Exploring the Southeast US: 2019 update

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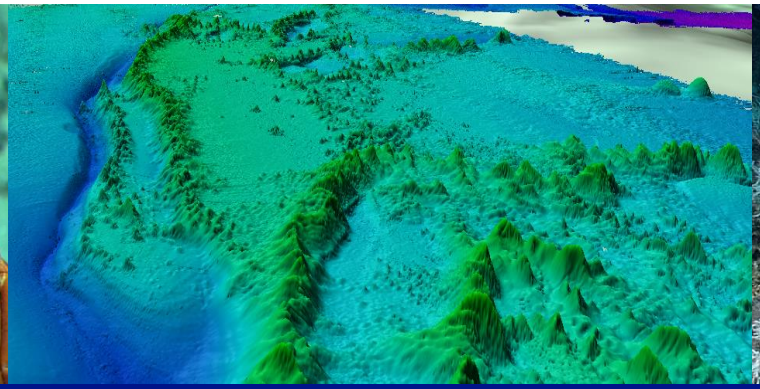
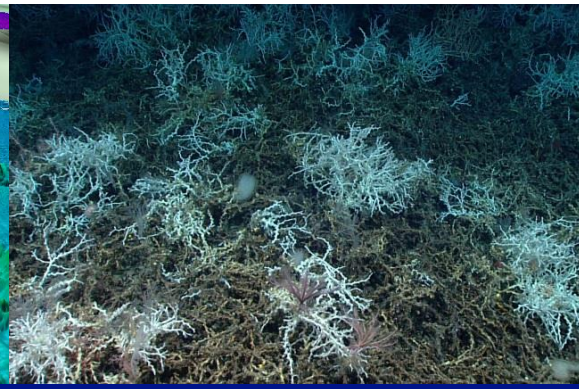



NOAA DEEP SEA CORAL Research & Technology Program

Ocean Exploration and Research


OCEAN EXPLORATION
Seafloor Mapping
Visual Surveys
Sampling
Inform traditional and renewable energy siting
Evaluate availability of critical minerals resources
Discover new species with biopharmaceutical/ biotechnology potential
Assess populations and habitats of managed marine species
Drive innovation of novel technologies
Inspire and educate the next generation of STEM professionals

Field Activities Update

DEEP SEARCH (April 2019)

Planned:

- *Okeanos Explorer* mapping and ROV (May-July 2019)
- *Ronald Brown* mapping (June 2019)
- *Nancy Foster* Mapping (August 2019)

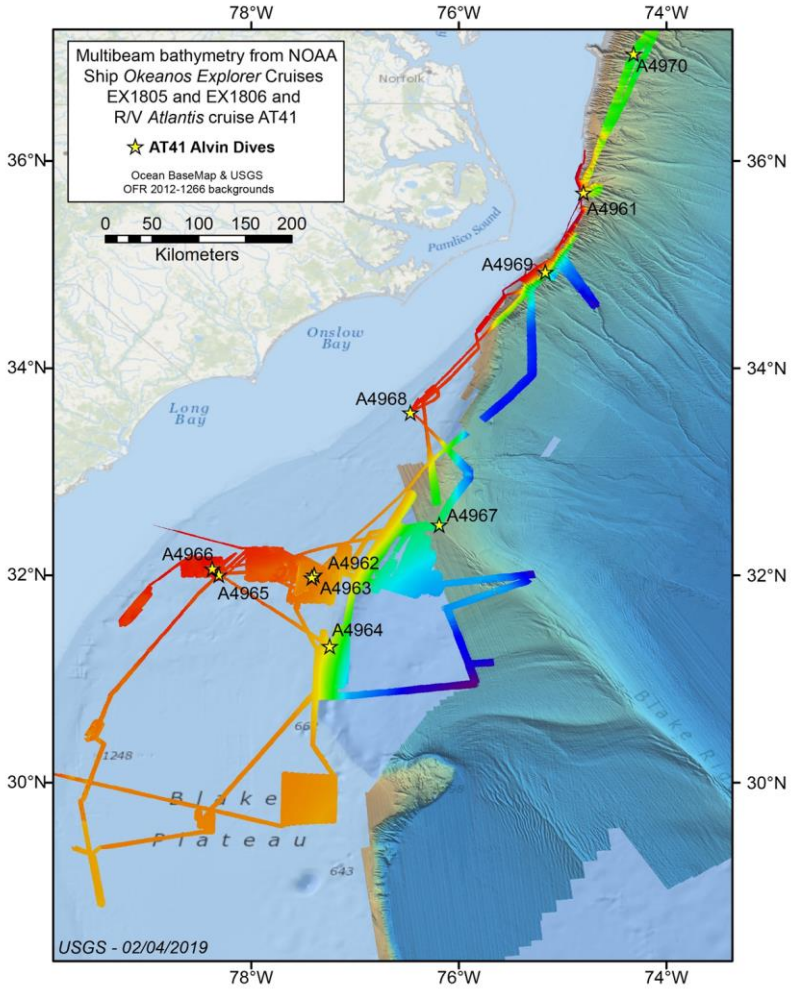
Begin scoping FY2020 schedule

DEEP SEARCH

- 4.5 year BOEM-NOAA-USGS interagency project
- BOEM science contractor: TDI-Brooks International, project manager: Dr. Erik Cordes (Temple University)
- USGS supporting 5 complementary science teams, lead: Dr. Amanda Demopoulos
- Goal: understand the ecology and distribution of sensitive deep-sea habitats within BOEM's Mid- and South Atlantic planning area to inform future management and conservation of natural resources

