



Marine Minerals Program



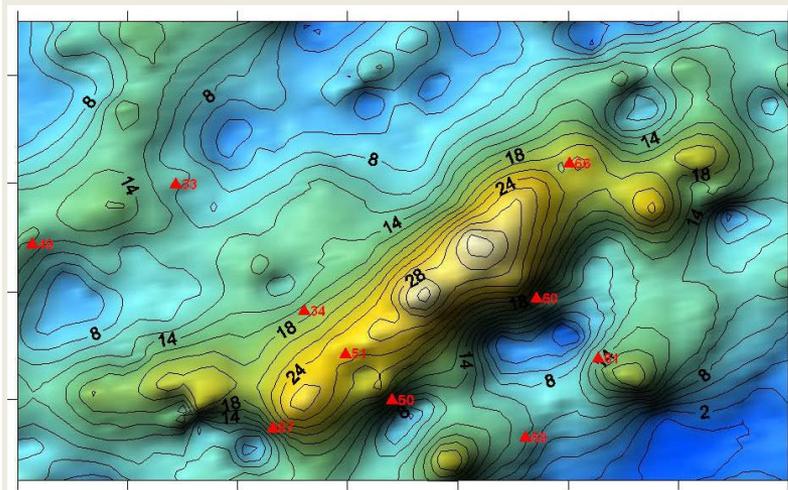
Jeff Reidenauer, PhD
Chief, Marine Minerals Branch
Leasing Division
Office of Strategic Resources

Coastal Sediment Management Workgroup

December 2, 2015



- Identify and evaluate potential OCS sand resources (comprehensive sand inventory)
- Respond to requests for OCS sand for coastal restoration through issuances of negotiated noncompetitive leases/agreements
- Conduct environmental reviews of the use of sand borrow areas through NEPA and other environmental consultations (ex., Endangered Species Act)
- Use stakeholder outreach and coordination in decision-making process
- Conduct environmental studies
- Responsible for competitive leasing of minerals



Outer Continental Shelf Lands Act (OCSLA) (43 U.S.C. 1331, et. seq.)

Public Law 103-426 (43 U.S.C. 1337(k)(2)) (1994): Amended OCSLA to allow BOEM to negotiate, on a noncompetitive basis the rights to OCS sand, gravel, or shell resources for (1) beach nourishment, shore protection, wetlands restoration projects, or (2) use in construction projects authorized or funded by the Federal Government

A 1999 Amendment: Prohibits BOEM from charging Federal, state, and local governments a fee for OCS sand

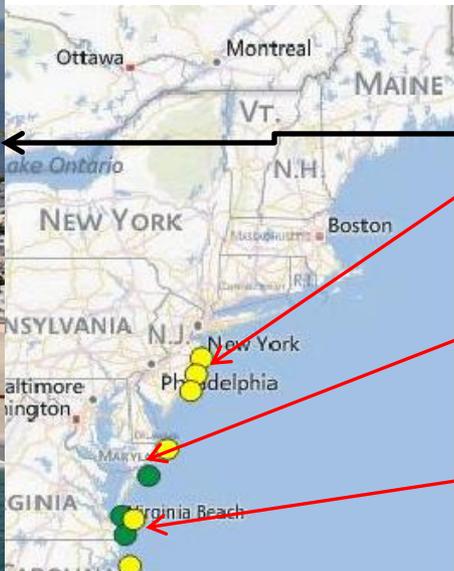


3 Types of Agreements Are Used to Convey Sand and Gravel Noncompetitively

- **2-Party Memorandum of Agreement (MOA)**
 - ✓ Negotiated between another Federal Agency and BOEM
- **3-Party Memorandum of Agreement (MOA)**
 - ✓ Negotiated between a Locality (State, county, city, parish etc.), another Federal Agency (typically USACE) and BOEM
- **2-Party Lease**
 - ✓ Negotiated between a Locality (State, county, city, etc.) and BOEM



