



**BOEM**  
BUREAU OF OCEAN ENERGY MANAGEMENT

# BOEM Marine Minerals Program

*Restoring and Protecting Our Nation's Coasts  
through Stewardship of OCS Sand Resources*

*SECOORA 2018 Annual Meeting – May 22-24*

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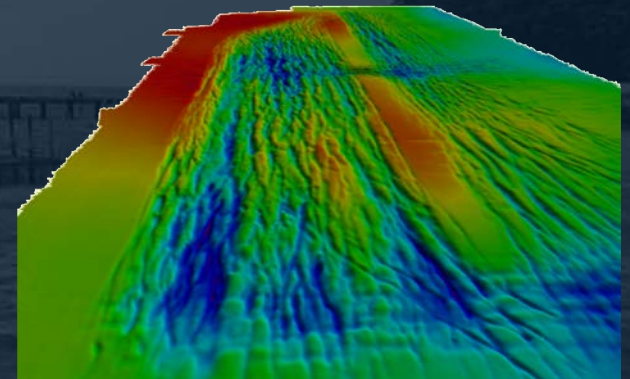
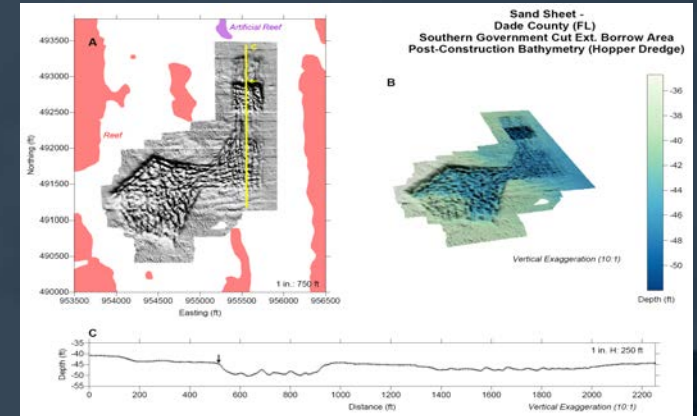
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**BOEM** | Marine Minerals Program

May 31, 2018 | [www.boem.gov](http://www.boem.gov)

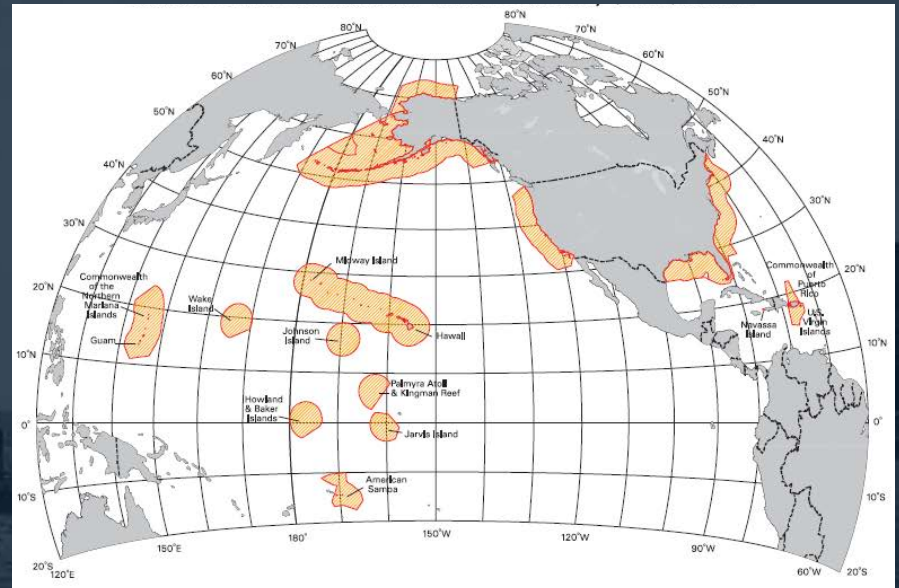
# OUTLINE

- I. BOEM Overview
- II. Marine Minerals Program
- II. Non-Competitive Negotiated Agreements
- III. Resource Evaluation
- IV. Environmental Studies Program



# BOEM MISSION

To manage development of the Nation's offshore energy and mineral resources in an environmentally and economically responsible way.



# PROGRAM AREAS



## Oil & Gas

5-year leasing plan  
Regional lease sales



## Renewable Energy

Site identification through  
stakeholder input and  
state task forces



## Marine Minerals

Through negotiated  
agreement with state  
and local entities



# MARINE MINERALS PROGRAM MISSION

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



## Mission of BOEM's Marine Minerals Program

The mission of BOEM's Marine Minerals Program is to facilitate access to and manage the Nation's Outer Continental Shelf (OCS) non-energy marine minerals, particularly sand and gravel, through environmentally responsible stewardship of resources, prudent assessments of exploration and leasing activities, coordination with governmental partners, engagement of stakeholders, strategic planning, and mission-focused scientific research to improve decision-making and risk management.



## Vision of BOEM's Marine Minerals Program

The vision of the Marine Minerals Program is to serve as the lead federal agency and liaison in support of the Nation's current and long-term interests in OCS non-energy marine minerals. This vision is realized through the following core values:

- The MMP will act as the Nation's steward and scientific expert for OCS non-energy marine mineral resources, particularly sand and gravel used to foster coastal resiliency.
- The MMP will proactively identify, assess, and sustainably manage resources to ensure future availability.
- The MMP will promote strategic stakeholder engagements to facilitate planning and information sharing.
- The MMP will develop forward-looking science strategies to fulfill data needs.
- The MMP will foster ecosystem health and restoration while supporting the Nation's evolving marine mineral resource needs.
- The MMP will prepare comprehensive marine resource impact assessments, adopt integrated adaptive resource management principles, and develop practicable mitigations to avoid and/or minimize impacts.