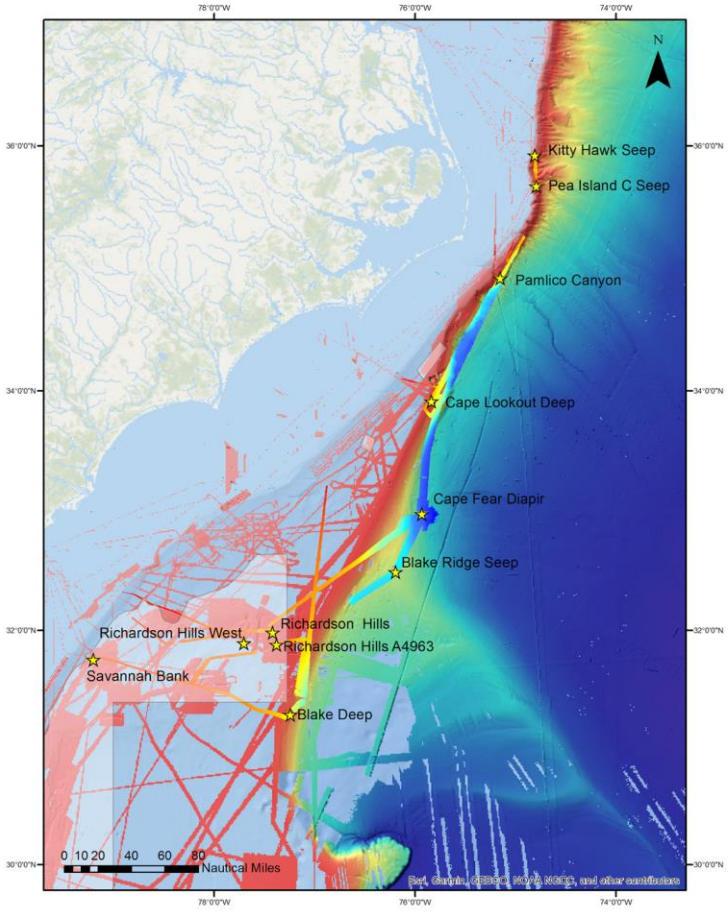
AT-41 Expedition Summary

- R/V *Atlantis,* HOV *Alvin*
- August 19 - September 2, 2018
- Eleven 8-hour dives at 3 canyons, 2 seeps, and 4 coral sites
- Augmented *Okeanos Explorer* mapping in the region with an additional 8,233 square kilometers mapped
- Collected over 1,200 biological and geological samples with HOV, CTD casts, monocore, and multicore
- Characterized 85 miles of discontinuous *Lophelia* reef 160 miles offshore Charleston, SC



