HAWAII UNDERSEA RESEARCH LAB
QUICK LOOK REPORT MISSION NO. 482_____

MISSION STATUS

Location: Kona Hawaii

Mission Date: 12/1/01

Maximum Depth: 1008m

Project Title: Ecological Roles and Faunal Associates of Abundant Hexactinellid Sponges on the Hawaiian slope.

Principal Investigator: Craig M Young

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Observer 1: Sandra Brooke

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Observer 2: Michelle Wood

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

Objectives:

- Deploy an acoustic doppler current meter at a predetermined site within the sponge belt.
- Collection a single sponge for TEM and genetic analysis
- Collect water samples simultaneously from inhalent and exhalent sides of 4 individual *Seriocolophus hawaiicus*, stalked hexactinellid sponges.
- Collect variety of echinoderms for use as voucher specimens.
- Conduct a 30-minute along slope transect within the sponge belt. The start point of the transect is to coincide with the end point of the transect conducted on Dive 481

Techniques

All equipment deployments and specimen collections were made using the PISCES manipulator arms and collection boxes. Water samples were taken from the 4 sponges with devices developed at Harbor Branch Oceanographic Inst., and operated using the submersible manipulator arms. The devices consist of two hollow aluminum arms, 28 cm apart, connected by an aluminum bar. Each arm contains a spring-loaded 5cc syringe and a plunger. The plungers hold the syringes depressed until a central pin is removed and both syringes take a water sample simultaneously.

The arms were positioned so that one syringe was close to, but not touching, the exhalent side of the sponge, and the other arm was in the water column away from the sponge, taking a control sample. The syringes were loaded with a small quantity of paraformaldehyde to fix the water samples in situ. The samples will be analyzed to characterize cell populations, which will enable us to determine what type of cells the sponges are removing from the water column. The transect was recorded using simultaneous Hi 8 and digital cameras supported by the submersible, with 6" laser markers overlaid on the footage for size reference.

Findings

The sponge belt was found to extend North at least as far as the end of the transect (19 38.257N; 156 02.114W). The sponges occur in patches, and are found in areas of thick sediment. Where the sediment is thin and basalt outcropping is the dominant substrate a variety of anemones and soft and hard corals are the dominant fauna. Within the sponge patches, several size classes were observed, indicating succesive recruitment events. Most of the sponges were oriented in such a way that the inhalent surface was facing into the prevailing (downslope) current. Of the several speices of echinoderms were collected, *Gilbertaster anacanthus*, was previously represented by only 5 specimens worldwide. Our collections (2 individuals) therefore significantly added to the existing data base for this species. The sponge was collected for further analysis (TEM and genetic), therefore results will be forthcoming at a future date.

MISSION EVALUATION: Dive___482_____

Limitations, failures, or operational problems noted:

The only failure was the implosion of our current meter, which was unforseen and independent of HURL operations. Due to structural weakness, our water sampling devices tend to bend if not treated gently; the pilot circumvented this problem took all four water samples successfully.

Recommendations for corrective action or improvement:

New current meter and stronger devices!

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

Apart from the current meter failure, the dive was completely successful and very enjoyable.

List specimens or samples collected on the mission.

Gilbertaster anacanthus	(2)
Mediaster oranatus	(1)
Pteraster reticulatus	(1)
Hymenaster pentagonilis	(1)
Henricia sp.	(1)
Seriocolophus hawaiicus	(1)