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CRUISE REPORT

F.R.S. "SCOTIA"

26th March-22nd April, 1959.Narrative

The ship sailed from Aberdeen at 1400 hours on the 26th March and, after spending a day on productivity and bottom fauna work on Fladen, carried out an echo-search up the edge of the Norwegian Deeps. A 30-mile square area was chosen from these results and all the work was carried out in this area.

During this work "Scotia" paid two visits to Bergen for water and stores. On the first visit the Fisheries Laboratory kindly provided facilities for the analysis of perishable samples collected on Fladen. On the second occasion the officers and scientific staff of "Scotia" spent an evening as guests of the Laboratory, during which "Scotia's" work off the Norwegian coast was discussed.

On the return journey to Aberdeen the Fladen sampling was repeated and between Aberdeen and Leith the hauls for Nephrops were made. The ship docked in Leith at 1430 hours on the 22nd April.

Hydrography

The picture this year was more complex than in the previous year. The Baltic outflow, 5-6°C, was not so cold as last year (2-4°C) and thus not so easily distinguished for the "North Sea water", 6-7°C. However, the main complication was a strong southerly inflow of "Atlantic water", circa 8.7°C, which occurred during the period studied. Initially it was found only at the north-west corner; a few days later it formed an irregularly shaped tongue; and ten days from the start it covered nearly all the area. Better information on this will be available when the bathythermographs have been read.

Plankton

The problem in the previous year was that the zooplankton hauls with a Hensen net showed no changes in the quantities of copepods (measured by dry weight) across the hydrographic edge where the herring were concentrated. This year, using the high speed Gulf III sampler, there appears to be significant variations in the euphausiid distributions; the main concentrations were found in the eastern part of the area and no euphausiids were found in the main part of the Atlantic inflow. A complication here is that euphausiids could not be caught during daylight. By night, in an area of dense traces, the weight of euphausiids in the hauls exceeded that of the copepods. Unfortunately the sampler was lost half way through the cruise and the results are incomplete.

Herring

Good concentrations of traces were found in the region studied. The first group which was investigated was in the northern part of the area and lay initially between the edge of the Baltic water and the start of the Atlantic inflow. Later, when the inflow covered this area, the herring appeared to be distributed around the edges of this inflow.

Later a second group of traces was studied intensively for two nights. It lay on the edge of a patch, or tongue, of Atlantic water which extended under the Baltic outflow. These traces, at their best, were continuous for distances up to two miles. Their upper limit was about 40 metres which corresponded to the foot of the Baltic water.

On five occasions two samples of herring were collected from English drifters and the stomach of the fish examined. The predominant contents were euphausiids, particularly Meganyctiphanes norvegica, suggesting that the euphausiid distribution plays a part in determining the herring distribution.

JOHN STEELE
30th April, 1959.

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