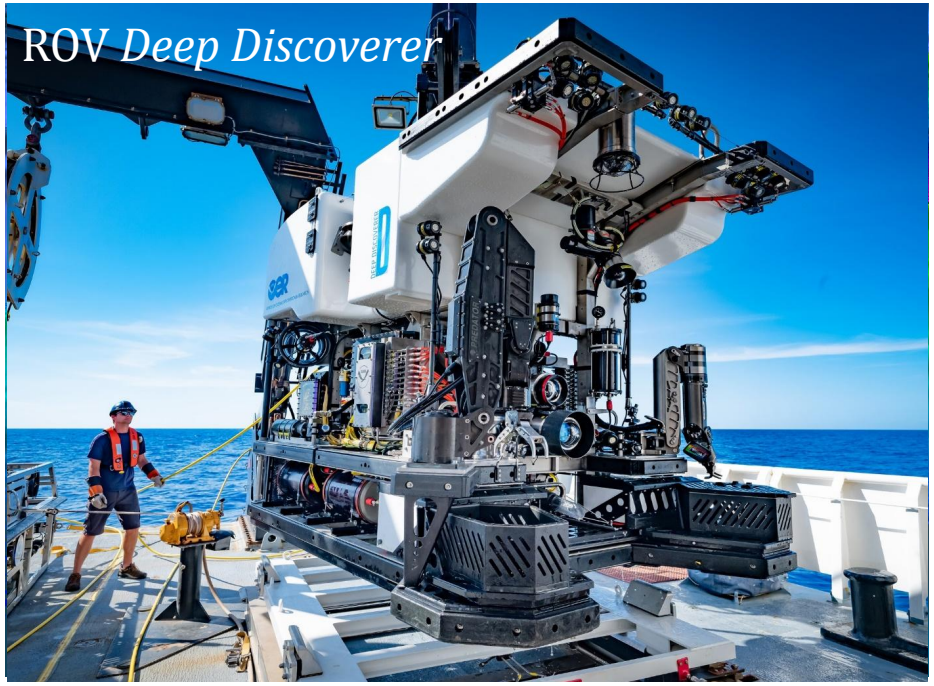
NOAA OCEAN EXPLORATION

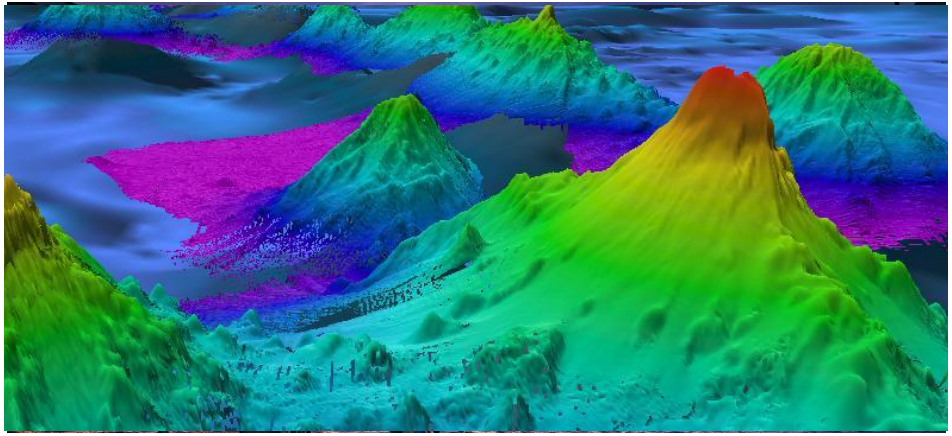
DeSSC New Users Meeting:

