NOAA Ship Ron Brown / ROV Jason
Expedition RB-1903
April 9 to April 30, 2019

Erik E Cordes
Professor and Vice Chair
Department of Biology
Temple University

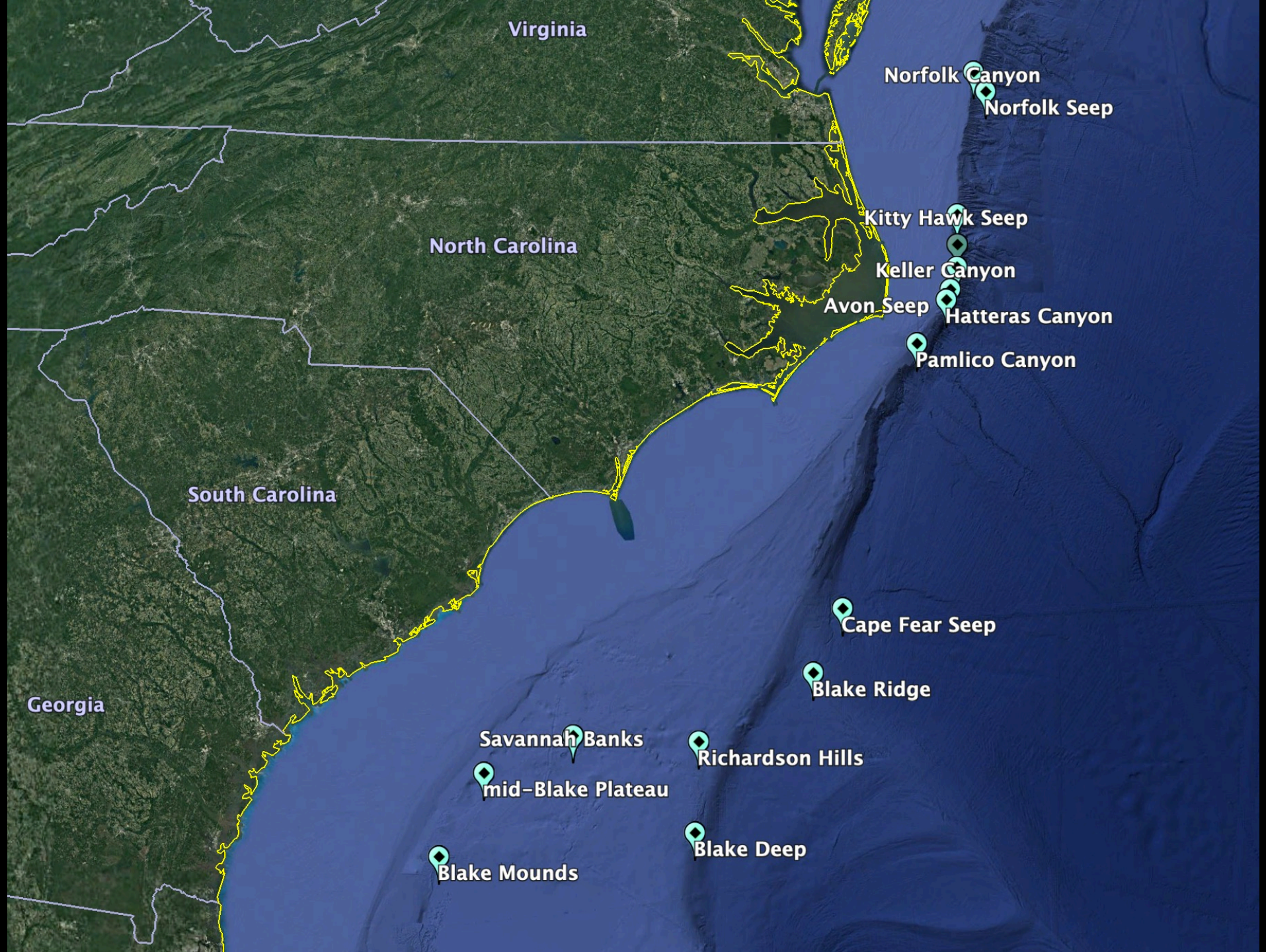
DEEP SEARCH
EXPLORE • INFORM • PROTECT

DEEP SEARCH: Deep Sea Exploration to Advance Research on Coral/Canyon/Cold-seep Habitats

RB1903 - fifth cruise of the project second submersible cruise (Alvin 2018)

Primary goals

1. Exploration of new sites and new areas within known sites
2. Sampling of corals and associated fauna for biodiversity and biogeography
3. Community sampling at seep and coral habitats
4. Sediment sampling at soft sediment sites for biogeochemistry and diversity
5. Collections of corals for live coral experiments
6. Water sampling for water chemistry and microbial diversity
7. Sediment, water, and faunal samples for eDNA work
8. Geological observations and sampling for geomorphology
9. Lander deployments


Virginia
North Carolina
South Carolina
Georgia
Norfolk Canyon
Norfolk Seep
Kitty Hawk Seep
Keller Canyon
Avon Seep
Hatteras Canyon
Pamlico Canyon
Cape Fear Seep
Blake Ridge
Savannah Banks
Richardson Hills
mid-Blake Plateau
Blake Deep
Blake Mounds


