Sabine and Heald Banks

Earlier Reports

Cooperative Research with the Minerals Management Service on Sand Resources

Sep. 1988, Jeffrey G. Paine, Robert A. Morton, and William A. White: Preliminary Assessment of Nonfuel Minerals on the Texas Continental Shelf

Jan. 1993, Robert A. Morton and James C. Gibeaut: Physical and Environmental Assessment of Sand Resources -- Texas Continental Shelf

Dec. 1995, Robert A. Morton and James C. Gibeaut: Physical and Environmental Assessment of Sand Resources

Cooperative Research with the Coastal Erosion Program at the Texas General Land Office

Sand Resources for the Central Texas Continental Shelf, compiled from Rice University Data

Sand Resources of the Southeast Texas Continental Shelf (Sabine and Heald Banks)

Introduction

In 2001, the Bureau of Economic Geology (Bureau) renewed the investigation of sand resources of the southeast Texas continental shelf in cooperation with the Division of International Activities and Marine Minerals (INTERMAR) of the U.S. Department of the Interior's Minerals Management Service (MMS). The primary potential use of these resources is for the nourishment of eroding beaches. The MMS and the Bureau cooperated from 1993 to 1995 to collect and analyze data pertaining to Sabine and Heald Banks (Morton and Gibeaut, 1993; Morton and Gibeaut, 1995). During 2001, the renewed cooperative incorporated those earlier acquired data into a Geographic Information System (GIS) for distribution on a CD-ROM and on this Web-based GIS site that uses ArcIMS software. Data and documentation may be viewed and downloaded from this Website. In addition to geological data, GIS layers of obstructions to potential sand mining operations, such as oil platforms, pipelines, shipwrecks, and navigation channels, are available. A separate Bureau ArcIMS Website of the Texas Shoreline Change Project contains historical shorelines and long-term shoreline change rates for the southeast Texas coast. More information will be added to this Website during 2002.

Information Needs

With the exception of areas adjacent to jetties, the southeastern Texas coast is undergoing long-term shoreline retreat. This retreat has recently received increased attention after Tropical Storms Josephine in 1996 and Frances in 1998 caused episodic erosion and the destruction and endangerment of houses and infrastructure. More than 100 houses along the shoreline were stranded on the public beach following Frances. The recent storms have prompted residents and government officials to take stopgap measures, such as geotubes, hay bales, dune construction, and minor beach nourishment to mitigate the erosion. Highway 87, which runs parallel to the shoreline from Port Bolivar to Sabine Pass, is within 150 meters of the ocean on the east end of Bolivar Peninsula. This road is the primary hurricane evacuation route for residents on Bolivar Peninsula. Highway 87 is completely destroyed in places between High Island and Sabine Pass, making it impassable. In 1999, the Texas State Legislature passed the Coastal Erosion Planning and Response Act (CEPRA), which provides $15 million to mitigate shoreline retreat in the state. Under the CEPRA, the Texas General Land Office is looking for information on sand resources for beach nourishment projects along the southeast Texas coast. Furthermore, the U.S. Army Corps of Engineers is conducting the Sabine Pass to San Luis Pass, Texas, Shoreline Erosion Feasibility Study.

In light of the long-term and recent beach erosion problems along the southeast Texas coast and the current interest in addressing them with beach nourishment, there is a need to disseminate existing information on sand resources. Making this information available is important so that duplicate work is not conducted and decision-makers at all levels are aware of the alternatives for mitigating beach erosion, including knowing where beach-quality sand exists. There is also a need for refining the extent and amount of the beach erosion since 1996 so that the most critical areas can be matched with sand resources. This project as reported here is addressing these needs.

Data Download

1. Vibracore
   Locations of Vibracores. When available, an image of the photographed core and/or a lithologic profile of the core is hotlinked to the vibracore location.

   Vibracore sediment texture data are associated with 4 separate map layers. Each layer corresponds to a different sediment texture analysis: Sieve, Gravel,Sand,Mud, Facies thickness, Hydrometer. Identification of a vibracore location in an active layer will return associated records from the sediment texture analysis table.
2. Stratigraphic Cross Section Locations (transects)
   Hotlinked stratigraphic cross sections illustrating lithofacies.
3. Navigation Markers
   Locations of navigation aids in the vicinity of Heald and Sabine Banks.
4. Platforms
   Locations of over 4,300 MMS administered platform structures used for oil and gas production in the Gulf of Mexico. Groups of platform structures connected by walkways form 'complexes.' There are approximately 3,700 such complexes in these data.
5. Locations of Seismic Profiles
6. Shipwrecks
   Positions of shipwrecks and other obstructions in the vicinity of Heald and Sabine Banks.
7. Pipelines (MMS and GLO)
8. Dredged Materials Site
   Boundaries of permitted areas for dumping of dredged material in the Gulf of Mexico offshore of Texas.
9. Bathymetry
10. Shoreline
11. Fairways
    Boundaries of shipping safety fairways in the Gulf of Mexico offshore of Texas.
12. Shipping Channels
    Ship Channels and Gulf Intracoastal Waterway maintained by the U.S. Army Corps of Engineers.

Central Texas Continental Shelf

The Rice University Coastal Research Group is working to compile information about sand resources along the Central and East Texas coast. This work is funded by the Texas General Land Office Coastal Issues office and administered through the University of Texas Bureau of Economic Geology.

Sand Resources for the East Texas Continental Shelf, Rice University Page

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