Opportunities for collaboration with NOAA Ocean Exploration in 2024-2026

Rachel Medley

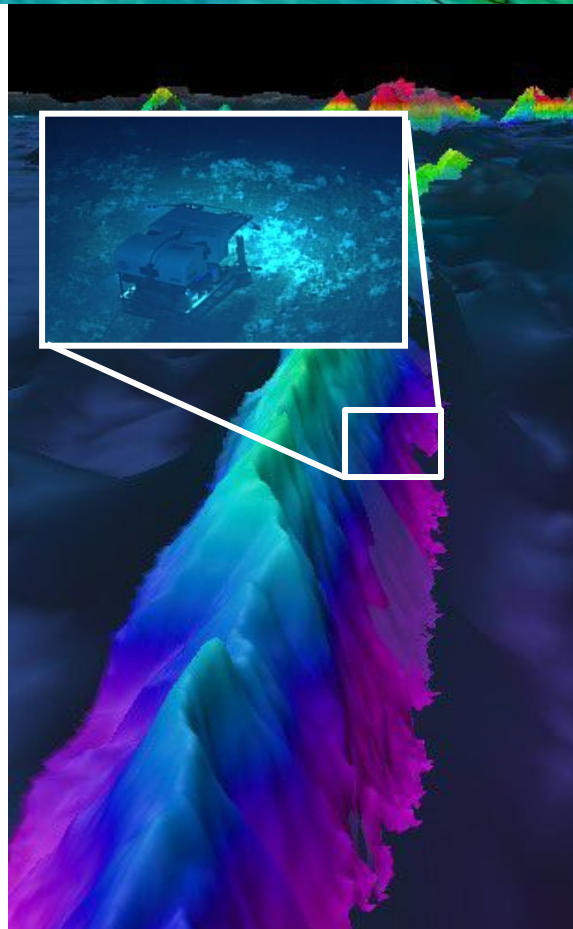
NOAA Ship *Okeanos Explorer*


ROV *Deep Discoverer*



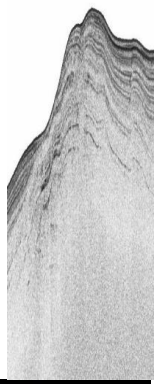
Principles of Exploration

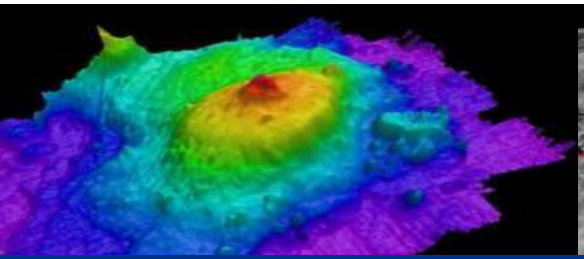
- Explore to meet community needs
- Always collect useful and quality data
- Systematically expand exploration footprint
- Share discoveries to engage the public
- Produce open access data with necessary metadata
- Release data in a timely manner