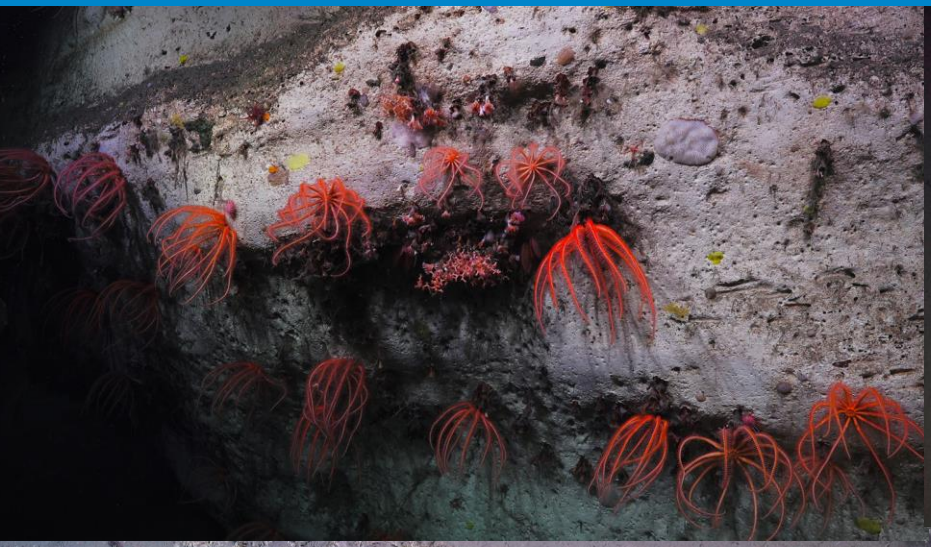
RB-1903 Expedition Summary

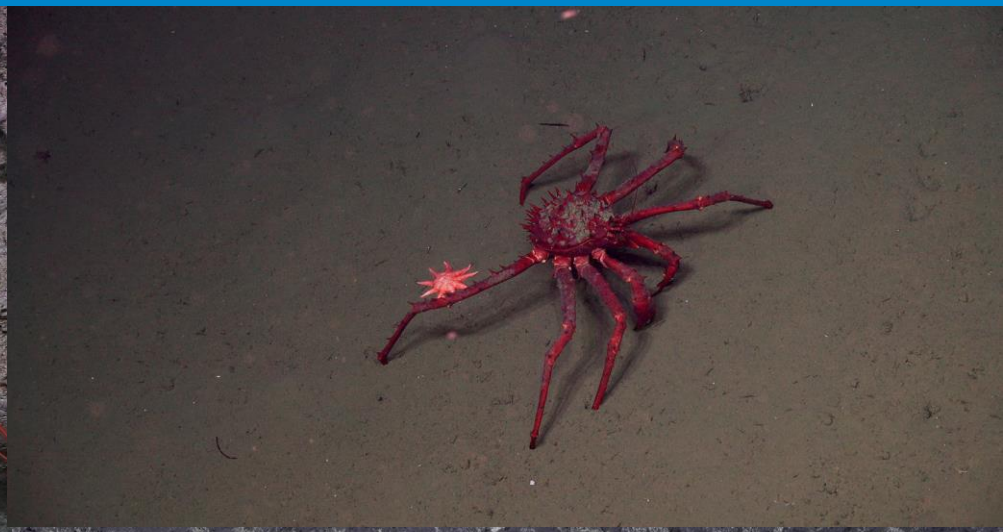
- NOAA Ship *Ronald H. Brown*, ROV *Jason*
- April 9 - April 30, 2019
- Eleven dives (ranging from 4-24 hours) at 1 canyon, 4 seeps, and 5 coral sites
- Collected over 1,600 biological and geological samples with ROV, CTD casts, and monocore
- Discovered vestimentiferan tube worm at Pea Island and Kitty Hawk seep sites



