Florida Coastal Mapping Program

**Vision**
Accessible, high resolution seafloor data of Florida’s coastal waters to support infrastructure, benthic habitat mapping, restoration projects, resource management, emergency response, and coastal resiliency and hazard studies for the citizens of Florida.

**Mission**
Coordinate across Federal and FL State agencies, and other stakeholders, to build a comprehensive understanding of the Florida coastal seafloor.

Philip Kramer, Ph.D.
Director, Florida Institute of Oceanography
**Who Benefits?**

- Fishers
- Researchers
- Coastal residents
- Environmental managers
- Resource managers
- Recreational boaters
- Beach goers
- Coastal cities and counties
- Maritime transportation
- Ports
- Surfers
- Marine fisheries

**Why Now?**

- New technologies and processing tools allow for efficient mapping.
- Increasing threats from storms and sea level rise.
- Increasing pressure on marine resources and fisheries.
2007

- USGS, FDEP, and SRPPS Florida marine mapping workshop
  → mapping coastal resources was a top priority
    - High resolution bathymetry
    - Coastal elevation
    - Shoreline changes
    - Subsurface geology
    - Benthic habitats

- Identified lack of coordination, priorities, and a mapping plan

- Little follow-up on the workshop recommendations for improving coordination

Until Now!
Why Map Florida’s Coastal Waters?

- State of Florida has one of the most valuable coastal zones in the nation (over $30 billion in revenue per year) that extends over 1,300 miles of coastline, the longest coastline in the lower 48 states.

- Florida has the greatest number of recreational boats and saltwater fishers in the US and large concentrations of people and infrastructure in the coastal zone.

- The coast is highly vulnerable to hurricanes and sea level rise impacts.

- Many areas of the Florida coast have not been mapped, or existing maps are old and of low resolution.

- New high resolution maps of the seabed are a necessary investment if Florida is going to continue to grow its Blue economy and facilitate sustainable aquaculture and alternative energy.

- New high resolution maps will dramatically increase scientific baseline characterization of coastal resources (sand availability and habitats) and processes that drive changes.

“You can’t measure it, monitor it, or restore it if you don’t know what “it” is”
(modified from Sam Johnson, CSMP)
Low versus High Resolution

BOEM data; image from: https://www.smithsonianmag.com/smart-news/see-gulf-mexico-never-before-billion-pixel-map-180963459/
HRB can help inform coastal rebuilding: Identifying sand sources/mitigating impacts to extract sand for rebuilding around SLR.
HRB can help grow Florida’s Blue Economy: Renewable energy in Florida
HRB can help grow Florida’s blue economy: Aquaculture
HRB can inform tourism and increase value of diving and recreational fishing

> 3,200 artificial reefs in Florida and growing
Technical Team Data Inventory and Portal

Acoustic data:
- Multibeam bathymetry (2-200 m)
- Sub-bottom Chirp (0-200 m)
- Side Scan Sonar (0-200m)
- Seismic Profiling (boomer)

Optical data:
- Bathymetric Lidar (seafloor bathymetry to 10m)
- Coastal Lidar (coastal elevation and very shallow water bathymetry)
<table>
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<th>Region</th>
<th>Percent mapped (nearshore)</th>
<th>Percent mapped (shelf)</th>
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6 Regions Prioritization

- Panhandle
- Big Bend
- West FL Peninsula
- FL Keys
- SE Coast
- NE Coast
Florida Coastal Mapping Program
Regional Prioritization Workshops
2018-19

Big Bend Workshop (Cedar Key)- September 6, 2018
West Florida Workshop (St. Pete)- December 4, 2018
SE Florida /Keys Workshop (Ft Lauderdale)- March, 2019
NE Florida Workshop (Jacksonville)- April, 2019
Panhandle Workshop (Pensacola)- May/June, 2019
### Linking FCMaP to Other Mapping Efforts

<table>
<thead>
<tr>
<th>Mapping Effort</th>
<th>Organization</th>
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<tbody>
<tr>
<td>MMIM</td>
<td>BOEM</td>
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<tr>
<td>GOMOSES Benthic Habitat Workshop</td>
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Funding/Next Steps

• Immediate: Funding for a coordinator/technical position.

• Develop a funding strategy for high-resolution bathymetry (HRB) that includes federal and state sources and an action plan for undertaking the required mapping within 10 years.

• Update Portal with missing data & planned/funded federal efforts.

• Determine minimum habitat resolution standard for derived products.

• Prioritize coastal seafloor mapping by region.

• Take-away: “Map once, use many times!”
Demonstration Studies

- Multi-mission, multi-agency demonstration of capabilities of FCMaP members to address coastal priorities.

- In alignment with CMAP and MMP, develop and implement a 3-tier approach for establishing a workflow for Gulfwide RESTORE projects:
  1. High resolution baseline elevation data
  2. Derivative products (e.g. benthic habitat maps)
  3. Visualization and outreach

- Multibeam, topobathy lidar, side-scan sonar, sub-bottom, ground-truthing

- Big Bend, FL (2019)

- Other priority urban areas (TBD?)
FCMaP & Joint Meeting of the Treasure Coast and South Florida Regional Planning Council

SE Florida /Keys Prioritization Workshop (Ft Lauderdale)  
date (TBD); venue (TBD); invitees (TBD)

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