WELCOME

to this

Public Meeting
for the 2017-2022 Draft Gulf of Mexico
Multisale Environmental Impact Statement

Ground Rules

- Be respectful.
- Focus your comments on the EIS and process.
- Provide comments via the written comment form or with the court reporter.
- Limit one person at a time with the court reporter for 3 minutes.
- If you have a question, please ask.
- Set cell phones to silent.
- No backpacks allowed – Bag checks may be required.
- No signs or masks.

BOEM
Bureau of Ocean Energy Management

STATION OVERVIEW

WELCOME

Information for how the open house meeting works. Each station is described below. If you need help, a staff member will be able to direct you to the appropriate stations.

INFORMATIONAL VIDEO

Watch an informational video that explains how the process works.

WHAT'S IN THE EIS?

Learn more about the Gulf of Mexico Draft Multisale EIS and NEPA process for proposed leases during 2017-2022.

TOPICS FOR ENVIRONMENTAL ANALYSIS

Learn about the different alternatives, how resource experts conducted their analysis, and where you can learn more about the potential impacts for each resource.

HOW TO HAVE YOUR VOICE HEARD

Learn how to provide meaningful comments.

- Written Comments (may be left at the registration table)
- Oral Comments (court reporter)

The Comment Period is open until June 6, 2016.

HOW TO HAVE YOUR VOICE HEARD

You can provide written and/or oral comments at the public meetings

Or

You can email comments to
multisaleeis2017-2022@boem.gov

Or

You can submit comments through the regulations.gov web portal:

– Navigate to http://www.regulations.gov
– Search for "2017-2022 GOM Multisale EIS"
(Note: It is important to include the quotation marks)
– Click on "Comment Now!" button to the right of the document link.
– Enter your information and comment, then click "Submit"

Or

You can mail or hand deliver comments labeled "Comments on the 2017-2022 GOM Multisale EIS" to

Mr. Gary D. Goeke, Chief
Environmental Assessment Section
Office of Environment (GM 623E)
1201 Elmwood Park Boulevard
New Orleans, Louisiana 70123-2394

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www.BOEM.gov

How to Comment – from the *Citizens Guide to NEPA*

Comments may be the most important contribution from citizens.

- **Comments should be clear, concise, and relevant to the analysis of the proposed action.**
- **Take the time to organize thoughts and edit the document submitted.**
- **Solution-oriented comments and specific examples will be more effective than those that simply oppose the proposed project.**
- **Comments that contribute to developing alternatives that address the purpose and need for the action are also effective. They are particularly helpful early in the NEPA process during scoping.**
- **Focus on the purpose and need of the proposed action, the proposed alternatives, the assessment of the environmental impacts of those alternatives, and the proposed mitigation.**
- **Commenting is not a form of "voting" on an alternative. The number of negative comments an agency receives does not prevent an action from moving forward.**
- **General comments that state an action will have "significant environmental effects" will not help an agency make a better decision unless the relevant causes and environmental effects are explained.**

https://ceq.doe.gov/nepa/Citizens_Guide_Dec07.pdf

BOEM FACT SHEET

BUREAU OF OCEAN ENERGY MANAGEMENT

BOEM manages the responsible exploration and development of offshore energy and marine mineral resources on the U.S. Outer Continental Shelf (OCS). The bureau promotes energy independence, environmental protection and economic development through responsible management of these resources based on the best available science.

BOEM's offshore oil and gas leasing program considers environmental, social and economic values of the nation's domestically produced energy supply. OCS production accounts for about 24 percent of domestic crude oil and eight percent of domestic natural gas supply. In Fiscal Year 2012, federal leasing revenues for the OCS exceeded $8 billion. The sales value of the oil and gas resources amounted to about $60 billion, and generated about $120 billion in total spending in the economy. These expenditures supported about 700,000 domestic jobs.

As an emerging part of the nation's all-of-the-above energy portfolio, BOEM's OCS renewable energy program provides a new source of domestic energy supply with less carbon emissions. It offers the prospect of more domestic jobs and wages, as well as increased revenues from lease bonuses, rentals on acreage leased, and production operating fees. In the future, BOEM anticipates development of offshore renewable energy from three sources: wind energy, ocean wave energy, and ocean current energy.

In addition to its offshore energy responsibilities, BOEM manages appropriate access to OCS marine minerals such as sand and gravel. BOEM has conveyed 73 million cubic yards of OCS sediment resources for 37 coastal restoration projects in five states, restoring more than 198 miles of coastline. These projects protect billions of dollars of infrastructure and ecological habitats.

Key functions of the bureau include:

- The BOEM **Office of Strategic Resources** is responsible for the development of the **Five Year Outer Continental Shelf (OCS) Oil and Natural Gas Leasing Program.** The office also oversees assessments of oil, gas and other mineral resource potential of the OCS, inventories oil and gas reserves, develops production projections, conducts economic evaluations to ensure fair market value is received by U.S. taxpayers for OCS leases, and prepares official maps and GIS data for the OCS.

- BOEM conducts **Oil and Gas Lease Sales**, and negotiates **Sand and Gravel** agreements. Coastal nourishment projects – or beach nourishment – are one of the primary uses of sand and gravel.

- The BOEM **Office of Renewable Energy Programs** oversees orderly, safe, and environmentally responsible renewable energy development activities on the OCS. The program grants leases, easements, and rights of way for offshore renewable energy. In keeping with the "Smart from the Start" wind energy initiative launched in 2010 by Interior Secretary Ken Salazar, BOEM works directly with federal, state, local and tribal governments through 12 renewable energy task forces. These valuable stakeholder groups help identify wind energy areas and issues related to upcoming offshore renewable energy projects.

- BOEM's **Office of Environmental Programs** conducts environmental reviews, including *National Environmental Policy Act* (NEPA) analyses for each major stage of offshore energy development planning. These analyses inform the bureau's decisions on the Five Year Program and energy leasing and development activities. Additionally, BOEM conducts and oversees environmental studies to inform policy decisions relating to the management of energy and marine mineral resources on the OCS.

- BOEM has three regional offices: New Orleans, La., Camarillo, Calif., and Anchorage, Alaska. The regional offices manage oil and gas resource evaluations, environmental studies and assessments, leasing activities, including the review of exploration plans and development plans, fair market value determinations, and geological and geophysical permitting.

BOEM Organizational Structure

BOEM | FACT SHEET

BUREAU OF OCEAN ENERGY MANAGEMENT

Environmental Studies Program

Applied Science for Informed Decisions on Ocean Energy

The Bureau of Ocean Energy Management (BOEM) manages the responsible exploration and development of energy and mineral resources on the Outer Continental Shelf (OCS). The bureau promotes energy independence, environmental protection and economic development through responsible management of these resources based on the best available science. To support this work and inform bureau policy decisions, BOEM's **Environmental Studies Program** (ESP) plans, conducts and oversees world-class scientific research.

These environmental studies cover a broad range of disciplines, including physical oceanography, atmospheric sciences, biology, protected species, social sciences, economics, submerged cultural resources and the environmental impacts of energy development. BOEM incorporates findings from the studies program into its environmental reviews and National Environmental Policy Act (NEPA) documents, which are used to determine steps to avoid, mitigate, or monitor the impact of energy and mineral resource development on the OCS.

Through the ESP, BOEM is a leading contributor to the growing body of scientific knowledge about the marine and coastal environment. The bureau has funded nearly $1 billion in research since the beginning of its studies program in 1973. Completed studies are available to the public through the Environmental Studies Program Information System (ESPIS). This system includes more than 1,100 technical summaries of BOEM-sponsored environmental research projects, and over 3,300 research reports. To learn more about BOEM's ongoing environmental studies work, go to: http://www.boem.gov/studies.

