

R1/6 In Confidence: Not to be quoted without reference to the Laboratory

FRV 'Clupea'

REPORT

Cruise 4/81

23 March-10 April 1981

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Objectives

- 1 To observe the behaviour of fish to a new 3 level sampling trawl using both the diving (TUV II) and remote underwater controlled vehicle (RCTV).
- 2 To assess and measure the trawl and adjust the 3 levels of the fishing lines of the nets for possible separation of species.
- 3 To observe a W.F.A. electric trawl for I.D.U. Hull.

The scientific staff joined the 'Clupea' at Ullapool at 1900 hours on Monday 23 March.

The scientific gear, underwater vehicle and trawls were loaded on Tuesday before proceeding to the fishing ground of Melvaig where one haul was made to test the new 3 level sampling trawl. Only a few plaice were caught for the one hour tow.

Work continued in measuring and filming the trawl in this area for the next 12 days until the belly panel was torn out. With the water clarity being poor and a bad weather forecast it was decided to move to Broad Bay whilst the second sampling trawl was rigged.

The work continued uninterrupted until Friday afternoon when the ship sailed to Ullapool for the weekend.

Whilst in Ullapool a new belly panel was fitted to the first trawl and again rigged for work on Monday.

The ship returned to the Melvaig area in the hope that fish would be seen in the mouth of the trawl. Unfortunately the fish were in too deep water for diving and the water clarity poor for net observation.

It was again decided with a poor forecast for the area and with freshening winds to move to Broad Bay where sheltered water could be found for diving observations.

Work continued in Broad Bay until Wednesday evening when the divers outboard motor broke down. Arrangements were made to collect another boat and engine at Loch Ewe that night.

Work of observation and measurements were made in the Melvaig area for the next two days before moving to Ullapool for the weekend.

All the trawl gear was landed and the Vee trawl boards exchanged for flat ones.

Mr Tumilty of the W.F.A. joined the ship on Sunday with his trawl and electrical fishing gear.

The ship sailed on Monday morning for Broad Bay where two days of uninterrupted work was carried out. Detailed TV observations and measurements were made of the gear and recorded on video tape. A number of points were confirmed from the model testing in the flume tank at Hull. Modifications were made to the electrical fishing gear to improve contact with the seabed.

On completion of the tests 'Clupea' returned to Ullapool on Tuesday evening and the W.F.A. gear landed and replaced with the 3 level sampling trawl. The ship immediately sailed for the east coast where off the Pentland Sperries one haul was made to compare the fish reactions from a different area. The ship anchored in Burghead Bay for the night, Wednesday 8 April.

The trawl was shot in Burghead Bay the next morning but unfortunately the visibility was nil and the divers had to return to the surface. A haul was made 10 miles off Buckie where only one basket of fish was caught before 'Clupea' docked at Buckie.

Results

Measurements and catch composition of the fish in various compartments of the nets are being analysed in detail.

Preliminary results show, for the net with the fishing lines immediately above one another, that before alterations to the heights of the two middle fishing lines the bulk of the fish were in the lower compartments, but with appropriate adjustment to the heights of these fishing lines it was possible to separate cod and haddock. This was achieved by altering the heights of the two middle fishing lines so steering the bulk of the haddock up into the top panel.

Cod were held to the lower level with only a headline of 1½ feet above the bobbin rig and only on one or two occasions did individual cod rise into the second level. Flatfish, skate and Gurnard were also held to the bottom level. In the second haul the fishing lines were stepped forward by 4 feet at each level and the bulk of the fish went into the lower one but again with adjustment to the fishing lines the bulk of the haddock were moved up to the top level. In this case the haddock had to rise at a point at least 10-12' in front of the bobbin rig and rise up to clear the third fishing line at 11 feet off the seabed to enter the top compartment. These results confirm the different behaviour of haddock and cod observed, during the 'Mara' cruise in July 1980.

On all hauls where herring were present they were only caught in the top compartments.

John Main
1 May 1981

Seen in draft: A Mair