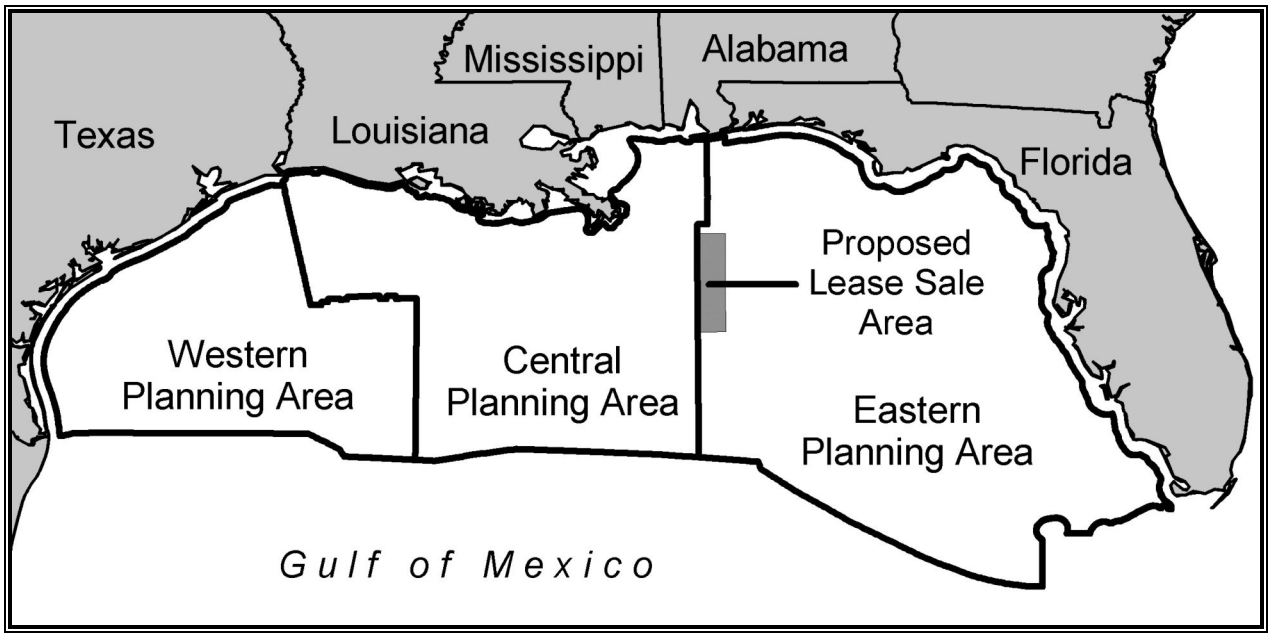
OCS EIS/EA
MMS 2002-056

Gulf of Mexico OCS Oil and Gas Lease Sales 189 and 197

Eastern Planning Area

Draft Environmental Impact Statement

Volume I: Chapters 1-8 and Appendices



MMS
U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

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Author

Minerals Management Service
Gulf of Mexico OCS Region

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REGIONAL DIRECTOR'S NOTE

In the *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007* (the 5-Year Program), two oil and gas lease sales are scheduled for the Eastern Planning Area of the Gulf of Mexico Outer Continental Shelf. This environmental impact statement has been prepared in support of those two proposed lease sales, Lease Sales 189 and 197. Under the 5-Year Program, proposed Lease Sale 189 is scheduled for 2003, while proposed Lease Sale 197 is scheduled for 2005.

Federal regulations allow for several related or similar proposals to be analyzed in one environmental impact statement (40 Code of Federal Regulations 1502.4). Given the similar nature of each proposed lease sale and their projected activities, a multisale environmental impact statement is appropriate. This multisale environmental impact statement will lessen duplication and save resources. At the completion of this environmental impact statement process, a decision will be made only for proposed Lease Sale 189. An additional National Environmental Policy Act review will be conducted in the year prior to proposed Lease Sale 197 to address any new information relevant to that proposed action.

The Gulf of Mexico Outer Continental Shelf Region of the Minerals Management Service has been conducting environmental analyses of the effects of Outer Continental Shelf oil and gas development since the inception of the National Environmental Policy Act of 1969. We have prepared and published more than 40 draft and final environmental impact statements. Our goal has always been to provide factual, reliable, and clear analytical statements in order to inform decisionmakers and the public about the environmental effects of proposed Outer Continental Shelf activities and their alternatives. We view the environmental impact statement process as providing a balanced forum for early identification, avoidance, and resolution of potential conflicts. It is in this spirit that we welcome comments on this document from all concerned parties.

Chris C. Oynes

Chris C. Oynes
Regional Director
Minerals Management Service
Gulf of Mexico OCS Region

COVER SHEET

Draft Environmental Impact Statement for Proposed Eastern Gulf of Mexico Outer Continental Shelf Oil and Gas Lease Sales 189 and 197

	Draft (x)	**Final ( )**
Type of Action:	Administrative (x)	Legislative ( )
Area of Potential Impact:	Offshore Marine Environment and Coastal Counties/Parishes of Texas, Louisiana, Mississippi, Alabama, and northwestern Florida	

Agency:	**Washington Contact:**	**Region Contacts:**
U.S. Department of the Interior Minerals Management Service Gulf of Mexico OCS Region MS 5410 1201 Elmwood Park Boulevard New Orleans, LA 70123-2394	Archie Melancon (MS 4042) U.S. Department of the Interior Minerals Management Service 381 Elden Street Herndon, VA 20170-4817 (703) 787-1547	Michelle Morin (504) 736-2797 Stephanie Gambino (504) 736-2856 Dennis Chew (504) 736-2793

ABSTRACT

This draft environmental impact statement addresses two proposed Federal actions—oil and gas Lease Sales 189 and 197 in the proposed lease sale area of the Eastern Planning Area of the Gulf of Mexico Outer Continental Shelf, as scheduled in the *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007*. The proposed actions are major Federal actions requiring an environmental impact statement. The information provided in this draft environmental impact statement is in accordance with the National Environmental Policy Act and its implementing regulations. This document will be used in making a decision on proposed Lease Sale 189; an additional National Environmental Policy Act review will be conducted in the year prior to proposed Lease Sale 197.