Recent Leases and Agreements



Long Beach Island
7 M cu yds

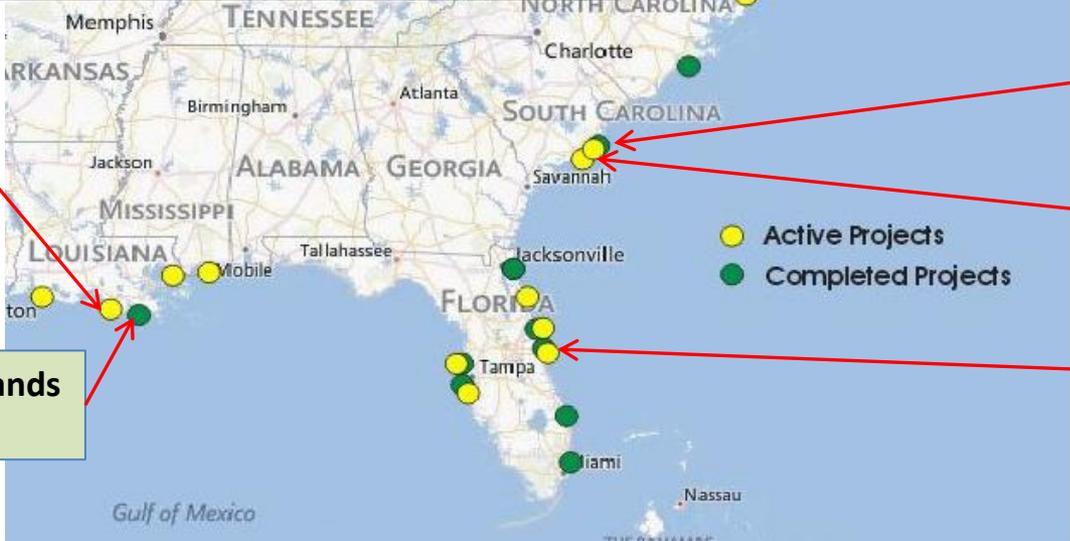
NASA Wallops Island, VA
1 M cu yds

Sandbridge, VA
2 M cu yds

Folly Beach, SC
850,000 cu yds

Port of Charleston, SC
6 M cu yds

Brevard County, FL
2.4 M cu yds



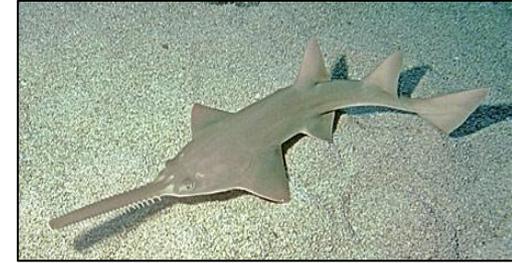
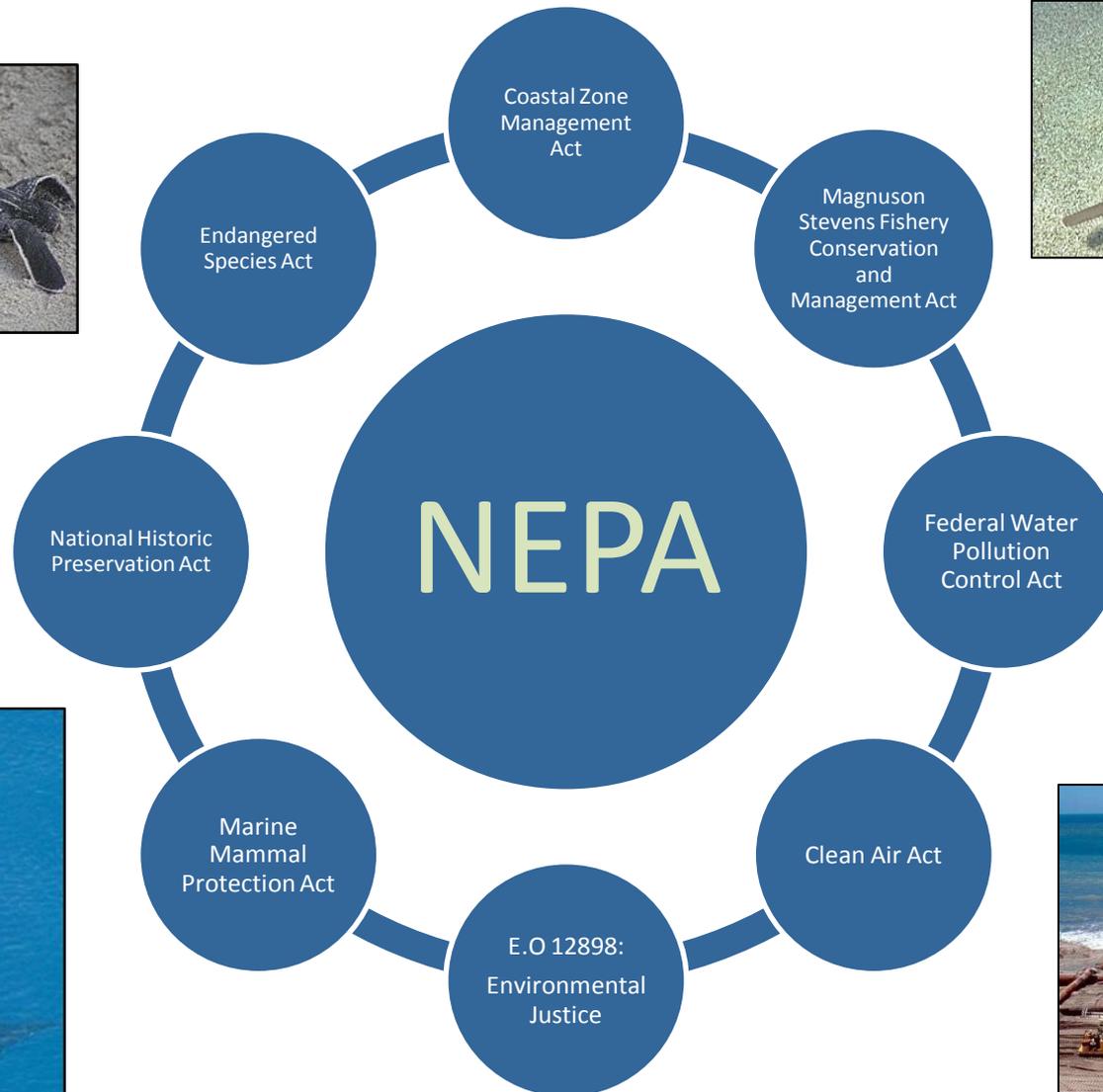
Whiskey Island
13.4 M cu yds

