NOAA Deep Sea Coral Research & Technology Program Southeast Deep Coral Initiative Highlights 2016-2019

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In this Presentation:

NOAA Deep Sea Coral Research and Technology Program Southeast Deep Coral Initiative (SEDCI) 2016-2019: Final Report

Peter Etnoyer, Rachel Bassett, Caitlin Adams, Tim Battista, Raven Blakeway, Stacey Harter, Jake Howell, Jay Lunden, Robert McGuinn, Martha Nizinski, Kate Overly, Matt Poti, Enrique Salgado, Andrew Shuler, Adam Skarke, Heather Coleman, and Thomas Hourigan

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

NOAA Technical Memorandum NMFS-OHC-09
December 2021

- NOAA's Deep Sea Coral Research & Technology Program

- Southeast Deep Coral Initiative – Key results for the South Atlantic region:
  - Deep-sea coral reef habitats
  - First surveys of Carolina Canyons coral habitats
  - Analysis of shelf edge coral habitats

- Looking forward

NOAA's Deep Sea Coral Research & Technology Program

Authorized under MSA Section 408:

- Identify **existing research and known locations** of deep-sea corals (DSC)

- **Locate and map** DSCs

- **Monitor activity** in locations where DSCs are known or likely to occur

- **Conduct research**, including cooperative research, on **DSC and related species**, and on survey methods

- Develop technologies or **methods to reduce interactions** between fishing gear and DSCs

- **Prioritize areas where DSCs occur**, and where their **presence is predicted**

→ *Submit information to the appropriate Council(s)*

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NOAA's Strategic Approach

Improve understanding, conservation, and management of deep-sea coral & sponge ecosystems
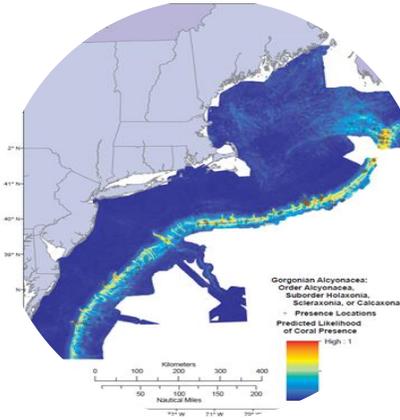
- Exploration and Research

- Conservation and Management

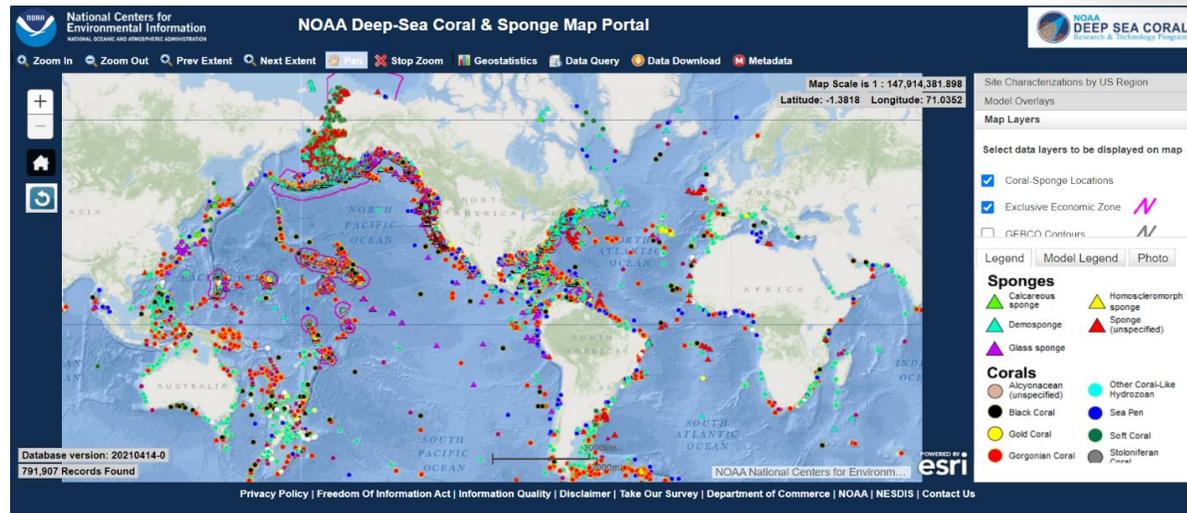- International and Interagency Cooperation

