

Pacific Mapping (NA178)

June 10 - June 24, 2026

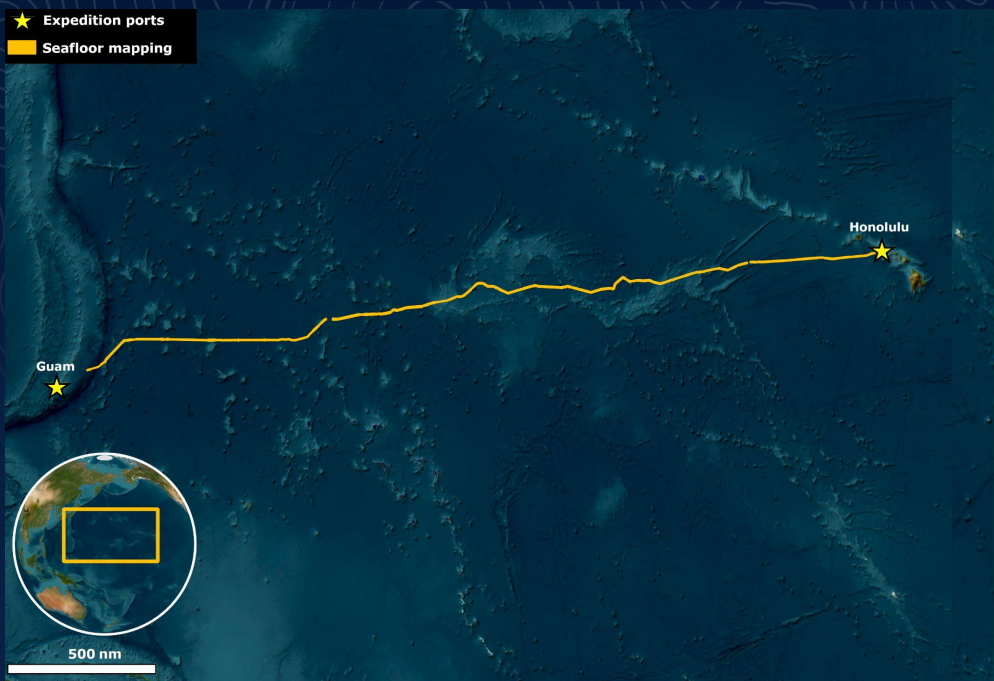
Geographic Focus: Transit route between Hawai'i and Guam

Main Operations: Seafloor mapping using ship-based sonars and topside marine faunal surveys

Sponsor: NOAA Ocean Exploration via the [Ocean Exploration Cooperative Institute](#)

Expedition Webpage: www.NautilusLive.org/cruise/NA178

-  **13** days at sea
-  **55,129** km² of seafloor mapped
-  **3,900** seabirds counted
-  **3** educators sailed on expedition
-  **5** students sailed on expedition
-  **35** live ship-to-shore interactions
-  **761** ship-to-shore participants
-  **45,700** live stream views
-  **>2,200,700** social media views

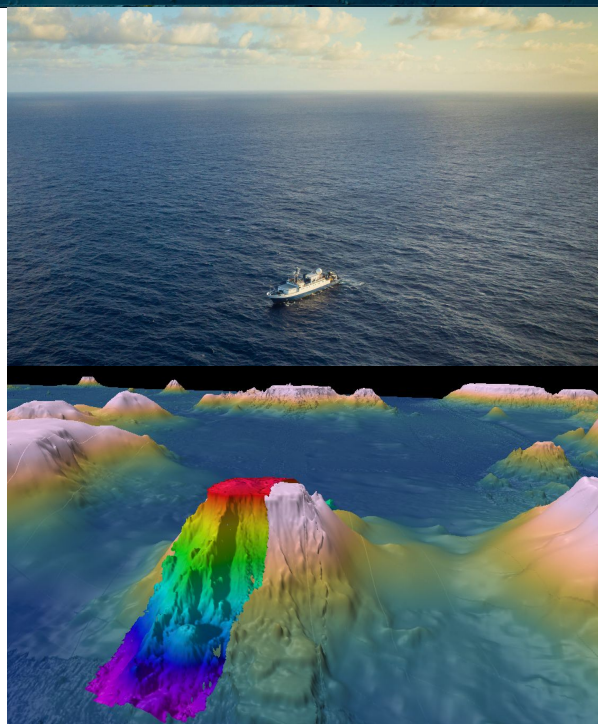


OVERVIEW

From June 10-24, 2026, E/V *Nautilus* conducted a telepresence enabled expedition to map seafloor during the transit from Hawai'i to Guam. This was the first operational expedition that utilized E/V *Nautilus*' [new EM 304 MKII multibeam system](#). The mission included the at-sea participation of three senior engineers from the multibeam manufacturer, KONGSBERG, who tested several new software packages of the mapping system. In addition to mapping previously unsurveyed seafloor across large stretches of the Pacific, the expedition included topside surveys for seabirds and other marine fauna from the ship's observation deck. Alongside technical experts, several students and educators sailed on this expedition via OET's [Science & Engineering Internship Program](#) and [Science Communication Fellowship Program](#).

