

# MID-PACIFIC MAPPING (NA150 & NA152)

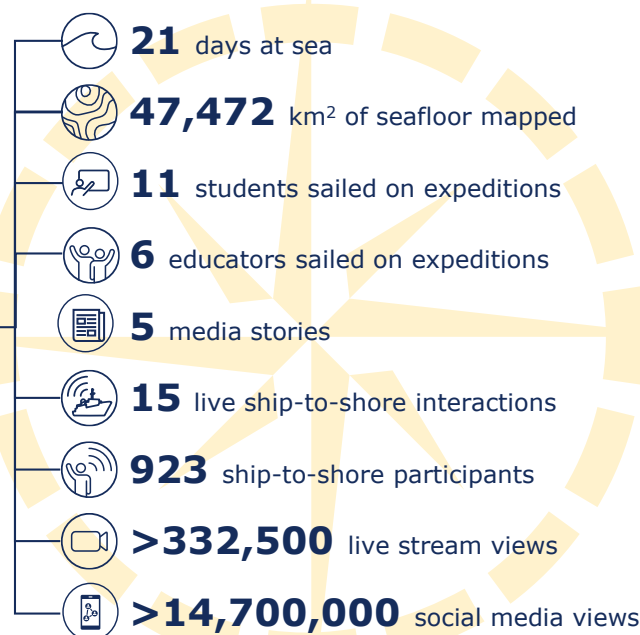
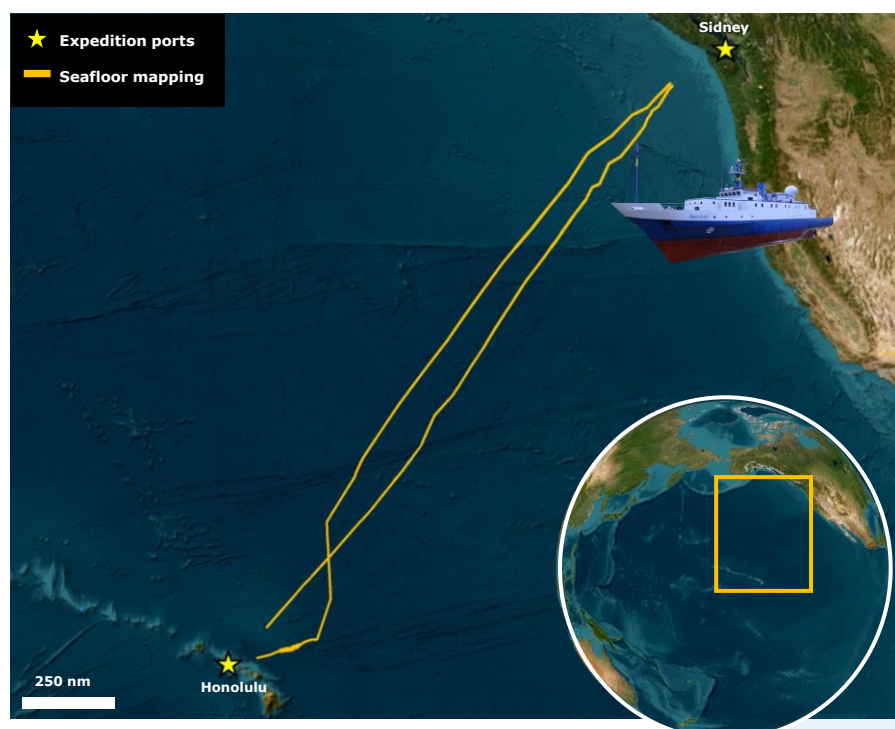
June 16 – 25 & July 19-31, 2023

**Geographic Focus:** Transit route between Hawai'i and British Columbia

**Main Operations:** Seafloor mapping using ship-based sonars

**Sponsors:** [Ocean Networks Canada](https://www.ocean-networks.ca) with additional support from NOAA Ocean Exploration via the [Ocean Exploration Cooperative Institute](https://oceanexploration.noaa.gov)

**Expedition webpages:** [www.nautiluslive.org/cruise/NA150](https://www.nautiluslive.org/cruise/NA150) & [www.nautiluslive.org/cruise/NA152](https://www.nautiluslive.org/cruise/NA152)



## OVERVIEW

From June 16-25 and July 19-31, 2023, the Ocean Exploration Trust (OET) and partners conducted two telepresence-enabled expeditions to map seafloor in the Northeast Pacific. The expeditions used [E/V Nautilus' sonars](#) to map seafloor during transits between British Columbia and Hawai'i, focusing on areas that had not previously been mapped. During a combined 21-days at sea, these two expeditions mapped over 47,472 km<sup>2</sup> of seafloor. In addition to operational personnel, the expeditions included the at-sea participation of students and educators via [OET' Science Communication Fellowship Program](#), [OET's Science and Engineering Internship Program](#), and [National Science Foundation's STEMSEAS Program](#).