Program Components

Regional Field Research Initiatives

Targeted Projects

Centralized Data Management

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

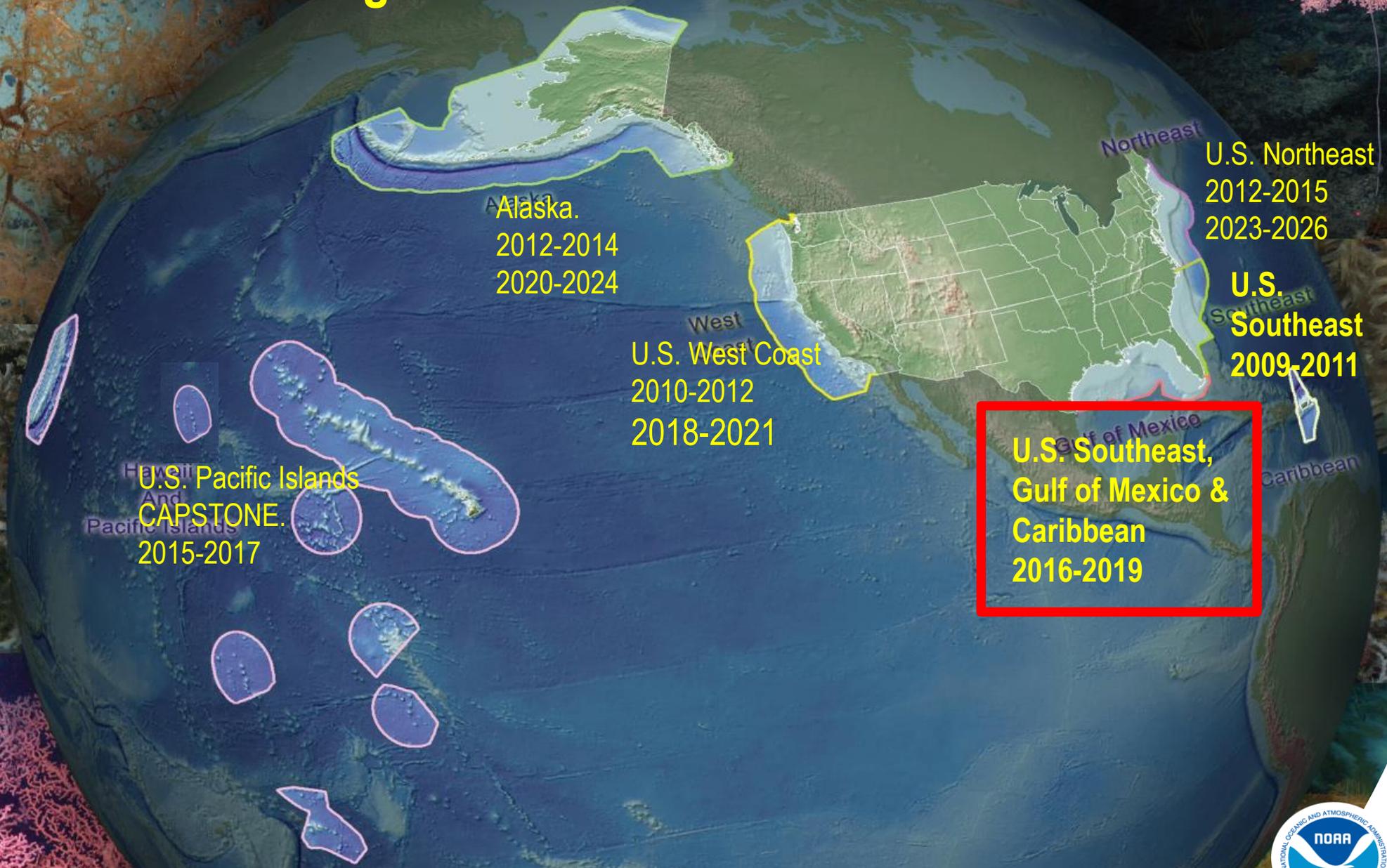# Deep Sea Coral Research & Technology Program

- Developed in consultation with fishery management councils

- Implemented collaboratively through NMFS, NOS, NESDIS and OAR

- Research to locate, characterize, and understand coral & sponge habitats —> address fishing and other threats

- Spatially explicit analysis, modeling, visualization

- Feedback loops – scientists, data providers, managers, stakeholders – ensure constant improvement
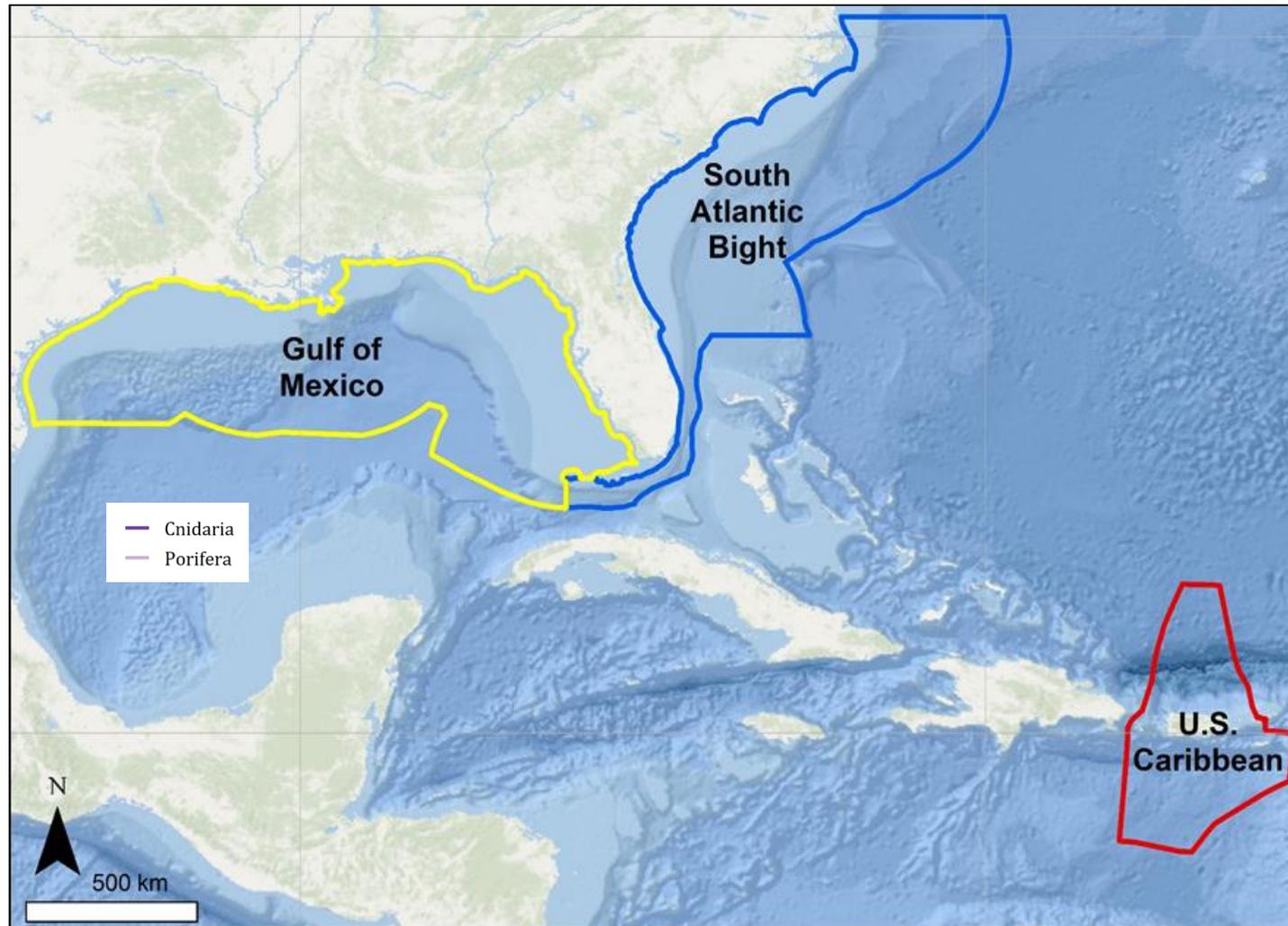
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Mission: Sound science to conserve vulnerable deepwater biogenic ecosystems