NOAA
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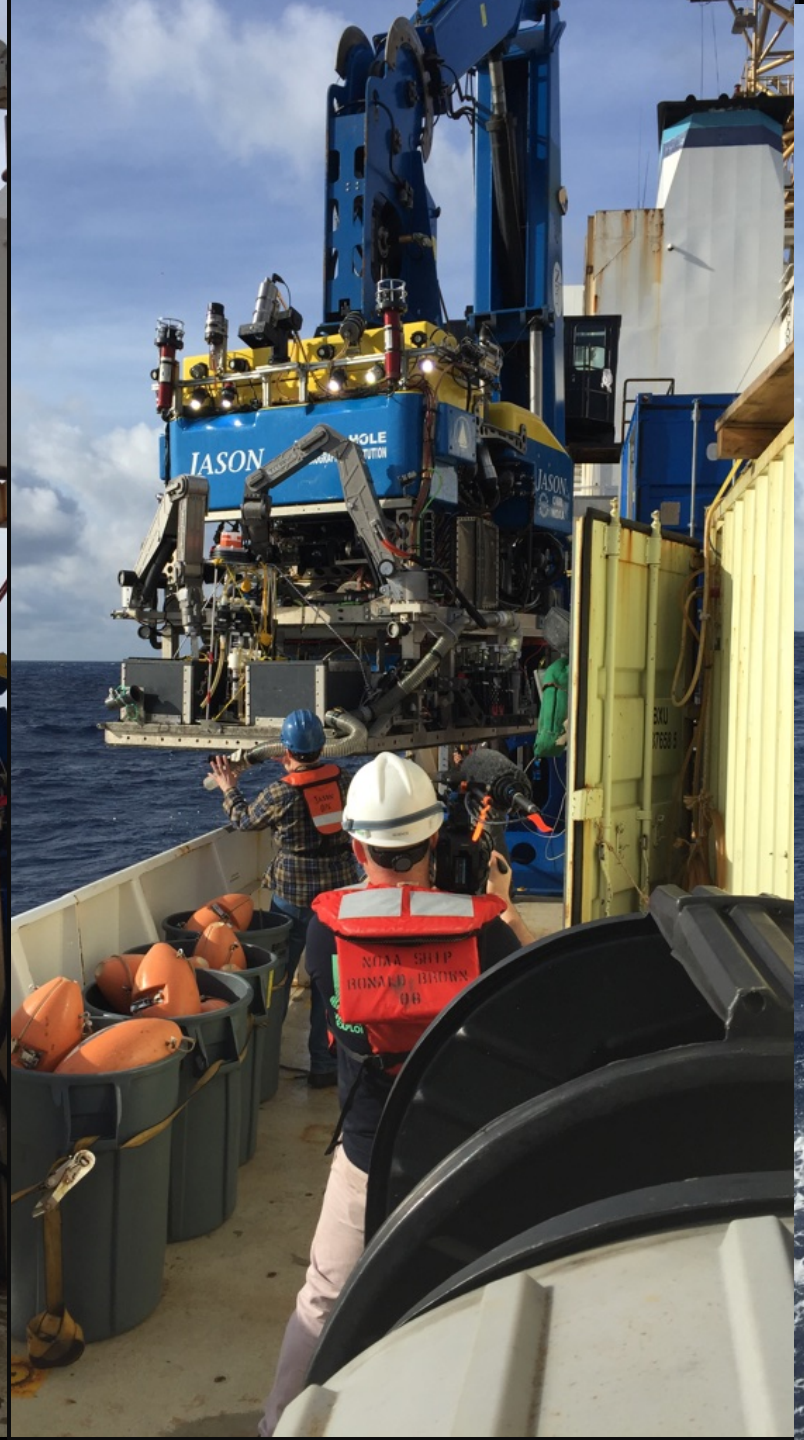
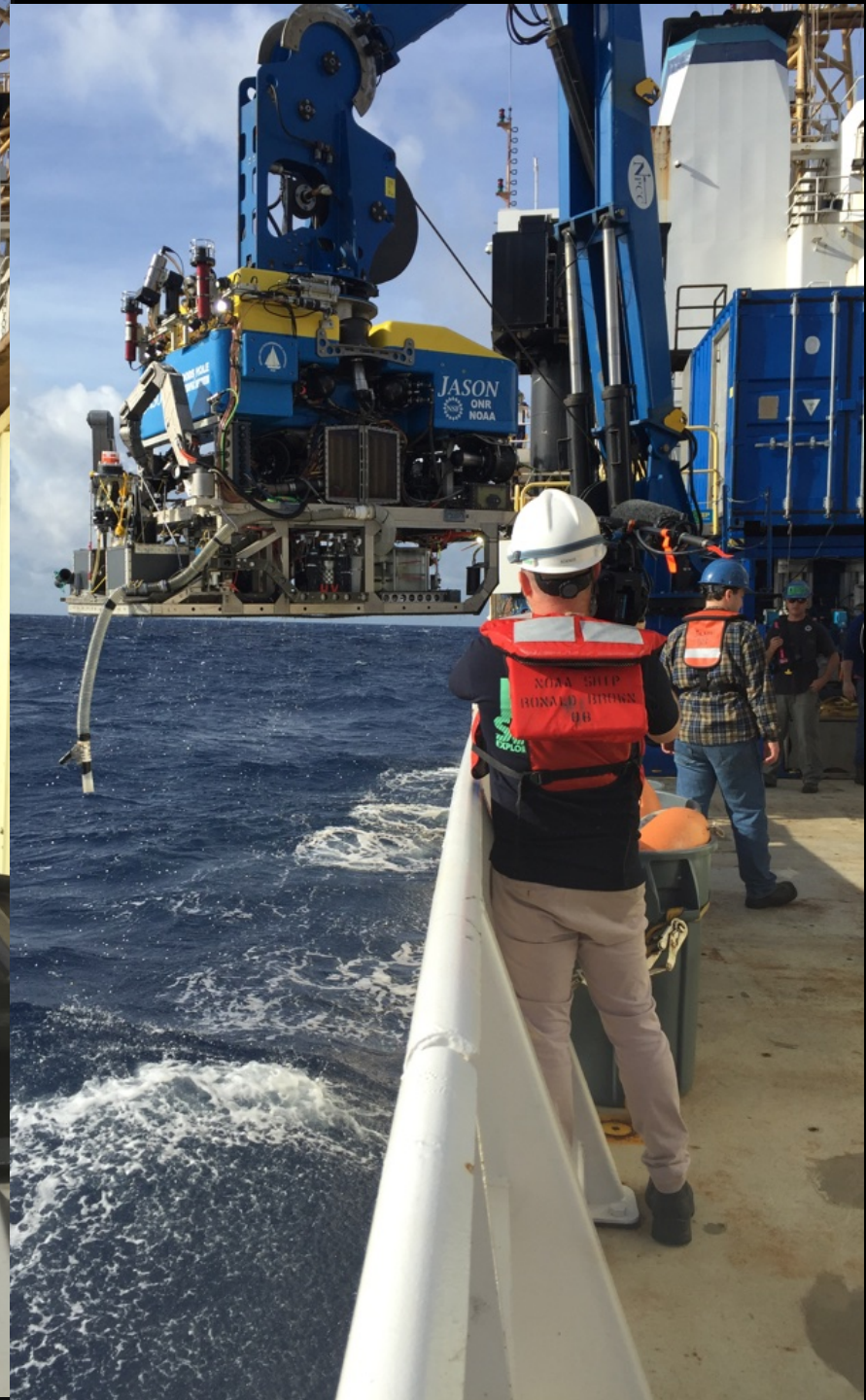
WOODS HOLE
OCEANOGRAPHIC INSTITUTION


