



NOAA
FISHERIES

Habitat
Conservation

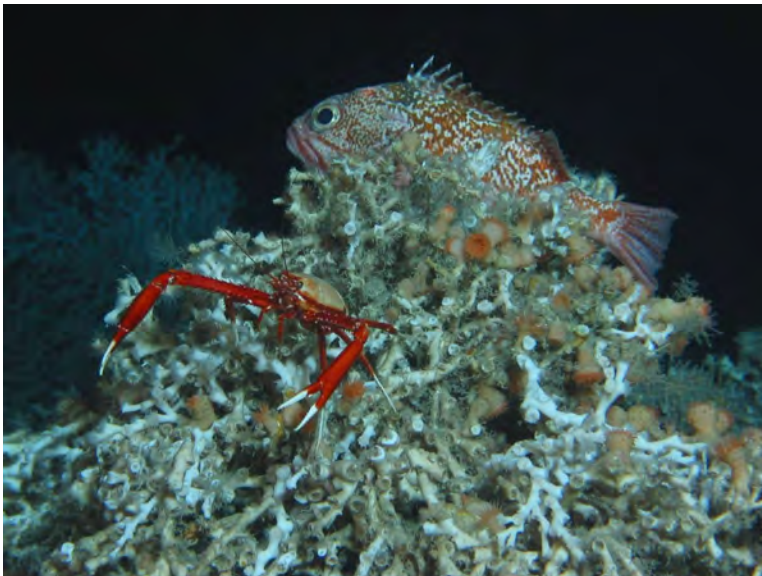
NOAA Fisheries Requirements & Ocean Exploration Campaigns

Thomas F. Hourigan, Ph.D.

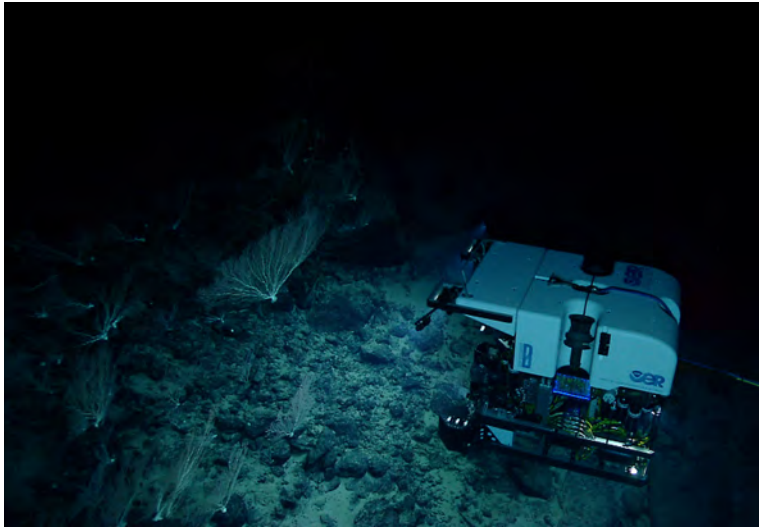
Chief Scientist, Deep Sea Coral Research & Technology Program

Ocean Exploration Advisory Board

April 27, 2016



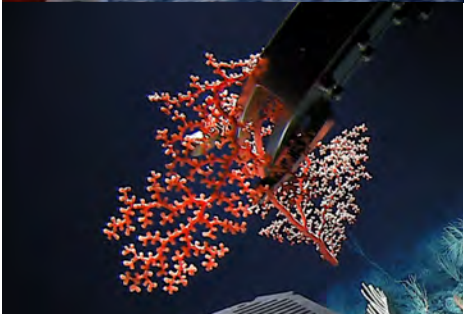
In this presentation



1. NOAA Fisheries Requirements
 - U.S. Fisheries management
 - Monument management
 - International partnerships
2. NOAA's Deep Sea Coral Research & Technology Program
3. Ocean Exploration Partnership
4. Challenges & Opportunities

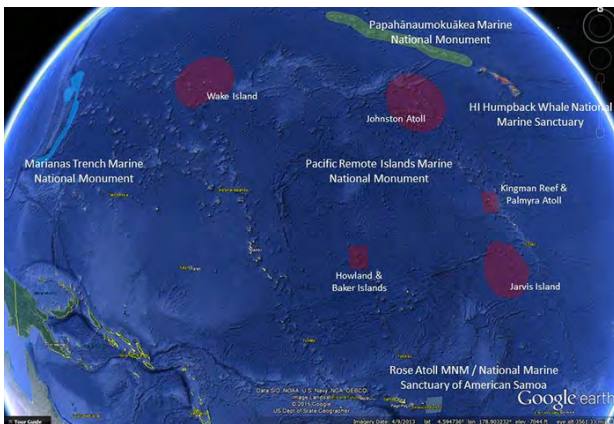


NOAA Fisheries Requirements: U.S. Fisheries Management

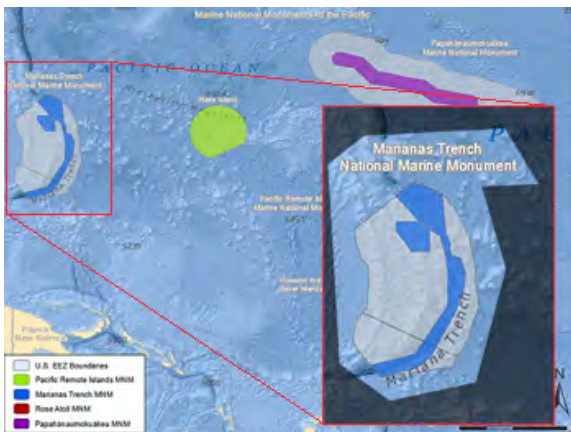


- New approaches to stock assessment
 - Visual technologies – especially in untrawlable habitats
 - Deepwater species (e.g., precious corals)
- Essential Fish Habitat (EFH)
 - Identifying & mapping deepwater habitats
 - Understanding fish-habitat interactions
 - Understanding fishing impacts
- Mapping & research to protect deepwater biogenic habitats

