

R1/12

In Confidence - Not to be quoted with out reference to the Laboratory

FRV 'Scotia'

Cruise 8/81

REPORT

8SR81

12-31 August 1981

#### OBJECTIVES

1. To carry out an acoustic and midwater trawling survey of the Orkney - Shetland area, as part of an ICES-coordinated survey of the herring stock in the northwestern North Sea.
2. Subsidiary objectives added shortly before and during the survey were
  - a) a survey of the northern part of ICES Division VIa to search for mackerel shoals in the approaches to the Minch.
  - b) a survey off Aberdeen where adult herring concentrations had been reported.

#### NARRATIVE

'Scotia' sailed from Aberdeen at 1900 on 12 August and proceeded direct to Loch Eriboll to carry out a calibration of the acoustic system. The period from 13-15 August was spent carrying out a survey of the area west of 4°W. In the absence of convincing mackerel echotraces the survey was continued northeastwards over the continental shelf to NW Shetland. On 16 August the herring survey commenced to the west of Shetland. On 17 August modifications were made to the towed body and the survey continued to the south of Shetland, northwest of Orkney and Fair Isle. In bad weather during the evening of 18 August the ship diverted course to the east of Orkney and proceeded to the Clyth Ness area of the Moray Firth which was reached on the morning of 19 August. A large catch of herring made off Wick was lost when being hauled aboard.

Since considerable net damage had been experienced during the first part of the cruise, the 'Scotia' docked briefly at Scrabster at 0915 on 20 August to load two additional trawls taken by road from Aberdeen. Later that day a further calibration of the acoustic equipment was carried out in Scapa Flow, and the echosounder grid to the northwest of Orkney was resumed at 1820. Minor engine repairs required a brief period at anchor in Pierowall Road from 0830-1300 on 21 August. The next two days were spent surveying the area east of Orkney to south Shetland and 'Scotia' docked in Lerwick for the half landing at 0830 on 24 August.

'Scotia' sailed from Lerwick at 1100 on 25 August and, after a brief search for oil pollution and dead mackerel reported by the Fishery Office in Colgrave Sound, made for northwest Shetland. On 26 August, following a signal from the Scottish Office, a brief call was made to Yell Sound to land an officer to proceed on special leave. The survey was then continued north and east of Shetland. On 28 August a repeat survey was carried out at southwest Shetland and then south to Fair Isle and east Orkney. A further trawl was carried out off Wick resulting in a catch estimated to be about 3-400 baskets of herring.

After a brief survey of the southern Moray Firth, 30 August was spent in Aberdeen Bay searching for reported herring concentrations. A final survey of Aberdeen and Turbot Banks was carried out before docking in Aberdeen on 31 August.

#### Acoustic and midwater trawling survey

The results of this cruise formed part of a contribution to the 1981 statutory meeting of the International Council for the Exploration of the Sea and will only be briefly reported here. The cruise track and trawl haul positions are shown in the attached chart.

On the survey, no plume echotraces characteristic of herring were recorded. Dense echotraces near the seabed were found over large areas and the results of trawl hauls indicated that they were predominantly 0-group Norway pout and in some areas adult whiting and mackerel. Small catches of herring distributed over the area south of Shetland were not associated with a distinctive echotrace. The only concentration of herring found was close inshore off Wick in the Moray Firth, and this was associated with echotraces consisting of small marks distributed throughout the water column. Numerous small echotraces in Aberdeen Bay were shown to be caused by small herring, sprats and sandeels.

A total of 27 trawl hauls were made, ten with the Jackson Pelagic trawl (PT 160) and 17 with a larger Jackson Pelagic Trawl (PT 158). Both were fitted with a 20 mm codend. Herring were caught in 12 hauls, usually in small quantities. Those caught northwest of Orkney and south of Shetland were large herring ranging in length from 25-35 cm (mode 30-32 cm) and most were already spent. In the Moray Firth, the herring were smaller (19 - 33 cm, mode 26 cm) and at a lower maturity stage (IV). In Aberdeen Bay, mostly small immature herring were caught with modal lengths at 7 and 15-16 cm, and only a small component of larger fish (21-31 cm).

