HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P4-029

MISSION STATUS

Location: Kaho'olawe South

Mission Date: 11/03/01

Maximum Depth: 303 m

Project Title: Characterization and Assessment of Critical Habitat for Eteline Snappers in the Main Hawaiian Islands

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

Objectives

This study was awarded a total of 12 submersible dives, six of which were conducted in 1998 (i.e. P5-360-P5-366). The original objectives of the study were to 1) to characterize and compare the biological and physical aspects of pinnacle and wall habitats for onaga and ehu, and 2) to assess the numbers and sizes of onaga, ehu, and other important species of bottom fish in these habitats. The first objective was associated with the following 2 hypotheses:

Hypothesis 1) tops and bases of vertically oriented habitats, such as walls and pinnacles, have different physical and biological characteristics.

Hypothesis 2) the locations on the walls and pinnacles where onaga and ehu are found will have similar biological and physical characteristics.

Techniques

On all six dives, two basic techniques were used to accomplish the objectives: a set of four 30 minute contour transects (objective 1) and a set of two 30 minute bait stations (objective 2). During transects, an effort was made to identify and count all fish and invertebrates within the visual range of the observers while the digital video camera was used to record good images of both animals and substrate. For each bait stations, a 12 inch diameter reference sphere was deployed in front of the sub. Two 5 lb bait bags were then opened with the manipulators and the bait was distributed at the base of the sphere. The submersible then backed away from the sphere to a distance of approximately 5-10 meters. The lights were then turned off and a ROS wide angle CCD camera was used to record the numbers and species of bottom fish attracted to the bait. The standard protocol on this and other dives was to initially drop to the base of the habitat site, then conduct an upslope survey to the top of the site. The depths and locations of the subsequent transects and bait stations were based on the observations made during this survey.

Findings

The sub dove at a site on the south coast of Kahoolawe on a bottomfish site previously found on a fishing survey. The sub reached the bottom at 264 m on a steep sediment slope and contoured to the east. After moving down and up the slope to find a suitable area, an extended bait station of almost 1 hour duration was conducted at 252 m on a low-relief carbonate slope. Although the low-relief habitat did not seem suitable for harboring bottomfish, many ehu (*Etelis carbunculus*), onaga (*E. coruscans*), amberjack (*Seriola dumerili*), gindai (*Pristipomoides zonatus*), opakapaka (*P. filamentosus*) and grouper (*Epinephelus quernus*) appeared. A *Gymnothorax nuttingi* was also observed. At the bait station, most of the time was spent using the acoustic surveyor to obtain profiles of identified species. This device has been shown in laboratory tests to be able to differentiate fish species based on species-specific acoustic signatures. It was used in the field for the first time to obtain *in situ* signatures of commercially important snapper species.

The sub then moved east on a 30 min. transect contouring at 253 m. Many white and pink *Corallium sp.* were observed along with *Symphysanodon maunaloae*, *Grammatonotus sp. 1*, *Holanthias elisabethae,* and *Antigonia eos*, as well as various pinnatulids, dendrophyllid yellow and pink, and *Cirripathes spiralis*. The transect ended on a steep sediment slope. The sub moved downslope and then upslope to find a suitable area to conduct a bait station. A 30 min. bait station was conducted at 229 m. on some low-relief carbonate where amberjack and opakapaka were observed. An acoustic survey was conducted despite some problems with the computer.

The sub then turned west and conducted a 30 min. transect at 248 m. A mix of species similar to the earlier transect were seen as the sub traversed a mixed low-relief carbonate and sediment slope. At the end of this transect, the sub continued further to the west on another 30 min. transect at 253 m. After passing through a sediment slope area, an area of nearly vertical carbonate walls, ridges, and canyons was entered. Large carbonate overhangs were observed over the sub. Ehu, onaga, and kahala were observed, as well as smaller fish such as

Symphysanodon maunaloae, *Grammatonotus sp. 1*, and *Holanthias elisabethae*. Fewer cnidarians were observed in this area than on the previous transects.
The sub returned to the surface from 253 m.

Several fishing lines were observed on this dive.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:
The battery for the computer was exhausted by the time the second bait station was conducted and sub power was used instead.

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.

Dive P4-029

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 No. P4-028: Characterization and Assessment of Critical Habitat for Eteline Snappers in the Main Hawaiian Islands

held on 11/03/01in the following way:

a. CTD data by 11/03/03

b. voice transcripts, video, and still camera film by 11/03/03

c. other 11/03/03

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