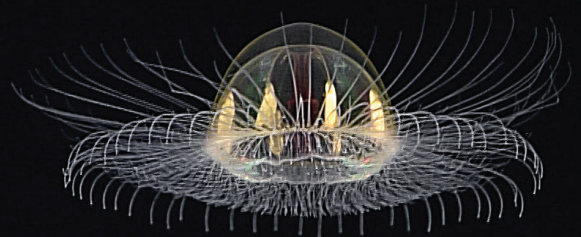


2017 American Samoa Expedition Part 1: Suesuega o le Moana o Amerika Samoa

NOAA Ship *Okeanos Explorer*, February 16 – March 2, 2017

This expedition is part of the three-year Campaign to Address Pacific monument Science, Technology, and Ocean NEeds (CAPSTONE), an initiative to collect deepwater baseline information to support science and management decisions in and around U.S. marine protected areas in the central and western Pacific.

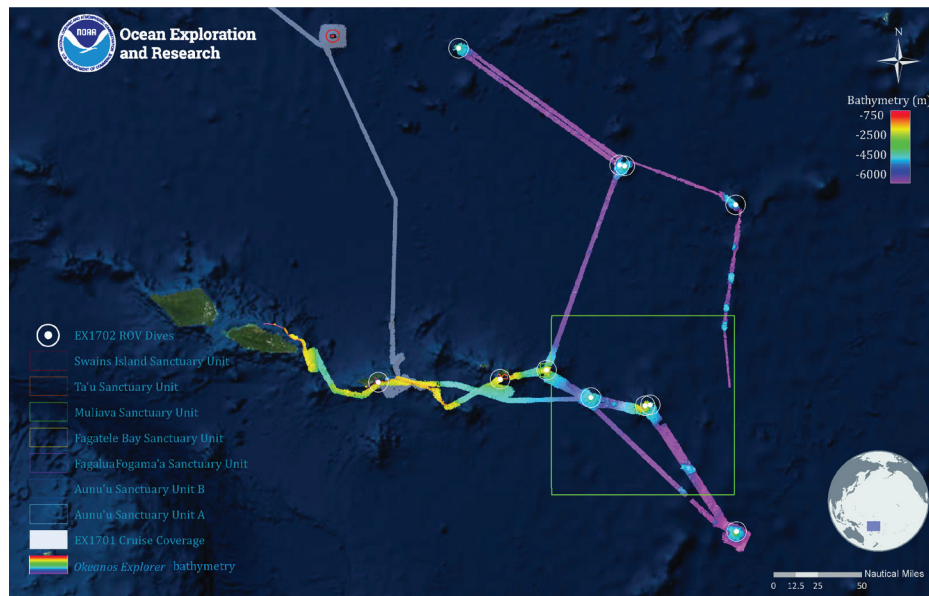


Summary Accomplishments

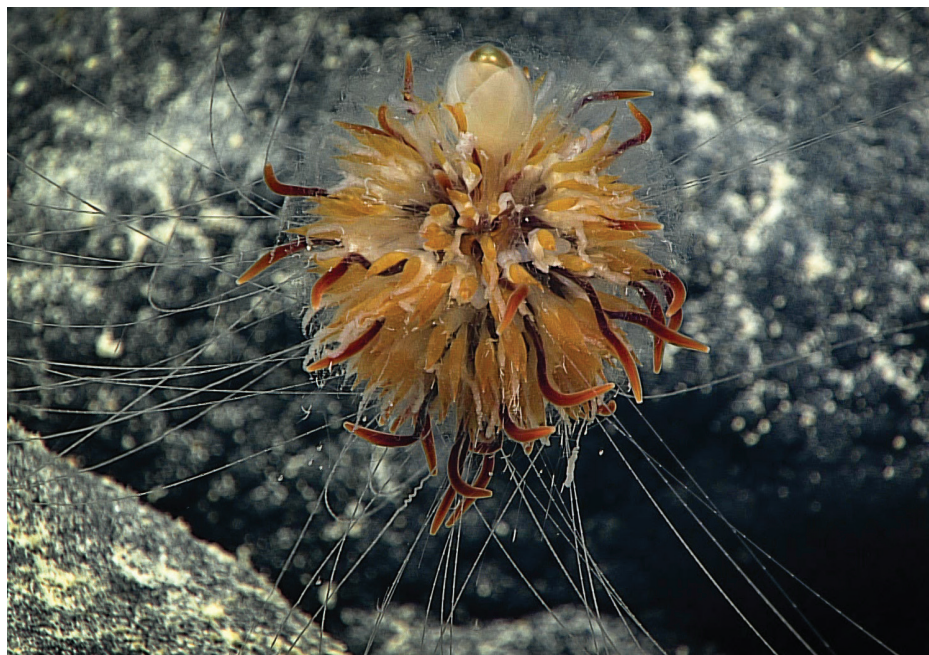
The 2017 American Samoa Expedition Part 1: Suesuega o le Moana o Amerika Samoa, was a 14-day telepresence-enabled expedition to explore unknown and poorly understood areas in American Samoa and Samoa with a focus on [Rose Atoll Marine National Monument](#) and [National Marine Sanctuary of American Samoa](#). Throughout the expedition, the team conducted daytime remotely operated vehicle (ROV) dives; overnight mapping operations; and conductivity, temperature, and depth (CTD) rosette operations. Expedition priorities included a combination of science, education, outreach, and open data objectives that will support management decisions at multiple levels. Major accomplishments from the expedition are summarized below.

Conducted 11 ROV dives from 250 to 4,000 meters depth to survey for a diversity of benthic habitats and features, including high-density deep-sea coral and sponge communities, hydrothermal vents, bottomfish habitats, seamounts, and the water column.

