

BUILDING A NATIONAL SAND RESOURCE INVENTORY FOR THE US CONTINENTAL SHELF

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PURPOSE FOR A NATIONAL SAND INVENTORY

The future of coastal resilience or restoration plans which implement natural or nature-based features largely depends upon the identification of proximate and compatible offshore sand and gravel material. BOEM's Marine Minerals Program (MMP) is multi-faceted, focusing on coordinated leasing of sediment for extraction, inventorying sediment resources through geological and geophysical surveys of the Outer Continental Shelf (OCS), and environmental studies and reviews to inform decisions.

However, on a national scale, little is known about the character, quantity, and location of sand resources on the OCS and the habitat it provides for biological communities. BOEM places a high priority on creating a comprehensive national sand resource inventory to meet BOEM's mandate as stewards of all federal mineral resources on the OCS. This stewardship responsibility will be realized by proactively planning for the increasing demands for OCS resources and emergency needs as they arise.

DESIGN ELEMENTS

Preparedness requires being proactive to quantify and characterize these sediment resources. This includes estimating the volume of sand resources in federal waters, their location, accessibility, and character.

Sediment resource inventory efforts are undertaken through funding of research to identify and characterize offshore sand resources. The cooperative agreements with 13 Atlantic states following Hurricane Sandy and subsequent offshore surveys through the Atlantic Sand Assessment Project kick-started new research. BOEM is undertaking a similar initiative in the Gulf of Mexico.

These endeavors encourage states to work together, in conjunction with BOEM and other federal partners, to find cost-effective methods and solutions to manage these finite resources. The goal is to help communities meet longer-term needs, become more resilient, and be better prepared to withstand future storms, while maximizing the lifecycle of these resources.

Significant effort and time are required to not only identify potential sand resource locations but to conduct the necessary evaluations to delineate the volume and spatial extent of compatible sand present at a particular location, while also considering the biological and physical recovery implications. Moreover, other users of the OCS such as the oil and gas, renewable energy,

telecommunication companies, and the fisheries industry could permanently obstruct access to these resources if they are not considered, or if their locations are unknown until after the mineral resource is delineated.

GEOSPATIAL PLATFORM

Using ArcGIS software, BOEM is developing multi-tiered pages to access the Marine Minerals Information System (MMIS) that eventually will provide access to data derived from our research. The system contains custom tools to interact with historical and current collections of non-spatial and geospatial marine minerals data. This provides visual outputs from projects, surveys and collaborations that BOEM and our partners support. It supports highly informed decision-making and fosters secure, authoritative, and open access to the Nation's marine mineral resource inventory. The MMIS is a relational geodatabase that acts as a document repository for historical, current and future OCS marine mineral program data in the Atlantic, Gulf of Mexico, and Pacific regions.

The presence of significant quantities of unstructured data is an unfortunate reality of collaborative information sharing. While unstructured data is a challenge for all federal agencies, in the marine mineral world there are minimal tools and work flows available to effectively organize data. During the past three years BOEM has focused on developing the MMIS so that we can identify, review, assess, and compile our national marine minerals data, which was obtained over the past 25 years from various leasing and environmental surveys, studies, and cooperative agreements. The goal is to house this data in a manner that supports leasing and environmental assessment responsibilities.

In the end, BOEM is helping states and local communities be better prepared to protect lives, property, habitat, and the built infrastructure from future storms. Restored beaches, dunes, and wetlands serve as nature-based infrastructure that protects coastlines, homes, businesses, and other critical infrastructure that we value and enjoy.