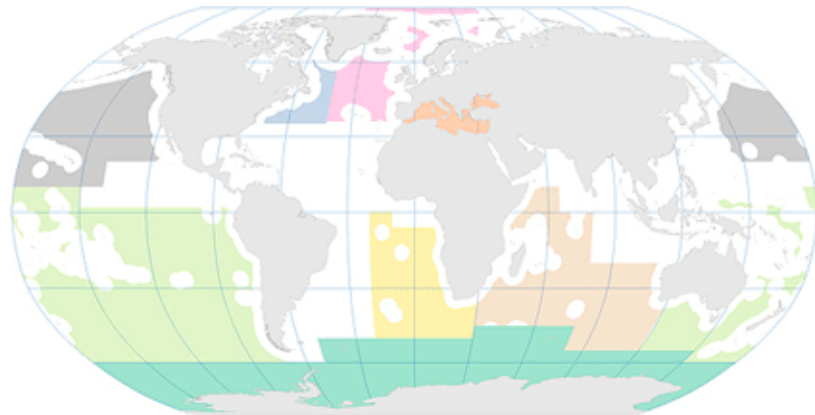
NOAA Fisheries Requirements: Monument Management



- Two Marine National Monuments:
 - Pacific Remote Islands Marine National Monument (with USFWS & DoD)
 - Marianas Trench Marine National Monument (with USFWS)
- Deeper waters poorly explored
- Research on near-pristine ecosystems

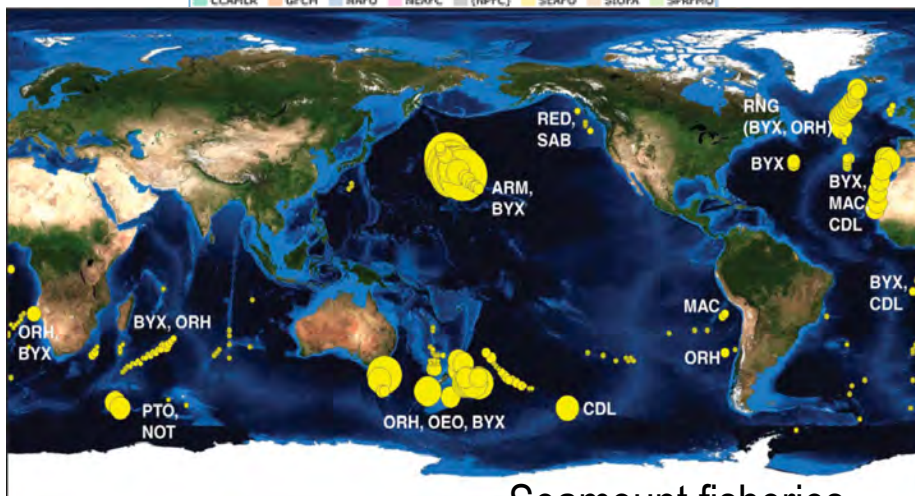


NOAA Fisheries Requirements: International Partnerships



RFMOs and CCAMLR areas of competence
FAO, 2013
(in brackets RFMOs in the process of being established)

- Regional Fishery Management Organizations
 - Manage high seas fisheries
 - Identify & protect Vulnerable Marine Ecosystems (VMEs) from “significant adverse impacts”
- Biodiversity Beyond National Jurisdiction
- Research Partnerships – e.g., EU & New Zealand



Seamount fisheries

NOAA Fisheries Requirements:

Deep Sea Coral Research & Technology Program

Mission: Sound science to conserve and manage vulnerable deepwater ecosystems

- Magnuson-Stevens Fisheries Conservation and Management Act 2006
 - **Sec. 408:** Deep Sea Coral Research and Technology Program
 - **Sec. 303(b)(2):** New discretionary authority to protect deep-sea coral areas identified by the Program from damage by fishing gear
- \$2.4 million in FY 2016
- Collaboration among NMFS, NOS, OAR and NESDIS



Our Research



Alaska: 2012 – 2014

- Fieldwork in Alaska to study the distribution, abundance, and diversity of corals and sponges is designed in consultation with the North Pacific Fishery Management Council.



West Coast: 2010 – 2012

- Fieldwork off the West Coast supports Pacific Fishery Management Council actions and marine sanctuary needs.
- Using cutting-edge technology, scientists found coral and sponge habitats and documented their associations with fish.



Pacific Islands: 2015 – 2017

- Fieldwork in this largely unexplored region will identify locations of deep-sea coral and sponge communities and determine the factors that affect their distribution.



Northeast: 2013 – 2015

- Fieldwork focuses on underwater canyons, seamounts, and other key areas of interest to the New England and Mid-Atlantic Fishery Management Councils.

