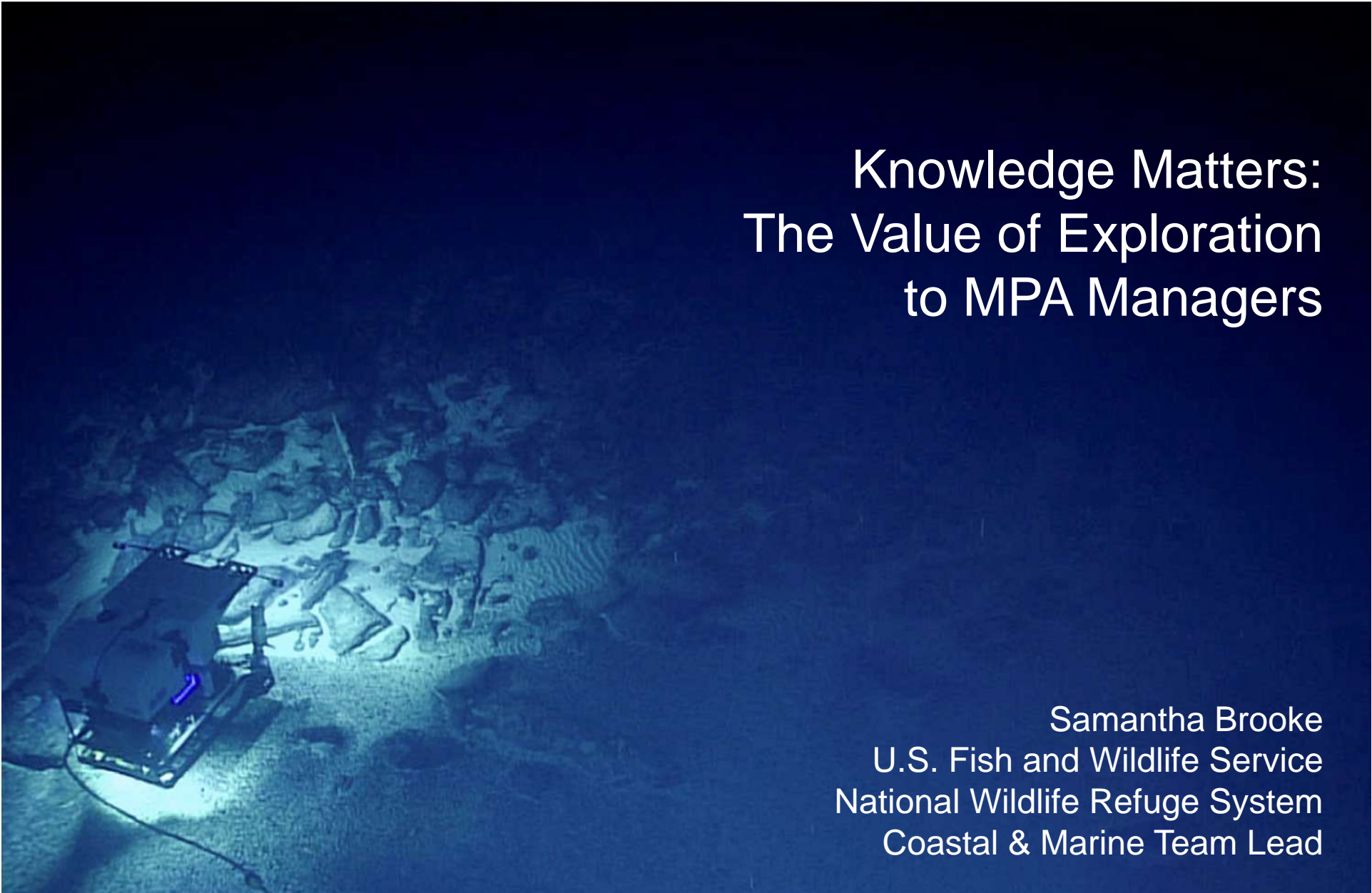


# Knowledge Matters: The Value of Exploration to MPA Managers



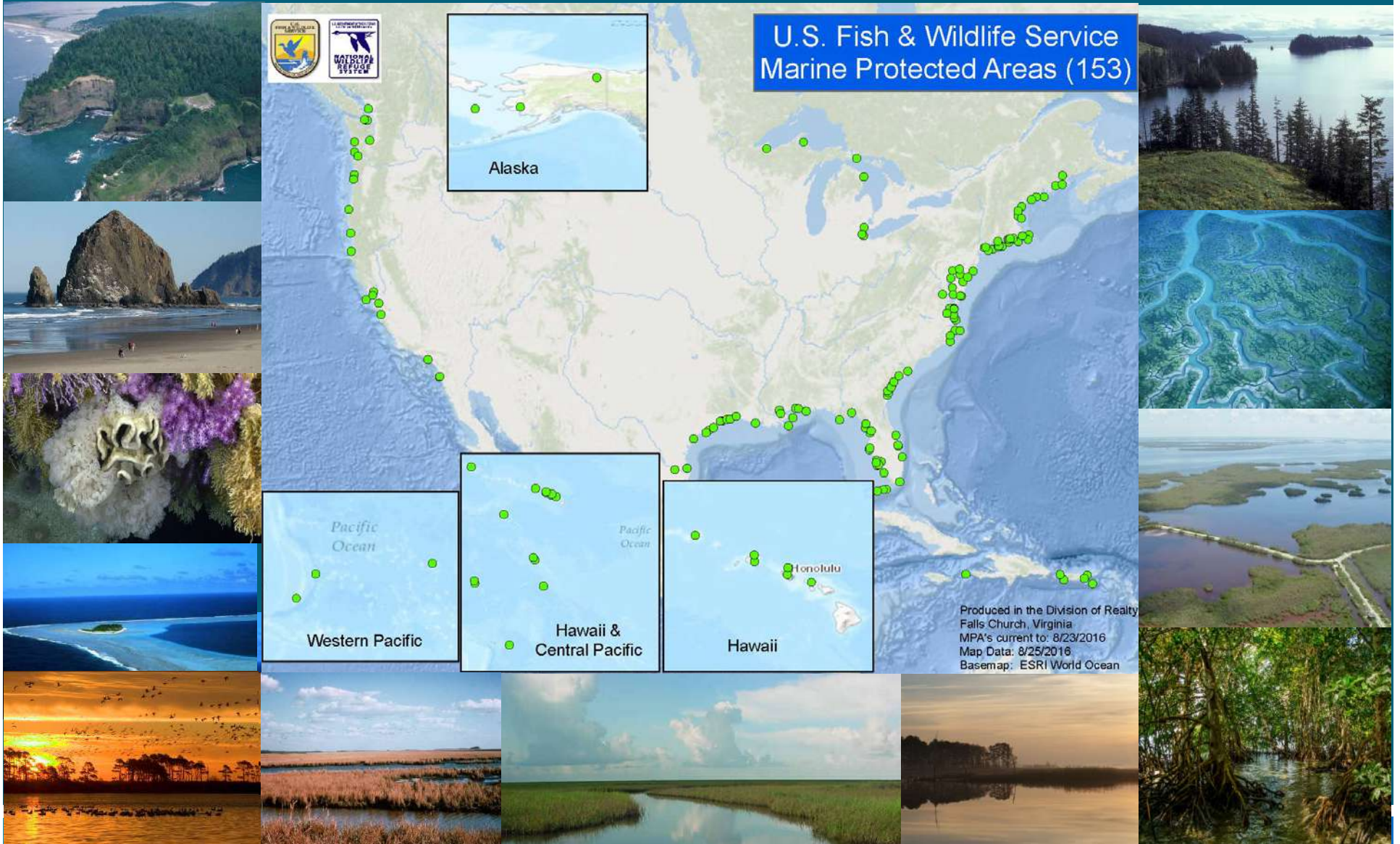
Samantha Brooke  
U.S. Fish and Wildlife Service  
National Wildlife Refuge System  
Coastal & Marine Team Lead

