

# Ecological Connections

SECOORA Annual Meeting

Panel Discussion

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# NOAA Relevant Priorities in the Southeast Continental Shelf

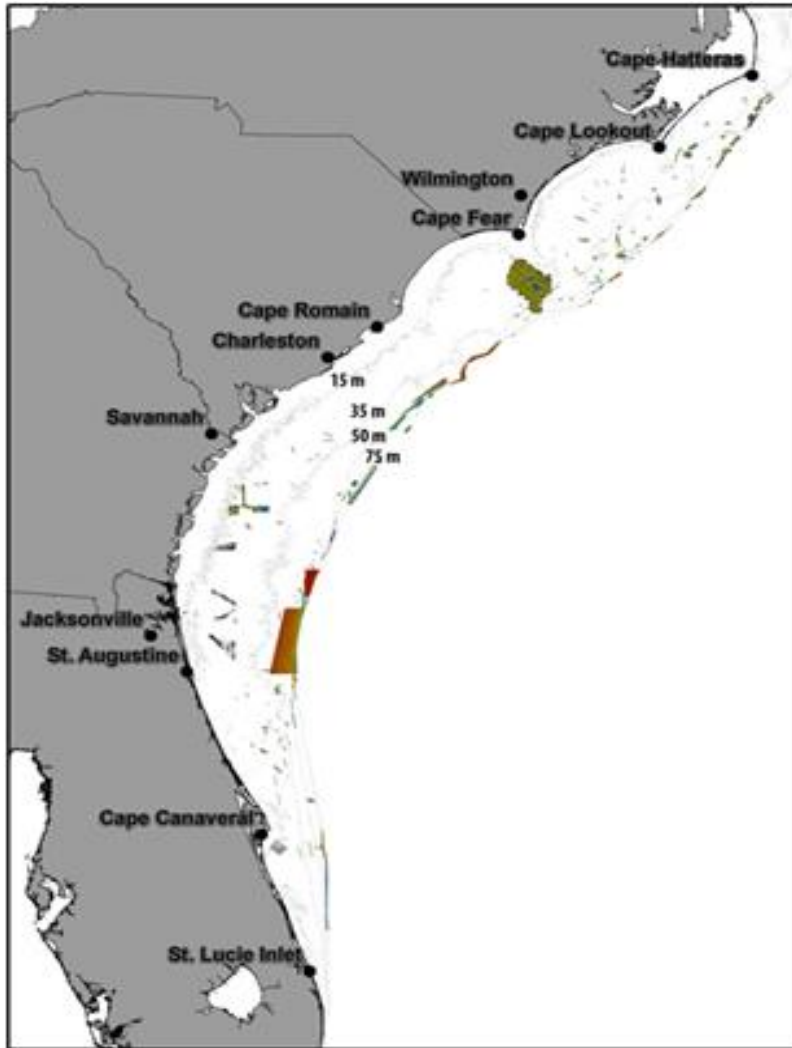
## **Fisheries Ecosystem Management and Ocean Planning**

- Living marine resource distribution and abundance linked to habitats and trophic interactions on the continental shelf
- Animal movements and habitat use through ontogeny and seasonal migrations
- Environment and climate drivers for shifts in species distribution or interactions

**Common theme:** Need better information on dynamics of habitats – both geophysical-seafloor and physicochemical-watercolumn - that support fisheries and ecosystem services



