

EXPLORATION OF DEEP-SEA HABITATS AROUND HAWAII (NA182)

September 22 - October 12, 2026

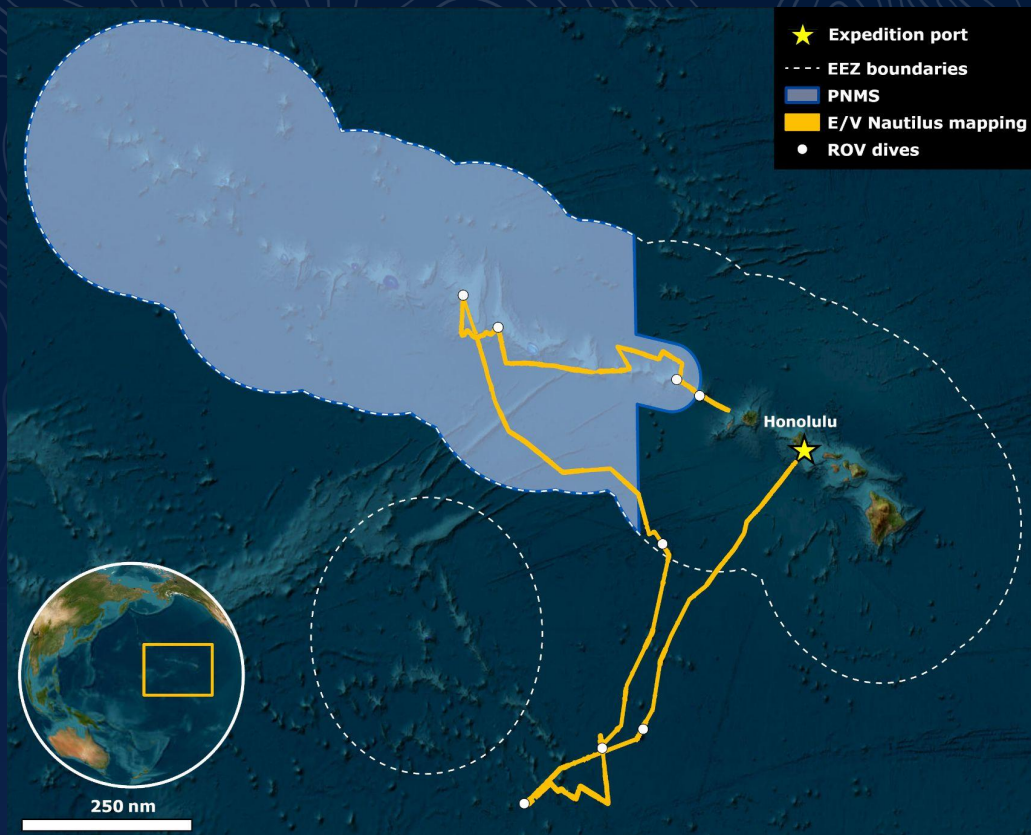
-  **20** days at sea
-  **42,887** km² of seafloor mapped
-  **8** successful ROV dives
-  **176** hours of ROV exploration
-  **183** samples collected
-  **7** students sailed on expedition
-  **158** live ship-to-shore interactions
-  **5,810** ship-to-shore participants
-  **176,642** highlight video views
-  **300,689** livestream views
-  **>54 million** social media impressions