- Observed hundreds of different species of animals and significant coral and sponge communities. Identified distinct communities on seamounts that appear to be structured by environmental factors that vary with depth.
- Collected 101 biological specimens (31 primary specimens and 80 associates), including corals, anemones, zoanthids, hydroids, sponges, sea stars, feather stars, brittle stars, urchins, squat lobsters, amphipods, shrimp, barnacles, snails, and polychaete worms. As many as 30 of these specimens could represent new species, and most of the specimens from known species will represent new range records.



Vicinity of American Samoa Expedition Overview Map



This potentially new species of dandelion siphonophore was imaged on the deep slopes of Rose Atoll.

- Conducted five dives within National Marine Sanctuary of American Samoa, including three within Rose Atoll Marine National Monument, to collect a foundation of data and information to inform science and management needs.
- Surveyed for precious coral and bottomfish/ fishery habitats during three dives.
- Conducted six dives on seamounts to survey deep-sea coral communities and manganese-encrusted seafloor habitats.
- Conducted one dive focused on midwater surveys to better understand this largely unknown biome and one dive to survey an active hydrothermal vent site.

Mapped more than 12,000 square kilometers of seafloor - an area 60 times the land area of American Samoa!

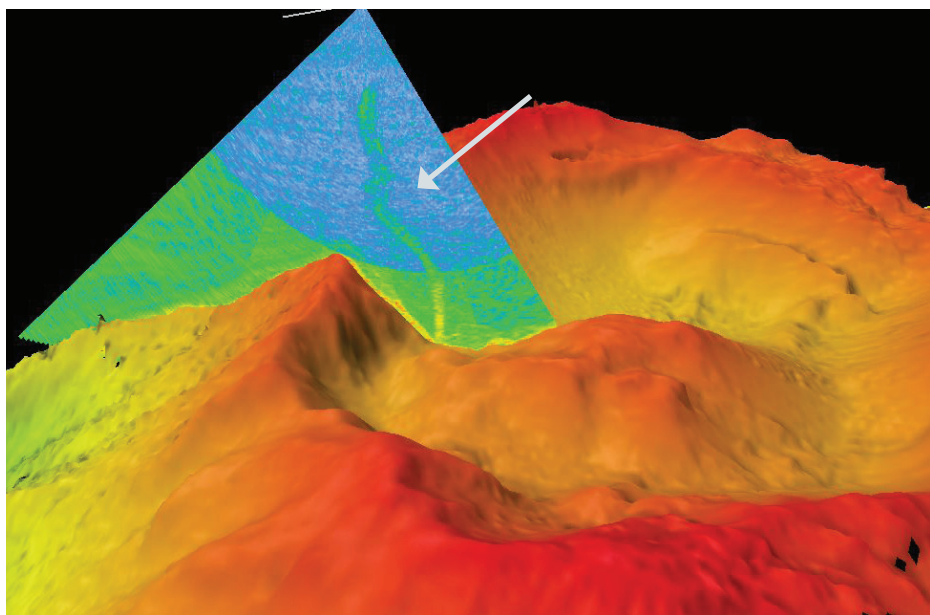
- Focused mapping surveys to support ROV dive site planning, update bathymetry along the pier at the port of Pago Pago, evaluate change in the crater of the Vailulu'u submarine volcano, and chart unmapped areas offshore of Upolu, Samoa.