# PROGRAMMATIC BUILDING BLOCKS

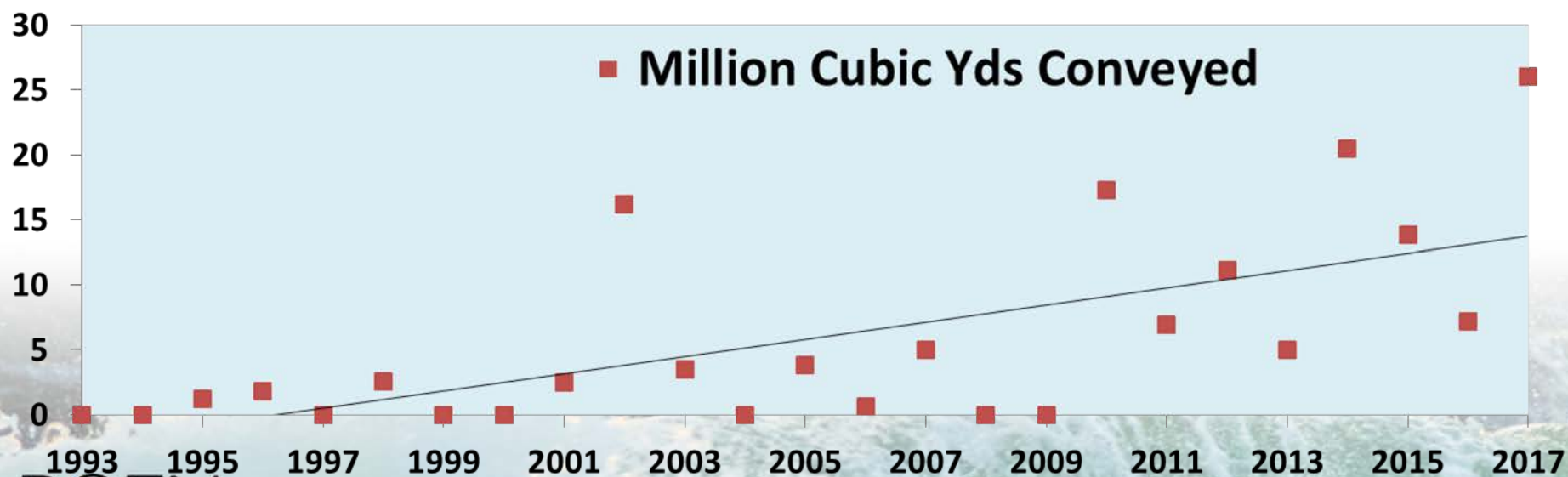
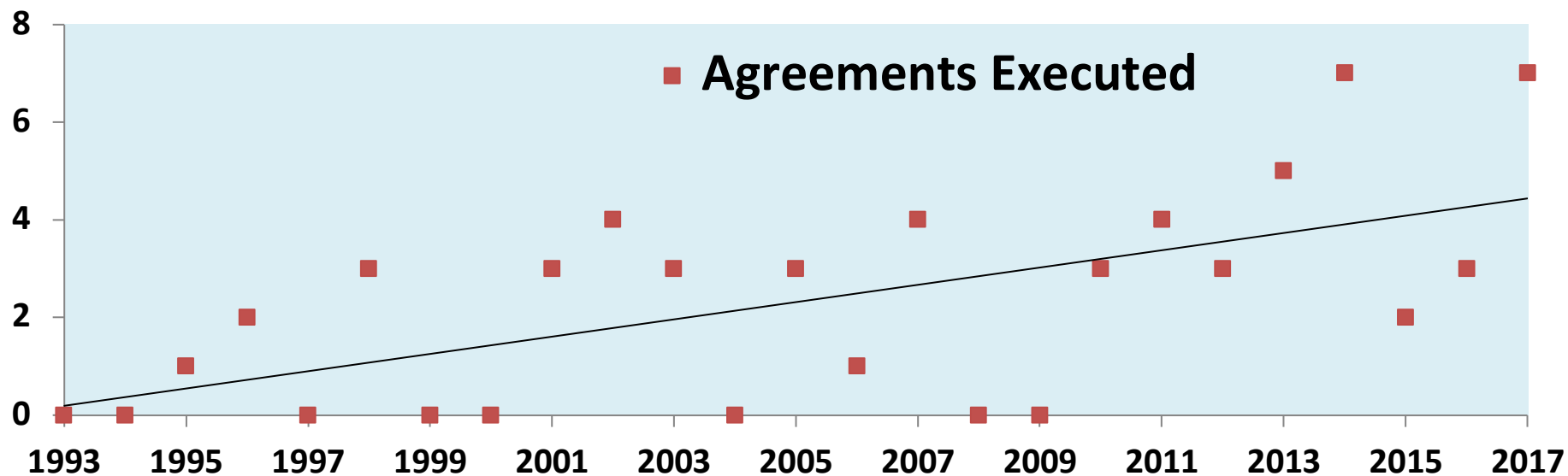


- **Leases**
  - Managing development of OCS non-energy marine mineral resources
  - Environmental compliance
  - Project monitoring
- **Resource Evaluation**
  - National sand inventory initiative
  - Cooperative agreements / ASAP
  - MMIS
- **Resource Management**
  - Multiple use conflicts
  - Resource optimization practices
- **Environmental Studies**
  - Science informed decision making
- **Collaboration, Partnership, & Communication**
  - BOEM / USACE MOU
  - Regional coordination / collaboration

# NON-COMPETITIVE NEGOTIATED AGREEMENTS

- **Public Law 103-426 (1994):** Allow BOEM to grant **noncompetitive negotiated agreements** for Federal sand, gravel, or shell resources for use in shore protection or other public works projects.
- **A 1999 Amendment:** Prohibits BOEM from charging Federal, state, and local governments a fee for OCS sand.
- **3 Types of Agreements:**
  - **2-Party Memorandum of Agreement (MOA)** - Another Federal Agency and BOEM (e.g., Patrick Air Force Base, FL)
  - **3-Party Memorandum of Agreement (MOA)** - A Locality (State, county, city, etc.), Another Federal Agency (typically USACE) and BOEM. (e.g., USACE Civil Works.)
  - **2-Party Lease** - A Locality (State, county, city, parish etc.) and BOEM. (e.g., USACE Regulatory).