July 11, 2017

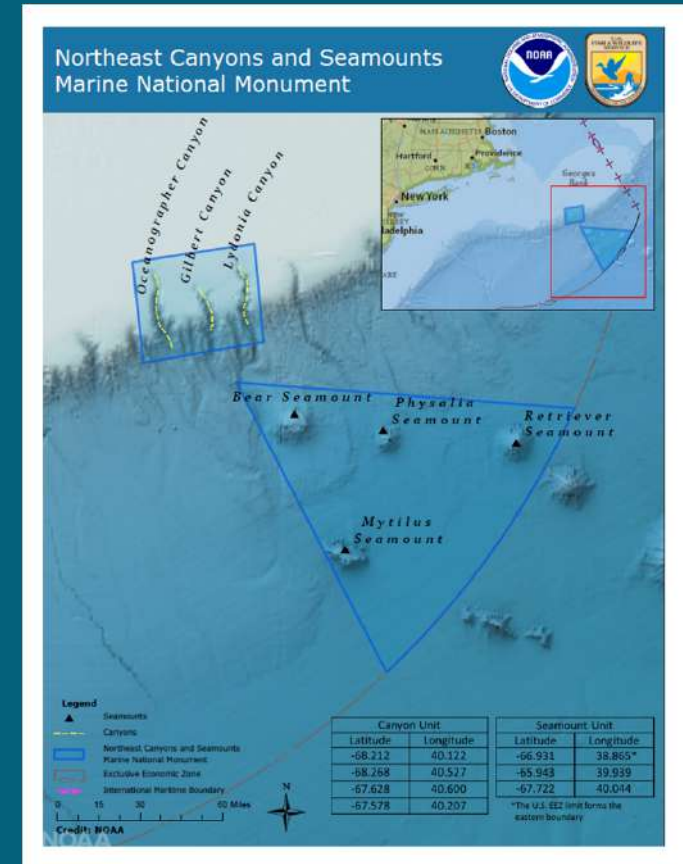
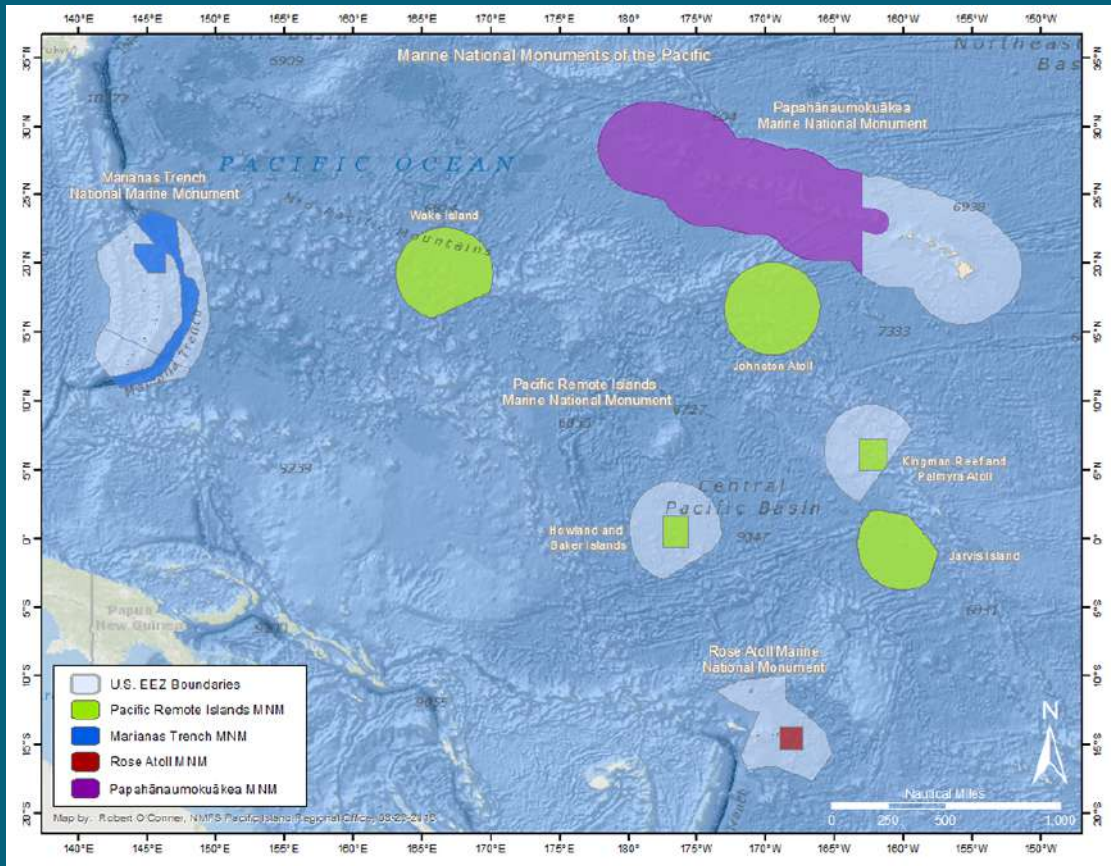
# Disclaimer

- The views expressed in this presentation are those of the presenter and do not reflect the official policy or position of the Department of Commerce, Department of Interior, or the U.S. Government.