Geographic Focus: Deep seafloor around the Hawaiian Islands

Main Operations: ROV dives and seafloor mapping using ship-based sonars

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

Expedition Webpage: www.NautilusLive.org/cruise/NA182

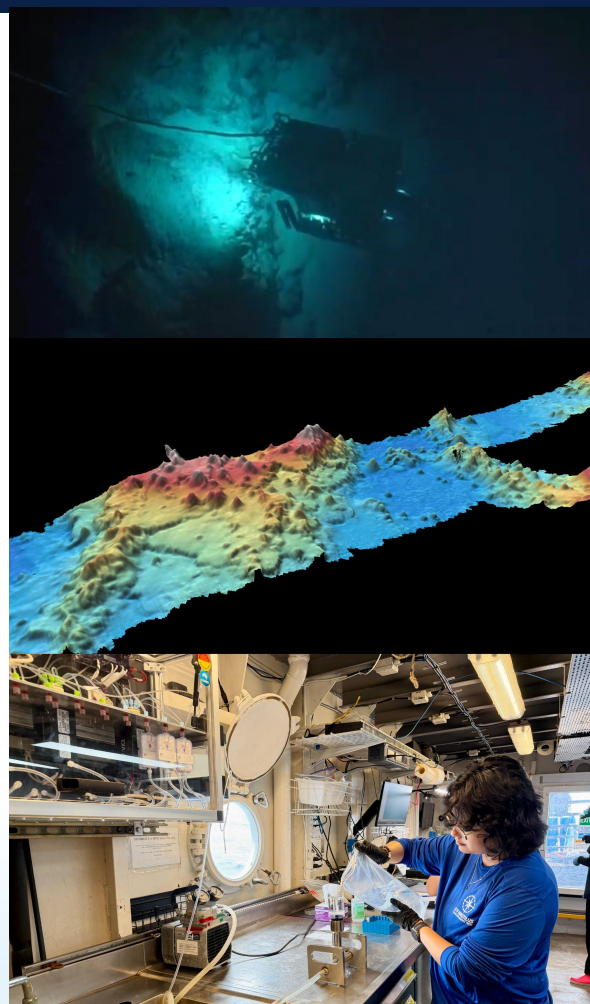


OVERVIEW

From September 22 - October 12, E/V *Nautilus* conducted an expedition focused on exploring deep-sea habitats around the Hawaiian Islands. This 20-day expedition used the ship's [ROV](#), [mapping](#), and [telepresence](#) systems to collect critical baseline information across this region, with a focus on unexplored abyssal plain habitats and submerged banks. During transits the expedition also collected surface samples using the recently-developed [Quokka environmental DNA sampler](#). While the original goal was to spend the entire expedition exploring within the US Exclusive Economic Zone around the Hawaiian Islands, the ship had to divert south and into areas beyond national jurisdiction during the first week of the mission to avoid impacts from Hurricane Nolo. Despite these challenges, the expedition yielded a great wealth of new scientific information in poorly-surveyed offshore areas around the Hawaiian Islands.

MAPPING SUMMARY

Seafloor mapping focused on using the ship's new [EM 304 multibeam sonar](#) to fill data gaps, including over dive sites without previous mapping data, as well as during transits between ROV surveys. A total of 42,887 km² of seafloor were mapped over the course of the expedition, including 24,220 km² in the US Exclusive Economic Zone around Hawai'i, and 17,533 km² inside the Papahānaumokuākea National Marine Sanctuary (PNMS). Mapping revealed several intriguing features, including (1) a 1000-meter tall flat-topped seamount with a summit depth of 4,500 meters in areas beyond national jurisdiction that exceeds the total known subsidence level in this region by over a kilometer, (2) a broad volcanic platform hosting numerous 300-500-meter tall cones in areas beyond national jurisdiction, and (3) several volcanic elongate ridges around Necker Ridge.



ROV SURVEYS

The expedition included eight successful ROV dives for a total dive time of 176 hours and 128 hours of bottom time exploring depths between 322-5,606 meters, including four dives focused on exploring abyssal plain habitats south of the Hawaiian Islands, and four dives on submerged banks in the Papahānaumokuākea National Marine Sanctuary. Noteworthy ROV observations included:

- Expansive nodule fields and heavily-sedimented areas on abyssal plain habitats, both of which were inhabited by a wide diversity of benthic organisms, including holothurians, cusk eels, glass and predatory sponges. While most species were morphologically similar to those known from the Clarion Clipperton Zone, they also included multiple potential new species, including a Munnopsidae isopod and a Pleurobranchid sea slug.
- The substrate on all Sanctuary surveys was composed mainly of carbonate cap terraces with varying degrees of sedimentation, including several areas with overhanging ledges that were inhabited by a high abundance of animals. Pillow lavas and basaltic rocks were documented off Nihoa and Middle Bank, physical samples of which were collected and revealed to consist of moderately-altered olivine basalts.
- All surveyed banks inside the Sanctuary revealed biological communities composed of high densities or diversities of benthic organisms. This included (1) fields of *Corymorpha* solitary hydrozoans and dense fish communities off Ōnūnui and Ōnūiki (Gardner Pinnacles), (2) many different species of octopods on St. Rogatien Bank, (3) extensive fields of *Calibelemon* sea pens interspersed with a potentially new species of *Muriceides* octocoral off Nihoa, and (4) diverse assemblages at Middle Bank that included scleractinian coral reefs, gold corals, pink corals, and black corals hosting a wide diversity of associated organisms.
- A total of 103 physical samples were collected during ROV dives to support studies on the biodiversity and geological context of the region, including 79 biological, 5 geological, and 19 water samples for eDNA work.



ACKNOWLEDGEMENTS

Special thanks to the captain and crew of E/V *Nautilus*, the Nautilus Corps of Exploration, and all who supported the expedition from shore. The expedition was funded by NOAA Ocean Exploration via the Ocean Exploration Cooperative Institute. Expedition operations in the Papahānaumokuākea National Marine Sanctuary were conducted under permit PMNM-2026-001 authorized by NOAA, US Fish and Wildlife Service, State of Hawai'i Department of Land and Natural Resources, and Office of Hawaiian Affairs.

eDNA SAMPLING

A total of 99 eDNA samples were collected over the course of the expedition. This included 80 eDNA samples collected at the sea surface with the Quokka eDNA sampler, an autonomous underway sampling system that was recently developed by Australia's National Science Agency and deployed in partnership with the Minderoo Foundation. An additional 19 eDNA samples were obtained at depths ranging between 106-577 meters by filtering water collected using the Niskin bottles mounted on ROV *Hercules*.



EDUCATION & OUTREACH

Over the course of the expedition, live-stream video feeds received 300,689 views, and highlight videos garnered another 176,642 views. Expedition content on OET's social media channels attracted over 54.75 million impressions. While at sea, the team created 14 new education and outreach products, and hosted 158 live ship-to-shore interactions with schools, community events, and professional meetings, reaching 5,810 people across 28 US States, and six other countries. Seven students and early-career professionals sailed on the expedition, including four via OET's Science & Engineering Internship Program, in addition to five professional educators who joined the mission, including three via OET's Science Communication Fellowship Program. Early expedition results appeared in 12 media stories.

DATA ACCESS

Data collected during the expedition will be sent to repositories for archiving and public distribution, links to which are provided below. These datasets are also available from OET upon request.

ARCHIVE	DATA TYPES
NautilusLive.org	Expedition summary, background information, highlight imagery and informational materials
Rolling Deck to Repository	Raw data from ship-based sensors (ship navigation, sea-surface velocity, sound velocity profiles, multibeam, and sub-bottom profiler data)
Marine Geoscience Data System	Processed seafloor mapping and ROV data (ship navigation, multibeam, ROV navigation, ROV annotations, ROV CTD, and framegrabs)
NOAA National Centers for Environmental Information	Raw and processed multibeam data
YouTube	Full ROV videos
Marine Geological Samples Lab at the University of Rhode Island	Geological samples
Harvard University's Museum of Comparative Zoology	Biological samples
National Center for Biotechnology Information Sequence Read Archive	Genetic data from deep-water eDNA samples collected via ROV
Minderoo Oceanomics Dashboard	Genetic data from surface eDNA samples collected via the Quokka sampler