# Habitat Mapping on the SE US Outer Continental Shelf



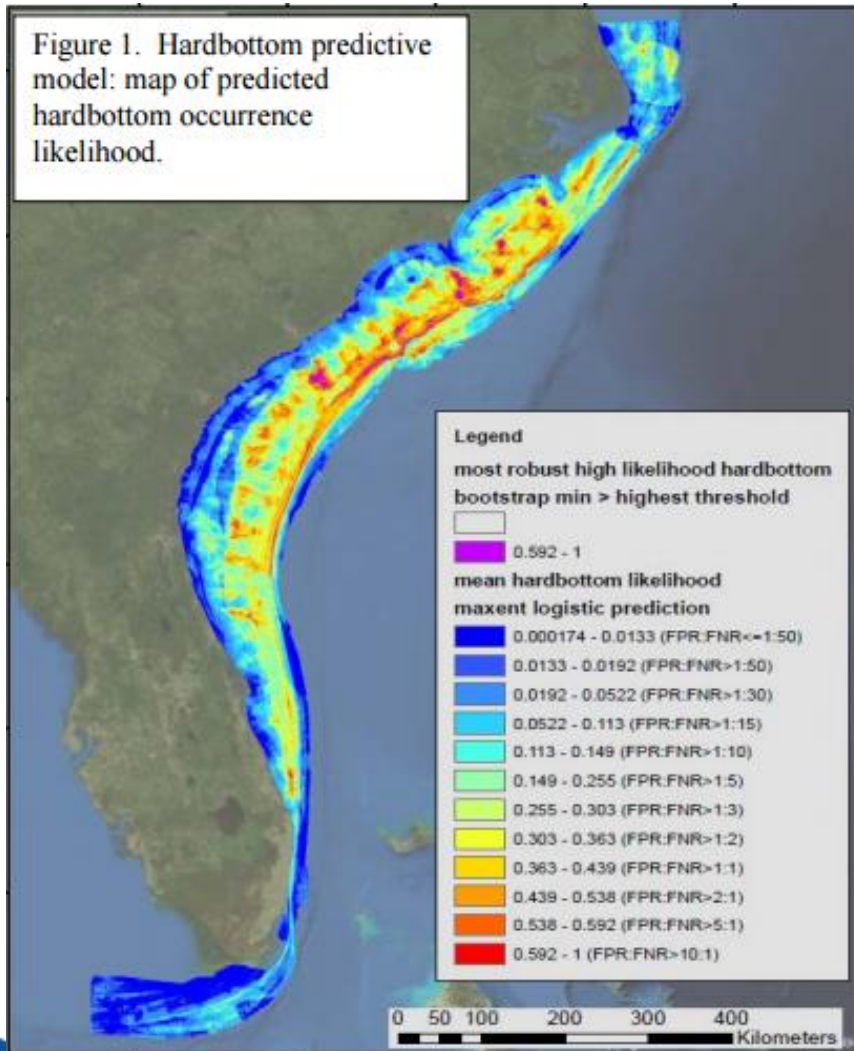
- Less than 10% of the OCS <100m depth has been surveyed using modern sonar technologies
- Less than 1% has been interpreted to seafloor habitats types
- NOAA and partners are working to prioritize mapping efforts in the region





# Habitat Mapping on the SE US Outer Continental Shelf

Figure 1. Hardbottom predictive model: map of predicted hardbottom occurrence likelihood.



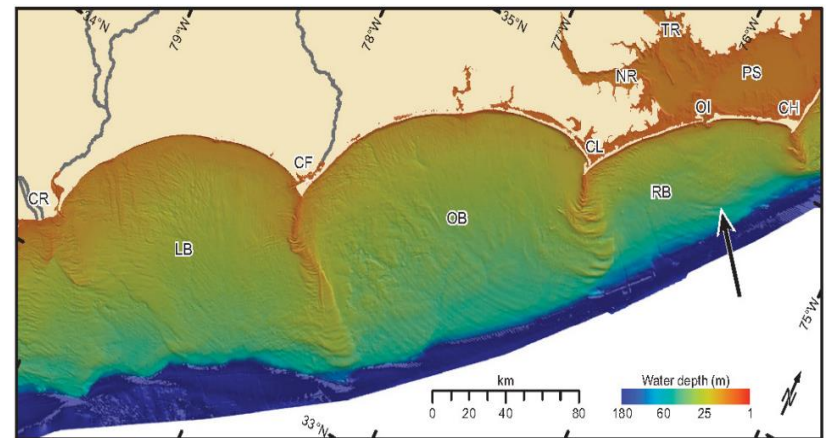
- Less than 10% of the OCS <100m depth has been surveyed using modern sonar technologies
- Less than 1% has been interpreted to seafloor habitats types
- NOAA and partners are working to prioritize mapping efforts in the region
- Continue improving models of geology and hardbottom/reef habitats



# Habitat Mapping on the SE US Outer Continental Shelf

## Sand Resources as EFH

- Regional workshop identified mapping sand resources for mining and ecological impacts as one of top SE regional priorities
- Shoals are dynamic EFH, used seasonally by migrating fishes, sharks, turtles and marine mammals
- Management/regulatory review requires better data on species migration/movements across sand shoal habitats on the shelf