Investigated a variety of geological features, including seamounts, volcanoes, manganese-encrusted seafloor, and an active hydrothermal vent site.

- Collected 30 rock samples for age dating and geochemical analysis that will help reveal the geologic history of American Samoa seamounts, atolls, and islands.
- Conducted a mapping survey of Vailulu'u Seamount, revealing the volcanic cone in the crater of Vailulu'u – called Nafanua – had grown extensively since it was last mapped in 2012.
- Obtained samples from the youngest volcanic structures that formed in the Vailulu'u volcanic crater since the previous mapping survey in 2012. A subset of the species from older areas on the volcanic cone was observed in the more newly formed areas, indicating a possible succession order after disturbance/creation of new habitat in this ecosystem.



Likely an undescribed species of sea bass, in the family Serranidae, imaged in the Ta'u Unit of the National Marine Sanctuary of American Samoa. Serranids are benthic or bottom-oriented fishes, typically found on coral reefs or rocky substrate. Characterization of bottomfish habitats was one of the expedition priorities.



A plume of bubbles is shown rising from the seafloor at Vailulu'u Seamount in the mid-water multibeam sonar data.

Collected 9.5 TB of data, including multibeam sonar, single beam echo sounder, subbottom profiler, Acoustic Doppler Current Profiler (ADCP), eXpendable Bathy Thermograph (XBT), CTD, surface oceanographic and meteorological sensors, video, imagery, and associated dive and video products. All the data will be made publicly available through national archives.

Engaged the local community in American Samoa and Samoa, as well as audiences around the world.

- Shared live video feeds of the expedition with the public worldwide via the Internet, with the live video receiving more than 6.2 million views via YouTube and Facebook.
- At least 48 scientists and students from 12 U.S. states, Japan, Russia, Chile, and Trinidad and Tobago participated in the expedition as members of the science team.
- Conducted ship tours for local students, teachers, local officials, VIPs, and media. A total of 118 participants visited the ship in Pago Pago, American Samoa, and about 115 participants visited the ship in Apia, Samoa.
- Conducted two live interactions with the Tauese P.F. Sunia Ocean Center in American Samoa to engage and share the expedition with ~170 local students, the Office of Samoan affairs, and other agency representatives and officials.
- Presented on Polynesian celestial navigation and ocean exploration in Apia, Samoa. The presentation was co-hosted by the U.S. Embassy Apia, NOAA, the Global Foundation for Ocean Exploration, the Samoan Voyaging Society, and the Secretariat of the Pacific Regional Environment Programme.
- Received news and media coverage by more than 45 outlets, ranging from CNN, CBS, Huffington Post, Scientific American, and Gizmodo to local media outlets in American Samoa and Samoa.



Nearly 200 local students attended a live telepresence interaction at the Tauese P.F. Sunia Ocean Center in American Samoa.

For More Information

<http://oceanexplorer.noaa.gov/oceanos/explorations/ex1702/welcome.html>



**Ocean Exploration
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