

November 9, 1998

F/SWC2:RBM:FLF
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CRUISE REPORT

VESSEL: *Townsend Cromwell*, Cruise 98-07 (TC-233) (Fig. 1)

CRUISE PERIOD: 12 June-10 July 1998

AREA OF OPERATION: Northwestern Hawaiian Islands (NWHI)

TYPE OF OPERATION: Personnel from the Southwest Fisheries Science Center (SWFSC) Honolulu Laboratory (HL), National Marine Fisheries Service (NMFS), NOAA conducted lobster trapping operations in the waters of the Northwestern Hawaiian Islands. Supplies were delivered to the field camp at French Frigate Shoals.

ITINERARY:

12 June Start of cruise. On board were Philip Anderson, Danielle Bunn, Kevin Kelly, Robert Moffitt, Jennifer Smith, Cathy Jones, Scott Murakami, Jarad Makaiiau, and Nancy Ash. Departed Snug Harbor at 1830 and proceeded to Necker Island.

14 June Arrived at Necker Island. Commenced lobster fishing operations.

15-27 June Continued lobster trapping operations.

28 June Finished trapping operations. Departed Necker Island and proceeded to French Frigate Shoals.

29 June Arrived at French Frigate Shoals and off-loaded fuel and supplies. Proceeded to Maro Reef.

30 June Arrived at Maro Reef. Commenced lobster fishing operations.

1-5 July Continued lobster trapping operations.

- 6 July Hauled last lobster traps. Departed Maro Reef and proceeded to Snug Harbor, Oahu.
- 10 July Arrived at Snug Harbor, Oahu. End of cruise.

MISSIONS AND RESULTS:

- A. Conduct lobster trapping operations at selected sites in the NWHI using plastic lobster traps.

1. Collected data on the abundance and species composition of trap-captured lobster at two banks in the NWHI to compare with the results of previously collected data.

A total of 5,324 lobster and Kona crab were caught in 279 lobster trapping stations in operations conducted on adult lobster fishing grounds using black plastic (Fathom's Plus) lobster traps with a 1 by 2 in mesh. Each station consisted of a single string of traps. Strings were composed of either 8 or 20 traps separated by 20 fathoms of ground line. Traps were baited with 1.5-2.0 lb of cut mackerel and soaked overnight. Traps were generally set within two depth ranges: 10-20 and 20-35 fathoms.

Our total effort at Maro Reef was 958 trap nights yielding a total of 124 spiny lobster, *Panulirus marginatus*; 2,584 slipper lobster, *Scyllarides squamosus*; 28 ridgeback slipper lobster, *S. haanii*; 1 green spiny lobster, *P. penicillatus*; 17 Chinese slipper lobster, *Parribacus antarctica*; and 1 aurora slipper lobster, *Scyllarus aurora*. Catch rates of spiny lobster were low at Maro Reef, approximately 0.13 spiny lobster per trap night for all depths and locations while catch rates of slipper lobster were high, approximately 2.70 slipper lobster per trap night. A total of 63 kona crab, *Ranina ranina*, were caught at Maro Reef, 62 in quad 2-6.

Catch rates of spiny lobster in the shallower depths at Necker Island were noticeably lower than those of 1997. They ranged from 0.05 per trap night in quad 6-5 to 1.81 per trap night in quad 4-5. Spiny lobster caught on Necker Island bank's southern extension were large (carapace lengths frequently > 100 mm). Slipper lobster catch rates in 1998 were noticeably higher than those of 1997, ranging from 0.10 in quad 5-5 to 0.76 in quad 6-5.

2. Obtain length-frequency data on spiny and slipper lobsters to compare with those of previous years and to refine estimates of growth and mortality.

Carapace length and tail width measurements were recorded for approximately 1,700 spiny and 3,500 slipper lobster.

3. Collect lobster ovaries for maturation studies.

We collected ovaries and tails from approximately 100 spiny lobster from Necker Island and approximately 100 slipper lobster from Maro Reef. The ovaries were preserved in formalin, tails frozen and both tissues returned to the laboratory for maturity analysis. The ovaries will be examined histologically to assess their developmental stage and the pleopods of the corresponding tails measured. It is hoped that the pleopods will exhibit a morphological characteristic that corresponds to the onset of maturity.

4. Conduct experiments on catchability of traps with lead weights versus steel weights.

Traps with steel and lead weights were alternated when possible on all trapping stations. Data will be analyzed to determine whether the type of weight affects catchability for either spiny or slipper lobster.

5. Collect otoliths from opakapaka and blood samples from onaga for population studies.

Two opakapaka, *Pristipomoides filamentosus*, and two onaga, *Etelis coruscans*, were caught and sampled.

6. Conduct ACDP transects at night on predetermined tracks.

A total of 8 ACDP transects were conducted with a total of 22 XBT casts and 22 one-meter plankton net tows associated with set locations along the tracks.

**SCIENTIFIC
PERSONNEL:**

Robert B. Moffitt, Chief Scientist, National Marine Fisheries Service (NMFS), Southwest Fisheries Science Center (SWFSC), Honolulu Laboratory (HL).

Nancy Ash, Cooperating Scientist, Joint Institute for Marine and Atmospheric Research (JIMAR)

Philip D. Anderson, Cooperating Scientist, JIMAR

Scott Murakami, Cooperating Scientist, JIMAR

Danielle Bunn, Volunteer, NMFS, SWFSC, HL
Kevin Kelly, Cooperating Scientist, JIMAR
Jarad Makaiiau, Cooperating Scientist, JIMAR
Jennifer Smith, Cooperating Scientist, University of Hawaii
Cathy Jones, Teacher-at-Sea

Submitted by:

Robert B. Moffitt
Chief Scientist

Approved by:

R. Michael Laurs
Director, Honolulu Laboratory

Attachment