BOEM oversees scientific research conducted through contracts, cooperative agreements with state institutions or universities, and interagency agreements. These arrangements enable the bureau to leverage resources, meet national priorities and satisfy common needs for robust scientific information. The ESP also regularly conducts studies with partners under the umbrella of the National Oceanographic Partnership Program, including several award-winning studies. The *Studies Development Plan* for 2013-2015 summarizes research priorities and potential new studies for the next three years, subject to the availability of funds.

Input is provided into the ESP by the **OCS Scientific Committee**, which was established to advise the Secretary of the Interior, through the BOEM Director, on the feasibility, appropriateness, and scientific value of the program. Members of the committee are appointed by the Secretary of the Interior based on their scientific competence, reputation within their field of expertise, and ability to evaluate important elements of BOEM's research and science information efforts. For more information about the OCS Scientific Committee, go to: http://www.boem.gov/About-BOEM/Public-Engagement/Federal-Advisory-Committees/OCS-Scientific-Committee/Index.aspx.

Additionally, the Department of the Interior established a **Scientific Integrity Policy** in 2011 to ensure and maintain the integrity of scientific and scholarly activities used in Departmental decision making. BOEM has fully adopted the policy and is committed to securing independent, peer-reviewed environmental research, which is considered during every stage of the decision-making process. The Department of the Interior Scientific Integrity Policy is available at: http://www.doi.gov/scientificintegrity/index.cfm.

Ongoing Environmental Studies by Region & Program

Alaska Studies

Ongoing studies in Alaska focus on protected and endangered species; physical oceanography; wildlife biology; subsistence and traditional knowledge; and economic modeling. Given the current interest in oil and gas development in the Beaufort and Chukchi Seas, many studies are focused on understanding Arctic resources. The ESP is actively seeking opportunities to collaborate with other federally and privately funded Arctic science programs.

Gulf of Mexico Studies

Ongoing studies in the Gulf of Mexico focus on impacts of the Deepwater Horizon oil spill, archeological and biological research, chemosynthetic communities, deepwater corals and the Loop Current. The ESP has pioneered social and economic research on the complex network of interrelationships among the energy industry and the GOM region. The cooperative relationship with Louisiana State University in the Coastal Marine Institute program celebrated its 20th anniversary in 2012.

Pacific Studies

The ESP has pioneered ocean research along the entire Pacific Coast of the United States. The current program includes platform biology studies, a long-standing highly acclaimed multi-agency intertidal monitoring program and recently initiated studies to support renewable energy development. In many cases, the results of the ESP represent the only research of that type ever conducted in the ocean along the coast.

Atlantic Studies

In support of the Energy Policy Act of 2005, ESP is collecting information to be used in assessing the environment in support of renewable energy development. This includes a suite of studies that are addressing the distribution of birds and bats on the Outer Continental Shelf. The socioeconomic consequences of offshore wind development are also being evaluated, with studies covering space use conflicts, visual impacts, and associated economic effects.

National Studies

The National Studies Program works across the Bureau to develop, manage and disseminate the scientific information needs of BOEM. Studies managed by the National Studies Program include archiving of OCS invertebrates by the Smithsonian, renewable energy space-use conflicts, marine mammal research, and support of the Oil Spill Modeling Program.

-BOEM-

BOEM
Bureau of Ocean Energy Management

FACT SHEET

Research Related to the *Deepwater Horizon* Oil Spill

In response to the tragic *Deepwater Horizon* (DWH) explosion and resulting oil spill in the Gulf of Mexico in 2010, the Department of the Interior launched reforms that represent the most aggressive and comprehensive changes to offshore oil and gas regulation and oversight in U.S. history. This was done to help ensure that the United States can safely and responsibly expand development of its domestic energy resources.

As our commitment and duty to the American people, BOEM and our colleagues in the Bureau of Safety and Environmental Enforcement (BSEE) will remain vigilant in instituting reform efforts and lessons learned since the tragic DWH spill event. Our goals are to ensure safe and environmentally responsible operations on the Outer Continental Shelf (OCS), the long-term improvement and restoration of the Gulf Coast, and protection of other unique ecosystems of the OCS. Below find summaries of some of the research either completed or in progress related to the 2010 spill. Over the years, we will continue to monitor and report impacts of the spill and improve our oil spill modeling capabilities.

Impact on Gulf Coast residents, communities, and businesses in the first 20 months after the oil spill

Almost from the day of the spill, BOEM, as part of the former Minerals Management Service, re-directed a research team already in the area working on a different project. The new project focused on five key regional economic sectors—offshore oil and gas, fishing, tourism, shipbuilding and fabrication, and retail—and on non-governmental organizations (NGOs), the claims process, and the impacts on different ethnic groups. The study's success is largely due to the study team's ability to document the spill's social effects as they unfolded. Often such information is lost in the heat of the moment.

The study takes place in a region highly involved in the oil industry and accustomed to different types of disasters. Some of the effects of the spill were mitigated by the knowledge, understanding, expertise and mechanisms in place. Conversely, the spill's impacts were heightened by recent, severe hurricanes and flooding and by the fact that even short-term BOEM regulatory actions after the spill might have effects on areas highly involved in the OCS industry. The two-volume study report can be found online in BOEM's Environmental Studies Program Information System at:

"Offshore Oil and Deepwater Horizon: Social Effects on Gulf Coast Communities Volume I: Methodology, Timeline, Context, and Communities."

"Offshore Oil and Deepwater Horizon: Social Effects on Gulf Coast Communities Volume II: Key Economic Sectors, NGOs, and Ethnic Groups."

Aerial surveys to predict the trajectory of the oil slick

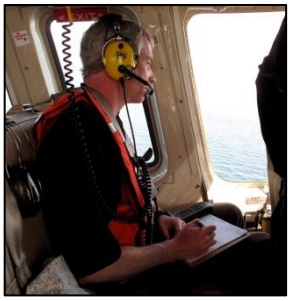
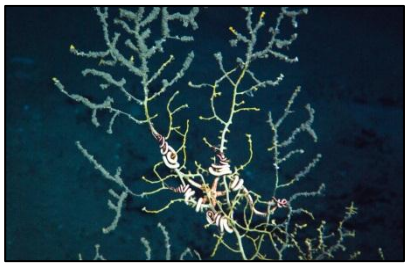


Photo credit: NOAA

On April 20, 2010, BOEM was conducting a comprehensive and international physical oceanographic study of the Loop Current in the Eastern Gulf of Mexico. In addition, the bureau had supplied temperature probes to the University of Miami as part of aerial survey research to gauge how tropical storms or hurricanes interact with the Loop Current. When the DWH event occurred, these aerial surveys were re-directed to support the real-time observations of the Loop Current, used to predict the trajectory of the oil slick. This invaluable data set of ocean temperature and currents was published as part of the American Geophysical Union's Monograph Series in 2011 entitled "Monitoring and Modeling the Deepwater Horizon Oil Spill: A Record-Breaking Enterprise." Data provided by BOEM's oil spill modeling group for this study informed NOAA observers during their aerial surveys of the DWH spill.
Data set link: www.rsmas.miami.edu/groups/upper-ocean-dynamics/research/oil-spill/

Impact of the spill on coral habitats

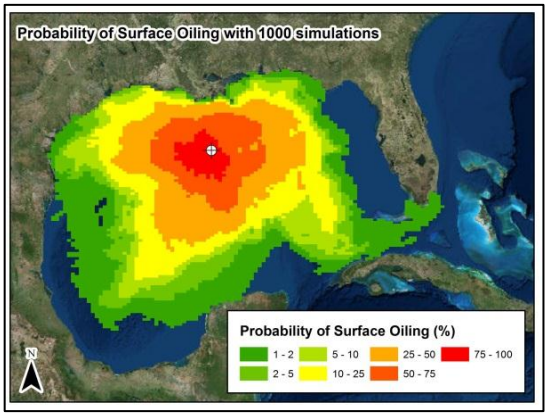


The bureau immediately saw the opportunity to adapt another ongoing study in the summer of 2010 to investigate the impacts of the DWH spill. Supported by BOEM, NOAA's Office of Exploration and Research and U.S. Geological Survey, this large interagency partnership study had been going on for almost two years. Entitled "Exploration and Research of Northern Gulf of Mexico Deepwater Natural and Artificial Hard Bottom Habitats with Emphasis on Coral Communities: Reefs, Rigs and Wrecks," (also known as *Lophelia* II), its purpose was to discover and explore deepwater coral habitats in water depths ranging from 1,000 to 9,000 feet. Adapted to focus on DWH-related impacts, researchers sought to identify potential coral habitats near the blowout site, including any located in the direction of a documented subsurface oil plume. Scientists discovered the first impacted deepwater coral habitat in November 2010. Immediately following the spill, BOEM's *Lophelia* II study manager became the initial lead of the National Resource Damage Assessment (NRDA) Technical Working Group (TWG) for Deep-Sea Corals. Some of the principal investigators from the *Lophelia* II study were encouraged to join the TWG and began developing the first new study to continue investigations of impacts to the deep-sea corals discovered in 2010. Additional cruises followed, funded by NRDA and other entities.

