PRESS RELEASE
FOR IMMEDIATE RELEASE
August 20, 2010

Contact: Andy Collins

808-347-8144

Extraordinary Dominance of Hawaiian Fishes Discovered on Deep Coral Reefs of the Northwestern Hawaiian Islands

(Ford Island, Pearl Harbor, Oʻahu, Hawaiʻi) After 30 days at sea, NOAA Ship *Hi`ialakai* returned home today with ground-breaking new discoveries on the marine life of Papahānaumokuākea Marine National Monument. Foremost among these discoveries is the finding that deep coral reef fish communities, well below depths normally visited by scuba divers, are dominated by endemic fishes found only in Hawaiʻi. Scientists on the cruise used technical diving equipment and helium-oxygen-nitrogen gas mixes to dive as deep as 250 feet to characterize these deep reef ecosystems. "Unique Hawaiian endemic species comprise over 90% of the fish communities at these depths," said Dr. Randy Kosaki, Chief Scientist and one of the technical divers on the cruise. "This is the highest level of endemism recorded in any marine ecosystem on earth, and this discovery underscores the importance of the protected status brought to the Northwestern Hawaiian Islands ten years ago. These reefs are a global treasure trove of biodiversity."

Coral expert Dr. Jim Maragos of the U.S. Fish and Wildlife Service conducted research on the cruise to identify corals that had not previously been recorded from the NWHI, and also to search for new, undescribed species of coral. "We found numerous new records of corals at every atoll we visited," said Maragos. "Several of these will no doubt turn out to be species that are completely new to science." Confirmation of those records happens after scientists return to their labs, consult with other specialists, conduct literature reviews, and submit samples for DNA analyses. "The NWHI is a hotbed for new Hawaiian endemic species due to their geographic isolation and ancient age," said Maragos.

The cruise also included Hawaiʻi Pacific University scientists who conducted seawater acidification studies off the major atolls in Papahānaumokuākea. Water samples were taken at depths ranging from the surface to as deep as 3300 feet for analysis of their chemical profiles. Ocean acidification is thought to be one of the major consequences of greenhouse gas emissions resulting from the continued use of fossil fuels, and is predicted to significantly impact reef organisms such as corals.

PLEASE CONTACT

Andy Collins
NOAA
808.347.8144

Barbara Maxfield
USFWS
808.792.9531

Deborah Ward
Hawai'i DLNR
808.587-0320

Another manifestation of global climate change is coral bleaching (loss of pigmented, symbiotic algae in their tissues), which results from elevated sea surface temperatures. While scientists on this cruise did not see any signs of bleaching in the Northwestern Hawaiian Islands, Monument managers issued a bleaching watch in early August, based on predictive models which suggest the region could experience a mass bleaching event later this year due to elevated sea surface temperatures across the Pacific. "We experienced sea surface temperatures as high as 84 degrees," said Kosaki. "That's unusually warm for these northern reefs, and the warmest month of the year, September, is right around the corner." Another NOAA cruise departing for Papahānaumokuākea in a week will conduct coral reef monitoring in the NWHI, and will be on the lookout for signs of coral bleaching. Extended periods of bleaching can cause high levels of coral mortality.

Annual coral reef monitoring in the NWHI has occurred since 2000, the same year in which President Bill Clinton designated the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve (NWHICRER), the precursor to Papahānaumokuākea. These monitoring cruises characterize and monitor coral reefs, establish baselines for comparison, and were instrumental in documenting mass coral bleaching in the NWHI in 2002. The establishment of the NWHICRER became a milestone for emphasizing scientific research as a management tool to assist in understanding and protecting one of the earth's largest and most pristine marine environments. Recently, in July 2010, UNESCO inscribed Papahānaumokuākea as a World Heritage site, recognizing the global significance of both its natural and cultural resources.

Representatives from the University of Hawai'i's Waikiki Aquarium also collected fish and live coral specimens for inclusion in the new Northwestern Hawaiian Islands Exhibit slated to open in early 2011. The exhibit is a highly visible component to help spread the message about Papahānaumokuākea Marine National Monument, the 10th Anniversary of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve and the designation of Papahānaumokuākea as the first mixed UNESCO World Heritage Site in the United States.

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