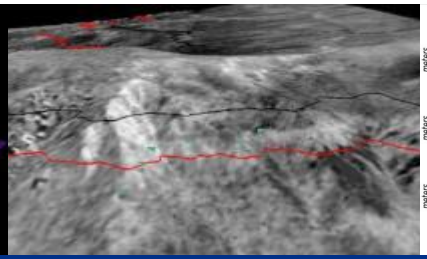


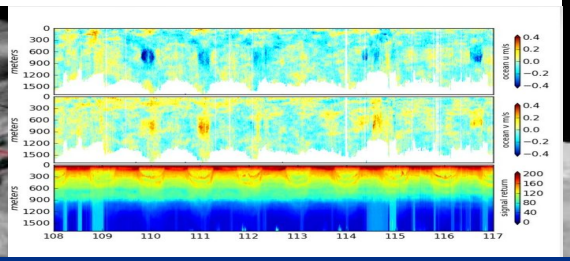
Deep Water Mapping Sonars

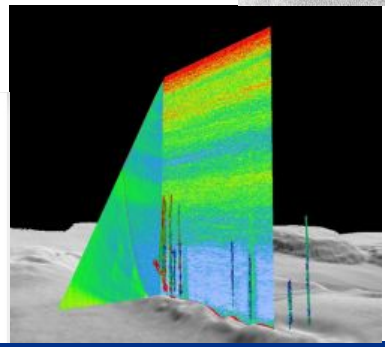
- Kongsberg 26 kHz EM304 Multibeam
  - Operating efficient depths ~250 m – 6500 m
- Simrad EK60 & EK80 Split Beam Sonars (18 kHz, 38 kHz, 70 kHz (WBT), 120 kHz, 200 kHz)
  - Operating depth varies, from 10 m to full ocean depth dependant upon frequency
- Knudsen 3.5 kHz chirp Subbottom Profiler
  - Full ocean depth; ~80 m seafloor penetration
- Teledyne Acoustic Doppler Current Profilers (300 kHz and 38 kHz)
  - 100 m (300 kHz); 1300 m (38 kHz)





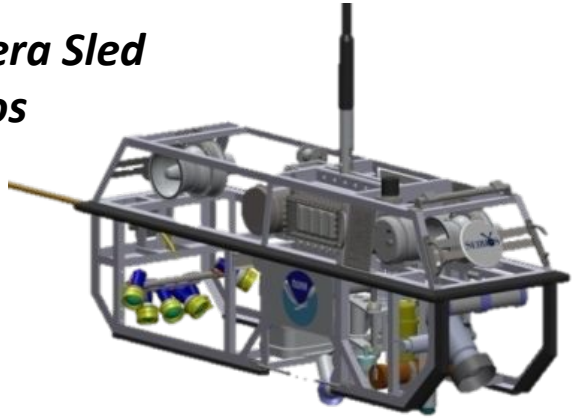




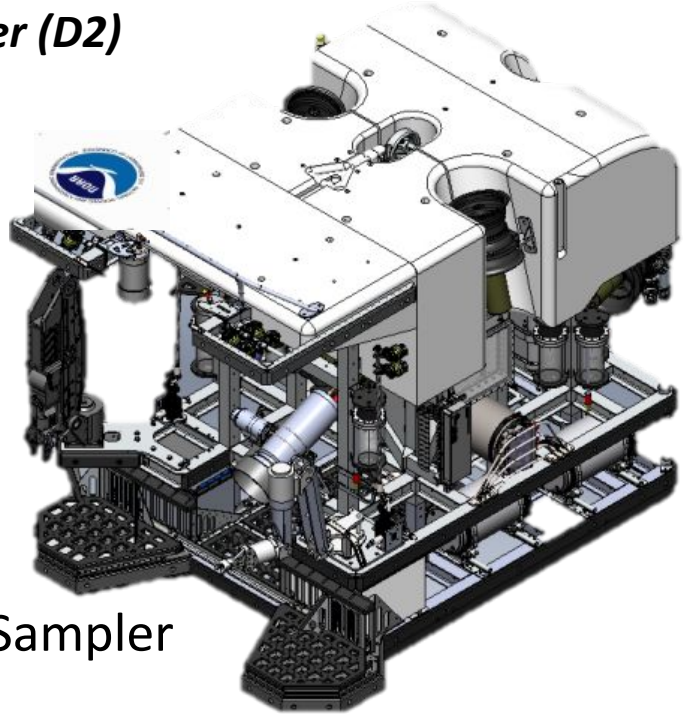


Seirios and *Deep Discoverer* Dual Body ROV

Camera Sled Seirios



ROV Deep Discoverer (D2)



- 250-6000 meters operating depths
- Powerful lighting and High definition imaging
- Temperature Probe, CTD, DO, LSS, ORP
- 4 bio boxes, 2 rock boxes, and 5 Chamber Suction Sampler
- 5 x 1.7 L Niskins bottles

