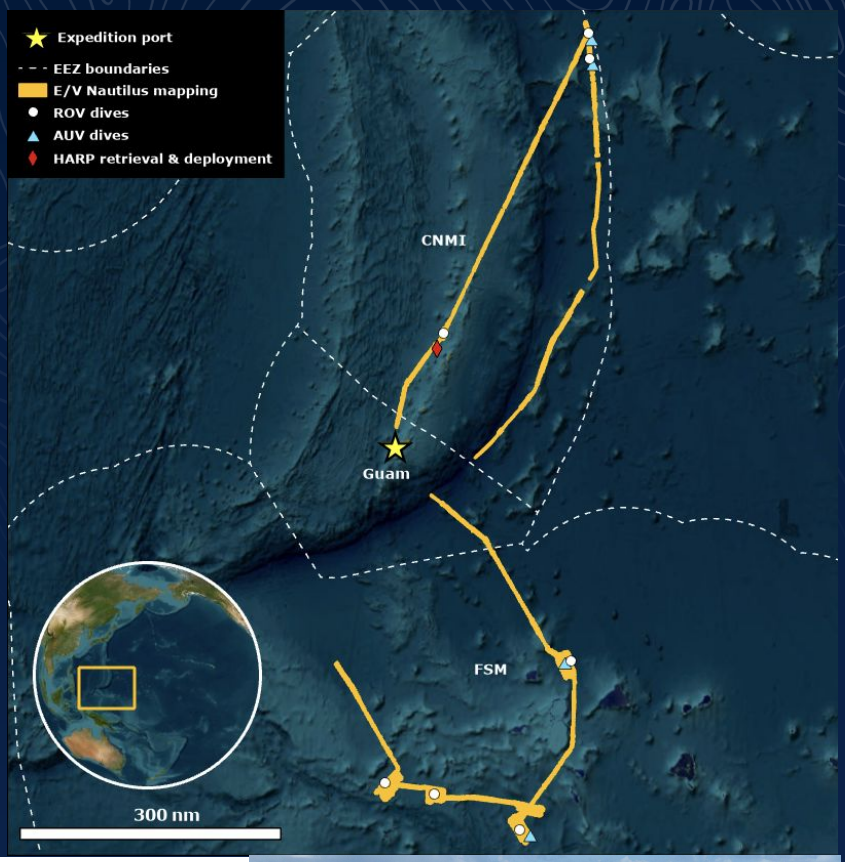
EXPLORATION OF DEEP-SEA HABITATS OFFSHORE THE MARIANA ISLANDS (NA180)

July 25-August 15, 2026

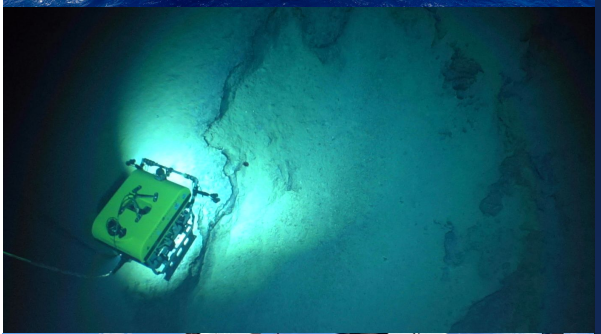
Geographic Focus: US Exclusive Economic Zone around the Commonwealth of the Northern Mariana Islands
Main Operations: ROV *Little Hercules* dives, AUV *Sentry* dives, and seafloor mapping using ship-based sonars
Sponsor: NOAA Ocean Exploration and Bureau of Ocean Energy Management via the Ocean Exploration Cooperative Institute
Expedition Webpage: https://NautilusLive.org/cruise/na180

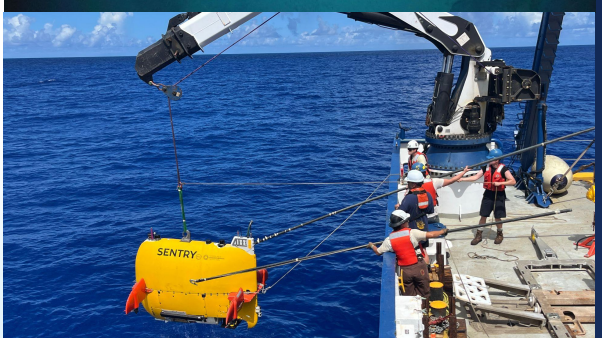
- **21** days at sea
- **37,069** km^2 of seafloor mapped
- **7** successful ROV dives
- **114.5** hours of ROV exploration
- **4** successful *Sentry* dives
- **39.3** hours of AUV seafloor exploration
- **56** live ship-to-shore interactions
- **1,370** ship-to-shore participants
- **85,252** highlight video views
- **162,719** livestream views
- **32.1 million** social media impressions



OVERVIEW

From July 25-August 15, E/V *Nautilus* conducted a telepresence-enabled expedition to explore deep-sea habitats in the Western Pacific using the ship's ROV, mapping, and telepresence systems in combination with Woods Hole Oceanographic Institution's AUV *Sentry*. While the original goal was to explore abyssal habitats in the US Exclusive Economic Zone around the Commonwealth of the Northern Mariana Islands, only a week of operations was completed in this area before the ship had to divert south into the Federated States of Micronesia Exclusive Economic Zone to avoid Super Typhoon Dolphin and other storms. Despite these challenges, the expedition yielded a great wealth of new scientific information in one of the least surveyed regions of the Western Pacific.





