## HAWAII UNDERSEA RESEARCH LABORATORY

## QUICK LOOK REPORT MISSION NO. RCV059-063

### MISSION STATUS

**Location:** Lanikai (RCV-059; RCV-060) and Mokapu (RCV-061; RCV-062; RCV-063)

**Mission Date:** 24 September 1999

**Maximum Depth:** RCV-059: 370m; RCV-060: 385m; RCV-061: 157m; RCV-062: 109m; RCV-063: 138m

**Project Title:** Evaluation of non-lethal methods for assessment of overfished deepwater snapper resources.

**Principal Investigator:** Robert B. Moffitt

**Address:** National Marine Fisheries Service, Honolulu Laboratory
2570 Dole Street
Honolulu, Hawaii 96822

**Phone:** (808) 983-5373

**Observer 1:** James D. Parrish

**Address:** Hawaii Cooperative Fishery
Research Unit
2538 The Mall
University of Hawaii
Honolulu, HI 96822

**Observer 2:** Eric Conklin

**Address:** 46-007 Lilipuna Rd
Kaneohe, HI 96744

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

*Same as for dive RCV-036.* In addition, these RCV dives were conducted during the day in areas that had been surveyed previously by either the Pisces V or by the RCV in order to determine how the results of daytime RCV surveys compare to those of daytime Pisces V surveys and night-time RCV surveys.

The RCV was deployed by the Kaimikai-o-Kanaloa in areas that would permit it to move along preplotted tracks of interest.

RCV-059 began at 9:06am to the west of the Lanikai Open Fishing Area in 370m of water on a sand bottom. As the RCV moved up onto the western slope of the Lanikai feature, the substrate shifted to primarily silt-covered carbonate with occasional emergent rocks on the slope (360-320m), and then leveled out on the top of the feature to become

predominantly sand 320-292m). The dive was terminated at 10:39 when the RCV was 292m deep.
Bottomfish seen: Two onaga were seen on the top of the feature towards the end of the dive about 14 minutes apart. A juvenile onaga and juvenile ehu were seen together three minutes after the second onaga, clustered with some small potential-forage fish around a small rock outcrop.
Fishes seen frequently included: *Chrionema chryseres* (abundant in all habitats), *Plesiobatis daviesi* (an individual seen 10 minutes into the dive), *Chaunax umbrinus* (abundant on the rockier substrate near and on the slope), Scorpaenids (abundant on the upper slope and top of the feature), *Symphysanodon maunaloae* and *Grammatonotis laysanus* (both species abundant anywhere on feature where there was sufficient cover).
Other species sighted include *Laemonema rhodochir, Hollardia gosslinei, Meadia albisellus, Satyrichthys engyceros, and Plectranthias kelloggi.*

RCV-060 began at 12:00pm, running a course parallel to that of RCV-059, but shifted slightly north to bisect the Lanikai feature closer to the tip. The dive profile was similar, starting in sand at 385m, and then going through a transition habitat onto the silt-dusted carbonate Western slope (370-320?m), which gave way to a relatively flat reef top of mostly sand with occasional rocky outcrops (320-271m). This dive continued across the top of the feature and came down the slope on the east face, terminating the dive at 13:25 when the RCV reached 350m.
Bottomfish seen: All etelines seen were on the top of the feature, associated with rock outcrops, which provided shelter for both the etelines and species of smaller fish. A total of 14 ehu (most small, i.e. 6-8in) and 6 onaga (1 of which was approximately the same size as the ehu, while the remaining 5 were larger – 12-24in – and observed in a single school).
Fishes seen frequently included: *Chrionema chryseres* (abundant at the base of the slope), *Chloropthalmus poridens*(abundant at the base of the slope) , *Chaunax umbrinus*(abundant on the rockier substrate near and on the slope), Scorpaenids (46 individuals; abundant on the upper slope and top of the feature), Morids (of at least 2 different species), Antigonia capros(on the slopes and top of the feature; once in a large school of 30+ individuals), *Symphysanodon maunaloae* and *Grammatonotis laysanus* (both species abundant wherever there was sufficient cover).
Other species sighted include: *Poecilopsetta hawaiiensis, Lophiodes miacanthus, Bembrops roseum, Satyrichthys engyceros, Plectranthias kelloggi.*