# Connections Through Life-history and Migrations

## Long-term Larval Fish Monitoring

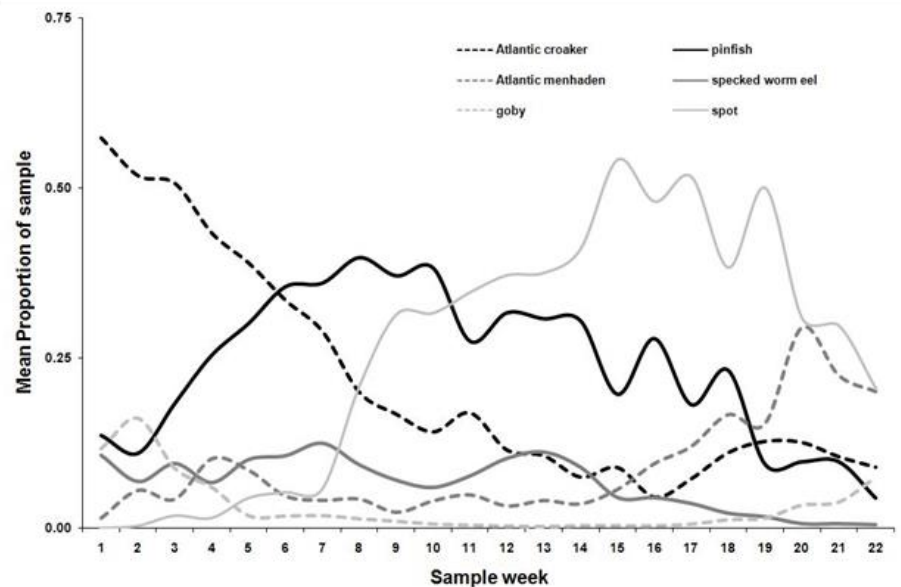
- Beaufort Bridgenet Ichthyoplankton Sampling Program (BBISP)
- 30-year time series of larval ingress through Beaufort Inlet
- Joined with Belle Baruch Lab 35-year benthic plankton program
- Rutgers U. 25-year larval ingress monitoring program



