NOAA Ocean Exploration

2023 Seascape Alaska Expeditions

[EX2302 - EX2307]

Despite contributing the largest area to the U.S. Exclusive Economic Zone, **Alaskan waters remain one of the least explored areas in the United States**. Current mapping data for the waters around Alaska address only 34% of the seafloor, and much the available data are sparse and predate modern mapping technologies. Additionally, most deepwater habitats in Alaskan waters remain predominantly unexplored.

To address these gaps, from May through September 2023, NOAA and partners conducted the **Seascape Alaska** series of telepresence-enabled ocean exploration expeditions on NOAA Ship *Okeanos Explorer*. Through mapping operations, remotely operated vehicle (ROV) dives, and autonomous underwater vehicle operations, we were able to collect data to improve knowledge about unexplored and poorly understood deepwater areas offshore Alaska, with a particular focus on the Aleutian Islands, Gulf of Alaska, and Aleutian Trench.

Expedition Science Themes

- Acquire data to support science and management needs
- Identify and map vulnerable marine habitats, particularly high-density, deep-sea coral and sponge and cold-seep communities
- Characterize seamounts in and around the Kodiak-Bowie Seamount Chain
- Investigate the geologic history of the Aleutian Arc, including potential relevance to plate tectonics, geohazards, and subduction zone biology and geology
- Increase understanding of deep-sea biogeographic patterns across the North Pacific

Seascape Alaska Expeditions

Seascape Alaska 1: Aleutians Deepwater Mapping [EX2302]

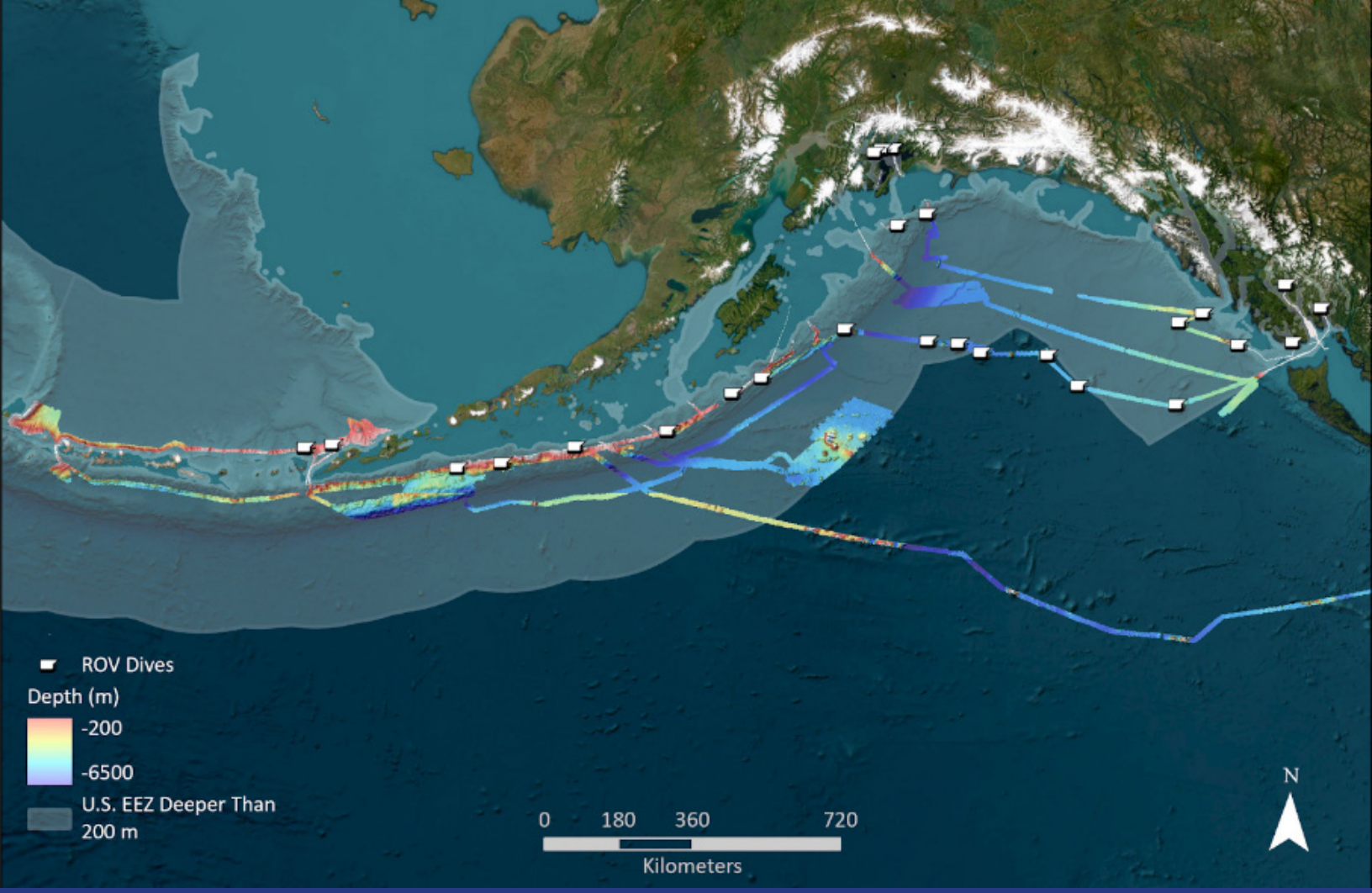
Seascape Alaska 2: Aleutians Deepwater Mapping [EX2303]

Seascape Alaska 3: Aleutians ROV Exploration and Mapping [EX2304]

Seascape Alaska 4: Gulf of Alaska Deepwater Mapping [EX2305]

Seascape Alaska 5: Gulf of Alaska ROV Exploration and Mapping [EX2306]

Seascape Alaska 6: Gulf of Alaska Transit Mapping [EX2307]



NOAA Ocean Exploration Seascape Alaska Expeditions: Summary

NOAA and partners initiated the Seascape Alaska series of **six expeditions** aboard NOAA Ship *Okeanos Explorer*, using a dual-body **remotely operated vehicle** (ROV) capable of collecting biological and geological samples and diving to 6,000-meter depths and 4 different types of **mapping sonars** to explore deep waters in and around the Aleutian Islands, the Gulf of Alaska, the Alexander Archipelago, Prince William Sound, and the high seas. Additional acoustic mapping data were collected by partners on Research Vessel *Kilo Moana* over the Patton Seamount Chain.

Scientists, resource managers, and students located on shore **actively participated** in the expeditions, thanks to telepresence technology on *Okeanos Explorer*. That same technology allowed us to host **ship-to-shore live interactions** and deliver **live online streaming of ROV dives** to the general public, opening a window of understanding into the deep waters off Alaska for audiences around the world.

Data collected during these expeditions will help to **establish a baseline** in explored areas and **spur further exploration, research, and management** activities. Data will also contribute to the National Strategy for Exploring, Mapping, and Characterizing the United States Exclusive Economic Zone, Seabed 2030, and the broader Seascape Alaska campaign aimed at fully mapping U.S. waters off Alaska.

To **learn more about the expeditions**, including how and where to access data, visit https://oceanexplorer.noaa.gov/okeanos/explorations/seascape-alaska/

- Over 285,000 square kilometers of seafloor mapped
- 27 ROV dives at a depth range of 250 - 4,300 meters
- 94 primary biological and 38 geological samples collected
- over 150 participating scientists, students, and managers
- nearly 300,000 live video views

NOAA OCEAN EXPLORATION

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Seascape Alaska