Regional Field Research Initiatives

Alaska.
2012-2014
2020-2024

U.S. Northeast
2012-2015
2023-2026

U.S. Southeast 2009-2011

U.S. West Coast
2010-2012
2018-2021

U.S. Southeast, Gulf of Mexico & Caribbean 2016-2019

U.S. Pacific Islands CAPSTONE.
2015-2017

Southeast Deep Coral Initiative (SEDCI)
2016-2019

New Research
- **21 Research expeditions** in 3 regions
- **250 days at sea** using ROVs, HOVs and AUVs
- More than **160,000 square km mapped**.

Data Rescue from 1998-2016
- **41 cruises** from 1998-2016

Tripled available data
- SAFMC:
  - Corals from 5K to 18K
  - Sponges from 2K to 14K

SEDCI Team and Partners

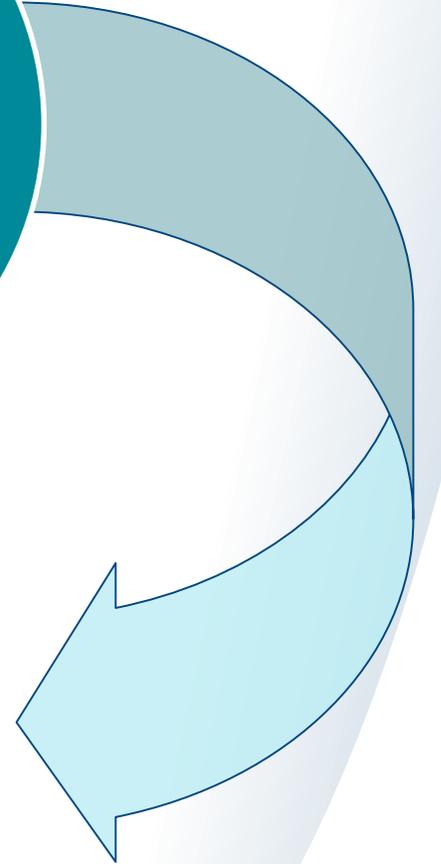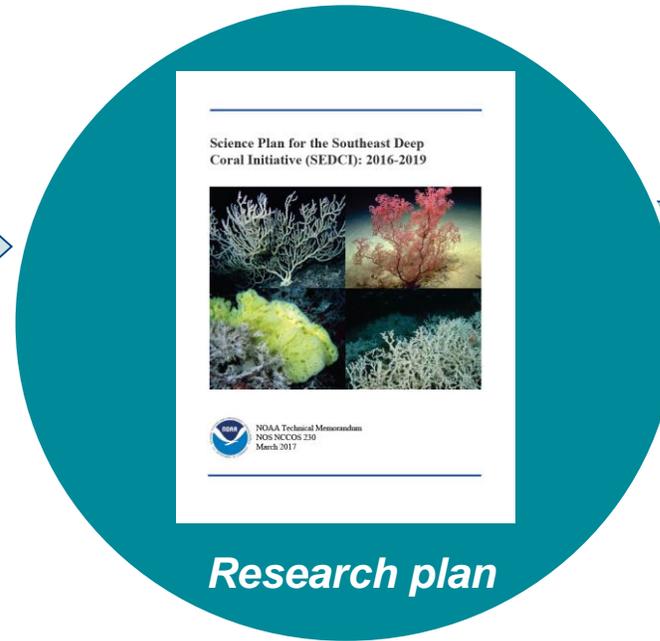| Name	Affiliation
DSCRTP	
Tom Hourigan	NMFS/DSCRTP
Heather Coleman	NMFS/DSCRTP
Leadership & Coordination	
Peter Etnoyer	NOS/NCCOS
Rachel Bassett & Ren Salgado	NOS/NCCOS
Science Team	
Tim Battista	NOS/NCCOS
Andrew David & Stacey Harter	NMFS/SEFSC
Caitlin Adams	OAR/OER
Martha Nizinski	NMFS/NSL
G.P. Schmahl & Emma Hickerson	NOS/FGBNMS