# Connections Through Life-history and Migrations

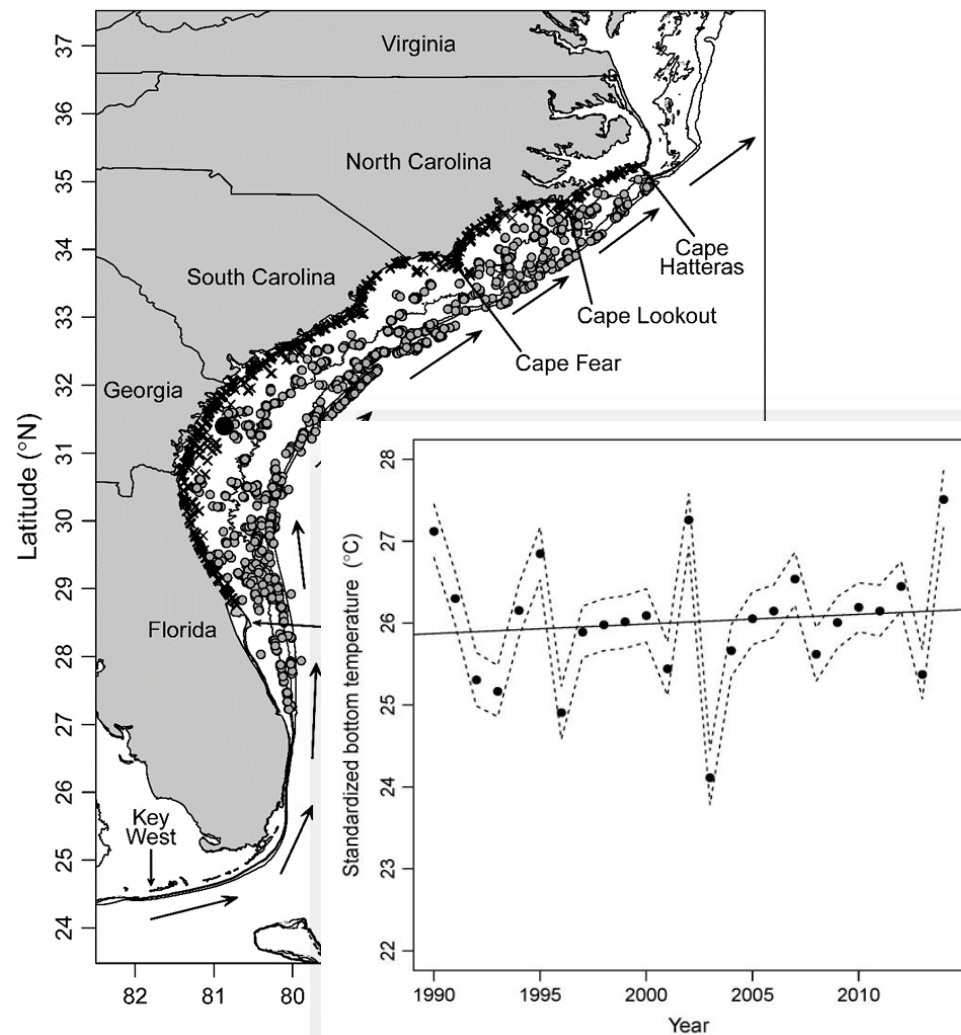
## Long-term Larval Fish Monitoring

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- 30-year time series of larval ingress through Beaufort Inlet
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- Rutgers U. 25-year larval ingress monitoring program
- Records phenology of recruitment for estuarine-dependent fishery species



# Oceanography and Climate Drivers

- Evidence (or lack thereof) for species shifts in SE
  - Anecdotal evidence for blueline tilefish shifting northward, but evidence suggests is artifact from fisheries landings
  - Review of 30-year SEAMAP trawl data indicate just as many species moving N as S
- Evidence of changes in environmental drivers?
  - No evidence of temperature changes in last 30 years (N. Bacheler, NOAA, unpubl. data)





# Requests for SECOORA Community

## ***The Problem:***

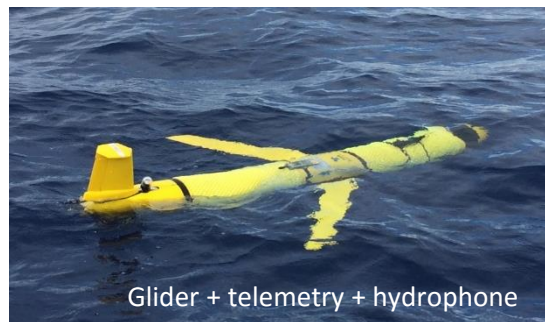
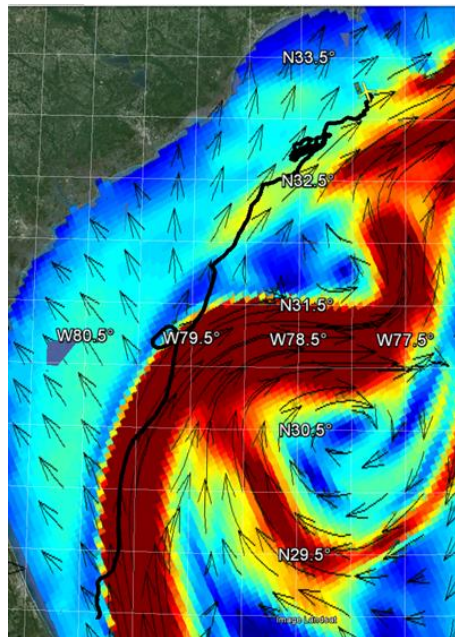
**The ocean observation system is fragmented in the SEUSA resulting in limited information on large-scale patterns of environmental change in the SEUSA region.**

- Improve ocean modeling to predict/map Gulf Stream dynamics, upwelling and bottom temperatures
- Improve mapping and predictive modeling to provide habitat maps at management-relevant scales
- Improve network of acoustic sensors for fish/animal tracking on the continental shelf