JASON
NOAA SHIP
RONALD BROWN
06

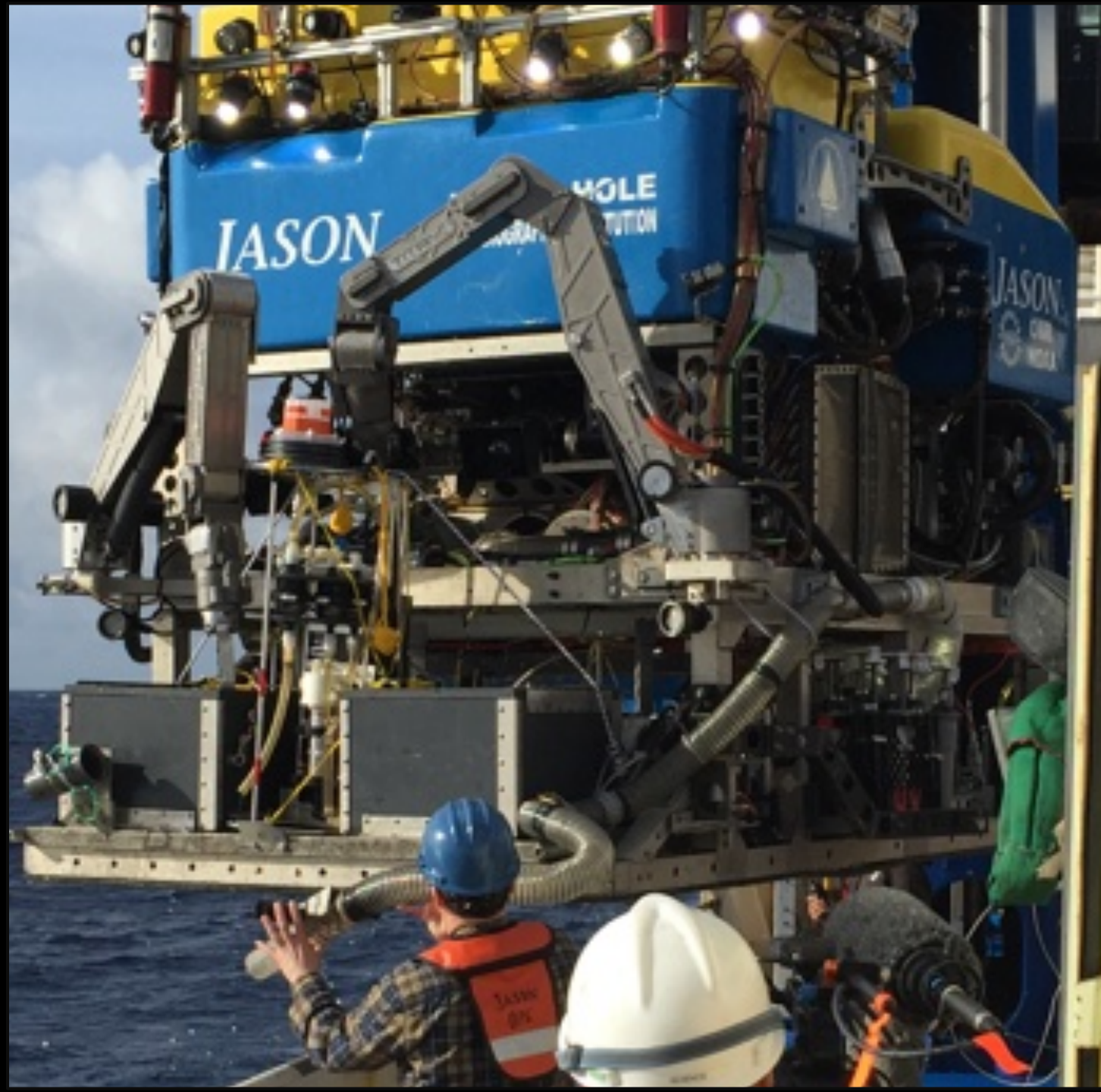

JASON
ONR
NOAA
NOAA SHIP
RONALD BROWN
06

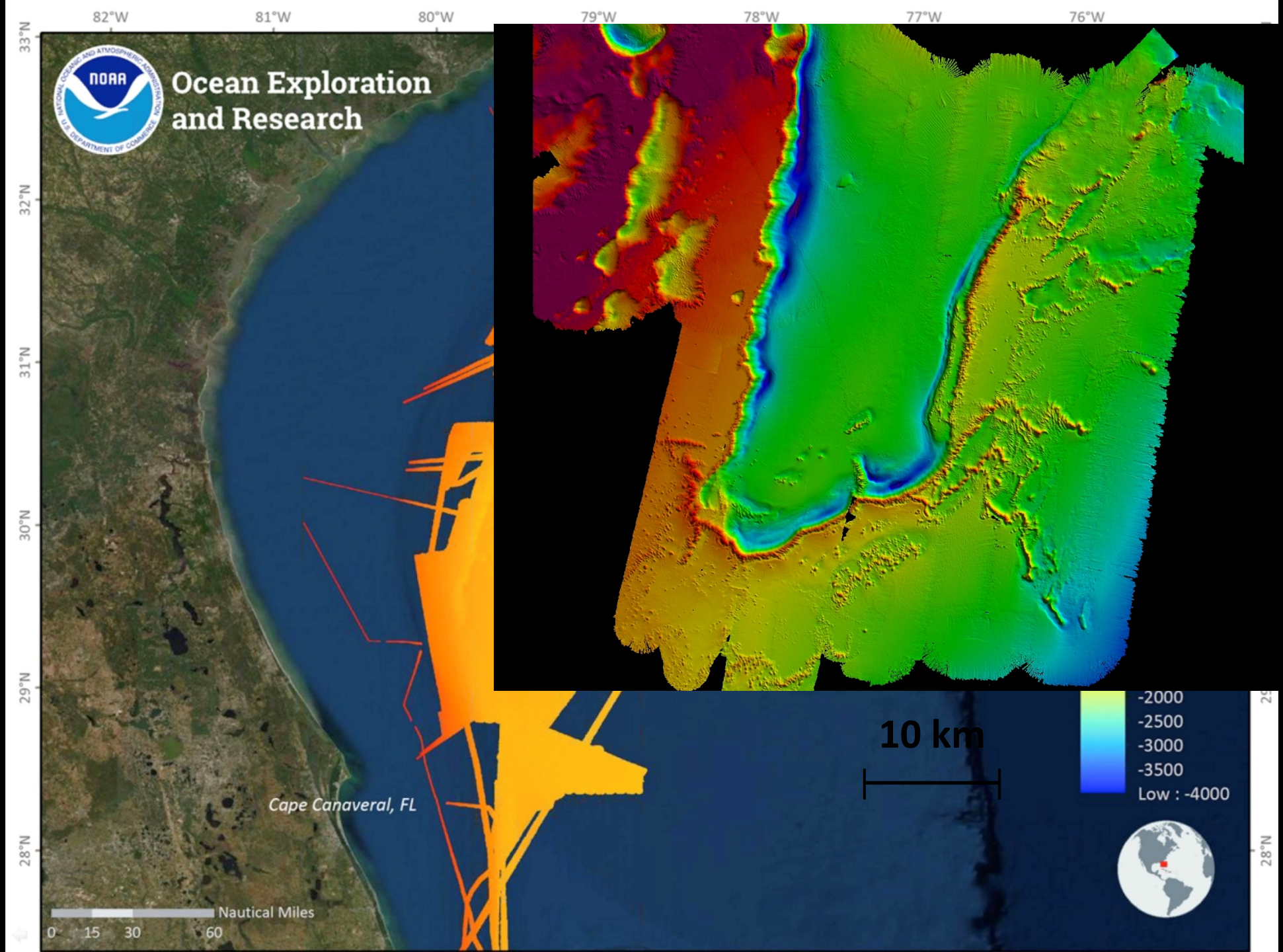
Basket Configurations

Coral dives: 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 4 niskins, 5-chamber slurp, 2 large bioboxes (1 with inserts, 1 without), 3 markers, 3 coral pots, milk crate, McLean Pump

