HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: PV-578

MISSION STATUS

Location: Penguin Bank, HI

Latitude: **20**° 58.0 N **Longitude:** 157° 26.2 W

Mission Date: 9-20-04 **Duration:** **7** hours 30 mins

Maximum Depth: 140m

Project Title: Deep Seaweed Photosynthesis Research

Principal Investigator: Karla McDermid

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Observer 1: John Runcie
Address: University of Technology
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Observer 2: Yumi Usui
Address: MS TCBES Program
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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:

First intended dive position was at 20° 58.0 N / 157° 26.2 W, the second finger of the Penguin Bank, Hawaii. The light level changes were measured with a Licor photometer and recorded as we submerged every 5m. We got to the sand bottom at the depth of 109m at the location of 20° 58.0432 N / 157° 26.3178 W. The current at bottom was calm, and water was clear. Some green bladed algae were sampled at this location. A couple of Gilded Triggerfish, Xanthichthys auromarginatus seemed having a burrow on the sandy bottom; an Bandit Angelfish, Desmoholacanthus arcuatus swam together with them. While proceeding down the steep slope (about 60°) toward SW (124m depth), the substratum became solid lava platform about 20% covered with sand. Many schooling fishes appeared (see species list). We started contouring on the very steep slope (about 80°) at the depth of 140m toward W, at the location of 20° 58.0291 N / 157° 26.5144 W. Looked for Halimida and/or green bladed algae, but we could not find any. At the depth of 138m, we found green bladed algae (looked like Anadyomene) and epilithic red calcified algae on the lava rocks on the slope. Photosynthetic activity of the algae was measured by PAM at this location, 20° 58.0450 N / 157° 26.5144 W. Collection of both algae were made at the location of 20° 58.0444 N / 157° 26.5017 W, at the depth of 136m. While the observation and collection of the algae were performed, a small hermit crab and many different fish swam by (see the species list). We proceeded up slope to the depth of 120m, and at the depth of 119m we headed to SE to look for some Halimeda. The sea floor became more basalt, and fish abundance decreased. At the location of 20° 58.0273 N / 157° 26.3545 W, we started going up slope to the NE, got to the flat sand bank top at 103m. Many sea cucumbers. Found a Halimida patch at the depth of 99m, at 20° 58.0652 N / 157° 26.2817 W, PAM observations and algae collections (Halimeda and red forked algae) were performed. While we were making observations / collections algae, 4 gray reef sharks, great barracuda were appeared at 100m, 20° 58.1350 N / 157° 26.1269 W. Started proceeding down slope to 120m NE, contouring 122m WNW 20° 58.2891 N / 157° 26.3063 W. Observations and collection samples proceeded on epilithic calcified red algae; rubble and rocky substratum. Then going up slope, back to the plain; big Hawaiian stingray was lying at the bottom at 93m, sharks swam by. Algae were very patchy and sparse. While we made observations and collection of algae at 88m, 20° 58.3942 N / 157° 26.7006 W, 3 bottlenose? dolphins shown and left. At the same location, we emerged at 4:00pm.

Species list:

ALGAE

Red crusts
Ulva
Anadyomene
Halimeda
Peyssonnelia
Cladophora
Anotrichium
Red monostromatic lacerate blade alga
Rhodomenia
Distromium
Codium
Delessericaeae small blades

ECHINODERMS

Starfish (blue)
Urchin
Brissus latecarinatus (test)

Various Sea cucumbers

CRUSTACEAN

Hermit crab (small)

CNIDARIA

Hydroids
Plate corals

SPONGES

Red
Orange
Blue
Black
Yellow
White

CETACEANS

3 Bottlenose Dolphins ?

FISH

Various Gobies
Jacks
Puffer orToby Fish
Boxfish
Eel
Squirrelfish
Damselfish
Wrasses

Butterflyfish
Chaetodon tinkeri
Forcipiger sp.
Hemitaurichthys polylepis
Heniochus diphreutes

Angelfish
Desmoholacanthus arcuatus
Genicanthus personatus

Triggerfish
Xanthichthys auromarginatus

Snnapper
Lutjanus kasmira

Tilefish
Malacanthus brevirostris

Morwong ?
Chaeliodactylus vittatus

Barracuda
Sphyraena barracuda

Stingray
Dasyatis brevis

Shark
Carcharhinus amblyrhynchos

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 (about 30 specimens)

Red crusts
Ulva
Anadyomene
Halimeda
Peyssonnelia
Cladophora
Anotrichium
Red monostromatic lacerate blade alga
Rhodomenia
Delessericaeae small blades

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 9-20-04 (date) in the following way:

a. CTD data by 9-20-06 (date)

b. video and images by 9-20-06 (date)

c. other Licor Light meter, PAM 9-20-06 (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