Name	Affiliation
Project Leads	
Andy David	NMFS/SEFSC
Matt Poti	NOS/NCCOS
Travis Sterne & Marissa Nuttall	NOS/FGBNMS
John Reed	HBOI
Sandra Brooke	NOS/GRNMS
Charles Messing & Brian Walker	NSU
Data Management	
Robert McGuinn	NGI/NCEI
David Sallis	NESDIS/NCEI
Fishery Management Councils	
Morgan Kilgour	GMFMC
Graciela Garcia-Moliner	CFMC
Roger Pugliese	SAFMC

Collaboration is Critical

Workshop

Research plan

Data collection and analysis

Inform Management Action

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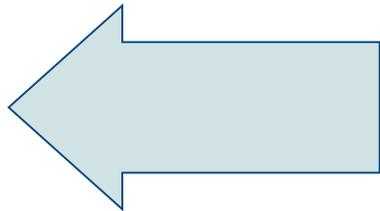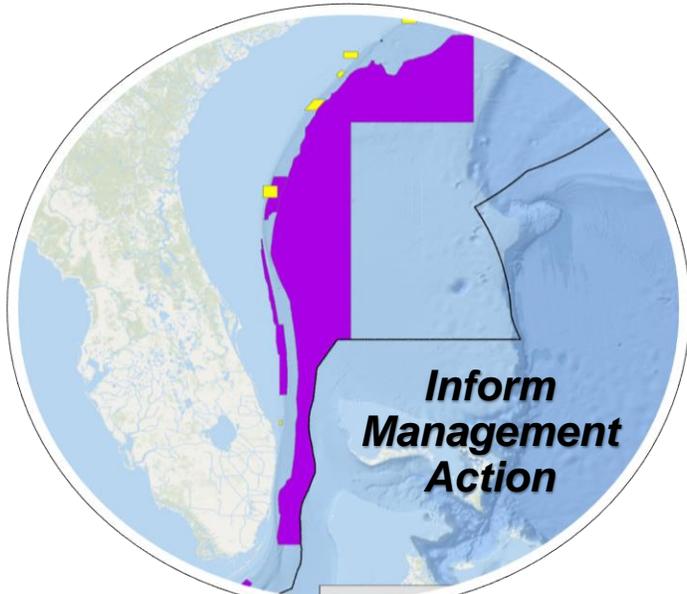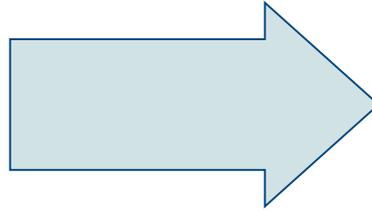
SEDCI South Atlantic – New Research

