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

CRUISE REPORT

FRV "CLUPEA"

28 February - 11 March 1977

OBJECTIVES:

- 1) To carry out an echointegrator survey for herring around Shetland.
- 2) To sample traces by midwater trawl to identify the species composition.

NARRATIVE:

"Clupea" sailed from Aberdeen at 1830 on 28 February. The echointegrator survey was commenced south east of Sumburgh Head at 1000 on 1 March. The survey track is shown in the accompanying chart. Weather conditions dictated a transfer to the west side of Shetland early on 2 March. The survey was continued, working south west from Muckle Flugga. A short interruption was necessary on the afternoon of 2 March to allow engine investigations to be carried out at anchor in Ronas Voe. The opportunity was taken at this time to carry out calibration of the acoustic equipment. The survey was then resumed. Impending severe gales made it necessary to return to the east coast on 3 March. Weather conditions precluded further survey work and the ship berthed at Lerwick at 1100 on 4 March.

"Clupea" sailed from Lerwick at 0800 on 7 March to resume the echointegrator survey, with the intention of trawling should any significant echo traces be found. However, southerly gales caused an enforced return to Lerwick at 1330 to await moderation of the severe weather.

RESULTS:

A few echo traces probably attributable to herring were observed about 5 miles SSE from Sumburgh Head. They were widely scattered and rather insubstantial in nature. A somewhat larger number of similar traces were found about 15 miles east from Muckle Flugga. A similar pattern of traces was observed on the west side of Shetland 5 to 10 miles north of Yell Sound. Additional herring-like traces were observed north west from the entrance to Ronas Voe. In the middle section of Ronas Voe a series of dense, compact traces were observed on the ship's EQ echosounder. There is strong circumstantial evidence to suggest that these were due to sprats, which have been fished commercially at this location recently.

All of the traces referred to above were too small in horizontal extent and too widely scattered in distribution to enable any reliable assessment of stock size to be made. The highest average density attributable to herring-like traces, for one 5 mile section of the survey track, was 37 tons per square nautical mile, assuming a backscattering strength of -34dB/Kg. This density was exceptional, a more usual value being of the order of 5 tons per square nautical mile.

An extensive area west of St Magnus Bay gave rise to a substantially continuous echo trace close to the sea bed at night. The source of this particular trace is a matter for conjecture, but presumably could have been Norway pout or other young gadoids. Average densities of the order of 50 tons per square nautical mile were typical in this area. This again assumes, in the absence of any better information, a backscattering strength of -34dB/Kg .

Shortage of time and adverse weather conditions combined to prevent any trawling samples being carried out.

W I Dunn
11 April 1977

Seen in draft - A Mair