What to Expect: Sampling

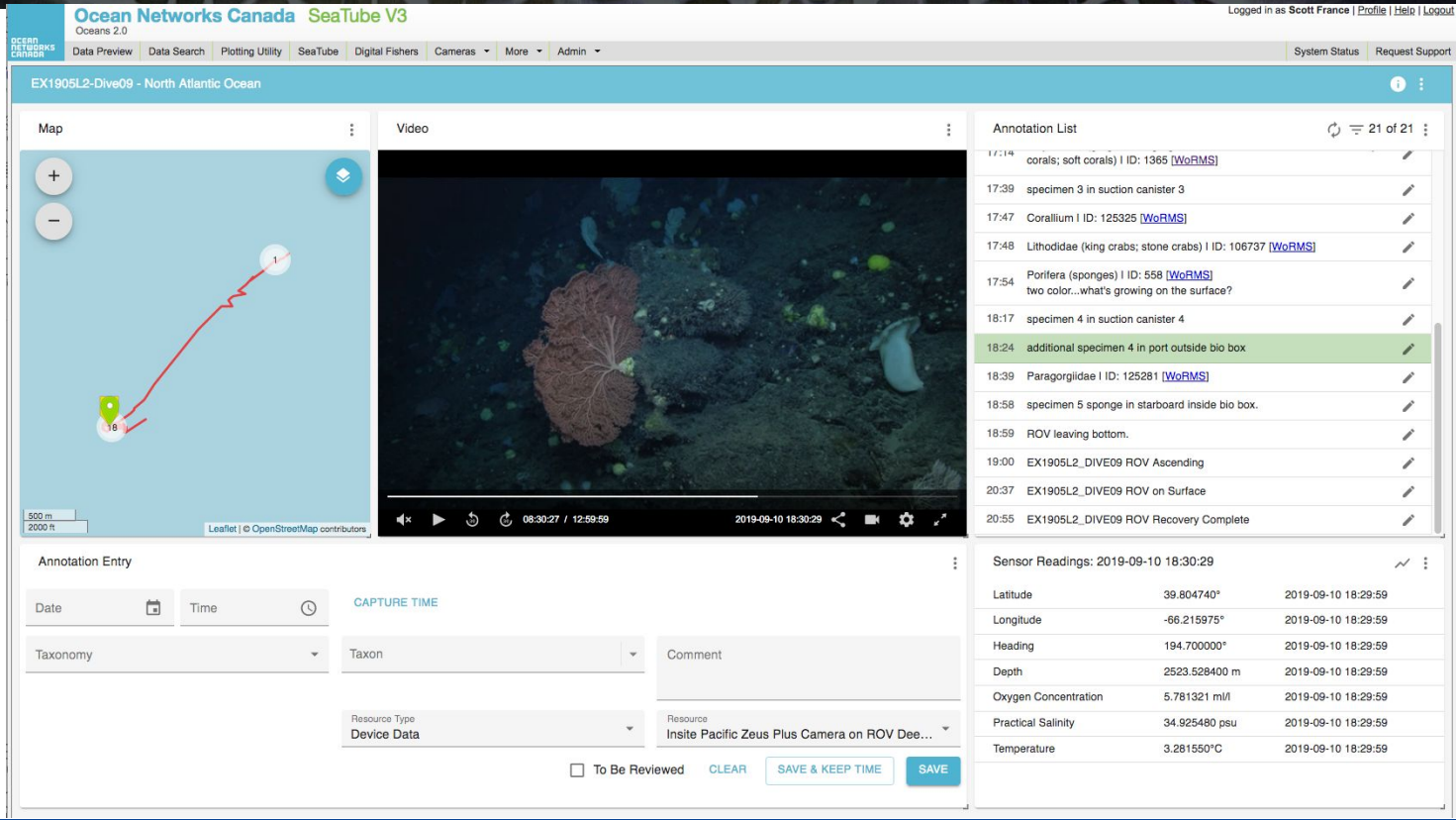
Up to **11** primary samples per dive:

- **Biological targets**: Potential new species, new records, or new depth ranges for a region; the dominant morphotype in a habitat; other specimens with significant discovery potential; or specimens that may contribute to connectivity studies
- **Geological targets**: Rocks with potential to contribute to significant scientific discoveries; geological history; characteristic substrate including marine minerals; samples that provide insight for potential submarine geohazards

Ocean Networks Canada - SeaTube V3

Customizable layout:

