

September 11, 1996 F/SWC2:FAP:FLF
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CRUISE REPORT

VESSEL: *Townsend Cromwell*, Cruise 96-09 (TC-212)

CRUISE PERIOD: August 10-August 30, 1996

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

TYPE OF OPERATION: Personnel from the Southwest Fisheries Science Center (SWFSC) Honolulu Laboratory (HL), National Marine Fisheries Service (NMFS), NOAA used seal-mounted instruments and surveys of habitat and fish abundance to support the continuing study of monk seal forage base at French Frigate Shoals (FFS).

ITINERARY:

- 10 August - Start of cruise. On board Raymond Boland, Elizabeth Flint, Theresa Martinelli, and Jeffrey Polovina. Departed Honolulu 1000.
- 13 August - Arrived FFS. Embark Frank Parrish and disembark Elizabeth Flint. Deployed three strings of octopus pots and conducted two reef fish survey dives.
- 14 August - Ship moved to Brooks Bank and used remote video to survey habitat. During the evening hours, ship traveled to St. Rogatien Bank.
- 15 August - Surveyed habitat of Rogatien and west Brooks Banks using diver and remote video surveys. Transited during evening hours back to FFS.
- 16-26 August - Ship anchored and conducted VHF surveillance for instrumented seals occurring in the southern portion of the atoll. Concurrent operations conducted include standardized reef fish surveys, fish collections for DNA analysis, habitat surveys, and monitoring of octopus pots.

- 27 August - Conducted final dives and pulled octopus pots. Embark Kyler Abernathy, Kira Fuchs, Melissa Shaw, and Anthony Viggiano. Depart FFS.
- 28-29 August - Transited to Honolulu.
- 30 August - Arrived Honolulu 0800, all disembark, end of cruise.

MISSIONS AND RESULTS:

- A. Support the deployment and recovery of seal-mounted video recording units.

Seven units were deployed and all were recovered in good condition with data intact. Recording protocol was set to record 1.5 min of video every 15 min while the seal was in the water during daylight. This provided up to 3 continuous days of surveillance while the seal was at sea.

- B. Visual census of reef fish assemblages at fixed historical transect stations.

Nine stations at FFS were surveyed by divers who counted and estimated size of all non-cryptic fish species. Fixed transects represented both patch reef and barrier reef habitats. Patch reefs (~50 m diameter) are surveyed in their entirety and barrier habitat are surveyed with 50-m belt transects. Fish on each transect are counted by two divers and their size estimated by a third diver. Counts from these surveys will be compared with counts made at the same locations in previous years.

- C. Test deployment of octopus traps.

Two strings of eight octopus pots were deployed in 20-40 m depths on the southwest side of the atoll. The pots consisted of two pieces of PVC pipes wired together (double-barrel style) and filled with concrete at one end. The pots of one string were placed inside lobster traps for deployment. On the other string, just the octopus pots were used. Soak time ranged between 2 and 7 days. In the three retrievals of the pots a single octopus was caught and none were seen during diver surveys of the gear.

- D. Habitat surveys by remote video cameras and towed divers.

1. A remote video camera was used to examine depths between 50-100 m. Ship supported camera drops were made at Brooks and Rogatien Banks. Sixteen drops were made to compare the bank habitat with that of the deep slopes around neighboring FFS.

2. Towed diver surveys were used to assess depths shallower than 30 m. Thirty-one tows, averaging 1 nmi, were made on the shallow portions of Brooks (1), Rogatien (2), and FFS (28). The habitat data from these surveys will be examined in relation to video images collected from the seal-mounted video camera system. Towed surveys conducted at FFS are plotted in Figure 2.

E. General observations and miscellaneous activities.

Bird flock, fish school, and marine mammal sightings were recorded by the ship's officers and crew during daylight hours when possible. Standard weather observations were made at 0000, 0600, 1200, and 1800 (G.m.t.) by the ship's officers and crew.

**SCIENTIFIC
PERSONNEL:**

Frank A. Parrish, Chief Scientist, National Marine Fisheries Service (NMFS), Southwest Fisheries Science Center (SWFSC), Honolulu Laboratory (HL)
 Kyler Abernathy, Cooperating Scientist, University of Minnesota
 Raymond Boland, Cooperating Scientist, Joint Institute for Marine and Atmospheric Research (JIMAR), HL
 Elizabeth Flint, Cooperating Scientist, U.S. Fish and Wildlife Service (USFWS)
 Kira Fuchs, Cooperating Scientist, National Geographic Television
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 Melissa Shaw, Veterinarian, USFWS
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