Nationwide Investment

The Deep Sea Coral Research and Technology Program is the nation's resource for information on deep-sea coral and sponge ecosystems.

- Three-year field research efforts in each U.S. region
- Targeted analyses on:
 - Existing information about deep-sea coral ecosystems.
 - The distribution and intensity of fishing activities that may damage deep-sea corals in federal waters.
 - Coral and sponge bycatch in fisheries.

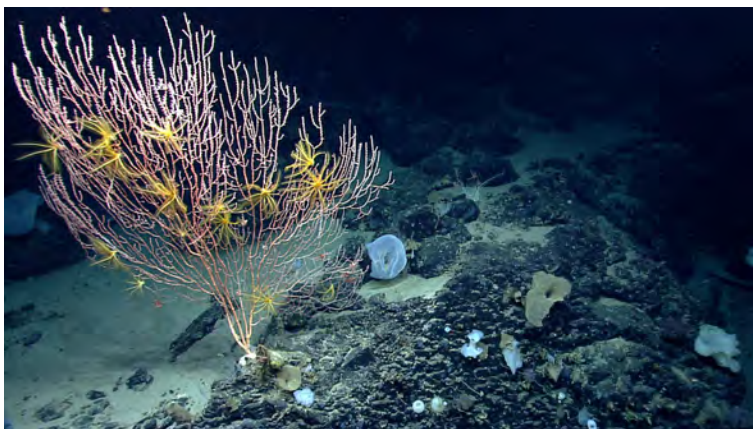
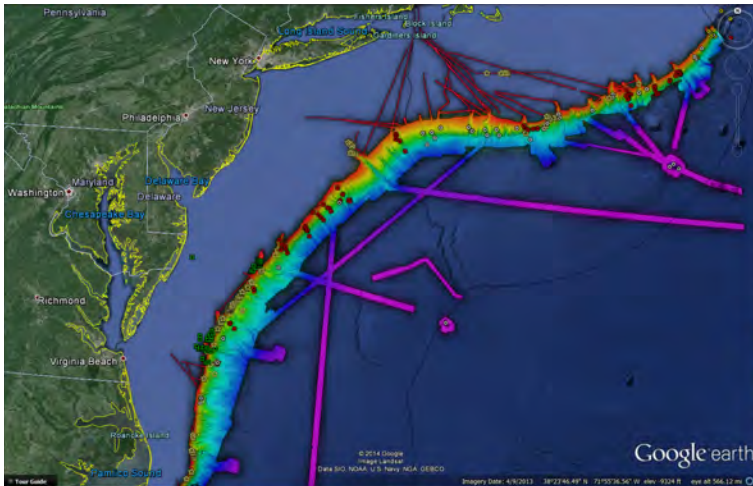


Southeast: 2009 – 2011

- Research cruises using sonar technology, remotely operated and manned submersibles discovered new deep-sea coral reefs.
- Research findings help the South Atlantic Fishery Management Council delineate fishing zones and protected areas.



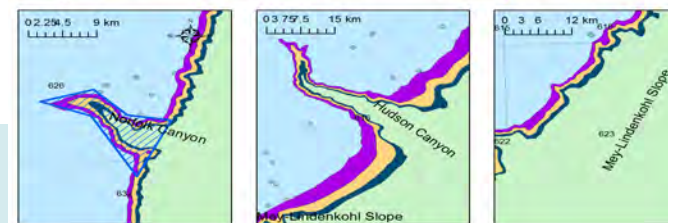
Ocean Exploration Partnership: Northeast U.S. (2012 – 2015)



- OE/Coast Survey - Multibeam mapping
- Okeanos Explorer ROV cruises
- Deep Sea Coral Program
 - Coral habitat predictive models
 - WHOI TowCAM Canyon surveys

