HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE:

MISSION STATUS

Location: off Diamond Head, Honolulu, Hawaii

Latitude: **21**° 17.222 **Longitude:** 157° 48.599

Mission Date: Oct 22, 2010 **Duration:** **7** hours mins

Maximum Depth: 249m

Project Title: Measuring Animal Metabolism in Hawaiian Bathyal Environments

Principal Investigator: Jeff Drazen

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Department of Oceanography
1000 Pope Rd.
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Phone: 808-956-6567

Observer 1: Jeff Drazen
Address: same as above

Observer 2: William Misa
Address: same as above

Pilot 1: Max Cremer

Pilot 2:

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

Objectives:

1) Capture a diversity of benthic animals and measure their metabolism in the laboratory to estimate energetic demands

   To accomplish this goal and bring the animals back alive we used three techniques
   a) A modified slurp gun with plastic insulated barrel and ball valve to keep cold *in situ* water inside – for crabs, shrimps etc
   b) A modified biobox – thick walled PVC for insulation – to place animals, mostly echinoderms, in after capture with scoops and the manipulator arm
   c) An insulated baited trap – for capture of mobile shrimps, crabs, and fishes

2) Perform submersible transects to measure animal densities so that the metabolism data can be

extrapolated to the ecosystem level

Transects were 15minutes with the HD camera faced forward viewing 3m wide swath of seafloor and observers performing counts from their fields of view

Observations, findings, etc:

The dive occurred over a sandy shallow to moderate slope interrupted by an area of carbonate outcrops with many holes, ledges, and small caves.

4 submersible transects were conducted at depths from 210-240m each along a particular contour. The baited trap was deployed at the edge of the carbonate outcrops. It had little catch (one Conus sp.) but there was a large rip in the bait bag and the trap was knocked over. We suspect a large eel is responsible. This may also have reduced the catch.
The slurp gun plumbing assembly was not glued together well and came apart at the very beginning of the dive. This prevented its use and limited our crustacean collections.
Despite problems, with these sampling approaches we were very successful in gathering samples using the manipulator arm and the scoop (see list below).

Species list:

Abundant (observed more than 5 times)
Red echinometrid (the most abundant animal observed by far)
White echinometrid
Stylocidaris rufa
Odontanthias elizabethae
Plesionika sp.
Suezichthyes notatus
Chromis struhsakeri
Astropecten productus
Pennatula pearceyi
Seriola spp.
Paramunida hawaiiensis
Babamunida nsp1a

Observed a few times
Tamaria sp.
Acanthocidaris hastigera
Roa excelsia
Pontinus macrocephalus
Scorpaena spp.
Pristipomoides zonatus
Epinephelus quernus
Chrionema chryseres
Sympagurus sp.
Octopus
Gymnothorax nuttingi
Histampica cythera
Symphysanodon typus
Fistularia sp

Observed once
Pteraster obesus
Stichopus horrendus
Pseudoanthias fucinus

Sargocentron
Etelis carbunculus
Dasyatus lata
Nototodarus hawaiianensis?
Canthigaster inframacula
Brotula multibarba

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Modified slurp gun plumbing fell apart – science failure not operations
Baited trap was very light in seawater – need to add weights – again science not ops issue

Recommendations for corrective action or improvement:

Slurp gun plumbing solidly welded and bolted
~12 pounds of dive weights added to baited trap

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

Yes the mission was mostly accomplished. We conducted the 4 planned transects. The animal collections were a success. However the failure of the slurp gun prevented us from capturing crabs and shrimps which were part of our plan.

List specimens or samples collected on the mission.

Specimens
Echinoids
(7) red echinometrids
(1) white echinometrid (small)
(1) *Acanthocidaris hastigera*
(2) *Stylocidaris rufa*

Asteroids
(1) *Tamaria* sp.
(1) *Pteraster obesus*

Holothuroids
(1) *Stichopus horrendus*

Crustaceans
(4) unidentified red shrimp – commensal with red echinometrids

Mollusks
(1) *Conus* sp. - gastropod

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

Measuring Animal Metabolism in Hawaiian Bathyal Environments

held on Oct 22, 2010 (date) in the following way:

a. CTD data by immediately (date)

b. video and images by Oct 22, 2012 (date)

c. other Oct 22, 2012 (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