

August 12, 1996

F/SWC2:RBM:FLF  
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### CRUISE REPORT

**VESSEL:** *Townsend Cromwell*, Cruise 96-07 (TC-210)

**CRUISE PERIOD:** June 18-July 16, 1996

**AREA OF OPERATION:** Northwestern Hawaiian Islands (Fig. 1)

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

**ITINERARY:**

18 June Start of cruise. On board were Philip Anderson, Michael Carmichael, Joseph Dane, Edward DeMartini, Gerard DiNardo, Wayne Haight, and Robert Moffitt. Departed Snug Harbor at 1200 and proceeded to Necker Island.

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

21-25 June Continued lobster trapping operations.

26 June Finished trapping operations. Departed Necker Island and proceeded to Laysan Island.

28 June Arrived at Laysan Island. Off-loaded supplies, disembarked Lt. Sramek, and commenced lobster trapping operations.

29 June-1 July Continued lobster trapping operations.

2 July Finished lobster trapping operations at Laysan Island. Embarked Lt. Sramek. Proceeded to Maro

Reef. Arrived at Maro Reef and commenced lobster trapping operations.

3-10 July Continued lobster trapping operations.

11 July Finished lobster trapping operations. Proceeded to French Frigate Shoals.

13 July Arrived at French Frigate Shoals. Picked up generator part. Proceeded to Hanalei, Kauai.

15 July Arrived at Hanalei, Kauai. Proceeded to Snug Harbor, Oahu.

16 July Arrived Snug Harbor. 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 abundance and species composition of trap-captured lobster at three banks in the NWHI to compare with results of previously collected data.

A total of 4,090 lobster were caught in 192 lobster trapping stations 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 set within three depth ranges: 10-20, 20-35, and 50-100 fm. Legal sizes are defined by tail widths of 50 mm for spiny lobster and 56 mm for slipper lobster.

Catch rates of legal spiny lobster were low at Maro Reef, approximately 0.09 lobster per trap-night for all depths and locations. Catch rates of sublegal spiny lobster were also low, approximately 0.03 all depths and areas. Catch rates of legal slipper lobster were high (> 0.70/trap-night) at most of the sites at the shallower depths (only 0.20 in quad 4-7). Legal slipper catch rates varied from 0.05-0.87 in the 20-35 fm sets. Sublegal slipper catch rates varied from 0.04 (quad 4-7) to 1.44 at the shallower depths and were less (0.02 to 0.92) at other depths. Spiny lobster catch rates from 1996 at shallower depths appear to be slightly higher than those obtained in 1995 for legal spiny lobster, ranging from 0.01-0.31 in 1996 and 0.01-0.21 in 1995 but less for short lobster (0.01-0.11 in

1996 vs. 0.01-0.22 in 1995). A total of 17 Kona crab, *Ranina ranina*, were caught in quad 2-6.

Catch rates of legal spiny lobster the shallower depths at Necker Island were very similar to those of 1995. They ranged from 0.15 per trap-night in quad 6-5 (0.21 in 1995) to 1.44 in quad 5-7 (1.15 in 1995). Total catch of spiny lobster (including sublegal) was similar to that of 1995, ranging from 0.38 to 4.50 in 1996 and 0.34 to 5.15 in 1995. Total slipper lobster catch in 1996 was very similar to that of 1995 (0.05-0.76 vs. 0.16-0.60).

Catch rates of both spiny and slipper lobster were very poor at Laysan Island ranging from 0.02 to 0.18 for spiny and 0.05 to 0.28 for slipper lobster.

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 2,700 spiny and 1,900 slipper lobster.

3. Conduct lobster handling mortality experiments to determine the effects of time on deck and handling methods on discard mortality.

Experiments on handling mortality of spiny lobster discards (sublegal-sized and berried females) showed zero mortality for lobster held for 3 hours in continuously flowing sea water, 77% weak and dead for discards exposed dry for 3 hours, 45% for 2 hours exposed, and 16% for 1 hour exposed. Experiments on slipper lobster resulted in zero mortality in discards held for 3 hours in continuously flowing sea water and 14% and 39% dead for two runs where discards were held dry and exposed for three hours. Slipper lobster are more hardy than spiny lobster.

4. Conduct lobster trapping in shallow waters, on the barrier reef and inside Maro Reef lagoon.

A total of 6 stations were occupied in shallow water (1-13 fathoms) on the barrier reef and inside the Maro Reef lagoon. Five to twelve traps were set singly at each station. Traps were baited with mackerel and soaked for one night. Lobster were counted, sexed, and measured from each trap. A total of 119 *Panulirus marginatus*, 26 *P. penicillatus*, and 29 *Scyllarides squammosus* were caught for overall catch rates of 1.89,

0.41, and 0.46 per trap-night, respectively. The CPUE of spiny lobsters was much greater than that obtained in the same locations last year.

**SCIENTIFIC  
PERSONNEL:**

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Attachments