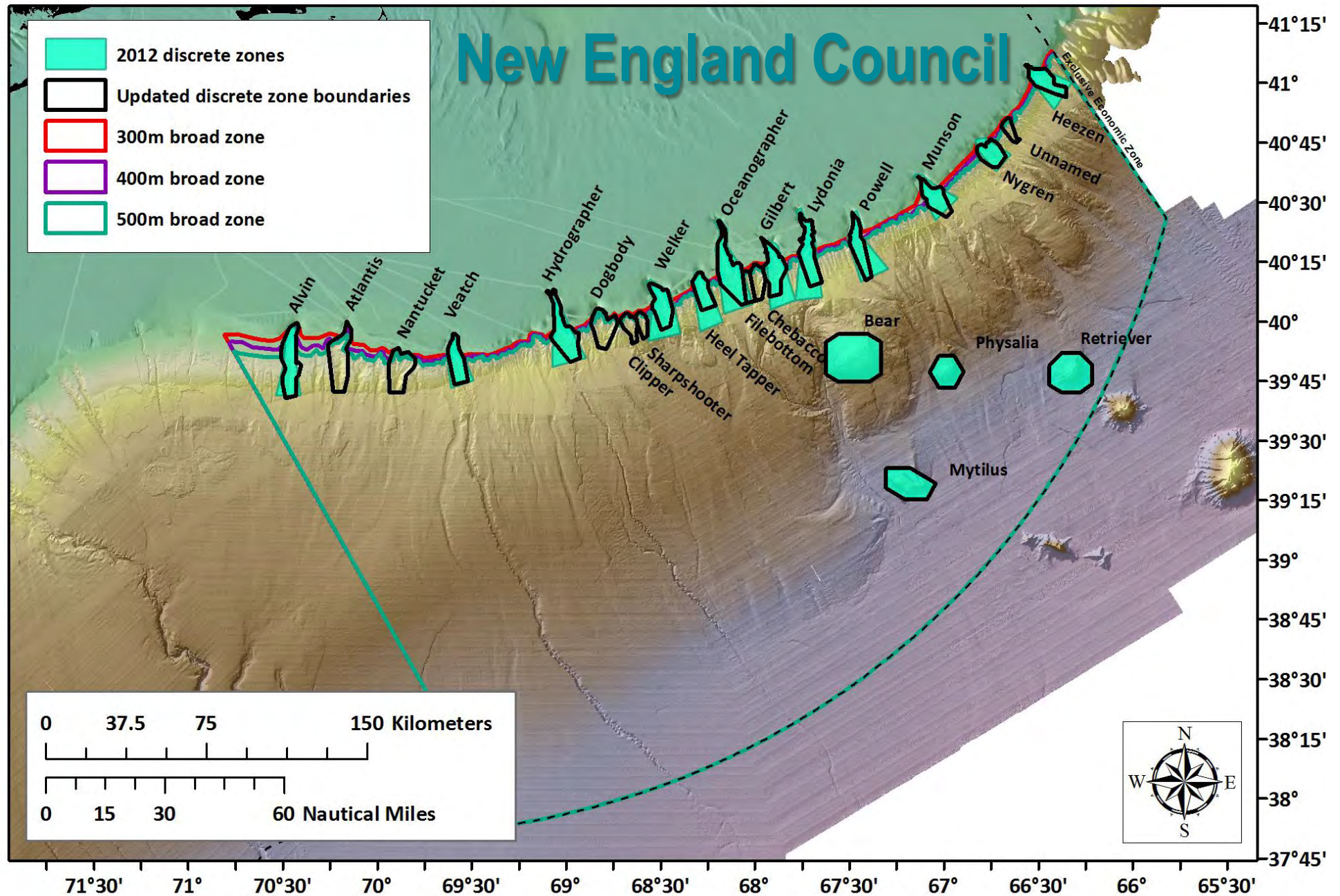
Mid-Atlantic Council Deep Sea Coral Amendment

- **Discrete Coral Zones:** 15 canyons & inter-canyon areas protected
- **Broad Coral Zone**
 - > 450 m deep protected
 - “Freeze the footprint” of bottom-contact fishing
- Total ~ 38,000 sq. miles protected

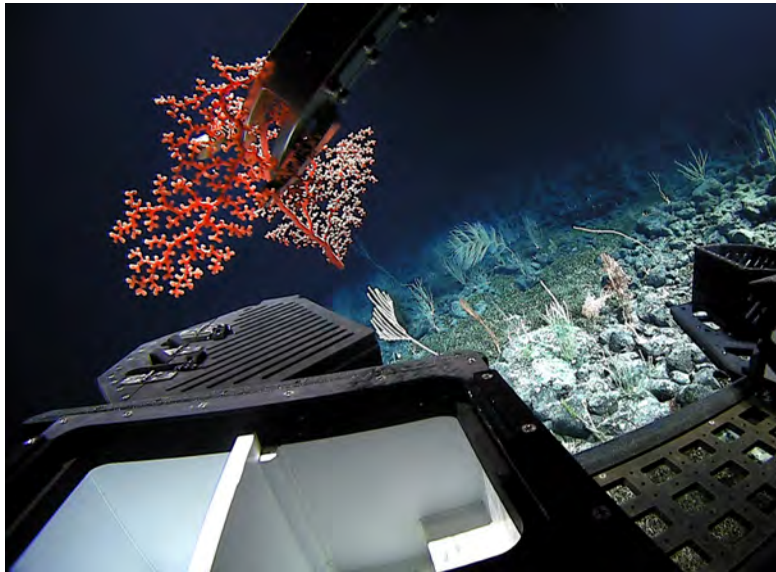


Canyon and seamount coral zones

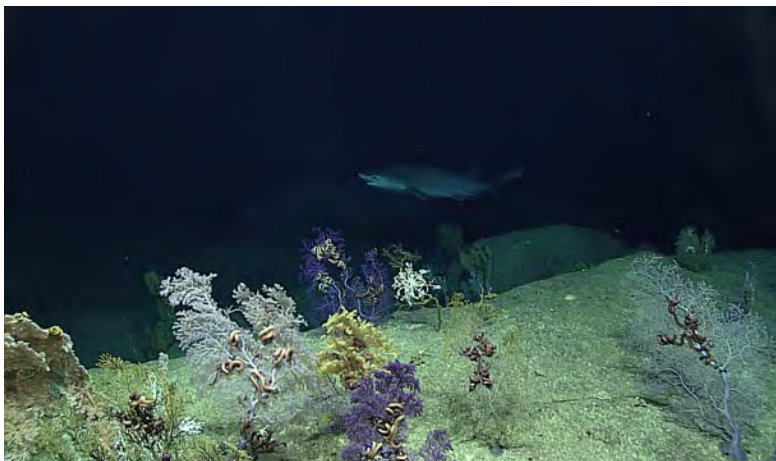
Map created April 6, 2016
Projection WGS 1984 UTM Zone 19N
NEFMC Habitat Plan Development Team



Pacific Islands: CAPSTONE (2014-17)