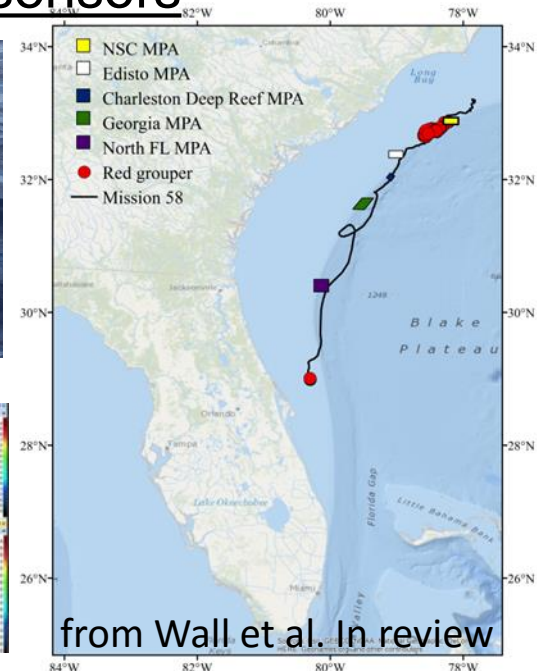
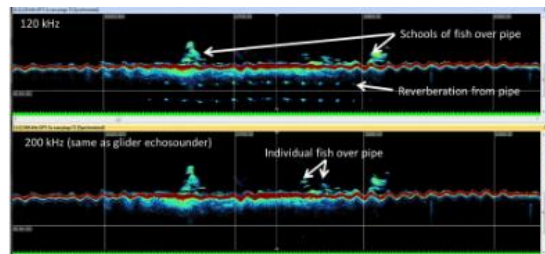


# Requests of the SECOORA Community

- Increase ocean/wave glider missions
  - Provides improved space-time data for ocean modeling
  - Provides survey platform for biological sensors



Glider + telemetry + hydrophone



from Wall et al. In review

**Platforms of Opportunities = Opportunities to Collaborate:**  
NMFS SEFSC, NCCOS and partners have ongoing studies to  
evaluate acoustic sensors on gliders and autonomous platforms

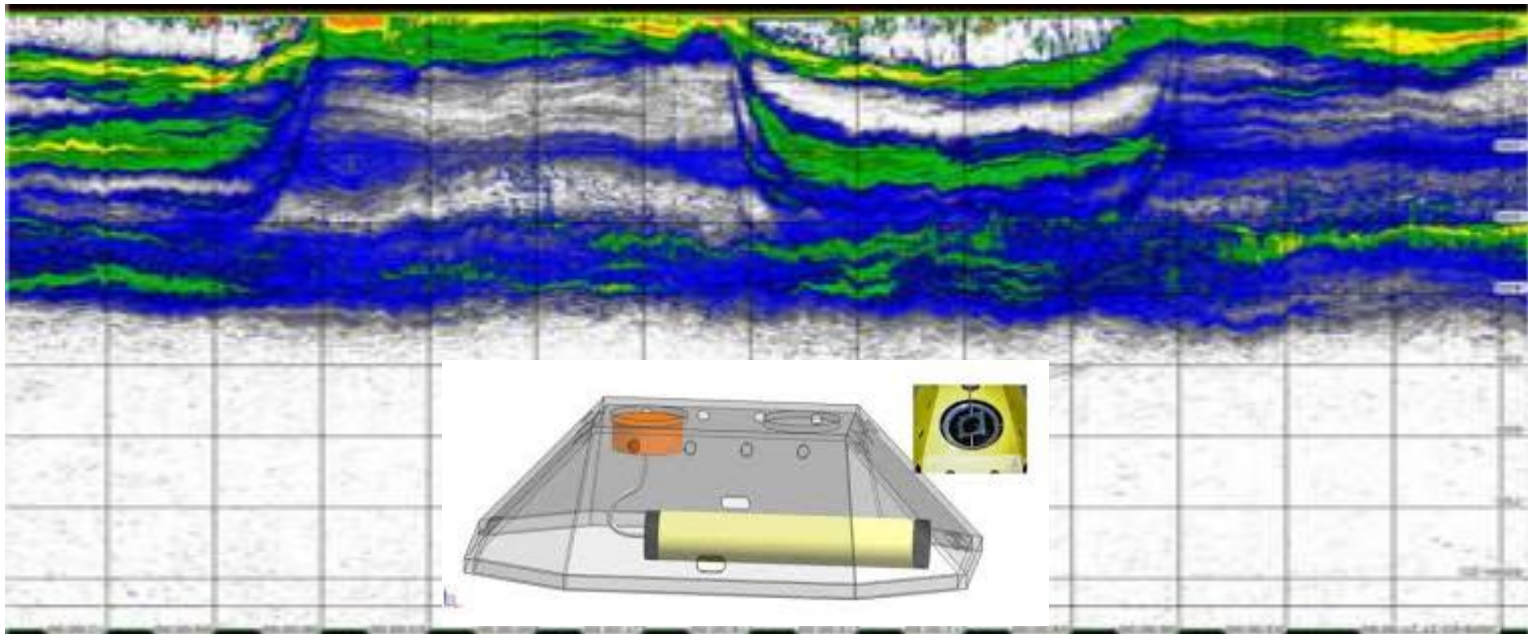


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# Requests of the SECOORA Community