Caminada Headlands
8 M cu yds



Offshore Dredging

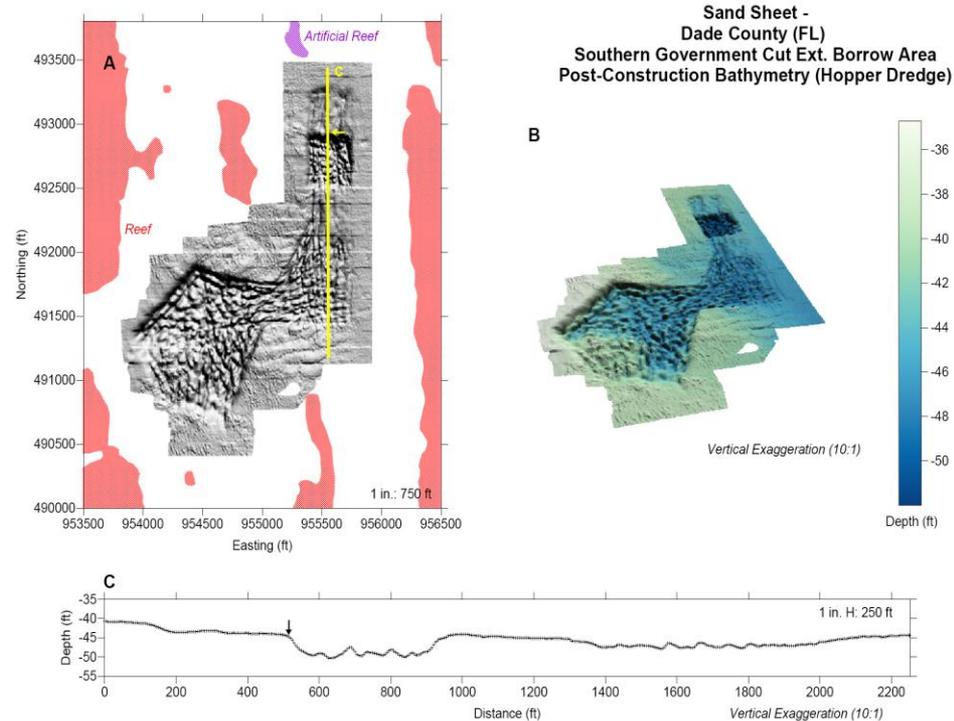
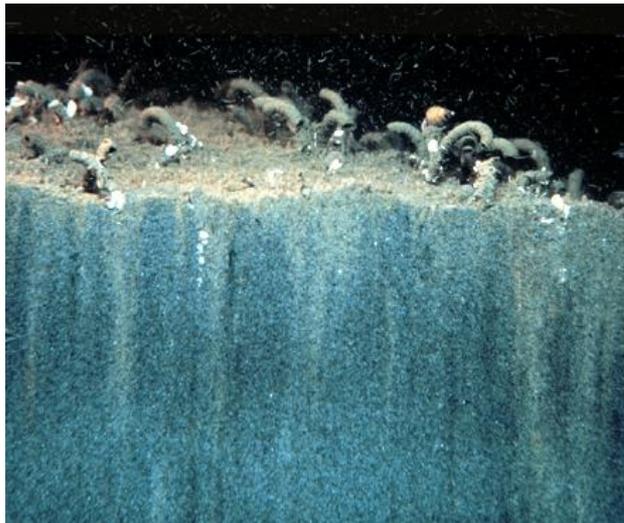




