HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P5-695

MISSION STATUS

Location: North French Frigate Shoals Seamount, NWHI

Latitude: 24° 15.0128 **Longitude:** 166° 4.3524

Mission Date: 11/6/07 **Duration:** 8 hours 10 mins

Maximum Depth: 1290 m

Project Title: Megafauna of Deep Seamounts and Ridges in the NWHI Monument

Principal Investigator: Christopher Kelley

Address: HURL

Phone: 808-956-7437

Observer 1: Christopher Kelley
Address: HURL

Observer 2: Jane Culp
Address: HURL

Pilot 1: Max Cremer

Pilot 2:

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

Objectives: The goal of this project is to census fish and invertebrate species in two under-surveyed but potentially high diversity habitat types: submarine ridges and seamounts, found inside the monument with the bathyal zone of 200-2000 m. The three ridge dives were conducted earlier in the cruise. This dive was the first to be conducted on our second study site, an un-named seamount located 25 miles north of French Frigate Shoals. HURL operations director, Terry Kerby, and the PIs of this project (Kelley and Smith) conducted a single exploratory dive (P5-464) on its north flank in 2001. The area covered during the dive was only a small strip of less than 1 km extending between 1100 and 1400 m. However, from that quick look, it was clear that this seamount is of consider geologic and biologic interest. The bedrock was coated in a thick manganese crust upon which a variety of cnidarians, sponges, echinoderms, crustaceans, and fishes were found. Similar to the ridge site, three submersible dives and up to six ROV dives were planned for the survey. For each submersible dive, a 200m wide by 3,000-4,000 m long sampling area will be selected that extends down from the top of the summit. Each dive will start at the bottom of the sampling area and end at the summit. The observers will attempt to identify and count all fish and invertebrates encountered. Two digital camera systems will record video as well as the audio records from each of the observers. A laser scale mounted on one of the cameras will provide the means by which to obtain size data. Specimens of unusual species that are potentially new to science will be collected for laboratory identification.

Aside from one narrow swath, this feature had not been previously mapped with multibeam sonar. Per our proposed plan, we arrived on the seamount the evening of 11/5/07 and conducted multibeam mapping operations until early morning. While the data could not be fully processed before the dive, co-PI Smith was able to provide a good working image that we were able to use to select the dive site. His data showed that there were two high points on the summit. This particular dive targeted one of the high points and began on the southwest flank at a depth of approximately 1,300 m.

Observations, findings, etc:

We were able to complete the entire 4,000 m long survey to the summit. Unlike the ridge site, no distinct pillow lavas were observed. Between 1300 m and 950 m, the substrate ranged between rippled sediment deposits, cobbles boulders, and large blocks of presumed manganese coated basalt. The amount of sediment was greater than any of the ridge dives and was possibly responsible for a greater number fish observed. At 950 m, there was clearly a change from manganese coated rock to a mix of non-coated to coated carbonate deposits. Samples were taken and the uncoated piece appeared to be either disintegrating carbonate and/or consolidated sediment. Further upslope near the summit at 700 m, an extensive "coral graveyard" was encountered. A sample of the smaller dead branches was obtained and identified as scleractinian, tentatively Madrepora sp. This graveyard and the sand associated with the branches that had already disintegrated may be the source of at least some of the sediment and possibly consolidated sediment observed further down the slope. When we reached the summit, the substrate consisted primarily of manganese coated boulders and flat plates, one of which was sampled. The predominant cnidarians observed on the flank were several species of primnoids whereas actinostolid anemones and corallimorpharians dominated the summit. Sponges were present on both with the dominant type being an unidentified chondelasmatinid. Surprising to us was the lack of antipatharians, isidids (only a couple of individuals counted), and corallids. We did not find any extensive beds of live corals during the dive.

Species list:

Fishes: Lamprogrammus brunswegii, Aldrovandria phalacra, bathygadid sp, Synaphobranchus affinis, unidentified small fish, Sladenia remiger, Luciobrotula bartschi, Bathygadus bowersi?, Antimora microlepis?, small white eel-like with black head, Coryphaenoides sp 1 white, Coryphaenoides longicirrhus, Ventrofossa atherodon, Bathypterois atricolor, Centroscyllium nigrum, Apristurus sp, Bathyuroconger vicinus, Nezumia sp 2?, Cetonurus sp?, Coryphaenoides marginatus, Bathycongrus guttulatus, Pycnocraspedum armatum, Hydrolagus purpurescens

Echinoderms: Novodinia sp?, Henricia robusta, Henricia pauperrima, Neridaster bowersi, Pteraster reticulatus, Hymenaster pentagonalis, Zoroaster spinulosus, Gilbertaster sp?, Comatulid brown?, Atelocrinus conifer?, Araeosoma sp, Micropyga tuberculata?, Aspidodiadema hawaiiensis, unidentified long-spined urchin, Pseudostichopus propinquus, Bathyplotes patagiatus, Astroschema sp, ophiacanthid star

Arthropods: Homeryon asper, homolid?, Aristeus semidentatus, Benthesicymus laciniatus, Nematocarcinus tenuispina, Acanthopyra sp, Plesiopenaeus edwardsianus, galatheid

Cnidarians: Actinoscyphia sp, actinostolid tan, hormathiid, Corallimorphus sp, anemone brown, cerianthid tan, Anthomastus fisheri, Kophobelemnon sp?, Calibelemnon sp?, Lepidisis red, isidid, new gorgonian metallic gold fan, Chrysogorgia geniculata, Iridogorgia megaspiralis, Iridogorgia new, Paramuriceid gold?, Narella nuttingi, Calyptrophora agassizii, Calyptrophora sp, Narella sp, Corallium abyssale, Narella megalepis, Narella bowersi?, Metallogorgia melanotrichos, Candidella gigantea?, Lituaria sp, Halipterus willemoesi, Umbellula carpenteri, Enallopsammia rostrata

Sponges: chonelasmatinid new?, hexactinellid lip, Farrea sp 1, hexactinellid massive stalk, Saccocalyx sp? and/or Corynonema sp?, Walteria flemmingi, Basthydorus sp, Bolosoma sp 1, Sericolophus hawaiicus, Endorete sp, Caulophacus sp 3?, Farrea occa, Trachoramorpha sp, Poliopogon sp 2, Poliopogon sp 2, Semperella schultzi,

Other: unknown "retracted anemone" like animal

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

None.

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.

Yes.

List specimens or samples collected on the mission.

5 rock specimens: two taken at the deepest point of the dive, 2 taken at the basalt/carbonate interface, and 1 large manganese coated plate taken at the summit.

1 sponge (hexactinellid lip)

1 primnoid (Narella or Calyptrophora sp)

1 unidentified golden metallic gorgonian fan

Assorted ophiuroids and galatheid crabs found on the gorgonian fan

Assorted dead coral fragments

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 P5-695 (Megafauna of Deep Seamounts and Ridges in the NWHI Monument)

held on 11/7/07 (date) in the following way:

a. CTD data by 11/7/09 (date)

b. video and images by 11/7/09 (date)

c. other 11/7/09 (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