- ‘Seamless’ cross-program planning
- New approaches
 - First *Okeanos* sampling
 - Systematic surveys & deployment of new sensors
- First surveys of Monuments
- Information informs high seas management

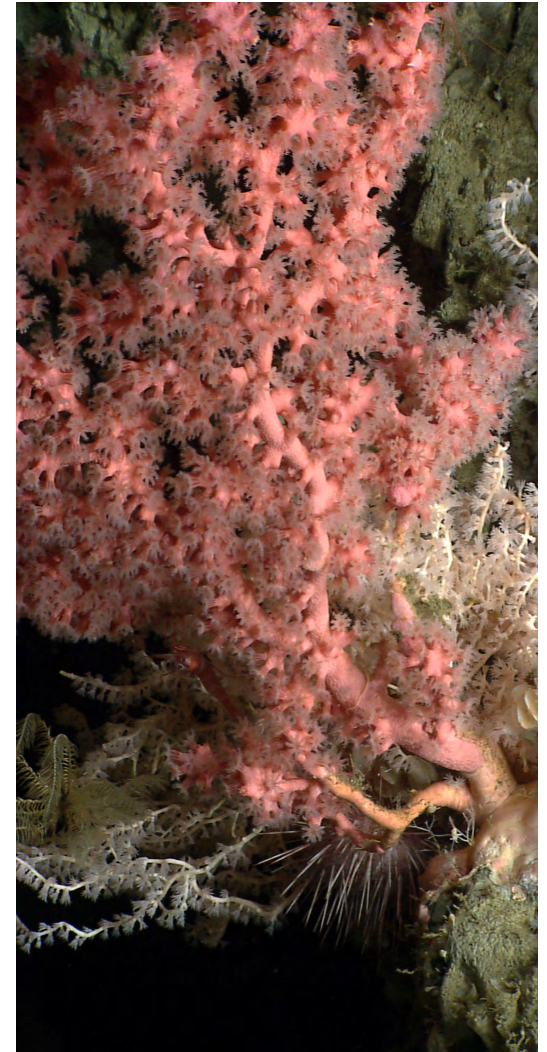


Deep Sea Coral Research & Technology Program 2016-2019 US Southeast



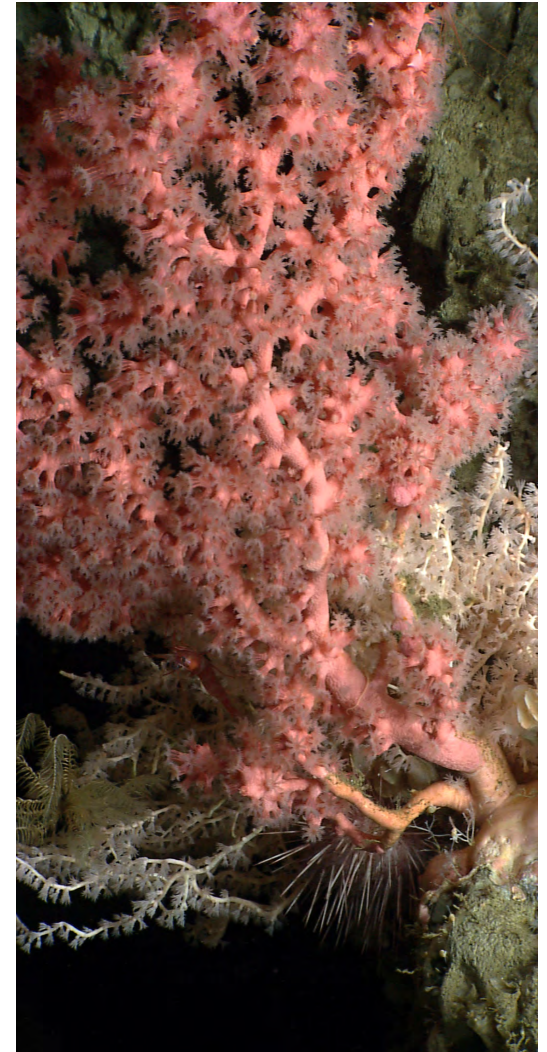
Challenges

- Mismatch in target depths
 - Deepwater fisheries
 - Principle range 200 – 1000m,
 - U.S. Max ~ 1200m; High seas ~ 2000m
 - Cobalt crusts 800 – 2200m
- Mismatch in survey vs. management areas
 - ROV surveys < 1 km
 - Management zones 10-100s km²
- Need for products in addition to video
 - Samples
 - Quantitative measures of density