- Options to show/hide various widgets
- Change size or position of windows



Open Access Data

- QA/QC'ed data are sent to archive ~ 90 days after a cruise.
- Cruise data can be discovered through the NOAA archives directly, Ocean Exploration Digital Atlas, or on the cruise landing pages

NOAA OFFICE OF OCEAN EXPLORATION AND RESEARCH
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Overview 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Mid and Southeast US ROV and Mapping (EX1903L2)

Vessel: NOAA Ship Okeanos Explorer; **Cruise Dates:** June 20, 2019 to July 12, 2019

Ports: Port Canaveral, FL to Norfolk,VA

Project Principals: Kasey Cantwell, NOAA/OAR/OER (Expedition Coordinator); Shannon Hoy, NOAA/OAR/OER (Mapping Lead)

The deepwater areas offshore Florida, Georgia, South Carolina, and North Carolina are some of the least explored areas along the U.S. East Coast. In 2019, NOAA and partners conducted a two-part expedition to map and characterize this area to support priorities put forward by the deep-ocean science and resource management communities. The primary objective of the expedition was to survey deepwater areas offshore of Florida, Georgia, South Carolina and North Carolina in order to provide baseline information to support management and science needs. This two-part expedition used the ship's deepwater mapping systems (Kongsberg EM302 multibeam sonar, Simrad EK60 and EK80 split-beam fisheries sonars, Knudsen 3260 chirp sub-bottom profiler sonar, and Teledyne Acoustic Doppler Current Profiler [ADCP]), NOAA's two-body deepwater remotely operated vehicle (ROV), and a high-bandwidth satellite connection for real-time ship to shore communications. This cruise report details activities associated with the second leg of the Windows to the Deep 2019 expedition (EX1903L2). 19 ROV dives were conducted, ranging in depth from 298 to 3,490 meters (978-11,450 feet) to improve knowledge of unexplored areas within the U.S. Exclusive Economic Zone (EEZ) to inform management needs for sensitive habitats, maritime heritage sites, and potential resources. EX1903L2 also mapped 14,314 square kilometers of seafloor to extend bathymetric mapping coverage in the U.S.EEZ in support of Seabed 2030 and NOAA's goal to map and characterize the U.S. EEZ. Data from this expedition will help to improve our understanding of the deep-ocean habitats of the U.S. continental margin and of the connections between communities throughout the Atlantic Basin

Cruise Data and Resources

Cruise Summary Report (PDF - 2.42 MB)	Open	Click to open link
Mapping Summary Report (PDF - 1.52 MB)	Open	Click to open link
Ship Navigation Data (ASCII)	Download	Use zip utility to open file
Ship SCS/Sensor Data (ASCII)	Download	Use zip utility to open file
Ship SCS/Sensor Data (NetCDF)	Open	NetCDF file format: Special software needed to read
Mapping Products	Download	Use zip utility to open file
GIS Products	Download	Use zip utility to open file

