the report data received from the companies 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 Live Bottom (Pinnacle Trend) Stipulation and Topographic Features Stipulation are described 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 feet (ft); 2.4 meters (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) or the 70 live-bottom (pinnacle trend) stipulated blocks. Following the completion of any activity that proposed disturbance of the seafloor within a specified distance of pinnacles, live-bottom (low-relief) 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 Gulf of Mexico," 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 pinnacles, 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. 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 2003-G03)

On January 23, 2003, MMS issued NTL 2003-G03, "Remotely Operated Vehicle (ROV) Surveys in Deepwater." The NTL provides guidance on the required ROV surveys and reports in water depths greater than 400 m (1,312 ft). Eighteen grid areas were developed to ensure a broad and systematic analysis of deep water and to depict areas of biological similarity, primarily on the basis of benthic communities. The grid areas cover the WPA sale area and CPA sale area, with the exception of the easternmost portion.

Operators must submit a 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 muds and cuttings.

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 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, two archaeologists, and one geophysicist. In addition to the divers, the team has one non-diving, sidescan-sonar operator who is also an archaeologist. 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 the formation of the Seafloor Monitoring Program in 1997 the team has completed 75 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 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 the East and West Flower Garden 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), is investigating 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 to assure compliance with all regulatory constraints that allowed commencement and continuation of the operation.

4. 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.

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 CPA lease sale. The estimated amounts of resources projected to be leased, discovered, developed, and produced as a result of proposed CPA Lease Sale 213 are 0.807-1.336 BBO and 3.365-5.405 Tcf of gas. **Table 1** provides a summary of the major scenario elements of proposed Lease Sale 213 and some of the related impact-producing factors by offshore subareas based upon ranges in water depth (**Figure 3**). 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 213

	Offshore Subareas[1]								Total CPA[3]
	C0-60 (western)	C0-60 (eastern)	C60-200	C200-400	C400-800	C800-1600	C1600-2400	C>2400[2]	
Wells Drilled									
Exploration and Delineation Wells	14-16	3	9-12	7-11	9-14	10-18	7-12	8-13	67-99
Development Wells	51-59	9-10	22-26	75-107	61-83	56-91	37-59	27-43	337-477
Oil Wells	13-15	2-2	7-8	43-61	36-49	33-54	22-36	16-25	172-251
Gas Wells	38-44	7-8	15-18	32-46	25-33	23-37	15-23	11-18	165-226
Workovers and Other Well Activities	309-357	55-63	133-161	455-651	371-504	343-553	224-357	161-252	2,009-2,849
Production Structures									
Installed	17-18	3	2-3	1-3	1-3	1-4	1-3	2-3	28-40
Removed Using Explosives	10	2	2	0-1	0-1	0	0	0	14-16
Total Removed	14	2-3	2-3	1-3	1-3	1-4	1-3	2-3	24-36
Method of Oil Transportation[4]									
Percent Piped	99%	99%	100%	100%	100%	0%-50%	0%-100%	0%-100%	63%->99%
Percent Barged	1%	1%	0%	0%	0%	0%	0%	0%	<1%
Percent Tankered	0%	0%	0%	0%	0%	0%-50%	0%-100%	0%-50%	0%-37%
Length of Installed Pipelines (km)[5]	40-720	10-130	NA	NA	NA	NA	NA	NA	130-2,075
Blowouts	0	0	0	0	0-1	0-1	0	0	2-3
Service-Vessel Trips (1,000 round trips)	18-19	3	3-4	4-7	19-52	19-68	18-51	35-41	119-241
Helicopter Operations (1,000 operations)	607-1,016	107-169	71-169	36-169	36-169	36-226	36-169	75-154	1,004-2,241

[1] See Figure 3.
[2] Includes the projected activity associated with the addition of new areas.
[3] Subarea totals may not add up to the planning area total because of rounding.
[4] 100% of gas is assumed to be piped.
[5] Projected length of OCS pipelines does not include length in State waters.
NA means that information is not available.

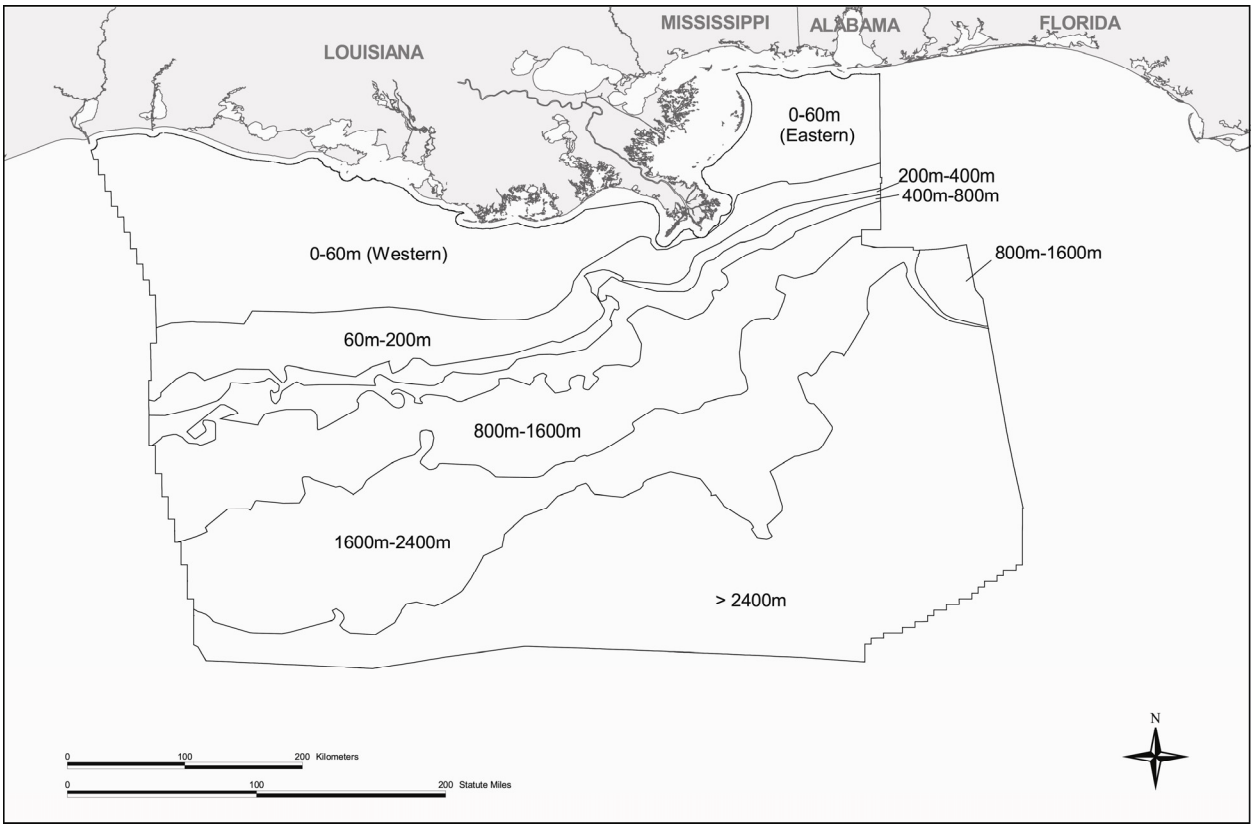

Figure 3. Offshore Subareas in the Proposed Sale Area.

The analysis of potential environmental and socioeconomic impacts presented in past EIS's and EA's were based on these 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 (USDOI, 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. (IIC, 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 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** below. 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 m - 200 m	30.5	31.0	36.0	27.2
200 m - 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	1983-1987	1985-1989	1990-1994	1995-1999
< 60 m	59.0	53.2	49.5	41.1
60 m - 200 m	74.7	65.7	60.3	47.5
200 m - 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 213.

4.1.2. Coastal Impact-Producing Factors and Scenario

Chapter 4.1.2 of the Multisale EIS and Chapter 3.1.2 of the Supplemental EIS describes 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 to wetlands and other coastal habitats. In the Multisale EIS, the Supplemental EIS and 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 (USDOI, 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 ≥1,000 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 (USDOI, 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. 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 scenario still applies for proposed Lease Sale 213.

4.1.3. Hurricanes

Spills as the Result of Hurricanes

Chapter 4.1.3.4.4.2 of the Multisale EIS discusses the cause and volume of spills that resulted from the 2004-2005 hurricanes. Since the publication of the Multisale EIS, MMS has made several updates to the information and quantities of oil spillage resulting from damages caused by Hurricanes Katrina and Rita in 2005 (USDOI, MMS, 2008b). The following is a summary of the most recent revisions.

As of June 23, 2008, MMS has identified 165 spills of petroleum products of ≥1 barrel (bbl), totaling 14,676 bbl that were lost from platforms, rigs, and pipelines on the Federal OCS due to the two hurricanes. This is up from MMS's July 2007 report that had identified 154 spills, totaling 17,077 bbl (USDOI, MMS, 2007g).

The June 2008 report also discussed spills of <1 bbl. Between October 2005 and December 2007, there were almost 800 petroleum spills of <1 bbl on the Federal OCS related to the 2005 hurricanes reported to the National Response Center (NRC). These NRC reports totaled to <50 bbl and averaged less than 3 gallons each in size. More recent information about chronic, small leaks is available on the MMS website at http://www.mms.gov/incidents/SigPoll2008.htm. These spills of <1 bbl dissipate quickly due to evaporation, dispersion by the winds and currents, and dilution by the ocean waters. Three gallons of crude oil can briefly create a sheen of an acre (43,560 ft^2) or more in size on the ocean surface.

Unchanged from the earlier report, there were no accounts of environmental consequences resulting from spills from facilities:

- 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 Katrina or Rita.

The final estimation of the total spillage associated with Hurricanes Katrina and Rita will not be complete until all operators have completed recovery efforts associated with the repair and/or have completed decommissioning of all the damaged structures. The estimates were last updated in June 2008, and final estimates are expected to be completed in 2010.

Damage to Offshore Infrastructure as the Result of 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 Hurricanes Ivan, Katrina, and Rita.

In preparation for the 2007 hurricane season, MMS announced operational and administrative improvements that have been implemented to prepare oil and gas infrastructure in the GOM for the possibility of hurricanes during the 2007 season (USDOI, MMS, 2007h). 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:

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 Gulf of Mexico Region (GOMR) 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 GOMR 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 GOMR 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 GOMR endorses the guidelines in the API's *Guidelines for Tie-downs on Offshore Production Facilities for Hurricane Season*, *First Edition* (API Bulletin 2TD) to assist in the review and evaluation of the information and data that demonstrate the ability of the tie-downs to perform during a hurricane. 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 GOMR 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, twelve 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 GOMR 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 GOMR with access to real-time GPS location data; and
- contacting the MMS GOMR Continuity of Operations Plan office when a MODU moves off location during a storm event.

4.2. ENVIRONMENTAL AND SOCIOECONOMIC RESOURCES

A detailed impact analysis of the routine, accidental, and cumulative impacts of a typical CPA lease sale, which is representative of proposed Lease Sale 213, on environmental and socioeconomic resources can be found in Chapters 4.2.2.1.15.3 and 4.2.2.1.15.4, 4.4.14, and 4.5.15 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 213 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 213 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 Supplemental EIS is also presented below. This information was evaluated to determine if reanalysis of the impacts of proposed Lease Sale 213 was necessary. No new information was found that would necessitate a reanalysis of the impacts of proposed Lease Sale 213 upon environmental or socioeconomic resources. The analyses and potential impacts detailed in the Multisale EIS and the Supplemental EIS apply for proposed Lease Sale 213. New information was found and is presented in the following sections. This information confirms 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 213 on air quality can be found in Chapters 4.2.2.1.1, 4.4.1, and 4.5.1 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

The new areas are located more than 100 mi (161 km) from the nearest coast and are not projected to increase the overall activity that would result from proposed Lease Sale 213; therefore, no additional impacts on air quality are projected as a result of the inclusion of the new acreage.

The following routine activities associated with proposed Lease Sale 213 would potentially affect air quality: platform construction and emplacement; platform operations; drilling activities; flaring; seismic-survey and support-vessel operations; pipeline laying and burial operations; evaporation of volatile petroleum hydrocarbons during transfers and from surface oil slicks; and fugitive emissions. Supporting materials and discussions are presented 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) of the Multisale EIS. 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 213 are projected to have minimal impacts to 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 213 activities, including activities associated with the new areas, 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 213 is very small. Ozone levels are on a declining trend because of air pollution control measures that have been implemented by States. This downward trend is expected to continue as a result of local as well as nationwide air pollution control efforts. Proposed Lease Sale 213 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 H_2S 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 213 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. These emissions are not expected to have concentrations that would change onshore air quality classifications.

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. Onshore impacts on air quality from emissions from cumulative OCS activities are estimated to be within Prevention of Significant Deterioration (PSD) Class II allowable increments.

The Offshore and Coastal Dispersion modeling results show that increases in onshore annual average concentrations of NO_x, SO_2, and PM_{10} are estimated to be less than the maximum increases allowed in the PSD Class II areas.

The modeling results indicate that all concentrations are below the maximum allowable PSD increments. The impacts from proposed Lease Sale 213 are well within the PSD Class I allowable increment. The incremental contribution of proposed Lease Sale 213 (as analyzed in Chapter 4.2.2.1.1 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 is 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 213 is expected to be very small.

Ozone concentrations in the Baton Rouge, Louisiana, area exceed Federal standards. However, the contribution from OCS activities to that ozone concentration is very small (see also the 5-Year Program EIS; USDOI, MMS, 2007c). Ozone levels are expected to decline due to local as well as nationwide emission control measures. Emissions from the proposed Lease Sale 213 activities would contribute very little to the cumulative impacts 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 Outer Continental Shelf Lands Act, which directs 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 250.303 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 and modeling in the future, especially with the implementation of the 8-hour ozone standard. The future area of interest is not only Louisiana but it also includes Mississippi, Alabama, and Florida. Under provisions of the CAAA, the USEPA's Administrator, in consultation with the Secretary of the Interior and the Commandant of the Coast Guard, will establish the requirements to control air pollution in OCS areas of the Pacific, Atlantic, Arctic, and eastward of 87º30'W. longitude in the Gulf of Mexico.

To assess the emissions of offshore oil and gas platforms and their associated emissions, MMS conducted the Gulf of Mexico Air Quality Study (GMAQS) (Systems Applications International et al., 1995). 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 new emission inventory study has been awarded and updated emissions inventory data is now being collected for 2008.

