HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: PV-571

MISSION STATUS

Location: Five Fathom Pinnacle, Kaula Rock

Latitude: 21º 38' N **Longitude:** 160º 33' W

Mission Date: September 13 2004 **Duration:** **7** hours 30 mins

Maximum Depth: 209 m

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

Principal Investigator: Richard W. Grigg, University of Hawaii

Address: 1000 Pope Road, Honolulu, HI 96822

Phone: 808-956-7186

Observer 1: Sam Kahng **Observer 2:**
Address: 1000 Pope Road, Honolulu, HI 96822

Pilot 1: Terry Kerby **Pilot 2:** Colin Wollerman

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 across the sunken platform around Kaula Rock in the vicinity of 5 Fathom Pinnacle. The sunken platform is bordered by a sheer drop-off around 115-120 meters composed of solid carbonate rock down to approximately 160 m. The carbonate wall appeared barren with no benthic fauna except for urchins near the top. Holes in the rock wall and near the lip are surrounded by abundant small fish. Large jacks and groupers were observed along the edge of the wall. Relatively warm water >22ºC extended down to 150 m. Below 160m, the near vertical wall gave way to steep sloping sand deposits.

Near the edge of the wall on the plateau, the terrain is sandy with pebbles that appear to be calcareous algae (rodoliths). Turf algae and starfish are common around the edge but absent on the interior sand flats. A variety of turf and branched algae samples were taken. Influx of nutrient rich deep water from internal tides and waves may enhance the local productivity around the edge of the plateau. Large clouds of small fish surrounded the edge of the plateau. Exposed rocks & boulders at the edge were conspicuously absent of large benthic sessile fauna such as black corals.

The interior of the plateau at 70-100m is largely sand & rubble of a carbonate nature and void of all benthic sessile fauna. Only a couple holothurians or large gastropods were observed. Above 70 m, exposed rocks of a wide range of sizes were often free of benthic fauna and appeared scoured. Near an extensive rock outcropping, wire corals and some colonial cup corals were observed on large boulders.

Beginning at about 55 m Scleractinian corals (Pocillopora meadrina, Porities lobata, Montipora capitata) were observed on top of exposed rock outcroppings with flattened morphologies. A few large heads of Pocillopora eydouxi measuring over 1 m in diameter were observed. Halimeda was conspicuously absent. Plate corals (Leptoseris and Pavona) were also conspicuously absent except small colonies in a couple localized areas near the edge of the plateau. The fauna was very different from habitat with similar depth and features in the Au'au Channel.

Black corals were observed between 50-60 m on exposed boulders but were much less common than large wire corals. Their small size and bushy morphology differ from the morphologies observed in Maui. The colonies were largely clean of all epifauna. Samples were taken. No sign of Carijoa riisei was observed. A single cluster of Sinularia colonies were observed on carbonate rocks at 60 m.

We were not able to find the 5 Fathom Pinnacle despite searching its reported location and vicinity on the nautical charts. The shallowest depth encountered in the area was approximately 50 m.

At 65 m wide bedforms covered much of the bottom. Parallel sand ridges 1 m in width running north-south evidenced an exceptionally large swell or current event in the past. Accumulation of calcareous algae on the top of the ridges and deposits from burrowing infauna suggest that they were created several years ago. No current was observed during the dive.

Species list:

Carijoa riisei
Antipathes sp.
Porites lobata
Pocillopora meandrina
Montipora capitata
Sinularia sp.
Wire corals

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 corals, plate corals, 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