- Relationship to the interrelated USACE Action
- Cooperating Agency agreements
- Roles and responsibilities per Agency
- Work concurrently developing NEPA document
- BOEM adopts with independent FONSI or ROD
- Evaluate each request for sand

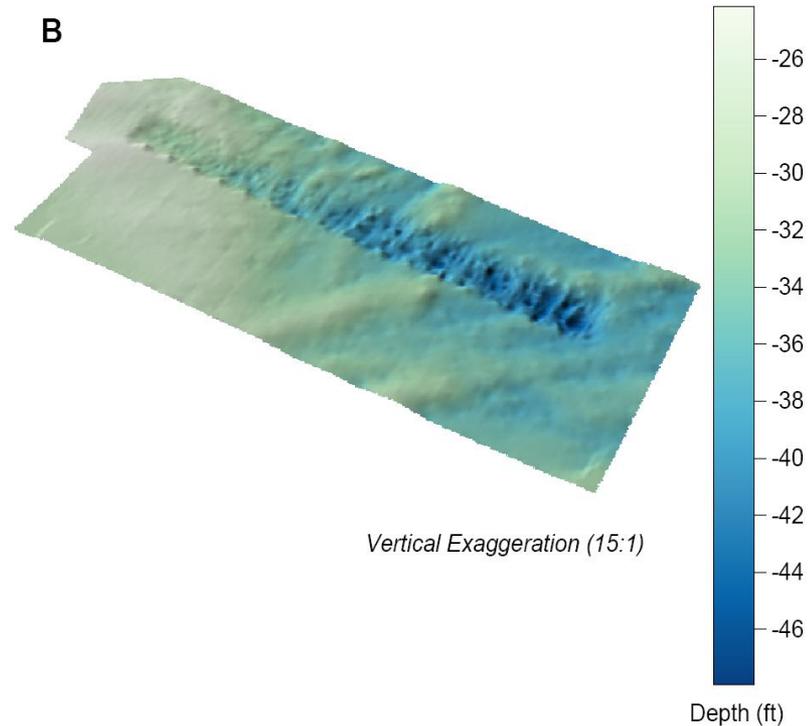


- Protected species
- Substrate characteristics and bathymetry
- Near-field currents and sediment transport
- Submerged historic resources
- Benthic habitat and species diversity
- Essential Fish Habitat (EFH)



- Dredge Positioning
- Dredge Operating Requirements
- Production and Volume Information
- Marine Pollution Control/Contingency Plan
- Discovery of Munitions and Explosives of Concern (MEC) Procedures
- Bathymetric Surveys
- Protection of Archaeological Resources
- Project Completion Reporting
- Environmental Compliance Reporting
- Environmental Monitoring

Sorted Bedform and Low-Relief Sand Ridges -
Myrtle Beach (SC)
Surfside Borrow Area
Post-Construction Bathymetry (Hopper Dredge)



