INTERAGENCY PRESS RELEASE

EXPEDITION 2002

NORTHWESTERN HAWAIIAN ISLANDS

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CONTACT:
Barbara Hastings
Hastings & Pleadwell
808-538-0797
808-987-7799
'Aulani Wilhelm (With Expedition)
hiatoll@flex.com

SCIENTISTS RECORD FIRST EVIDENCE OF CORAL BLEACHING IN THE NORTHWESTERN HAWAIIAN ISLANDS

(At Sea, Coral Reefs of Northwestern Hawaiian Islands—October 3, 2002) On the homeward leg of their 30-day expedition to the Northwestern Hawaiian Islands, scientists from the two-ship NOWRAMP 2002 (Northwestern Hawaiian Islands Reef Assessment and Monitoring Program) research cruise announced that they have documented the occurrence of coral bleaching for the first time in the northern half of the Hawaiian archipelago. Coral bleaching was not found in either the 2000 or 2001 expeditions to the Northwestern Hawaiian Islands (NWHI).

Chief scientists, Rusty Brainard, Ph.D., aboard the NOAA ship Townsend Cromwell and Randall Kosaki, Ph.D. aboard the research vessel Rapture agree that the observance of bleaching is the most significant finding of the expedition to date. Large-scale bleaching was recorded by scientists aboard the vessels at the northern end of the Northwestern Hawaiian Island chain at Pearl and Hermes, Midway and Kure atolls. So far only minor bleaching has been reported at reefs at the southern end of the NWHI, closest to the main Hawaiian islands.

With the cooperation of the State of Hawai'i and the U.S. Fish and Wildlife Service, scientists from the National Oceanic and Atmospheric Administration (NOAA) have designed and deployed special buoys in certain areas of the Northwestern Hawaiian Islands. For the last several months these buoys, known as the Coral Reef Early Warning System or CREWS buoys, have relayed information on unusually warm water temperatures at Kure, Midway, and Pearl and Hermes atolls.

Dr. Brainard noted the CREWS buoy information helped make scientists aware of site-specific sea surface temperature rises this summer.

Coral bleaching (the loss of pigmented symbiotic algae cells from coral tissues) is a generic response by corals to many environmental stresses such as unusually high water temperatures and exposure to strong solar ultraviolet radiation. According to University of California at Santa Cruz professor Donald Potts, Ph.D, a coral specialist participating in this expedition, "Bleaching of individual corals has been known for a century, but large-scale bleaching was first described about 20 years ago."

Expedition biologists report that despite the varying levels of bleaching found, the coral reef ecosystems of the Northwestern Hawaiian Islands are healthy and among the most pristine in the world. "During the past three weeks we have been privileged to document a healthy, thriving ecosystem functioning in a natural state without significant impacts from human activities," said Dr. Kosaki. "All of the components of an undisturbed system are here, including an abundance of large predators such as sharks and ulua (Carangoides and Caranx), and large schools of herbivorous fishes."

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“It’s important not to overreact to the evidence of coral bleaching we’ve observed during this trip,” said Greta Aeby, Ph.D., a coral biologist and coral disease expert with the State Department of Land and Natural Resources. “In severe cases, coral bleaching can cause mortality, but most mildly bleached colonies will recover in a few weeks.

“Low levels of bleaching are normal in healthy populations of reef corals, especially during the warm summer months,” said Dr. Aeby. “The higher-than-normal levels of bleaching we’ve found in these northwestern islands are unusual in the Hawaiian Islands, but are not necessarily indicative of long-term environmental problems in these reefs.”

“While virtually all of the areas surveyed at these three northern atolls revealed some degree of coral bleaching, bleaching was most pronounced in backreef and reef flat habitats exposed to the most intense sunlight, warmest temperatures and strongest ultraviolet radiation,” said Dr. Brainard.

Detailed investigations in a wide variety of reef habitats found that some species of coral were more resistant to bleaching, whereas other types of coral showed signs of extensive bleaching. Most of the rice corals (Montipora species) and cauliflower corals (Pocillopora species) were very susceptible to bleaching, whereas lobe corals and finger corals (Porites species) were less bleached. However, many other coral species have shown no signs of bleaching or only minor bleaching.

“The remaining surveys at Lisianski, Maro, French Frigate Shoals, and Nihoa will help us determine whether mass bleaching is confined to the three northern atolls or is possibly also now occurring at the more southern islands of the Northwestern Hawaiian Islands,” said Jim Maragos, Ph.D., a coral specialist with the U.S. Fish and Wildlife Service.

“It will be important to monitor these corals and reefs over the long-term in order to understand how healthy reefs, exposed to minimal human disturbances, will recover from a natural stress event such as this,” concluded Dr. Aeby.

In 2001, NOAA began installing long-term oceanographic buoys and the U.S. Fish and Wildlife Service began establishing permanent coral monitoring sites to measure changes in physical and biological conditions over time at selected reef areas. The expansion of these and other collaborative programs, as exemplified by this two-ship, interagency expedition now underway, will become even more important in order to measure coral bleaching for the long-term.

Scientists involved in the expedition will meet and review the data upon return to Honolulu to better understand this bleaching event.

The NOWRAMP 2002 expedition is a collaborative, multi-vessel effort to document the biological, cultural, and historic resources of the Northwestern Hawaiian Islands. Primary participants are the NOAA’s National Ocean Service and National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the State Department of Land and Natural Resources, along with the University of Hawai‘i, University of California at Santa Cruz, the Bishop Museum, and many others.

Information about the expedition is available at www.hawaiianatolls.org

Media Note: A final news conference and summary of initial expedition findings will be made available on October 7, 2002, when both vessels return to Honolulu. New video and still images also will be made available at that time. For more details, contact Hastings & Pleadwell.

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