This document includes the purpose and background of the proposed actions, identification of alternatives, description of the affected environment, and an analysis of the potential environmental impacts of the proposed actions, alternatives, and associated activities, including proposed mitigating measures and their potential effects. Potential contributions to cumulative impacts resulting from activities associated with the proposed actions are also analyzed. Hypothetical scenarios were developed on the levels of activities, accidental events (such as oil spills), and potential impacts that might result if a proposed action is adopted. Activities and disturbances associated with a proposed action on biological, physical, and socioeconomic resources are considered in the analyses.

Additional copies of this draft environmental impact statement and the referenced Minerals Management Service publications and visuals may be obtained from the Minerals Management Service, Gulf of Mexico OCS Region, Public Information Office (MS 5034), 1201 Elmwood Park Boulevard, New Orleans, Louisiana 70123-2394, or by telephone at 504-736-2519 or 1-800-200-GULF.

EXECUTIVE SUMMARY

This draft environmental impact statement addresses two proposed Federal actions. The proposed actions (Lease Sales 189 and 197) would offer for lease all unleased blocks in the proposed lease sale area of the Eastern Planning Area in the Gulf of Mexico Outer Continental Shelf (Figure 1) that may contain economically recoverable oil and gas resources. Under the *Outer Continental Shelf Oil and Gas Leasing Program: 2002-2007*, proposed Lease Sale 189 is scheduled for 2003, while proposed Lease Sale 197 is scheduled for 2005. The proposed lease sale area is the same area offered under Lease Sale 181 in 2001. The area is comprised of 256 blocks covering 1.5 million acres in 1,600 to 3,000 meters of water, making each proposed lease sale relatively small in comparison to a Central or Western Gulf of Mexico lease sale. Geographically, the proposed lease sale area is 70 miles from Louisiana, 98 miles from Mississippi, 93 miles from Alabama, and 100 miles from Florida. It is estimated that each proposed lease sale could result in the production of 0.065-0.085 billion barrels of oil, 0.265-0.340 trillion cubic feet of gas, 11-13 exploration and delineation wells, 19-27 development wells, and 2 production structures. There are currently 118 leased blocks within the proposed lease sale area (Figure 2); therefore, 138 blocks would be available for lease. Six exploration plans covering 18 blocks have been submitted in the proposed lease sale area (Figure 3). Four of the six exploration plans have been approved; the other two are pending.

Since proposed Lease Sales 189 and 197 and their projected activities are very similar, this draft environmental impact statement encompasses both proposed lease sales as authorized under 40 Code of Federal Regulations 1502.4, which allows related or similar proposals to be analyzed in one environmental impact statement. At the completion of this environmental impact statement process, a decision will be made only for proposed Lease Sale 189. An additional National Environmental Policy Act review will be conducted in the year prior to proposed Lease Sale 197 to address any new information relevant to that proposed action.

The Outer Continental Shelf Lands Act of 1953 (67 Statute 462), as amended (43 United States Code 1331 and the following (1988)), established Federal jurisdiction over submerged lands on the Outer Continental Shelf seaward of the State boundaries. Under the Act, the United States Department of the Interior is required to manage the leasing, exploration, development, and production of oil and gas resources on the Federal Outer Continental Shelf. The Secretary of the Interior oversees the Outer Continental Shelf oil and gas program and is required to balance orderly resource development with protection of the human, marine, and coastal environments while simultaneously ensuring that the public receives an equitable return for these resources and that free-market competition is maintained. The Act empowers the Secretary of the Interior to grant leases to the highest qualified responsible bidder(s) based on sealed competitive bids and to formulate such regulations as necessary to carry out the provisions of the Act. The Secretary of the Interior has designated the Minerals Management Service as the administrative agency responsible for the mineral leasing of submerged Outer Continental Shelf lands and for the supervision of offshore operations after lease issuance.

Alternatives

Two alternatives are analyzed in this draft environmental impact statement:

Alternative A (Preferred Alternative) — A Proposed Action: This alternative offers for lease all unleased blocks within the proposed lease sale area for oil and gas operations (Figure 2). This area includes 256 blocks covering 1.5 million acres. At present, 118 blocks within this area are under lease. Acreage and block counts are subject to change as leases expire, are relinquished, or terminated.

In this draft environmental impact statement, a proposed action is presented as a set of ranges for resource estimates, projected exploration and development activities, and impact-producing factors (Table 1). Each of the proposed lease sales is expected to be within the scenario ranges; therefore, a proposed action is representative of either proposed Lease Sale 189 or Lease Sale 197. The estimated amounts of resources projected to be developed as a result of a proposed lease sale are 0.065-0.085 billion barrels of oil and 0.265-0.340 trillion cubic feet of gas.

Alternative A has been identified as the Minerals Management Service's preferred alternative; however, this does not mean that another alternative may not be selected in the Record of Decision.

Alternative B — No Action: This alternative is the cancellation of a proposed lease sale. The opportunity for development of the estimated 0.065-0.085 billion barrels of oil and 0.265-0.340 trillion

cubic feet of gas that could have resulted from a proposed lease sale would be precluded or postponed. Any potential environmental impacts resulting from a proposed lease sale would not occur or would be postponed.