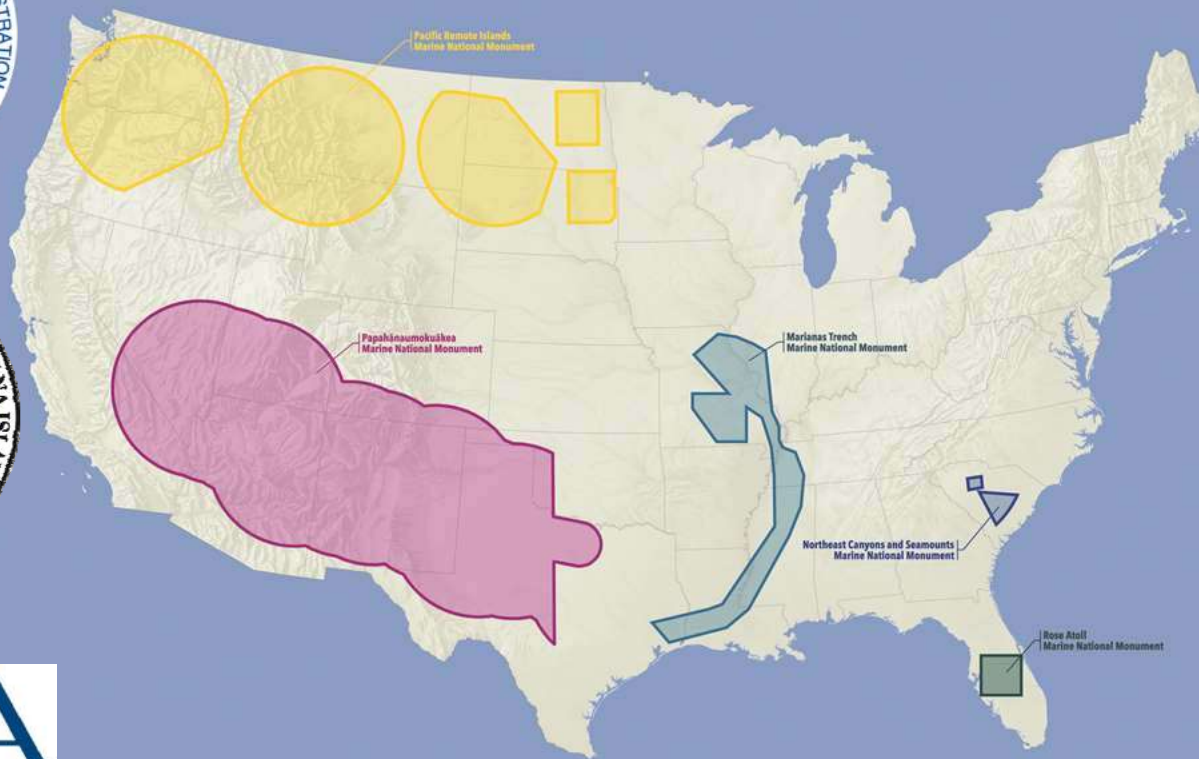
# Role of US Fish and Wildlife Service



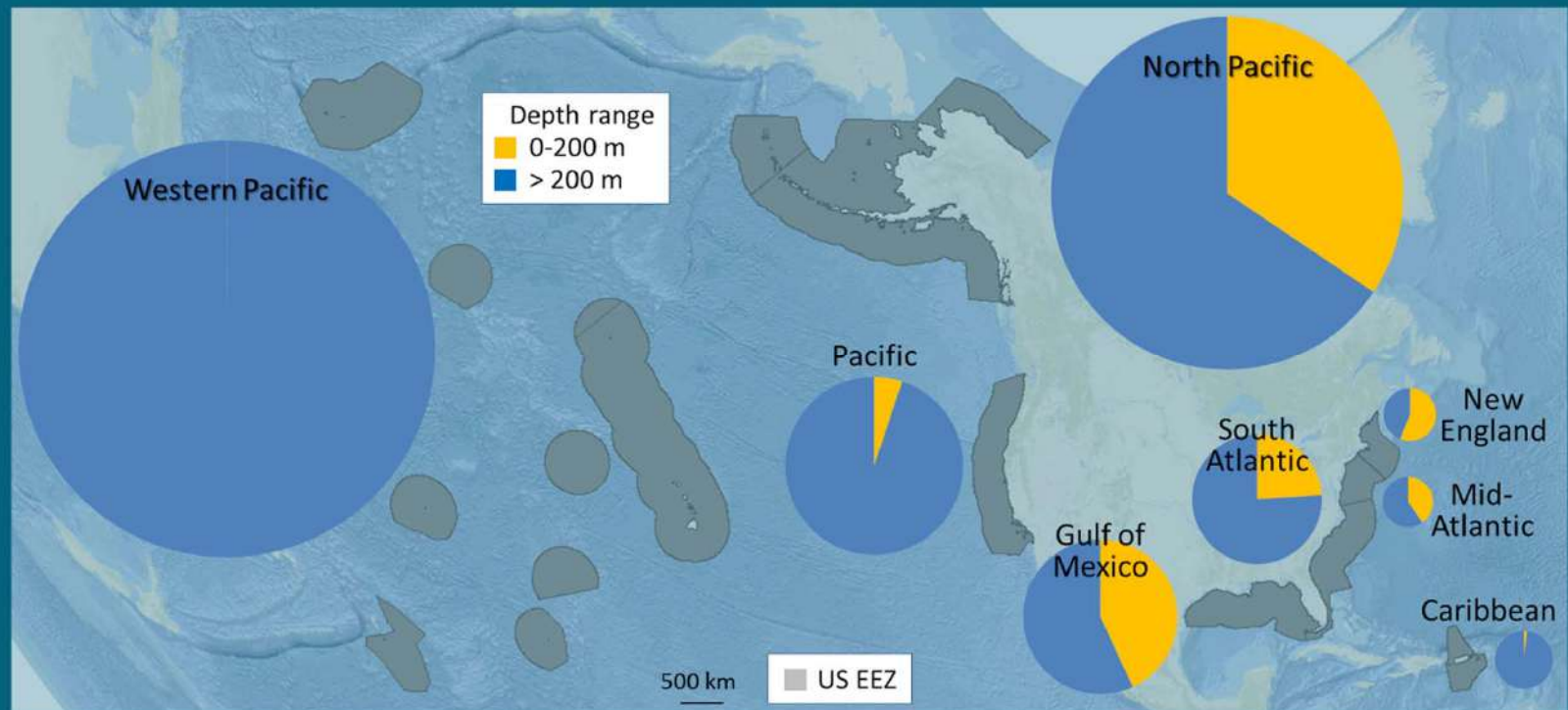
# Marine National Monuments



# Marine National Monuments



# Why is Deep Sea Exploration Important to MPA Managers?



Courtesy NOAA DSCRTP– unpublished

# Why Should Parts of the Deep Sea be Protected?

- Precautionary principle
- Sensitive habitat
- Comparative site
- Cultural significance