Other findings from *Lophelia* II have significantly improved our understanding of deepwater coral ecosystems in the Gulf of Mexico and beyond, including new depth records for *Lophelia pertusa*, corals'

genetic patterns, and new archaeological sites. The interim report is available here and a video on the project can be found here. *Top photo: An image of the impacted gorgonian coral, taken on Nov. 2, 2010, at the end of the expedition. Lower photo: A down-looking mosaic of a coral community at 1400m depth, including a variety of hard and soft corals. (Images courtesy of* Lophelia *II 2009 Expedition.)*

Oil spill modeling study



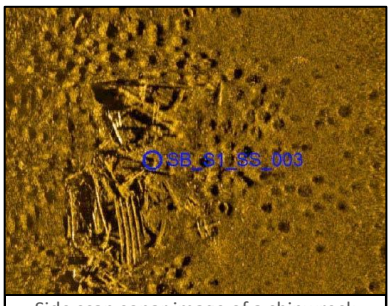
BOEM's oil spill modeling study is developing a next-generation 3D blowout model. The study is informed by the wealth of data collected during the DWH spill. Oil transport during the event was impacted by many factors, including the unique properties of released oil and gas, application of sub-surface dispersants, and degradation and weathering processes. These factors are included in an advanced oil spill model in order to fully assess implications of the blowout. BOEM's primary goal is to learn from alternative scenario runs performed using the new model in order to inform oil spill risk assessment in the Gulf of Mexico. Simulation Modeling of Ocean Circulation and Oil Spills in the Gulf of Mexico (GM-11-02).

Photo: Illustration from the study showing the surface oiling probability for 1000 simulations using hindcasts from HYCOM currents and NOGAPS winds from 2006 to 2008. A 30 day spill with a constant release rate and 500 particles used to represent the oil was employed.

Using social science to assess the impact of the oil spill on tourism

The DWH oil spill had an adverse impact on many tourism-related businesses such as hotels, restaurants, retailers, and tour operators. Investigators analyzed DWH claims, news reports, employment data, and conducted interviews with people involved in the tourism industry to better understand the impacts. The impacts of the spill were spread across various geographic areas, and the extent of the impacts on people and businesses were shaped by various factors, such as the structure of an area's economy, clean-up activities, the reparations process, and public perceptions. Tourism rebounded after the initial decline and employment was relatively stable in most areas following DWH. The Technical Announcement is available here.

Investigating the impact on potential shipwreck sites



Side scan sonar image of a shipwreck recorded during the study.

Submerged cultural resources, such as historic shipwrecks, are especially vulnerable to environmental or human-induced damage. Historic shipwrecks are unique—each site has its own place in our collective history and has a story to tell. Unfortunately, damage to shipwrecks is permanent and irreversible. BOEM's Marine Minerals Program issues permits for the use of Federal OCS sand resources for State coastal restoration and protection projects. During the DWH spill, emergency response plans included dredging offshore sand to

create sediment barriers against the encroaching oil. As part of this and all other OCS sand extraction projects, archaeological surveys are conducted prior to sand removal to ensure that no historically significant sites are damaged by dredging operations.

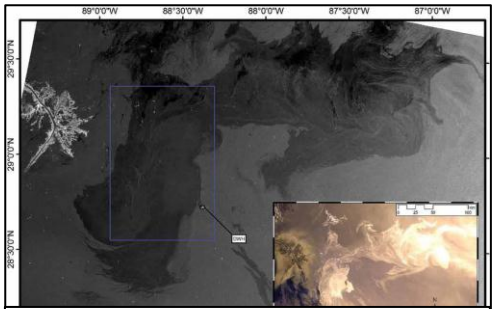
As a result, BOEM funded a study to investigate potential historic shipwreck sites that may have been affected by previous sand extraction projects, including the DWH spill response, to determine if BOEM's archaeological avoidance and mitigation strategies are effective. The results of this study will be used to inform future decision making regarding archaeological site protection during BOEM-permitted dredging of OCS sediments for coastal restoration projects. This study will also document and interpret any historically significant shipwrecks that may be identified during these investigations, including nominating any eligible properties to the National Register of Historic Places. For more information about this study, please see the study profile.

In addition, recognizing that no studies of the DWH spill were examining potential impacts to historic shipwrecks in deep water within the spill area, BOEM initiated and funded a major study in 2013. Federal, academic, and private sector partners include the U.S. Naval Research Laboratory, George Mason University, BSEE, and C&C Technologies, Inc., among others. The "Gulf of Mexico Shipwreck Corrosion, Hydrocarbon Exposure, Microbiology, and Archaeology project (GOM-SCHEMA)", is examining impacts from the 2010 spill on 19th century wooden-hulled and World War II-era metal-hulled shipwrecks and their resident microbial communities. BOEM seeks to understand how shipwrecks within the spill area and their microbial communities were affected by exposure to oil and chemical dispersants as compared to shipwrecks outside of the spill area. Ultimately, we hope to better understand how impacts to microbial communities may alter the shipwreck microbiome, natural wood degradation and metal corrosion processes, their long-term preservation, and the role of shipwrecks as deepwater ecosystems.

For more information about the GOM-SCHEMA project, please see the project website. BOEM's study profiles for this project are available at: GM-13-03a, GM-13-03b, and GM-13-03c.

Photo Info: Close-up view of the Ewing Bank Wreck's bow showing copper sheathing attached to the wooden hull and a diverse community of corals, anemones, and other biota. This 19th century ship now rests in more than 2,000 feet of water. (Photo by Global Explorer ROV. Image courtesy of BOEM, July 2014.)

Fate and movement of spilled oil in surface waters



Synthetic Aperture Radar (SAR) taken on May 24, 2010 showing dark features near the Deepwater Horizon oil platform that are thought to be surface oil slicks, with a corresponding MERIS image in the lower right inset.

Aspects of the fate and movement of spilled oil in surface waters during the DWH event were captured by multiple remote sensing platforms deployed during the response efforts in 2010 after the explosion. An overarching goal of an ongoing BOEM study is to better understand the movement of surface-oil in the Gulf of Mexico, using satellite and aerial imagery.

The study is led by Florida State University, with Dr. Ian MacDonald managing the effort. The research uses data from a combination of remote sensing platforms and the best existing algorithms for determining surface oil spatial extent

and thickness. These data and algorithms have been crucial in determining the true extent and characterization of DWH surface oil, and have also informed the Natural Resource Damage Assessment (NRDA) process. The study team is also using physical oceanographic and wind forcing models to identify the factors that influence oil transport. This is part of the long-term monitoring and research we are conducting to determine various impacts of the spill. The study profile is available here .