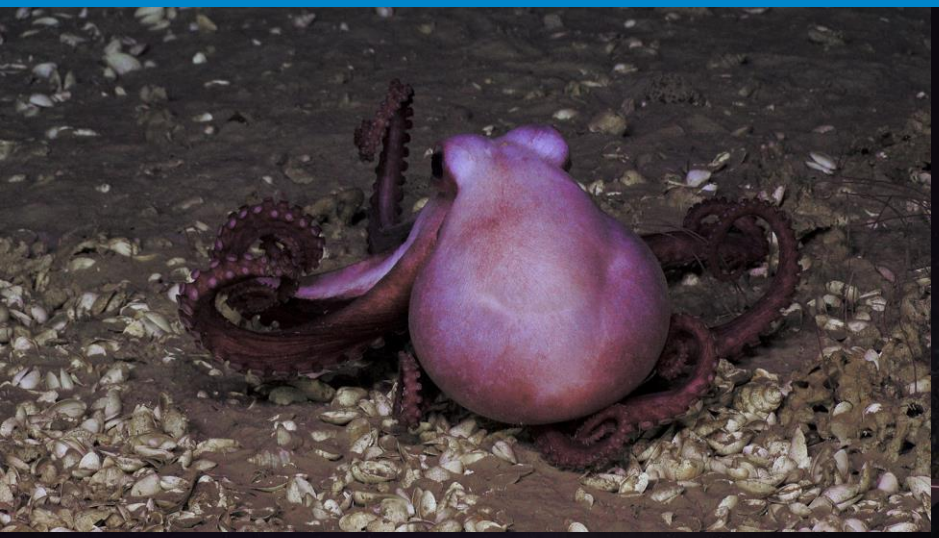
Coral Habitats

Pamlico Canyon





Blake Ridge Diapir

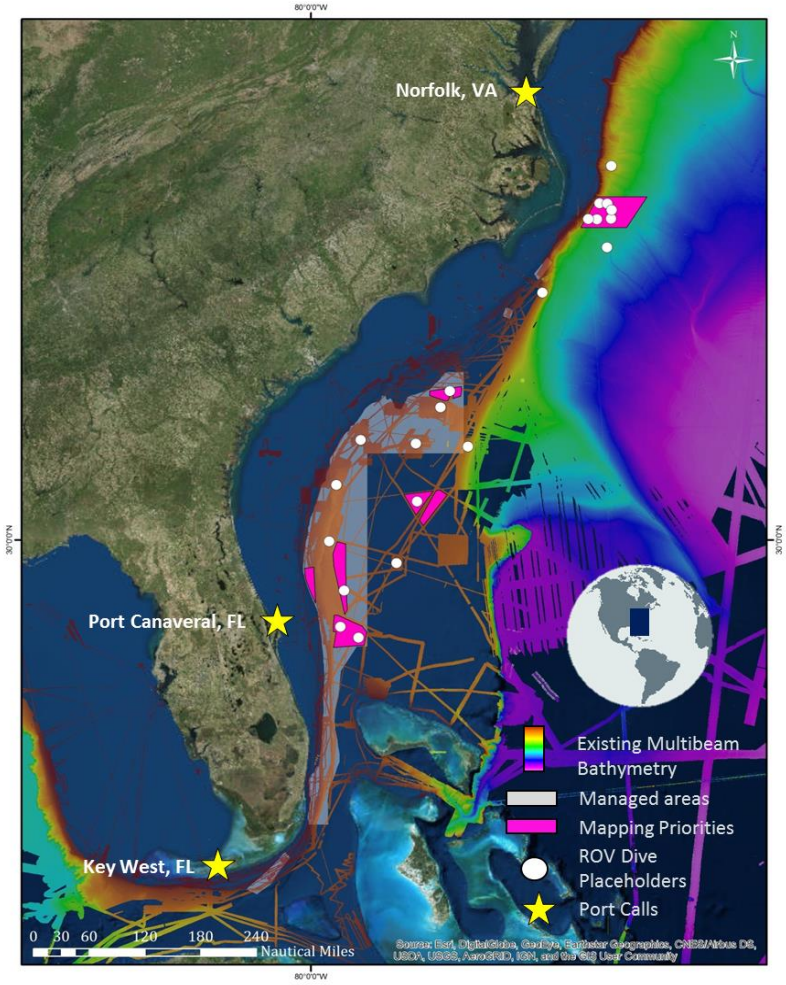


Pea Island and Kitty Hawk Seeps

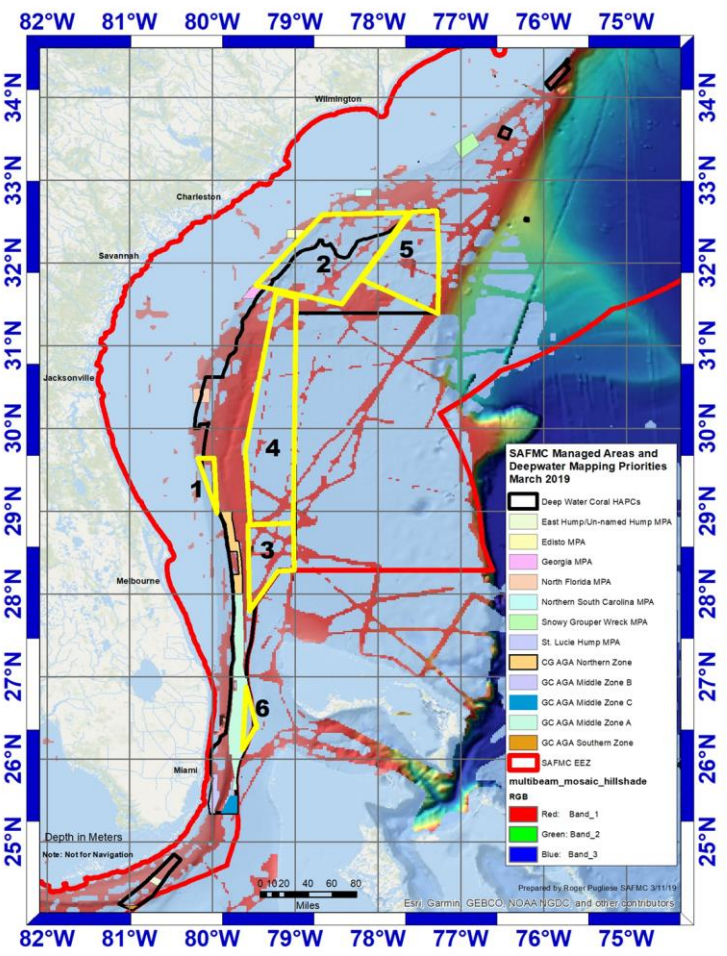
Windows to the Deep 2019

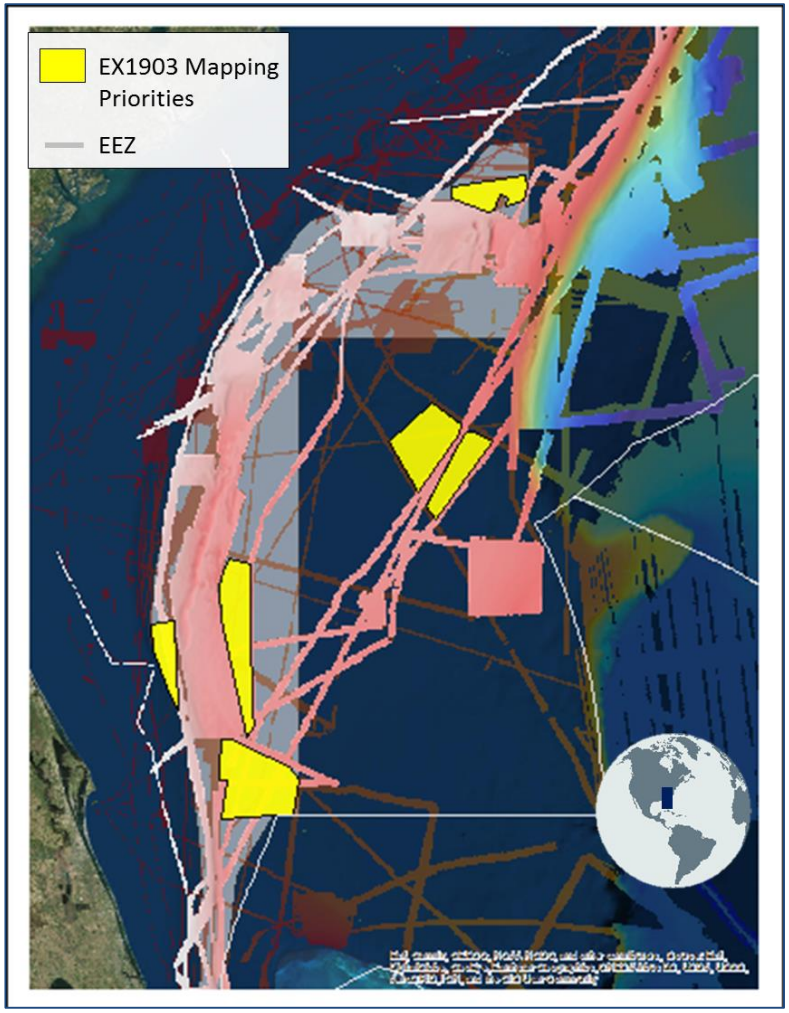
EX1903 Legs 1 & 2

- 21 ROV dives planned
  - 9 within the HAPC
  - Will include coral habitats, shipwrecks, NC Canyons, and water column exploration
- Mapping priorities identified by SAFMC



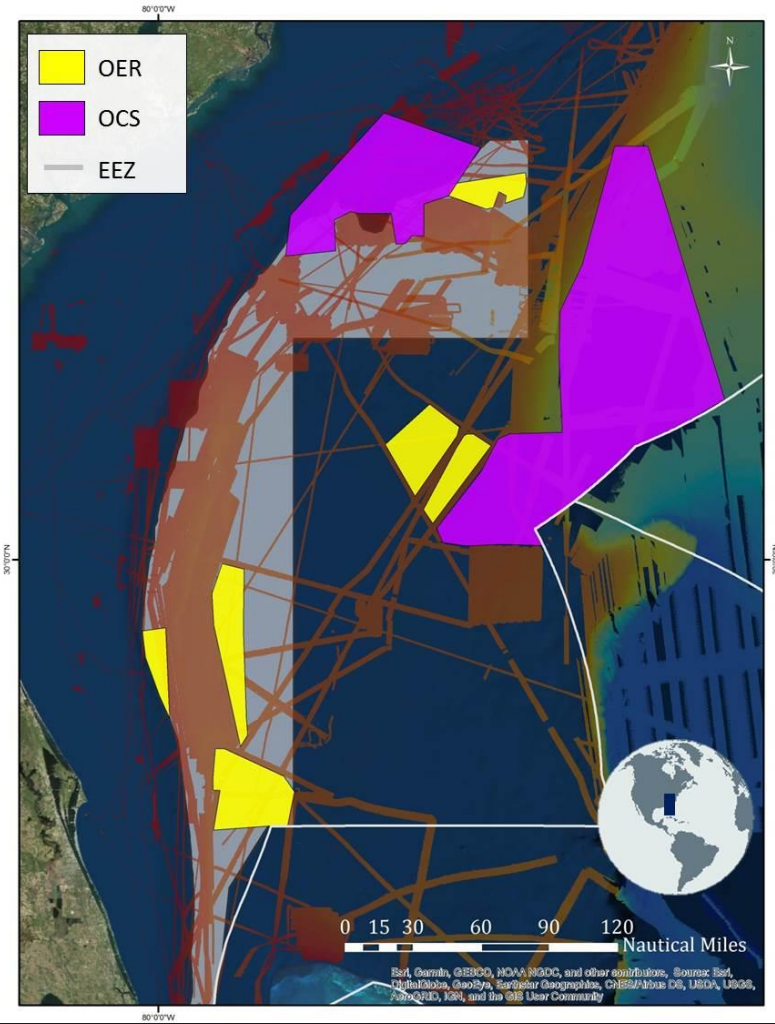
Addressing SAFMC Priorities





Blake Plateau Mapping in 2019

- NOAA Office of Coast Survey cruises on NOAA Ships *Ronald Brown* and *Nancy Foster*
- Aligns with NOAA's goal to map and characterize the US EEZ by 2030



Characterizing U.S. Deep-Sea Corals and Sponges

NOAA DEEP SEA CORAL Research & Technology Program

The Southeast U.S. region stretches from the Straits of Florida north to Cape Hatteras, North Carolina, and encompasses associated deeper waters of the Blake Plateau, as well as a small portion of the Caribbean off the Florida Keys.

Within U.S. waters, deep-sea stony coral reefs reach their greatest abundance and development in this region. This warm temperate region is strongly influenced by the northern-flowing Gulf Stream ocean current.