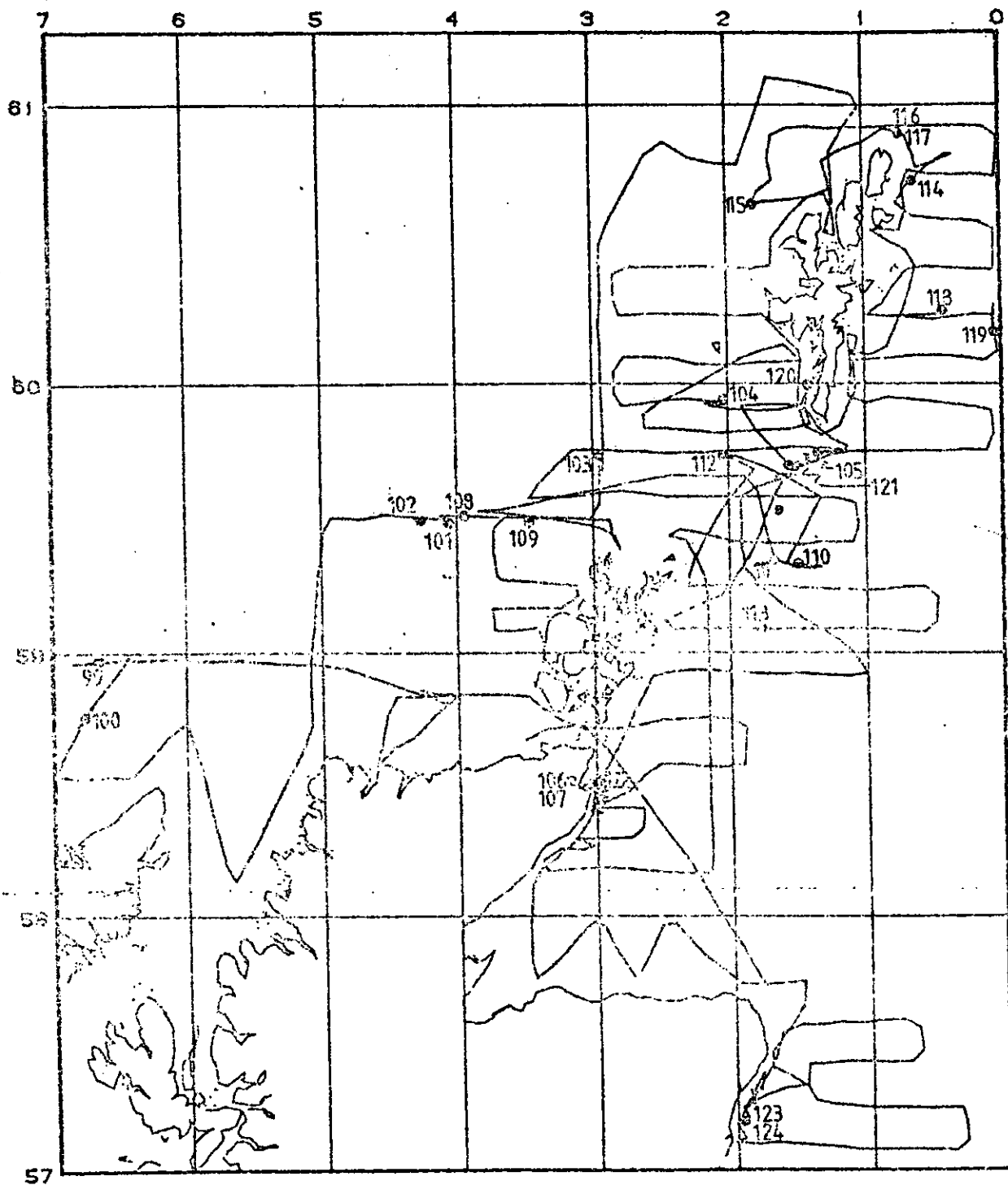
0-group Norway pout were caught in considerable quantities in 13 hauls, large mackerel in 5 and whiting in 2. In Aberdeen Bay, sprats and 0-group sandeels were caught in addition to herring.

#### Mackerel Survey

The only evidence of mackerel concentrations in the northern part of Division VIa were close inshore at the mouth of Loch Eriboll where a fishery was already taking place.

R S Bailey  
20 Jan 1982

Seen in draft OIC Mr MacLeod



Survey track and trawl hauls, SCOTIA 12-31 August 1981