Analysis of the DWH spill impacts on the seafood industry

Some of the most severe and complex economic effects of the DWH spill were on the Gulf of Mexico seafood industry. While there have been some prior analyses of parts of these effects, one of our studies builds a framework for analyzing these economic effects in aggregate. In particular, this study is creating a model that examines the effects of initial shocks (such as the spill event) throughout the supply chains of various fisheries. In particular, the model estimates the impacts of a change in fishermen's revenues for a certain species (such as shrimp or oysters) to harvesters, dealers, processors, distributors, marketers, and restaurants. This study also entails a descriptive analysis of the DWH impacts on the seafood industry, which provides context to the model's results. While this study does not—and could not—answer all questions regarding the impacts of the spill, it provides a useful framework for understanding the impacts to the seafood industry that future researchers can build upon. BOEM can also use the results from this study to analyze the effects of various potential future events on the seafood industry. Read more here.

Assessment of oil spill impacts on coastal archaeological sites

BOEM is committed to preservation of the Nation's archaeological and historic sites. A study titled, "Assessment of the Effects of an Oil Spill on Coastal Archaeological Sites," was funded in 2014 in response to concerns by the State of Louisiana for coastal archaeological sites that may have been adversely affected by the DWH spill and spill response. So far, archaeologists have completed test excavation on five archaeological sites that may have been impacted by the spill. Seven more sites are likely to be examined before the study is completed in late 2017. This research also highlights how BOEM is seeking diverse scientific analyses on the impacts of the spill by utilizing expertise in anthropology, archaeology, chemistry, environmental sciences, geology, and even nuclear engineering from many universities, Federal and State agencies, and private scientific institutions. Our study partners and collaborators include the following: University of Louisiana at Lafayette, Louisiana Division of Historic Preservation in the Office of Cultural Development, Louisiana Department of Wildlife and Fisheries, Louisiana Universities Marine Consortium, Louisiana Archaeological Survey and Antiquities Commission, the Gulf Coast Cooperative Ecosystem Studies Unit, Louisiana State University, Beta Analytic Laboratory, University of Missouri and the University of North Carolina, Wilmington. Read more.

Reforms since the *Deepwater Horizon* Tragedy

In response to the *Deepwater Horizon* blowout, explosion and resulting oil spill in the Gulf of Mexico in 2010, the Department of the Interior launched the most aggressive and comprehensive reforms to offshore oil and gas regulation and oversight in U.S. history. This included restructuring to provide independent regulatory agencies that have clear missions and are better resourced to carry out their work, while keeping pace with a rapidly evolving industry. These efforts help ensure that the United States can safely and responsibly expand development of its domestic energy resources.

Bureau of Safety and Environmental Enforcement

The comprehensive reforms undertaken by the Bureau of Safety and Environmental Enforcement (BSEE) touch all facets of the offshore oil and gas program and cover components of its regulatory and oversight responsibilities as well as the promotion of a culture of safety and investments in the latest scientific safety and technology. A few highlights of BSEE efforts are described below:

Reducing Risk through Enhanced Well Design and Casing Standards – The 2010 Drilling Safety Rule requires that permit applications for drilling projects meet heightened standards for well-design, casing and cementing. BSEE engineers have reviewed, analyzed, and approved a total of 676 new well permits for drilling in the Gulf of Mexico since October 2010, when the new rule went into effect.

Workforce Realignment – BSEE has realigned its functions and personnel under a new national program model. The Bureau now includes a Safety Enforcement Division (SED) and Safety and Incident Investigations Division (SIID). The SED monitors the execution and effectiveness of the enforcement activity, while the SIID establishes national policies regarding investigator training and procedures for investigations.

Increasing Inspection and Engineering Workforce –The number of inspectors in the BSEE Gulf of Mexico OCS Region has increased from 55 in April 2010 to 107 currently. BSEE inspectors now specialize in well or production operations; this specialization allows for more training and time devoted to a specific area of inspection. The engineer workforce has increased from 106 at BSEE's inception in October 2011 to 210 currently. This allows for the increased review of permits and more analysis to ensure compliance with the enhanced standards.

Promoting Safety Culture and Continuous Improvement at All Levels of Industry – The 2010 Safety and Environmental Management System (SEMS) rule establishes performance based standards for industry to maintain an active integrated program for safety and environmental management that empowers workers to participate in safety management decisions. As of November 2013, BSEE had received audit reports from 96% of OCS operators. BSEE continues to work with operators on corrective action plans.

Enhancing Blowout Preventer (BOP) Testing and Maintenance Review – BSEE inspectors must now be on location and observe BOP testing prior to drilling commencing at the rig site. This allows BSEE inspectors to witness first-hand the skill level of the drilling crews and provide more oversight of the crew's handling of the BOP function. Since October 2010, BSEE inspectors have monitored 225 on-site BOP tests. Inspectors also conduct detailed reviews of results from BOP tests; 604 of these detailed reviews have been completed since October 2010.

Emerging Technology – BSEE funded the start-up costs for the Ocean Energy Safety Institute to provide recommendations and technical assistance to BSEE related to emerging technologies and serve as an important source of unbiased, independent information. In a separate initiative in 2014, BSEE established a Technology Center to serve as a resource to BSEE engineers who review and approve the use of new technology by the offshore oil and gas industry.

Decommissioning Costs Reporting Rule – In order to better understand and estimate the future decommissioning costs related to OCS leases, rights-of-way, and rights of use and easement, BSEE now requires offshore oil and gas lessees and owners of operating rights to submit summaries of their actual expenditures for the decommissioning of wells, platforms, and other facilities. The rule was finalized in December 2015.

Well Control Rule – BSEE has been working to increase equipment reliability and build upon enhanced industry standards for blowout preventers and, in a comprehensive way, address the multiple systems and processes critical to well control operations. The final rule was completed in April 2016 and operators must now demonstrate that they have access to all necessary equipment for subsea well control and containment in order to get approval of deepwater operations.

Reforms since the *Deepwater Horizon* Tragedy

Bureau of Ocean Energy Management

The comprehensive reforms implemented by the Bureau of Ocean Energy Management (BOEM) are designed to ensure that – before plans from industry are approved for exploration or development – environmental safeguards are strong and based on the best science available. In addition, the bureau has taken action to raise the cap on industry liability for oil spills and to provide its expertise in long-term Gulf of Mexico restoration and recovery. A few highlights of BOEM's efforts are described below:

Strengthening environmental review – BOEM is conducting comprehensive site specific environmental assessments for all initial deepwater exploration plans in accordance with the National Environmental Policy Act in order to strengthen the framework designed to ensure that environmental risks are thoroughly analyzed, appropriate protective measures are implemented, and that environmental analyses are transparent and well-understood within the Federal government and by the public and stakeholders.

Focus on science-based decision-making – A new Office of Environmental Programs (OEP), led by a Chief Environmental Officer, was established in 2011. This allows better integration of science into decision-making at every stage of the oil and gas development process and facilitates top-quality research by talented scientists from a range of disciplines.

Environmental research focused on Gulf of Mexico Monitoring, Recovery and Renewal – BOEM has focused on long-term monitoring, recovery and renewal of the Gulf of Mexico by conducting studies with federal, university and industry partners. These studies investigate impacts of the oil and dispersants on marine resources, develop state-of-the-art tools for modeling oil spill transport, and analyze social and economic recovery from oil spill impacts.

Thorough review of exploration and development plans – Enhanced web-based review of plans has helped ensure that companies are complying with rigorous operational and environmental standards and that BOEM's reviews are efficient and transparent. The bureau is modernizing plan review through web-based applications and has added an evaluation process for reviewing information related to the potential for an oil spill that is submitted to the agency by the industry.

Improving Worst Case Discharge calculations – Rigorous Worst Case Discharge (WCD) calculations are required for the offshore oil and gas industry. BOEM engineers and geoscientists validate the assumptions and calculations and conduct independent analyses of the WCD scenarios included in operators' plans.

Improving accuracy in air quality modeling – BOEM announced proposed updated air quality regulations that will more accurately account for and more effectively address emissions from offshore oil and gas activity, effectively ensuring that those activities do not significantly harm the air quality of any state -- giving coastal communities and stakeholders greater confidence regarding expected air quality impacts from OCS activity.