\$13.6 M Disaster Relief Appropriations Act

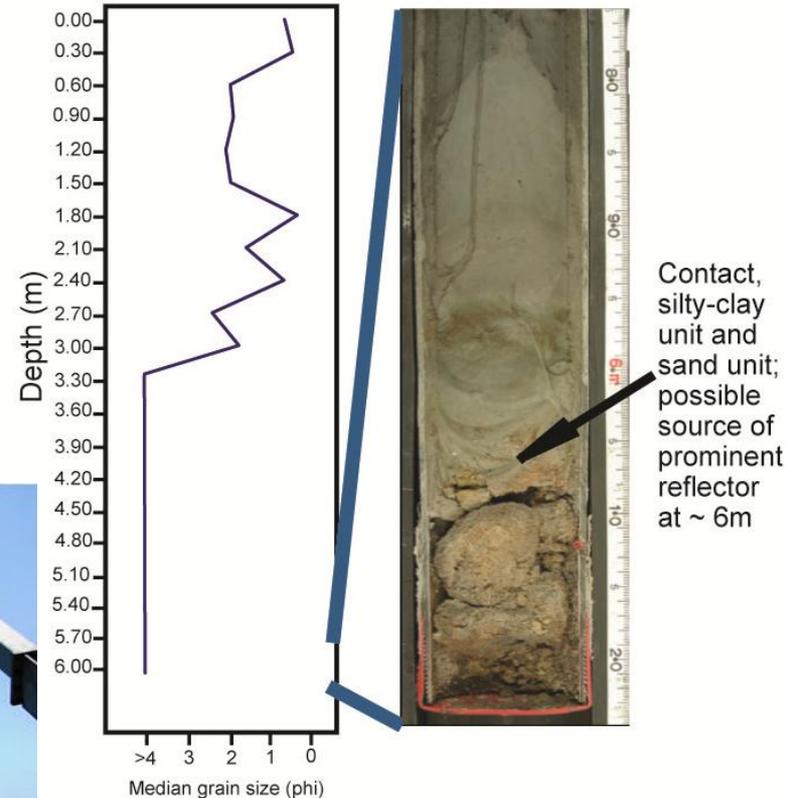
- **Analysis Existing Sand Resource Data and Determination of Sand Needs**
 - ✓ Cooperative Agreements w/ 13 Atlantic States
 - ✓ \$400K NY & NJ; \$200K for remaining 11 states; 2nd round total \$3M
- **Identification of New OCS Sand Resources**
 - ✓ Contract awarded to CB&I September 2014
 - ✓ Approx. \$5 million
 - ✓ Recon geophysical complete/geological ongoing
- **Environmental Monitoring**
 - ✓ Canaveral Shoals, FL and Acoustics Studies
 - ✓ Approx. \$3 million



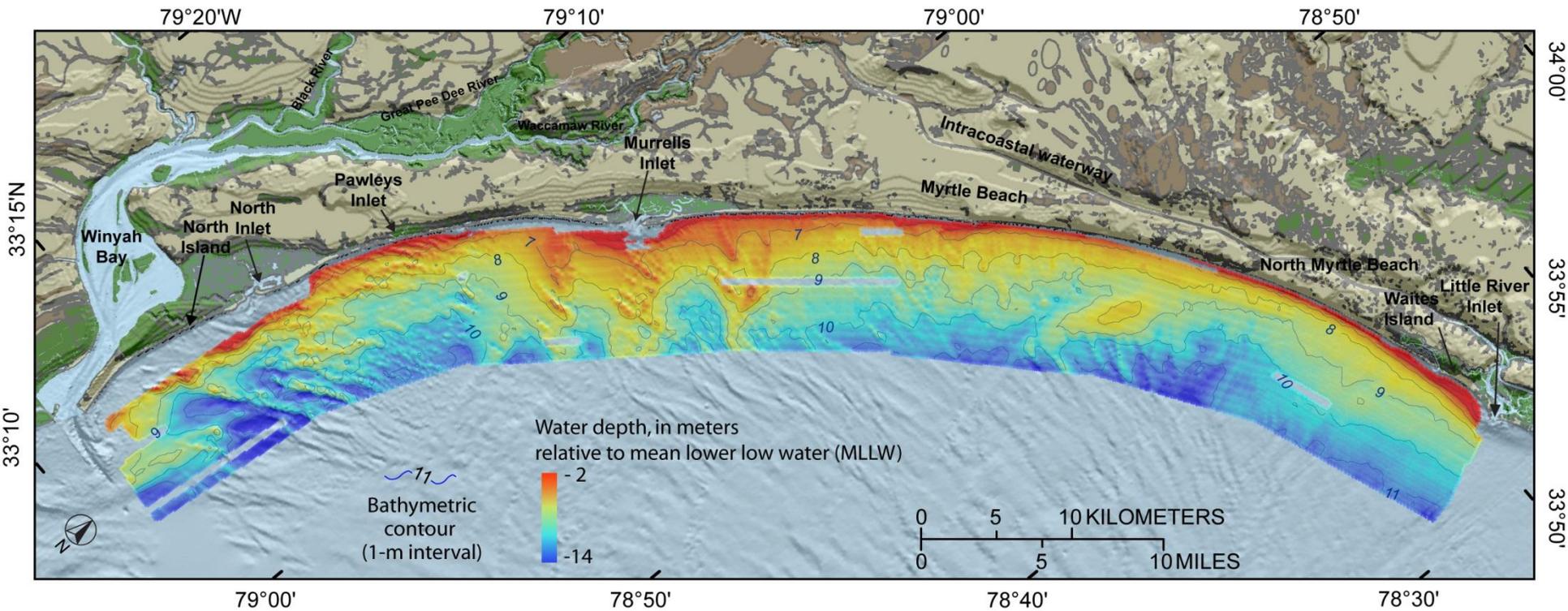
Atlantic Sand Assessment Project

- Data Collection
- Geophysical (surficial sediment)
- Geological (vibracores, grab samples)
- 3 – 8 nm offshore
- Maine to Miami, FL
- Reconnaissance and Site-Specific Level