*“Maug Crater represents one of only a handful of places on Earth where photosynthetic and chemosynthetic communities of life are known to come together.” – PP 8335*

*“The canyon and seamount area, which will constitute the monument as set forth in this proclamation, is composed of two units, which showcase two distinct geological features that support vulnerable ecological communities.” – PP 9496*

*“The additional seamounts provide important opportunities for scientific exploration and study. Estimates are that 15 to 44 percent of the species on a seamount or seamount group are found nowhere else on Earth.” – PP 9173*

# Challenges for Deep Sea Protected Area Managers

- Out of site, out of mind
- Limited knowledge
- Lack of information on cultural/social connections
- Remote/inaccessible
- Difficult to monitor for illegal activities
- Natural perturbations



# Management Concerns

- Mineral, oil, and gas extraction
- Fishing
- Climate change
- Pollution
- Access
  - IUU
  - Trespass
  - Research
  - Visitation
- Invasive species introduction



*Credit: NOAA Fisheries*



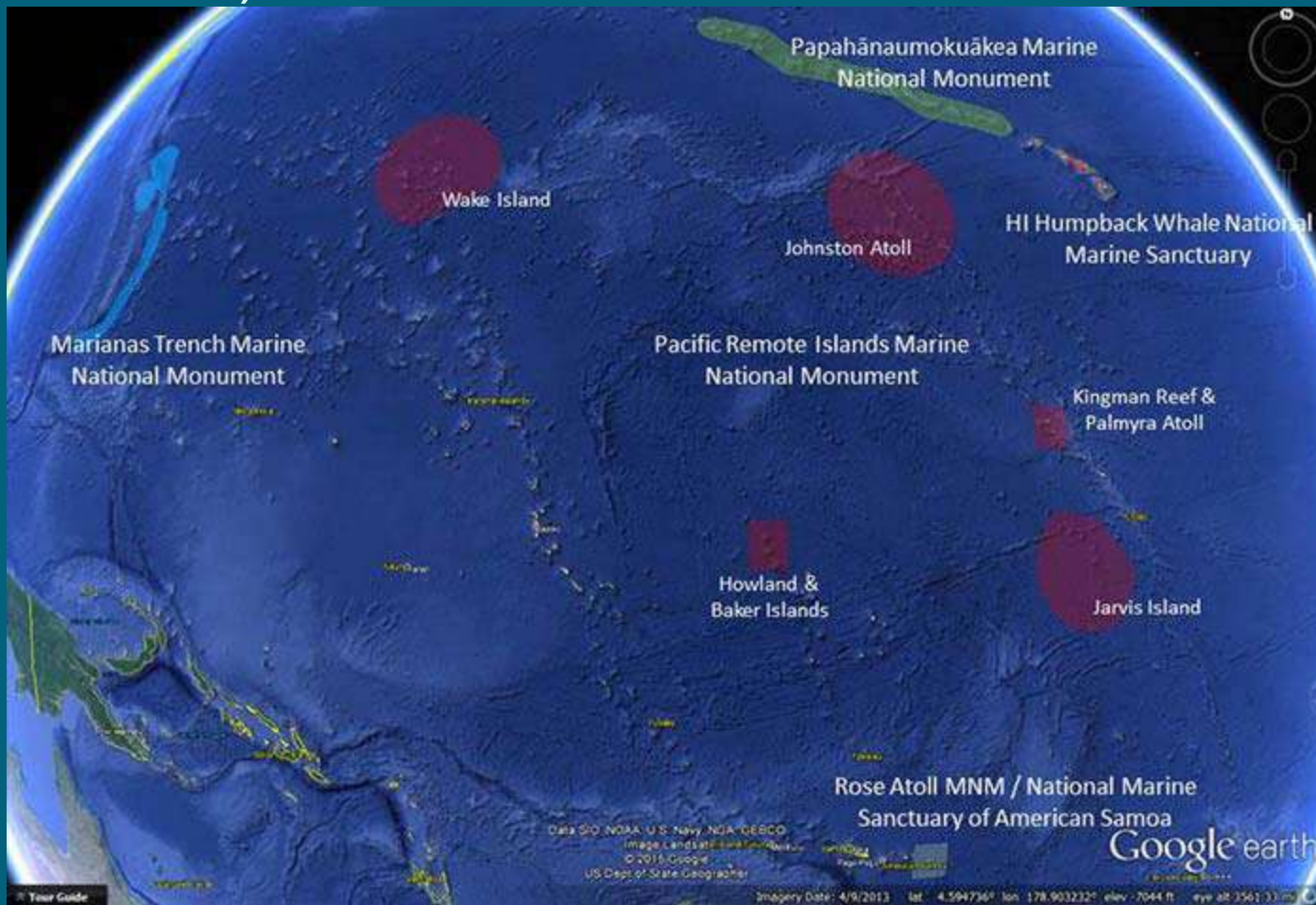
*Credit: NOAA OER*

# How do MPA Managers Use Deep-Sea Exploration Data?

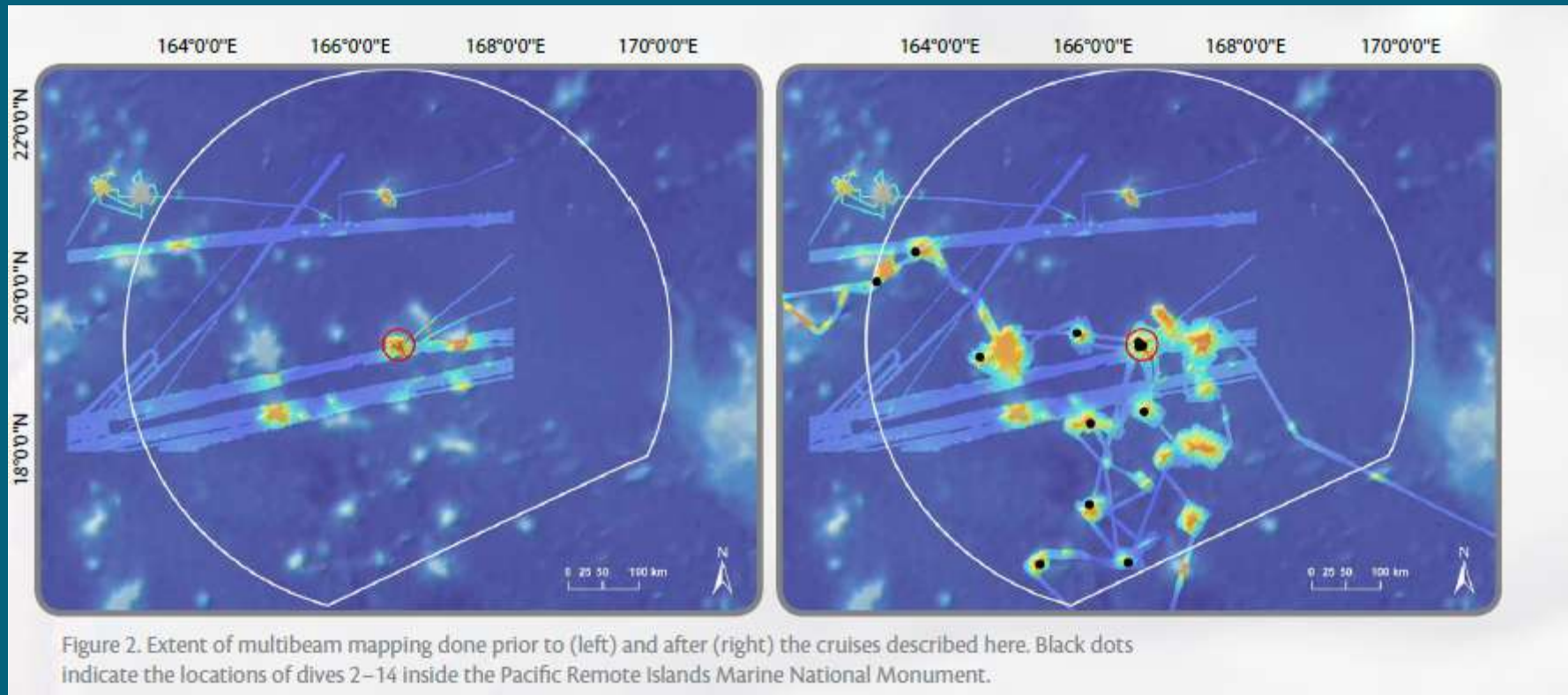
- Management Planning
  - Site description
  - Research planning
  - Environmental compliance
  - Rules/regulations
- Permitting
  - Environmental compliance
  - Best Practices
- Communication/outreach



