2019 Southeastern U.S. Deep-sea Exploration
Remotely Operated Vehicle and Mapping

From October 31 to November 21, 2019, NOAA and partners will conduct a telepresence-enabled ocean exploration expedition on NOAA Ship *Okeanos Explorer* to collect critical baseline information about unknown and poorly understood deepwater areas of the Southeastern U.S. continental margin. During the **2019 Southeastern U.S. Deep-sea Exploration**, our at-sea and shore-based science teams will work together to explore the deepwater areas of this largely unexplored region.

NOAA Ship *Okeanos Explorer* is the only U.S. federal vessel dedicated to exploring our largely unknown ocean for the purpose of discovery and the advancement of knowledge about the deep ocean. The ship is equipped with sophisticated sonars, a dual-body remotely operated vehicle system, and the latest in broadband communications technology. Missions on the *Okeanos Explorer* are focused on understanding, managing, and protecting our ocean.

Objectives

The **2019 Southeastern U.S. Deep-sea Exploration** will address science themes and priority areas put forward by scientists and managers from NOAA, management agencies in the region, and the ocean science community. NOAA priorities for the expedition include a combination of science, education, outreach, and open-data objectives to improve our understanding of this important marine region. Objectives include:

- Acquiring data on deepwater habitats of the Southeastern U.S. continental margin to support priority science and management needs
- Identifying, mapping, and exploring the diversity and distribution of benthic habitats, including fish habitats and deep-sea coral and sponge communities
- Exploring U.S. maritime heritage by identifying and investigating sonar anomalies
- Investigating biogeographic patterns of deep-sea ecosystems and connectivity across the Southeastern U.S. continental margin for use in broader comparisons of deepwater habitats throughout the Atlantic Basin
- Mapping, surveying, and sampling geologic features of the Southeastern U.S. continental margin to better understand the geologic context of the region and improve knowledge of past and potential future geohazards

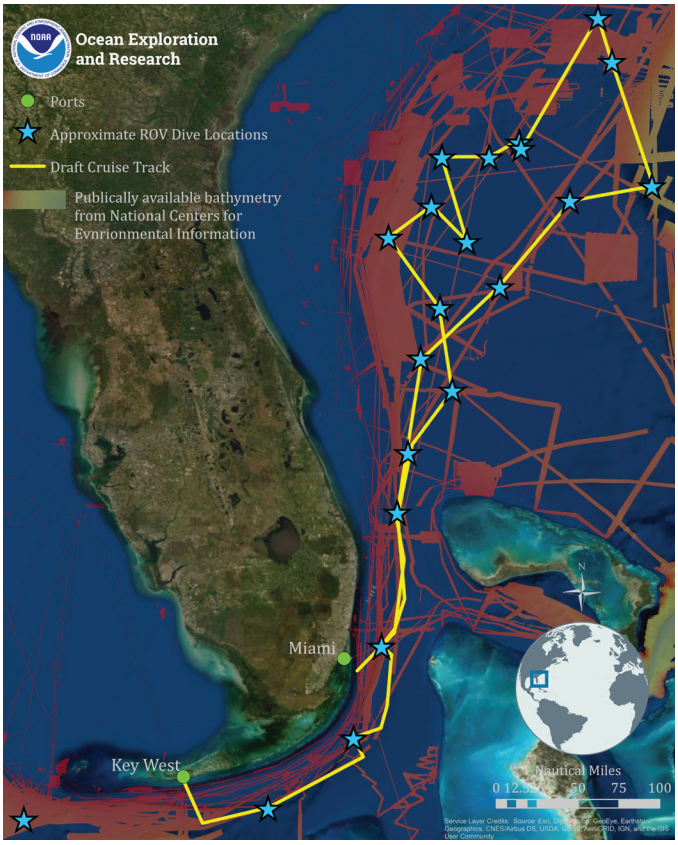
During the **2019 Southeastern U.S. Deep-sea Exploration**, the *Okeanos* team will use remotely operated vehicle *Deep Discoverer* (shown here) to capture and share high-quality video of deep-sea ocean areas, features, and phenomena and collect biological and geological samples and environmental data. *Deep Discoverer*, which is piloted from the ship and carries no passengers, can dive as deep as 3.7 miles (6,000 meters).

- Collecting high-resolution bathymetry in areas with no or low-quality sonar data
- Acquiring a foundation of remotely operated vehicle (ROV), sonar, and oceanographic data to better understand the characteristics of the water column and the fauna that live there
- Engaging a broad spectrum of the scientific community and public in telepresence-based exploration and providing publicly accessible data and information products to spur further exploration, research, and management activities

Why This Area?

The North Atlantic is of vital importance to humankind, providing a variety of goods and services (e.g., seafood, recreation, tourism, and transportation) that provide employment and livelihood opportunities for millions of people. This expedition will contribute to NOAA's Atlantic Seafloor Partnership for Integrated Research and Exploration (ASPIRE), a major multiyear, multinational campaign focused on raising collective knowledge and understanding of the North Atlantic. ASPIRE provides timely, actionable information to support decision-making based on reliable and authoritative science. It also serves as an opportunity for the nation to highlight the uniqueness and importance of the deepwater environments of the Atlantic. ASPIRE builds on the momentum of past U.S. campaigns and international initiatives to support ecosystem-based management of marine resources.

The deepwater areas offshore Florida, Georgia, and South Carolina are some of the least explored areas along the U.S. East Coast. Even though this region is home to millions of Americans, we know very little about the deepwater areas and the seafloor just off the coast. In fact, the Southeastern U.S. continental margin has some of the largest gaps in high-resolution ocean mapping data on the East Coast, and ROV-captured observations in this region are limited.



The cruise track (yellow line) for the expedition and the tentative dive targets (blue stars) are shown here overlaid on existing mapping data from the NOAA National Centers for Environmental Information Multibeam Bathymetry Mosaic.

Why It Matters

A healthy ocean and its resources are critical to a strong America, yet significant gaps exist in our basic understanding of the U.S. deep waters and seafloor and the resources they hold. By leading efforts to explore our ocean, and by making ocean exploration more accessible, the NOAA Office of Ocean Exploration and Research and its partners are working to fill these gaps. This work provides deepwater data needed to maintain the health of our ocean, sustainably manage our marine resources, accelerate the economy, strengthen national security, and build a better appreciation of the value and importance of the ocean in our everyday lives.

Follow Along Live!

Each ROV dive will be live streamed in high definition from the *Okeanos Explorer* from November 1 through November 20, 2019. Anyone with an Internet connection can follow the expedition online, live. The same technology that allows scientists from around the world to participate in the expedition from land also enables members of the public to experience deep-sea exploration and the wonders of science and discovery in real time. Dives are expected to include deep-sea coral and sponge habitats. But, the deep sea is a mystery, so who knows what else this expedition might reveal. Tune in to find out.

To learn more about the expedition as it happens, visit the expedition website for mission logs, daily updates, educational materials, photos, and videos, which will be added to the site throughout the expedition.

oceanexplorer.noaa.gov/okeanos/explorations/ex1907/

NOAA Office of Ocean Exploration and Research
Facebook.com/OceanExplorationResearch

@oceanexplorer, #Okeanos

@noaaoceanexploration

All images courtesy of the NOAA Office of Ocean Exploration and Research.

Ocean Exploration and Research

ASPIRE