Mitigating Measures

Both proposed lease sales include three military stipulations intended to reduce potential multiple-use conflicts between Outer Continental Shelf operations and Department of Defense activities. Endangered Species Act Section 7 Consultations, preformed with the National Oceanic and Atmospheric Administration Fisheries and Fish and Wildlife Service, may determine specific protective measures, such as the Marine protected species stipulation included in previous lease sales. These measures will not be determined until the National Oceanic and Atmospheric Administration Fisheries and Fish and Wildlife Service have completed their Biological Opinions. Application of these stipulations will be considered by the Assistant Secretary of the Interior for Land and Minerals. The analysis of the stipulations as part of a proposed action does not ensure that the Assistant Secretary of the Interior for Land and Minerals will make a decision to apply the stipulations to leases that may result from a proposed lease sale, nor does it preclude minor modifications in wording during subsequent steps in the prelease process if comments indicate changes are necessary or if conditions change. Any stipulations or mitigation requirements to be included in a lease sale will be described in the Record of Decision and Final Notice of Sale for that lease sale. Mitigation measures in the form of lease stipulations are added to the lease terms and are therefore enforceable as part of the lease.

Scenarios Analyzed

Scenarios for a proposed action and the Outer Continental Shelf Program are based on projections of the activities needed to support the extraction of oil and gas resources on leases resulting from a proposed lease sale. The scenarios are presented as ranges of the amounts of undiscovered, unleased hydrocarbon resources estimated to be leased and discovered as a result of a proposed action. The analyses are based on an assumed range of activities (for example, the installation of platforms, wells, and pipelines, and the number of service-vessel trips) that would be needed to develop and produce the amount of resources estimated to be leased.

The cumulative analysis considers environmental impacts that result from the incremental impact of the proposed lease sales when added to all past, present, and reasonably foreseeable future human activities, including non-Outer Continental Shelf activities such as import tankering and commercial fishing, as well as all Outer Continental Shelf activities.

Significant Issues

The major issues that frame the environmental analyses in this draft environmental impact statement are the result of concerns raised during years of scoping for the Gulf of Mexico Outer Continental Shelf Program. Issues related to Outer Continental Shelf exploration, development, production, and transportation activities include oil spills, wetlands loss, air emissions, discharges, water quality degradation, trash and debris, structure and pipeline emplacement activities, platform removal, vessel and helicopter traffic, multiple-use conflicts, support services, population fluctuations, demands on public services, land-use planning, tourism, aesthetic interference, cultural impacts, environmental justice, and consistency with State coastal zone management programs. Environmental resources and activities determined through the scoping process to warrant an environmental analysis are sensitive coastal environments, sensitive offshore resources, water and air quality, marine mammals, sea turtles, coastal and marine birds, commercial fisheries, recreational fishing, recreational resources and activities, archaeological resources, and socioeconomic conditions.

Impact Conclusions

A summary of the potential impacts of a proposed action on each environmental resource and the conclusions of the analyses can be found in Chapter 2.3.1.2. The full analyses are presented in Chapters 4.2 (impacts of routine activities from a proposed action), and 4.4 (impacts of accidental events from a

proposed action). An analysis of cumulative impacts is provided in Chapter 4.5. Below is a general summary of the potential impacts resulting from a proposed action.

Activities relating to a proposed lease sale are expected to minimally affect the land use, infrastructure, and demography of the Gulf Coast States. Existing coastal oil and gas infrastructure is expected to be sufficient to handle activities associated with a proposed action; therefore, no new coastal infrastructure is projected. Only minor economic changes (less than a 1% increase in employment) in the Texas, Louisiana, Mississippi, and Alabama coastal subareas would occur from a proposed lease sale. Employment changes are expected to be met primarily with the existing population and available labor force. The OCS-related fabrication to support a proposed lease sale could occur in Texas, Louisiana, Mississippi, and or Alabama, but not in Florida.

Navigation canals associated with the primary (Port Fourchon and Venice, Louisiana; and Mobile, Alabama) and secondary (including Cameron, Houma, Intracoastal City, and Morgan City, Louisiana; and Pascagoula, Mississippi) service bases would be utilized by a proposed action. The OCS-related vessel traffic and maintenance dredging on these channels would minimally impact wetlands, barrier beaches and associated dunes, and seagrasses. Impacts to coastal water quality from support facilities, vessel discharges, and nonpoint-source runoff are expected to be minimal. Air emissions are not expected to change PSD Class I and II classifications. Routine activities would generate trash and debris that might minimally impact beach mice, birds, and recreational resources located the Gulf States.

Most onshore OCS activities associated with a proposed lease sale are projected to occur in Louisiana; two of the three primary service bases as well as four of the five secondary service bases expected to be used by a proposed action are located in Louisiana. Therefore, Louisiana is expected to receive most of the environmental and socioeconomic impacts from a proposed lease sale. Lafourche Parish (<0.5% within 10 days and <0.5-1% within 30 days) and Plaquemines Parish (1% within 10 days and 2% within 30 days) in Louisiana have >0.5 percent probability of a spill occurring as a result of a proposed action and contacting the shoreline. Alabama and Mississippi would also experience some environmental and socioeconomic impacts (mentioned above), although not as much as Louisiana, because each State has only one projected service base within its boundaries. The majority of impacts to Texas are expected to be economic (employment) in nature. This is due to the fact that most of the OCS-related decisionmaking for a proposed lease sale would take place from the offshore oil and gas industry's corporate headquarters, which are located in Houston, Texas. Texas would experience some minimal environmental impacts. The majority of nonhazardous oil-field waste from a proposed lease sale is projected to be disposed of in Texas. This would add to channel traffic and its related impacts. Florida is expected to experience very little to no economic stimulus and minimal environmental impacts.

