U. S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Mississippi Laboratories
Southeast Fisheries Center
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Pascagoula, MS 39568-1207

Small Pelagics Survey
NOAA Ship CHAPMAN Cruise 91-06(45)
10/28/91 - 10/30/91

INTRODUCTION

The NOAA Ship CHAPMAN departed Pascagoula, Mississippi on October 28, 1991 to conduct an evaluation of a fisheries acoustic system manufactured by SIMRAD and to conduct a fisheries acoustic/trawl survey for small pelagics in the north central Gulf of Mexico. Personnel from the National Marine Fisheries Service and SIMRAD, Horten, Norway, participated. A total of 30 sea days were scheduled.

OBJECTIVES

1. Evaluate the SIMRAD EK500 fisheries acoustic system.
2. Determine the abundance and distribution of small pelagic species in the north-central Gulf of Mexico.
3. Collect length frequency data on coastal herrings.
4. Estimate the average Target Strength of coastal herrings.
5. Collect environmental data at all trawl locations.
6. Determine diel differences in acoustic targets.
7. Collect coastal herring specimens.

METHODS

Gear - The fisheries acoustic system included a scientific echo sounder, two dual-beam transducers (38 Khz, 120 Khz) mounted in a V-fin towed body, tow and deck cable, two chart recorders, two tape interfaces, two Digital Audio Tape decks (DATs) and an Echo Signal Processor(ESP). The SIMRAD EK500 system consisted of the EK500 sounder and signal processor, a color printer, tow and deck cable, and a 38 kHz split-beam transducer (10° beam angle) mounted in a towed body.

Trawl gear included Shuman bottom trawls and a single Shuman semi-pelagic trawl. The Shuman bottom trawl had a 123-ft headrope, and the trawl mesh size ranged from 31.5 inches at the fishing circle to 1.25 inches at the cod end. The trawl was also fitted with a funnel constructed of webbing and attached at intermediate net. The funnel tapered into the tailpiece of the trawl. The Shuman trawl was rigged with a 9-ft by 3-ft center headrope kite and eight 11-inch floats attached to each wing. Ground gear was constructed of 3.5-inch rubber disks hung on 12-inch drops.

The second net was a Shuman 68 x 354-cm semipelagic trawl that measured 137 ft on the headrope and footrope and had a 790-ft circumference at the fishing circle. Mesh size reduced from 12-ft at the fishing circle to 5-ft ahead of the cod end. A 0.25-inch liner was attached inside the cod end. The trawl was rigged with 240-ft split bridles and 40-ft backstraps. A 97-ft^2 flexible four-panel kite attached to the headrope and four 160-lb tom weights attached at each end of the footrope provided vertical opening force.

RESULTS

To deploy and tow the towed body containing the SIMRAD 38 kHz split-beam transducer, the starboard net reel was modified and a padeye was welded on the deck for a block to fairlead the tow cable to another block attached at the end of the ship's boom. This deployment and tow system was tried and proved successful.

The electric wench and davit installed on the CHAPMAN to tow the V-fin was also tested. The davit would not turn when the V-fin was suspended, however, the system worked well. The ship then returned to Pascagoula to allow a scientist to disembark, and did not sail again due to severe weather. The CHAPMAN was to sail again on October 31, 1991, however, excess vibration was noted in the torque shaft. Inspection revealed that new parts were required for repairs. These parts were not available, so no repairs could be made. The evaluation of the SIMRAD EK500 system and the small pelagic survey were not completed.

CRUISE PARTICIPANTS (NOAA only):

(10/28/90 - 10/30/90):

Chris Gledhill	Field Party Chief	NMFS, Pascagoula, MS
Mark Grace	Fishery Biologist	NMFS, Pascagoula, MS
Travis Burke	Elec. Engineer	NMFS, Stennis SC, MS
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Dan Twohig	Elec. Tech.	NMFS, Seattle, WA

CRUISE PARTICIPANTS (Foreign):

(10/28/90 - 10/30/90):

Raymond Brede	General Manager Fish. Res. Div.	SIMRAD, Horten, Norway

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DATE: 12/2/91