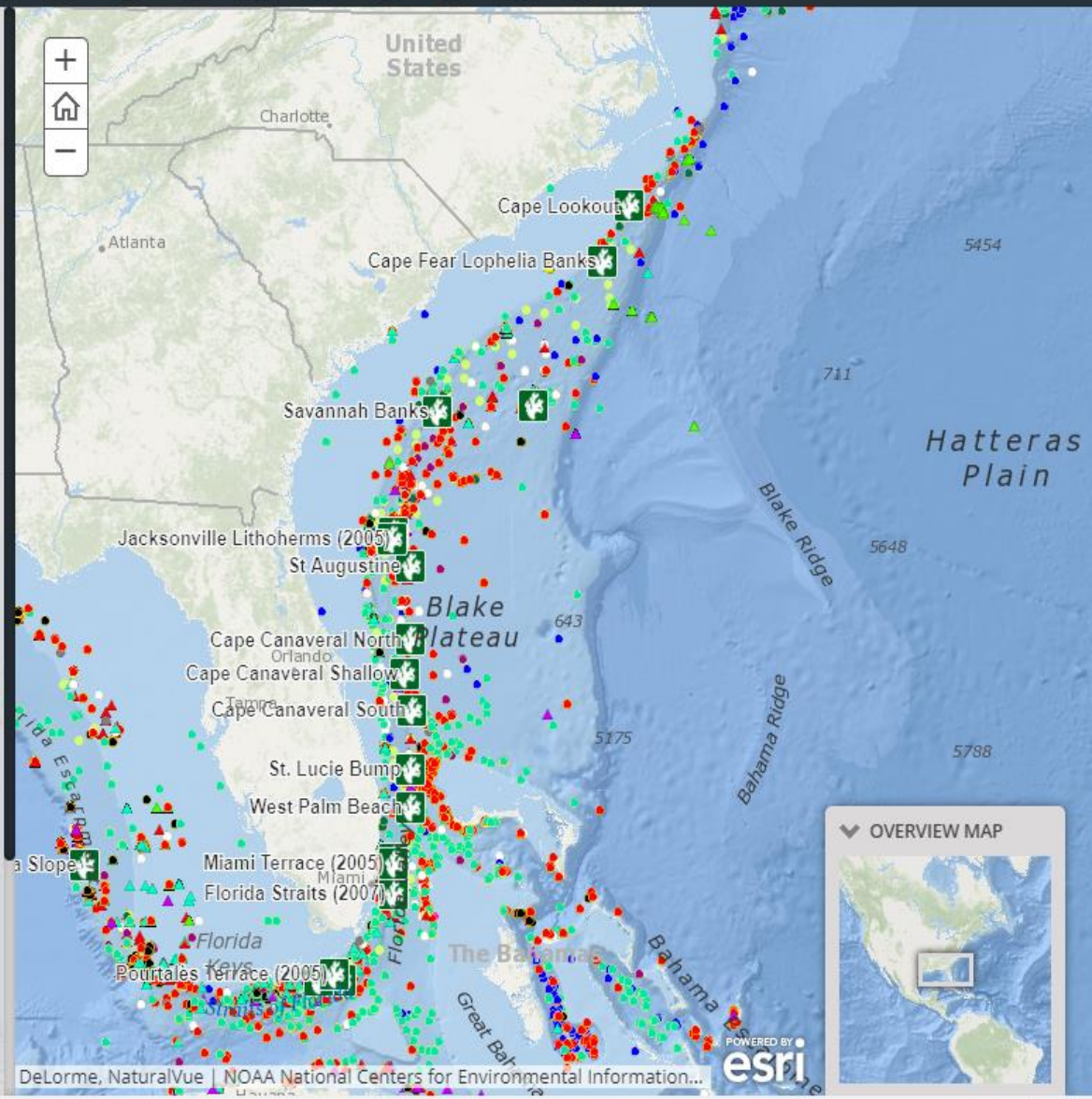
See also: *State of Deep-Sea Coral and Sponge Ecosystems of the U.S. Southeast Region*

Sponges

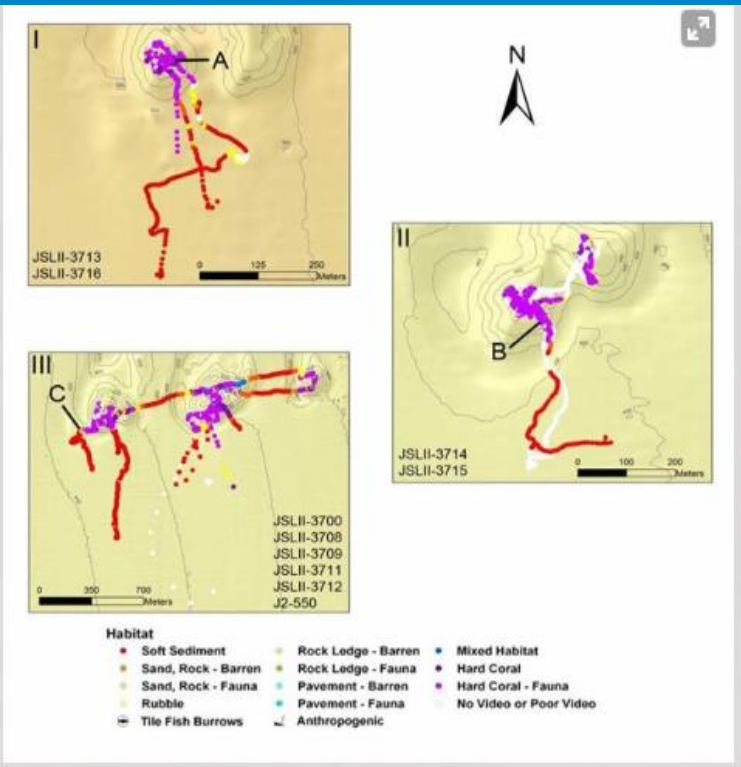
- Calcareous Sponge
- Demosponge
- Glass Sponge
- Homoscleromorph Sponge
- Sponge (unspecified)