Considering all of these impacts, a proposed action is not expected to have a disproportionate adverse environmental or health effect on minority or low-income people due to the population distribution along the Gulf of Mexico.

Impacts on Coastal Environments

Emissions of pollutants into the atmosphere from the activities associated with a proposed action are not projected to have significant impacts on onshore air quality. Emissions from Outer Continental Shelf activity are not expected to have concentrations that would change onshore air-quality classifications. Increases in onshore annual average concentrations of nitrogen dioxide, sulphur dioxide, and particulate matter smaller than 10 microns are estimated to be less than the maximum increases allowed under the Prevention of Significant Deterioration Class I and II programs.

Impacts to coastal water quality from a proposed action are expected to be minimal. The primary impacting sources to water quality in coastal waters are point-source and nonpoint-source discharges from Outer Continental Shelf support facilities and support-vessel discharges.

No significant impacts to the physical shape and structure of barrier beaches and associated dunes are expected to occur as a result of a proposed action. Should an oil spill from a proposed action occur and contact a barrier beach, sand removal during cleanup activities is expected to be minimized.

Adverse initial impacts and, more importantly, secondary impacts of maintenance, continued existence, and the failure of mitigation structures for pipeline and navigation canals are considered the most significant Outer Continental Shelf-related and proposed-action-related impacts to wetlands. Although initial impacts are considered locally significant and are largely limited to where Outer Continental Shelf-related canals and channels pass through wetlands, secondary impacts may have

substantial, progressive, and cumulative adverse impacts to the hydrologic basin or subbasin in which they are found. Offshore oil spills resulting from a proposed action are not expected to significantly damage inland wetlands. The greatest threat to wetland habitat is from an inland spill from a vessel accident or pipeline rupture. While a resulting slick may cause minor impacts to wetland habitat, equipment and personnel used to clean up a slick over the impacted area may generate the greatest direct impacts to the area.

Very little, if any, damage to seagrass communities would occur as a result of channel traffic related to a proposed action. Vessels that vary their inland route from established navigation channels can directly scar beds. Depending upon the submerged plant species involved, narrow scars in dense portions of the beds would take 1-7 years to recover. Scars through sparser areas would take 10 years or more to recover. The broader the scar, the longer the recovery period. Extensive damage to a broad area may never be corrected. Because much of the dredged material resulting from maintenance dredging would be placed on existing dredged-material disposal sites or used for other mitigative projects, no significant adverse impacts are expected to occur to seagrass communities from maintenance dredging related to a proposed action. Inshore spills from vessel collisions or pipeline ruptures pose the greatest potential threat to seagrass communities.

No significant impacts to listed beach mice or the Salt Marsh Vole are expected to occur as a result of a proposed action. Adverse impacts to Alabama, Choctawhatchee, St. Andrew, and Perdido Key beach mice, and the Salt Marsh Vole are unlikely. Impacts may result from consumption of beach trash and debris. No direct impacts from an oil spill are expected. Protective measures required under the Endangered Species Act should prevent any oil-spill response and cleanup activities from having a significant impact to the beach mice and their habitat.

Adverse impacts on endangered/threatened and nonendangered/nonthreatened coastal birds are expected to be sublethal. These effects include behavior changes, eating Outer Continental Shelf-related contaminants or discarded debris, and displacement of localized groups from optimal habitats. Chronic sublethal stress, however, is often undetectable in birds. As a result of stress, individuals may weaken and be prone to infection or disease, have reduced reproductive success, or have disturbed migration patterns. Oil spills pose the greatest potential direct and indirect impacts to coastal birds. If physical oiling of individuals or local groups of birds occurs, some degree of both acute and chronic physiological stress associated with direct and secondary uptake of oil would be expected. Low levels of oil could stress birds by interfering with food detection, feeding impulses, predator avoidance, territory definition, homing of migratory species, susceptibility to physiological disorders, disease resistance, growth rates, reproduction, and respiration. The toxins in oil can affect reproductive success. Indirect effects occur by fouling of nesting habitat, and displacement of individuals, breeding pairs, or populations to less favorable habitats. Dispersants used in spill cleanup activity can have toxic effects similar to oil on the reproductive success of coastal birds. The air, vehicle, and foot traffic that takes place during shoreline cleanup activity can disturb nesting populations and degrade or destroy habitat.

Routine activities resulting from a proposed action are expected to have little impact on Gulf sturgeon. Impacts may occur from resuspended sediments and Outer Continental Shelf-related discharges. Contact with spilled oil could cause irritation of gill epithelium and disturbance of liver function in Gulf sturgeon.

Potential impacts to smalltooth sawfish may occur from jetsam and flotsam, suspended sediments, Outer Continental Shelf-related discharges, and nonpoint runoff from estuarine, Outer Continental Shelf-related facilities. Contact with or ingestion/absorption of spilled oil by smalltooth sawfish could result in mortality or nonfatal physiological impact, especially irritation of gill epithelium and disturbance of liver function. However, because the current population of smalltooth sawfish is primarily found in southern Florida in the Everglades and Florida Keys, impacts to these rare animals from routine activities associated with a proposed action are expected to be miniscule.

A less than 1-percent decrease in fish resources and/or standing stocks or in essential fish habitat would be expected as a result of a proposed action. Coastal environmental degradation resulting from a proposed action is expected to have little effect on fish resources or essential fish habitat. Recovery of fish resources and essential fish habitat can occur from more than 99 percent, but not all, of the expected coastal and marine environmental degradation. Fish populations, if left undisturbed, would regenerate in one generation, but any loss of wetlands as essential fish habitat would be permanent. Oil spills estimated to result for a proposed action would cause less than a 1-percent decrease in standing stocks of any

population. The resultant impact on fish populations within the lease sale areas would be negligible and indistinguishable from variations due to natural causes.