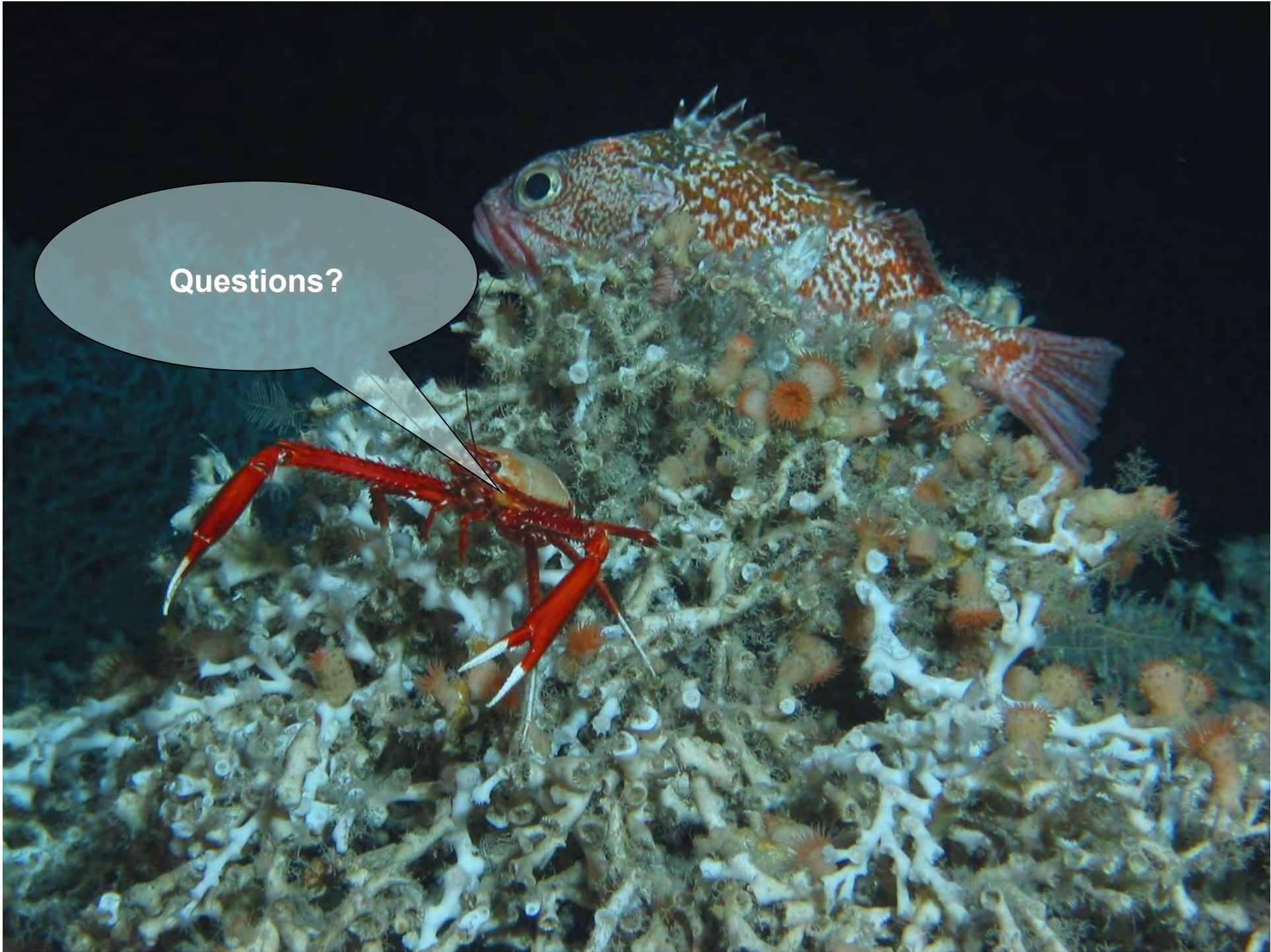


Opportunities

- Strong commonalities
 - Multibeam surveys – basis for most subsequent work
 - Understanding begins with exploration
- Access & application of technologies
 - Vessel coordination
 - Tandem ROV/AUV surveys
 - New sampling approaches (e.g., E-DNA)
- Developing common products
 - Deep-sea animal guides
 - Consistent habitat classification (e.g., CMECS)



Questions?