Corals

- Black Coral
- Gold Coral
- Gorgonian Coral
- Lace Coral
- Lithotelestid Coral
- Sea Pen
- Soft Coral
- Stoloniferan Coral
- Stony Coral (branching)
- Stony Coral (cup coral)



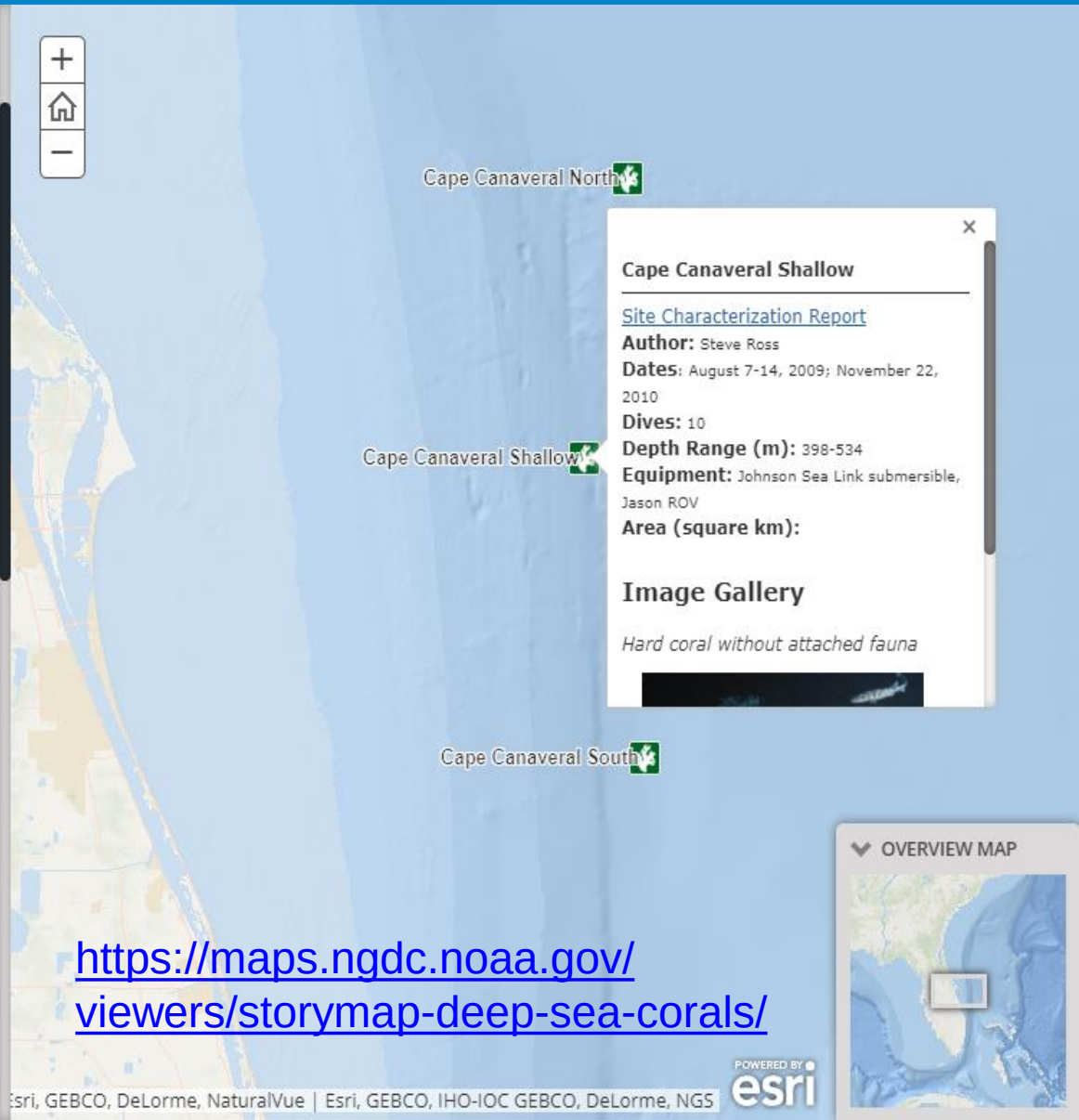
Example Site Characterization



Dive track with color coded habitat characterization. Depth contours represent 10 meters.

- **Habitat**: This site is composed of a northern section and a southern section that contains three adjacent mounds, called Triceratops (Area III), separated from each other by about 500 meters. The three mounds are *Lophelia pertusa* bioherms surrounded by coral rubble and coarse sand substrata. The central mound is the largest, reaching a depth of just under 400 meters, and the smallest mound is to the east.