The impact from a proposed action on Gulf Coast recreational beaches is expected to be minimal. A proposed action may result in an incremental increase in noise from helicopter and vessel traffic, nearshore operations that may adversely affect the enjoyment of some Gulf Coast beach uses, and some increases in beached debris. These impacts are expected to have little effect on the number of beach users. Impacts from oil spills are expected to be short-term and localized; a large volume of oil contacting a recreational beach could close the area to recreational use for up to 30 days.

Routine activities associated with a proposed action are not expected to impact coastal historic archaeological resources. It is very unlikely that an oil spill associated with a proposed action would occur and contact coastal historic archaeological sites. The major effect of an oil-spill would be visual contamination of a historic coastal site, such as a historic fort or lighthouse. As historic 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 historic archaeological resources. These impacts would be temporary and reversible.

A proposed action is not expected to impact coastal prehistoric archaeological sites. Should such an impact occur, though, unique or significant archaeological information could be lost. It is unlikely that an oil spill associated with a proposed action would occur and contact coastal, barrier island prehistoric sites. Should such an event occur, unique or significant archaeological information could be irreversibly damaged or lost. Damage might include the loss of radiocarbon-dating potential, direct impact from oil-spill cleanup equipment, and/or looting. Previously unrecorded sites could be impacted by oil-spill cleanup operations on beaches.

Activities resulting from a proposed action are expected to minimally affect the analysis area's land use, infrastructure, or demographic characteristics. A proposed action is expected to generate less than a 1-percent increase in employment in the Texas, Louisiana, Mississippi, and Alabama subareas. Impacts would not be significant because demand would be met primarily with the existing population and available labor force. Accidental events such as oil or chemical spills, blowouts, and vessel collisions would have no effects on land use or demographics. Coastal or nearshore spills could have short-term adverse effects on coastal infrastructure requiring cleanup of any oil or chemicals spilled. The opportunity costs associated with oil-spill cleanup activities are expected to be temporary and of short duration.

A proposed action is not expected to have a disproportionate effect on low-income or minority populations. Impacts related to a proposed action are expected to be economic and have a limited but positive effect on these populations. Accidental spill events associated with a proposed action are not expected to have disproportionate adverse environmental or health effects on minority or low-income people.

Impacts on Offshore Environments

Emissions of pollutants into the atmosphere from offshore facilities are not expected to significantly impact offshore air quality because of emission heights and rates. Accidents involving high concentrations of hydrogen sulfide could result in deaths as well as environmental damage. Other emissions of pollutants into the atmosphere from accidental events as a result of a proposed action are not projected to have significant impacts.

Impacts to marine water quality occur from discharges of drilling fluids and cuttings during exploration and production. Impacts to marine water quality are expected to be minimal as long as all regulatory requirements are met. Spills less than 1,000 barrels are not expected to significantly impact marine water quality. Larger spills, however, could have an impact. Chemical spills, the accidental release of synthetic-based drilling fluid, and blowouts are expected to have temporary localized impacts on marine water quality.

Adverse impacts to pinnacles from routine activities resulting from a proposed action are not expected because requirements for setbacks from these features are established in the Live Bottom (Pinnacle Trend) Stipulation and Topographic Features Stipulations. Adverse impacts from accidental seafloor oil releases or blowouts are expected to be rare because drilling and pipeline operations are not permitted in the vicinity of pinnacles or topographic features. In addition, both pinnacles and topographic features are small in size and dispersed within the areas that they occur; no community-wide impacts are

expected. If contact were to occur between diluted oil and adult sessile biota, including coral colonies in the case of the Flower Garden Banks, the effects would be primarily sublethal and there would be limited incidents of mortality.

No adverse impacts to the ecological function or biological productivity of the widespread, low-density chemosynthetic communities or to the widespread, typical, deep-sea benthic communities are expected to occur as a result of a routine activities or accidental events resulting from a proposed action. The potential for adverse impacts to the rarer, widely scattered, high-density, Bush Hill-type chemosynthetic communities are expected to be greatly reduced by the requirement for Outer Continental Shelf activities to avoid potential chemosynthetic communities by a minimum of 1,500 feet (Notice to Lessees and Operators 2000-G20). High-density chemosynthetic communities could experience minor impacts from drilling discharges or resuspended sediments located at more than 1,500 feet away.

The routine activities related to a proposed action are not expected to have long-term adverse effects on the size and productivity of any marine mammal species or population stock common to the northern Gulf of Mexico. Routine Outer Continental Shelf activities are expected to have impacts that are sublethal. Small number of marine mammals could be harmed or killed by chance collisions with service vessels or by eating indigestible trash and plastic debris from proposed-action-related activities. Populations of marine mammals in the northern Gulf are expected to be exposed to residuals of oils spilled as a result of a proposed action during their lifetimes. Chronic or acute exposure may result in the harassment, harm, or mortality to marine mammals occurring in the northern Gulf. In most foreseeable cases, exposure to hydrocarbons persisting in the sea following the dispersal of an oil slick would result in sublethal impacts to marine mammals.