Seep dives: 21 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 4 niskins, 5-chamber slurp, 1 large biobox (4 inserts), 2 mussel pots, 1 milk crate and 1 MP holder for rocks, 5 markers, scoop

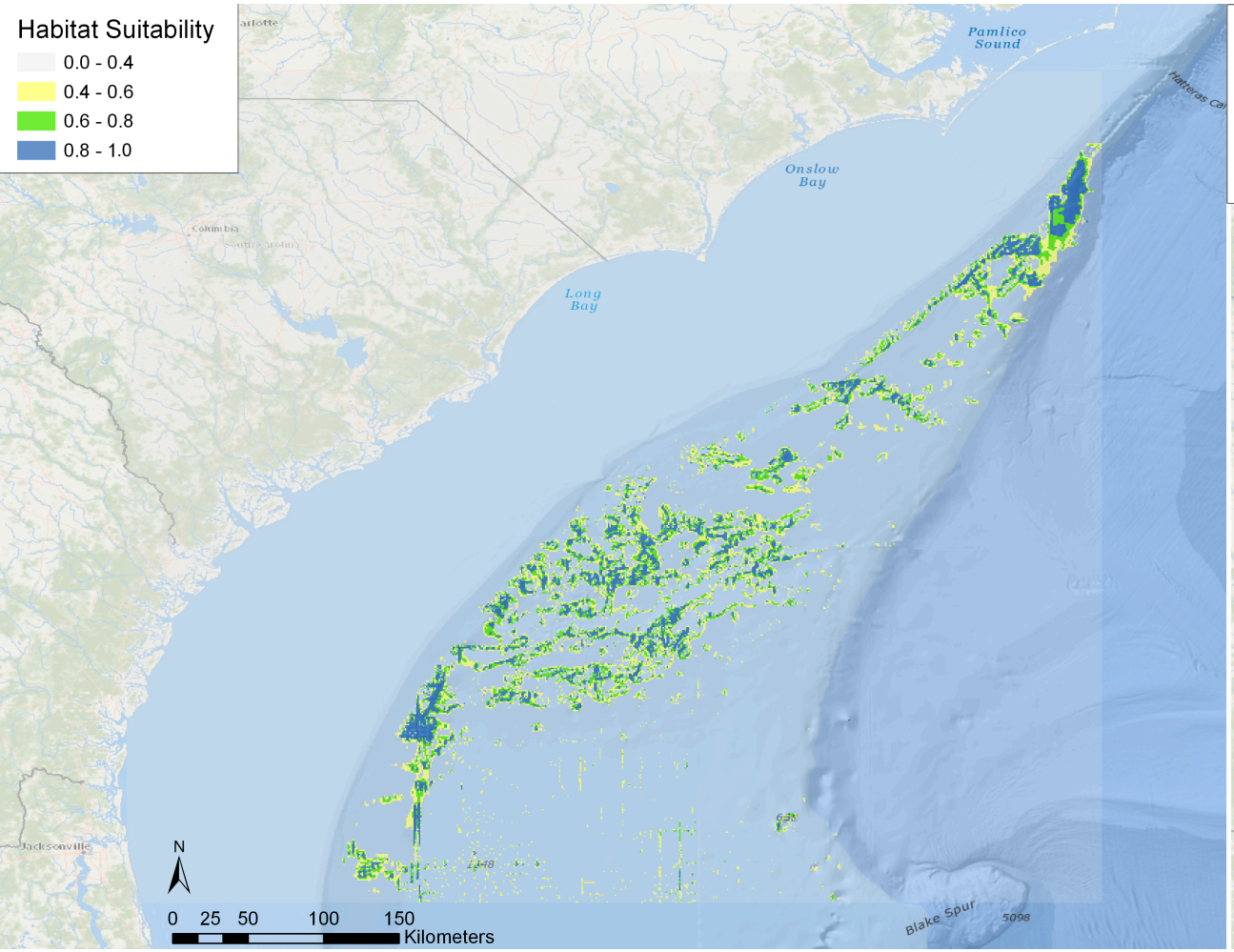
Canyon dives: 16 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 5 quivers on skid, 4 niskins, 5-chamber slurp, 1 large biobox, 2 coral pots, 1 milk crate and 1 MP holder for rocks, 5 markers, scoop