- 9 expeditions
- 77 ROV dives
- 10 AUV dives
- 11 HOV dives

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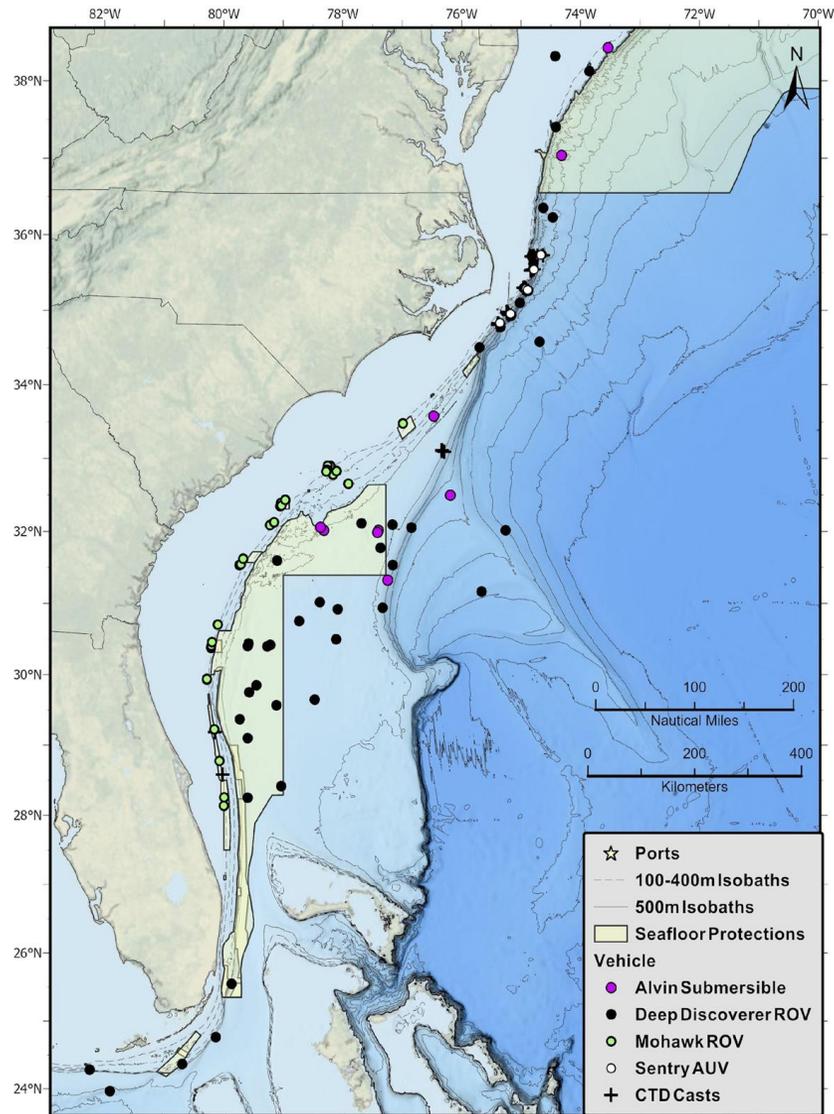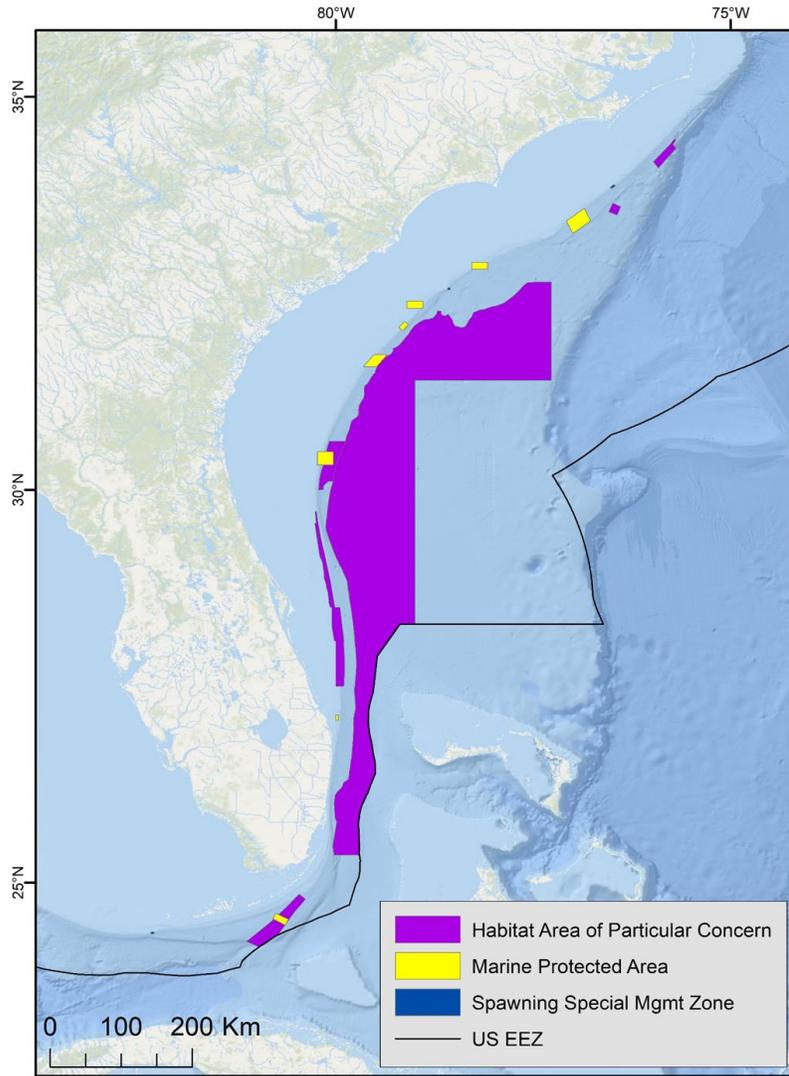
Research Highlights – *Lophelia* Coral Reefs
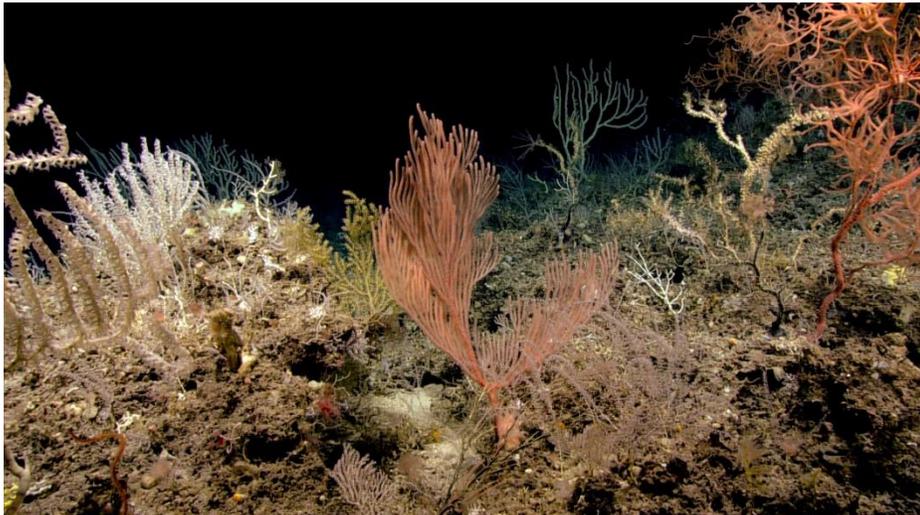
- New mapping and exploration revealed extensive deep-sea coral mounds or reefs on the Blake Plateau.

- Principally Lophelia coral mounds, but also support other rich coral and sponge taxa.

