

MAPPING THE GAPS (NA160 & NA162)

May 25-June 4 & June 28-July 7, 2024

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


Main Operations: Seafloor mapping using ship sonars

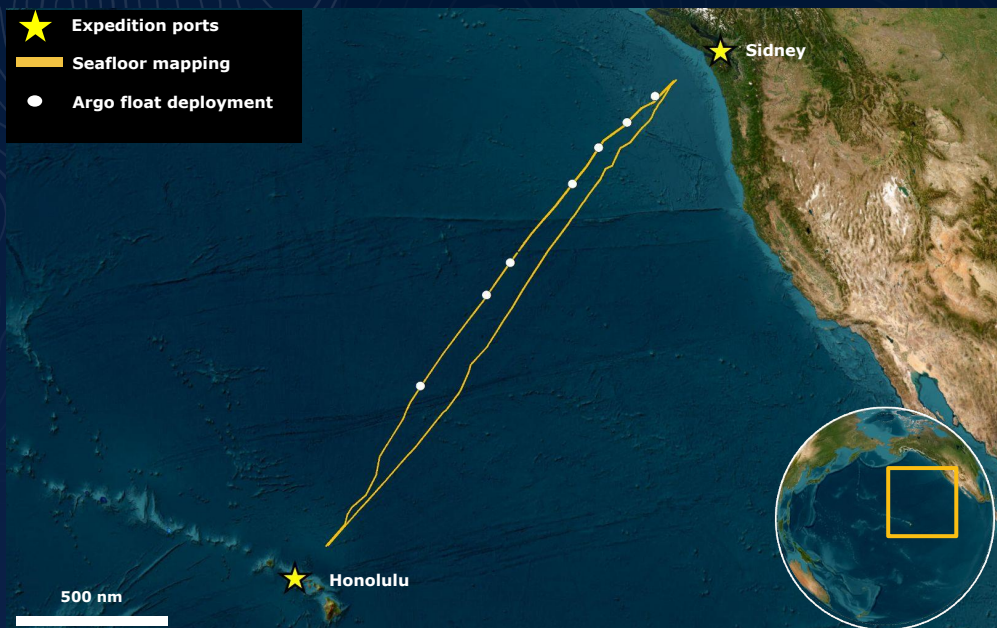
Sponsor: [Ocean Networks Canada](#)

Expedition Webpages:

www.NautilusLive.org/cruise/NA160 &

www.NautilusLive.org/cruise/NA162

-  **19** days at sea
-  **42,653** km² of seafloor mapped
-  **7** Argo floats deployed
-  **12** students sailed on expedition
-  **4** educators sailed on expedition
-  **25** live ship-to-shore interactions
-  **719** ship-to-shore participants
-  **49,016** live stream views
-  **499,000** social media views

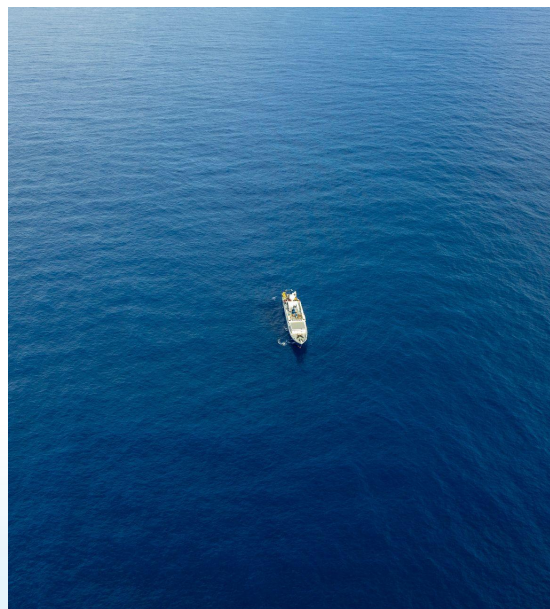
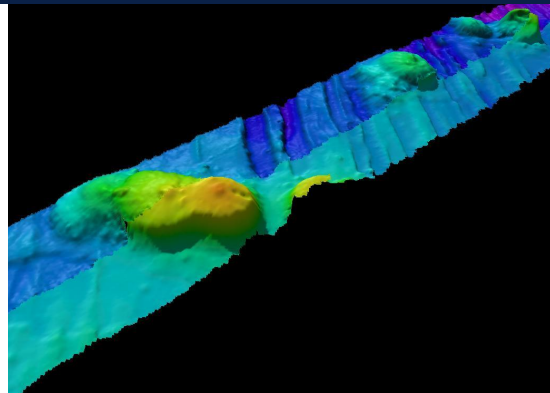