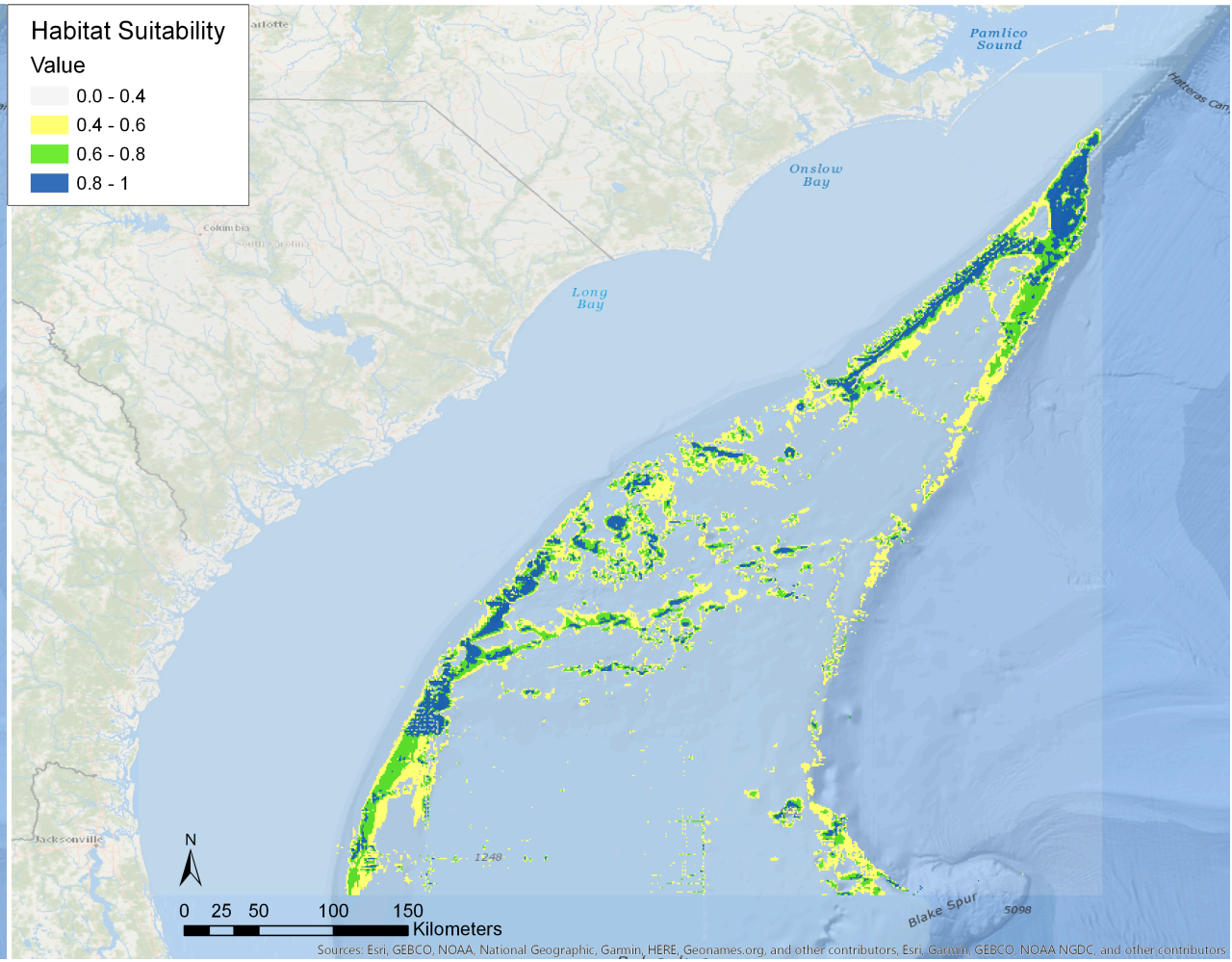

82°W
81°W
80°W
79°W
78°W
77°W
76°W
33°N
32°N
31°N
30°N
29°N
28°N
Ocean Exploration and Research
Cape Canaveral, FL
Nautical Miles
0 15 30 60
10 km
-2000
-2500
-3000
-3500
Low : -4000