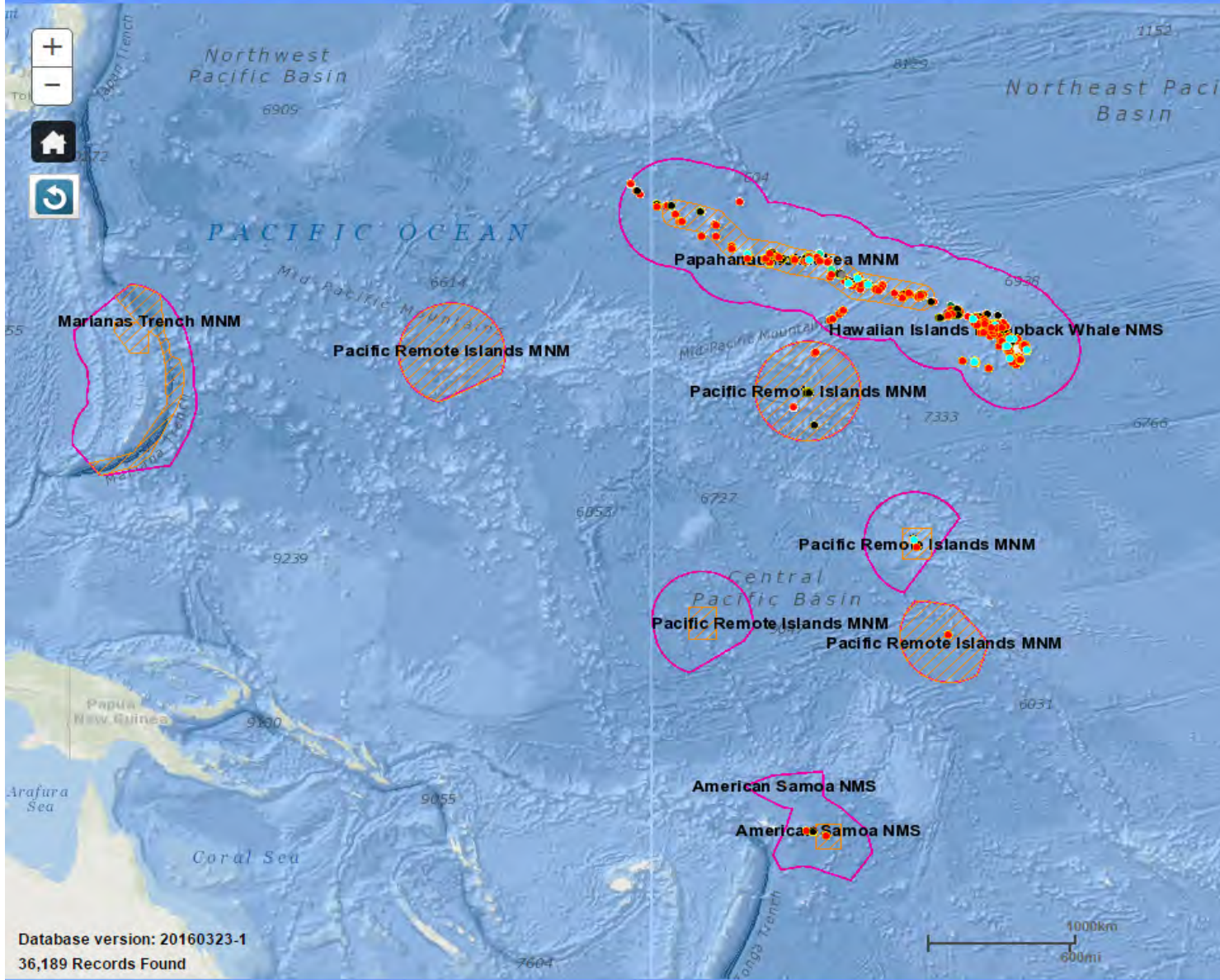


Extra Slides



NOAA Deep-Sea Coral Data

Zoom In Zoom Out Prev Extent Next Extent Pan Stop Zoom Geostatistics Data Query Data Download Metadata



Site Characterizations by US Region

- Southeast
- Gulf of Mexico
- California
- Northwest

Map Display Options

Legend Photo

Sponges

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

Corals

- Black Coral
- Gold Coral
- Gorgonian Coral
- Lace Coral
- Lithotelestial Coral
- Longhorn
- Hydrozoan Coral
- Other Coral-Like Hydrozoan
- Sea Pen
- Soft Coral
- Stoloniferan Coral
- Stony Coral (branching)
- Stony Coral (cup coral)
- Stony Coral (unspecified)
- NA

Database version: 20160323-1
36,189 Records Found



Deep-Sea Initiatives

- EU Deep-Sea Initiatives
 - **ATLAS:** A Trans-Atlantic assessment & deep-water ecosystem-based management plan
 - **SponGES:** Deep-sea Sponge Grounds Ecosystems of the North Atlantic: an integrated approach towards their preservation and sustainable exploitation
- U.S./New Zealand Collaboration
 - VMEs in the southwest Pacific

HORIZON 2020
A Trans-Atlantic assessment and deep-water ecosystem-based spatial management plan for Europe

Home Work Packages Partners Partners Area Contact

About **Case Studies** **Updates**

- ATLAS project moves forward!
On Friday 8 November 2015 the European Commission announced that ATLAS had scored 14.5 out of a possible 15 marks and was moving forward towards Grant Agreement. The partners are now busy ensuring all legal and contractual issues are in place so the ATLAS project can begin in the first half of 2016. The ATLAS [...]
- EU ATLAS
The ATLAS proposal was submitted on 11 June 2015