# INCREASING DEMAND FOR OCS SAND





# COMPETITIVE LEASING

## Competitive lease sales for minerals:

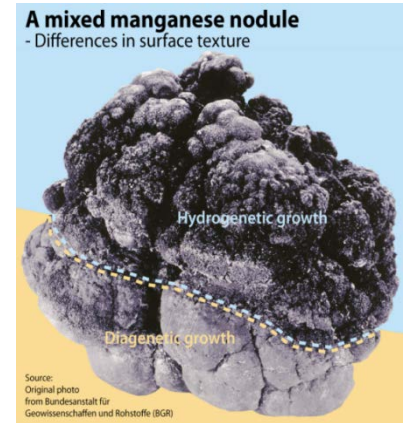
- Lease sales are held on lease blocks
- Competitive bidding ensues on the lease blocks
- Leases are sold to the highest bidder

## Critical Minerals / elements of interest may include:

- Sand, manganese, phosphate, heavy minerals (titanium, zircon), rare earth elements (lanthanides, e.g., neodymium), gold, silver, copper

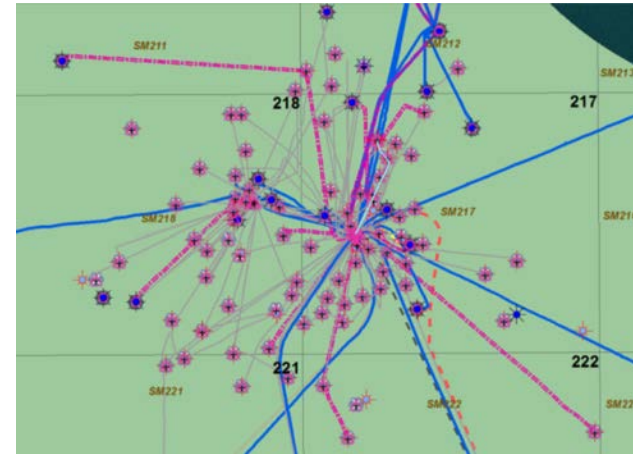
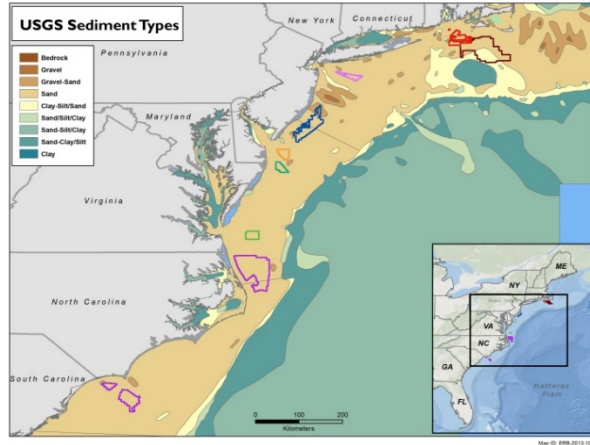
## Status

- Regulations: 30 CFR 280 (Prospecting), 281 (Leasing), 282 (Operating)
- Past inquiries: NJ (Salt), AK (Gold), VA (heavy minerals), MA (commercial sand)
- Currently working on commercial lease processes
- Strategic importance, revenue source



# RESOURCE EVALUATION

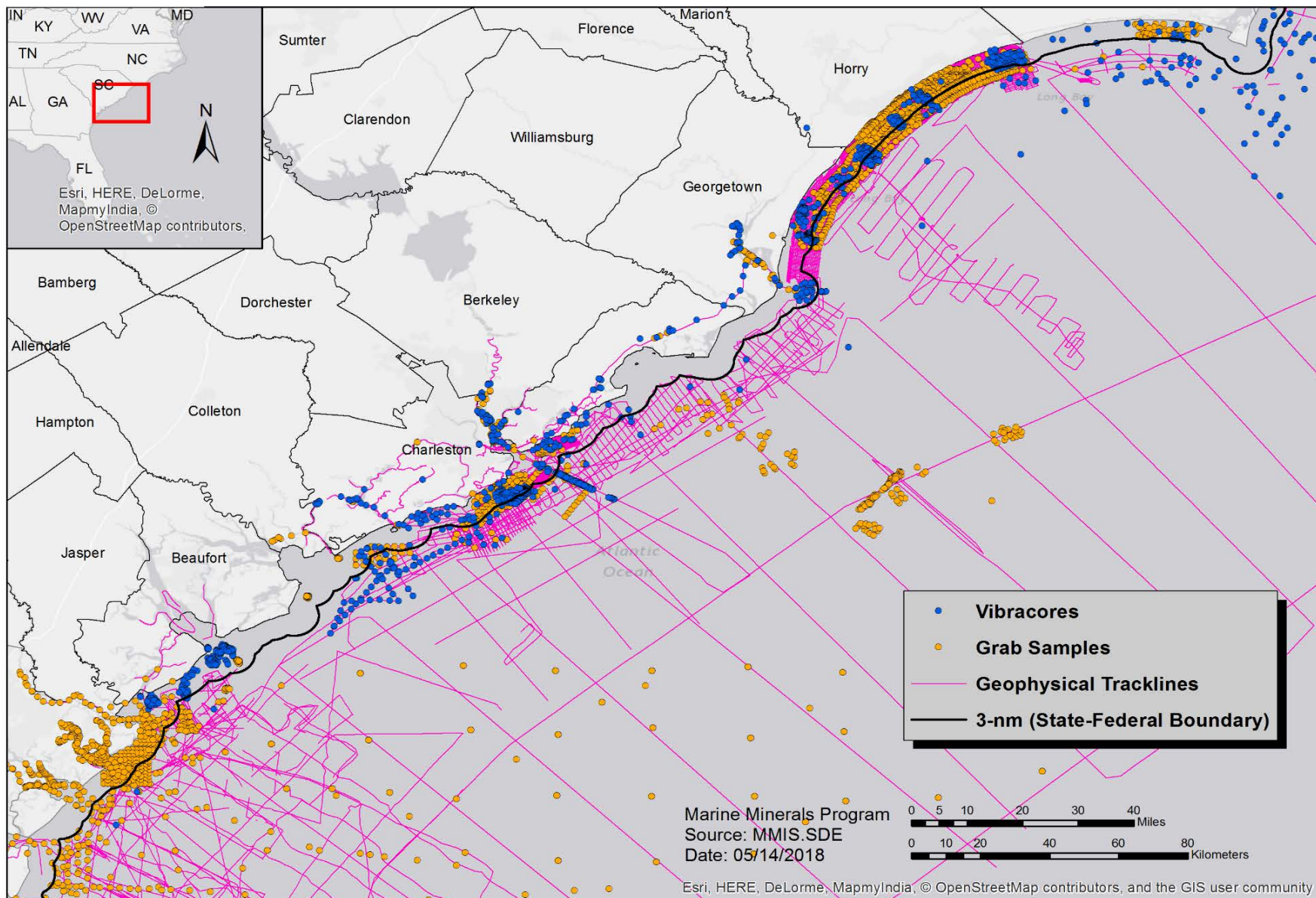
- **National Sand Inventory Goal:** We need to know where the resources are to properly manage them

