RAE-TCS Summit 2016
Special Session #147

“Management and Use of Offshore Sand Resources for Louisiana Barrier Island Restoration”

Monday, December 12th
11:00am-12:30pm
Canal Room
* Greg Grandy, Senior Environmental Manager, Coastal Engineering Consultants

* Brad Miller, Project Manager, Coastal Protection and Restoration Authority (CPRA)

* Syed M. Khalil, Geologist Assistant Administrator, Coastal Protection and Restoration Authority of Louisiana

* Michael D. Miner, Bureau of Ocean Energy Management, Gulf of Mexico Region

* Lora Turner, Physical Scientist/Physical Oceanographer, Bureau of Ocean Energy Management
Managing Offshore Sand Resources for Gulf Coast Restoration

Restoring and Protecting Our Nation’s Coasts through Stewardship of OCS Resources

Michael Miner
Bureau of Ocean Energy Management
The Secretary may negotiate an agreement for the use of Outer Continental Shelf sand, gravel and shell resources for use in a program of, or project for, shore protection, beach restoration, or coastal wetlands restoration undertaken by a Federal, State, or local government agency...

(Outer Continental Shelf Lands Act)
Advantages over nearshore sand:

• Higher quality (coarser grain size and less mud)
• Offshore excavation does not affect wave climate at shoreline
• Excavation occurs outside of the active coastal system, introducing new sand to supplement a deficit in the coastal sand budget

→ Improving project long-term sustainability and geomorphic function

Disadvantage:

• Longer transport distance = more $$$
Gulf of Mexico Recent Lease Activities

- Increased use of OCS sand post-Deepwater Horizon: RESTORE Act, NRDA Restoration, NFWF Gulf Environmental Benefit Fund for ecosystem restoration projects

- Two largest projects in program history:
  - Mississippi Coastal Improvements Program (2016) – 19.6 million cubic yards

- 2017 Gulf States’ GOMESA distribution increases

Pelican Island, Louisiana Dune and Marsh Restoration
Increased demand for OCS sand

- Leases Issued
- Linear (Leases Issued)
More sand per year

- Million Cubic Yards Leased
- Linear (Million Cubic Yards Leased)
Larger Projects

More sand per project

- MCY per Project
- Linear (MCY per Project)

Year: 1992 to 2016

BooM - Bureau of Ocean Energy Management
Gulf of Mexico: Managing Multiple Uses

- Sand extremely scarce where needed most in northern GOM
- Geological data lacking: OCS sand resources not well constrained
- Oil and gas infrastructure obstructs access = higher costs to projects
- Significant OCS Sediment Resources policy developed: BOEM must proactively manage resources to ensure availability
- For efficient resource management, reliable geological/geophysical data are key – Gulf-Wide Sand Inventory initiative
• Coordination with Gulf States and other federal agency (USGS, USACE, etc.) offshore sediment management efforts and priority needs

• Understanding shelf geologic evolution important to locating discrete sand bodies (not just “low hanging fruit” bathymetric highs)

• Beyond the project scale, long term management as stewards of OCS mineral resources (managing use conflicts, decrease restoration planning uncertainty, etc.)

• MMP GIS actively under construction (going on YR 3 of contract)
Existing databases: Louisiana

**LASARD Data Coverage**

- 1500+ datasets identified and reviewed
- 640 datasets formatted
- 346 datasets remaining to be formatted

Courtesy Syed Khalil Louisiana CPRA
1. Database development → MMP GIS

2. Existing data: mining, digitizing, incorporation into database

3. New geological and geophysical data collection based on gap analysis

4. Delineation of sand bodies, quantified reserves estimates, and characterization of resource properties (e.g. texture, mineralogy, etc.)
Mississippi Offshore Sediment Resources Inventory: Late Quaternary Stratigraphic Evolution of the Inner Shelf

Principal Investigator: Dr. Davin Wallace, University of Southern Mississippi, Department of Marine Sciences

- Existing data: mining, digitizing, incorporation into database
- Reconstructing shelf evolution to identify sand body relationships (paleovalleys, shoals, and modern barrier sands)
New Co-Op FY 2017: Mississippi

From Mobile District USACE
New Co-Op FY 2017: Mississippi

From Twichell et al. 2011
Mississippi Offshore Sediment Resources Inventory: Late Quaternary Stratigraphic Evolution of the Inner Shelf

From Flocks et al. 2015
Texas Offshore Sediment Resources Inventory: Development and Application of Geophysical Processing Workflows for Sand Resources Evaluation

Dr. John Goff and Dr. Sean Gulick, University of Texas, Institute of Geophysics

- Develop geophysical data post-processing workflow to improve interpretive capability
TX Offshore Sediment Resources Inventory: Development and Application of Geophysical Processing Workflows for Sand Resources Evaluation

- Digitization of legacy data and incorporation into database
- Collection of new data in targeted areas for increased resolution of sand bodies within paleovalleys and links to shelf shoals
Conclusions

• Well established for decades that sand resources are scarce

• BOEM taking regional approach to managing offshore sand resources inform future project planning and to identify multiple use conflicts
  Requires:
  – Quality geological and geophysical data
  – Structured data management tool to inform decisions

• Refined geologic interpretations important to identify new sand resources and increase planning confidence at the project scale

• BOEM and partners pursuing a Gulf-Wide Sand Inventory as part of a larger National Sand Inventory
  – Still no long-term funding but investing strategically to develop and populate the framework database