The routine activities resulting from a proposed action are unlikely to have significant adverse effects on the size and recovery of any sea turtle species or population in the Gulf of Mexico. Routine activities are expected to have sublethal impacts. Adverse impacts are localized degradation of water quality from operational discharges near platforms; noise from helicopters, service vessels platform and drillship operations; and disorientation caused by brightly-lit platforms. Sea turtles could be harmed or killed from chance collisions with service vessels and from eating floating plastic debris from proposed-action-related activities. Accidental blowouts, oil spills, and spill-response activities resulting from a proposed action have the potential to impact small to large numbers of sea turtles in the Gulf of Mexico. Populations of sea turtles in the northern Gulf would be exposed to residuals of oils spilled as a result of a proposed action during their lifetimes. Chronic or acute exposure may result in the harassment, harm, or mortality to sea turtles occurring in the northern Gulf. In most foreseeable cases, exposure to hydrocarbons persisting in the sea following the dispersal of an oil slick would result in sublethal impacts to sea turtles. Death would likely occur to sea turtle hatchlings exposed to, becoming fouled by, or consuming tarballs.

Adverse impacts on endangered/threatened and nonendangered/nonthreatened marine birds are expected to be sublethal. These effects include behavior changes, eating Outer Continental Shelf-related contaminants or discarded debris, and displacement of localized groups from optimal habitats. Chronic sublethal stress, however, is often undetectable in birds. As a result of stress, individuals may weaken and be prone to infection or disease, have reduced reproductive success, or have disturbed migration patterns. Oil spills pose the greatest potential direct and indirect impacts to marine birds. If physical oiling of individuals or local groups of birds occurs, some degree of both acute and chronic physiological stress associated with direct and secondary uptake of oil would be expected. Low levels of oil could stress birds by interfering with food detection, feeding impulses, predator avoidance, territory definition, homing of migratory species, susceptibility to physiological disorders, disease resistance, growth rates, reproduction, and respiration. The toxins in oil can affect reproductive success. Indirect effects occur by fouling of nesting habitat, and displacement of individuals, breeding pairs, or populations to less favorable habitats. Dispersants used in spill cleanup activity can have toxic effects similar to oil on the reproductive success of marine birds.

A less than 1-percent decrease in fish resources and/or standing stocks or in essential fish habitat would be expected as a result of a proposed action. Marine environmental degradation resulting from a proposed action is expected to have little effect on fish resources or essential fish habitat. Recovery of fish resources and essential fish habitat can occur from more than 99 percent, but not all, of the expected coastal and marine environmental degradation. Fish populations, if left undisturbed, would regenerate in one generation. Impacts are expected to result in less than a 1-percent change in commercial fishing "pounds landed" or in the value of landings. Oil spills estimated to result for a proposed action would

cause less than a 1-percent decrease in standing stocks of any population, commercial fishing efforts, landings, or value of those landings. The resultant impact on fish populations and commercial fishing activities within the lease sale areas would be negligible and indistinguishable from variations due to natural causes. Any affected commercial fishing activity would recover within 6 months.

Petroleum structures installed in the proposed lease sale area could attract limited additional recreational fishing activity. The 100-mile travel distance from shore would be substantial, but not insurmountable. Each structure would function as a de facto artificial reef, attract sport fish, and improve fishing prospects in the immediate vicinity of platforms. This impact would last for the life of the structure, until the structure is removed from the location and the marine environment. The estimated number and size of potential oil spills associated with a proposed action are unlikely to decrease recreational fishing activity but may divert the location or timing of a few planned fishing trips.

Routine activities associated with a proposed action are not expected to impact offshore historic or prehistoric archaeological resources. The greatest potential impact to an offshore historic archaeological resource would result from direct contact between an offshore activity and a historic shipwreck. The archaeological survey and archaeological clearance required prior oil and gas activities on a lease are expected to be highly effective at identifying and protecting archaeological resources. Offshore oil and gas activities resulting from a proposed action could contact a shipwreck because of incomplete knowledge on the location of shipwrecks in the Gulf of Mexico. Although this occurrence is not probable, such an event could result in the disturbance or destruction of important historic archaeological information. Should an offshore prehistoric archaeological site be contacted by proposed-action-related activities, unique or significant archaeological information could be lost.