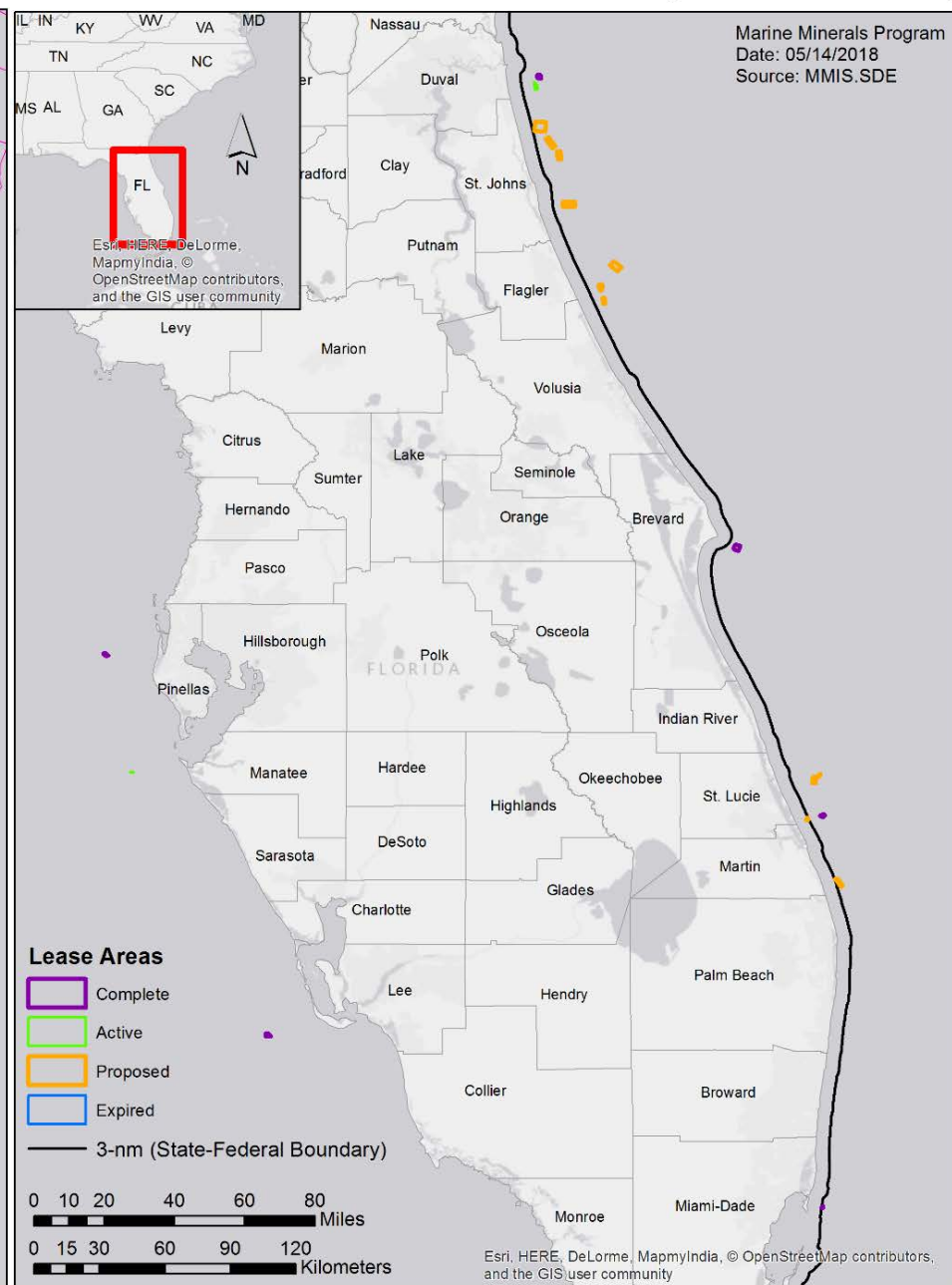
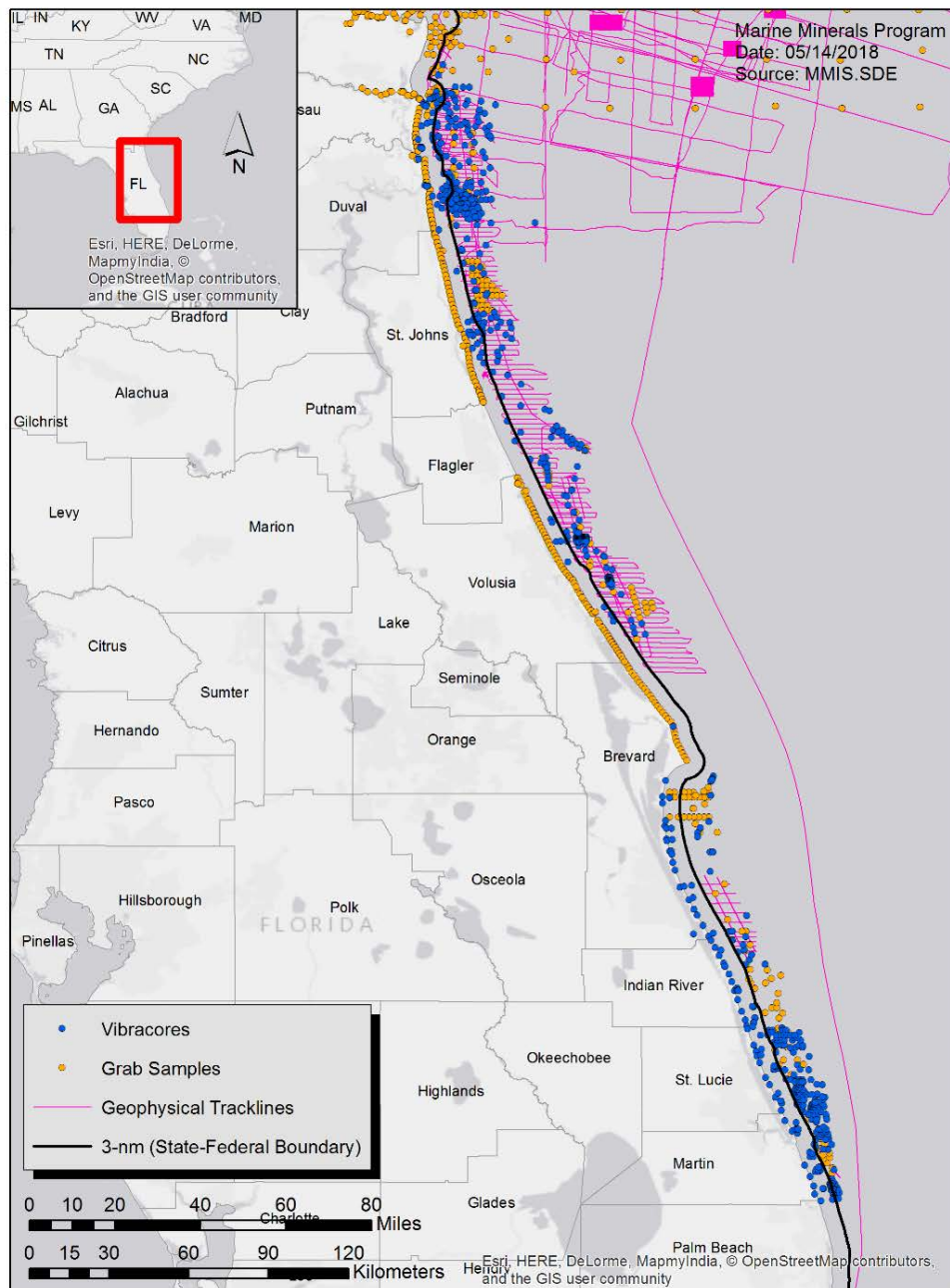


