HAWAII UNDERSEA RESEARCH LABORATORY

QUICK LOOK REPORT MISSION NO. P4-027

MISSION STATUS

Location: Kaho'olawe Ridge N

Mission Date: 11/1/01

Maximum Depth: 313 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 bottomfish 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 bottomfish 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

This habitat site was on a north-south ridge northwest of Kaho'olawe. The intended track was in an east-west direction across the ridge. The sub landed near the base of the ridge to the east at 313 m and proceeded west to the top of the ridge at about 230 m, for a 30 min. transect. Several ehu, *Etelis carbunculus*, were observed at the base of the wall. At the end of the first transect at 227 m, a position was taken and we proceeded to the west on another 30 min. transect. At the end of the transect, we collected samples of *Corallium* sp., dendrophyllid yellow, and a knob-shaped sponge. Then the sub moved east to the *Corallium* bed observed on RCV-150 dive R114 and made a 30 min. bait station at 225 m. Four *Seriola dumerili*, three onaga, *Etelis coruscans*, two *Antigonia eos*, and five *Caprodon schegeli* were observed at the bait station.

After the bait station, the sub moved to the west with the intention of doing a 30 min. transect along the west wall. However, a strong current carried the sub to the west and down the slope of the wall. The current was so strong that the sub could not move upslope against the current or along the contour. After several attempts to perform a transect along the west wall, the sub moved further to the west up a gradual slope. However, the slope was composed of sediment and little of interest was observed. The sub then moved back to the base of the west wall where a 30 min. bait station was performed. The site of the second bait station was selected due to its protection from the strong currents and was not deemed promising as the bottom was silt covered with small calcareous plates and few bottomfish observed. We shut off the sub lights for the bait station as usual, but the murky water caused light levels to be below what the ROS camera needed to function. We resorted to the lights off/lights on protocol used on previous bottomfish assessment dives. We were very surprised when we turned on the lights and observed approximately 50-60 juvenile onaga and ehu, along with two *Squalus mitsukurii*, two *Conger oligoporus*, and a *Gymnothorax nuttingi*.

The sub returned to the surface after the 2nd bait station. Visual conditions throughout the dive were poor, with the range of visibility no better than 8 m due to the murkiness of the water. The

murkiness also reduced the level of ambient light, such that the ROS camera was marginal at the 1st bait station at 225 m and completely dark at the 2nd bait station at 313 m.

Observed snappers included onaga and ehu. Other bottomfish included the scorpaenid, *Pontinus macrocephalus*, the grouper, *Caprodon schlegeli*, and the amberjack, *Seriola dumerili*. A few *Symphysanodon maunaloae*, *Grammatonotus sp. 1* (diamond-tail), and *Antigonia eos* were observed. Invertebrates included the galatheid crabs, *Munida brucei and M. hawaiiensis*, sea pen *Funiculina sp.*, *Antipathes sp. 1* and *Antipathes subpinnata*, *Anthomastus sp.*, sponge *Farrea sp.*, and *Corallium secundum*. The urchins, *Stylocidaris calacantha* and *Stylocidaris rufa*, and the cnidarians, white coral *Corallium sp.,* yellow dendrophyllid, and *Cirrhipathes spiralis* were abundant. An unidentified "knob" sponge was also abundant.

With respect to the two hypotheses, the physical nature of the wall and plateau observed on this dive were a bit different than other bottomfish habitats surveyed by submersible. The wall was sediment covered and less rugose than most other wall habitat observed in the past. Both the wall and the plateau were largely lacking in bottomfish and the normal associated fish fauna (e.g. *Symphysanodon maunaloae* and *Grammatonotus* sp.). In addition, juvenile ehu and onaga observed in the *Corallium* beds on the plateau with the ROV on the previous night were not present during the daytime transects.

Numerous fishing lines, lead weights, and other evidence of fishing (e.g. bottles, cans, rags) were observed on this dive.

MISSION EVALUATION:

Limitations, failures, or operational problems noted:

Due to inclement weather, the dive was not conducted on the primary study site. The dive was made on a site known to be a bottomfishing site.

Recommendations for corrective action or improvement:

Hope for good weather.

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 alternate site was a known bottomfish habitat which we were able to substitute for the primary site. We were able to carry out only two of the four 30 minute transects due to strong currents. Both of the two 30 minute bait stations were conducted as planned.

List specimens or samples collected on the mission.

Corallium sp., dendrophyllid yellow, "knob" sponge, galatheid crab

Dive P4-027

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. P4-027: Characterization and Assessment of Critical Habitat for Eteline Snappers in the Main Hawaiian Islands

held on 11/1/01in the following way:

a. CTD data by 10/30/03

b. voice transcripts, video, and still camera film by 10/30/03

c. other 10/30/03

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