HAWAI'I UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT
DIVE: P5-688

MISSION STATUS

Location: West Twin Bank, NWHI

Latitude: 23° 01.199 **Longitude:** 163° 09.324

Mission Date: 10/30/07 **Duration:** 7 hours mins

Maximum Depth: 1755 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: seamounts and submarine ridges, found inside the monument with the bathyal zone of 200-2000 m. The first study site is a submarine ridge extending south of West Twin Bank. The ridge is a suspected volcanic rift zone that was revealed by a single multibeam sonar swath acquired in 2003. The 800-1800 m portion of the feature was covered in the swath. Three submersible dives and up to six ROV dives will be conducted to census this site. Submersible dives will target the 1400-1800 m depth range while the ROV dives will target the 400-800 m range. During each submersible dive, a 200m wide by 3000 m long area will be surveyed at 1) the top of the ridge, 2) the west slope of the ridge, and 3) the east slope of the ridge. All fish and invertebrates observed will be identified and counted by the two observers. 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. Each day after the submersible is recovered, the ROV will be used to conduct 1-2 video transects. Observers in the ROV control room will make initial identifications of fish and invertebrates during the dives. Following these dives, the seabeam multibeam sonar system will be used to complete as much of the mapping of the ridge and surrounding features as possible.

Observations, findings, etc:

Contrary to our expectations of a solid substrate along the ridge top, we were surprised to find primarily rounded talus interspersed with occasional pillow lava formations from 1755-1504 m. Also, contrary to our expectations of rich coral and sponge beds, we found relatively few fishes, sponges, corals, and other invertebrates, possibly due to the loose nature of this substrate that may make it unsuitable for animals that require a stable attachment site. One small bed of dense corals and sponges was encountered at a relatively flat and solid location between 1500-1550 m.

Species list:

Fishes: Coryphaenoides longicirrhus, macrourid sp, Synaphobranchus affinis, S. brevidorsalis?, Hydrolagus purpurescens, Aldravandria phalacra

Echinoderms: Mesothuria sp?, ophiuroids, Ophiacanthid star?, diadematid white, unknown brissingid-like seastar living under rocks with very curled arms, Ptilocrinus sp yellow, Proisocrinus ruberrimus, comatulid brown, Antedon yellow (which probably is wrong), Henricia robusta, Circeaster sp?, Hymenodiscus sp, Hymenaster pentagonalis?, Asthenactus papyraceus, New large seastar,

Arthropods: Homeryon asper, lithodid?, chirostylid, Endeis sp, Acanthophyra sp, mycid, red shrimp

Cnidarians: Trissopathes pseudotristicha? Or Stauropathes sp?, Anthothelia nuttingi, Umbellula carpenteri, Halipterus willemoesi, Pennatula inflata, Calibelemnon-like, Anthoptilum sp?, Actinoscyphia sp 3, hormathiid 5 (at least 1 record), hormathiid 1?, Corallimorphus sp, Trachymedusae, cerianthid?, Umbellapathes sp, Bathypathes alternata, Isidella lyrate spp, Iridogorgia bella, I. megaspiralis, Chrysogorgia stellata, C. geniculata, C. new sp., Anthomastus sp, Corallium sp big pink (new according to Amy), Paragorgia yellow?, Lepidisis sp red, isidiid fork, Metallogorgia melanotrichos (branched and unbranched), Acanella weberi, Candidella gigantea, Keratoisis grandis, Keratoisis flabellum, Plumerella sp

Sponges: Semperella sp 1, Pheronematid sp 2, or Semperella sp 1, or Poliopogon sp 1, 2, and 4, Trichasterina sp1?, tethyid knob, Walteria flemingi, Walteria sp 1 and 3, Poliopogon sp 1, Caulophacus sp 3, Endorete sp, chonelasmatinid leaf, Bolosoma sp 1 and 2, hexactinellid unknown, farreid, Farrea occa, Farrea sp hairy, Bathydorus sp?, Semperella schultzi, Ferrea sp 2

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

1) Titan Manipulator failed at beginning of the dive limiting the amount of specimen collecting that could be accomplished
2) Battery in digital tape deck went dead and there were no spares
3) Trim tank problem led to the dive being aborted early

Recommendations for corrective action or improvement:

1) Manipulator was dehumidified and seemed to be working after the dive
2) Battery will be recharged and extras will be loaded in the sub
3) Trim tank problem seems to have been corrected

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

Yes. While we completed only about 2/3 of the planned survey, we covered enough area to determine that the biological resources on the ridge were significantly less than those found on the South Pioneer ridge in 2003. This could have been substrate-related since talus is likely a poor substrate for these organisms. Therefore, it cannot be assumed that all of ridge features in the monument will have a dense community of corals and sponges. We also determined that the distributions of corals and sponges are not uniform. There was a noticeable increase in densities between 1500-1550 m which may be associated with a decrease in talus and increase in bedrock observed in that area.

List specimens or samples collected on the mission.

2 rock specimens, both rounded talus.

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 P5-688 (Megafauna of Deep Seamounts and Ridges in the NWHI Monument)

held on 10/30/07 (date) in the following way:

a. CTD data by 10/30/09 (date)

b. video and images by 10/30/09 (date)

c. other 10/30/09 (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