Long-term ecosystem health and restoration – BOEM is a key federal partner in carrying out the goals of the RESTORE Act. Through research and coastal restoration expertise, BOEM contributes to the framework for a long-term program to restore the natural resources of the Gulf of Mexico and Gulf Coast region.

Increasing limits of liability – BOEM has implemented new strategies to hold responsible parties accountable. BOEM has increased the limit of liability for oil-spill related damages from $75 million to approximately $134 million for offshore oil and gas facilities – the maximum allowed under the law – and has established a process for future increases to keep pace with inflation.

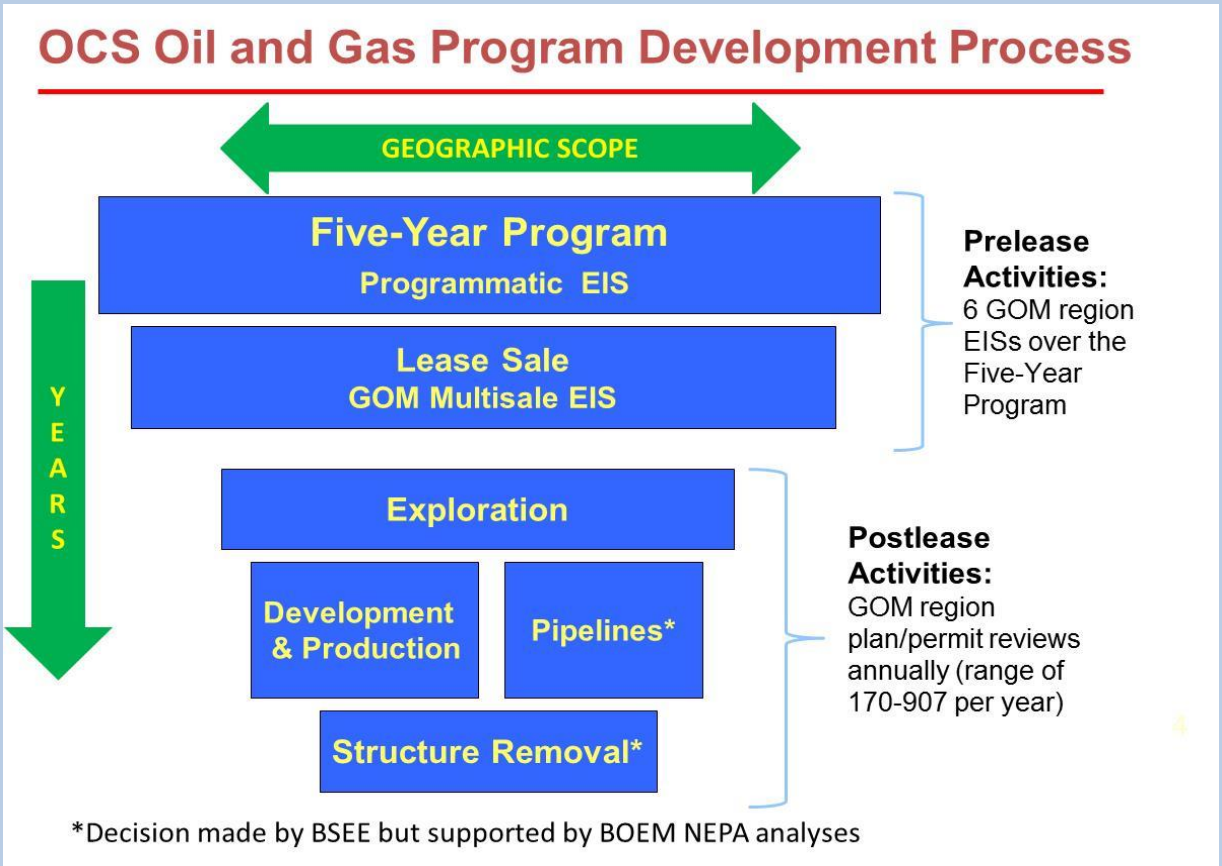
Developing shared standards in the Arctic – BOEM and BSEE have published proposed standards specific to the Arctic to ensure that operators take the necessary steps to thoroughly plan for and conduct safe exploratory drilling operations under unique Arctic conditions

The Department of the Interior Commitment

Central to the nation's domestic energy portfolio, the Outer Continental Shelf (OCS) provides about one-fifth of the oil produced in the country, with production projected to increase in the coming years. As our commitment and duty to the American people, BOEM and BSEE will remain vigilant in instituting reform efforts and lessons learned since the tragic *Deepwater Horizon* event. Our goals are to ensure safe and responsible operations on the OCS, the long-term improvement and restoration of the Gulf Coast, and protection of other unique ecosystems of the OCS.

Scope of the DEIS

- The Outer Continental Shelf Lands Act of 1953 (**OSCLA**) requires a schedule of proposed lease sales every 5 years.
- **BOEM** proposes to conduct 10 regionwide lease sales in the 2017-2022 5-Yr Program.
- **OSCLA** requires a decision on each individual lease sale, therefore, the **alternatives and analysis of potential impacts focus on a single lease sale**.
- Five alternatives are considered
- Activities as a result of a lease sale are likely to occur over a 50-year timeframe