Median grain size Core photograph



- Evaluate existing offshore data
- Identify data gaps/priority areas (coordinate w/ CB&I)
- Assess future sand needs
- Facilitate public accessibility of data

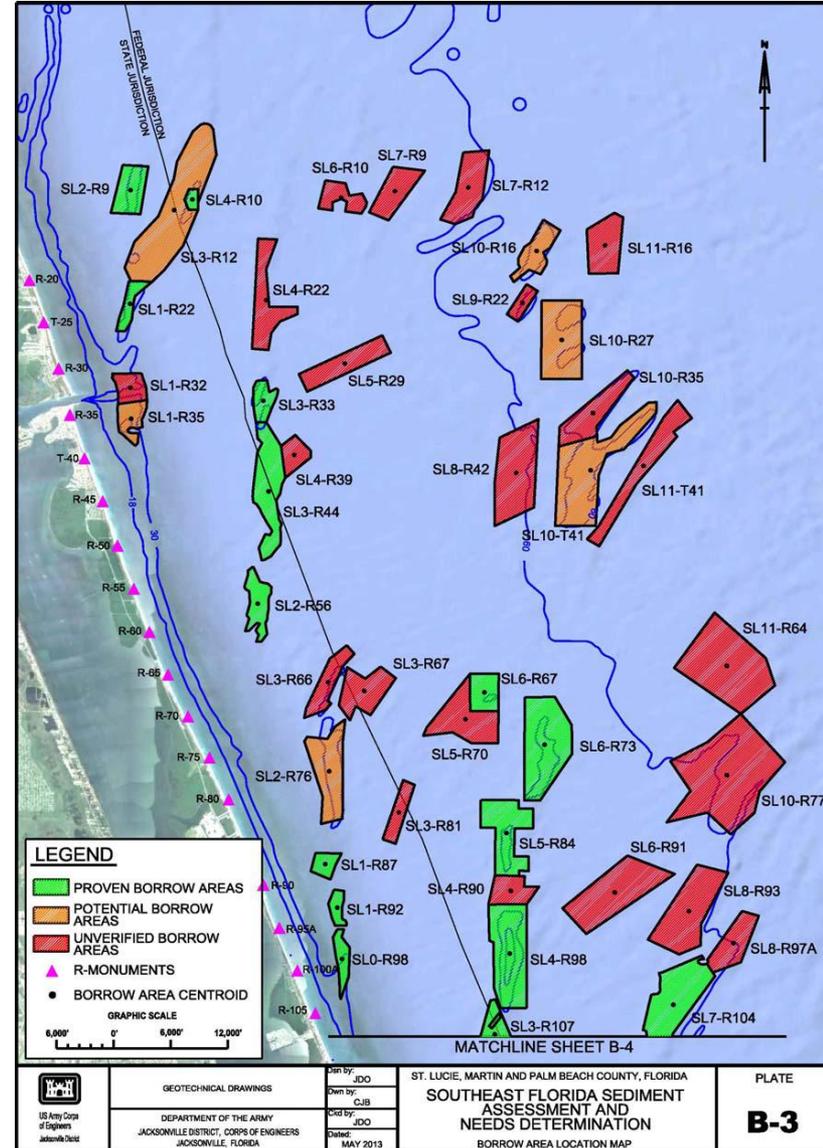


Sand Management Working Groups

- Central Atlantic
- Florida
- New England (through NROC)
- Northeast
- Gulf of Mexico