Legend
— TAN1402 Vessel Track
- - - NZ ECS
— NZ EEZ

Forde
CenSeam
Anvil
39°South
Ghost
Valerie

0 95 190 380 Kilometres
0 45 90 180 Nautical Miles

NOAA's Strategic Approach

NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems

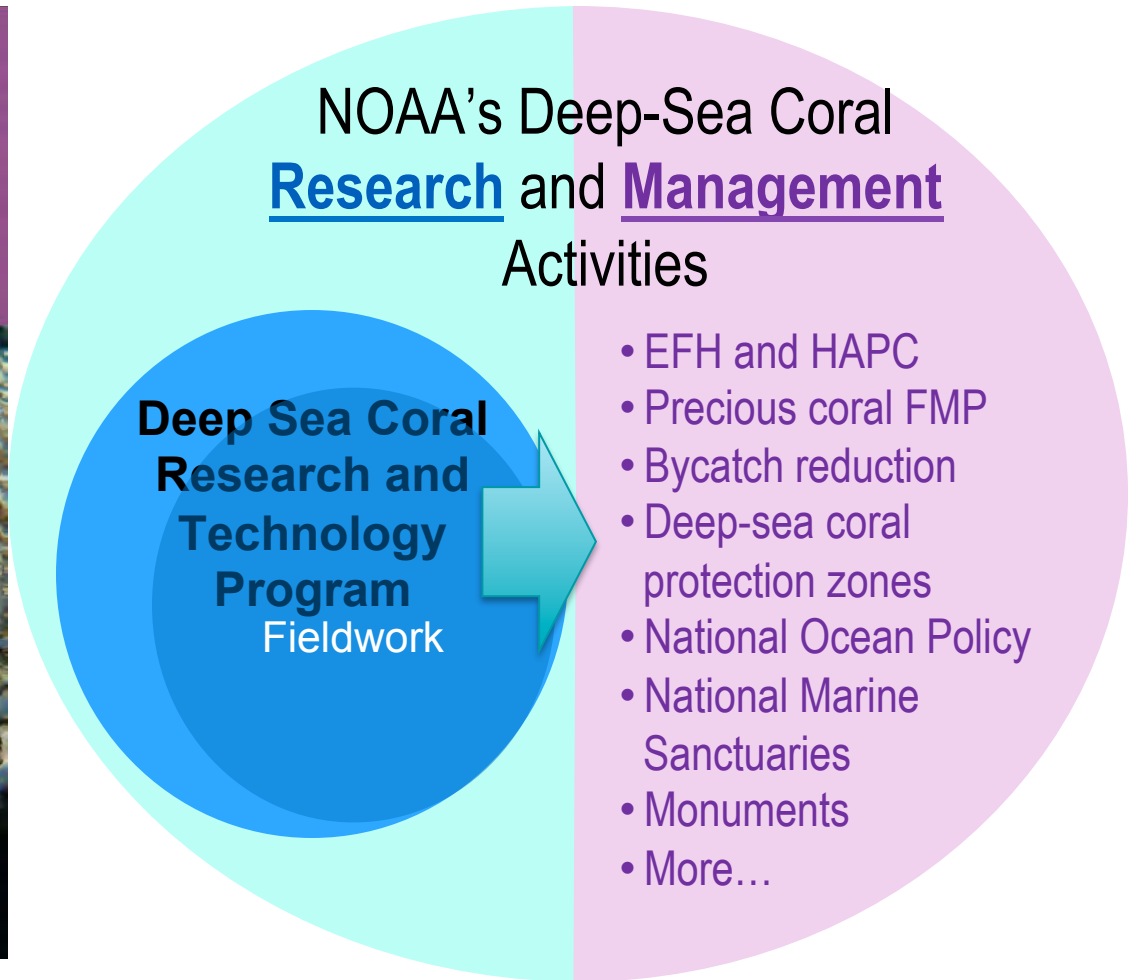
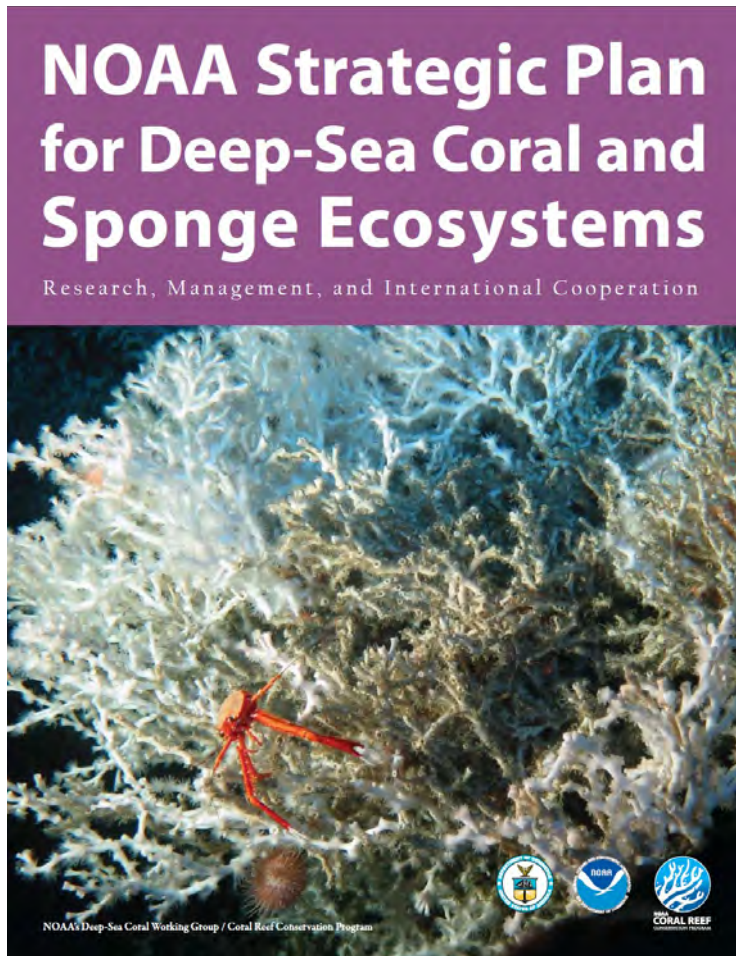
Research, Management, and International Cooperation



*Improve understanding,
conservation, and management
of deep-sea coral and sponge
ecosystems*

- Exploration & Research
- Conservation & Management
- International Cooperation

Research & Management



Regional Field Research

- Three to four-year initiatives ~ \$800 K per year
 - ~ 400K Ramp-up (2016)
 - ~ \$750 - \$800K per year (2017 – 2019)
- Management relevant – informs:
 - Regional Fishery Management Councils
 - Other management decisions
- Builds on existing data and partnerships
- Complements or leverages partner resources



Potential NOAA/BOEM/USGS Research Partnership 2017-2019

- Mid- & South Atlantic Regions
- Builds on NOAA/BOEM & USGS collaborations in Gulf of Mexico & Mid Atlantic
- Initial NOAA research cruise in late FY 16