RCV-061 was conducted at a Mokapu fishing site known as Rob's Reef. The dive began at 13:49 on a flat, hard, sand bottom, 109m deep (the RCV used only ambient light on this dive, with vehicle and cage lights turned off). The RCV moved to the northwest over a continuous flat sand bottom with very little relief until reaching an airplane wreck at 14:58, which provided shelter for numerous species of reef fish. The featureless sand then resumed until the RCV reached a series of large, sloping mounds at approximately 120m that provided abundant shelter for large numbers of small reef fish. The bottom quickly dropped off after these mounds in a flat, rocky slope with little shelter for fish. The dive was terminated when the RCV reached 150m at 15:19.
Bottomfish seen: No snappers were seen on this survey.

Fishes seen frequently included: *Seriola dumerili* (a school was seen on several instances – unable to tell if it was the same school each time), *Naso hexacanthus* (many were seen in schools along with *S. dumerili*), *Luzonichthys earlei* (thousands were seen at the large mounds of Rob's Reef), *Heniochus diphreutes* (several were seen at airplane wreck). Other species sighted include *Chaetodon miliaris* and *Chromis struhsakeri* (both species seen at the airplane wreck).

RCV-062 was conducted at a Mokapu fishing site called the Boulder Line. The dive began at 16:08 on a flat, hard, sand bottom, 85m deep (the RCV used only ambient light on this dive, with vehicle and cage lights turned off). The RCV moved predominantly to the northwest over a continuous flat sand bottom with very little relief until reaching what may have been an airplane wreck which was being used as shelter by many reef fish. After the wreck, the featureless sand continued until the RCV reached an extensive line of emergent rocks at 103m that provided abundant shelter for massive schools of small baitfish and larger predators. After traversing this line for approximately 25 minutes, the RCV left the line and the bottom became featureless sand. The dive was terminated at 16:48 when the RCV reached 110m.
Bottomfish seen: Large numbers of opakapaka were seen in mixed school with *Naso hexacanthus* and *Seriola dumerili* both on the sand flats and at the Boulder Line. Large schools of taape were sited in the Boulder Line close to the shelter provided by the boulders.
Other Fishes seen frequently include: *S. dumerili* and *N. hexacanthus* (in schools as described with opakapaka), *Caranx ignobilis* and *Pseudocaranx dentex* (both species seen in schools at Boulder Line), *Luzonichthys earlei* (seen in massive schools of thousands of individuals throughout the Boulder Line), *Chaetodon miliaris* (seen at Boulder Line), and *Heniochus diphreutes* (seen at airplane wreck).

RCV-063 was conducted at the Mokapu fishing site known as Herbert's House. The dive began at 17:33 on a flat, hard, sand bottom, 81m deep (the RCV used only ambient light on this dive, with vehicle and cage lights turned off). The RCV moved predominantly to the northwest over a continuous flat sand bottom with very little relief until reaching a very large undercut ledge at 114m which was being used as shelter by many reef fish. After passing off of this undercut, the bottom once again had little relief and less abundant fish populations, and the dive was terminated when the RCV reached 117m at 18:25.
Bottomfish seen: A school of 100+ taape was seen near the overhang in an area with abundant shelter, and there was a possible sighting of a kalekale about 12 minutes later.
Other fishes seen: *Heniochus diphreutes, Torquigener* sp., *Canthagaster rivulata, Dactyloptena orientalis, Seriola dumerili, Symphysanodon typus, Luzonichthys earlei,* and *Holanthias fuscipinnis.*

## 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. Using the RCV in the daytime in the same areas that nighttime RCV surveys were conducted yielded quite different results. Many more fish species were seen during the day at the Mokapu sites than were seen at night, and in much greater abundances. Of particular interest were the observations made on *L. earlei*, a potentially important prey for many of the larger species due to its size and abundance. *L. earlei* aggregated in the water column during the day but aggregated on the bottom in rubble patches during the night, presumably to avoid predation.

**List specimens or samples collected on the mission.**

None.

Dive RCV059-063

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_ Evaluation of non-lethal methods for assessment of overfished deepwater snapper resources.(project title)

held on___24 September 1999_____(date) in the following way:

a. CTD data by _24 September 2001_(date)

b. voice transcripts, video, and still camera film by_24 September 2001(date)

c. other_24 September 2001_(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)

Robert B. Moffitt Principal Investigator