

"NOAA Ship *Okeanos Explorer* 2015: Exploring From the Atlantic to the Pacific"

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Abstract: In 2015, the NOAA Ship *Okeanos Explorer* crossed from the Atlantic to the Pacific, exploring the waters of Puerto Rico, two marine national monuments, and waters from Rhode Island to Hawaii along the way. The field season started in February with a transit to the Caribbean. During three legs **Océano Profundo 2015: Exploring Puerto Rico's Seamounts, Trenches, and Troughs**, the *Okeanos Explorer* explored largely uncharted deep-sea ecosystems and seafloor in the vicinity of Puerto Rico and the U.S. Virgin Islands. Highlights of the expedition include, deploying free-vehicles to the bottom of the 8,000 m Puerto Rico Trench, identification of the very rare starfish, *Laetmaster spectabilis*, known previously from only one specimen collected in 1881, observations of at least two new species, and mapping 37,500 sq km of previously unmapped seafloor in high resolution revealing rugged canyons, intricate incised channels, and complex tectonic features. In May and June the ship transited through the Panama Canal to the Pacific Ocean. Along the way the sonars collected opportunistic mapping data.

In June, the ship began the three month **Hohonu Moana: Exploring the Deep Waters off Hawai'i expedition**. The focus of the expedition was exploring unknown deep-sea ecosystems in the Hawaiian Archipelago and offshore Johnston Atoll in support of priority marine national monument and national marine sanctuary science and management needs. Over 50,000 sq km of seafloor were mapped in high-resolution and 49 ROV dives were conducted over the course of the expedition. Hohonu Moana marked the first time *Okeanos Explorer* collected physical samples with ROV *Deep Discoverer*. Limited rock samples were collected to provide more information about geologic features in the region. Biological sampling was limited to potential new species or new animal records for the Hawai'i region and so all were surprised by the number of samples collected – 70 – highlighting how much remains to be explored and discovered in our deep ocean. The presentation will focus on the importance of ocean exploration, highlights from the 2015 field season, and a discussion of what's to come in 2016, when six new sonars are added to the ship and the Office of Ocean Exploration and Research continues its ground breaking work in remote parts of the Pacific Ocean.