MAPPING SUMMARY

This was the first operational expedition to collect mapping data utilizing E/V *Nautilus*' [new EM 304 MKII multibeam system](#), which was made possible by a grant from the Office of Naval Research awarded to the University of New Hampshire Center for Coastal and Ocean Mapping. A total of 55,129 km² of seafloor were mapped over the course of the expedition, including 18,994 km² in the US Exclusive Economic Zone around Wake, Hawai'i and the Mariana Islands. Mapping focused on filling data gaps along the transit from Hawai'i to Guam, which mostly consisted of abyssal plains, but also included passage over the Mariana Trench to depths of 9,413 meters, as well as several unmapped seamounts, including areas that will be explored via ROVs on E/V *Nautilus* expeditions later this year.



MAPPING SOFTWARE TESTING

Three senior KONGSBERG engineers sailed on the mission, during which they tested new software on the EM 304 MKII, Seafloor Information System and EMSBP. The testing allowed the team to analyze software behaviors in real time and at depths ranging from 1,000-9,400 meters, providing a unique opportunity to improve system performance. During their time at sea, the KONGSBERG team was able to observe how these softwares are being used in the field and received valuable feedback from professional mappers. Lessons learned will inform improvements of upcoming software releases for the benefit of the broader scientific community.

TOPSIDE MARINE FAUNAL SURVEYS

In addition to seafloor mapping, the expedition included topside surveys on the abundance and diversity of marine animals from the observation deck on *E/V Nautilus*. Over 3900 individual birds in 37 species were documented, including 30 seabird species in far offshore pelagic waters. Highlights included South Polar Skua, Parasitic Jaeger, Gray-backed Tern, Wilson's Storm-Petrel, Matsudaira's Storm-Petrel, Kermadec Petrel, Hawaiian Petrel, Gould's Petrel, Stejneger's Petrel, Black-winged Petrel, White-necked Petrel, Christmas Shearwater, Newell's Shearwater, and Cocos Booby, as well as a Laughing Gull in Honolulu Harbor. Wedge-tailed Shearwater and Sooty Tern were the most common species, numbering well over a thousand individuals each. Other life documented included a green sea turtle, skipjack tuna, hundreds of flying squid, thousands of flying fish, as well as coconuts and debris hosting goose barnacles and small fish. No cetaceans were observed.



BROADER IMPACTS

The expedition was planned and executed to close data gaps. Mapping operations were primarily conducted in unsurveyed areas, thus contributing directly to Seabed 2030, the US National Strategy for Ocean Mapping, Exploration, and Characterization, and the UN Decade of Ocean Science for Sustainable Development. Data collected in the US Exclusive Economic Zone around Wake, the Mariana Islands and Hawaiian Islands will help inform ROV explorations on later *E/V Nautilus* expeditions this year. The expedition also provided opportunities for students and educators to participate in expedition activities and gain valuable at-sea experience.

ACKNOWLEDGEMENTS

Thanks to the captain and crew of *E/V Nautilus*, the Nautilus Corps of Exploration, and all that supported the mission from shore. The expedition was funded by NOAA Ocean Exploration via the Ocean Exploration Cooperative Institute, and executed under permit PMNM-2026-001 for activities conducted inside the Papahānaumokuākea Marine National Monument, permit 12543-26007 for activities inside the Pacific Islands Heritage Marine National Monument, and permit 12541-26001 for activities inside the Mariana Trench Marine National Monument.



EDUCATION & OUTREACH

Live feeds from the expedition received 45,700 views centered on three interactive events held during mapping operations. Expedition content posted OET's [YouTube](#), [TikTok](#), [Instagram](#), [X](#), [Facebook](#), [LinkedIn](#) and [Bluesky](#) social channels attracted over 2.2 million impressions. While at sea, the team created 11 new [education and outreach products](#), and hosted 35 live [ship-to-shore interactions](#) with schools, community events, and professional meetings, reaching 761 people across 11 US States, two US Territories, and three other countries. The expedition included the participation of four student interns via [OET's Science and Engineering Internship Program](#), and three professional educators via [OET's Science Communication Fellowship Program](#). Early expedition results were featured in 32 media stories published in 12 different countries.



DATA ACCESS

Mapping and environmental data collected on this expedition have been sent to repositories for archiving and public distribution. Raw data from ship-based sensors, including ship navigation, sea-surface velocity, sound velocity profiles, multibeam and sub-bottom profiler data, have been sent to the [Rolling Deck to Repository](#), whereas processed mapping data have been sent to the [Marine Geoscience Data System](#), both of which provide gateways through which data are also cataloged in the [NOAA National Centers for Environmental Information](#). Bird observations were submitted to [eBird](#), and other marine faunal observations to [iNaturalist](#). Background information, highlight images, and educational materials are available via the [expedition website](#). These data sets are also available from [OET upon request](#).