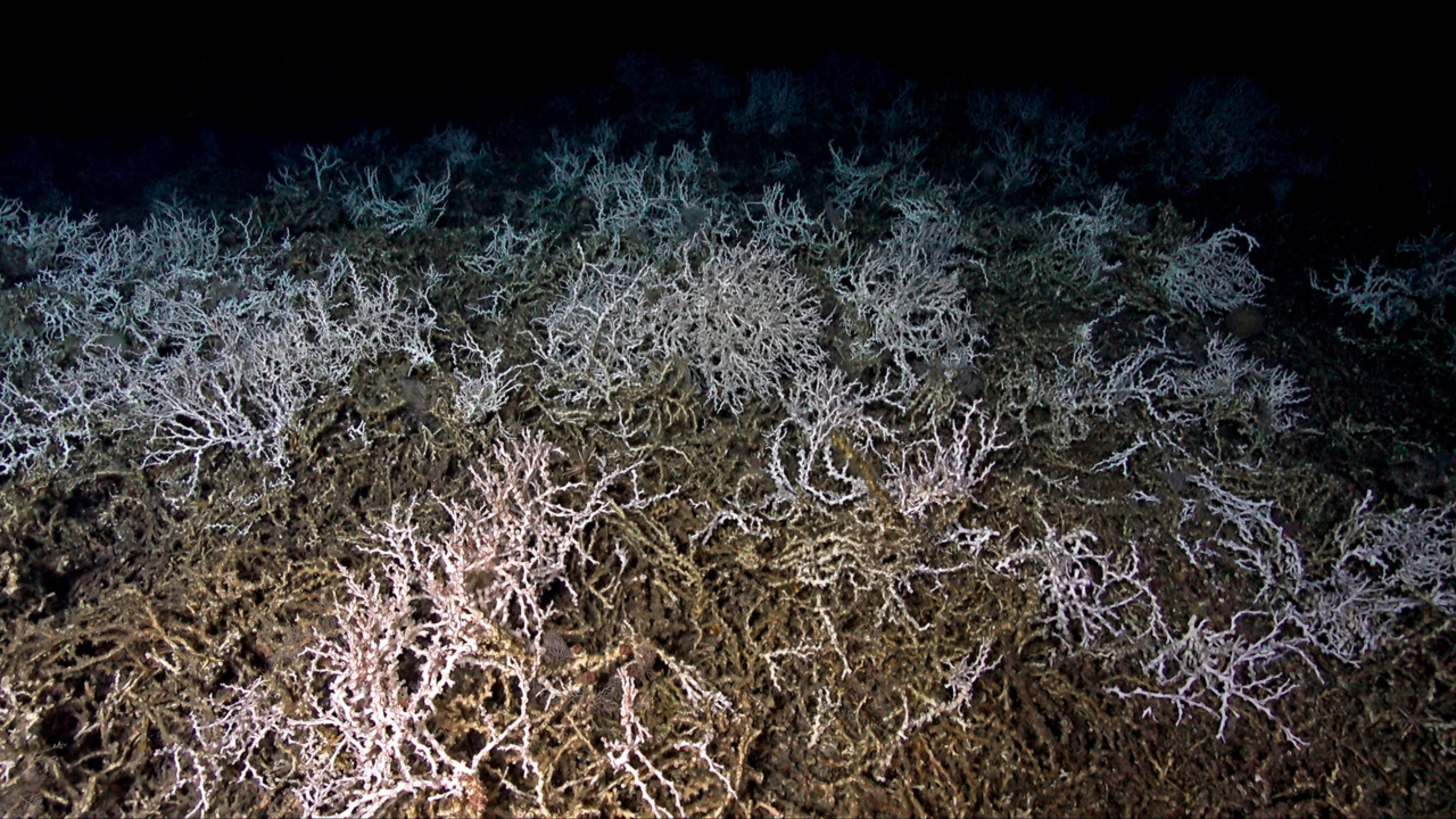
Habitat Suitability Model for *Lophelia pertusa* Along Southeast US Coast