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

The MMS is conducting a synthesis study (Douglas et al., in press) that will consolidate all MMS air quality studies, meteorological studies, and emissions studies (1990-2005) into one database, which is more suitable for analysis. 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. The USEPA has issued a new ozone 8-hour standard of 75 parts per billion, effective March 12, 2008 (USEPA, 2009a).

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** below shows that the status of these coastal counties has not changed as of March 12, 2009 (USEPA, 2009b).

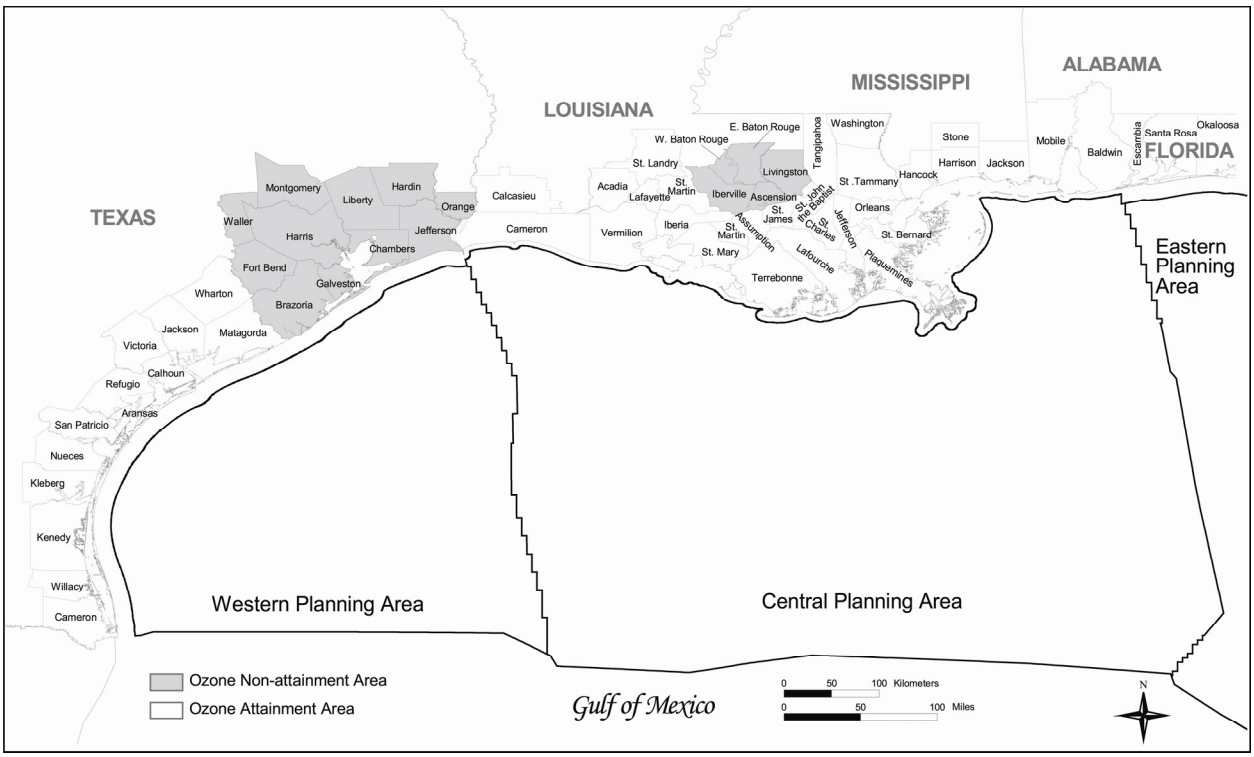

Figure 4. Status of Ozone Attainment in the Coastal Counties and Parishes of the Central and Western Gulf of Mexico (USEPA, 2009b).

Air quality data for 2008 from Mississippi, Alabama, and Florida show all States in attainment of the NAAQS for all criteria pollutants (USEPA, 2009b). However, for criteria pollutant $PM_{2.5}$, Alabama has four nonattainment counties (USEPA, 2009c). Jefferson, Shelby, Walker, and Jackson Counties are located in north and central Alabama; therefore, their status is not associated with offshore oil and gas activities or coastal infrastructure related to offshore oil and gas activity.

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. No new significant information was discovered that would alter the impacts for air quality presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on air quality is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

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 213 on water quality can be found in Chapters 4.2.2.1.2, 4.4.2, and 4.5.2 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS. The new areas are located more than 100 mi (161 km) from the nearest coast and are not projected to increase the overall activity that would result from proposed Lease Sale 213; therefore, no additional impacts on water quality are projected as a result of the inclusion of the new acreage.

The primary sources of impacts to water quality in coastal waters from routine operations are point-source and storm-water discharges from land-based support facilities, and vessel discharges while in coastal waters. Recently, USEPA signed the final Vessel General Permit (VGP), 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 to coastal water quality from proposed Lease Sale 213 should be minimal as long as all existing regulatory requirements are met.

The primary impacting sources to marine water quality during exploratory 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 to marine waters from routine activities associated with proposed Lease Sale 213, including the new areas, should be minimal as long as regulatory requirements are followed.

Accidental events associated with proposed Lease Sale 213 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 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, which 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 exploratory and production activities to a relatively pristine environment. The incremental contribution of proposed Lease Sale 213 to the cumulative impacts on marine water quality is not expected to be significant as long as all regulations are followed.

The most recent information available was sought during the preparation of this EA for Lease Sale 213. 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. In addition, the websites for Federal and State agencies, and the Gulf of Mexico Alliance as well as other organizations were 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.

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 it 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). Although rated slightly better, Mobile Bay was still considered fair (USEPA, 2007a) and was assessed as having moderately low overall eutrophic conditions (Bricker et al., 2007). The NOAA examined additional Gulf Coast estuary systems near the CPA and, of those with sufficient data, the Mississippi/Atchafalaya Plume and Perdido Bay had high overall eutrophic conditions, Barataria Bay had moderate high overall eutrophic conditions, Breton/Chandeleur Sound and Lake Pontchartrain were ranked as having moderate overall eutrophic conditions, the Mississippi River had moderately low overall eutrophic conditions, and Mississippi Sound and Lake Borgne had overall low eutrophic conditions (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, NOAA, 2008). Other pollutant source categories include (1) agricultural runoff, (2) municipal point sources, (3) industrial sources, (4) hydromodification, and (5) shipping.

The USEPA's NPDES general permit for the Western Gulf of Mexico (GMG290000, which authorizes discharges to surface water during drilling and production) was reissued and went into effect 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 USEPA Region 4 NPDES general permit (GMG460000) for offshore oil and gas activities in Federal waters in the eastern portion (east of 87.5º W. longitude) of the OCS of the Gulf of Mexico expires on December 31, 2009 (USEPA, 2007c). The USEPA's Region 4 is currently working on the new permit and expects to publish a public notice by November 2009 (Robinson-Shell, personal communication, 2009).

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 km^2 (3,000 mi^2) (LUMCON, 2009). This was far smaller than the forecasted amount of 22,000-25,000 km^2 (7,500-8,500 mi^2) (LUMCON, 2009), as well as smaller than the 20,720 km^2 (8,000 mi^2) 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/liter. Factors that may have contributed to 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 (USEPA, 2007d). Thus, proposed Lease Sale 213 should have insignificant impacts on the Gulf of Mexico hypoxic zone.

The MMS has reexamined the analysis for water quality presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for water quality presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on water quality is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

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.

Hurricane Katrina in August 2005 caused severe erosion and landloss for the coastal barrier islands of the deltaic plain. The pre-storm land area of the Chandeleur Islands was reduced to half of their size by Hurricane Katrina, based on aerial post-storm surveys by the U.S. Geological Survey (USDOI, GS**,** 2005 and 2008). A search was conducted for new information published since completion of the Supplemental EIS. An electronic search of available literature and agency Internet sites, and personal interviews with various Federal and State agency researchers and mangers responsible for these coastal resources were conducted. Additional information regarding the impacts of Hurricanes Gustav and Ike were found and noted in the appropriate sections below.

Updated physical descriptions and topographical changes in the barrier islands and beaches due to the impacts of Hurricanes Katrina and Rita were included in the Supplemental EIS. Additional updates concerning the condition of the resources following the landfall of Hurricanes Gustav and Ike were included in the Dalmatian South SEA (USDOI, MMS, 2009b).

The 2008 hurricane season was devastating to both the Louisiana and east Texas coasts. Hurricanes Gustav and Ike impacted the coastal areas of Louisiana and Texas within a 2-week period. 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 (Wells, 2008). The beach berms and dunes along Grand Isle were breached, heavily eroded, or washed away. The live oak forest around Grand Isle was badly damaged by saltwater.

The Texas coast was spared major damage from Hurricane Gustav but took the brunt of Hurricane Ike. The most extensive damage occurred on the Bolivar Peninsula as a result of the overtopping of dunes and breeching beach ridges, resulting in reduced dune height or, in some cases, the removal of the dunes completely. Closer to the location of peak surge though, just east of High Island, Texas, the flood waters were high enough to completely submerge the barriers as the surge flowed rapidly back into the Gulf of Mexico. Dune-height changes exceeding 3 ft (1 m) were observed more than 32 mi (60 km) to the east of the landfall position, while dune-height changes exceeding 3 ft (1 m) were observed as far as 25 mi (40 km) to the west of landfall. In Galveston, Texas, the seawall is considered to be the dune crest and the elevation change is roughly 12 inches (30 centimeter), which is consistent with the previously determined vertical offset. Shoreline erosion of 492 ft (150 m) was observed near Gilchrist, Texas. More than 164 ft (50 m) of shoreline erosion was experienced over a wide region from the seawall, extending 9 mi (15 km) to the west. The area of positive shoreline change at the south end of Galveston Island is related to spit formation at San Luis Pass and may not be related to Hurricane Ike. The area of positive shoreline change 50 mi (80 km) to the east of landfall is due to the seaward transport of sediment as storm water drained from the marshes (Doran et al., 2009). Only general, qualitative damage assessments using aerial photography have been prepared to date by the U.S. Geological Survey (USGS) for impacts associated with Hurricane Gustav.

While most of the wildlife refugees along the Texas coast were impacted by the surge from Hurricane Ike, the J.W. Murphree Wildlife Management area received the most substantial damage to dunes, beaches, and marsh ponds. 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 beach front, lessening the erosion of shore face to areas in front of the seawall. On the sandy beaches west of the seawall, peak dune elevations before the storm were 2-4 m (7-13 ft), roughly half of the elevation of the seawall. The coastal change along this unprotected stretch of Galveston Island was considerably more than on the sea-walled section nearby, but it was less than the visible impacts on the Bolivar Peninsula.

The intensity and frequency of hurricanes in the Gulf over the last 5 years has greatly impacted the system of protective barrier islands, beaches, and dunes and associated wetlands along the Gulf Coast. As a result of losing dune and island elevations, as well as associated marshes and backshore and foreshore wetlands, the inland coasts and wetlands are more vulnerable to future hurricanes and wind-driven tidal or storm events.

A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on barrier islands and coastal beaches can be found in Chapters 4.2.2.1.3.1, 4.4.3.1, and 4.5.3.1 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS, along with any additional information noted in the available literature and Federal and State agency reports or research, as well as information noted through Internet searches of pertinent literature.

A variety of activities required to implement and support proposed Lease Sale 213 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 213 are not expected to cause significant impacts to barrier beaches because of the use of non-intrusive installation methods. The projected 0-1 gas processing plants 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 213 may contribute to the extended use of these facilities. No facilities are expected to be constructed on barrier beaches. Channel and inlet maintenance 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 213 would account for a very small percentage of these impacts, which would occur whether proposed Lease Sale 213 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 213 is not expected to adversely alter barrier beach configurations significantly beyond existing, ongoing impacts in very localized areas down drift of artificially jettied and maintained channels.

No significant impacts to the physical shape and structure of the barrier beaches are expected as a result of accidental events associated with proposed Lease Sale 213. The primary accidental impacts that may be associated with proposed Lease Sale 213 results from 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 ≥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 213; 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. 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 additional oil production added to the existing CPA lease area is not projected to substantially increase the probabilities for occurrence of offshore spills. Activity that would result from the two new areas would cause a negligible increase, if any, in the risk of an offshore spill ≥1,000 bbl occurring and contacting environmental resources. Because spills on the OCS would occur at least 3-10 nmi (4-12 mi; 6-19 km) from shore, it is unlikely that any diesel spills would make landfall prior to breaking up. Diesel fuel, with its lighter distillate components, does not contain the heavier components that contribute to crude oil's longer persistence in the environment. Spills <1,000 bbl are not expected to persist as a slick on the surface of the water beyond a few days, and only spills >50 bbl have a chance of remaining as a cohesive mass long enough to be transported any distance. In Louisiana, Plaquemines Parish has the greatest risk (10-15%) of a spill occurring and contacting shore within 10 days. During the time that a spill in this area would take to reach shore, the spill would be acted upon by various weathering processes to degrade and disperse it, thereby greatly reducing the amount of oil in the surface slick.

The passage of four powerful hurricanes in 2005 (Katrina and Rita) and 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 head in some locations. Due to the now more gentle slopes and, in some cases, cuts into the mainland barrier beaches left by the storms, more of the transition zone between the water and beach ridge may be more vulnerable to spills. In some areas along the Louisiana Coast, barrier islands were severely damaged either by heavily degrading beach front elevations and beach ridges or by completely overtopping the islands by either removing or completely redistributing the sediments on the island so that the island becomes submerged. 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 to the physical shape and structure of barrier beaches and associated dunes are expected to occur as a result of proposed Lease Sale 213.

