HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: RCV-289

MISSION STATUS

Location: Molokai, near Penguin Bank

Latitude: 21 ° 01.51 **Longitude:** 157 ° 44.50

Mission Date: 17 September 2004 **Duration**: 4 hours 11 mins

Maximum Depth: 118 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: Heather Spalding
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Observer 2
Address:

Pilot 1: Dan Greeson **Pilot 2:**

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

Objectives:
The main objective was to survey deepwater macroalgal meadows from 50 to 150 m depths to determine their composition, densities, lower depth limits, and breadth. Other objectives include surveying macrofauna in areas outside, at the edge, and inside meadows to resolve possible algal-associated organisms, and to survey areas within similar depth ranges that do no contain macroalgal meadows. This data will help us understand the factors (such as current, substrate type, exposure, etc.) that may affect the occurrence and abundance of macroalgal meadows in different habitats and depth distributions.

Observations, findings, etc:
Large fleshy macroalgae were observed from 118 to 65 m depths and interspersed with areas of small cobble covered with nongeniculate coralline algae. An *Ulva* sp. formed surprisingly large beds reaching 100% cover in localized areas from 85 to 65 m depths. *Ulva* sp. blades were up to 2 m in length, and darkly pigmented. Substrate ranged from fine sand to carbonate rubble and reef, with most macroalgae associated with hard substrate. Large ~2 m circular depressions (feeding pits from stingrays?) were observed in the sand from 118 to ~75 m depths. No *Halimeda incrassata* meadows were observed despite the occurrence of appropriate substrate. However, another *Halimeda* sp. covered up to ~50% of hard substrate from 75 to 65 m depths, and appears to be the major contributor to *Halimeda* sediment in this area. A high diversity of large red and green macroalgae was found at all depths, but few large brown algae were observed. A fine brown filamentous film, possibly cyanobacterial, was observed growing over sand from 80 to 65 m depths. A high density of *Carijoa* was growing on carbonate substrate in a localized area from 95 to 100 m. Two black coral trees without *Carijoa* were observed at 97 m depth. The discovery of dense beds of 2 m long *Ulva* sp. in deep water and the high diversity of large fleshy macroalgae are notable.

Species list:
Macroalgal identifications are tentative because of the need for collections and microscopic examination of thallus construction.

ALGAE
Ulva sp.
Codium sp.
Kallymenia sp.
Dasya sp.
Neomartensia sp.
Halimeda sp.
Halymenia sp.
Filamentous red algae
Large red algal blades
Dichotomously branched red algae
Cyanobacterial? film

ECHINODERMS
sand dollar
white spined urchin
Actinopyga sp. 2

CNIDARIANS
Carijoa riisei 50+
Antipathes sp. 2

CRUSTACEANS
Dromia dormia

SPONGES
sponge white finger-like 10+
sponge orange 5+
sponge yellow large and circular 2

FISHES
Fistularia sp. 2
Decapterus macarellus 5 +
Naso unicornis 2
Mulloidichthys pflugeri 1
Seriola dumerili 10 + (many may be same individual)
Acanthurus dussumieri 2
Acanthurus sp.? 2
Myripristis chyseres 1
Myripristis sp.? 1
Lutjanus kasmira 2
Arothron hispidus 3
Canthigaster coronata 9
moral eel grey to bluish 2

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

none

Recommendations for corrective action or improvement:

none

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

Yes, it was a highly successful mission.

List specimens or samples collected on the mission.

none

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