



PAPAHĀNAUMOKUĀKEA Marine National Monument

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Research Expedition to the Northwestern Hawaiian Islands Returns with New Discoveries

(Honolulu) Today, scientists returned from a 25-day research expedition aboard NOAA Ship *Hi'ialakai* to explore the deep coral reefs within Papahānaumokuākea Marine National Monument in the Northwestern Hawaiian Islands (NWHI). They returned with specimens and photographs of new records of marine life from the NWHI, including sea urchins, sea cucumbers, algae and reef fish possibly new to science. In addition, researchers saw and photographed several fish species not previously seen by divers but known only from submersible observations.

“Our discoveries underscore how little-explored the deeper portions of coral reefs are, and how much remains to be discovered,” said Dr. Randall Kosaki, NOAA’s deputy superintendent of Papahānaumokuākea Marine National Monument and chief scientist of the expedition.

The primary mission of the expedition, which visited French Frigate Shoals, Lisianski Island, Pearl and Hermes Atoll, and Midway Atoll, was to use advanced diving technology to survey mesophotic coral ecosystems – deep coral reefs at depths between 180 and 300 feet. Deep-reef fish communities were found to be dominated by Hawaiian endemic species – species found only in Hawai’i. This expedition marked the deepest dives ever conducted by NOAA scientists on closed-circuit rebreathers.

Several other studies were undertaken during the expedition. Scientists from the Hawai’i Institute of Marine Biology (HIMB) conducted coral disease and bleaching assessments, documenting moderate to major coral bleaching at Lisianski Island and several neighboring atolls.

“Of the four sites we visited, Lisianski appears to be the hardest hit by this bleaching event,” said Dr. Courtney Couch, a research biologist from HIMB. “While most of Lisianski’s reefs are experiencing moderate bleaching, several of the shallow reefs had severe bleaching (90% bleached). Large areas of once vibrant purple coral are now stark white and some corals were showing signs of mortality.” Scientists also observed moderate to severe bleaching at several reefs in the lagoons at Midway Atoll National Wildlife Refuge and Pearl and Hermes Atoll.

This event marks the third reported mass bleaching event in the Monument, with northern atolls severely affected by bleaching and subsequent mortality in 2002 and 2004. These events are driven by higher than normal sea surface temperatures linked with climate change, and are increasing in frequency and severity around the globe. When corals are thermally stressed for extended periods of time, they expel their symbiotic algae, which they rely on for most of their nutrition, causing the corals to turn white. While corals that bleach are not necessarily dead and can recover, prolonged bleaching can result in significant coral mortality.

Other researchers from HIMB tagged sharks and ulua (jacks), and deployed/recovered underwater acoustic receivers that listen for tagged predators. A scientist from NOAA Fisheries deployed Baited Remote Underwater Video Stations (BRUVS), deep-water drop cams that filmed and measured sharks, jacks and other predators on mesophotic reefs in the Monument.





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The scientific team included researchers from NOAA's Office of National Marine Sanctuaries' Papahānaumokuākea Marine National Monument, NOAA's Pacific Islands Fisheries Science Center, the Hawai'i Institute of Marine Biology, and the Bernice P. Bishop Museum.

Images and video available upon request.

Papahānaumokuākea is cooperatively managed to ensure ecological integrity and achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Island ecosystems, Native Hawaiian culture, and heritage resources for current and future generations. Three co-trustees - the Department of Commerce, Department of the Interior, and State of Hawai'i - joined by the Office of Hawaiian Affairs, protect this special place. Papahānaumokuākea Marine National Monument was inscribed as the first mixed (natural and cultural) UNESCO World Heritage Site in the United States in July 2010. For more information, please visit www.papahanaumokuakea.gov.

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