- **Corals and Sponges:** All three mounds exhibit rugged topography and are capped by extensive fields of living *L.*



https://maps.ngdc.noaa.gov/viewers/storymap-deep-sea-corals/

Southeast Geodatabase

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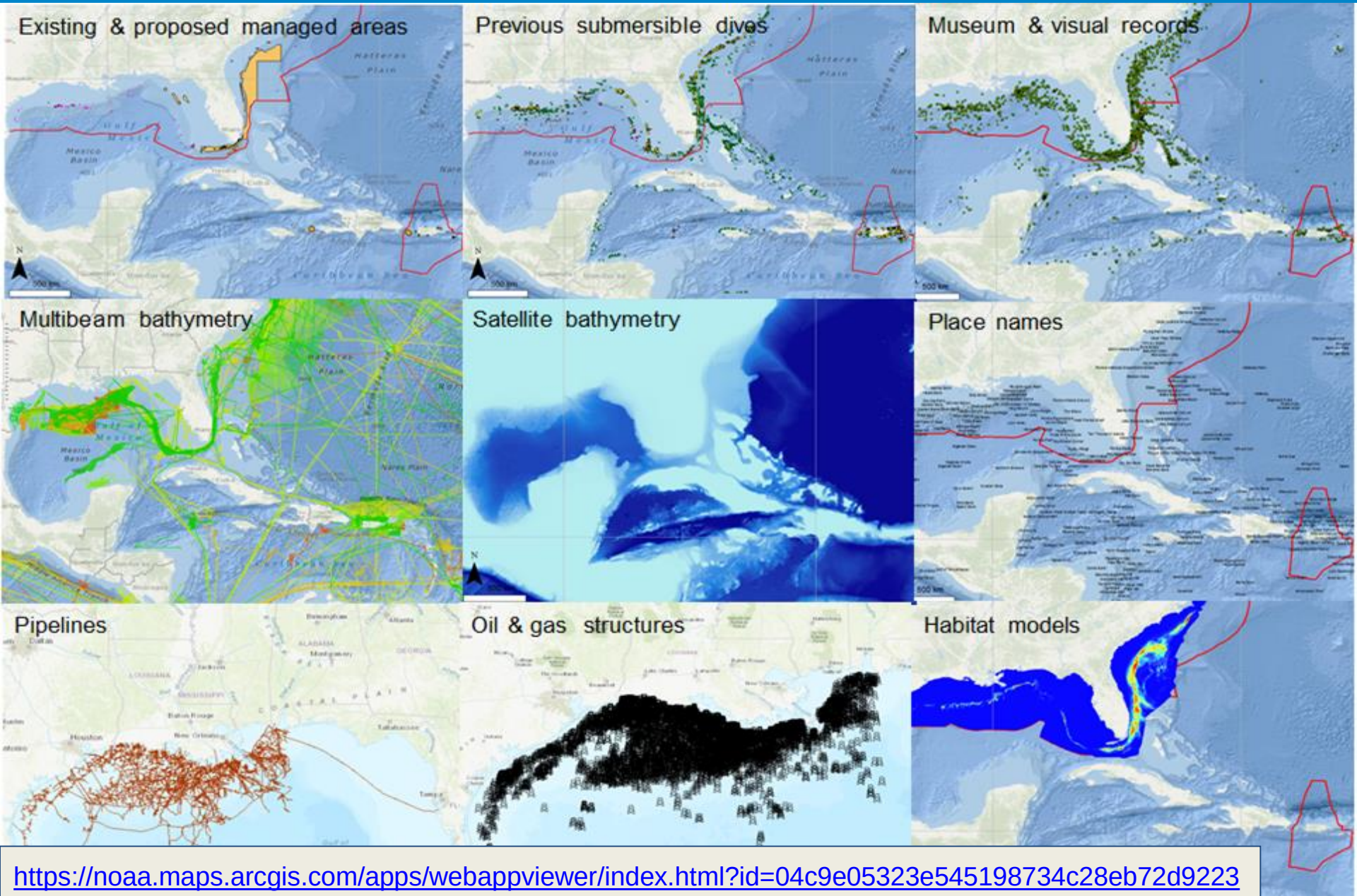

https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=04c9e05323e545198734c28eb72d9223

Deep-Sea Species Guide

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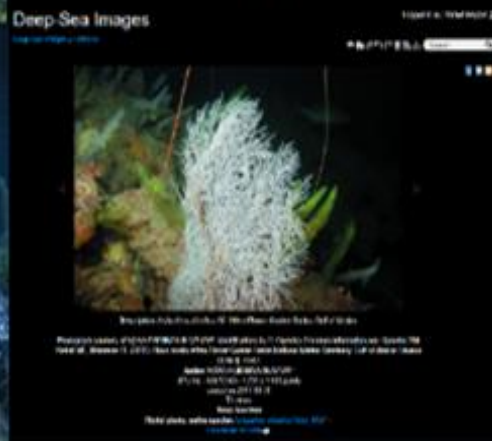

http://www.marinespecies.org/deepsea/photogallery.php