- Largest known deep-sea coral reef province in the world.
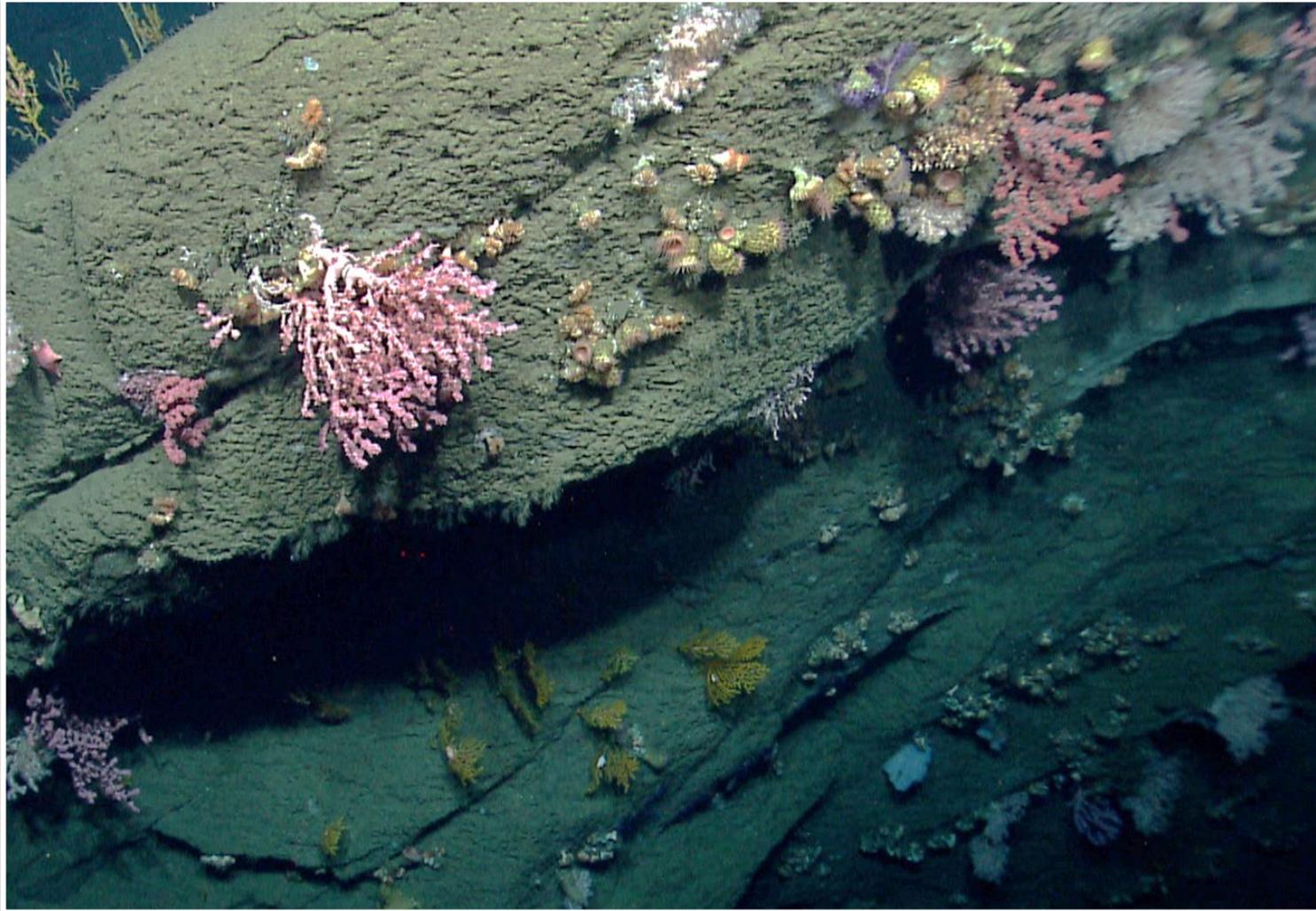
Ancient Coral Reefs

OCEANEXPLORER.NOAA.GOV

Conservation Implications
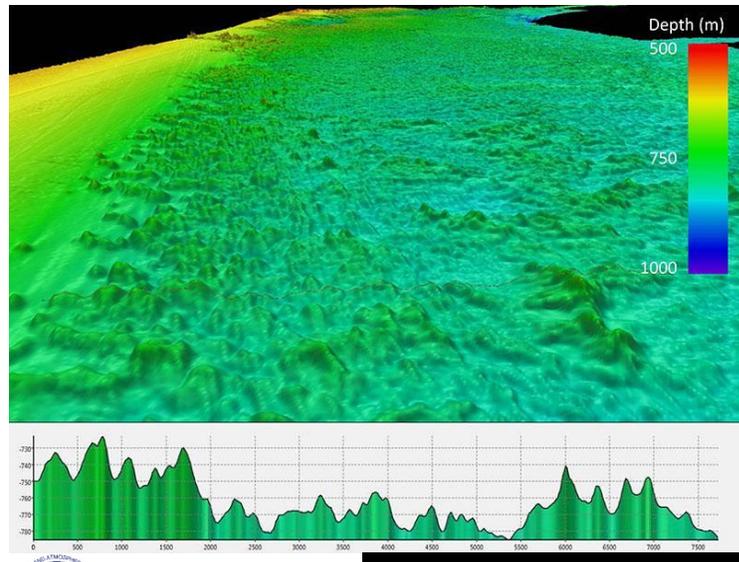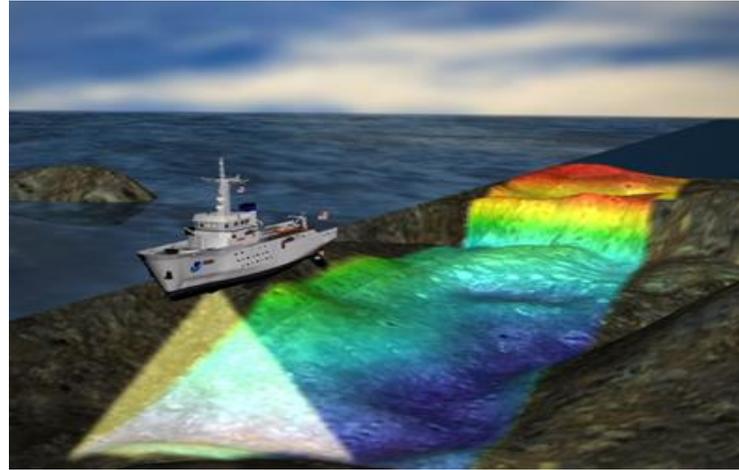

