

August 15, 2000

F/SWC2:RLH:FLF
CR0008-1.RLH

CRUISE REPORT

VESSEL: *Townsend Cromwell*, Cruise 00-08 (TC-258)

CRUISE PERIOD: 9-15 July 2000

AREA OF OPERATION: Kona coast off the Island of Hawaii (Fig. 1)

TYPE OF OPERATION: Daylight operations consisted of collecting larval swordfish via surface tows with a 6-ft Issacs-Kidd (IK) trawl through surface slicks and also from neuston tows, dip-netting, and snorkeling within slicks from the ship's aluminum safeboat. Night operations consisted of mid-water IK trawls, 1.5 m mid-water ring net tows, night-light dip-net stations, and CTD casts.

ITINERARY:

- 9 July Embarked Robert Humphreys, Daniel Curran, Wende Goo, Susan Kamei, Bruce Mundy, Kelly Benoit-Bird, and John O'Sullivan. Departed Snug Harbor at 1300 and proceeded to Kailua-Kona, Island of Hawaii.
- 10 July Arrived on site by 0600 and began conducting daylight larval swordfish tows through surface slicks using the 6-ft IK trawl net. At 0830, embarked Whitlow Au and Andrew West from Kailua-Kona pier and continued larval swordfish tows. At mid-morning, began neuston tow, dip-netting, and snorkeling operations along surface slicks from the ship's safeboat. At nightfall, commenced nightly operations that included mid-water IK trawls, 1.5 m mid-water ring net tows, night-light dip-netting and CTD casts.
- 11-14 July Continued daily schedule of daylight surface IK trawls and safeboat operations (neuston tows, dip-netting, and snorkeling) within surface slicks for swordfish larvae and nighttime mid-water IK and 1.5 m ring net tows, night-light dip-netting, and CTD operations. In the early afternoon of July 13,

disembarked Au and Benoit-Bird at Kailua-Kona during brief port call.

- 14 July Disembarked West off Honakahou Harbor at 1500 and completed last daylight surface IK tow at 1600. Afterwards, began transit back to Snug Harbor, Honolulu.
- 15 July Arrived Snug Harbor, Honolulu at 0900. Disembarked Humphreys, Curran, Goo, Kamei, Mundy, and O'Sullivan; end of cruise.

MISSIONS AND RESULTS:

- A. Collect larval swordfish specimens associated with surface slicks along the Kona coast of Hawaii.

A total of 43 daylight one-hour surface 6-ft IK trawl hauls were conducted targeting coastal surface slicks (when available) between Keahou Point to the north and Milolii to the south. No swordfish larvae were captured during daylight IK trawls, however, 6 non-*Makaira* istiophorid larvae were collected. A number of other larval and juvenile stage fish species, particularly of *Alutera scripta*, were incidentally captured during these tows. Tows were conducted primarily at speeds of 3.5-4.5 knots. Four days of safeboat operations conducted within surface slicks yielded one additional non-*Makaira* istiophorid larvae from a neuston tow while two swordfish juveniles (20-25 cm in length) were dip-netted from within surface slicks.

- B. Collect vertically integrated (obliquely towed) samples via mid-water IK trawls and 1.5 m ring net tows of the mesopelagic boundary community during night hours.

A total of 20 night mid-water oblique IK trawls were conducted to capture species members of the mesopelagic boundary community. A total of 39 individual specimens of many different target species were captured and mounted within a vertical water tank at various orientations. Their acoustical target strengths were measured with a modified bottom-mounted echosounder.

A total of 10 1.5 m oblique ring net tows were conducted at night, sampling a depth range of 0-200 m.

- C. Conduct nighttime CTD casts to characterize the physical environment of the mesopelagic boundary community.

Two CTD casts using the SEACAT system were conducted off the Kona coast. Thirteen XBT casts were conducted while in transit between Honolulu and Kailua-Kona.

- D. Conduct nightlight dip-net sampling to capture live specimens of swordfish and other billfish species.

Four drifting nightlight stations over a total of 5.5 hours were conducted off the Kona coast. No young billfish were encountered during these operations. Other than small squid, few juvenile fishes were attracted at any off these stations.

- E. Collect live specimens of pelagic juveniles retrieved in good condition from surface IK tows and safeboat neustonic tows.

Live specimens collected from both surface IK hauls and safeboat neuston tows and kept alive in holding tanks included juvenile specimens of mahimahi (*Coryphaena hippurus*), broomtail filefish (*Alutera scripta*), boxfish (*Lactoria* sp.), flying gurnard (*Dactylopterus* sp.), spiny puffer (Diodontidae), triggerfish (Balistidae), jacks (Carangidae), and seahorse (*Hippocampus* sp.). Two juvenile (20-25 cm length) swordfish were successfully dip-netted from the safeboat while swimming within debris-laden surface slicks. Efforts to keep each of these specimens alive for longer than two days in captivity were unsuccessful.

**SCIENTIFIC
PERSONNEL:**

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Attachments