- Increase “biological” sensors on moorings
  - Provides improved temporal data for bio-ocean modeling at trophic levels above primary producers



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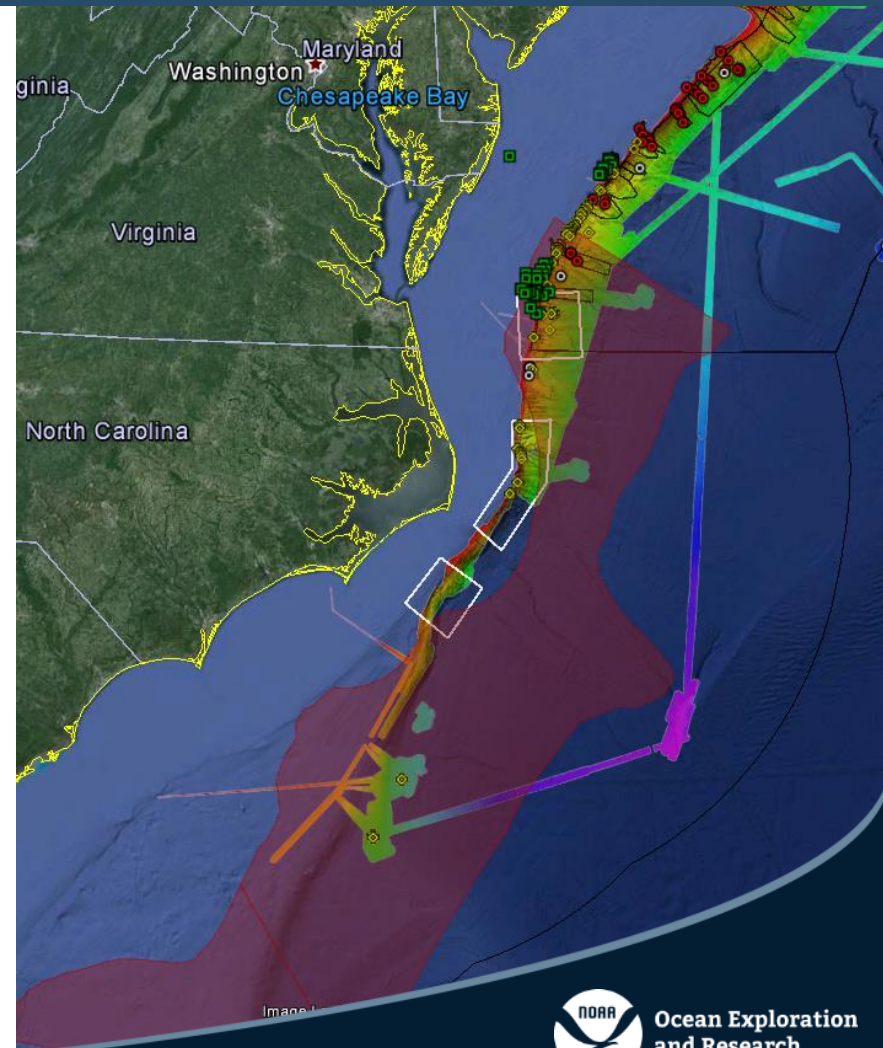
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# Evolving 2016-20 U.S. Interagency Effort: Offshore U.S. Mid and South Atlantic

- Complement 2011-2015 effort
- Federal partners – NOAA, USGS, BOEM\*
- Focus on offshore areas between Virginia and Georgia/Florida border
- Integrated science priorities:
  - Defining connectivity of vulnerable ecological communities
  - Tsunami prediction and coastal hazards
  - Science-based decision-making associated with living marine and energy resources
- Potential expansion into international TransAtlantic Campaign:



\* Pending BOEM study development and contract procurement