- Most *Lophelia* mounds are within existing Deepwater Coral HAPCs

- A few rich areas are outside current CHAPCs

Habitat Area of Particular Concern
Marine Protected Area
Spawning Special Mgmt Zone
US EEZ

Ocean Exploration and Research

Research Highlights – Carolina Canyons

The **first surveys** of deep-sea corals and sponges in the Carolina **submarine canyons**

Conservation Implications

Map created on 2019-01-27 by Heather Coleman and Robert P. McGuinn
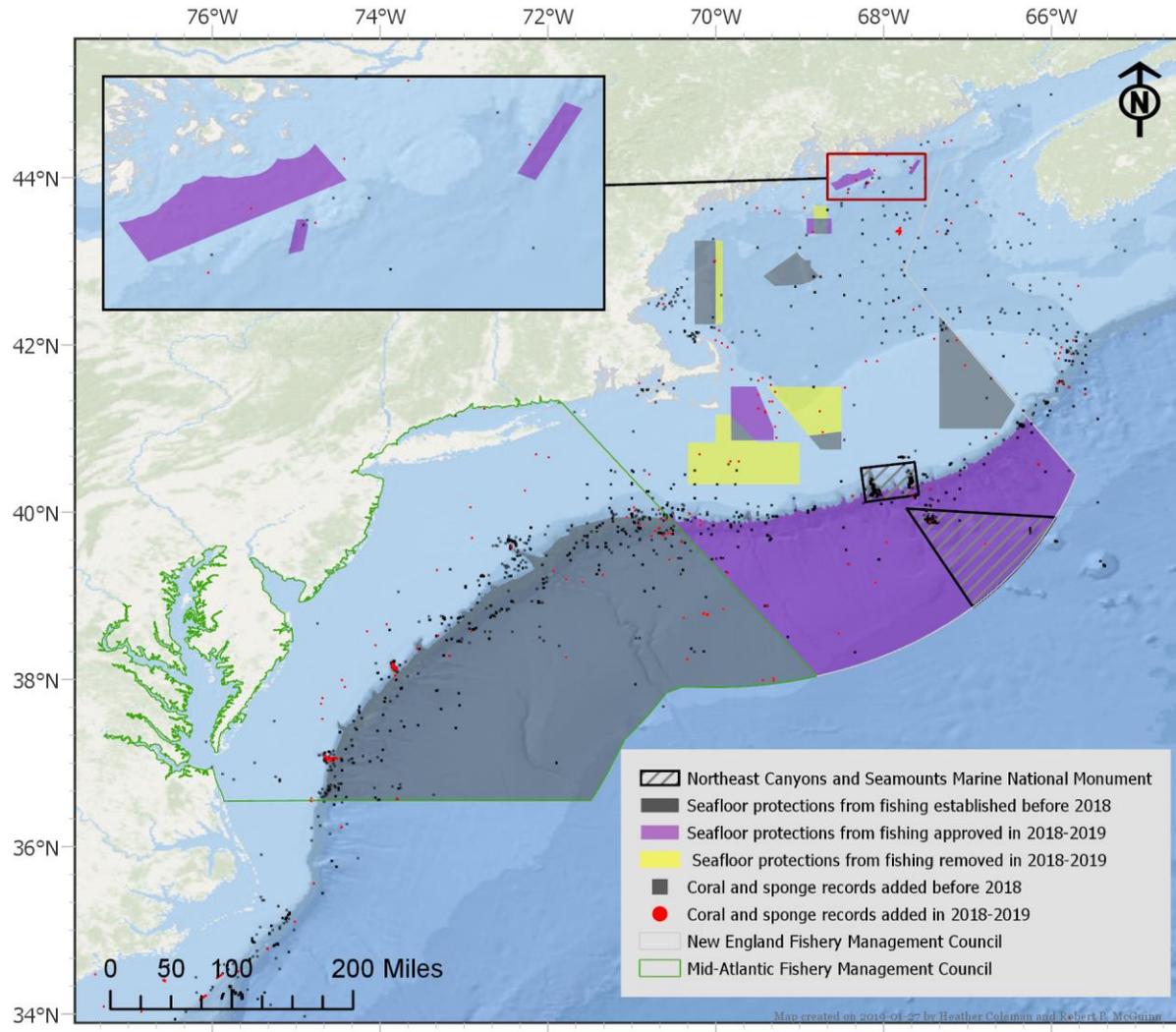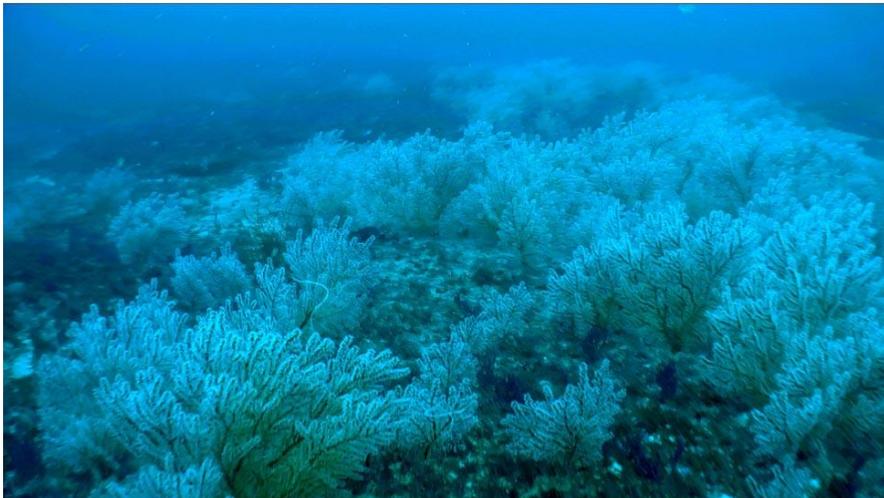
- Canyons represent unique habitats
- Mid-Atlantic and New England Councils recently protected canyons from bottom-contact fishing gears.
- Used MSA Deep Sea Coral Discretionary Provisions.