- **Cooperative agreements** - Between BOEM and state agencies, local governments, and universities to ID potential sand sources
- **Disaster Relief Appropriations Act:** \$13.6 million
  - Negotiated **Cooperative Agreements** with 13 Atlantic Coastal States
    - State Geological Surveys & Associated State Academic Institutions
    - State Agencies
  - **Atlantic Sand Assessment Project** – identification of new potential sand resources Atlantic OCS
- **H.R. 4667 Emergency Supplemental Bill / South Atlantic Coastal Comprehensive Study**



# MMIS - SC Geological Data and Geophysical Tracklines







# ENVIRONMENTAL STUDIES VISION



To be the best research program there is in the context of BOEM's mission and constraints

<https://www.boem.gov/studies/>



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

<http://marinecadastre.gov/espis>



# MMP SCIENCE STRATEGY

## MMP science needs “road map:”

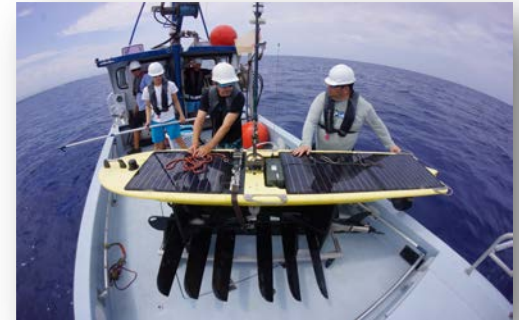
- Where were we?  Where are we now?  Where are we going?
- Primary short-term areas of interest:
  - Improved resource management capabilities
    - National sand resource inventory
    - Habitat inventory (biological, physical, geological)
  - Regional sediment management
  - Continued long-term research on benthic and fish communities
- Provide the information needed to **predict, assess, minimize, and mitigate** impacts



# ONGOING MMP STUDIES

<https://www.boem.gov/Marine-Mineral-Studies/>

- **Natural Habitat Associations and the Effects of Dredging on Fish at the Canaveral Shoals, East-central Florida.**
- Discerning behavioral patterns of sea turtles in the Northern Gulf of Mexico to inform management decisions
- Sediment sorting during coastal restoration projects: implications for resource management, environmental impacts, and multiple use conflicts
- Regional Essential Fish Habitat Geospatial Assessment and Framework of Offshore Sand Features
- Ecological Function and Recovery of Biological Communities within Sand Shoal Habitats within the Gulf of Mexico
- Assessing biological processes that drive fisheries productivity on New England Sand Shoals, determining costs to fisheries as a result of sand mining.





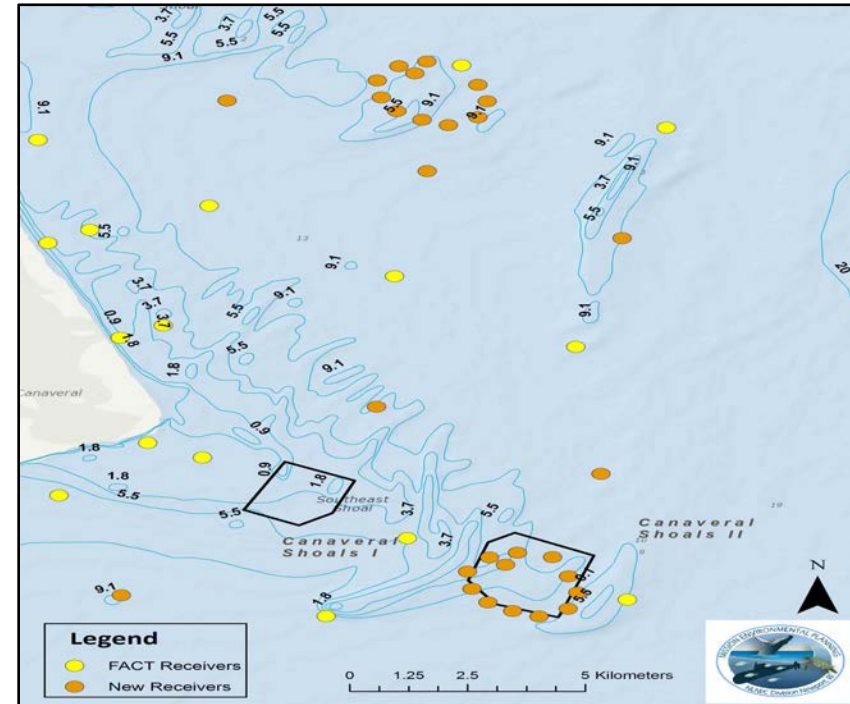
# NATURAL HABITAT ASSOCIATIONS AND THE EFFECTS OF DREDGING ON FISH AT CANAVERAL SHOALS