Barrier beaches along coastal Louisiana and Texas have experienced severe erosion and landward retreat (marine transgression) because of natural processes enhanced by human activities. Mississippi, Alabama, and Florida have also experienced beach erosion and shoreline depletion in varying degrees as a result of Hurricanes Ivan, Katrina, Rita, Wilma, and to some extent Gustav. Four significant hurricanes (Katrina, Rita, Gustav, and Ike) have made landfall along the Texas/Louisiana coast in the last 3 years, greatly degrading the coastal beaches, marshes, and barrier islands. Due to these reduced elevations and the continued effect of subsidence, sea level rise and saltwater intrusion, the protection once afforded the inland marshes and mainland has been greatly reduced. Impact-producing factors from non-OCS activity that contribute to barrier beach and dune erosion or to the conversion to another environment include (1) levee construction and stabilization structures for channels and beaches; (2) natural processes such as hurricanes, erosion, and subsidence and sea level rise; (3) recreational vehicle use on dunes and beaches; (4) recreational and commercial development; and (5) removal of coastal vegetation. The deterioration of Gulf barrier beaches is expected to continue in the future. The Texas coast has experienced land loss because of a decrease in the volume of sediment delivered to the coast because 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. Louisiana is currently continuing to initiate ongoing, state- and Federally-sponsored coastal programs and projects through the Coastal Wetlands, Planning, Protection and Restoration Act (CWPPRA) and Louisiana Coastal Area (LCA) programs, along with the federally-funded Coastal Impact Assistance Program (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 land loss in general and will include assistance in coastal and barrier beach rehabilitation or restoration.

The impact-producing factors that could affect barrier beaches, islands, and dunes which are related to OCS activities may include oil spills, beach cleanup, pipeline emplacement, and vessel-induced erosion. However, due to the distance of the proposed action from shore, the absence of pipeline landfalls, and the minimal supply-vessel support, only the following impact-producing factors could potentially affect the barrier beaches and shorelines. The impact-producing factors would include the minimal potential of beach oiling from oil spills. Additional OCS activities in the foreseeable future could include the need for pipeline emplacement, onshore facilities, and increased supply-vessel support. The incremental contribution of the proposed action's impacts to the cumulative impact on barrier islands and beaches is negligible and is likely undetectable among the other cumulative impacts. However, if future pipeline installations are necessary, avoidance procedures for pipeline emplacement near barrier islands and beaches have been included in "conditioned permits" required by the U.S. Army, Corps of Engineers. These procedures assure that either the pipeline activities near these sensitive beaches are placed under the barrier islands and beaches, using indirect drilling techniques, or the pipeline routing is planned to avoid these sensitive areas. While there was some refinement of post-storm data and working drafts of various storm impacts, no new significant information was discovered that would alter the impacts for coastal beaches and barrier island complexes presented in the Multisale EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on coastal beaches and barrier island complexes is not required.

The MMS has reexamined the analysis for coastal barrier beaches and associated dunes presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for coastal barrier beaches and associated dunes presented in the two documents; therefore, a new analysis of the potential impacts of

proposed Lease Sale 213 on these resources is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

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 213 on coastal wetlands can be found in Chapters 4.2.2.1.3.2, 4.4.3.2, and 4.5.3.2 of the Multisale EIS, respectively. An explanation of the routine and accidental impact-producing factors can be found in Chapters 4.1 and 4.3 of the Multisale EIS, respectively. A detailed discussion of the potential effects of OCS activities on wetland resources can be found in Chapter 4.3.2.2 of the Programmatic EA (USDOI, MMS, 2003); Chapters 4.2.2.1.3.2, 4.3.1.3.1, 4.3.1.3.2, and 4.4.3.2 of the Multisale EIS (USDOI, MMS, 2007a); and Chapter 4.1.3.2.3 of the Supplemental EIS (USDOI, MMS, 2008a); and they are hereby incorporated by reference into this EA. This EA directly tiers from these recent lease sale NEPA analyses in the CPA. No significant cumulative impacts on wetlands would be expected from proposed Lease Sale 213 or as the result of past, present, or reasonably foreseeable oil and gas development in the area. The following information is a summary of that information, along with updated information.

Hurricane-induced wetlands damage as a result of Hurricanes Katrina and Rita has been incorporated by reference, and the damages were further refined and discussed in subsequent NEPA documents as information or data became available. The Dalmatian South SEA further discussed and described damages to Louisiana and Texas wetland habitat as a result of Hurricanes Gustav and Ike (USDOI, MMS, 2009). The descriptions of these damages are hereby incorporated by reference and are summarized below.

The post-storm (Hurricanes Katrina and Rita) estimates of land change made by USGS (Barras, 2006) indicated that there was an increase of 217 mi^2 (562 km^2) of land lost to open water (which primarily comprised of wetlands being replaced by open water). These new water areas represent losses caused by the direct removal of wetlands vegetation by scouring, water-level variation attributed to normal tidal and transitory areas and meteorological variation in satellite imagery. Hurricane Katrina focused on the coastal area of Louisiana around New Orleans, as well as Mississippi, eastern Alabama, and west Florida. Following Hurricanes Katrina and Rita, another series of hurricanes (Gustav and Ike) made landfall along the Louisiana and Texas coasts in September 2008.

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. While Hurricane Gustav did not impact the quantity of wetlands that Hurricanes Katrina and Rita impacted, it did have a severe and continuing effect on the coastal barrier islands and the wetlands associated with backshore and foreshore. While submerged aquatic vegetation is relatively sparse or spotty throughout the Louisiana coastal area, it was heavily impacted throughout the coastal shallows, with some ponds shown to be completely devoid of submerged aquatic vegetation. While Hurricane Gustav affected the eastern portion of the Louisiana coast closer to Grand Isle and Houma, Hurricane Ike concentrated on Louisiana's western coast. The forested areas inundated by Hurricane Ike's floodwaters have drained and most trees appear to have suffered minimal impacts. Maples and willows appear to have suffered the most damage (i.e., broken limbs and blow downs) from Hurricane Gustav's winds. Cypress and oaks directly exposed to the winds of Hurricanes Gustav and Ike were "burned" from wind and salt spray.

The Texas coast received the brunt of Hurricane Ike, where it 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 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.

As a result of the four successive storms, the Louisiana and Texas coasts have lost protective elevations, barrier islands, and wetlands, and they now have the potential for transitioning to a less

productive salt-marsh system in areas where fresh-marsh systems once existed. State (Louisiana Dept. of Natural Resource) and Federal (MMS and U.S. Army, Corps of Engineers) governments are currently implementing coastal restoration projects, including freshwater and sediment diversions, beach restorations, marsh building, and restoration through several programs such as CWPPRA, CIAP, LCA, and Louisiana's Coastal Planning and Restoration.

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. A detailed discussion of the potential effects of OCS activities on wetland resources can be found in Chapter 4.3.2.2 of the Programmatic EA (USDOI, MMS, 2003a); Chapters 4.2.2.1.3.2, 4.3.1.3.1, 4.3.1.3.2, and 4.4.3.2 of the Multisale EIS; and Chapter 4.1.3.2.3 of the Supplemental EIS; and they are hereby incorporated by reference into this EA. This EA directly tiers from these recent lease sale NEPA analyses in the CPA. No significant cumulative impacts on wetlands would be expected from the proposed Lease Sale 213 or as the result of past, present, or reasonably foreseeable oil and gas development in the area.

The primary impacts resulting from routine activities associated with proposed Lease Sale 213 that could affect wetlands and marshes include 0-1 pipeline emplacements, possible channel maintenance, increased vessel traffic, 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 increased vessel traffic, interruption of necessary sedimentary processes caused by flood protection (levees) and erosion protection, saltwater intrusion that changes the hydrology leading to unfavorable conditions for wetland vegetation, and vulnerability to storm damage from eroded wetlands. The existing armored navigation channels (such as Port Fourchon) that are used to reach the shore base will eliminate or, in the worst case, minimize the potential for any shoreline erosion that could result from vessel traffic. Widening rates for navigation canals in general have been reduced as a result of aggressive management and the restoration of canal edges to prevent erosion, including the construction of rock breakwaters along portions of some of these canals, as well as enforcing "wake zone" speeds (Johnston et al., 2007). The draft of the study entitled "Navigation Canal Bank Erosion in the Western and Central Gulf of Mexico" (Thatcher et al., in preparation) is expected to be finalized in December 2009. This study indicates that shoreline retreat rates along the canals were highly variable within and across unarmored portions of the navigation canals. It was noted that geology and vegetation type influenced the rate of shoreline change. In general, the study noted that the canal widening rate slowed to -0.99 m/yr (-3.25 ft/yr) for the 1996/1998-2005/2006 time period compared with -1.71 m/yr (-5.61 ft/yr) for the earlier 1978/1979-1996/1998 time period.

Offshore oil spills resulting from the proposed action are not expected to significantly damage any wetlands along the Gulf Coast. The additional oil production added to the existing CPA lease area is not projected to substantially increase the probabilities for occurrence of offshore spills. Activity that would result from the two new areas would cause a negligible increase, if any, in the risk of an offshore spill ≥1,000 bbl occurring and contacting environmental resources. Because spills on the OCS would occur at least 3-10 nmi (4-12 mi; 6-19 km) from shore, it is unlikely that any diesel spills would make landfall prior to breaking up. Diesel fuel, with its lighter distillate components, does not contain the heavier components that contribute to crude oil's longer persistence in the environment. Spills <1,000 bbl are not expected to persist as a slick on the surface of the water beyond a few days, and only spills >50 bbl have a chance of remaining as a cohesive mass long enough to be transported any distance. 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.

If a spill should occur, a spill plan is in place to confine and trap the spill offshore. Only elevated tides or strong southerly winds could drive a surface slick into coastal waters and environments. High winds would act to disperse oil slicks before they contact vegetated wetlands behind barrier islands, pass over narrow shoreline beaches, or penetrate inland along shorelines lacking beaches, which is typical of many areas of coastal Louisiana.

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 because of the proximity of the spill to the wetlands. While a resulting inland slick may cause minor impacts to 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. However, if an inland oil spill related to proposed Lease Sale 213 occurs, some impact to wetland habitat would be expected. Impacts to wetland habitats from an oil spill associated with activities related to proposed Lease Sale 213 would be expected to be low and temporary.

Concerns were raised related to the potential impact of oil spills on the marine and coastal environments, specifically regarding the potential effects of oil spills on tourism, emergency response capabilities, spill prevention, 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. While there is a concern for offshore oil spills resulting from proposed Lease Sale 213, they are not expected to damage significantly any wetlands along the Gulf Coast. The fate and behavior of oil spills, availability and adequacy of oil-spill containment and cleanup technologies, oil-spill cleanup strategies, impacts of various oil-spill cleanup methods, effects of weathering on oil spills, toxicological effects of fresh and weathered oil, air pollution associated with spilled oil, and short-term and long-term impacts of oil on wetlands are additional accidental concerns. However, if an inland oil spill related to proposed Lease Sale 213 occurs, some impact to wetland habitat would be expected.

As noted in the discussion above, Hurricanes Katrina and Rita resulted in 217 mi^2 (562 km^2) of land change, primarily conversion of wetlands to open water (Barras, 2006). These new water areas represent landlosses caused by the direct removal of wetlands. Barras (2007a) noted permanent losses cannot be estimated until several growing seasons have passed and the transitory impacts of the hurricanes are minimized. It is, however, too early to estimate the actual overall marsh loss. Both the Louisiana and Texas coasts have incurred additional impacts as a result of Hurricanes Gustav and Ike. These two storms further reduced the elevations of barrier islands, breeched beach ridges, and overtopped or removed dunes along the Texas coast. In some cases, the resulting breeches in beach ridges (Texas) have resulted in the draining of inland freshwater ponds, opening these areas and their surrounding wetlands to saltwater intrusion. Dune elevation loss was the most extreme (20 ft; 3 m) along the portion of the Bolivar Peninsula near Crystal Beach, Texas, which was in the front quadrant of Hurricane Ike's landfall. In general, beach ridges and dune elevations have been reduced by hurricane activity. This reduction in protective elevation potentially increases the vulnerability of these once-protected wetlands to oiling.

Cumulative impacts on wetlands that result from oil and gas leasing, exploration, development, and production activity were discussed in Chapter 4.5.3.2 of the Multisale EIS. Wetland losses resulting from storms, hurricanes, coastal development, subsidence, and manmade and natural erosion will continue. The vulnerability of the coasts is increasingly at risk due to the disappearance of marsh and the loss of barrier island elevations that afforded some barrier for coastal protection. The already eroded Louisiana barrier island chain was severely impacted by Hurricanes Katrina, Rita, Gustav, and Ike, thus further lowering the protection (substantial reduction in dune and island elevations) afforded the mainland marshes and beaches from oil spills that these barrier features previously provided (USDOI, GS, 2008; USEPA, 2008b). Breton Island, one of the islands comprising the hard-hit Chandeleur barrier island chain, lost approximately 50 percent of its landmass (Hall, 2006). Raccoon and Wine Islands were also severely degraded by Hurricane Gustav. Overall, impacts from OCS activities 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 to wetlands would be primarily from vessel traffic corridors. Vessel traffic associated with the proposed action is expected to contribute minimally to the erosion and widening of navigation channels and canals due to the use of armored channels and enforcement of speeds that will reduce wake-related erosion. In cooperation with USGS, MMS is currently developing a study design to better understand the relationship between OCS vessel activity and marshes bordering active navigation canals.

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. The subsidence of wetlands is discussed in more detail in Chapter 4.1.3.3.1 of the Multisale EIS. 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. Indirect impacts from such activities are expected to continue. The State of Louisiana's onshore oil activities will continue to have impacts associated with the construction and maintenance of navigation channels, pipeline canals, wellhead, or distribution hubs in coastal wetland areas.

The primary concern for the potential impact from accidental activities associated with proposed Lease Sale 213 is related to oil spills. The potential for the occurrence of nearshore and inland oils spills (along with their associated impacts) as a result of Lease Sale 213 is low because of the small number of pipelines that will come ashore and because of the expected small increases in support vessel traffic.

While there is a concern for offshore oil spills resulting from proposed Lease Sale 213, the spills are not expected to damage significantly any wetlands along the Gulf Coast. However, if an inland oil spill related to proposed Lease Sale 213 occurs, some impact to wetland habitat would be expected.

A search was conducted for new information published since completion of the Supplemental EIS. A search of Internet information sources (Bernier et al., 2006; Clark and LaGrone, 2006; FDEP, 2005 and 2007; USDOI, GS, 2007a-e), as well as personal interviews with personnel from State and Federal resource agencies (Cahoon, personal communication, 2007), was conducted to determine the availability of recent information. 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 CPA. The search revealed a recent study indicating 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 (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 regimes, salinities, and the particular plant species involved respond to the changed coastal environment. 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 and the Supplemental EIS have not changed significantly, marsh recovery (or land gain) varies from location to location. Marsh recovery seems to be doing well in the Caernarvon area, located in St. Bernard Parish, Louisiana, where the marsh was not completely uprooted. Other areas comprised of large shallow flats are becoming vegetated with various aquatic species, but not necessarily with viable marsh. In marsh areas in the vicinity of Pearl River, where there is still an active delta providing sediments, the marshes are coming back. Current overflights have revealed large scour scars caused by the hurricane surge in some marshes as a result of Hurricane Katrina (Barras, personal communication, 2007b). These scars are a result of the complete uprooting of the marsh vegetation and some may never revegetate depending on the depth of the scar. Where root mats have not been completely removed, the marsh is recovering. The visual overflight inspection of the area south of the Stennis Space Center in Mississippi revealed a great deal of marsh loss, but no quantification of this loss is available at this time.

