HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P5-463

MISSION STATUS

Location: West St. Rogatien Bank, NWHI

Mission Date: 9/18/01

Maximum Depth: 389 meters

Project Title: The Impact of Bottomfishing on the Raita and West St. Rogatien RPAs in the NWHI Coral Reef Ecosystem Reserve: Initial Survey and Identification of Study Sites

Principal Investigator: Alexander Malahoff/Christopher Kelley

Address: Hawaii Undersea Research Laboratory

Phone: 956-6802/956-7437

Observer 1: Jane Culp **Observer 2:** Robert Moffitt

Address: HURL **Address:** NMFS

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

Objectives

The primary objective of this mission was to identify a long term study site on the south west side of West St Rogatien Bank to assess the impacts of commercial bottomfishing on the bank's coral reef ecosystem. The secondary objectives were:

1) To obtain a baseline estimate of the number and types of bottomfish species present at the site.

2) To obtain a baseline estimate of other species of fish and invertebrate species present at the site that might be impacted by bottomfishing.

3) To obtain a baseline estimate of the amount of bottomfishing debris (i.e. fishing line, weights, anchors, anchor lines, miscellaneous trash, etc.) on the site.

Techniques

The GPS coordinates for the dive had been provided by a commercial fisherman prior to the mission. To locate the exact depth to establish a long- term study site, the Pisces V initially descended to 389 m and conducted an upslope transect to 112 m. Based on fish and habitat observations, the submersible descended from 112 m to 133 m and conducted one 30 minute contour transect. At the end of the transect, the submersible descended to 251 m and conducted two 30 minute transects, one to the east and the other returning to the west. A bait station was conducted at this depth at the end of the transect in good bottomfish habitat. Following the transect the submersible continued to the west along the 250 contour to the end of the carbonate bottomfish habitat. The submersible then traveled upslope to 203 m and conducted a fourth transect to the east. After the fourth transect the submersible traveled upslope to 136 m and conducted a second bait station. During each transect, the two observers audibly identified and counted all fish and invertebrate species visible through their windows while the pilot made audible observations on the substrate type and characteristics. The video camera was positioned on the slope to make a video record of both animals and substrate types as well. Potential bait station sites were identified during the transects. The submersible then returned to the site and set out two 5 lb bait bags and the bait station marker and size reference (i.e. the bucket crab). The pilot then established a position approximately 10-20 ft from the bucket crab and turned out the lights. A CCD camera was used in addition to the digital and Panasonic cameras to record the fish and invertebrates attracted to the bait. After 30 minutes, the lights were turned on and the marker was recovered. For general habitat characterization, close up images of animals were obtained with the digital camera each time the submersible came to a stop. Furthermore, the submersible's position was recorded at 10 minute intervals during each transect and radioed down to the sub where it was imprinted on the audio portion of the videotape.

Findings

The presence of an anchor with chain, a long length of approx. ½" nylon line, several short segments of lost fishing lines and a few discarded bottles and jars confirmed that the dive location was a bottomfishing site. Few bottomfish specis were observed along any of the transects. Kalekale (30+ individuals) were observed in the 110-130 m range. A few solitary ehu and onaga were observed in the 250-350 m range. The first bait station at 251 m attracted large numbers of onaga (approx. 50 individuals) with a few hapuupuu and kahala. The second bait station attracted large numbers of kahala (approx. 20+ individuals) with a few hapuupuu, kalekale, opakapaka, and uku. With respect to other fish and invertebrate species, the most abundant were *Luzonichthys earlei* (10,000's), *Symphysanodon maunaloae* (1000's), G*rammatonotus sp*, and *Ammodytoides pylei* (1000's), the second and third of which are common on main Hawaiian Island bottomfishing sites and are suspected prey species for onaga and ehu. The

substrate throughout the dive was composed primarily of low to medium relief carbonate outcrops separated with sand dusted carbonate valleys. Of particular interest was an almost complete lack of cnidarians growing on these outcrops. A amall amount of bottomfishing and other man-made debris was observed, including an anchor with chain, a length of nylon line, several short lengths of monofilament line, a few bottles and a jar. The current ran from west to the east and was relatively strong during the third transect and first bait station.

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. The purpose of the mission, to identify a long term study site to assess the impacts of bottomfishing on the north side of the bank, was achieved. The expected work was the following:

1) Conduct an upslope transect from the initial drop depth to 200 meters to identify the target transect depth
2) Conduct four 30 minute transects at the target transect depth.
3) Conduct two 30 minute bait stations at sites identified during the transects
4) If time permitted, collect specimens of selected invertebrates

The four primary tasks were all completed.

List specimens or samples collected on the mission.

One cidarid sea urchin.