## Canaveral Offshore Shoal Habitat:

- Essential Fish Habitat
- Prominent ridge-swale features and shoal complexes

## More info needed:

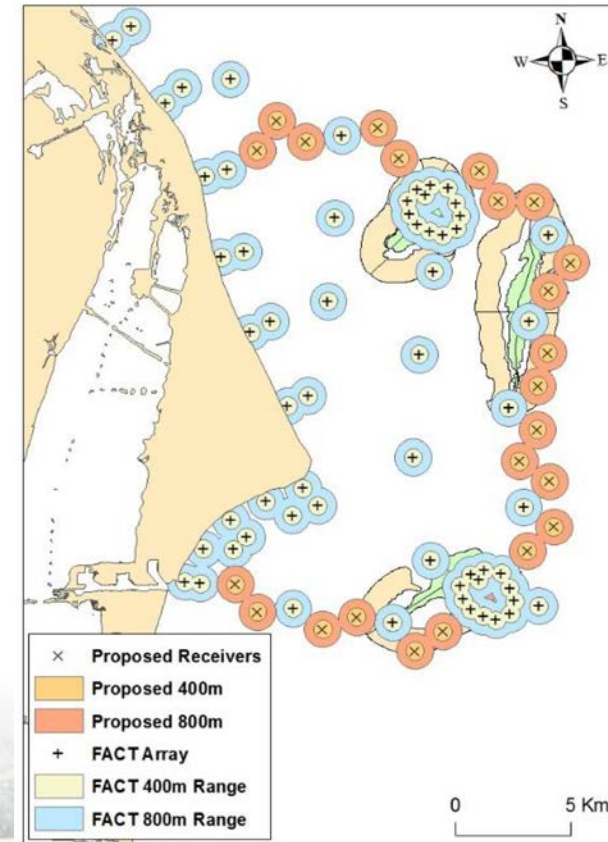
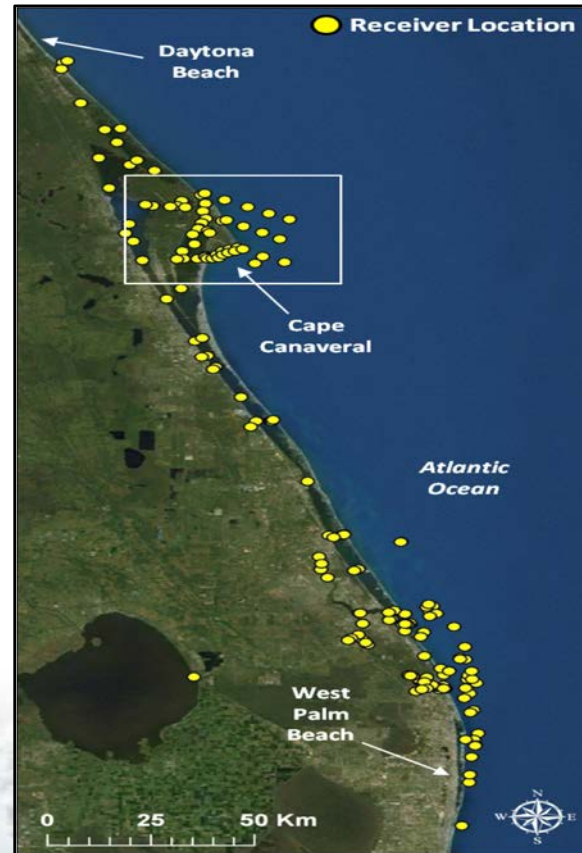
- Small-bodied demersal and keystone pelagic fish species
- Movements on a local and regional scale
- Short-term and longer-term for coastal fish species
- Characterization and assessment of habitat value and function