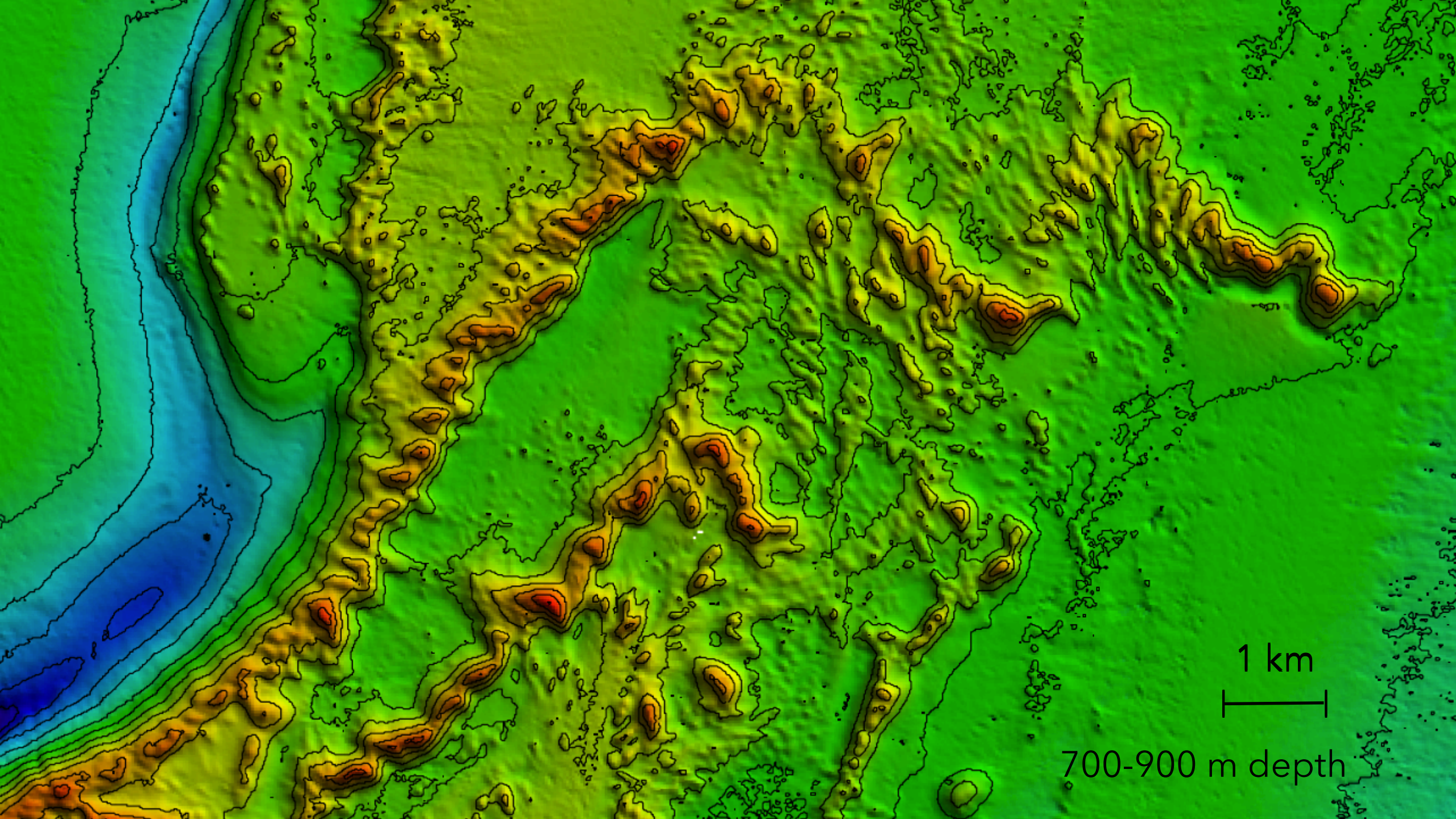
Before 2018 surveys

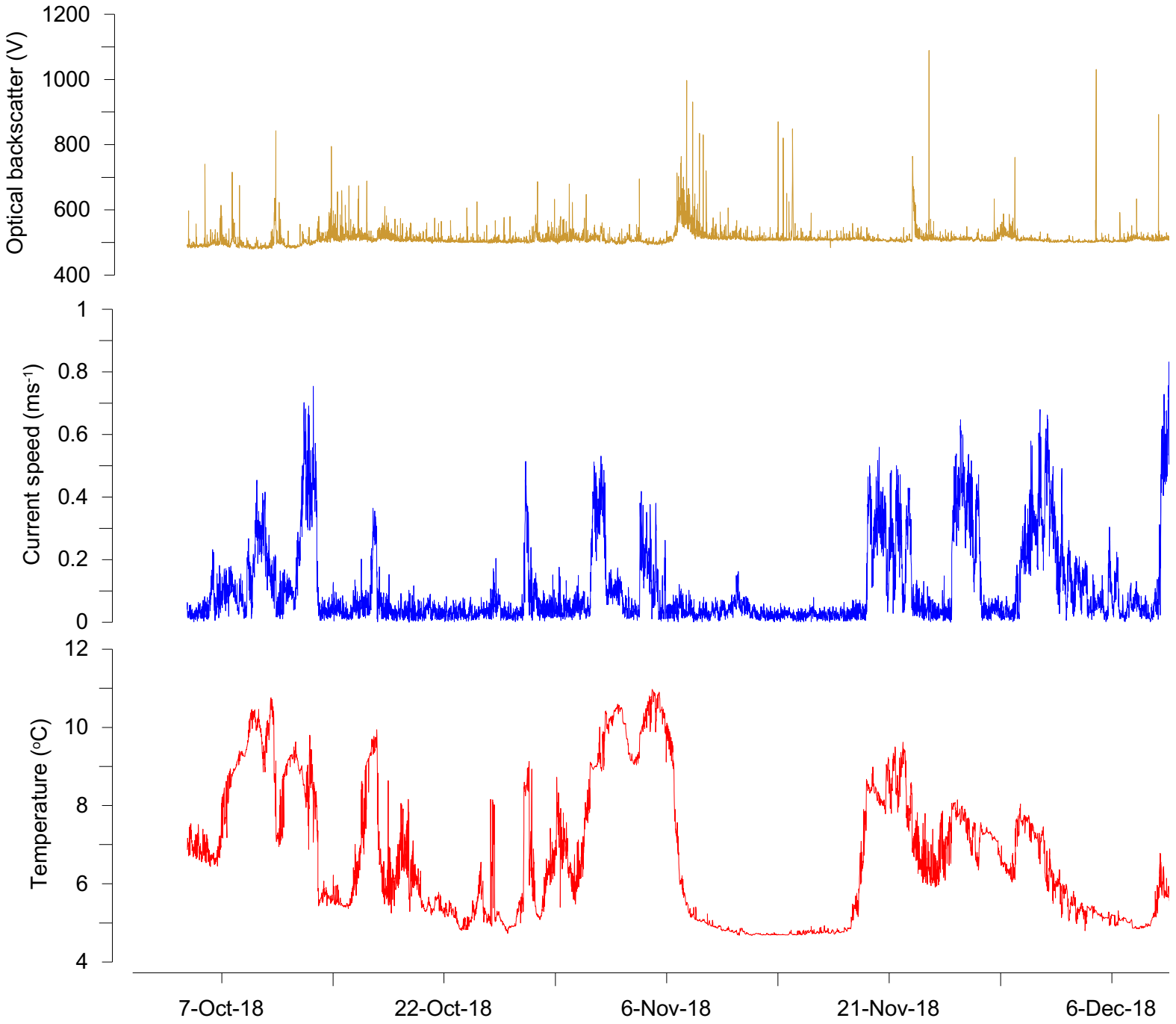


After 2018 surveys

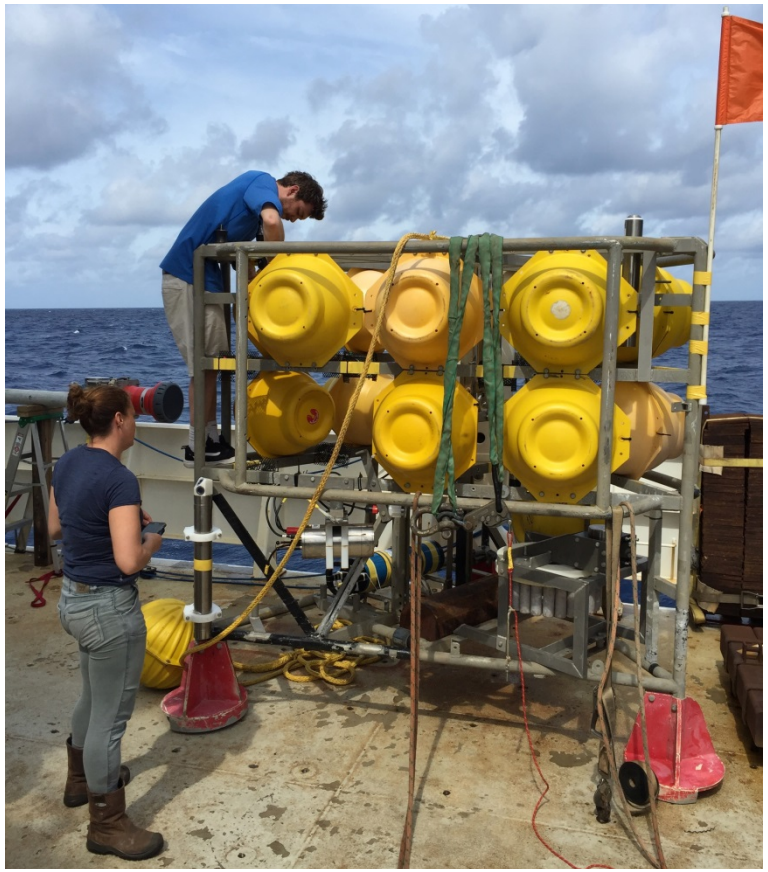


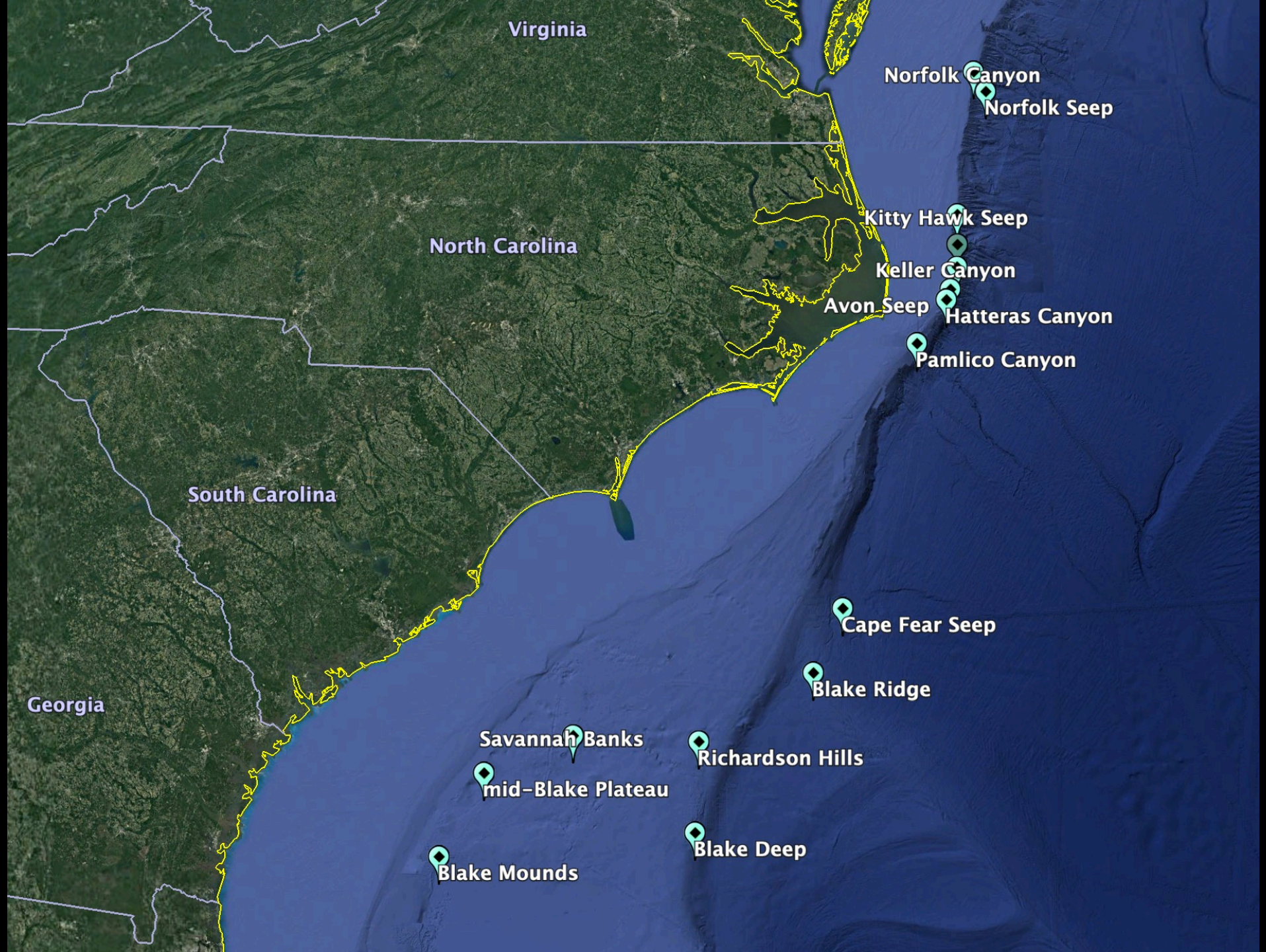



1 km
700-900 m depth



Extreme variability in environmental conditions over the reef

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Blake Ridge
Savannah Banks
Richardson Hills
mid-Blake Plateau
Blake Deep
Blake Mounds

Successes: Handled high currents of Gulf Stream (down to 2600 m), low vis in canyons, excellent pilots, willingness to work through issues, major goals accomplished

Challenges: Levelwind issues, niskin configuration, video handling (redundancy of recording, monitoring of recording, lack of dedicated personnel), video quality (4K but only 100Mbps)