

December 21, 1993 F/SWC2:RWB:FLF
CR9308-3.RWB

CRUISE REPORT

VESSEL: *Townsend Cromwell*, Cruise 93-08 (TC-185)

CRUISE PERIOD: December 6-11, 1993

AREA OF OPERATION: Immediately off the leeward coast of Oahu, Hawaii

TYPE OF OPERATION: Test and optimize performance of ultrasonic telemetry receiving system.

ITINERARY:

- 6 December - Embarked Richard Brill, Jan Pappas, Sandra Abbott-Stout and Chris George. Proceeded to area immediately off leeward Oahu. Began trials to determine effects of towing position on background noise levels and effective range of ultrasonic receiving system.
- 7-9 December - Continued gear testing.
- 10 December - Completed gear testing. Arrived at Snug Harbor. End of cruise.

MISSION AND RESULTS:

- A. Determine effects of towing position on background noise levels and effective operating range of ultrasonic receiving system. Determine which systems aboard the *Townsend Cromwell* are responsible for generating the majority of background noise.
1. Towing positions tested included forward davit, A-frame, bow, and stern trawl pulley (i.e., hydrophones aft of the ship). The wing carrying the hydrophones was also towed behind a heavy metal depressor wing. Maximum depth reachable by the hydrophone wing (towed from the A-frame) could exceed approximately 80 feet (at about 2 knots) with this configuration. In no

instance did towing position or towing depth have any effect on background noise level of the hydrophones (measured as RMS voltage of the audio output from the ultrasonic receiver).

2. The hydrophone wing was also "towed" off the A-frame with the ship at anchor. When the main engines were shut off, the background noise decreased by approximately 2/3 (from 48-59 mV to 15-18 mV RMS) and the maximum range over which a transmitted signal could be heard doubled (from 0.7 to 1.3 km). The main engines, propellers, and/or propeller shafts are, therefore the major source(s) of the background noise.

RECORDS :

The following forms, logs, charts, and data records were kept and given to the Honolulu Laboratory upon termination of the cruise. These include all data captured onto computer storage media during the cruise. All the records are file there unless indicated otherwise in parentheses.

Marine Operations Log (NOAA)

Records of noise measurements from the ultrasonic receiving system have been retained by the chief scientist.

SCIENTIFIC

PERSONNEL:

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