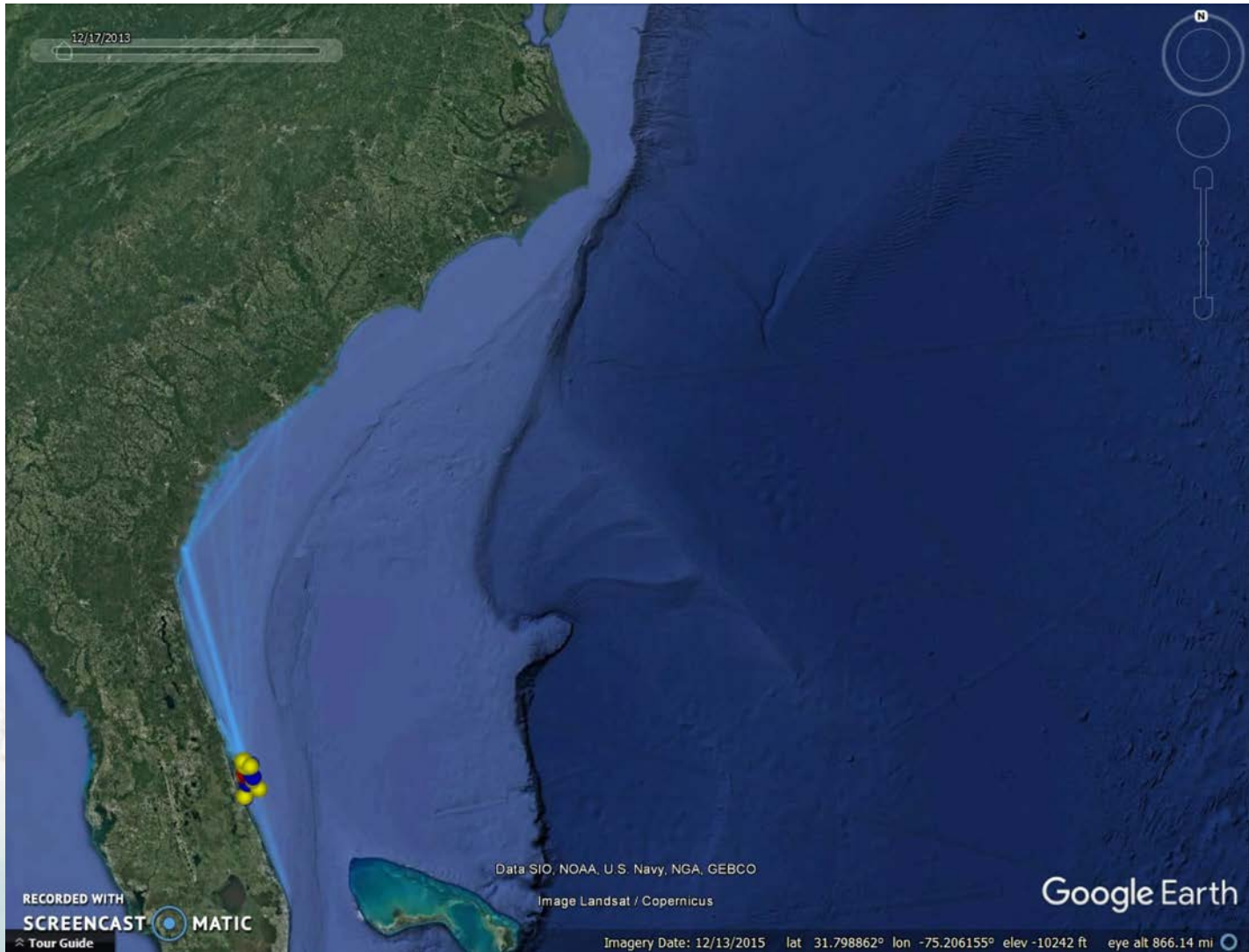


# ACOUSTIC TELEMETRY TO MONITOR FISH RESPONSE TO DREDGING IN A SHOAL HABITAT

- 712 total animals tagged since late 2013.
- Some fish tracked for > 4 years
- Detections of > 200 tagged animals from other regions as far as S. FL, DE, MA, and NY
- 10 Atlantic Sturgeon



# FISH TELEMETRY





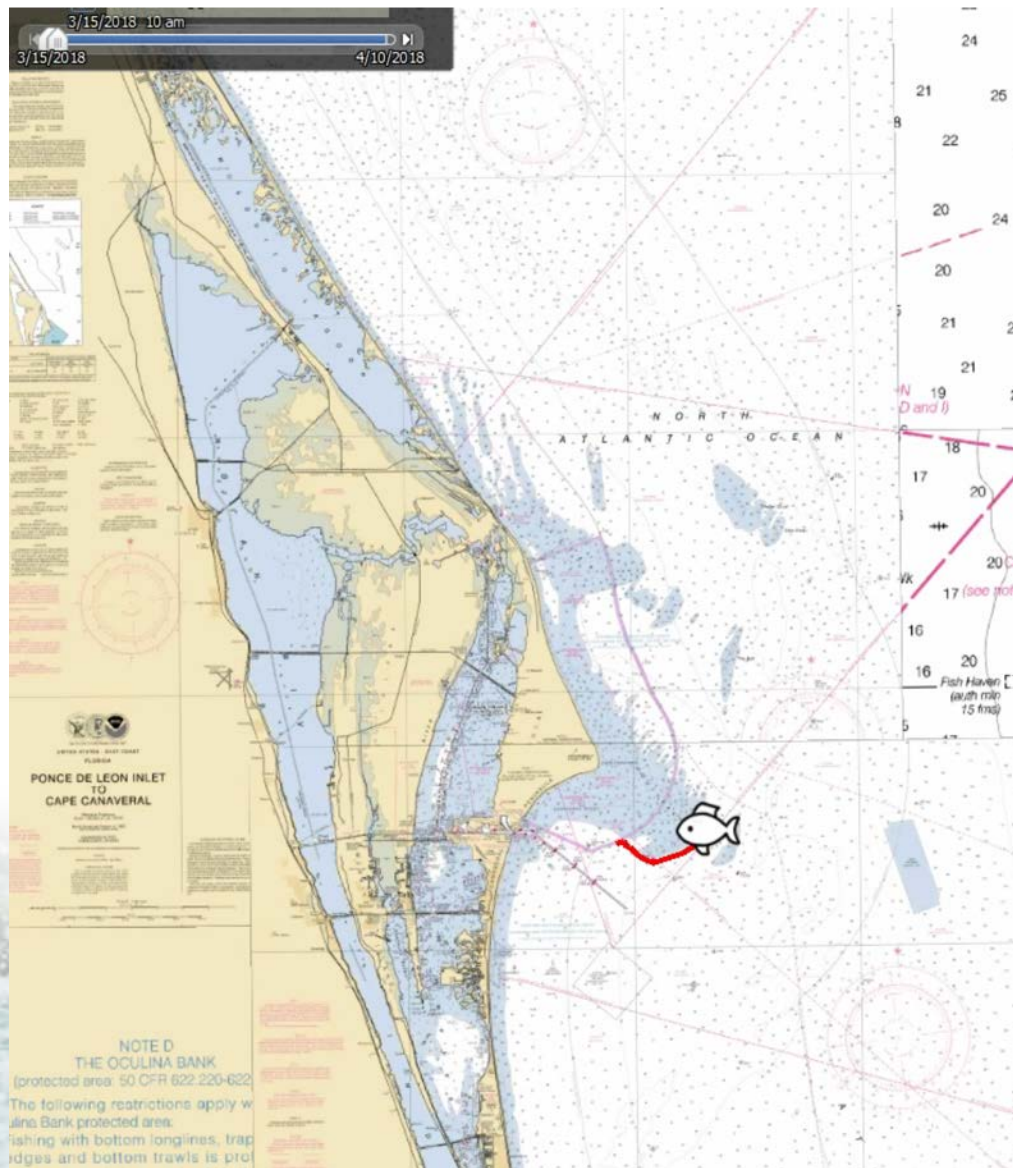
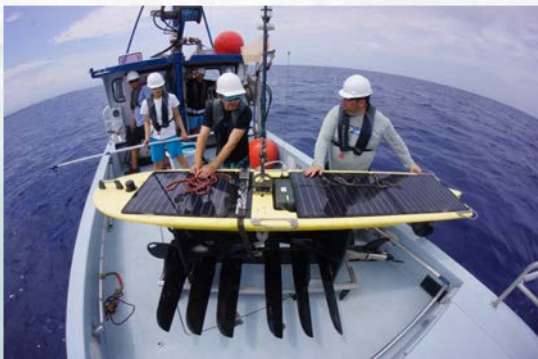
# WAVE GLIDER OPERATIONS

