HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: PV-575

MISSION STATUS

Location: South side Penguin Bank – Third Finger

Latitude: **20**° 55.9 N **Longitude:** 157° 32.0 W

Mission Date: 9-17-04 **Duration:** **7** hours 30 mins

Maximum Depth: 207m

Project Title: Deep Seaweed Photosynthesis Research

Principal Investigator: Karla McDermid

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Observer 1: John Runcie
Address: University of Technology
Sydney, Australia

Observer 2: Carlos Frederico Gurgel
Address: University of Louisiana
Lafayette, LA, 50704-2451

Pilot 1: Max Cremer **Pilot 2:** none

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

Objectives:

- Collect macroalgal specimens.
- Measure light attenuation with depth.
- Measure ambient light levels (photosynthetically active radiation PAR) at collection sites.
- Measure photosynthetic rate of seaweeds at various depths.

Observations, findings, etc:
Submersible arrived at the bottom at 78.67 meters, at 8:47AM, at 20º56.004' N by 157º 32.039' W. Average light intensity at the bottom = 12.88 µm (upper sensor). Bottom was composed of silt+sand+rhodoliths and rich on Caulerpa mexicana-like algae. Such bottom sediments are very

thin and took a long time to settle after the submersible touched the bottom and suspended it. Other macroalgae seen: Avrainvillea, red blades, several filamentous algae, Halimeda and Padina. John Runcie first PAM reading started 9:35AM on a Halimeda patch (72m deep, 33.62 µm upper, 23.11 µm lower sensor, 20º56.090'N by 157º 32.014' W). Until this time, almost all rhodoliths were covered with filamentous algae. Below 90m deep (@ 10:09AM), Rhodoliths became big boulders (aprox. 30 cm max. width) with sharp edges. Next PAM readings were taken on Ulva-like blades at different depths and different specimens and at deeper sites. Specimens of PAM read algae were collected and put in the jar box. After ten PAM readings the weights set on the PAM sensor got loose and further readings were canceled. The dive took eastward direction and we cruised at 117-107 meters depth range looking for other fleshy macroalgae to collect. At 1:29PM, 20º56.194'N by 157º31.366'W, 107.25 meters, 0.31 µmol (upper sensor) we collected 3 big boulders with different fleshy macroalgae on it, including a bigger Phaeophyta (Spatoglossum-like). At 1:41 PM, 92 m deep at 20º 56.162'N by 157º 31.368'W, bottom became composed of coarser boulders and round greenish "soft corals", about 2 inches in diameter, transparent and thinner in appearance in the middle and opaque and thicker at the borders. Sometimes dark red specimens were around too. Later at shallower depths (e.g. 86 m), the green soft corals almost disappeared and were replaced by only dark red specimens with 90% bottom coverage, intermingled by Ulva-like and Spatoglossum-like big fleshy algal blades. At 2:42PM we were at 20º 55.947'N by 157º 31.133'W, at 139.86m and light at 1.40 µmol (upper sensor); Ulva-like blades spotted. Around 3:00PM we were cruising at south side of the left most third finger of the south side of Penguin Banks to survey the area for macroalgae. We could not collect anymore because the boxes were full and to avoid losing the specimens that were already collected by open the lids and allowing the plants to fly away from the boxes. At 3:27PM, 207.5 m deep, we stopped for position at 20º 55.874'N by 157º 30.821'W; bottom was rocky covered with thin layer of silt/thin calcareous sand; tropical coral fishes were seen. At this region, sharp drop offs and cliffs exist and not algae what so ever. At 3:45pm we stopped at the bottom and started preparations to surface. Light measurements were taken during descent and ascent of the dive. Times cited in this brief description of the dive were taken with my personal wrist watch. Depths reported above did not take in consideration the altitude readings.

Species list:

ALGAE

Anadyomene
Halimeda
Crustose coralline red algae
Red blades
Ulva-like blades
Peysonnellia
Cryptonemia sp.
Rhodymenia
Caldophora?
Distromium
Dictyota
Spatoglossum
Padina
Green filaments
Caulerpa

ECHINODERMS

Black starfish
Purple starfish
Skunk Urchin
Black long spined Urchin

CNIDARIA

long, thin, branched, colorless hydroide colonies
Plate Coral

FISH

Kahala
Yellow trunk fish
Rasse

School of Yellow fish with white stripes
with forked tail
Pennantfish

Blue
Orange

SPONGES

Yellow
Red

MOLLUSCA

Colorful nudibranch

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

List specimens or samples collected on the mission.

Algae

Halimeda
Red crusts
Red blades
Ulva
Peysonnelia
Cryptonemia ?
Distromium
Dictyota
Spatoglossum
Padaina?
Green filaments

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 9-17-04 (date) in the following way:

a. CTD data by 9-17-06 (date)

b. video and images by 9-17-06 (date)

c. other Licor Light meter, PAM 9-17-06 (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).

_____ Principal Investigator