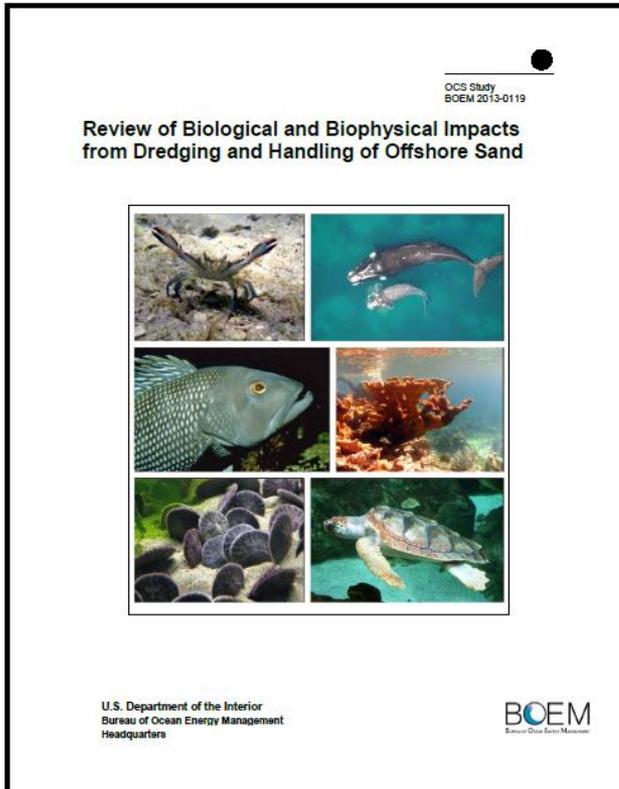
Regional Ocean Councils/Planning Bodies

- Northeast
- Mid-Atlantic
- Governors South Atlantic Alliance



Applied Science for Informed Decisions

- Predict, assess, and manage impacts from marine mineral exploration and extraction
- Over \$40 million spent on MMP Environmental Studies and resource evaluation to date
- Mitigation and minimization measures derived from research findings such as rotational dredging methods and better emissions estimates
- Identify critical data gaps for guiding future research needs



<http://www.boem.gov/Marine-Minerals-Research-and-Studies/>

- Develop a framework to assess geological, engineering, economic, environmental and dredge operations to optimize borrow use
- Develop decision support tool to assess project entrainment risk and improve effectiveness mitigation planning w/in sand borrow areas
- Propagation Characteristics of High-Frequency Sounds Emitted During High-Resolution Geophysical Surveys
- Ecological Function and Recovery of Biological Communities within Dredged Ridge-Swale Habitats in the South-Atlantic Bight. University of Florida
- Natural Habitat Associations and the Effects of Dredging on Fish at the Canaveral Shoals, East-central Florida. Navy Interagency Agreement.

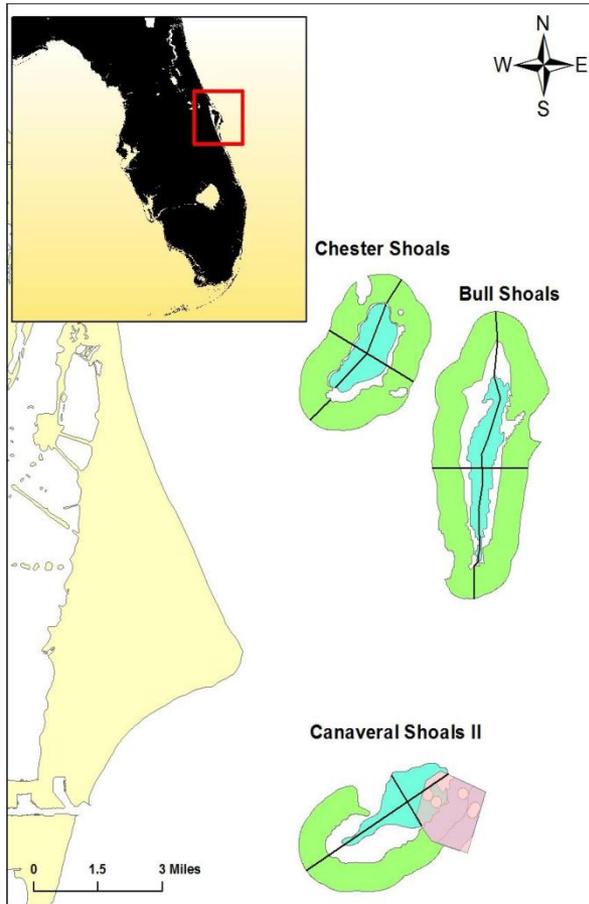


Working with the University of Florida and the Navy, our overall goals are to:

