HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: Pisces V 699

MISSION STATUS

Location: Brooks Bank (south eastern)

Latitude: 45° 58.86 **Longitude:** 166° 45.37

Mission Date: Nov 11, 2007 **Duration:** 8 hours 15 mins

Maximum Depth: 650 m

Project Title: Paleoceanography in deep-sea corals

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

Objectives:

Dive plan: Drop-site is at approximately 660m at a location scoped out using RCV-150. Drop site is a coarse sediment terrain with numerous (carbonate) boulders with large numbers of sponges and *Enallopsammia rostrata* corals. We will then transect approximately due east towards shallower water. Goal is to recover a series of deep-sea corals (scleractinia, gorgonacea, primnoids) from a depth transect. The specimens will be used to reconstruct past nutrient (biogeochemical) dynamics in the surface waters (for those organisms closely tied to POC export) and, for the scleractinia and the carbonate portion of the gorgonacea, pirnnoids, past ventilation.

Observations, findings, etc:

0859: 644m - Coarse nodular sediment, with small (1-2m) boulders. No to gentle slope. Coarse debris is set into macro (meter scale) undulating topography. Boulders are tan, weathered carbonate with little to no dark manganese coating. Poliopogon (probably sp 3) is dominant. Orientation of the curve of sponge is usually common to all (concave feature points to the south **CHECK THIS**). This depth/habitat seems ideal for these spongs. Noticeably absent larger macroinvertebrates (urchins, stars, anemones, hydroids, etc) and primnoids Yellow morph *Enallopsammia rostrata* (Dendrophyllidae) are abundant but are in patchy distribution (not every suite of boulders have them). When on top of boulders or flat ledges *Enallopsammia rostrata* fans seem to be aligned in the same direction. Fans are aligned approximately east west (**DOUBLE CHECK**)

1012: 646m. Similar to 644m, but with frequent small handsized rocks. Debris seems remarkably free of (Enallopsammia) or other coral droppings. Mercurid type fishes are uncommon but observed.

1026: 639m. Numerous dead but still attached *in situ Enallopsammia rostrata* – on average probably 50/50 (live:dead) but can swing from 40/60 to 60/40. Some larger intact subfossil *Enallopsammia rostrata* lying on coarse pavement. Sediment is still remarkably free of small dendro finger bones.

1049: 633m. Numerous dead *Enallopsammia rostrata*, First appearance of Antipatharian – (Leiopathes spp ?) Stalked sponges

1058: 622m - much more rocky/boulderous terraine. Small pockets of sand in between boulders. Still Poliopogon and *Enallopsammia rostrata* dominated.

1101: 617m Apparent change in amount of mangangese coating on carbonate (surfaces are richer and darker). Rocky outcrops seem more angular rougher and less rounded. This outcrop feature rises ~10m with at least 2 channels or fissures that contains abundant skeletal (carbonate) debris and sand. Very abundant *Enallopsammia rostrata* – 100s (live and dead).

1119: 610m Very impressive mound or berm of skeletal debris - “dendro” finger bones. Berm has up to 1 m vertical, strike is more or less 110°. After crossing berm back to coarse debris w. boulders and rocks. Transitting east, depth drops down to ~615m. Is the outcrop that the berm sits on a linear feature or just a collection of rocks? After the berm the color of the rocks seems to have gone back to the tan/brown carbonate not darker manganese coated.

1126: 614m First thalloid (whitish to pale blue feathery primnoid/black coral). *Enallopsammia rostrata* still very abundant. Poliopogon thinning out. Sediment is still mainly coarse nodular (carbonate) rocks – small patches of coarse sand in between boulders.

1132: 606m. Rock strewn field, numerous (10s to 100s) *Enallopsammia rostrata* – live and in situ dead. Then back into coarse debris followed by another rock strewn field with numeroud *Enallopsammia rostrata*. Still the odd Poliopogon but not abundant. Random (but not abundant) mercurid type and other fishes.

1141: 586m – Antipitharia (2)

1142: 581m – encrusting ribbon spones (first noticed), larger sponge w. lounging starfish. *Enallopsammia rostrata* sparse given the number of good rocks.

1148: 580m First appearance of pink/reddish *Enallopsammia rostrata* color morph.

1158: slimed by a squid.

1200: 570m – first good sized Primnoa (Callogorgia ?). Dead in situ *Enallopsammia rostrata* outnumbers live. Overall abundance seems down.

1203: 563m - Finer 'finger bone' *Enallopsammia rostrata* w. purple coloration.

1212: 563m – small orange octopus hiding under a C. regale (first appearance)

1224: 557m – starting to see larger Corallium fans, a bit more diverse macroinvertebrate fauna: Histocidaris, Paraloma, stars. Fossil bamboo in situ on rocks (cut off a few nodes above basal attachment)

1226: 557m Is there an orange morph to the Corallium? Based upon comparison w. RCV 396, the 'ratty' coral of C. Kelly seems more like dead in situ C. regale and not *Enallopsammia rostrata*.

1252: 552. squalus shark swims through. First Paragorgia sp 1

1253: 548 – much more rugged relief for a little bit and then back into scatterebоulders on gently inclined slope. Is this a ledge or other longer feature?

1258: 543m – C. regale on a rock – note that most of each colony has bleached- upper branches, and discolored where it should be bright red. (ignore dead/sub fossil C. regale).

1325: 524m – Anthomastus (fisheri), antipitharian, histocidicis, primnoa and more in situ fossil bamboo stalks.

1333: 517m – Increase in density of Corallium – mainly on rocks. Coarse pebbly hardground does not have much of anything on it.

1341: 500m – perhaps more abundant Paragorgia sp1

1346: 480m – A happy place for Corallium on carbonate ledges and blocks. Puckered up anthomastus (fisheri)

1405-1407: 473-471m morphologic and textural change to sub-bottom hardground of darker current swept, sheet-like surface, just before going over the edge of the ledge into a gully or channel. Channel has some sand in it, but seems to be more coarse pebbly material.

1419: channel wall/cliff 464m to top at 455m. Gerardia hanging on side of wall. Lipped vase sponges, corallium, paragorgi (sp1), bathypathese, Tabular carbonate sheets make up the wall of the gully or channel

1429: 448m carbonate blocks/rocks, twisted pipe clean coral (primnoid?), fewer scattered Corallium, Gerardia, and small vase sponges.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Titan would not turn on.

Recommendations for corrective action or improvement:

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

Yes we met the objectives. A useable Titan would have made sample collecting easier and we would have had more selection – Hyco does not have the same range of motion and dexterity.

List specimens or samples collected on the mission.

Dendrophyllidae: *Enallopsammia rostrata: Live: 3 Dead: 7*

Corallium: *Corallium regale: Live: 2 Dead: 2*

Isididae: Probably *Keratoisis: Dead: 4*

Gerardia spp: Live: 1 Dead 4

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_____(date) in the following way:

a. CTD data by_____(date)

b. video and images by_____(date)

c. other_____(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