# Campaign to Address the Pacific monument Science, Technology, and Ocean Needs (CAPSTONE)

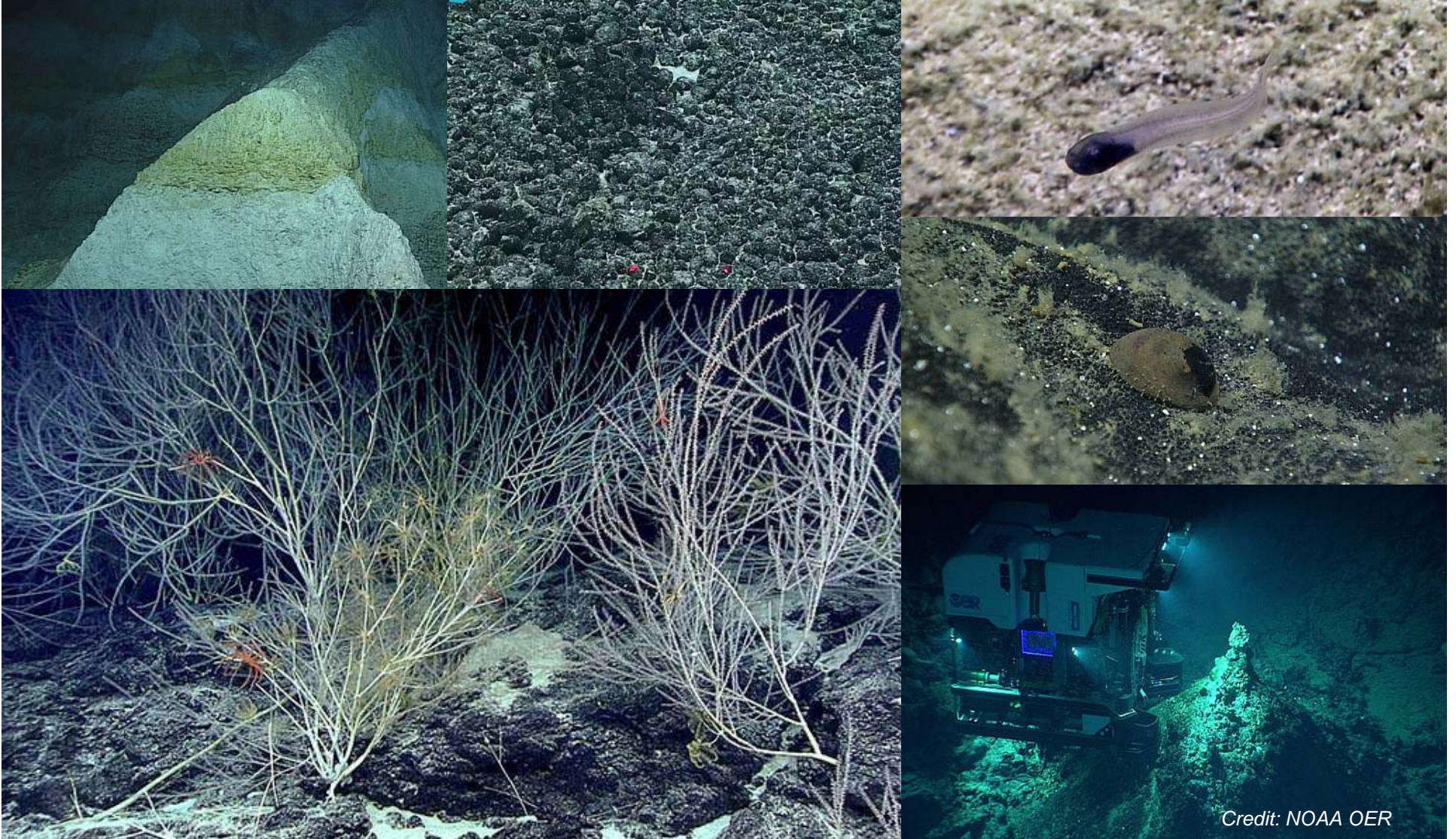


# CAPSTONE Contributions to MPA Management



*Credit: NOAA OER  
(from: Oceanography v. 30 n. 1,  
supplement)*

# CAPSTONE Contributions to MPA Management



*Credit: NOAA OER*

# CAPSTONE Contributions to MPA Management



Credit: NOAA OER

# CAPSTONE Contributions to MPA Management



**Marine life**

## Octopus dubbed Casper the friendly ghost could be new species

Small, ghostly white octopus was found in the deep sea off Hawaii and has been likened to the beloved cartoon character

This article is 1 year old

3479 59

Associated Press

Saturday 5 March 2016 02:21 EST

0:00 / 0:10

Ghostly-white octopus discovered in Hawaiian Islands

Scientists say they have discovered what might be a new species of octopus while searching the Pacific Ocean floor near the Hawaiian Islands.

**WEIRD NEWS** 02/26/2017 07:25 AM ET

## Jellyfish That Looks Like UFO Spotted By Underwater Rover

It's an underwater fishy object.

By David Meyer

It's a UFO — an underwater fishy object.

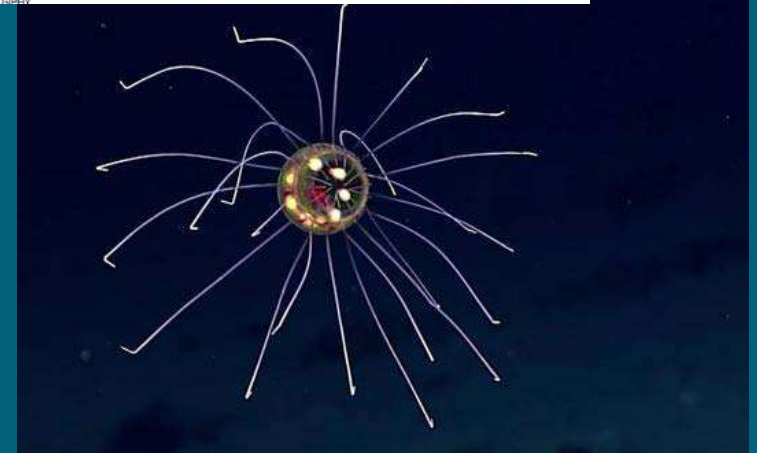
A jellyfish that looks amazingly like a flying saucer was recently filmed by a team of marine biologists from the U.S. National Oceanic and Atmospheric Administration.