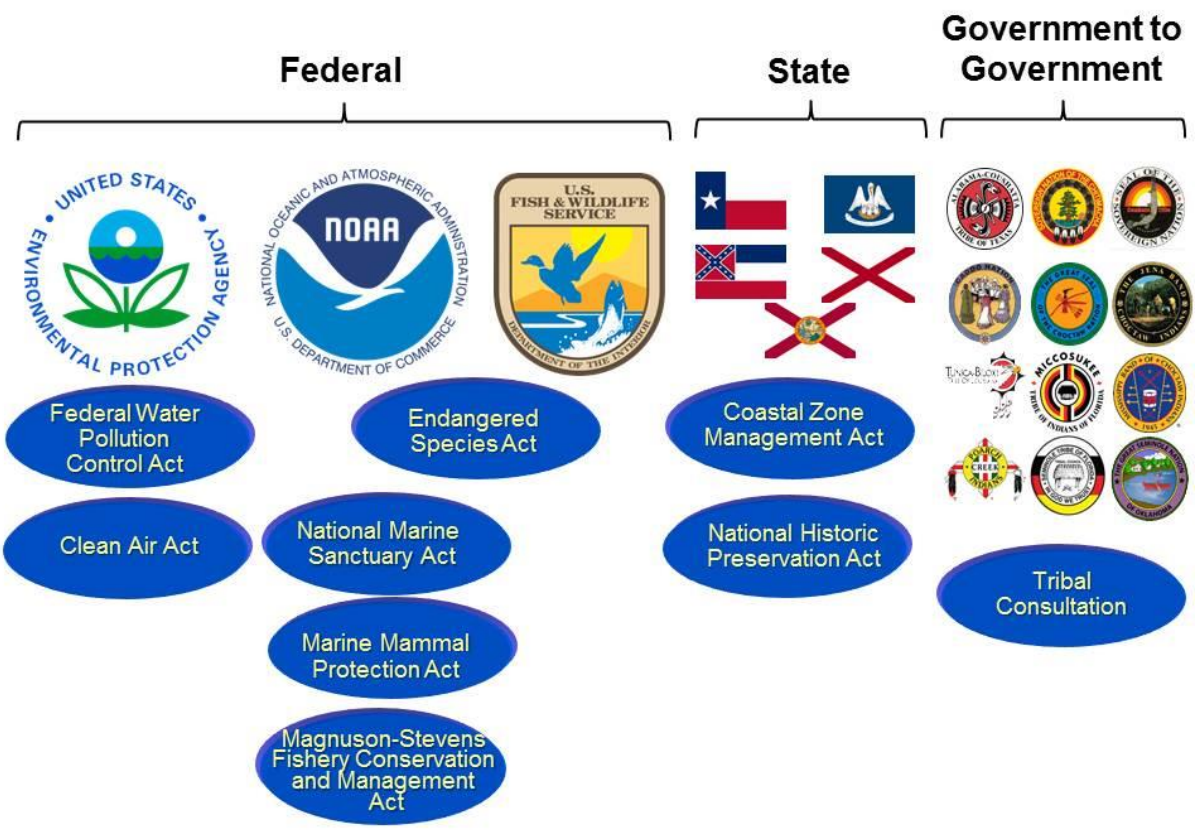
Organization of the DEIS

- **Chapter 1** describes the Purpose and Need for the Proposed Action.
- **Chapter 2** describes the potential lease sale options and the alternatives; the potential mitigating measures, including the proposed stipulations, and the issues considered and not considered in the analysis; the deferred alternatives; and provides a broad comparison of impacts by alternative.
- **Chapter 3** describes all the potentially occurring actions associated with a single lease and the cumulative activities.
- **Chapter 4** describes the affected environment and the potential impacts of a single lease sale and each alternative by resource. Analysis includes routine activities, accidental events, cumulative impact analysis, incomplete or unavailable information, and conclusions for each resource.
- **Chapter 5** describes the consultation and coordination efforts.
- **Chapter 6** includes all the references.
- **Chapter 7** is a list of all the preparers.
- **Chapter 8** is a glossary of terms.
- **Appendices** – Supporting Technical Information

Supplemental Approach for Regional Lease Sales

Dec 2016 — Programmatic EIS for the OCS Oil and Gas Leasing Program
Nationwide (Includes All Regions: Alaska, Pacific, Gulf of Mexico, Atlantic)

	Federal Action	Decision Document	
April 2017			Gulf of Mexico (GOM) **Multisale EIS** 2017
August 2017	Sale 249	ROD	
			GOM **Supplemental EIS** 2018
March 2018	Sale 250	ROD	
August 2018	Sale 251	ROD	
			GOM **Supplemental EIS** 2019
March 2019	Sale 252	ROD	
August 2019	Sale 253	ROD	
			GOM **Supplemental EIS** 2020
March 2020	Sale 254	ROD	
August 2020	Sale 256	ROD	
			GOM **Supplemental EIS** 2021
March 2021	Sale 257	ROD	
August 2021	Sale 259	ROD	
			GOM **Supplemental EIS** 2022
March 2022	Sale 261	ROD	



Description of the Affected Environment and Impact Analysis

- 4.1 Air Quality 4-11
- 4.2 Water Quality..... 4-37
- 4.3 Coastal Habitats 4-50
- 4.4 Deepwater Benthic Communities..... 4-93
- 4.5 *Sargassum* 4-122
- 4.6 Live Bottom Habitats..... 4-137
- 4.7 Fishes & Invertebrates..... 4-184
- 4.8 Birds..... 4-203
- 4.9 Protected Species..... 4-223
  - Marine Mammals, Sea Turtles, Beach Mice, Protected Birds, and Protected Corals
- 4.10 Commercial Fisheries 4-313
- 4.11 Recreational Fishing 4-323
- 4.12 Recreational Resources..... 4-338
- 4.13 Archaeological Resources 4-356
- 4.14 Human Resources and Land Use 4-371
- 4.15 Unavoidable Adverse Impacts 4-184
- 4.16 Irreversible and Irretrievable Commitment of Resources 4-203

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Chapter 3 – Impact Producing Factors and Scenario

- The scenario for each alternative is defined as a set of ranges for resource estimates, projected exploration and development activities, and impact-producing factors.
- *Routine Activities* include those expected to occur during some phase of a typical sale such as G&G, drilling exploration and production wells, transport, decommissioning, etc.
- *Accidental Events* would include things like accidental air emissions, pipeline failures, collisions, oil spills and response activities, etc.
- *Cumulative Activities* includes activities such as state O&G activities, hypoxia, military activities, and natural processes (e.g. hurricanes) among others.

Chapter 4 - Affected Environment And Impact Analysis

- Describes the potential impacts of routine activities, reasonably foreseeable accidental events, and cumulative impacts caused by a proposed lease sale and the alternatives on these resources.
  - –Including incomplete and unavailable information
- Impact-Producing Factors and Impact-Level Definitions are tailored and unique to each resource analyzed.
  - –Potential impacts with and without mitigation are described by resource

Alternatives and Impact Summary

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- 2.2.2.3 Alternative C-WPA Lease Sale …… 2-10
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Table 2-2. Alternative Comparison Matrix

Impact Level Key				
Beneficial	Negligible	Minor	Moderate	Major

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Air Quality	Minor	Minor	Minor	Minor
Water Quality	Minor	Minor	Minor	Minor
Estuarine Systems	Minor	Negligible	Negligible	Negligible to Minor
Coastal Barrier Beaches and Associated Dunes	Negligible	Negligible	Negligible	Negligible
Deepwater Benthic Communities	Negligible to Minor	Negligible to Minor	Negligible to Minor	Negligible to Minor
Sargassum and Associated Communities	Negligible	Negligible	Negligible	Negligible
Live Bottoms	Negligible to Minor	Negligible to Minor	Negligible to Minor	Negligible
Topographic Features				
Pinnacles and Low-Relief Features	Negligible to Minor	Negligible to Minor	Negligible to Minor	Negligible
Fishes and Invertebrate Resources	Negligible to Moderate	Negligible to Moderate	Negligible to Moderate	Negligible to Moderate
Birds	Moderate	Moderate	Moderate	Moderate
Protected Species	Negligible to	Negligible to	Negligible to	Negligible to
Marine Mammals	Moderate	Moderate	Moderate	Moderate
Sea Turtles	Negligible to Moderate	Negligible to Moderate	Negligible to Moderate	Negligible to Moderate
Beach Mice	Negligible	Negligible	Negligible	Negligible
Protected Birds	Negligible to Moderate	Negligible to Moderate	Negligible to Moderate	Negligible to Moderate
Protected Corals	Negligible to Minor	Negligible to Minor	Negligible to Minor	Negligible to Minor
Commercial Fisheries	Beneficial to Minor	Beneficial to Minor	Beneficial to Minor	Beneficial to Minor
Recreational Fishing	Negligible to Minor	Negligible to Minor	Negligible to Minor	Negligible to Minor
Recreational Resources	Beneficial to Minor	Beneficial to Minor	Beneficial to Minor	Beneficial to Minor
Archaeological Resources	Negligible	Negligible	Negligible	Negligible
Human Resources and Land Use	Negligible to	Negligible to	Negligible to	Negligible to
Land Use and Coastal Infrastructure	Major	Major	Major	Major
Economic Factors	Negligible to Minor	Negligible to Minor	Negligible to Minor	Negligible to Minor
Social Factors (including Environmental Justice)	Minor	Minor	Minor	Minor