Based on conversations with Bob Morton of the USGS Integrated Science Center in St. Petersburg, Florida, and Ralph Clark with the Florida Department of Natural Resources, Bureau of Beaches, there has been no new information released concerning wetland loss in Florida (Clark, personal communication, 2009; Morton, personal communication, 2009). Mr. Clark indicated that the primary wetlands along the Florida coast are located in the more stable, low-energy environments in southern Florida around the Tampa Bay area. Florida is in the process of combining, updating, and standardizing their various vegetative inventory databases, but there is no deadline for completion at this time.

The MMS has reexamined the analysis for wetlands presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for wetlands presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

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 213 on seagrass can be found in Chapters 4.2.2.1.3.3, 4.4.3.3, and 4.5.3.3 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

The routine activities associated with proposed Lease Sale 213 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 to seagrass if any new pipeline runs to shore due to proposed Lease Sale 213. Impacts from routine activities resulting from proposed Lease Sale 213 are expected to have negligible effects on seagrass communities.

Pipeline construction in coastal waters would temporarily elevate turbidity in nearby submerged vegetation beds, depending upon currents. If constructed, the 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 to 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. In estuaries, this increase is not projected to be a problem. Due to tidal flushing, this increased turbidity 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 substantial impact on existing seagrass habitat given that no new channels are expected to be dredged as a result of proposed Lease Sale 213. 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, propwash 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 be corrected.

Most seagrass communities on the Gulf Coast are located behind barrier islands and in embayments. 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. 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 found through general internet searches.

New information was discovered from these information sources. The workshops held by the Gulf of Mexico Alliance in the spring of 2007 revealed some new research and new collations of old information (May, 2007; Vittor, 2007; Hardegree, 2007). May (2007) discussed the distribution of seagrass in southeastern Mississippi waters, finding some burial of seagrass after Hurricane Katrina, seasonal fluctuation of *Ruppia maritima*, and persistent *Halodule wrightii*. Vittor (2007) discussed seagrass in Mississippi Sound and Alabama based on four aerial surveys from 1940 to 2002. His analysis showed seagrass declines of from 52 to 88 percent in these areas since 1940. Hardegree (2007) highlighted declines in seagrass in Christmas Bay and the Lower Laguna Madre. He also analyzed propeller scarring, recovery, and regulation. One new master's thesis on seagrass communities in Biloxi Marsh, Mississippi, was published. In 2006, fish communities at sites denuded of seagrass by Hurricane Katrina resembled those of sites with no seagrass before the hurricane (Maiaro, 2007).

The effects of Hurricane Ike on seagrass communities around Galveston Bay have not been reported. Thorough internet searches for information reveal no new assessments of seagrasses in the area. The nearest substantial seagrass beds are in Christmas Bay, about 30 miles (48 km) west of the storm track of Hurricane Ike. These beds likely sustained some damage from wind driven wave action from the north side of the barrier islands. The USGS assessed shoreline change after Ike. Their report includes an aerial image of the shoreline at Christmas Bay which shows limited dune washover onto the coastal highway. The salt marsh behind the beach appears relatively intact, suggesting little damage to adjacent seagrass habitats (Doran et al. 2009).

The MMS has reexamined the analysis for seagrasses presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for seagrasses presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on seagrasses is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

4.2.4. Sensitive Offshore Benthic Resources

4.2.4.1. Continental Shelf Benthic Resources

4.2.4.1.1. Live Bottoms (Pinnacle Trend)

The description of the biology of Live Bottoms (Pinnacle Trend) can be found in Chapter 3.2.2.1.1 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on the Pinnacle Trend can be found in Chapters 4.2.2.1.4.1.1, 4.4.4.1.1, and 4.5.4.1.1 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

Seventy blocks are within the region defined as the pinnacle trend, which contains live bottoms that may be sensitive to oil and gas activities. These blocks are located in the northeastern portion of the CPA and are located between 60- and 120-m (197- and 394-ft) water depths in the Main Pass and Viosca Knoll lease areas.

The MMS developed the Live Bottom (Pinnacle Trend) Stipulation to protect biological resources in the Pinnacle Trend in response to concerns that disturbing any of the series of topographic irregularities might adversely affect biological communities that have developed on the surfaces of the features and affect the habitat they provide for pelagic fishes. The stipulation requires avoidance of the features during the placement of oil and gas structures and the laying of pipelines. The stipulation has been adopted in CPA sales since 1990 and has been effective in protecting the features and resident biological communities from damage. The proposed Live Bottom (Pinnacle Trend) Stipulation is presented in Chapter 2.4.1.3.2 of the Multisale EIS as a potential mitigating measure for leases resulting from proposed Lease Sale 213.

Impact-producing factors resulting from routine activities of OCS oil and gas operations include physical damage, anchoring, structure emplacement and removal, pipeline emplacement, drilling discharges, discharges of produced waters, and discharges of domestic and sanitary wastes. In addition, accidental subsea oil spills or blowouts associated with OCS activities can cause damage to live bottoms. The inclusion of the Live Bottom (Pinnacle Trend) Stipulation would preclude the occurrence of physical damage and limit other impact-producing factors. Few operations exist in the region and no community-wide impacts are projected.

Non-OCS activities in the vicinity of the hard-bottom communities include recreational boating and fishing, import tankering, and natural events such as extreme weather conditions, and extreme fluctuations of environmental conditions (e.g., nutrient pulses, low dissolved oxygen levels, seawater temperature minima, and seasonal algal blooms). These activities could cause severe damage that could threaten the survival of the live/hard-bottom communities. Ships using fairways in the vicinity of the Pinnacle Trend anchor in the general area on occasion, and numerous fishermen take advantage of the relatively shallow and easily accessible resources of regional live/hard bottoms. These activities could lead to severe and permanent physical damage. During severe storms, such as hurricanes, large waves may reach deep enough to stir bottom sediments. Because of the depth of the Pinnacle Trend area, these forces are not expected to be strong enough to cause direct physical damage to organisms living on the reefs.

Impacts from blowouts, pipeline emplacement, muds and cuttings discharges, other operational discharges, and structure removals should be minimized because of the proposed Live Bottom (Pinnacle Trend) Stipulation, and the dilution of discharges and resuspended sediments in the area. Potential impacts from discharges will probably be further reduced by USEPA discharge regulations and permits restrictions. Potential impacts from oil spills ≥1,000 bbl would be restricted because of the depth of the features (>20 m (66 ft)) (if the spill occurs on the sea surface), because subsea pipeline spills are expected to rise rapidly, and because of the low prospect of pipelines being routed immediately adjacent to

live/hard bottoms. The frequency of impacts to live/hard bottoms should be rare and the severity slight. Impacts from accidents involving anchor placement on live/hard bottoms could be severe in small areas (those actually crushed or subjected to abrasions).

The incremental contribution of proposed Lease Sale 213 to the cumulative impact is expected to be slight, with possible impacts from physical disturbance of the bottom, discharges of drilling muds and cuttings, other OCS discharges, structure removals, and oil spills. Negative impacts should be restricted by the implementation of the Live Bottom (Pinnacle Trend) Stipulation and site-specific stipulations, the depths of the features, and the currents in the live/hard-bottom area.

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 the Pinnacle Trend. Sources investigated include USGS, NOAA, USEPA, and coastal universities. Other sites were found through general Internet searches.

The MMS is the lead researcher of the Pinnacle Trend, and the results of the most recent MMS-funded studies were incorporated into the Multisale EIS. Additional information was found regarding ongoing USGS studies conducted to support MMS management (Gardner et al., 2002; USDOI, GS, 2003; Weaver et al., 2001). The USGS Florida Integrated Science Center's pinnacles project works to identify patterns of demersal fish distribution, community structure, and trophic relationships associated with reef-like carbonate banks and mounds in the Pinnacle Trend area (USDOI, GS, 2003). The present research seeks to further define the basis of physical-biological coupling, aspects of community structure and function, biotope affinities, and critical habitat parameters for hard-bottom areas in the eastern Gulf of Mexico. The project applies state-of-the-art geological tools to resolve community differentiation in terms of physical geological structure (topography), detail (surface characteristics), and topographically induced current complexity, i.e., physical mechanisms driving community structure. This work enhances the understanding of the Pinnacle Trend regional ecosystem to support MMS management and decisionmaking.

The MMS has reexamined the analysis for the Pinnacle Trend presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for the Pinnacle Trend presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on the Pinnacle Trend is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

4.2.4.1.2. 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 213 on topographic features can be found in Chapters 4.2.2.1.4.1.2, 4.4.4.1.2, and 4.5.4.1.2 of the Multisale EIS, respectively. 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.

Potential OCS-related impacts include the anchoring of vessels and structure emplacement, operational discharges (drilling muds and cuttings, and produced waters), blowouts, oil spills, and structure removal. Activities causing mechanical disturbance represent the greatest threat to the topographic features. This would, however, be prevented by the continued application of the Topographic Features Stipulation.

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.

It is assumed that a resuspension of sediments or a subsurface oil spill following a 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 the 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, blowouts would not occur in the immediate vicinity of the topographic features and associated biota. Therefore, there would be little impact on the features.

The incremental contribution of proposed Lease Sale 213 (as analyzed in Chapter 4.2.2.1.4.1.2 of the Multisale EIS) to the cumulative impact is negligible because of the implementation of the Topographic Features Stipulation, which would limit 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. Various Internet sources were examined to determine any recent information regarding topographic features. Sources investigated include USGS, NOAA, USEPA, and coastal universities. Other sites were found through general Internet searches.

One ongoing study reports some preliminary results that indicate small shifts in benthic cover including an increase in algae and decrease in sponges (Kraus et al., 2007). They also report some shifts in fish community composition. These shifts are likely the result of impacts from Hurricane Rita in September 2005.

The MMS has conducted studies of select topographic features since Hurricane Rita. 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. Another MMS study, *Post-Hurricane Assessment of Sensitive Habitats of the Flower Garden Banks Vicinity* (Robbart et al., 2009), is investigating hurricane effects at the East Flower Garden, Sonnier, McGrail, Geyer, and Bright Banks. Initial assessment of the East Flower Garden Bank reveals mechanical damage from Hurricane Rita and a major 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 (Precht et al., 2008). Other preliminary 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. Anecdotal information also suggests that repeated anchor damage has affected Sonnier Bank. Community recovery is expected to take at least 5 years if anchor damage is prevented. The Flower Garden Bank National Marine Sanctuary (FGBNMS) is revising its management plan (pending Congressional approval) to include Sonnier Bank within its protective boundaries. Monitoring at the Flower Garden Banks in 2006 and 2007 shows good recovery of corals with no significant deterioration of community health (Precht et al., 2006; Zimmer et al., in preparation).

Initial assessments by the FGBNMS show damage from Hurricane Ike, which passed directly over the East Flower Garden Bank, to be similar to that of Hurricane Rita. Numerous large coral heads were toppled, scarring from projectiles is evident across the reef, a field of *Madracis mirabilis* (yellow pencil coral) was broken, and sand was redistributed. Preliminary results from long-term monitoring by MMS and the FGBNMS in August 2009 reveal good recovery, which continues to support the evaluation of the Flower Garden Banks as a healthy and resilient reef habitat.

The MMS has reexamined the analysis for topographic features presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. This new information illustrates the potential effects of natural events, especially the cumulative impacts of hurricanes. However, OCS-related oil and gas impacts remain unchanged and previous assessments are still accurate. No new significant information was discovered that would alter the impacts for topographic features presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

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 213 on chemosynthetic communities can be found in Chapters 4.2.2.1.4.2.1, 4.4.4.2.1, and 4.5.4.2 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

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 regulations explained by NTL 2000-G20 greatly reduce the risk of these physical impacts by requiring avoidance of potential chemosynthetic communities identified on required geophysical survey records or by requiring photodocumentation to establish the absence of chemosynthetic communities prior to approval of the structure or pipeline emplacement.

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 and partial or complete burial by muds and cuttings associated with pre-riser discharges or some types of riserless drilling. Variations in water currents may affect the dispersal of synthetic-based drilling fluids and influence the areal extent of 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 to chemosynthetic communities from any accidental release of oil would be a remote possibility.

Impacts to deepwater communities in the Gulf of Mexico from sources other than OCS activities are considered negligible. The incremental contribution of proposed Lease Sale 213 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 213 is expected to cause little damage to the ecological function or biological productivity of the widespread, low-density chemosynthetic communities. The rarer, widely scattered, high-density, Bush Hill-type chemosynthetic communities could experience very minor (if any) impacts from drilling discharges or resuspended sediments located at more than 1,500 ft (457 m) away as required by NTL 2000-G20.

A search was conducted for new information published since completion of the Multisale 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 the availability of new information. 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). This study was referenced in the Multisale EIS and the Supplemental EIS and is being tracked. Some new chemosynthetic communities were discovered in 2006 and 2007; however, they were located using the same criteria used during the biological review process for plans or pipeline applications to determine the proximity of areas with potential chemosynthetic communities.

The MMS has reexamined the analysis for chemosynthetic communities presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for chemosynthetic communities presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

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 213 on nonchemosynthetic communities can be found in Chapters 4.2.2.1.4.2.2, 4.4.4.2.2, and 4.5.4.2 of the Multisale EIS,

respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

Some impact to soft-bottom, benthic communities from drilling and production activities would occur as a result of physical impact 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 low. Drilling muds and cuttings would not be expected to accumulate on the seafloor in layers thick enough to produce negative impacts on benthic infauna beyond a few hundred meters from the surface-discharge location. Even in situations where substantial 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.

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 pinnacles and topographic features on the continental shelf. Any hard substrate communities located in deep water would be particularly sensitive to impacts from OCS activities. Impacts to these sensitive habitats could permanently prevent recolonization with similar organisms requiring hard substrate.

