HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: RCV-474

MISSION STATUS

Location: North Waiahukini, Big Island

Latitude: N 18° 59.1970' **Longitude:** W 155° 45.7610'

Mission Date: 9/29/2011 **Duration:** 20:46-22:25

Maximum Depth: 479m

Project Title: Recolonization and community succession of deep-water coral communities in response to disturbance

Principal Investigator: Dr. Samuel E. Kahng

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Observer 1:
Address:

Observer 2:
Address:

Pilot 1:

Pilot 2:

Scientific Data Acquired: Prepare an abstract outlining your objectives, techniques, findings, etc.

Objectives:

Explore and characterize the poorly known, deep-water benthic communities including the unique photosynthetic communities in the lower photic zone, commercially valuable precious corals, and cold water corals at extreme depths. Examine the ecological dynamics of slow growing, long-lived benthic organisms in response to episodic disturbance and the recovery processes recorded across multi-decadal and multi-century time-scales by using the well documented historic and prehistoric lava flows on the Big Island of Hawaii.

Multiple stations will be surveyed on successively older lava flows to enable a view back in time to the birth of deep water coral communities on newly formed volcanic island substrata. Coral community structure on a lava flow of known age can be compared to adjacent, "undisturbed" habitat of much older age. At each station (i.e., lava flow) surveys will be conducted at strategic, fixed depth contours (e.g., 90 m for mesophotic corals, 400 m for precious corals, 1000 m for cold water corals) to reveal how rates of community development changes with depth. Constant depth contour transects will be surveyed, and

video data analysis will be used to characterize community ecology (i.e., species richness, species diversity, % live benthic cover, density, and size-frequency distribution of a key organism at each depth contour).

Observations, findings, etc:

Coral community on 1887 submarine lava flow surveyed at ~450m. Patchy hard substrata in plentiful abundance from small rocks to large continuous ridge lines. *Corallium* sp. in very high abundance.

Pending confirmation of substrate age, dense communities of mature *Corallium* can develop on rugose features within 123 years.

Species list:

Corallium sp.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Recommendations for corrective action or improvement:

In your opinion, did the mission essentially achieve its purpose? Compare actual work accomplished with the work that was expected to be accomplished.

List specimens or samples collected on the mission.

DATA RELEASE

Data may be retained by the project leader for up to 2 years after the mission date with the following exception. NOAA may request to use photos for publication or publicity purposes at any time.

Fill in the appropriate statement below and sign this form.

I hereby release the data archived by HURL for public consumption following mission (project title)

held on_____(date) in the following way:

a. CTD data by_____(date)

b. video and images by_____(date)

c. other_____(date)

d. I will give my written consent to individuals wishing to use these data prior to the above dates depending on the nature of the request(s).

_____Principal Investigator