## Our uses:

- Expand fixed receiver arrays
- Acoustic monitoring of fishes
- Basic oceanography

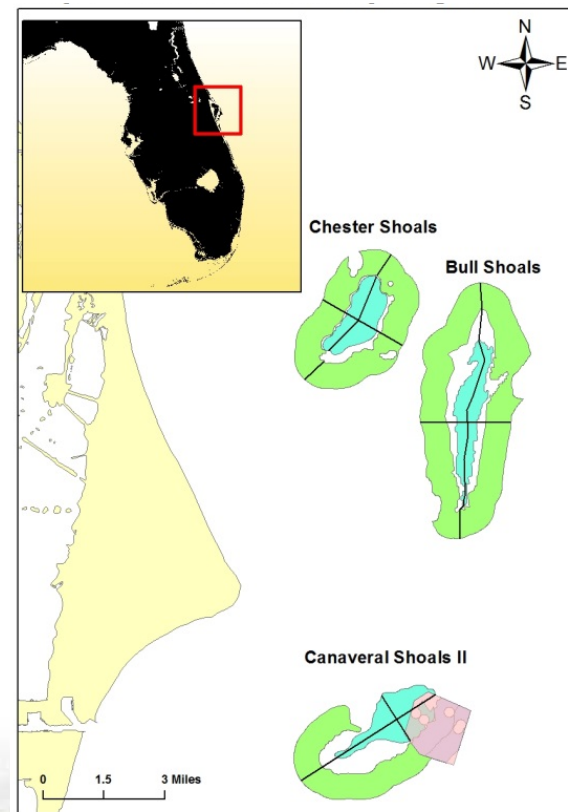
## Equipment:

- Vemco VR2W Receiver
- GPS
- Air/SST
- Weather Station
- Remora Passive Acoustic Recorder
- Fluorometer
- AIS (*non-recording used for collision avoidance*)



# ECOLOGICAL RECOVERY STUDY

- Determine **functional biological services** that are potentially compromised by dredging sand; determine degree of impact
- Monitor the **effects and recovery** of sand dredging activities on biological communities of ridge-swale habitats
- Determine the **forcing events in seasonal sediment transport** in the bottom boundary layer.
- Investigate the **mechanism of recovery of invertebrate and fish communities** associated with the ridge-swale habitats

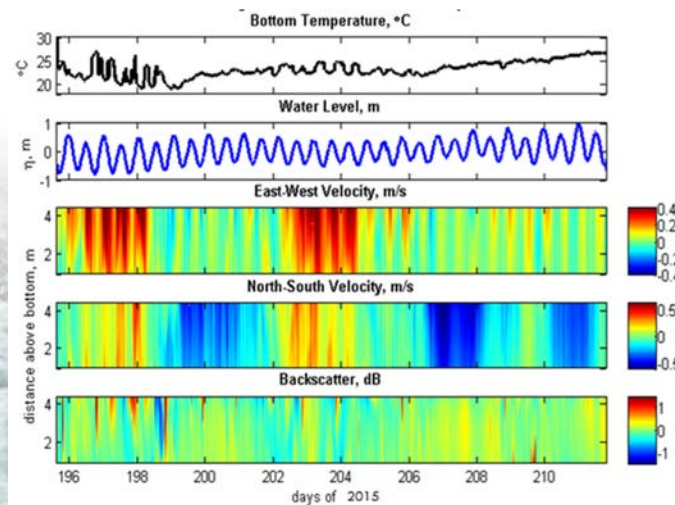
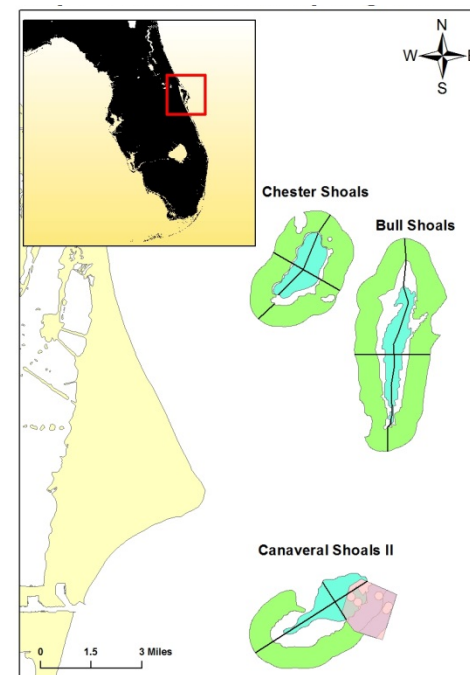




# ECOLOGICAL RECOVERY STUDY

## Biological, geological and physical sampling:

- Bathymetric surveys
- Water quality testing (fluorometer)
- Chlorophyll
- Isotopes
- Phytoplankton
- Zooplankton
- Invertebrates
- Bottom fishes
- ADCP deployments  
(towed and moored)
- Habitat classification based on  
sediments, depth



# ADDITIONAL INFORMATION

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

ESPIS: <https://marinecadastre.gov/espis/#/>

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

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

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