This "UFO" isn't really unidentified. Its scientific name is *rhopalomegalid trachymedusa*, a type of deep-sea jellyfish. It was filmed last week by scientists aboard the [Okeanos Explorer](#), a NOAA ocean research ship now exploring the [National Marine Sanctuary of American Samoa](#).

Watching the jellyfish move around the deep ocean can be a hypnotic experience.



TRENDING



Credit: NOAA OER

# CAPSTONE Contributions to MPA Management

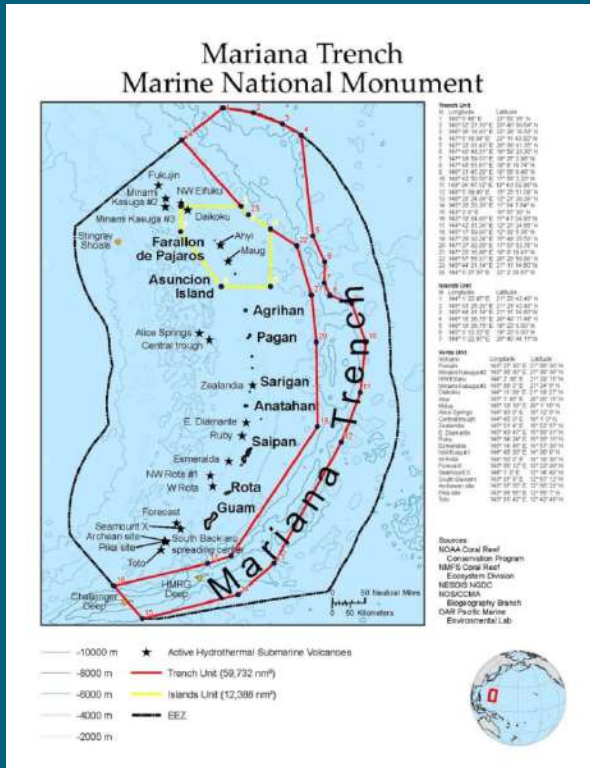
Invasive Species Prevention –  
Developing Best Practices



*Credit: Todd Haney*



# CAPSTONE Contributions to MPA Management



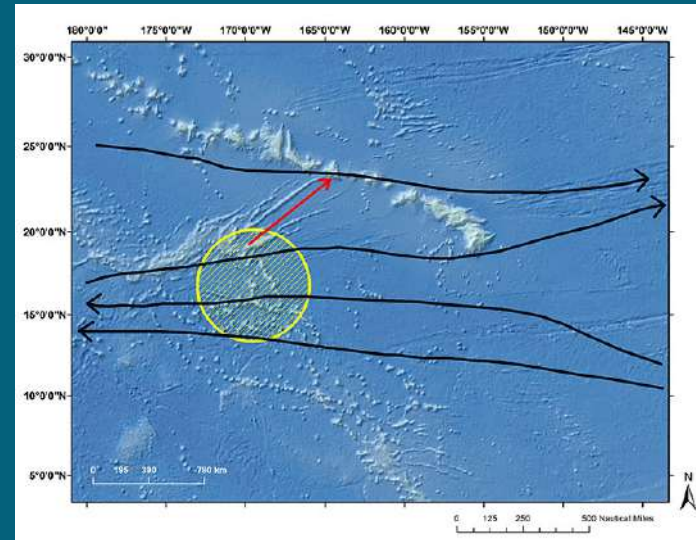
## Fishing Impacts at Zealandia

Credit: NOAA Fisheries

# CAPSTONE Contributions to MPA Management



- How is the fauna of the Mariana region similar to or different from other regions?
- What regions have the most closely related fauna to that of the Mariana region?
- Is the Mariana region entirely isolated from other areas?



- What organisms occur in Johnston Atoll that are also observed in the Hawaiian Archipelago?
- How might these give us insight into the origin of the rich endemic marine fauna of the Hawaiian Islands?
- How might the abundance and distribution of animal and other life play a role in helping us understand how larvae “feed” into the Hawaiian fauna?
- What environmental factors dictate the distribution and abundance of organisms in the deep sea?

# Working Together

- Improved communication/products
- Opportunities to meet/share information
- Improvements to permitting process
  - Engagement in the planning stages
- Coordinated outreach/education
- Support for technical innovation
  - Grants/research agreements



# The future

- CAPSTONE – Just the start!
- Other partnerships –
  - Falkor/Schmidt Ocean Institute
  - Nautilus/Corps for Exploration
  - Foreign researchers
  - Others?
- New types of technology
  - Acoustics
  - Unmanned



Credit: NOAA OER

# Questions?

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