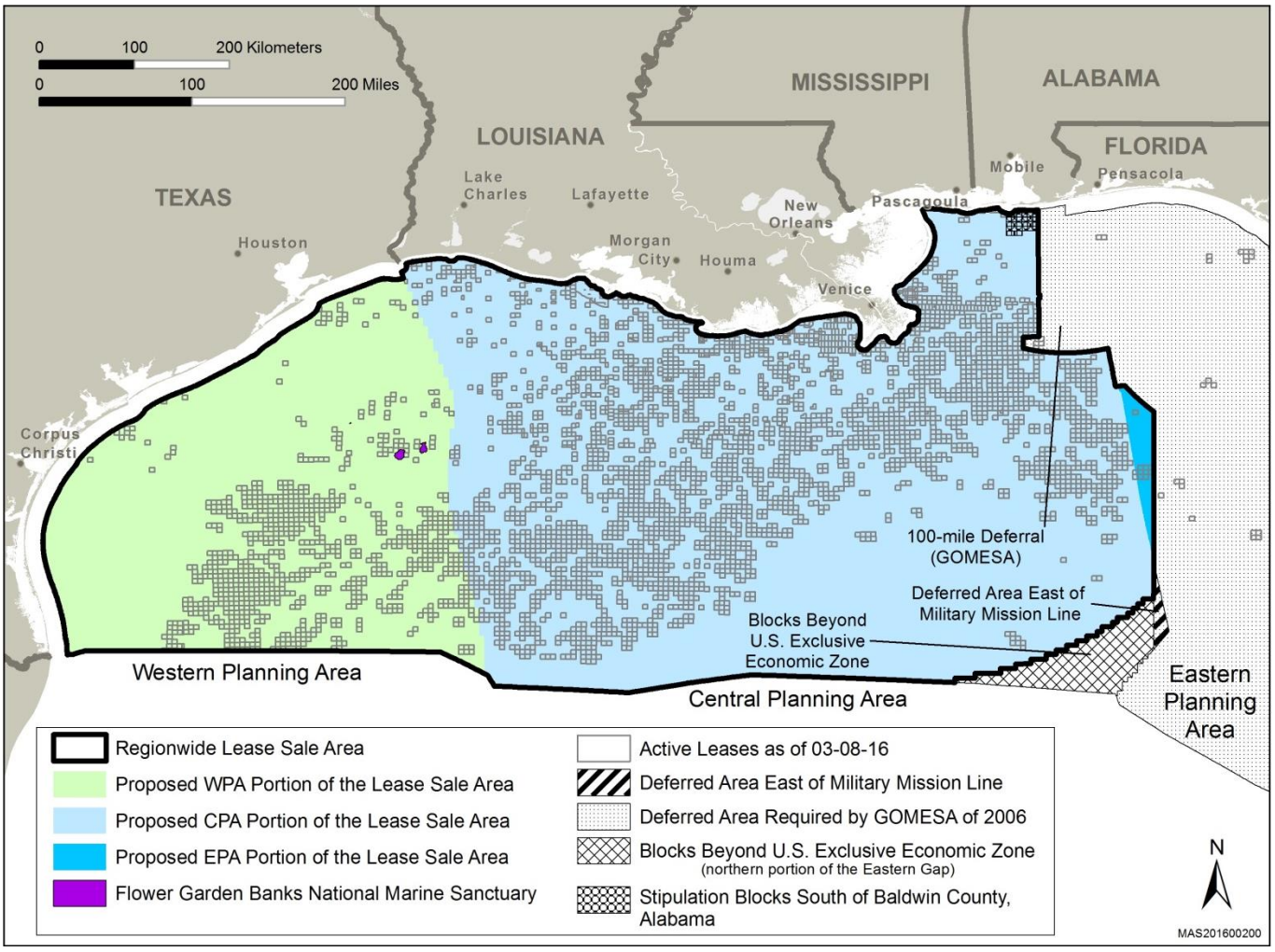
*** See Chapter 4.14 for more information on potential *major* impacts**

Alternative A—Regionwide OCS Lease Sale (The Preferred Alternative)

(1) Whole and portions of blocks deferred by the Gulf of Mexico Energy Security Act of 2006;

(2) Blocks that are adjacent to or beyond the United States' Exclusive Economic Zone in the area known as the northern portion of the Eastern Gap; and

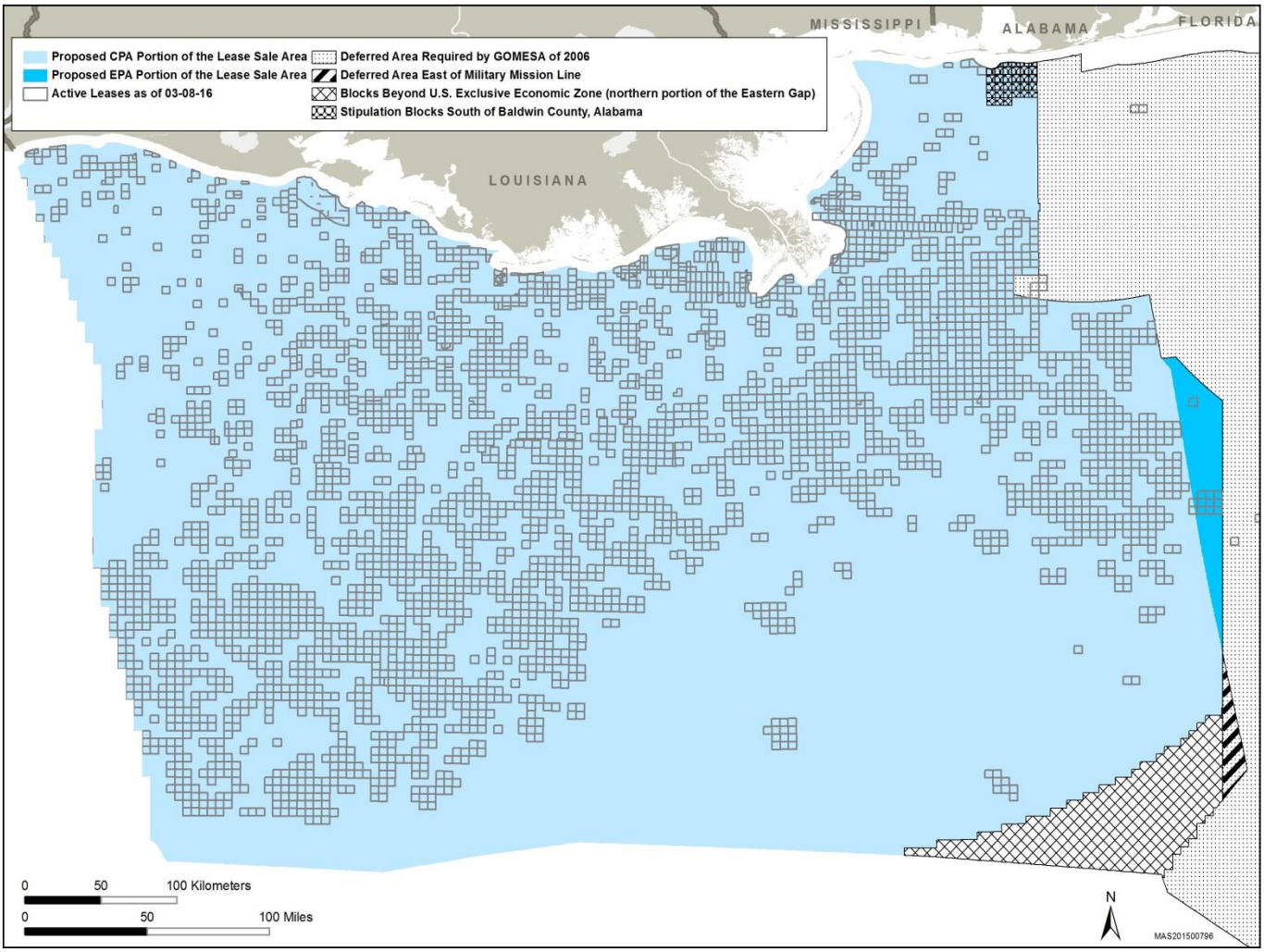
(3) Whole and partial blocks within the boundary of the Flower Garden Banks National Marine Sanctuary.



