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CRUISE REPORT

VESSEL: *Townsend Cromwell*, Cruise 99-11 (TC-249)

CRUISE PERIOD: 9-15 November 1999

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

TYPE OF OPERATION: Daylight operations consisted of larval swordfish surface tows with a 6-ft Isaacs-Kidd midwater trawl (IKMT) targeting coastal surface slicks. Night operations consisted of acoustic transects, hydrophone and camera drops, MOCNESS tows, and CTD casts.

ITINERARY:

9 November Embarked Robert Humphreys, Bruce Mundy, Darryl Tagami, Scott Murakami, Kelly Benoit-Bird, Carmen Bazua, and David Cripe. Departed Snug Harbor at 1100 and proceeded to lat. 19°20'N, long. 155°57'W, off the southern Kona coast.

10 November Arrived on site at 0800 and began conducting daily daylight neustonic larval swordfish tows through surface slicks using the 6-ft IKMT. Prior to nightfall, embarked Rusty Brainard at Kailua-Kona. At nightfall, commenced nightly operations that included acoustic transects, hydrophone and camera drops, MOCNESS tows, and CTD casts.

13 November Disembarked Bazua at Kailua-Kona in morning. Daily daylight and nighttime operations continued.

15 November Arrived Kailua-Kona in morning and later that day disembarked Humphreys, Mundy, Tagami, Benoit-Bird, and Cripe; end of cruise.

MISSIONS AND RESULTS:

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

A total of 46 daylight one-hour surface tows were conducted targeting coastal surface slicks between Kailua-Kona to the north and Milolii to the south. No swordfish larvae were captured. A total of 105 non-*Makaira* istiophorid larvae were collected. A number of other species of fishes, primarily larval and pelagic juvenile stages of reef fishes, were incidentally captured. Tows were conducted primarily at a speed of 3.5 knots.

B. Field test the MOCNESS and collect vertically stratified samples of potential forage prey of dolphin and big-game fishes during night operations.

Three nighttime MOCNESS tows were conducted off the Kona coast. Samples were collected at 25-m depth intervals over a depth range of 200 m to the surface. Tows were conducted in a circular course and were successful despite some operational problems encountered.

C. Conduct nighttime CTD casts to characterize the physical environment of potential forage prey of dolphin and big-game fishes.

A total of 20 CTD casts were conducted to a depth of 500 m or less (depending on bottom depth). CTDs were conducted near the beginning and ending positions of those acoustic transects aligned parallel to shore. Data obtained from these CTD casts are currently being analyzed.

D. Field test acoustic tow-fish, drop-video camera, and hydrophone equipment. Use tow-fish to conduct acoustic transects to characterize the distribution and abundance of potential forage prey of dolphin and big-game fishes.

Initial trial deployment of the acoustic tow-fish and digital video camera were a success. Hydrophone field test indicated that additional weight was needed to keep hydrophone at depth.

Five acoustic transects conducted parallel to shore were conducted during each of the three nightly time periods (2230-2330, 0030-0130, and 0330-0430) for a total of 15 hours of acoustic sampling. Six hours of cross-shelf acoustic transects were also conducted in the same area as the planned parallel transects. Acoustic data from these transects will help determine spatial differences in the mesopelagic boundary community. Mesopelagic species forming this

boundary community are thought to provide an important forage base for spinner dolphins, tuna, and bottomfish in this region.

E. Collect live specimens of juvenile pelagic fishes and pelagic juvenile stages of reef fishes from daylight 6-ft IKMT hauls for return to Monterey Bay Aquarium.

David Cripe of the Monterey Bay Aquarium participated during daylight surface tows to collect and retain incidental juvenile fishes found in good condition upon sample retrieval. Live specimens collected and kept alive in small holding containers within the port foredeck baitwell were primarily pelagic stage pomacentrids (n~210), juvenile sargassumfish (n~60), and juvenile mahimahi (n~50). A number of other fish families, primarily the pelagic juvenile stage of various reef fish families, were also retained alive. Live juveniles of mahimahi and pilotfish (n~15) were of primary interest during these collection efforts.

SCIENTIFIC PERSONNEL:

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Attachments