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In Confidence: Not to be quoted without prior reference to the Laboratory

FRV 'Goldseeker'

Cruise 6/83

Report

23 May - 10 June 1983

Objectives

1. To measure the shape and vibration characteristics of three types of smooth and stranded cable towed under various loading conditions.
2. To measure the drag of single and double twine codends at various speeds.

Narrative

'Goldseeker' sailed from Buckie to Inverness on 23 May and to Fort Augustus on 24 May where the trawl gear was rigged and the instrumentation loaded on board, set up and and tested. During the first week the behaviour of stranded cable when towing trawl gear was studied during six hauls.

During the second and third weeks fifteen hauls were made using stranded and smooth streamed cables with and without weights on the aft end. The drags of two codends were also measured.

'Goldseeker' returned to Muirtown Locks each weekend and at the end of the trip sailed for Buckie on the afternoon of 9 June.

Results

When towing a pelagic trawl (PT 162) measurements on six stranded wire were made of tensions, cable declination, accelerations in two directions, spread at two points, depth and ship and net speed. Wire lengths of 100, 200 and 300 m were used over a range of speeds from 2 to 3.5 knots.

The behaviour of three streamed cables was measured with and without weights attached, corresponding to curved and straight profiles respectively.

The three cables were a smooth polythene sheathed 10 mm diameter cable, a six stranded (6 x 19) 10 mm diameter wire rope and a three stranded (3 x 19) 12 mm diameter wire rope. Tension, speed, accelerations and depth were measured in each haul. In addition an acoustic pinger/hydrophone system measured the straight line distance between points on the curved cables. When towed on a straight course the three stranded left hand lay cable deviated significantly to port due to the side force produced by the circulation round the stranded form of the wire. This lateral deviation was measured with a hydrophone/transponder system relative to a streamed smooth cable.

The drag of two codends, made of double and single twine respectively was obtained over a range of speeds from 1.7 to 4.1 knots.

All instruments, including three towed propeller logs, were calibrated frequently during the trials. A temperature profile was taken over a depth of 100 m for calculation of the velocity of sound in the loch. The large quantity of data was stored on computer disk for later analysis.

R S T Ferro
1 July 1983

Seen in draft: W B Reid