Accidental events resulting from proposed Lease Sale 213 are expected to cause little damage to the ecological function or biological productivity of the widespread, typical, deep-sea benthic communities. Some impact to benthic communities would occur as a result from 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 from 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 to deepwater communities in the Gulf of Mexico from sources other than OCS activities are considered negligible. The incremental contribution of proposed Lease Sale 213 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 213 is expected to cause little damage to the ecological function or biological productivity of the widespread, typical soft-bottom, deep-sea benthic communities. Impacts to 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 geophysical conditions associated with the potential presence of chemosynthetic communities also results in hard carbonate substrate. Therefore, the NTL protects both types of habitat.

A search was conducted for new information published since completion of the Multisale 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 *Lophelia* coral. 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 major role in the ecology of hard-bottom habitats on the upper slope.

The report, *Seafloor Characteristics and Distribution Patterns of Lophelia pertusa and Other Sessile Megafauna at Two Upper-Slope Sites in the Northeastern Gulf of Mexico* (Schroeder, 2007), presents results of a study funded to document the seafloor characteristics and the distribution patterns of the deepwater coral *Lophelia pertusa* and other sessile megafauna at two sites in the Gulf of Mexico. The two sites, Viosca Knoll 826 and Viosca Knoll 862-906, are located on the upper DeSoto Slope subprovince. One of the sites, Viosca Knoll 862-906, is in close proximity to the site reported from the 1950's field sampling by Moore and Bullis (1960). The dominant taxa at both the Viosca Knoll 862 and Viosca Knoll 906 sites, in terms of numbers and biomass, are anemones. The largest megafauna observed were the antipatharians at Viosca Knoll 862-906, with individual colonies estimated to be between 2.1 and 2.4 m (7 and 8 ft) tall. There appear to be at least four species of antipatharians, and collectively, they are the second most abundant megafauna taxa at both sites. The dominant megafauna taxon at the Viosca Knoll 862 site is *L. pertusa*, which has successfully developed extensive assemblage complexes, comprised of large colony aggregations/thickets, at numerous locations. Viosca Knoll 826 has the most extensive development of *L. pertusa* found in the Gulf of Mexico to date.

The report also discusses evidence of manmade disturbances. Furrows apparently produced when wire anchor cables, deployed in conjunction with oil and gas drilling operations conducted in this region, struck the bottom one or more times. When megafauna were present, moderate to severe damage to individual colonies or colony aggregations often resulted. However, there was no indication that extensive areawide destruction has occurred, even though these features are present throughout the main knoll survey area.

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). This study was referenced in the Multisale EIS and the Supplemental EIS and is being tracked. Some new deepwater coral communities were discovered in 2006 and 2007; however, they were located using the same criteria used during the 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.

The MMS has reexamined the analysis for nonchemosynthetic deepwater benthic communities presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for nonchemosynthetic deepwater benthic communities presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

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 213 on marine mammals can be found in Chapters 4.2.2.1.5, 4.4.5, and 4.5.5 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS. With the exception of manatees, any of the marine species that occur in the GOM may be found in the new areas. However, the new areas are not unique in regards to marine mammal distribution.

Potential effects on marine mammal species may occur from routine activities associated with proposed Lease Sale 213 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 chance 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 should greatly minimize the amount of debris that is accidentally lost overboard by offshore personnel.

There is no conclusive evidence whether anthropogenic noise has or has not caused long-term displacements of, or reductions in, marine mammal populations (Southall et al., 2007). Noise associated with proposed Lease Sale 213, including drilling noise, aircraft, and vessels, may affect marine mammals by eliciting a startle response or masking other sounds. 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 rule out concerns of permanent displacement from disturbance.

Seismic operations have the potential to harm marine mammals in close proximity to firing airgun arrays. 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 proposed Lease Sale 213, 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 proposed Lease Sale 213 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 occurring in the northern Gulf. 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 an oil slick is likely to result in sublethal impacts (e.g., decreased health and reproductive fitness, increased vulnerability to disease) to marine mammals.

Activities considered under the cumulative scenario could affect protected cetaceans and sirenians. These 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 and removal, 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 cetaceans 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 have been severely affected in the long term. However, species that occupy more nearshore habitats may have

suffered more long-term impacts. The effects of recent Gulf of Mexico 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 213, combined with non-OCS activities, may be deleterious to cetaceans occurring in the GOM. Biological significance, according to the National Research Council (2005) "an action or activity becomes biologically significant to an individual animal when it affects the ability of the animal to grow, survive, and reproduce. Those are the effects on individuals that can have population-level consequences and affect the viability of the species." 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 213 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 the Biological Opinion (BO) dated June 29, 2007, and received by MMS on July 3, 2007 (USDOC, NMFS, 2007a). The BO concludes that the proposed lease sales and associated activities in the GOM in the 2007-2012 OCS Leasing Program, which includes Lease Sale 213, 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 submitted a request for 5-year regulations 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 an Advance Notice of Proposed Rulemaking regarding the small take authorization on March 3, 2003 (68 FR 9991) and regulations are pending. Following issuance of such regulations under the MMPA, NMFS will amend this 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 213 could take up to 11 nonlethal takes of sperm whales 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 BO considered the effects on listed species by oil spills that may result from proposed Lease Sale 213, 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 have consulted informally per FWS guidance on proposed Lease Sale 213. As a result, there were no new mitigations or terms and conditions from FWS (**Chapter 5.2**).

The following information was not present in the Multisale EIS. A recent report presents the results of a study that collected dive patterns of sperm whales in the Atlantic Ocean to compare with the dive patterns and social structure of sperm whales in the Gulf of Mexico (Palka and Johnson, 2007). The study started a baseline of line transect, photo-identification, oceanographic, and genetic data for the Atlantic sperm whale. Compared with the Delta region in the Gulf of Mexico, parts of the Atlantic Ocean may serve as a control population of sperm whales with little exposure to sounds of oil- and gas-related activities. The study found Gulf of Mexico sperm whales follow a foraging and socializing cycle similar

to that seen for the North Atlantic whales, but North Atlantic sperm whales dive considerably deeper (average 934 m (3,064 ft) compared with 639 m (2,096 ft) for GOM whales) when foraging (Jochens et al., 2008; Palka and Johnson, 2007).

Based on MMS studies, 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 may be concentrated in at least two geographic regions of the northern Gulf: an area off the Dry Tortugas and offshore of the Mississippi River Delta (Maze-Foley and Mullin, 2006); however, distribution also appears influenced by the occurrence and movement of cyclonic/anticyclonic currents in the GOM. The MMS released 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 Gulf of Mexico and contributed substantially to the worldwide body of knowledge on sperm whales (Jochens et al., 2008).

The MMS has reexamined the analysis for marine mammals presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for marine mammals presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on marine mammals is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

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 213 on sea turtles can be found in Chapters 4.2.2.1.6, 4.4.6, and 4.5.6 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS. Because the new areas are more than 100 mi (160 km) from the nearest coast, sea turtles may potentially exist within these areas. However, impacts in the new areas are expected to be similar to those in the rest of the proposed CPA sale area.

Routine activities resulting from proposed Lease Sale 213 have the potential to harm sea turtles and therefore have been analyzed in the Multisale EIS. Activities considered include 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 (e.g., behavioral effects and nonfatal exposure to intake of OCS-related contaminants or debris).

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. The routine activities of proposed Lease Sale 213 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 213 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 the harassment, harm, or mortality to sea turtles occurring in the northern Gulf., However, 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, 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 impacts from OCS activities are estimated to be sublethal. 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.

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 (sea turtle nesting) may suffer more long-term impacts. Several major hurricanes have hit the Gulf Coast in the last several years. Storm impacts, including the 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 an important loggerhead nesting site (Lohoefener et al., 1990). Very little area remains above sea level that would be suitable for nesting, and subsequent storms have delayed any rebuilding of the Chandeleur Islands. Hurricanes Ike and Gustav in 2008 also occurred in areas used 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 the 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 start of the 2009 nesting season showed that the turtles were returning and attempting to nest despite last year's destruction; 48 nests were counted as of May 3, 2009 (Sea Turtle Restoration Project, 2009). 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); therefore, many nests had successfully hatched prior to storm damage (Florida Fish and Wildlife Commission, 2008).

In response to a request by the Gulf of Mexico Fishery Management Council, NMFS has 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 the 2005 BO 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 CPA, such impacts to the loggerhead sea turtle population must be considered with the cumulative impacts. Concern over the 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 (C*aretta caretta*)," which replaced the previous 1991 report (USDOC, NMFS and USDOI, FWS, 2008).

The incremental contribution of proposed Lease Sale 213 to the numerous cumulative impacts to sea turtles is not expected to be significant, especially due to mitigations currently in place. Most of the potential impacts from Lease Sale 213 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 BO dated June 29, 2007, and received by MMS on July 3, 2007 (USDOC, NMFS, 2007a). The BO concludes that the proposed lease sales and associated activities in the GOM in the 2007-2012 OCS Leasing Program, which includes Lease Sale 213,

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 and 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 to 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 2003-G10) will appreciably reduce the numbers of sea turtles that may be incidentally taken from routine offshore vessel operations associated with proposed Lease Sale 213; 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 213. 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 proposed Lease Sale 213.
- 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 proposed Lease Sale 213.
- 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 proposed Lease Sale 213.
- 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 proposed Lease Sale 213.
- 1 lethal take and 1 nonlethal take of a hawksbill sea turtle over the 40-year lifetime of proposed Lease Sale 213.

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

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 proposed Lease Sale 213. Spilled oil resulting from proposed Lease Sale 213 could take up to 42 lethal and 111 nonlethal takes of loggerheads; 2 lethal and 7 nonlethal takes of a leatherback sea turtles; 9 lethal and 16 nonlethal takes of Kemp's ridley sea turtles; and 13 lethal and 36 nonlethal take of green sea turtles 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 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 BO considered the effects on listed species by oil spills that may result from proposed Lease Sale 213, 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.

The FWS and MMS have consulted informally per FWS guidance on proposed Lease Sale 213. As a result, there were no new mitigations or Terms and Conditions from FWS (**Chapter 5.2**).

The MMS has reexamined the analysis for sea turtles presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for sea turtles presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on sea turtles is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

4.2.7. Alabama, Choctawhatchee, St. Andrew, and Perdido Key Beach Mice

The description of the biology, life history, and distribution of the Alabama, Choctawhatchee, St. Andrew and Perdido Key beach mice can be found in Chapter 3.2.5 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on beach mice can be found in Chapters 4.2.2.1.7, 4.4.7, and 4.5.7 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS. Because of the extended distance from shore (more than 100 mi; 161 km), impacts associated with activities occurring in the new areas are not expected to impact beach mice.

Impacts resulting from routine activities in the CPA on the Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice are possible but unlikely. Impacts may result from the consumption of beach trash and debris. Proposed Lease Sale 213 would deposit only a small portion of the total debris that would reach the habitat. Efforts undertaken for the removal of marine debris may temporarily scare away beach mice, destroy their food resources, or collapse the tops of their burrows.

Given the low probability of a large spill (≥1,000 bbl) occurring, direct impacts of oil spills on beach mice from proposed Lease Sale 213 are highly unlikely. Oil-spill response and cleanup activities could have a significant impact to the beach mice and their habitat if not properly regulated.

Cumulative activities have a potential to harm or reduce the numbers of Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice. Those activities include oil spills, alteration and reduction of habitat, predation and competition, and consumption of beach trash and debris. Most Multisale EIS-related spills, as well as oil spills stemming from import tankering and prior and future lease sales, are not expected to contact beach mice or their habitats. Cumulative activities posing the greatest potential harm to beach mice are non-OCS activities (i.e., beach development and coastal spills) and natural catastrophes (i.e., hurricanes) which, in combination, could potentially deplete some beach mice populations to unsustainable levels. The expected incremental contribution of proposed Lease Sale 213 to the cumulative impacts is negligible.

Leblanc (personal communication, 2007) revealed that a population genetics study on the Alabama beach mouse was published in 2007 (Tenaglia et al., 2007). Adult males were often trapped with adult females, which were probably their mates in this monogamous species. These pairs were more distantly related than expected, probably because kin recognition allowed the selection of unrelated mates to avoid inbreeding depression, which reduced the fitness of a population as a result of the breeding of related individuals. As population levels have declined, inbreeding avoidance has become important to this subspecies. Subadults were often captured with related mice, suggesting that mice form sibling and adult-subadult familial bonds before final adult dispersal, which itself is a short distance. Consequences for inbreeding impacts remain to be investigated.

The FWS designated 6,194 ac (2,507 hectares (ha)) of critical habitat for the Perdido Key, Choctawhatchee, and St. Andrew beach mice on October 12, 2006 (71 FR 60237-60370). The habitat includes 1,300 ac (526 ha) for the Perdido Key beach mouse in Escambia County, Florida, and Baldwin County, Alabama; 2,404 ac (973 ha) for the Choctawhatchee beach mouse in Okaloosa, Walton, and Bay Counties, Florida; and 2,490 ac (1,008 ha) for the St. Andrew beach mouse in Bay and Gulf Counties, Florida. On January 30, 2007, FWS designated 1,211 ac (490 ha) of coastal dune and scrub habitat in Baldwin County, Alabama, for the Alabama beach mouse (72 FR 4329-4369).

A search was conducted 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 subject-matter experts in other agencies, was conducted to determine the availability of recent information. Mitchell (personal communication, 2009) reported that there were no new articles on beach mice in Florida and that the Perdido beach mice are still slowly recovering after Hurricane Ivan.

The MMS has reexamined the analysis for the Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for the Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on the Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

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 3.2.5 of the Multisale EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on coastal and marine birds can be found in Chapters 4.2.2.1.8, 4.4.8, and 4.5.8 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS. Because of the extended distance from shore (more than 100 mi; 161 km), impacts associated with activities occurring in the new areas are expected to affect only pelagic seabirds and trans-Gulf of Mexico migrants.

The majority of effects resulting from proposed Lease Sale 213 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. Nocturnal circulation around platforms may create acute sublethal stress from energy loss and increase the risks of collision, 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 213. Secondary impacts to coastal habitats from pipeline and navigation canals will occur over the long-term and may ultimately displace species from traditional sites to alternative sites.

