HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: PV-677

MISSION STATUS

Location: Third Finger of Penguin Bank, Molokai, Hawaii

Latitude: 20°56.145' N **Longitude:** 157°31.986'W

Mission Date: 09-30-06 **Duration: 07** hours 37 mins

Maximum Depth: 108 meters

Project Title: Deep Seaweed Photosynthesis Research

Principal Investigator: Karla McDermid

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Observer 1: Fred Gurgel
Address: Smithsonian Marine Station, Fort Pierce, Florida 34949

Observer 2: Nadine Suyama
Address: UH-Hilo

Pilot 1: Terry Kerby

Pilot 2: none

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

Objectives:

- Deploy Pulse Amplitude Modulated Fluorometers and leave in situ for overnight readings
- Sample water at deployment site using Niskin bottles
- Collect macroalgal specimens.
- Measure light attenuation with depth.
- Measure ambient light levels (photosynthetically active radiation PAR) at collection sites and deployment site.
- Test scoops for collection of larger samples of algae in depressions.

Observations, findings, etc:

Light measurements taken while descending (beginning of the dive) and ascending to the surface (end of the dive). Light readings strange. Most collection for taxonomical and biodiversity survey taken between 72 and 78 meters along top of the finger. One single algal collection was performed before deploying dive-PAM reader, collection at 9:05 am at 72 m (jar 1). First dive-PAM successfully deployed at 10:47 am, 20º 56.160' N, 157º31.935' W, at 107m, species selected: *Ulva expansa*. Second dive-PAM tentatively deployed at 11am, sensor's clip gave problems, data logger gave strange readings. Second dive-PAM was retrieved and brought back to the ship. Algal collections composed mainly of *Halimeda* and associated epiphytes, *Distromium* and associated epiphytes, *Halymenia*/*Kallymenia* blades, filamentous red and greens. Samples performed with titan arm and scoopers. Observations: Great difficulty found trying to place algal sample within the PAM sensor's clip. Malfunctioning PAM with erratic light signals coming from the data logger, sensor with blue and red/amber led lights continuously on at half strength. On the south slope of finger, at depths of 122.78 meters, there were massive carbonate walls.

Species list:

ALGAE

Halimeda sp. 1 (wider and softer segments with stupose holdfast)
Halimeda sp. 2 (smaller and harder segments with multiple attachment sites)
Halymenia sp. (red blades)
Ulva expansa ollive green and firm blades
Ulva sp. grass green, flexible blades
Delesseriaceae red blade
Filamentous green algae
Filamentous red algae
Spatoglossum
Distromium

ECHINODERMS
Aggregation of urchins (photo)
Collector urchin (purple tipped and white spines)
Linkia sea stars (green in color)
Sea stars similar to the *Linkia* but in different colors; dark purple to almost black, dark red
Holothuria (very big in size, girth and length, color of black to tan/brown in color)
Holothuria (new species? with protrusions coming out of body; photo taken)
Crown-of-thorns (neon green top; scattered on bottom; some Very large)

FISH

Multitude of fishes of all sizes, colors and shapes. One spotted eagle ray and one shark observed.
Moray eels common.
school of juvenile fish (≥100), iridescent pink and orange in color; may have been juvenile anthias'
kahala- amberjack
tinker's butterflyfish
ta'ape- bluestripe snapper
palani spp.
kole- goldring surgeonfish
red and white checkered wrasse; stayed closely to sandy bottom (seen many of these)

Butaguchi spp. –thick-lipped jack
omilu- bluefin trevally
possible knifejaw (?)- dark metallic silver in color, robust squarish/rectangular body, distinct forehead and beak-like snout
Heniochus spp.- Pennant Butterflyfish
Opakapaka- type of snapper
Moorish Idols
Flagtail Tilefish- white body with black stripe on tail (horizontal); elongate body like a dartfish
Crown toby- juvenile
Bodianus (sp?)- female Hawaiian Hogfish
Various butterflyfish
Many juvenile fishes
C. jactator- White-spotted toby

BRYZOANS
Small colonial bryozoans fan-shaped. Some bright white, others pink/red in color.

CNIDARIA
Fungia coral
Plate coral-brown in color small in size (diameter) but of abundance

SPONGES
Many different shapes, sizes, and colors. Varying from red, orange, yellow, beige/white, and possible lavender/purple. Most of them were encrusting, some in bulk/clump.

STROMATOPODS
There were many mantis shrimps crawling across sandy bottom floor. Colors were mostly of sandy beige/yellow, and lengths possibly 6 inches.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:
Second PAM malfunctioned and was retrieved.
First Niskin bottle came up with a broken nipple and thus no water sample.

Recommendations for corrective action or improvement:
Replace Niskin, and orient nipple so that it doesn't face outward, vulnerable to bumping
Repair PAM, check for leak sites. Lanyard (rope handle) needs to be positioned so Logger can sit up right (not taped to the side); Sensor clip mechanism needs a more tighter grip so clamping of algae more sufficient.

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

YES

List specimens or samples collected on the mission.

Halimeda sp. 1 (wider and softer segments with stupose holdfast)
Halimeda sp. 2 (smaller and harder segments with multiple attachment sites)
Halymenia sp. (red blades)
Ulva expansa ollive green and firm blades
Ulva sp. grass green, flexible blades
Delesseriaceae red blade
Filamentous green algae
Filamentous red algae
Spatoglossum
Distromium
Coelarthtum
Cladophora
Phyllodictyon
Dasya
Champia
Dictyopteris
Hypoglossum
Peysonnellia
Diplothamnion
Antithamnion
Amansia
Microdictyon

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 9-30-06 (date) in the following way:

a. CTD data by 9-30-06 (date)

b. video and images by 9-30-06 (date)

c. other Licor Light meter, PAM 9-30-06 (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).

Karla J. McDermid Principal Investigator