HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT (QLR) for *Pisces* and *RCV-150*

DIVE: ___P5-749_____

(*Extend length of sections as needed/appropriate*)

MISSION STATUS

Location: __Penguin Banks 3-fingers region_____

Latitude: _21__° _00.0' N__ **Longitude:** _157_° _21.7' W_

Mission Date: **__19-Oct-2010_____** **Duration:** **__3__** hours **_49_** mins

Maximum Depth: ____280_____ meters

Project Title: __ The Glacial Sea Level Lowstand Shoreline In the Hawaiian Archipelago _

Principal Investigator: __Fletcher-Rubin_____

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Phone: __808-946-5434 (Rubin)_____

Observer 1: __Rubin_____ **Observer 2:** ___Fletcher_____

Address: ____(see above)_____ **Address:** ____(see above)_____

_____ _____

_____ _____

Pilot 1: ___Max Kremer_____ **Pilot 2:** _____

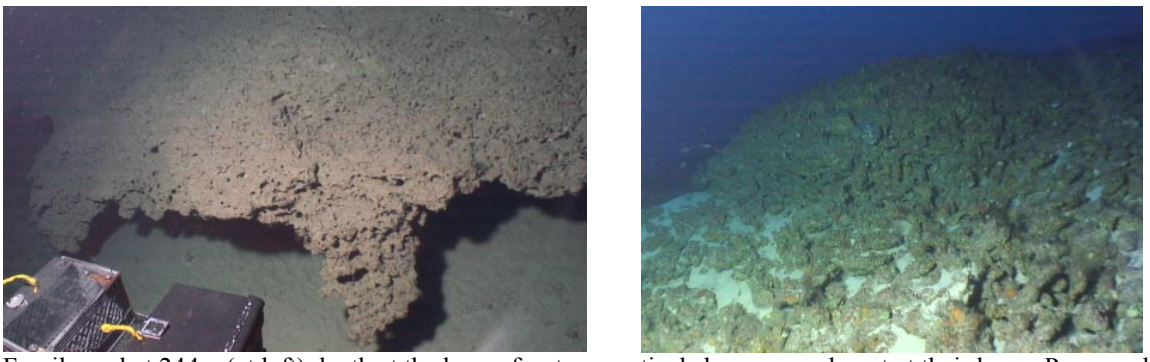
Scientific Data Acquired: Prepare an abstract outlining your objectives, techniques, findings, etc.

Objectives:

To find and date shoreline features, primarily coral reefs, associated with the last glacial maximum, ca. 20,000 yrs BP in order to constrain the age and depth of sea level at the last ice age. We anticipate sampling corals and other carbonate materials that serve as sea-level position indicators known to grow within definable limits of their contemporaneous sea-level position. These might include shallow coral species, beach rock, coralline algae, mollusks, etc. Bathymetric maps of the region indicate the presence of shelves, walls and other large-scale features that are likely to host potential sample targets.

Observations, findings, etc:

Good outcrops of well-preserved reef rock were observed at the target sites and anticipated depths, and high quality *in situ* samples were recovered. A deep fossil reef complex of uncertain age was observed and samples at ca 240 m depth on a small seamount near the launch site. Similar outcrops of uncertain age were sampled at 180-190 m on the slope of the main topographic target of the dive, followed by another discontinuous series of outcrops starting at 164 m depth moving upslope, becoming more continuous from 150m up to 130m depth. Multiple samples of fossil corals still sitting in clear growth position were taken at 136m depth. We expect the latter, and perhaps some of the samples reaching down to 150m to be from the Last Glacial Maximum, based on observations we made in 2006 at a nearby site and subsequent radiometric dating of the recovered samples. The main difference on the current dive is the greater depth range, more extensive coverage, and apparently better preserved nature of fossil corals at the target depth.



Fossil coral at 244m (at left) depth at the base of a steep vertical slope are undercut at their base. Presumed LGM fossil coral head, ~1m tall, at 136m depth (at right). Samples were recovered at both outcrops. Images are frame grabs from the high-def. video obtained during the dive.

Observed Species list:

Various bottom fish, sea whips, algae, and corals.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

None, other than a short dive duration due to transit on the same day.

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:

Accomplishments matched expectations. The dive covered a reasonable bit of ground and depth range, despite only 3+ hrs of bottom time. Limited bottom currents helped in this regard. The sub and pilot performed admirably.

List specimens or samples collected on the mission:

11 samples of coral/carbonate reef rock, numbered P5-749-1 through P5-749-11

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):

The Glacial Sea Level Lowstand Shoreline in the Hawaiian Archipelago

Held on __10/18/2012_____ (date) in the following way:

a. CTD data by _____ (date)

b. Video and images by __10/18/2012_____ (date)

c. Other _10/18/2012_____ (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
Ken Rubin, for Chip Fletcher

(note: co-PI Rubin is the point-of-contact for the project while Fletcher is a SOEST Associate Dean)