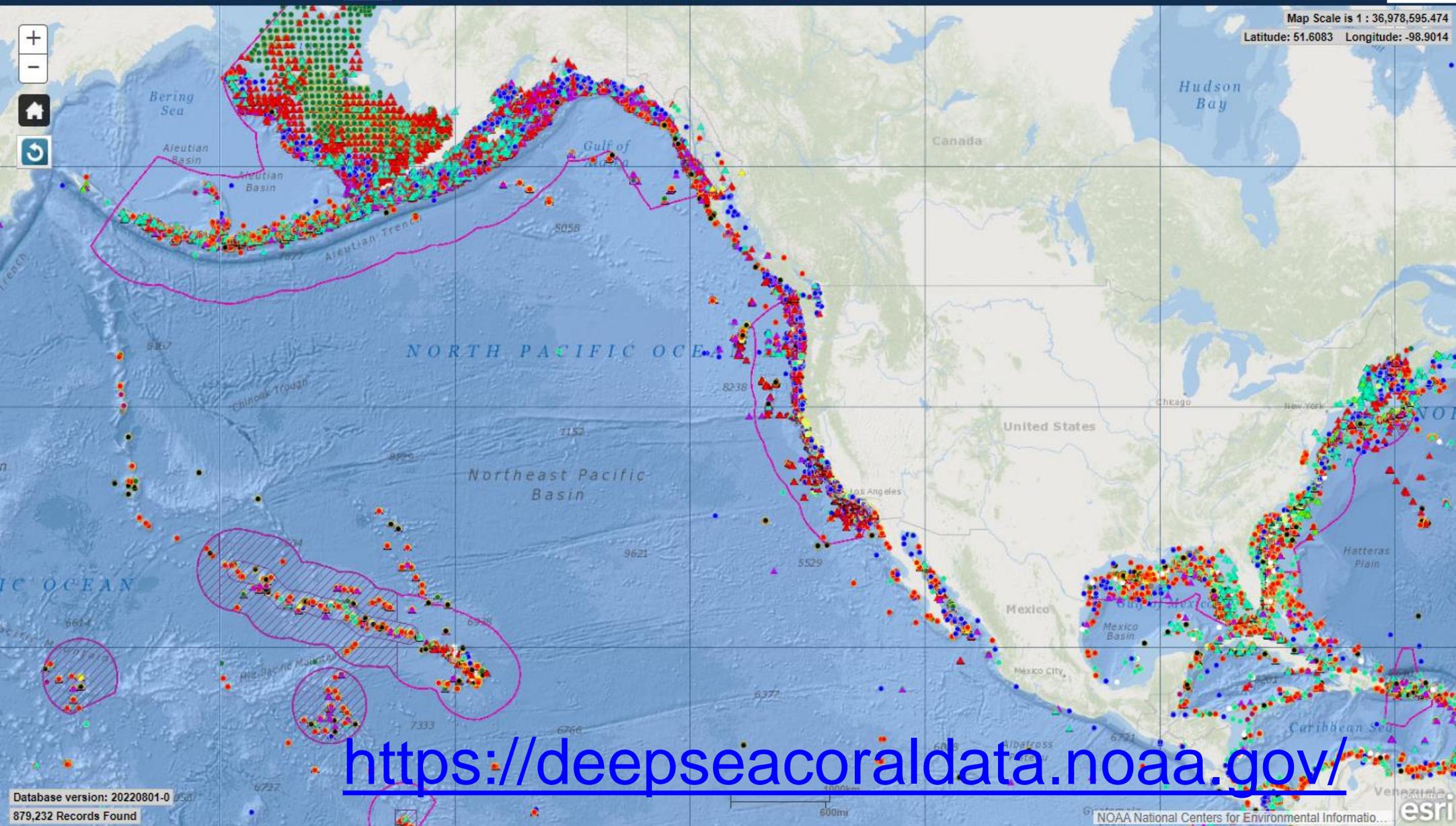# Research Highlights – Shelf-edge Coral Gardens

- Data rescue focus
- Particularly rich fields of the gorgonian octocoral *Swiftia exserta* found during the NOAA Ship 2016 Pisces cruise.
- Richest areas are **outside** Edisto MPA.

2016 SEFSC/HBOI

NOAA Ship *Pisces* cruise

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https://deepseacoraldata.noaa.gov/

Looking Forward

Depth Contours
— 200 m — 1,000 m — 3,000 m
☐ BOEM Planning Areas
Median Occupancy Probability
- 0.9 - 1
- 0.8 - 0.9
- 0.7 - 0.8
- 0.6 - 0.7
- 0.5 - 0.6
- 0.4 - 0.5
- 0.3 - 0.4
- 0.2 - 0.3
- 0.1 - 0.2
- 0 - 0.1

0 50 100   200 km

Poti et al. (in press)

- DSCRTP can provide targeted analyses on these (or other areas of interest)

- BOEM-funded deep-sea coral predictive models & DEEP SEARCH Study

- We will be incorporating fish data from many of these areas

- Gulf of Mexico DWH Mesophotic Deep-Benthic Communities Restoration (MDBC) – relevant to understanding the value of the SAFMC mesophotic/shelf-edge coral gardens

Questions?

Contact: Tom.Hourigan@noaa.gov
https://deepseacoraldata.noaa.gov/