Oil spills from proposed Lease Sale 213 pose the greatest potential direct and indirect impacts to coastal and marine birds. Birds that are heavily oiled are usually killed. If the physical oiling of individuals or local groups of birds occurs, some degree of both acute and chronic physiological stress associated with the 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, navigation by 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 the fouling of nesting habitat and the 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 critical 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 contribution of proposed Lease Sale 213 (Chapters 4.2.1.1.8, 4.2.2.1.1.10, and 4.4.10 of the Multisale 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 213 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 (effective July 9, 2007; 72 FR 37345-37372) the removal of the bald eagle from the list of threatened and endangered species (USDOI, FWS, 2007a). 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.

Authors were contacted and interviewed to investigate any recent published data that may be available. A large study of military aircraft and the impacts of noise on birds offshore of California is in preparation (Bowles, personal communication, 2009). Nisbet (personal communication, 2009) knows of no new information on the impacts of human disturbance on breeding colonial waterbirds and any relevant published literature.

A literature search found Burger (1997), who reports that exposure to small amounts of oil may weaken birds or decrease their body weight so they live for years without problems until they face a severe environmental stress. Then, they have a higher mortality than unexposed birds. Burger (1993) notes that spill volume has little or no correlation with bird mortality. 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 to 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 shortage of food fed to chicks. Waterfowl were not affected seriously, except for a short-term decline in mallards.

The piping plover (*Charadrius melodus*), is listed as threatened under the Endangered Species Act on the Gulf coast of Texas, Louisiana, Mississippi, Alabama, and Florida (Smith, personal communication, 2009). The species, 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 but does not winter on the Gulf Coast. Critical wintering habitat includes the land between mean low water and any densely vegetated habitat, which is not used by the 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. Eliott-Smith et al. (2009) reported that about 3,274 piping plover were located during the 2006 International Census. This increase of 975 birds from the 2001 International Census (Haig and Ferland, 2002) results in a slight but not significant reduction in expected impacts on the piping plover.

A search was conducted for new information published since completion of the Multisale EIS. A search of Internet bibliographic databases, as well as personal interviews with subject-matter experts in other agencies, was conducted to determine the availability of recent information. Nisbet (personal communication, 2009) knows of no new information on the impacts of human disturbance on breeding colonial waterbirds and any relevant published literature.

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. No significant new information was found that would alter the impacts for coastal or marine birds presented in the two documents. For coastal and marine birds, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

4.2.9. Endangered and Threatened Fish

4.2.9.1. 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 213 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. The following information is a summary of the impact analysis

incorporated from the Multisale EIS. The new areas are located more than 100 mi (161 km) from the nearest coast and are not located within the designated critical habitat for Gulf sturgeon. It is extremely unlikely that there will be any sturgeon in the new areas due to water depths that far exceed the recorded depths preferred by this sturgeon species. In addition, substrate type and the potential forage base associated with bottom types at these depths are not conducive for sustaining a Gulf sturgeon food base.

The NOAA Fisheries Service 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 213. Vessel traffic will generally only pose a risk to Gulf sturgeon when leaving and returning to port. Major navigation channels are excluded from critical habitat. 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 213 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 213. Impacts from routine activities resulting from proposed Lease Sale 213 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 213. 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 one 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 213 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 one 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 Commission, 2007; USDOI, FWS, 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 the 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).

At present, 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. 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 displace 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 Paruka acknowledged that the sturgeons have 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 (Slack, personal communication, 2008).

The MMS has consulted with NMFS for the proposed CPA and WPA lease sales in the 2007-2012 OCS Leasing Program, including Lease Sale 213. The NMFS BO, signed on June 29, 2007, concludes that the proposed lease sales, including Lease Sale 213, and the 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.

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 significant information was discovered that would alter the impacts for Gulf sturgeon presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on 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 213.

4.2.10. 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), as designated under the authority of the Magnuson-Stevens Fishery Conservation and Management Act, can be found in Chapters 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 213 on fish resources and EFH can be found in Chapters 4.2.2.1.10, 4.4.10, and 4.5.10 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

It is expected that coastal and marine environmental degradation from proposed Lease Sale 213 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 losses as a result of coastal and marine environmental degradation are expected to be negligible. Fish populations, if left undisturbed, will 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 not cause significant change 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 213 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 213 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 213-related oil spills on fish resources is expected to cause less than a 1 percent decrease 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 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 OCS Program and non-OCS events, the resultant influence on fish resources and EFH is expected to be substantial, but not easily distinguished from effects due to natural population variations.

The incremental contribution of proposed Lease Sale 213'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 213 are expected to be negligible (resulting in less than a 1% decrease in fish populations or EFH) and almost undetectable among the other cumulative impacts. Even with consideration of an extreme year of major hurricane impacts to coastal wetlands in 2005, the cumulative impact of proposed Lease Sale 213 is expected to be negligible and undetectable.

At the expected level of impact, the resultant influence on fish populations and EFH from proposed Lease Sale 213 would be negligible and indistinguishable from variations due to natural causes; however, wetland loss could occur due to a petroleum spill contacting inland areas. Proposed Lease Sale 213 is expected to result in negligible decreases in fish resources and/or standing stocks or in EFH. Fish resources will quickly recover from most of the impacts. Recovery from the loss of wetlands habitat would probably not occur as quickly.

A search was conducted for new information published since completion of the Multisale 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 the availability of new information. Relevant informational Internet websites include those from the Gulf of Mexico Fisheries Management Council at http://www.gulfcouncil.org/ and the NMFS Southeast Region at http://sero.nmfs.noaa.gov/. Some recent reports from NOAA have further documented impacts from the 2005 hurricanes on fish and fishery habitat. One very recent example is *Report to Congress on the Impact of Hurricanes Katrina, Rita, and Wilma on Commercial and Recreational Fishery Habitat of Alabama, Florida, Louisiana, Mississippi, and Texas*, 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. Offshore fisheries habitat sustained some impact, but as far as population census are able to discern, the impact was not substantial. The impacts of the 2008 hurricanes (i.e., Gustav and Ike) on the fisheries of the Gulf Coast are not yet available. Similar information (i.e., the effects of Hurricanes Katrina and Rita on GOM fisheries) was presented in the Multisale EIS.

No new significant information was discovered that would alter the impacts for fish resources and EFH presented in the Multisale EIS and the Supplemental EIS; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

4.2.11. Commercial Fishing

The description of commercial fishing in the proposed Lease Sale 213 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 213 on commercial fishing can be found in Chapters 4.2.2.1.11, 4.4.10, and 4.5.11 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

The new areas are located more than 100 mi (161 km) from the nearest coast and are not projected to increase the overall activity that would result from proposed Lease Sale 213. There are no special regulations designated within these areas that would indicate any difference in the commercial fisheries than what is found in adjacent areas of the Gulf; therefore, no additional impacts on commercial fisheries are projected as a result of the inclusion of the new acreage.

Effects on commercial fishing from activities associated with proposed Lease Sale 213 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 213-related oil spills on fish resources and commercial fishing is expected to cause less than a 1 percent 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 213 would be negligible and indistinguishable from variations due to natural causes. As a result, there would be very little impact on commercial fishing. Proposed Lease Sale 213 is expected to result in negligible change in activities, in pounds landed, or in the value of landings.

A search was conducted for new information published since completion of the Multisale 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. Some recent reports (USDOC, NMFS, 2007b and c) have further documented impacts from the 2005 hurricanes on fish and fishery habitat discussed above under "Fish Resources and Essential Fish Habitat" (**Chapter 4.2.10**).

In August 2009, NMFS published a preliminary report for 2008 on U.S. commercial fisheries (USDOC, NMFS, 2009). **Table 4** below shows the change in commercial landings from 2007 to 2008 for the Gulf of Mexico and the Gulf States. Despite Louisiana's drop in number of landings following Hurricane Katrina, Louisiana still remains the leader in Gulf landings, followed by Mississippi, Texas, Florida (West Coast), and Alabama. Kirkham (2007) states "though the migration into other state waters is not new, the post-storm NOAA statistics suggest a new trend: Fishers are taking more seafood from Louisiana waters than what is brought in to Louisiana ports" and "whether the trends will continue is up for debate. According to a recent Wildlife and Fisheries report, fishers will be able to bring their catch back to pre-storm ports and buyers (Louisiana Dept. of Wildlife and Fisheries, 2007).

Table 4

U.S. Domestic Landings for the Gulf of Mexico and Gulf States, 2007 and 2008

	2007 (thousand pounds)	2008 (thousand pounds)	Change	2007 (thousand dollars)	2008 (thousand dollars)	Change
Florida, West Coast	59,015	59,402	+.7%	131,939	122,108	-7.5%
Alabama	29,379	24,420	-17%	48,723	44,313	-9%
Mississippi	227,834	201,822	-12%	39,340	43,697	+11%
Louisiana	998,763	915,956	-8%	288,952	272,844	-5.6%
Texas	84,940	73,048	-14%	174,356	176,098	+1%

Source: USDOC, NMFS, 2009.

A recent report by Caffey (2008) has estimated that commercial fisheries losses from Hurricanes Gustav and Ike will result in approximately $5.8 million, including losses from crawfish, catfish, all alligators, and turtles (inshore and farmed species), over the 2007 harvest value. The report estimates losses between $6.53 and $10.29 million, including oysters, shrimp, crabs, marine fisheries and charter fisheries. These hurricanes likely explain the losses in fisheries landings reflected in **Table 4**.

Infrastructural losses estimated in the report, including seafood processors docks, dealers commercial and recreational vessels marines and aquaculture, could possibly represent between a $127- and $178-million dollar loss from 2007 revenues.

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. Percent changes in the statistics

included in **Table 4** may reflect differences in population but they are also dependent upon the fishing effort as affected by hurricanes, particularly Gustav and Ike and weather conditions in general, as well as the cost per unit effort and the market value of catch. No new significant information was discovered that would alter the impacts for commercial fishing presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on commercial fishing is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

4.2.12. 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 213 on recreational fishing is in Chapters 4.2.2.1.12, 4.4.11, and 4.5.12 of the Multisale EIS, respectively. The following is a summary of the impact analysis from the Multisale EIS. Because of their distance from the nearest coast (more than 100 mi; 160 km), the inclusion of the new areas will have no direct routine impacts on recreational fishing.

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, i.e., until the structures are removed from the location and the marine environment. Proposed Lease Sale 213 would have a beneficial effect on offshore and deep-sea recreational fishing within developed leases accessible to fishermen. These effects would last until the production structures are removed from the marine environment. Short-term, space-use conflict could occur during the time that any pipeline is being installed.

With respect to accidental events, the estimated number and size of potential spills associated with proposed Lease Sale 213'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 213 would be minor to moderate. Based on the sizes of oil spills assumed for proposed Lease Sale 213, 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 contribution of proposed Lease Sale 213 (as analyzed in Chapter 4.2.2.1.12 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 213 would attract some private and charter-boat recreational fishermen farther offshore to the vicinity of the developed lease tracts in pursuit of targeted species known to be associated with petroleum structures in deep water.

A search was conducted for new information published since completion of the Multisale EIS. Research of recreational fishing revealed the following new information.

The NMFS has published the 2008 Marine Recreational Fisheries Statistics Survey (MRFSS) (USDOC, NMFS, 2008). In 2008, 5.7 million residents participated in marine recreational fishing. All participants, including visitors, took nearly 24 million trips and caught approximately 168 million fish. In 2007, about 66 percent of the trips were made in west Florida, followed by 18 percent in Louisiana, 11 percent in Alabama, and 5 percent in Mississippi. In 2008, about 70 percent of the trips were from West Florida followed by 19 percent from Louisiana, nearly 7 percent from Alabama, and 4 percent from Mississippi. The MRFSS is the primary source for marine recreational fisheries data in U.S. waters. This survey combines random telephone interviews and onsite intercept surveys of anglers to estimate recreational catch and effort for inland, State, and Federal waters. In the GOM, surveys are conducted in western Florida, Alabama, Mississippi, and Louisiana.

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 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.

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 is conducting 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, and it will aid in planning for the aftermath of future storms. Hurricanes Gustav and Ike affected the Louisiana and Texas coasts during 2008 and will certainly affect recreational fisheries and fishing infrastructure, but no definitive data are yet available on their impacts.

Estimates of damage to the recreational fisheries are summarized above, but they are specifically represented as an initial approximation in the report (i.e., recreational vessels) as a $6.4- to $10.3-million loss from 2007 revenues, and infrastructural losses are approximated at nearly $11.9 million to approximately $14.5 million in revenues for recreational infrastructure (i.e., marinas, docks, etc).

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. No new significant information was discovered that would alter the impacts for recreational fishing presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 on recreational fishing is not required. The analysis and potential impacts detailed in the Multisale EIS and the Supplemental EIS still apply for proposed Lease Sale 213.

4.2.13. Recreational Resources

The description of the environment for recreational resources can be found in Chapter 3.3.3 of the Multisale EIS and Chapter 4.1.14.1 of the Supplemental EIS. Detailed analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on recreational resources can be found in Chapters 4.2.2.1.13, 4.4.12, and 4.5.13 of the Multisale EIS and 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 new areas are located more than 100 mi (161 km) from the nearest coast and are not projected to increase the overall activity that would result from proposed Lease Sale 213; therefore, no additional impacts on recreation resources are projected as a result of the inclusion of the new acreage.

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 South 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 operations resulting from proposed Lease Sale 213. The impact on Gulf Coast recreational beaches is expected to be minimal. The incremental increase in helicopter and vessel traffic is expected to add very little additional noise that may affect beach users. Proposed Lease Sale 213 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 any impacts would be short-term and localized. Should a spill contact a recreational beach, short-term displacement of recreational activity from the areas directly affected 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 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 tourist potential of beaches and to degrade the ambience of shoreline recreational activities, thereby affecting the enjoyment of recreational beaches throughout the area. The incremental beach trash resulting from proposed Lease Sale 213 is expected to be minimal. 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 contribution of proposed Lease Sale 213 (as analyzed in Chapter 4.2.2.1.13 of the Multisale EIS and 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 accommodation and food services. The data are only for coastal counties and parishes because they are the ones potentially 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 describe the level of tourism-related employment and establishments potentially affected by OCS activities. Additional research was conducted to investigate recently available information since completion of the Supplemental EIS. A search of Internet information sources, available literature, and Federal and State agencies and industry websites was conducted to determine the availability of new information. Research revealed the following new information.

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, which is down from 25 percent in 2002 and 23 percent in 2003 (Travel Industry Association of America, 2003, 2004, and 2005).

