HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: PV-568

MISSION STATUS

Location: Au'au Channel, Maui

Latitude: 20º 48.5' N **Longitude:** 156º 44.25' W

Mission Date: September 10 2004 **Duration:** **7** hours 30 mins

Maximum Depth: 123 m

Project Title: Ecological impact of an invasive marine invertebrate in Hawaii's coral reef communities

Principal Investigator: Richard W. Grigg, University of Hawaii

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Observer 1: Sam Kahng **Observer 2:** Steve Coles, Bishop Museum
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Pilot 1: Max Cremer **Pilot 2:**

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

Objectives:

An investigation of the deep reef habitat was conducted in select locations in the Hawaiian Archipelago to determine the geographic spread and ecological intensity of the *Carijoa riisei* biological invasion on the deep reef. This dive was one of dives on the Pisces V submersible and 4 remotely operated vehicle deployments of the RCV-125 conducted September 8-15.

Observations, findings, etc:

The Pisces V submersible track was over the Keyhole pinnacle and along Shark's Ridge in the northern end of the Au'au Channel between Maui and Lanai. The sub track was in the same vicinity as and the 2003 PV-553 and 2001 RCV-123 transects over the Keyhole pinnacle but also covered a previously unexplored ridge along the northern part of Shark's Ridge (the east edge of the solution basin).

On the plateau above the east side of the solution basin, a large bed of *Halimeda incrassata* was encountered at 66m. Plate corals (*Leptoseris* sp.) and an unknown alga with narrow vertical blades and holdfast was also common at these depths.

The bottom of the solution basin at 110-115 m was predominantly sand with bed forms indicating bottom currents. Temperature dropped to a below of 22ºC at 115 m and rose to 26ºC at 70 m.

At the base of the pinnacle, exposed rocky substrata was colonized by black coral colonies of all size classes. Some appeared healthy and others were smothered in *Carijoa riisei*. Exposed rocks, rock pinnacles, and undercut ledges at 70-110m were heavily colonized by *C. riisei* and black corals. Many areas were literally black coral graveyards dominated by completely smothered large black coral trees. Intermixed were juveniles black corals and an occasional larger tree free of C. riisei. The deepest observation of *C. riisei* on black coral was 112 m.

Plate corals were abundant throughout the black coral bed and dominating at the top of the pinnacle where the substratum was flat and gently sloping. Some areas appeared to be exclusively dominated by plate corals. Other areas were mixed with *Halimeda* sp. (with large segments).

At Shark's Ridge, the top at 50-60m was dominated by flat, sandy *Halimeda incrassata* meadows. Deeper areas of sloping substrata was dominated by Scleractinian plate corals. Steep walls were encountered 75-95m where black corals smothered in *C. riisei* were common. Roughly 75-90% of the large colonies were partially or completely covered. Juvenile black corals were common and rarely covered in C. riisei.

Black corals and *C. riisei* were sampled for taxonomic and genetic analysis.

Species list:

Carijoa riisei
Antipathes dichotoma
Antipathes grandis
Leptoseris sp.
Halimeda incrassata
Halimeda 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.

Mission accomplished. The crew did a fine job in helping us meet our scientific objectives.

List specimens or samples collected on the mission.
Carijoa riisei, black coral, plate coral, macro algae

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