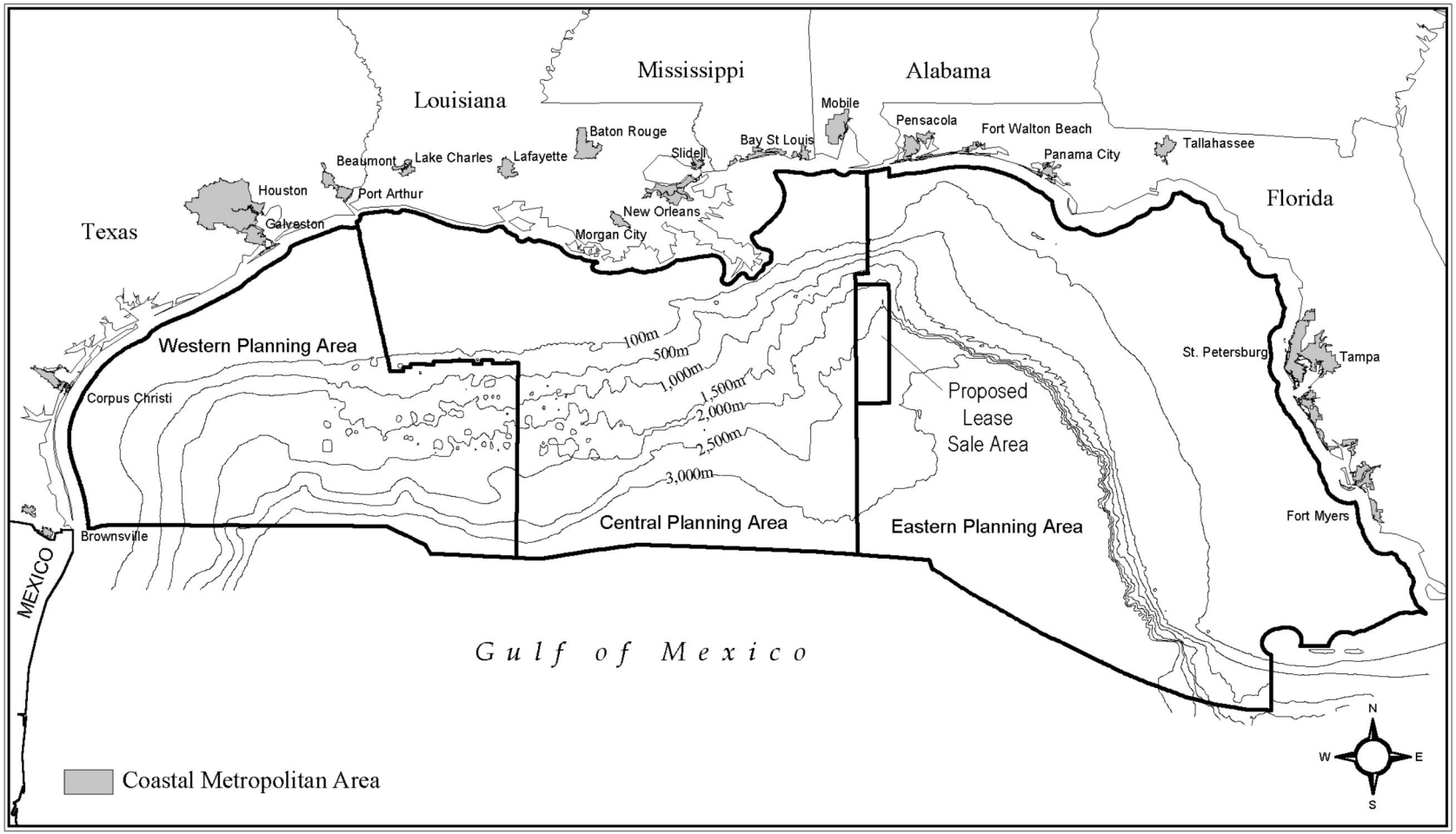

Figure 1. Gulf of Mexico Outer Continental Shelf Planning Areas and Locations of Major Cities.

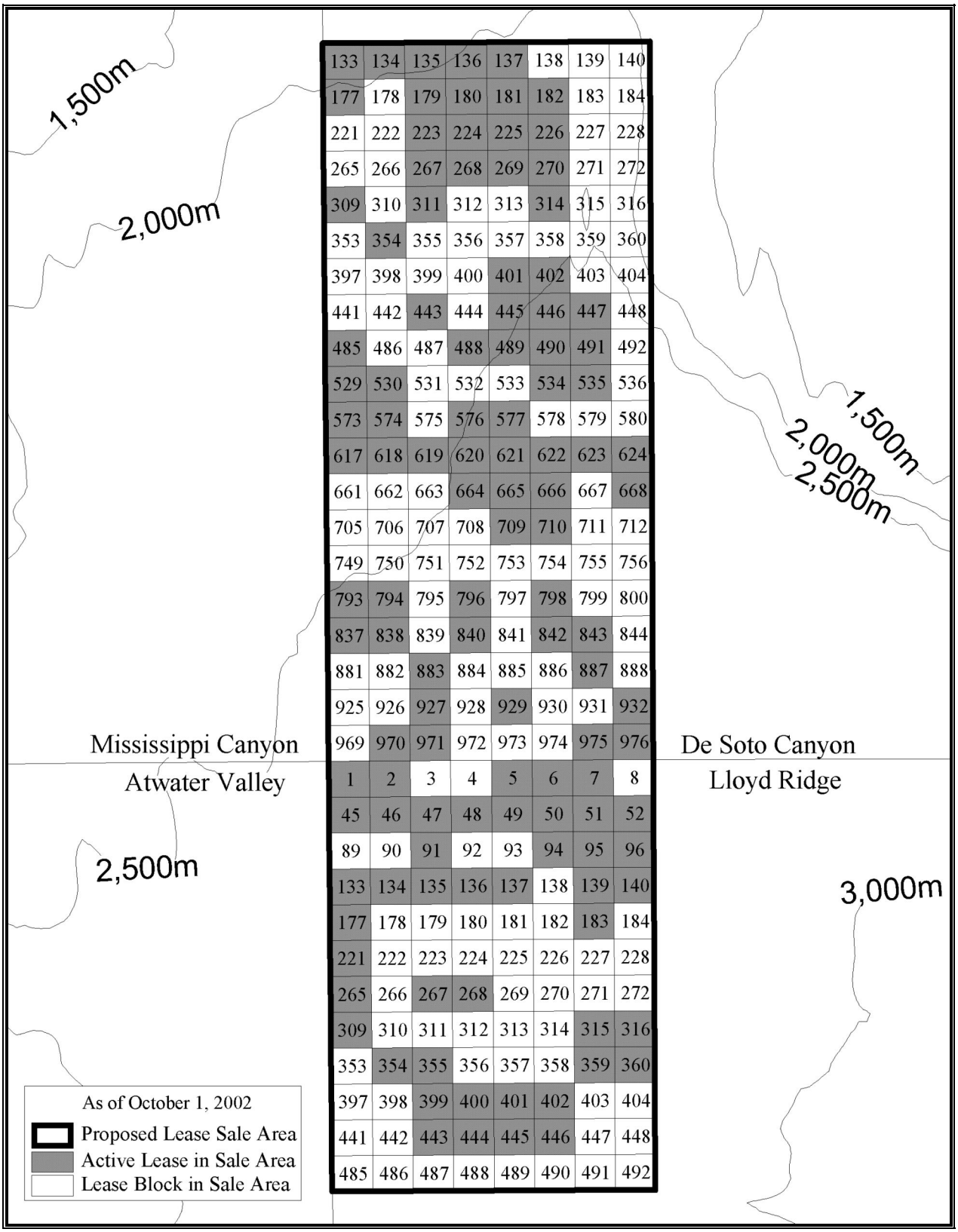

Figure 2. Approved and Pending Plans Submitted in the Proposed Lease Sale Area.