There are 14 casinos and 4 racetracks currently operating in Louisiana, several of which are located along Louisiana's coast in Lake Charles, Houma, and the New Orleans area. The casinos generate over $2.5 billion in gaming revenues and approximately $559.19 million in tax revenues. The taxes are allocated among the general fund, the City of New Orleans, public retirement systems, State Capitol improvements, and a rainy day fund. It is estimated that Louisiana casinos admitted 37.07 million visitors and employed approximately 18,009 workers in 2007 (American Gaming Association, 2007).

There are 29 casinos operating in Mississippi that generate over $2.8 billion in gaming revenues and approximately $350 million in tax revenues. The taxes are allocated among housing, education, transportation, health care services, youth counseling programs, and local safety programs. It is estimated that Mississippi casinos admitted over 36 million visitors and employed 30,572 workers in 2007 (American Gaming Association, 2007).

The Mississippi Gulf Coast gaming industry has rebounded well after Hurricane Katrina. Of the 12 casinos operating in the Biloxi-Gulfport Metropolitan Statistical Area, 10 were back in operation by December 2006 (Scott, 2007). For the Mississippi Gulf Coast (Gulfport and Biloxi), January 2007 gaming revenues were $106 million compared with $119 million for January 2005, and February 2007 revenues were $110 million compared with $109 million for February 2005 (Mississippi Gulf Coast Convention & Visitors Bureau, 2007).

During the 2005 hurricane season, Hurricanes Katrina and Rita inflicted severe damage on the Gulf Coast and 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 is conducting 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 and will aid in planning for the aftermath of future storms.

The Ocean Conservancy sponsors national and international beach cleanups, including annual events in Louisiana, Mississippi, and Alabama. In the Louisiana Coastal Cleanup on September 15, 2007, volunteers collected 5.483 pounds of trash and debris from 47 mi (76 km) of Louisiana beaches and barrier islands. The majority (75.1%) of the debris collected came from land-based activities such as beach outings, sporting events, and festivals (Ocean Conservancy, 2008). The Mississippi Marine Debris Task Force sponsors the annual Mississippi Coastal Cleanup. During the 19th Annual Mississippi Coastal Cleanup on September 15, 2007, more than 3,400 volunteers collected over 53,840 pounds of trash along 159 mi (256 km) of Mississippi Gulf Coast and barrier islands (Mississippi Dept. of Marine Resources, 2007). The 21st Annual Mississippi Coastal Cleanup is scheduled to take place on October 17, 2009 (Mississippi Coastal Cleanup, 2009). The Alabama Coastal Cleanup is coordinated through the Alabama Department of Conservation and Natural Resources, State Lands Division, Coastal Section and the Alabama People Against a Littered State. Since joining the effort in 1987, and through 2008, over 55,000 volunteers have removed 1,034,000 pounds of trash from 3,000 mi (4,828 km) of shoreline. The results of the 22nd Alabama Coastal Cleanup are not yet available. The 23rd Alabama Coastal Cleanup is scheduled for September 20, 2010 (Alabama People Against a Littered State, 2009).

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 (USDOI, 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.

The MMS has reexamined the analysis for recreational resources presented in the Multisale EIS and the Supplemental EIS, including activities associated with the new areas, based on the additional information presented above. No new significant information was discovered that would alter the impacts for recreational resources presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

4.2.14. 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. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on archaeological resources can be found in Chapters 4.2.2.1.14, 4.4.13, and 4.5.14 of the Multisale EIS, respectively. The following information is a summary of the impact analysis incorporated from the Multisale EIS.

The greatest potential impact to archaeological resources as a result of proposed Lease Sale 213 would result from direct contact between an offshore activity (platform installation, drilling rig emplacement, and dredging or pipeline project) 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, mandates 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) or less, and 300-m linespacing of leases within the areas having high potential for historic shipwrecks in water depths greater than 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 prior to an operator beginning oil and gas activities on a lease are expected to be highly effective at identifying possible archaeological resources. Since the survey and clearance process reduces 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 Gulf of Mexico, from approximately 25° N. latitude to 27.5° N. latitude, were located along the historic Spanish trade route, which therefore increases the probability that a 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. Last year MMS awarded a study to conduct archival research in order to develop a strategy for identifying and recognizing such sites in ultra-deepwater.

Spills, collisions, and blowouts are accidental events that can happen in association with a proposed activity in the Lease Sale 213 area. If an accidental event occurs as a result of one of these events, there could be an impact to archaeological resources. Oil spills have the potential to affect both prehistoric and historic archaeological resources. Impacts to historic resources would be limited to visual impacts and, possibly, physical impacts associated with spill cleanup operations. Impacts to 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 to archaeological resources. Visual impacts to 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 proposed Lease Sale 213, OCS activities in the cumulative activity area, 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.

Onshore development associated with activities from this proposed lease sale could result in the direct physical contact between the construction of new onshore facilities or pipeline canals and previously unidentified historic or prehistoric sites. This direct physical contact with a 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 site context. 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 as a result of this proposed lease sale must receive approval from the pertinent Federal, State, county/parish, and/or communities. Protection of archaeological resources in these cases is expected to be achieved through the various approval processes involved. There is, therefore, no expected impact to onshore historic or prehistoric sites adjacent to the Lease Sale 213 area 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 2009. 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; 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 (USDOI, 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-OE.

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, 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.

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 significant information was discovered that would alter the impacts for archaeological resources presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

4.2.15. Human Resources and Land Use

4.2.15.1. 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 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 213 on land use and coastal infrastructure can be found in Chapters 4.2.2.1.15.1, 4.4.14.1, and 4.5.15.1 of the Multisale EIS and Chapters 4.1.16.1.2, 4.1.16.1.3, and 4.1.16.1.4 of the Supplemental EIS. 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 that necessitates a change to the coastal infrastructure scenario presented in the Multisale EIS and the Supplemental EIS. Although the addition of the 181 South Area slightly increased some of the activity scenario parameters (e.g., production) for a typical CPA proposed action, the relatively small increase was not enough to change the long-term (i.e., 40-year)

forecasts of coastal infrastructure needs to support OCS activity. The impacts of Hurricanes Gustav and Ike to coastal infrastructure were minimal and only resulted in short-term disruptions to operations. 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. No new information has been found that necessitates a change to the onshore scenario presented in the Multisale EIS; therefore, the coastal infrastructure projections and impact analyses used in the Multisale EIS and the Supplemental EIS are still considered to be the best available for Lease Sale 213.

Proposed Lease Sale 213 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, but the land in the analysis area is sufficient to handle such development. 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 213 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 GOM 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 in 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 Central or Western GOM. 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 previously noted in the Multisale EIS and SEIS, Port Fourchon is expected to experience significant impacts to its land use from OCS-related expansion. For the near term, Port Fourchon would most likely be the primary support base to support activity in the 181 South Area. Because of the limited amount of land available at Port Fourchon, the port may face capacity constraints in the long term. Operators are also looking to diversify risk from shutdowns like those experienced after Hurricanes Katrina and Rita, and are therefore likely to look to other ports with deepwater access. As previously analyzed and noted in the Multisale EIS and SEIS, increased OCS-related usage from port clients is expected to significantly impact LA Highway 1 in Lafourche Parish. Also, increased demand of water by the OCS 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 213 or the OCS Program would not interfere with active or proposed restoration projects.

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 213, and 32-47 new pipeline landfalls were projected as a result of the OCS Program from 2007 to 2046.

The MMS recently analyzed historical data to validate past scenario projections, including projections of new pipeline landfalls (USDOI, 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 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 in the trends in 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 213. 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.

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. No new significant information was discovered that would alter the coastal infrastructure scenario or impacts 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 213 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 213.

4.2.15.2. Demographics

The description of the environment for demographics is described in Chapter 3.3.5.4 of the Multisale EIS and Chapter 4.1.16.2.1 of the Supplemental EIS. Detailed analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on demographics is presented in Chapters 4.2.2.1.15.2, 4.4.14.2, and 4.5.15.2 of the Multisale EIS, respectively and Chapters 4.1.16.2.2, 4.1.16.2.3, and 4.1.16.2.4 of the Supplemental EIS. The following is a summary of the impact analysis from the Multisale EIS and the Supplemental EIS. A search was conducted for new information since completion of the Supplemental EIS that would affect the impact analyses. The MMS reviewed the 2008 Woods & Poole data that are now available and found no significant changes to the population and employment projections that would alter the impacts contained in the Multisale EIS and the Supplemental EIS (Woods & Poole Economics, Inc., 2008).

Routine activities relating to proposed Lease Sale 213 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 5**). Baseline patterns and distributions of these factors, as described in Chapter 3.3.5.4 of the Multisale EIS and 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 213. Current baseline estimates of population growth for the analysis area show a continuation of growth, but at a slower rate.

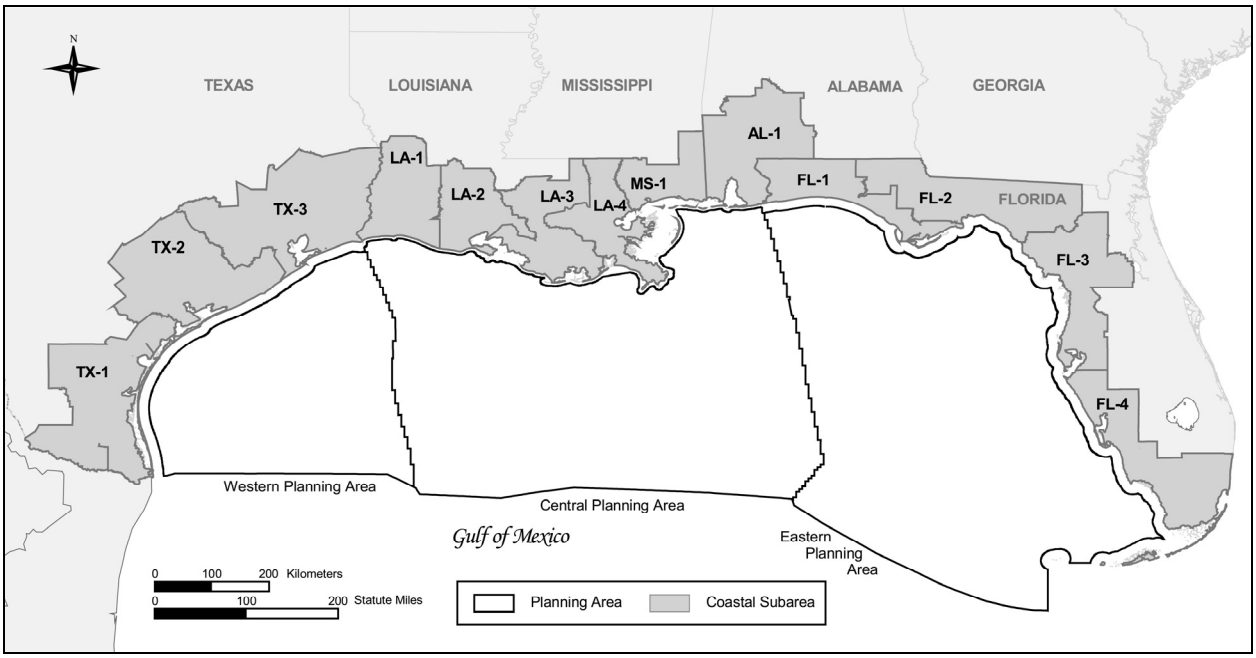

Figure 5. Economic Impact Areas in the Gulf of Mexico.

Accidental events associated with proposed Lease Sale 213 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 and shifted the coastal area 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 the parishes and cause increasing populations in urban and suburban areas and declining populations in rural coastal areas (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 Chapter 4.1.16.2.4 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 for a discussion of these changes). Some regions within Louisiana EIA's, Port Fourchon in particular, are expected to experience some impacts to population and their education system as a result of increased demand for OCS labor. As discussed in Chapter 4.2.2.1.15.2 of the Multisale EIS, proposed Lease Sale 213 is expected have an incremental contribution of less than 1 percent to the population level in any of the EIA's. Given the low levels of population growth and the industrial expansion associated with proposed Lease Sale 213, the baseline age and racial distribution pattern and education status, 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 CPA lease sale. According to the 2007 data, population, income, and employment were assumed to decline 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. The 2007 data also revised assumptions 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.

As discussed in **Chapter 4.1.1**, the exploration and development activity scenarios used in the Supplemental EIS for a typical CPA sale remain unchanged and are used for the analysis of proposed Lease Sale 213. Consequently, the population projections for a typical proposed CPA sale in Table 4-28 of the Multisale EIS did not change significantly for proposed Lease Sale 213. 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 revised Woods & Poole data. With the exception of year 1 (2008) for LA-4, which declined slightly, the population impacts on a percentage basis for the three EIA's are the same as reported in Table 4-29 of the Multisale EIS. Thus, the potential population impacts described in the Multisale EIS and the Supplemental EIS and summarized above apply for proposed Lease Sale 213.

The Supplemental EIS presents additional information regarding population trends in the GOM region, particularly as it relates to the recovery from the 2005 hurricanes. More recent recovery information is provided below. However, this supplemental information does not in any way change the baseline population and employment projections used to analyze impacts of a typical CPA sale and the OCS Program, the methodologies used, or the conclusions presented in the Multisale EIS or the Supplemental EIS.

The U.S. Census reported that, from July 2007 to July 2008, Louisiana marked a second year in a row of population in-migration, including over 13,500 more residents (LED, 2009). Overall, Louisiana's population increased by almost 37,500 in the same time period, which is an increase of 0.9 percent. The Brookings Institution and the Greater New Orleans Community Data Center (GNOCDC) report that the New Orleans area continues to recover post-Katrina. The population of New Orleans grew by 1.9 percent between July and December 2008, bringing it to 73.7 percent of pre-Katrina levels (The Brookings Institution and GNOCDC, 2009).

The MMS has reexamined the analysis for demographics presented in the Multisale EIS and the Supplemental EIS, based on the additional information presented above. No new significant information was discovered that would alter the impacts for demographics presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

4.2.15.3. 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 Chapter 4.1.16.3 of the Supplemental EIS. A detailed impact analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on economic factors can be found in Chapters 4.2.2.1.15.3, 4.4.14.3, and 4.5.15.3 of the Multisale EIS and Chapters 4.1.16.3.2, 4.1.16.3.3, and 4.1.16.3.4 of the Supplemental EIS, respectively. The following is a summary of the impact analysis incorporated from the Multisale EIS and the Supplemental EIS.