OVERVIEW

In May and July 2024, E/V *Nautilus* conducted two telepresence-enabled expeditions for a combined 19 days at sea to map seafloor in the Northeast Pacific. The expeditions used E/V *Nautilus*' [deep-water sonars](#) to map seafloor during transits between British Columbia and Hawai'i, focusing on areas that had not previously been mapped. In addition to operational personnel, the expeditions included the at-sea participation of students and educators via the [National Science Foundation funded STEMSEAS Program](#), and [OET's Science and Engineering Internship Program](#).

OPERATIONS SUMMARY

Over 42,653 km² of seafloor were mapped over the course of these two expeditions, the majority of which were 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 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 (NA162) included the deployment of seven [Argo floats from Ocean Networks Canada](#) to support large-scale ocean monitoring efforts. Argo floats were deployed in international waters along the transit route, thereby adding important North Pacific coverage to the over 3,800 floats that are currently operational globally.





DATA ACCESS

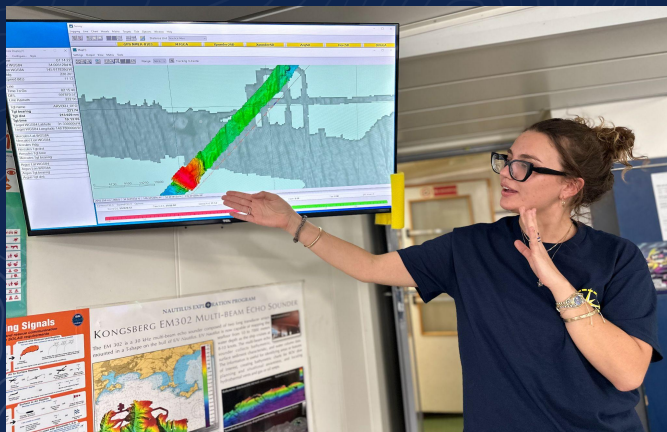
Mapping and environmental data collected on this expedition have been sent to repositories for archiving and public distribution. Ship navigation, seafloor mapping, and weather data have been sent to the [Marine Geoscience Data System](#) and the [Rolling Deck to Repository](#), both of which provide gateways through which data are also cataloged at the [NOAA National Centers for Environmental Information](#). Real-time [data collected by the Argo floats](#) deployed on this expedition are available through the Global Data Assembly Centers in the [United States](#) and [European Union](#). Background information, highlight images, and educational materials are also available via the expedition websites. These data sets are also available from [OET upon request](#).

EDUCATION & OUTREACH

Live feeds from the expeditions received over 49,000 views, and expedition content posted on OET's TikTok, Instagram, Twitter, Facebook, and LinkedIn channels attracted over 499,000 impressions. While at sea, the team hosted 25 live ship-to-shore interactions with schools, community events, and professional meetings, reaching over 700 people across 13 US states, Palau, Fiji, and Bermuda. Seven new blogs and one new photo album with expedition content were published on the NautilusLive website.

AT-SEA EDUCATION

The expeditions included the participation of eight students and three mentors via the STEMSEAS Program, in addition to one OET Science and Engineering Intern. Throughout their time at sea, students 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 STEAM professionals from different backgrounds, and learn about the varied pathways leading to careers in ocean exploration.



ACKNOWLEDGEMENTS

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.



BROADER IMPACTS

The expeditions were planned and executed to close mapping data gaps. 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 expedition also provided opportunities for students and educators to participate in expedition activities and gain valuable at-sea experience.

