HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P5-566

MISSION STATUS

Location: West Kahoolawe, Dive Site #10

Latitude: N 20° 32.50 **Longitude:** W 156 ° 46.30

Mission Date: 7 September 2004 **Duration:** 7 hours 56 mins

Maximum Depth: 166 m

Project Title: Exploration of Deepwater Macroalgal Meadows in the Main Hawaiian Islands

Principal Investigator: Heather Spalding (for Celia Smith)

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Observer 1: Celia Smith
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Observer 2: Frank Sansone
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Pilot 1: Max Cremer **Pilot 2:** none

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

Objectives:
There were 2 main objectives on this dive: 1) survey macroalgal assemblages from 50 to 200 m depths to determine the composition, densities, lower depth limits, and breadth of deepwater macroalgae and macroalgal meadows, 2) Deploy the sediment pore water sampler, collecting pore water from 3 discrete depths inside a *Halimeda incrassata* meadow. Deepwater macroalgae were surveyed using 4 lasers for percent cover and density estimates, and collected with the suction sampler and manipulator arm. Submersible laser calibrations were inspected the morning of the submersible dive to ensure proper calibration. The submersible CTD and a Niskin bottle were used for collecting water column data. The deepest occurring macroalgae (*Ulva* sp. and *Dasya* sp.) were at 141 m, and sparse in abundance. Featureless *Halimeda* sand plains occurred from 109 m and shallower, with the first live *Halimeda incrassata* plants occurring at 85 m. Dense *Halimeda incrassata* meadows were present from at least 50 to 78 m depths. Turf algae and filamentous red epiphytes were observed in the *Halimeda incrassata* meadows.

The sediment pore water sampler successfully collected samples at 3 discrete depths in the sediment.

Observations, findings, etc:
Dense *Halimeda incrassata* meadows starting at 78 m

Species list:
Halimeda incrassata
Caulerpa sp.
Ulva sp.
Distromium sp.
Filamentous red algae
Large red, brown, and green macroalgae
Calcareous macroalgae (crusts)

MISSION EVALUATION:

Limitations, failures, or operational problems noted:
Shallow nature of dive lead to significant submersible temperatures. Fine turf algal specimens were lost out of the covered basket. The suction sampler clogged with algae, but was eventually unclogged with the sediment probe/"algae plunger". The submersible experienced difficulty with the sonar and tracking, but the sub. pilot dealt with the situation in a calm and effective manner.

No ROV operations.

Recommendations for corrective action or improvement:
Science party should bring more blue ice packs for observers and pilot, and store in a small, collapsible cooler. For the covered basket, we might need to develop another type of basket with a smaller size mesh and individual compartments with lids for collecting macroalgae.

The ROV needs to be operational to achieve the scientific objectives.

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

Yes, we achieved our main objectives. However, without ROV operations, approximately half of the research could not be accomplished. Fish surveys, larger scale mapping of macroalgal meadows, scouting new dive locations for future cruises, and rapid assessments of the target habitats were not carried out as a result. Nonetheless, we were tremendously successful with the submersible dive in collecting numerous specimens and surveying macroalgal populations at multiple depths over a variety of habitats.

List specimens or samples collected on the mission.
Six suction sampler buckets and many algal specimens collected in covered basket

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