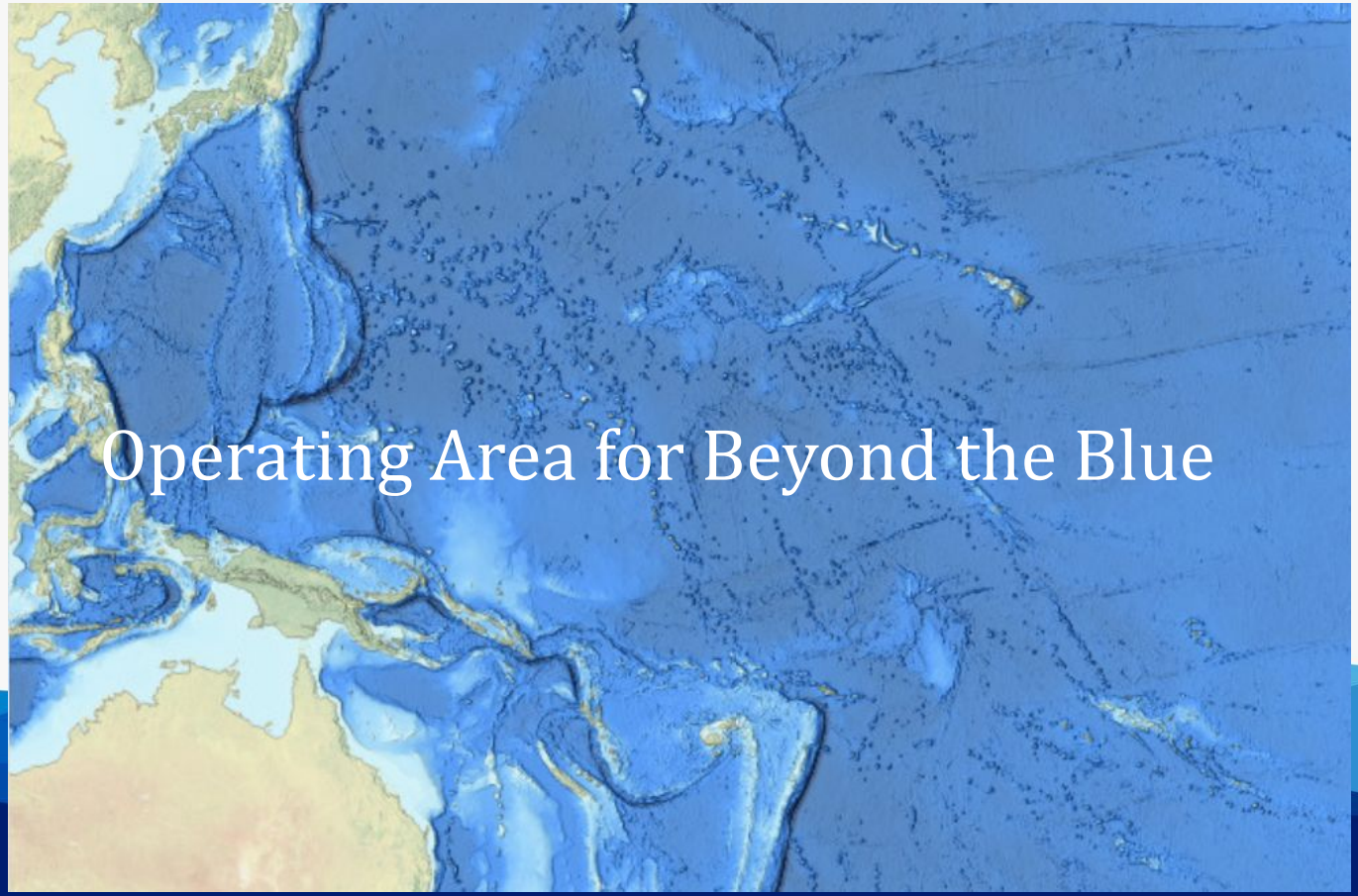
Submersible Data and Resources

Dive Summaries	Download	Use zip utility to open file
Dive Tracks	Download	Use zip utility to open file
CTDs from Submersibles	Download	Use zip utility to open file
ROV Dive Event Logs	Open	Click to open link
Cruise Video Collection Self-Service Portal	Open	Click to open link
Specimens Collected During Dive Operations	Download	Click to open link
Submersible Navigation/Sensor Data (ASCII)	Download	Use zip utility to open file

Collected Specimen Repositories

Smithsonian National Museum of Natural History (Biological Samples)	Open	Click to visit repository website
Oregon State University's Marine Geology Repository	Open	Click to visit repository website

Beyond the Blue: Illuminating the Pacific



What will be part of Beyond the Blue?

