HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P4-262

MISSION STATUS

Location: Necker Ridge

Latitude: 21° 39.3' N **Longitude: 167** ° 48.8'W

Mission Date: Oct. 19, 2011 **Duration: 8** hours 40 mins

Maximum Depth: 1927 m

Project Title: Biology of the Enigmatic Necker Ridge

Principal Investigator: Amy Baco-Taylor

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Observer 1: Erin Easton
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Observer 2: Diego Figueroa
Address: same

Pilot 1: Max Cremer

Pilot 2:

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

Objectives:
The goal of this series of dives is to compare the hard substrate fauna of Necker Ridge to the fauna of the Hawaiian Archipelago. To address this goal, the objectives on each dive are to complete quantitative video transects and to collect representative specimens of the most abundant species. The specimens will later be identified morphologically and using DNA analyses.

Observations, findings, etc:

The dive started on the northeastern side of the shallowest pinnacle of the Necker Ridge (same feature as Dive 1). Started first transect up slope in a southwest heading. The first half of the transect was mostly hard substrate (looked like a lava flow). There were several stalked sponges, some small bamboo corals (branched and unbranched), antipatharians, and *Iridigorgia* with ophiuroids. The substrate changed to small to medium size rocks with some sediment, similar corals and sponges were found along with

Metallogorgia and anemones. The density of corals increased as we climbed the slope. There were many large sponges, over 1-3 meters, some stalked with distal vase like structures and some without a stalk and an overall bulbous shape. There was very little current. The second transect continued up slope along a southwest heading, we arrived perpendicular to a high ridge feature. As we climbed this feature the density of corals increased drastically as did the size of the corals. The community composition was about the same as before. The dominant species seemed to be 3 kinds of bamboo corals, 1 unbranched, 1 with simple, straight, branching, and 1 with a more complex branching structure. All 3 were sampled. After passing this feature the seafloor dropped about 50 meters and we lost sight of the bottom for a few minutes.

When we reached 1700 meters we contoured at that depth and completed 2 more transects. The substrate and biota differed markedly from the previous two transects. There was a lot of rock rubble of various sizes mixed with sediment. Small yellow crinoids dominated the fauna with some interspersed red stalked crinoids and yellow stalked crinoids. The corals *Metallogorgia*, *Iridigorgia*, and antipatharians were sparsely present. A vertical wall was encountered during the first of these transect. The fauna changed at this wall, the crinoids still dominated but there were also sponges and other corals, including branched and unbranched bamboo corals. The largest crinoids seemed to be ones at the top of tub-like sponges.

After these transects we climbed to 1600 meters. Two more transects were carried along contours of this depth. Some new dominant corals appeared along the first transect, a yellow "*Gerardia*-like" zooanthid and a white scleractinian. Specimens of both were taken. The second transect was mostly along pavement and crinoid dominated again with some *Metallogorgia* and the occasional large sponges. Towards the end of the transect the substrate changed to mostly sediment, the abundance of corals and crinoids decreased, but crinoids were still the dominant taxa. Some large sponges were still present. From here we headed upslope to 1500 meters where we conducted the last 2 transects along contours at that depth. During these transects we observed representatives of all the corals, sponges, and crinoids that we had noted from the rest of the dive. The only new fauna that we observed at this depth were some purple *Antothela* and a pinkish chrysogorgiid. Specimens of both were also collected.

Species list:
See above and below.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

A spring from the opening mechanism for the hatch broke when we were descending. We heard the noise but were not aware of what the problem was at that time. When we surfaced and were brought on deck, we could not fully open the hatch. The hatch was opened with assistance from the outside.

Recommendations for corrective action or improvement:

The broken part was replaced and the hatch has returned to normal operation.

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

The main mission for this dive was to complete at least 5 transect and to collect representatives of the dominant fauna and anything "new" that had not been collected in previous dives. All three of this objectives were accomplished, a total of 8 transects were done, and representatives of the dominant fauna were collected throughout the dive, including some specimens that had not been collected in previous dives.

List specimens or samples collected on the mission.

8- 15-min Video Transects

1 unbranched bamboo
1 fan-like branched bamboo
1 bifurcating branched bamboo
1 stalked yellow crinoid
1 yellow zoanthid (*Gerardia*-like)
1 small *Chrysogorgia* with pink polyps
1 white sclerectinian
1 *Antothela*
1 piece of a large stalked sponge
1 zoanthid overgrowing a primnoid
1 antipatharian
1 *Iridigorgia*
1 hydroid
1 Primnoid
1 barnacle
1 small sponge on rock
1 crinoid
Several ophiuroids

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) : Biology of the Enigmatic Necker Ridge

a. CTD data by Oct. 29, 2013 (date)

b. video and images by Oct. 29, 2013 (date)

c. other Oct. 29, 2013 (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).

Amy Baco-Taylor Principal Investigator