

# Seafloor Mapping Offshore Howland and Baker Islands (NA175)

August 20 - September 5, 2025

- 16 days at sea
- 18,003 km<sup>2</sup> of seafloor mapped
- >8,000 seabirds counted
- 1 educator sailed on expedition
- 3 students sailed on expedition
- 67 live ship-to-shore interactions
- 2,615 ship-to-shore participants
- 29,463 live stream views
- >5 million social media views

- ★ Expedition ports
- Seafloor mapping

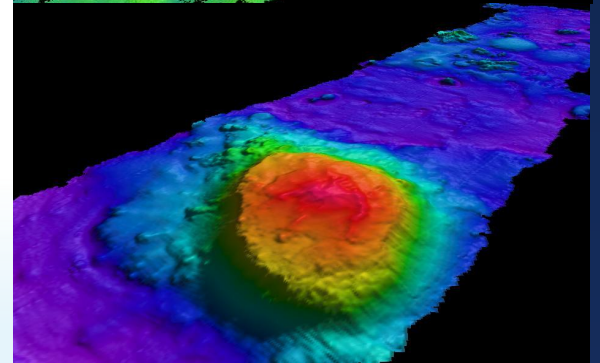
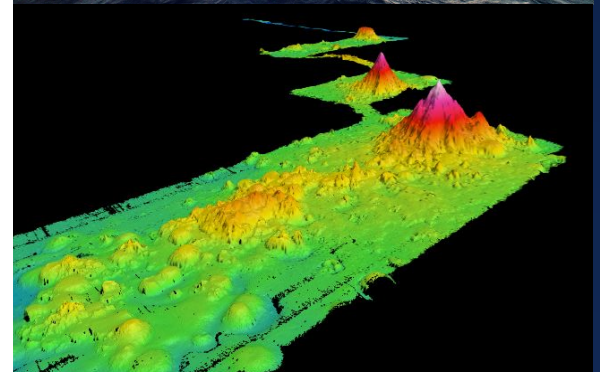


## OVERVIEW

From August 20 - September 5, 2025, E/V *Nautilus* conducted a telepresence-enabled expedition focused on seafloor mapping in the US Exclusive Economic Zone surrounding the islands of Howland and Baker, as well as other unmapped areas along the transit route between the Marshall Islands and American Samoa. In addition to mapping previously unsurveyed seafloor using [E/V \*Nautilus\*' mapping sonars](#), the expedition included topside surveys for seabirds and other marine fauna from the ship's observation deck. Alongside technical experts, the expedition included the participation of students and educators via the [OET Seafloor Mapping and Hydrography Internship Program](#), and the [OET Science Communication Fellowship Program](#).

## MAPPING SUMMARY

Over 18,003 km<sup>2</sup> of seafloor were mapped over the course of the expedition, including 11,192 km<sup>2</sup> in the US Exclusive Economic Zone of Howland and Baker Islands, where four larger seamounts were mapped in their entirety. In addition to dedicated mapping operations around the islands of Howland and Baker, the expedition included transit mapping operations that mapped over 2,823 km<sup>2</sup> of seafloor in the Marshall Islands. All of these data will be publicly archived, and contribute directly to the [Seabed 2030 effort](#).



**Geographic Focus:** US Exclusive Economic Zone around Howland & Baker Islands, with additional work along the transit route between the Marshall Islands and American Samoa

**Main Operations:** Seafloor mapping using ship-based sonars and topside seabird surveys

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

**Expedition Webpage:** [www.NautilusLive.org/cruise/NA175](http://www.NautilusLive.org/cruise/NA175)





## TOPSIDE MARINE FAUNA SURVEYS

In addition to seafloor mapping, the NA175 expedition included topside surveys on the abundance and diversity of seabirds and other marine fauna. Over 8,000 individual birds were counted in at least 27 species, including 24 seabird species, and two migratory shorebird species. Highlights included observations of Phoenix Petrel, Tahiti Petrel, Nazca Booby, Buller's Shearwaters, Christmas Shearwater, Leach's Storm-Petrel, Blue-gray Noddy, Gray-backed Tern, and thousands of individuals of Sooty Terns. Furthermore, at least nine individual cetaceans were observed, including confirmed records of Short-finned Pilot and Whale Cuvier's Beaked Whale. Consistent sightings of flying fish made up the rest of the marine fauna identified during the expedition.



## 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](#), and the [US National Strategy for Ocean Mapping, Exploration, and Characterization](#). Data collected in the US Exclusive Economic Zone around Howland and Baker will support decision making relating to the [Management Plan that is currently being developed for the Pacific Remote Islands Marine National Monument](#). 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, the Ocean Exploration Trust, and all that supported the expedition from shore. The expedition was funded by NOAA Ocean Exploration via the Ocean Exploration Cooperative Institute, and executed under permit 12543-25006 authorized by the US Fish and Wildlife Service.

## EDUCATION & OUTREACH

Live feeds from the expedition received over 29,463 views, with expedition content posted OET's [TikTok](#), [Instagram](#), [Twitter](#), [Facebook](#), and [LinkedIn](#) channels attracting over 5 million impressions. While at sea, the team created six new [education and outreach products](#), and hosted 67 live ship-to-shore interactions with schools, community events, and professional meetings, reaching over 2,615 people across 18 US States, and the United Kingdom. This included one live interaction with the International Space Station. The expeditions included the participation of three student interns via [OET Seafloor Mapping and Hydrography Internship Program](#) and one educator via [OET's Science Communication Fellowship Program](#). 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.



## DATA ACCESS

Data collected on this expedition has 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](#). Bird observations were submitted to [eBird](#), and other topside marine faunal observations to [iNaturalist](#). Background information, highlight images, and educational materials are also available via the [expedition website](#). These data sets are also available from [OET upon request](#).

