R1/6

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FRV "Clupea" 4CR82

Cruise 4/82

REPORT

4 - 27 May 1982

Objectives

(1) To perform comparative mesh selectivity tests using square and diamond mesh trawl codends with small mesh covers and to check with a RCTV possible masking of the codends by the small mesh covers.
(2) To conduct design tests using a RCTV and instrumentation on an experimental design of trawl.
(3) To measure netting panel geometry using instrumentation and RCTV.

Narrative

"Clupea" sailed from Aberdeen on 5 May after being held up by bad weather on the 4 May. A demersal trawl haul with a small mesh codend was conducted in the Cruden Bay area but sufficient quantities of small fish were not caught to fulfill objective 1. "Clupea" therefore moved north towards Orkney waters but due to bad weather she anchored overnight off Lybster. One haul on the Riddle grounds 20 miles south of Copinsay was conducted on the morning of 6 May but again there were not enough small fish for the experiment. "Clupea" then moved to grounds about 5 miles south east of Copinsay where quantities of small haddock were encountered.

Thereafter up to and including 17 May trials were conducted on the Copinsay grounds. The RCTV was deployed as often as was practically possible to observe escapes from the square and diamond mesh codends.

On the 18, 19 and 20 May instrumented and RCTV hauls were conducted on a demersal trawl with square meshes in the last third of the length of the net on the Copinsay grounds.

"Clupea" sailed for Buckie at 1830 hours on 20 May. A radio-caesium monitoring water sample was taken off Buckie at 57°49'N 2°58'W. "Clupea" berthed in Buckie at 0930 hours on 21 May where the demersal trawl was changed to a pelagic trawl in preparation for Part 2 of the cruise.

"Clupea" sailed from Buckie at 1230 hours on 24 May. The ship's log was calibrated over the measured mile at Findochty. Six long hauls with instrumentation or TV were completed in the South Deeps before "Clupea" returned to Buckie at 1300 hours on 27 May.

Results

Part 1. Instead of using the small mesh cover technique it was decided to use the alternate haul technique due to possible excessive masking of in particular the square mesh codend.

Series of three hauls were made with a 89 mm square mesh codend, a 87 mm diamond mesh codend and a 30 mm small diamond mesh codend. The 89 and 87 mm square and diamond mesh codends were constructed from double 3.5 mm Ø braided polyethylene. Five valid series of three hauls were used to determine the selection ogives for the 89 mm square and 87 mm diamond mesh codends. Preliminary analysis of the data gave a 50% retention length for haddock of 26.5 cm for the diamond mesh and 35 cm for the square mesh.

Underwater film was recorded of haddock escaping at the first attempt through the square mesh codend having previously repeatedly tried to escape through the diamond mesh panels further forward.

Some engineering data and TV film were gathered on a demersal trawl with one third of its length in square mesh. The data are being analysed in the Laboratory.

Part 2. Two hauls were made to assess the feasibility of using a meter attached to a pelagic trawl to measure mesh angles and netting angles to the horizontal.

During four hauls warp vibration was measured using accelerometers near the gallows. Data was collected from these and other instruments for a range of warp lengths and towing speeds. In synchronisation with the instrument data, underwater film was taken of the vibrations at a distance of 50 m from the ship.

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27 July 1982

Seen in draft A Mair