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 or AUV surveys. A total of 37,069 km^2 of seafloor were mapped over the course of the expedition, including 17,823 km^2 in the US Exclusive Economic Zone around Guam and the Northern Mariana Islands. This included mapping Ruby and NW-Rota 1 Seamounts, where significant seafloor changes were detected since these underwater volcanoes were last surveyed. In particular, the summit of Ruby Seamount was 100 meters shallower than it was in March 2026. The expedition also mapped 19,240 km^2 in the Exclusive Economic Zone of the Federated States of Micronesia, including eight previously unsurveyed seamounts that were mapped in their entirety.

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AUV *SENTRY* SUMMARY

The expedition completed four AUV *Sentry* dives that reached the seafloor at maximum depths of 5,262 meters for a total dive time of over 39.3 hours. AUV dives surveyed a cumulative trackline of over 83.6 kilometers, focused on characterizing abyssal plain habitats in the US Exclusive Economic Zone around the Commonwealth of the Northern Mariana Islands, with additional surveys in the Federated States of Micronesia. All AUV surveys were conducted in areas that were also surveyed via E/V *Nautilus*' ROVs and mapping sonars, thus collecting complementary datasets to support site characterizations.

ROV SURVEYS

The expedition included seven successful ROV dives for a total dive time of 114.5 hours and 78.5 hours of bottom time exploring depths between 300-5,334 meters. Noteworthy observations included:

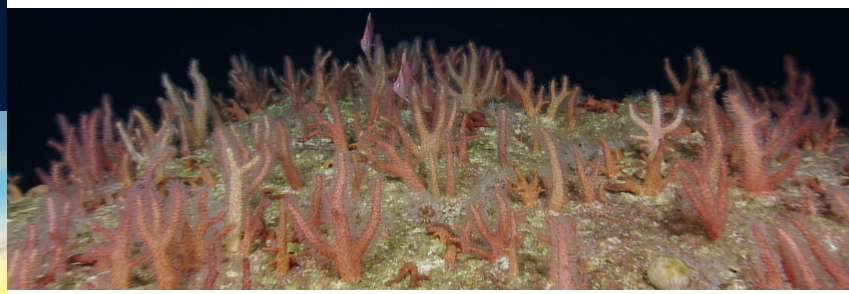
- Conducted several multi-vehicle dives in tandem with AUV *Sentry*
- Documented fresh volcanics and rubble at the Ruby Seamount along with rich biodiversity
- Discovered a new fish species in the genus *Halosaur* and a coral garden on an unnamed seamount located 20 nm southwest of Ifalik
- Discovered spectacular pillow and lobate basalt flows as well as columnar basalts on an unnamed seamount located 85 nm southwest of Pulusuk
- Completely traversed an unnamed seamount located 60 nm northwest of Unoun from 5,000-2,400 m, documenting changes from abyssal plain habitats near its base to ferromanganese-coated carbonate outcrops on its flanks to basalt flows near its summit
- Documented three individuals of the *Magnapinna* bigfin squid, adding to the only 60 previous records of this species globally

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 and the Bureau of Ocean Energy Management via the Ocean Exploration Cooperative Institute. Expedition operations in the Federated States of Micronesia were executed under research permit FM26-VC20252RS-26963 authorized by the National Oceanic Resource Management Authority and operations in the Mariana Trench Marine National Monument under special use permit #12541-26001 authorized by the US Fish and Wildlife Service.

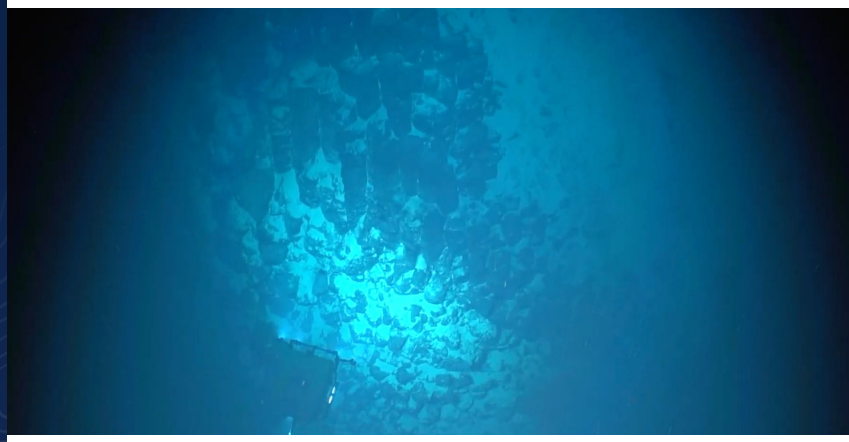
ACOUSTIC MOORING DEPLOYMENT

On the second day of the expedition, a high-frequency acoustic package (HARP) was retrieved and a new one was deployed west of Saipan to support cetacean monitoring efforts by the NOAA Pacific Islands Fisheries Science Center. Despite being recognized as a vital winter breeding ground and nursery for humpback whales, there have been few whale surveys in the Western Pacific, and these deployments will provide important new insights into the behavior of marine mammals in the region.



EDUCATION & OUTREACH

Over the course of the expedition, live-stream video feeds received 162,719 views, highlight videos garnered 85,252 views, and content on OET's social media channels attracted over 32.1 million impressions. While at sea, the team created 23 new education and outreach products and hosted 56 live ship-to-shore interactions with schools and community events, reaching approximately 1,370 people across 10 US States, Guam, Commonwealth of the Northern Mariana Islands, Puerto Rico, Canada, and United Kingdom. Five students and early-career professionals sailed on the expedition, including three via OET's Science & Engineering Internship Program, in addition to three educators who joined the mission via OET's Science Communication Fellowship Program. Early expedition results appeared in 27 media stories and in three live television appearances on Telemundo Puerto Rico that garnered about 450,000 views.



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 data (ship navigation and multibeam data)
YouTube	Full ROV videos
National Deep Submergence Facility	AUV *Sentry* sensor data