HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: Pisces V 693

MISSION STATUS

Location: East French Frigate Shoals

Latitude: **23**° 59.15 **Longitude:** 165° 29.82

Mission Date: Nov 6, 2007 **Duration:** 8hours 8mins

Maximum Depth: 1064m

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 1050m on the north side of the eastward extended plateau at French Frigate Shoals. Based upon existing bathymetric surveys, we will start our expedition at the bottom edge of a canyon where it flares out. We will proceed south by south-east along the edge/wall of the canyon. If the canyon is sediment rich, we will follow the same general track but up on the canyon rim looking for specimens. 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:

Touch down location 1064m fine sand with wave formed ripples trending down the canyon. Exposed carbonate hardground. Hardground is tan, weathered, and pitted with dissolution features. Moving up slope to the S/SE came across small ridge or gully like features – again of carbonate hardground w. manganese coating. These ridge-like features had a vertical relief of several meters. Fine sediment on top and along edges (sides). The odd broken tabular block. Frequent shrimp and small eely fishes (possibly Gnathophis sp based on green glints), and eel-like fishes (possibly Bathygadidae) on the bottom of the canyon. On the edges of the channel wall, anemones, and small glass sponges are dominant, but NOT frequent.

0935: 1047m - columnar glass sponge, sort of shaped like a 4x4. No open cavity at top – large pores or openings. ~1m in height. On edge of gully – carbonate hardground

0939: smaller glass sponge, perhaps vase shaped

0941: 1047m: Chimera and purple people eater holothurian (Paelopatides)

sediment is not featureless, critter tracks and small burrows, in addition to wave/ripple forms. Notice by their absence: crabs, urchins.

0946: 1043m venus fly trap anenome (Hormathiidae possibly sp5) and red/tan anenome on edge of tabular block

0949: 1038m – example of more complicated wave form features. Lower in the canyon, waves were all trending perpendicular to canyon and were continuous linear features. Now sets of wave features that (?) imply flow both up and down channel, or faster flow (foresets and topsets).

0951: 1034m larger eel-like fish, more fishlike - head larger, less eel-like, pectoral fins are pronounced – possibly Ijimaia sp ?

0952: 1032m another larger eel-like fish, another Ijimaia sp although can't see any pectoral fins – or this could be the same one, and attracted to the lights.

0954: 1026m going over a few carbonate blocks, possibly the edge of a linear ridge – yes this is what it seems – channel guide w. 1-3m worth of vertical

0959: 1017 – 1018m: anemones (6 or so) on a carbonate hardground nob.

1001: 1018m anemones (12) red w. white tips, 15-20 cm in diameter.

1012: 1015m – Sladenia and toadstool hydrozoan (Anthomastus fisheri or "red") on a rock outcrop. Some sort of shrimp took off just as we came in.

1013: 1013m – just as leaving the sladenia, larger eel-like fish came into view, distinct pectorals, solid fish-like head. Perhaps another Ijimaia sp.

rounded carbonate boulders (bus sized or thereabouts). Sediment in nooks and crannies.

1018: 1010m – Red venus fly-trap anemone (Hormathiidae possibly sp5) and two other anenome on an outcrop block. One anenome – orange base yellow base and fleshy pink tentacles (Actinostolid?) by itself, other anenome red.

random anemones and purple people eater holothurians (Paelopatides) in the sand channel, plus shrimp, eels and eel-like fishes.

1026: 997 Primnoid (Callogorgia) w. ophioroides in the superstructure.

1034: 980m – flying (swimming) purple people eater holothurian (Paelopatides)

1038: 961m - Chimera at the base of carbonate steps or ledges approx 10m worth of vertical.

fewer eels, eel-like fishes and shrimp between ~950 and ~850m. Sediment still has critter tracks, burrows, and mounds.

1041: 944m Hormathiidae on a ledge – series of stepped back ledges in carbonate hardground again about 10m worth of total vertical to next flat.

Shallow sloping channel, lightly covered w. fine sediment w. linear wave-ripple features. Starting to get into more variable topography (channel cuts, ledges/steps)

1049: 890m - Phoromosoma urchin – purple fleshy bladders on dorsal surface. These and the purple people eaters were somewhat common over the next 50-100 depth.

1120: 850m – following edge of channel upslope. Still a light coating of fine (carbonate) sediment, channel down about 10-15m. Top of ledge also has sediment and ripple features..

1158: 690m squalus shark.

1200: 670m – sediment coarser than below. Carbonate hardground has a much richer, darker manganese coating – almost black.

1214: 644m - exposed hydroid on a mangangese encrusted rock. Hydroid is centimeters wide w 5-10cm stalk.

New erosional texture – sheet-like carbonate manganese encrusted hardground w. dissolution features. Sediment trapped in pockets, cracks.

1219: 623m large – 2 meter or more long Bathypathese.

1225: 605m large (1m or more long) Ijiama sp ?

1243: 587m - “fin and fluke” dissolved features. Brisingia panopola frequent if not common

1245 – slimed by a squid.

1252: 548m – manganese encrusted carbonate hardground – undulating hummocky sheet. Will begin contouring ~550m to the east along a vertical relief feature of a few meters (observed during ROV the night before). Strong east current – we’ll be flying.

1305: 548 – large rat tail drifts through while we were finishing up housekeeping.

1328: 552m – basket star, thin (ie., not overly fleshy) long arms w. small central disk

1332: 551m Stereocidaris urchin and a crab (probably Cyrtomaia)

1414: 553.m E. cookei

1426: 554m one “big damn rat-tail” (Caelorinchus probably tokiensis)

1431: 555m Histocidaris, and a squalus in background.

Now heading upslope, due south

1515: 500m - Stingray – no clear tailshot. Either Dasyatis or Plesiobatis – probably Plesiobatis.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Pressure sensor on CTD went stupid at about 600db during descent. At about 600db, it jumped back up to ~560db and maintained an offset through the rest of the dive.

Titan would not operate

Recommendations for corrective action or improvement:

Replace pressure sensor.

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

Great geo-forms and sediment structures. Lots of fish. Not many deep-sea corals.

List specimens or samples collected on the mission.

1. One fossil (dead) scleractinia, did not survive basket.
2. Corallium spp (not whole colony, live)

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