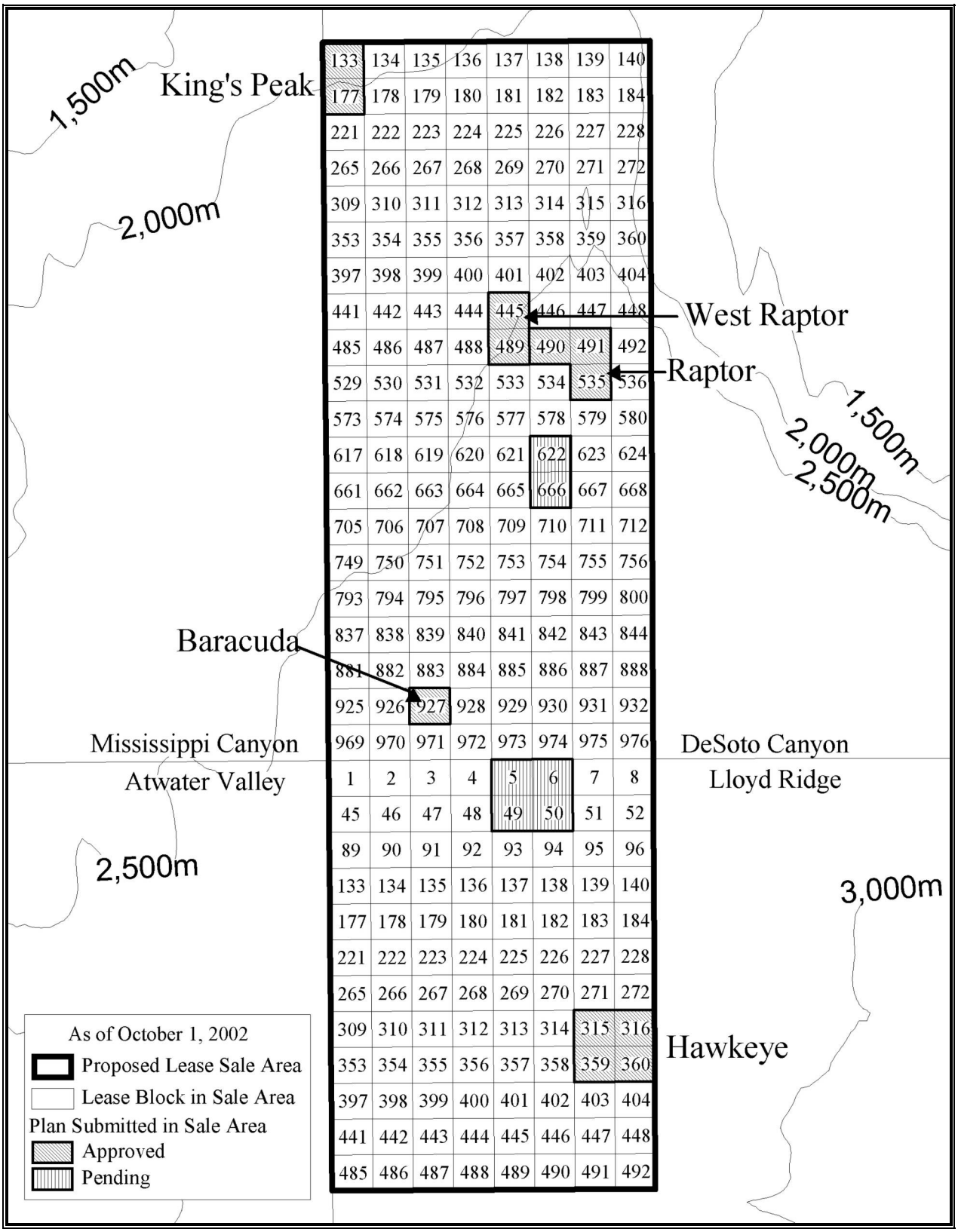

Figure 3. Approved and Pending Plans Submitted in the Proposed Lease Sale Area.

Table 1

Offshore Scenario Information Related to a Proposed Action in the Eastern Planning Area

	Offshore Subareas		Total EPA*
	E1600-2400	E>2400	
Wells Drilled			
Exploration and Delineation Wells	4 - 5	7 - 8	11 - 13
Development Wells	7 - 10	12 - 17	19 - 27
Oil Wells	5 - 6	9 - 12	14 - 18
Gas Wells	2 - 4	3 - 5	5 - 9
Workovers and Other Well Activities	29 - 42	50 - 71	80 - 111
Production Structures			
Installed	1	1	2
Removed Using Explosives	0	0	0
Total Removed	1	1	2
Method of Oil Transportation			
Percent Piped	100%	100%	100%
Percent Barged	0%	0%	0%
Percent Tankered	0%	0%	0%
Length of Installed Pipelines (km)	NA	NA	50 - 800
Blowouts	0 - 1	0 - 1	0 - 1
Service-Vessel Trips (1,000 trips)	4 - 4	4 - 5	8 - 9
Helicopter Trips (1,000 trips)	4 - 4	4 - 5	7 - 9

*Subarea totals may not add up to the planning area total because of rounding.
NA means that information is not available.