The new areas are located more than 100 mi (161 km) from the nearest coast and are not projected to increase the overall activity that would result from proposed Lease Sale 213; therefore, no additional impacts on recreation resources are projected as a result of the inclusion of the new acreage.

A search was conducted for new information published since completion of the Supplemental EIS that would affect the impact analyses. The MMS reviewed the 2008 Woods & Poole data that is now available and found no significant changes to the population and employment projections that would alter the impact conclusions contained in the Multisale EIS and the Supplemental EIS (Woods & Poole Economics, Inc., 2008). Employment growth is expected to be widespread throughout the Southeast United States as the regional economy completes its recovery from Hurricane Katrina-related dislocations (Woods & Poole Economics, Inc., 2008).

Should proposed Lease Sale 213 occur, there would be only minor economic changes in the Texas, Louisiana, Mississippi, Alabama, and Florida EIA's (**Figure 5**). Proposed Lease Sale 213 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 OCS-related employment expected to peak at 23.8 percent and 9.8 percent of total employment, respectively. As examined and noted in the Multisale EIS and the Supplemental EIS, activities related to the OCS Program on a regional level are expected to significantly impact employment in Lafourche Parish, Louisiana, within EIA LA-3. Therefore, the population, housing, roads (LA Highway 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 CPA lease sale. According the 2007 data, population, income, and employment were assumed to decline 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. The 2007 data also revised assumptions 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.

As discussed in **Chapter 4.1.1**, the exploration and development activity scenarios used in the Supplemental EIS for a typical CPA sale remain unchanged and are used for the analysis of proposed Lease Sale 213. Consequently, the employment projections for a typical proposed CPA sale in the Multisale EIS (Tables 4-30 and 4-31) are unchanged for Lease Sale 213. The MMS reanalyzed the high-case employment impacts on a percentage basis for the three economic impact areas (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 2008 Woods & Poole data. As shown in **Table 5** below, 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 213.

Table 5

Projected Employment Associated with Proposed Lease Sale 213 by Economic Impact Area

Calendar Year	Model Year	Revised Baseline Employment Projections (in thousands)[1]			High Case CPA Proposed Action Employment Estimates[2]			Projected Employment Associated with Proposed Lease Sale 213 as Percent of Total Baseline Employment		
		LA2	LA3	LA4	LA2	LA3	LA4	LA2	LA3	LA4
2010	1	332.2	680.6	711.5	572	550	355	0.17%	0.08%	0.05%
2011	2	336.4	690.7	718.6	1,507	1,477	998	0.45%	0.21%	0.14%
2012	3	340.7	700.9	725.7	1,442	1,353	902	0.42%	0.19%	0.12%
2013	4	345.0	711.2	732.9	1,486	1,394	938	0.43%	0.20%	0.13%
2014	5	349.4	721.7	740.2	3,602	3,482	2,354	1.03%	0.48%	0.32%
2015	6	353.9	732.4	747.6	1,719	1,589	1,065	0.49%	0.22%	0.14%
2016	7	358.4	743.3	755.1	1,232	1,140	779	0.34%	0.15%	0.10%
2017	8	363.0	754.3	762.7	1,080	921	617	0.30%	0.12%	0.08%
2018	9	367.6	765.5	770.3	844	659	453	0.23%	0.09%	0.06%
2019	10	372.4	776.9	778.1	909	701	487	0.24%	0.09%	0.06%
2020	11	377.1	788.5	786.0	965	742	515	0.26%	0.09%	0.07%
2025	16	402.1	849.3	826.7	1,210	916	647	0.30%	0.11%	0.08%
2030	21	428.8	915.3	870.2	1,083	804	573	0.25%	0.09%	0.07%
2035	26	457.4	986.9	916.3	1,059	766	552	0.23%	0.08%	0.06%
2040	31	488.1	1,064.9	965.5	969	716	532	0.20%	0.07%	0.06%

[1] Source: Woods & Poole Economics, Inc., 2008.

[2] Source: Tables 4-31a and 4-31b of the Multisale EIS.

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 recovery information is provided below. However, this supplemental information does not in any way change the baseline population and employment projections used to analyze impacts of a typical CPA sale and the OCS Program, the methodologies used, or the conclusions presented in the Multisale EIS or the Supplemental EIS.

Louisiana's economic performance was strong in 2008, despite the overall national slowdown. From December 2007 through November 2008, Louisiana's total nonfarm employment grew by 6,800 jobs to 1,947,600 jobs—an increase of 0.4 percent, which was greater than the rest of the South and the U.S. overall (LED, 2009). Manpower Inc. ranked three of Louisiana's regions in the top 10 nationally for hiring projections for early 2009: Lafayette was first in the Nation; New Orleans came in sixth; and Shreveport/Bossier ranked eighth (LED, 2009). In contrast to the Nation, the greater New Orleans economy has grown, boosted by the large-scale building effort underway. The region's unemployment is a relatively low 4.9 percent, far below the national rate. Unemployment claims nationwide rose 105 percent in the last 6 months of 2008, while at the same time falling 5 percent and 28 percent in New Orleans and the region, respectively (The Brookings Institution and GNOCDC, 2009).

However, the massive destruction from Hurricane Katrina remains widespread. Tens of thousands of residential, commercial, and institutional buildings remain damaged and unoccupied. In Orleans and St. Bernard Parishes, 69,727 and 15,188 residential addresses, respectively, were unoccupied as of September 2008 (The Brookings Institution and GNOCDC, 2009). There is still a shortage of affordable rental housing, and recent data indicates that rents increased 4 percent across the New Orleans metro area from 2008 to 2009, and they are now 52 percent higher than pre-Katrina (The Brookings Institution and GNOCDC, 2009).

The MMS has reexamined the analysis for economic factors presented in the Multisale EIS and the Supplemental EIS, including activities associated with the new areas, based on the additional information presented above. No new significant information was discovered that would alter the impacts for economic factors presented in the two documents; therefore, a new analysis of the potential impacts of

proposed Lease Sale 213 on economic factors is not required. The analysis and potential impacts detailed in the Supplemental EIS still apply for proposed Lease Sale 213.

4.2.15.4. Environmental Justice

The description of the environment for environmental justice can be found in Chapter 3.3.5.10 of the Multisale EIS. Detailed analysis of the routine, accidental, and cumulative impacts of proposed Lease Sale 213 on environmental justice can be found in Chapters 4.2.2.1.15.4, 4.4.14.4, and 4.5.15.4, respectively of the Multisale EIS and the Supplemental EIS. The following is a summary of the impact analysis from the Multisale EIS and the Supplemental EIS.

The new areas are located more than 100 mi (161 km) from the nearest coast and are not projected to increase the overall activity that would result from proposed Lease Sale 213; therefore, the limited activity associated with the new areas will have few impacts and their location means that any impacts that may result are unlikely to be concentrated in an area that could disproportionately impact minority or low-income people.

Because of the presence of an extensive and widespread support system for OCS and associated labor force, the effects of proposed Lease Sale 213 are expected to be widely distributed and, except in Louisiana, little felt. In general, the infrastructural needs generated by proposed Lease Sale 213 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 213 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 peoples, proposed Lease Sale 213 is not expected to have a disproportionate effect on these populations.

Lafourche Parish, Louisiana, will experience the most concentrated effects of proposed Lease Sale 213; 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 disproportionately affected.

Proposed Lease Sale 213 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 due to activities related to proposed Lease Sale 213. Routine impacts associated with proposed Lease Sale 213 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 coasts, accidental spill events associated with proposed Lease Sale 213 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 213 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 (USDOI, MMS, 2001); therefore, the incremental contribution of proposed Lease Sale 213 to the cumulative impacts would also be minor.

A search was conducted for new information published since completion of the Multisale EIS and the Supplemental EIS. Analysis of the Federal Emergency Management Agency's (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 percentages 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 nobody were able to return to damaged neighborhoods—New Orleans would be at risk of losing more than 80 percent of its black population (Logan, 2007).

The Multisale EIS and the Supplemental EIS state 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 following updated information relates to this point.

A follow-up study to Tolbert (1995) focuses on Abbeville, Louisiana, and appears to qualify the researcher's earlier conclusions. One component of the second study (Tolbert 2006) looks at the consequences of a plant closure in Abbeville and finds that, in its wake, more employment opportunities existed within Abbeville than in the surrounding area because, in Abbeville, a growing oil and gas industry was creating alternative labor market opportunities. This finding suggests that a component of a community's industrial composition that is a key source of sustainability in the face of economic fluctuations at one time may be the problem at a different time since Tolbert (2006) identifies the oil industry as a stabilizing force while Tolbert (1995) described it as the problem. The particular lesson in the Abbeville context is that shifts in manufacturing sectors of an economy can be sustained by strong business services and professional sectors, in this case sectors that are also part of the oil industry (1995).

Multiple Internet searches of websites related to the subject of environmental justice found no new information regarding environmental justice issues that relate to offshore petroleum activities in the GOM region. Two ongoing MMS-sponsored socioeconomic studies include a substantial fieldwork in coastal Gulf areas from Texas through Alabama: "History of the Gulf of Mexico Offshore Petroleum Industry, Phase III: Deepwater Developments" and "Gulf Coast Communities and the Fabrication and Shipbuilding Industry: A Comparative Study." These studies have generated no new information regarding environmental justice issues that relate to offshore petroleum activities in this area.

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. No new significant information was discovered that would alter the impacts for environmental justice presented in the two documents; therefore, a new analysis of the potential impacts of proposed Lease Sale 213 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 213.

5. CONSULTATION AND COORDINATION

5.1. SCOPING FOR THE ENVIRONMENTAL ASSESSMENT FOR THE CENTRAL PLANNING AREA'S PROPOSED LEASE SALE 213

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 October 9, 2008, 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 July 23, 2007. One response was received from the Governor of Alabama. This comment was considered in the preparation of this EA.

Scoping and coordination efforts continue throughout the lease sale process and have been conducted since the publication of the Supplemental EIS:

- 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 will offer for sale approximately 5.8 million ac located in the southeastern part of the CPA ("181 South Area"). The SEIS will 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 SEIS. The comment period for the NOI closed on October 11, 2007.

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. Alabama's Department of Natural Resources commented on the Draft Supplemental EIS noting the Governor's opposition to leasing within 15 mi (24 km) of Baldwin County and asking that MMS provide adequate protection for the biological communities and sensitive habitats offshore of Alabama. 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.

On October 9, 2008, MMS published a Notice of Preparation of an EA on proposed Lease Sale 213 in the *Federal Register*. In the notice, MMS requested interested parties to submit comments regarding any new information or issues that should be addressed in the EA. One comment was received from the State of Louisiana. In the letter, the State expressed concern about the environmental impacts to Louisiana caused by mineral exploration and production activities on the OCS. The letter requested that the EA address previously identified shortcomings in MMS's NEPA documents by providing up-to-date scientific analyses of OCS impacts to coastal Louisiana. The letter called the practice of tiering EA's off earlier NEPA documents scientifically unacceptable, and it stated that the practice does not meet the legal burden of considering the environmental impacts of the proposed Federal action. As the Council on Environmental Quality allows, this EA tiers off prior NEPA documents to enable it to focus on new information.

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 and the Supplemental EIS to determine if they are still valid. The MMS GOM Region's Office of Resource Evaluation reviewed the oil and gas resource projections and associated activities for CPA Lease Sale 213 and confirmed that they remain within the range of those projected by MMS for a "typical CPA lease sale." The MMS Headquarters' Oil-Spill Risk Analysis (OSRA) group confirmed that results from the OSRA model summarized in the Multisale EIS and the Supplemental EIS and presented in a separate MMS report (USDOI, MMS, 2007i) are still valid for the proposed lease sale.

Internal scoping also requires MMS subject matter experts/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 analysts and coordinators take an active role in the preparation, execution, and peer review of studies and reports developed under MMS's Environmental Studies Program. In addition, some analysts provide expertise and are involved in additional studies and analyses conducted by other Federal/State agencies and universities concerning GOM issues and interests. 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 these studies and more recent studies are available on the MMS Internet website (http://www.gomr.mms.gov/homepg/regulate/environ/techsumm/rec_pubs.html). Appendix C in the Supplemental EIS lists the MMS-funded hurricane research and studies.

Cumulative analyses are prepared by MMS subject matter experts that consider activities that could occur and may adversely affect GOM resources, including proposed Lease Sale 213, 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	
March 7, 2006	The NOI for the proposed 2007-2012 CPA and WPA lease sales was published in the *Federal Register*. 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.
March 28-30, 2006 *April 6, 2006*	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.

April 28, 2006	The Call for Information and Nominations (Call) for the proposed 2007-2012 lease sales was published in the *Federal Register*. 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.
December 5-7, 2006	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.
December 12, 2006	The EFH programmatic consultation was initiated and completed for the 2007-2012 lease sales, including Lease Sale 213. The NMFS's Southeast Regional Office 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 to 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.
June 28, 2007	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 (USDOI, MMS, 2007j). 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 Louisiana Field Office of FWS on August 3, 2007. The FWS submitted a Letter of Concurrence dated September 14, 2007.
June 29, 2007	The NMFS BO was signed on June 29, 2007, and has been received by MMS. The BO concludes that the proposed lease sales and associated activities in the GOM in the 2007-2012 OCS Leasing Program, including Lease Sale 213, 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's Southeast Regional Office 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	
September 10, 2007	The Call and NOI were published in the *Federal Register*. 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.

October 9-11, 2007	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.
May 13-15, 2008	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.
August 3, 2007	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 (USDOI, FWS, 2007c). 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. 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.
CPA Lease Sale 213 EA Process	
October 9, 2008	On October 9, 2008, MMS published the Call for Information/Notice of Preparation of the Lease Sale 213 EA (Call/NOP) in the *Federal Register*. A 30-day comment period was provided for the Call; it closed on November 10, 2008. The MMS requested comments regarding any new information or issues that the EA should address by the end of the comment period. A 30-day comment period was provided for the NOP; it closed on November 10, 2008. The MMS received one comment letter in response to the NOP. The Louisiana Department of Natural Resources (LDNR) offered comments requesting a full analysis of environmental and hurricane vulnerability matters, requesting up-to-date scientific analyses of OCS impacts to coastal Louisiana and expressing the need to study sociological and economic impacts of OCS service industries moving from one state to another or farther inland after major storm events. The LDNR also requested that MMS provide up-to-date, on-the-ground impacts analyses and incorporate the analyses in the EA.

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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.