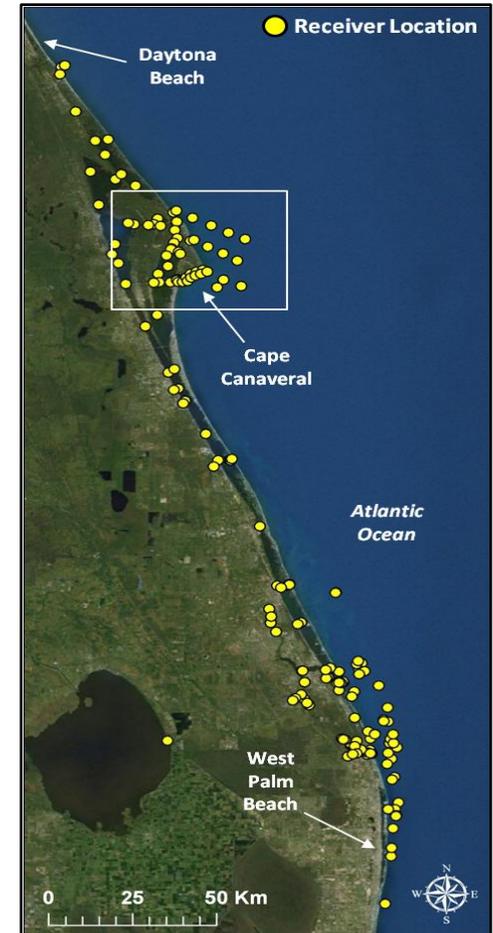
1. determine the unique functional ecosystem
2. discern functional, biological services that are potentially compromised by dredging
3. describe mechanisms of recovery
4. compare short-term versus long-term recovery trajectories for dredged areas.

In addition,

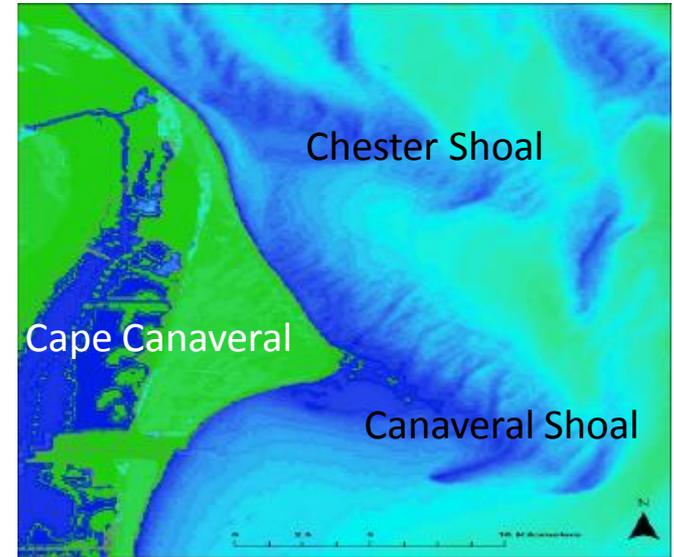
1. comparing the bathymetry and benthic habitat changes that occur on the sand shoals over time
2. determining the forcing events in seasonal sediment transport in the bottom boundary layer
3. Link temporal and seasonal changes in benthic habitat to benthic invertebrate assemblages



- Cape Canaveral and northern Indian River Lagoon sections of FACT Array (>100 VEMCO acoustic receivers)
- Receivers are located in a variety of habitats including open estuary, coastal rivers, inlets, Port Canaveral, surf zone, and offshore shoals
- Surgical implantation of Vemco V16 acoustic tags
- >500 fish and sea turtles (15 species) released at Cape Canaveral since 2008
- Some fish tracked for > 4 years
- Detections of > 200 tagged animals from other regions as far as S. FL, DE, MA, and NY



- Finetooth shark (*Carcharhinus isodon*) (60)
- Red drum (*Sciaenops ocellatus*) (80)
- Scalloped hammerhead (*Sphyrna lewini*) – NASA
- Blacknose shark (*Carcharhinus arconotus*) (60)
- Spanish mackerel (*Scomberomorus maculatus*) (60)
- King mackerel (*Scomberomorus cavalla*) (40)
- Bluefish (*Pomatomus saltatrix*) (40)
- Spot Croaker (*Leiostomus xanthurus*) (120)
- Atlantic Croaker (*Micropogonias undulatus*) (120)
- Leveraging with Renewable Energy to tag Sturgeon and increase array in DelMarVa



More than 400 tags deployed since project start



- Glider-based fish tracking – Canaveral Shoals, FL
- Regional Essential Fish Habitat Geospatial Assessment and Framework of Offshore Sand Features
- Discerning behavioral patterns of sea turtles in the Gulf of Mexico to inform management decisions
- Sediment sorting during coastal restoration projects: implications for resource management, environmental impacts, and multiple use conflicts
- Evaluating increased habitat value and function in OCS sand resource areas following dredging events





ADDITIONAL BACKGROUND & FACT SHEETS

<http://www.boem.gov/Marine-Minerals-Program/>

<http://www.boem.gov/BOEM-Fact-Sheets/>

- MARINE MINERALS FACT SHEET
- HURRICANE SANDY FACT SHEET
- ATLANTIC SAND ASSESSMENT FACT SHEET
- SEA TECHNOLOGY MAGAZINE ARTICLE