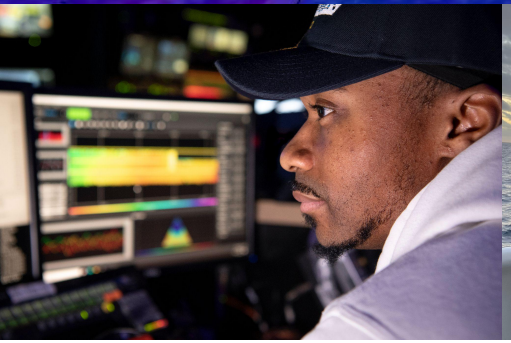
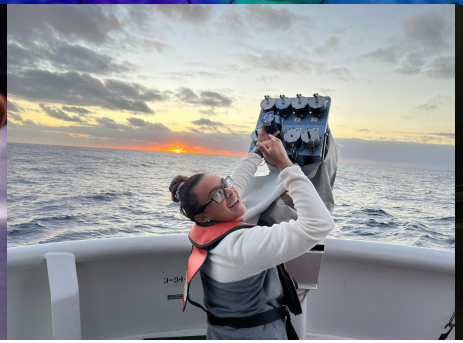
- All of NOAA Ship *Okeanos Explorer* expeditions for CY 2024-2026(+?)
- OER funded work on R/V Nautilus (Ocean Exploration Trust)
- NOAA Deep Sea Corals next Regional Initiative
- Opportunistic deployments for Argo floats, drifters, and other autonomous systems to extend coverage throughout the Pacific
- Partnership driven expeditions and engagement best practices with Pacific Island Nations
- BOEM/USGS collaborative projects
- DPAA collaborative efforts
- And more!

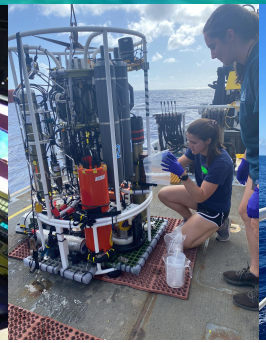
How to Get Involved

- Call for Input -
- Become a Science Lead on the NOAA Ship Okeanos Explorer
  - Looking for early career scientists that have expertise in: geology, benthic ecology, deep water corals, water column, seeps, deep ocean features/creatures & more…..
  - Email EX.ExpeditionCoordinator@noaa.gov for more information and to express your interest in potentially being a science lead on an expedition
- Participate with us from shore: https://oceanexplorer.noaa.gov/okeanos/collaboration-tools/
  - Input for targets, where we go and what we see
  - Access to real-time annotations, science chat room, telepresence comms
  - Community connections through expeditions

EXPLORATION

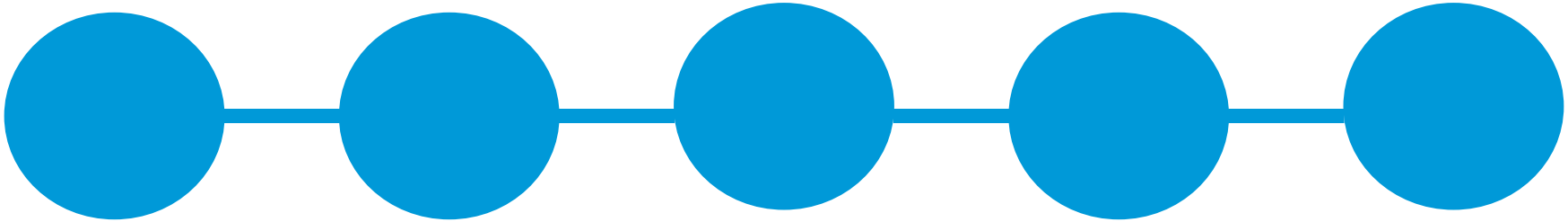
Explorer-in-Training Internship




- Two paths: Expedition experience with ~3-4 weeks at sea, or focus in Science Communications or Science and Tech for a 10 weeks, shore-based, summer
- Open to U.S. citizens, undergraduates, graduates, and recent grads of U.S. institutions, degree or focus in any field related to ocean exploration
- Accepting applications now!
    - **Applications for the 3-4 week expedition-based opportunities will be accepted on a rolling basis, with a priority deadline of January 31st, 2024.**
    - **Applications for the 10-week shore-based opportunities are currently closed - but will reopen in the fall of 2024**