Alternative B—Lease Sale Excluding Blocks in the WPA

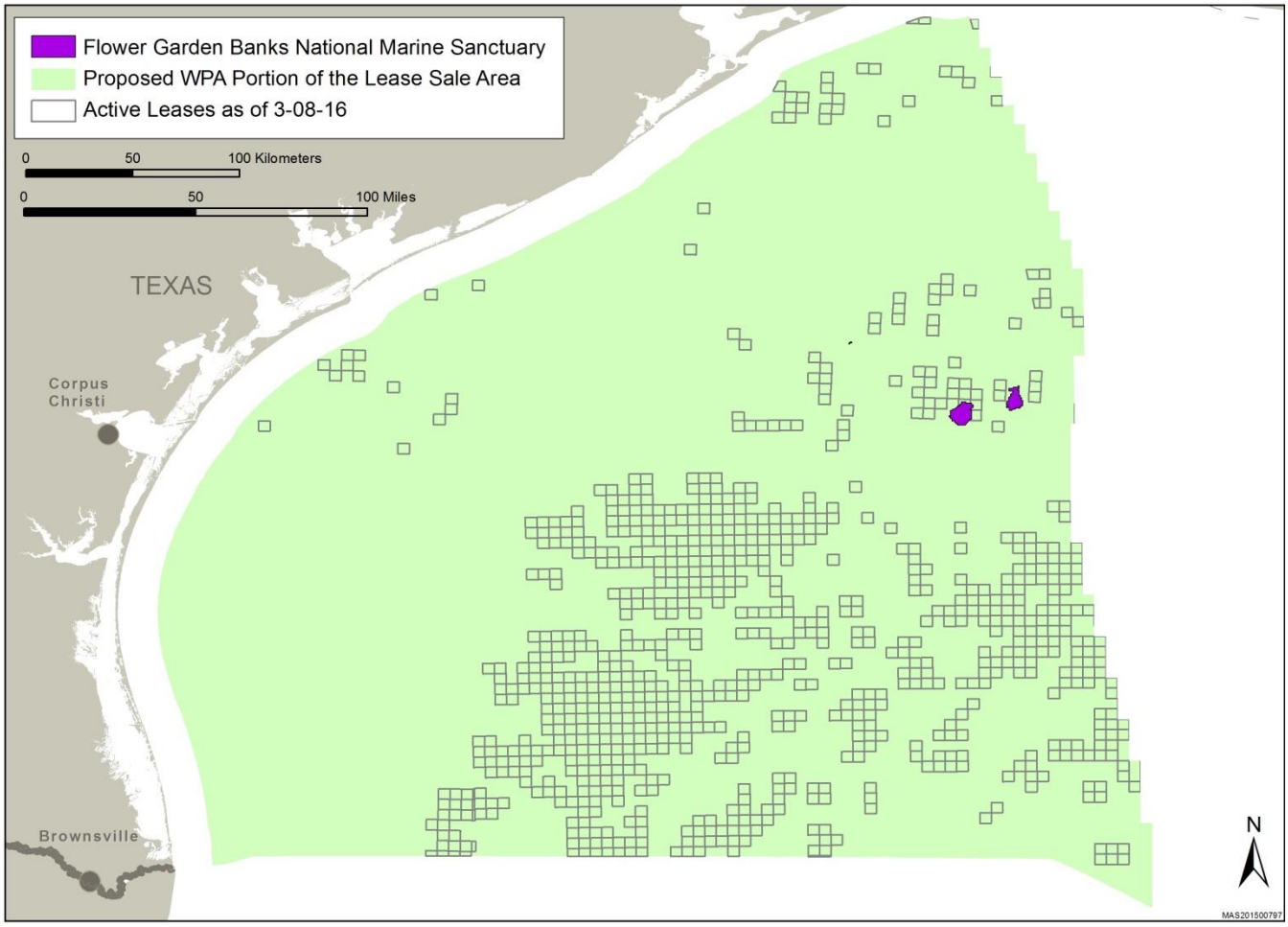
(1) Whole and portions of blocks deferred by the Gulf of Mexico Energy Security Act of 2006; and

(2) Blocks that are adjacent to or beyond the United States' Exclusive Economic Zone in the area known as the northern portion of the Eastern Gap.



Alternative C—Lease Sale Excluding Blocks in the CPA/EPA

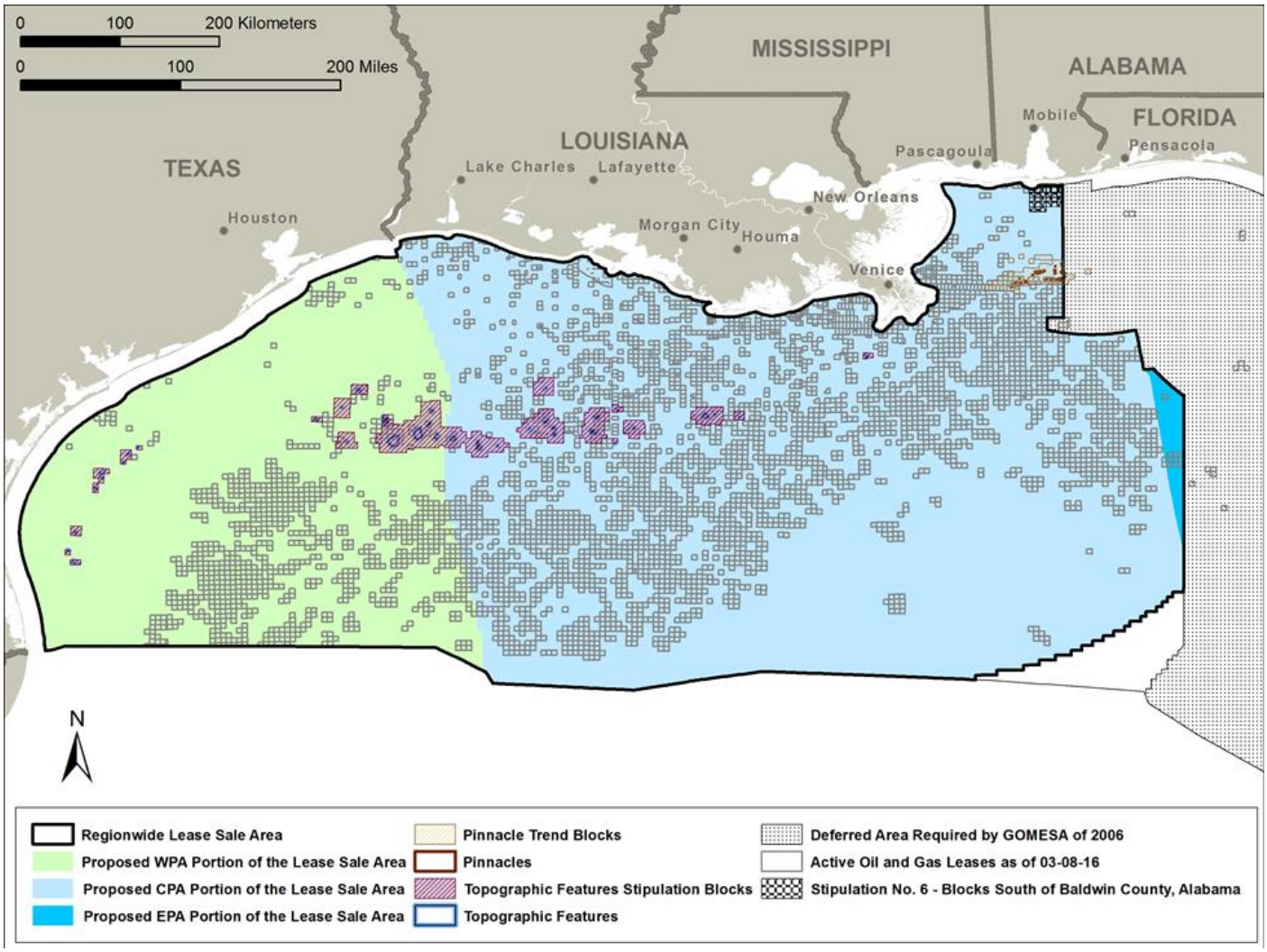
(1) Whole and partial blocks within the boundary of the Flower Garden Banks National Marine Sanctuary (i.e., the boundary as of the publication of this Multisale EIS).



Alternative D—Alternative A, B, or C, with the Option to Exclude Additional Blocks

Under Alternative D, the decisionmaker could exclude from leasing blocks subject to any one and/or combination of the following stipulations:

- Topographic Features Stipulation;
- Live Bottom (Pinnacle Trend) Stipulation; and
- Blocks South of Baldwin County, Alabama, Stipulation (not applicable to Alternative C).



Alternative E—No Action

Alternative E is the cancellation of a single proposed lease sale.