Press Release

News Release

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Hawai`i Coral Reef Initiative Research Program

Urban Runoff and Coastal Water Quality Being Researched for Effects on Coral Reefs
Project Funded by the Hawai`i Coral Reef Initiative Research Program

HONOLULU - "As we live on relatively small islands in Hawai`i, almost anything on land ultimately ends up on our coral reefs," said Dr. John Runcie, Research Associate for the University of Hawai`i. Runcie, along with Dr. Fred Mackenzie and Dr. Robert Kinzie, all from the University of Hawai`i, are researching how land use activities influence Hawai`i's ocean. Sponsored by the Hawai`i Coral Reef Initiative Research Program, the project's goal is to understand the effects of land-based activities on coastal water quality which, in turn, affects coral reefs.

"The degradation of coral reefs is a widespread phenomenon often caused in part by land-based human activity," said Mackenzie. "These land-based practices allow for high levels of inorganic elements to be transported into waterways that lead to the ocean," he added. Practices that contribute to destroying coral reefs include the introduction of fertilizer runoff from urban and agricultural areas, leakage or deliberate disposal of nutrient-rich sewage into waterways, sediment loading caused by poor trapping at construction sites, excessive use of herbicides and pesticides, and the introduction of heavy metals such as lead, copper and zinc, and petroleum products from automobiles and roadways.

To measure the level of inorganic nutrients found in waterways, the University of Hawai`i research team is utilizing a relatively new device called a pulse amplitude modulated (PAM) fluorometer. This marine device, one of only two in Hawai`i, is submersible and allows for the rapid measurement of photosynthetic rates of plants (seaweeds) and animals (corals and sponges). With these measurements, the researchers can assess the extent of pollution in a particular area.

Although Hawai`i is fortunate that many chemicals are diluted because of its geographic location and high tidal action, there are exceptions in enclosed areas and bays such as Pearl Harbor, Kaneohe Bay and Hilo Bay. In these areas, pollution from indirect sources such as runoff from fertilizer, construction sites and roadways, tend to remain in the waterways for longer periods. This may contribute to fine-scale changes where the

potential consequences would be difficult to detect until the effects are revealed in massive form such as an algal bloom.

The process of urban runoff affecting water quality in Hawai`i, especially after rainfall, is highly dynamic. In the past, water quality was tested through water samples that were merely snap shots in time of an ever-changing environment. The Urban Runoff and Coastal Water Quality project provides for the first continuous record of coastal water quality in Hawai`i. The results of the project will be announced in late 2002.

Hawai`i Coral Reef Initiative Research Program (HCRI-RP) was established in 1998 to support monitoring and research activities to build capacity in managing Hawai`i's coral reef ecosystems. The Program is currently in its fourth year of operation and has grown to fund several diverse research projects all aimed at managing and protecting Hawai`i's coral reefs. HCRI-RP is cooperatively managed by the State Division of Aquatic Resources and the University of Hawai`i. Further data is available at the Hawai`i Coral Reef Initiative Research Program's web site at http://www.hawaii.edu/ssri/hcri. For more information, please contact the Hawai`i Coral Reef Initiative Research Program office at 808-956-7479.

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