## MAPPING SUMMARY

Over 47,472 km<sup>2</sup> of seafloor were mapped over the course of these two expeditions, the majority of which located in areas beyond national jurisdiction. Seafloor mapping focused on filling data gaps during transits between British Columbia and Hawai'i, which mostly consisted of abyssal plains, but also included passage over unmapped portions of the Mendocino, Pioneer and Murray fracture zones, as well as several small unnamed seamounts. All of these data will be publicly archived and contribute directly to the [Seabed 2030 effort](#). In addition to transit mapping, one of the expeditions (NA152) included a [backscatter calibration exercise](#) of E/V Nautilus' Kongsberg EM302 multibeam sonar, which was closely coordinated with NOAA in order to develop more standardized methodologies. The calibration exercise was conducted at a reference site located offshore O'ahu, which was previously established by NOAA Ship *Rainier* and will also be surveyed by NOAA Ship *Okeanos Explorer* in order to enhance the comparability of backscatter data collected among different programs.

## EDUCATION & OUTREACH

Live video feeds received over 332,500 views over the course of these two expeditions. In addition to expedition videos on [OET's YouTube Channel](#), expedition content was featured on five different social media platforms. Expedition content on [OET's TikTok](#) gained over 14 million views, plus posts on [Instagram](#), [Twitter](#), [Facebook](#), and [LinkedIn](#) attracted over 718,000 impressions. While at sea, the team hosted 15 [live ship-to-shore interactions](#) with schools, community events, and professional meetings, reaching over 900 people across 13 US States, Guam, Canada, and Brazil. Early expedition results were featured in five media stories published in two countries. Seven new blogs were published on [Nautiluslive.org](#) and the team hosted two different live Q&A events that resulted in real-time audience participation.



## AT-SEA EDUCATION

The expeditions included the participation of eight students and three professional educators via the [STEMSEAS Program](#), in addition to three [Science Communication Fellows](#), and three [Science and Engineering Interns](#). Throughout their time at sea, these students and educators obtained practical instruction on how to acquire, process, and archive data collected by the E/V *Nautilus* systems. In addition to experiencing the life of at-sea exploration, students and educators were able to network with STEM professionals from different backgrounds and learn about the varied pathways leading to careers in ocean exploration.

## BROADER IMPACTS

The expedition was planned and executed to close mapping data maps. Seafloor mapping operations were primarily conducted in unsurveyed areas, thus contributing directly to [Seabed 2030](#), the [UN Decade of Ocean Science for Sustainable Development](#), the [ONC 2030 Strategic Plan for Advancing our Knowledge of the Ocean at a Critical Time](#), and the [US National Strategy for Ocean Mapping, Exploration, and Characterization](#). The [backscatter calibration exercise](#) will help standardize methodologies and collect more consistent data across different vessels, thereby enhancing inter-institutional collaboration. The expeditions also provided valuable opportunities for students and educators to participate in expedition activities and gain valuable at-sea experience.

## DATA ACCESS

All mapping and environmental data collected on this expedition have been sent to repositories for archiving and public distribution. Ship navigation, meteorological and seafloor mapping data have been sent to the [Marine Geoscience Data System](#), and seafloor mapping data have been sent to the [Rolling Deck to Repository](#), both of which provide gateways through which data are also cataloged in [NOAA's National Centers for Environmental Information](#). Background information, highlight images, and educational materials are also available via the [expedition websites](#). These data sets are also available from [OET upon request](#).

## ACKNOWLEDGMENTS

Thanks to the captain and crew of E/V *Nautilus*, the Nautilus Corps of Exploration, the Ocean Exploration Trust, and all that supported the expedition from shore. The expedition was funded by Ocean Networks Canada, with additional support from NOAA Ocean Exploration via the Ocean Exploration Cooperative Institute.