Competitive Grant program - FY 25 Notice of Federal Funding Opportunity



Notice of Funding Opportunity	Pre-proposal Deadline	Full Proposal Deadline	Award Notification	Award Start Date
Spring 2024	**~ May 30, 2024**	**~ October 5, 2024**	April 2025	Sept 2025

- Ocean Exploration Fiscal Year 2025 NOFO will be available on Grants.gov:
- Proposal awards range from minimum award ~$50k to maximum award of $1M

Scan to learn more about our competitive grant program

OCEAN EXPLORATION

Ocean Exploration Cooperative Institute

oeci
EXPLORING THE NATION'S BLUE FRONTIER

THE UNIVERSITY OF RHODE ISLAND · WOODS HOLE OCEANOGRAPHIC INSTITUTION · OCEAN EXPLORATION TRUST · THE UNIVERSITY OF SOUTHERN MISSISSIPPI · University of New Hampshire

OECI is an integrated ocean exploration cooperative that aims to:

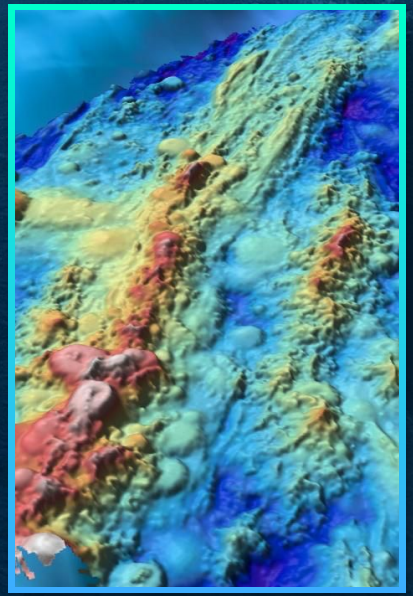
- accelerate exploration through the development of new ocean technologies and operational concepts
- apply new approaches to underexplored regions of the US EEZ and to ocean exploration data
- train the next generation of ocean explorers and blue technology workers
- facilitates additional partnerships, such as:

USGS · SAILDRONE · iXblue · TUSKEGEE UNIVERSITY · NEW ENGLAND INSTITUTE OF TECHNOLOGY · Office of Coast Survey, The Nation's Chartmaker · Deepwater Horizon Natural Resource Damage Assessment

NOPP National Oceanographic Partnership Program · BOEM Bureau of Ocean Energy Management · MBARI Monterey Bay Aquarium Research Institute · National Centers for Environmental Information · NATIONAL GEOGRAPHIC SOCIETY · NOAA OCEAN EXPLORATION

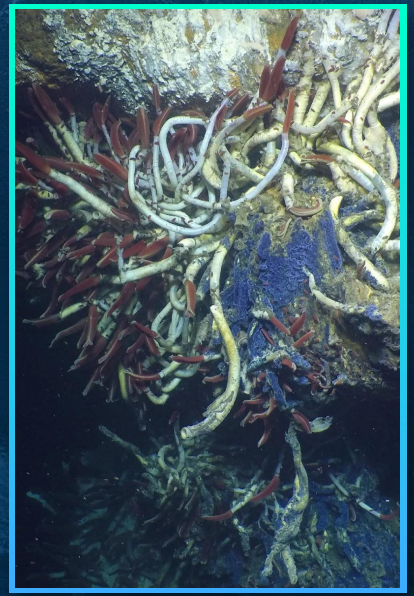
OECI: Charting Ocean Exploration's Future

SEAFLOOR MAPPING



Filling gaps in ocean mapping, with traditional vessels and novel autonomous systems, in support of NOMEC strategy and Seabed 2030.

WATER COLUMN & BENTHIC EXPLORATION



Exploring the ocean interior for scientific advancement, sustainable development, and ocean health and safety.

OCEAN TECHNOLOGY

Expanding ocean research and exploration capacity through cooperative robotics, autonomy, and telepresence.

EDUCATION & OUTREACH

Partnership with Tuskegee University and New England Institute of Technology to expand participation in Ocean Exploration.

https://web.uri.edu/oeci/about/projects/

NOAA OCEAN EXPLORATION

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