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CRUISE REPORT

F.R.S. "SCOTIA"

July 17-August 13, 1963

The ship left Aberdeen at 2230 hours on the 18th of July, the departure having been delayed due to a fault in a fuel line at the fueling berth. The first survey of the plankton patch was commenced at 0900 hours on the 19th and half hourly sampling of chlorophyll, salinity, phosphate and zooplankton continued until 2400 hours, when increasing winds caused work to be discontinued. By 1800 hours on the 20th conditions had improved, allowing work to proceed and the first survey was completed at 0630 hours on the 21st.

At 1100 hours that day the second survey of the plankton patch was started and continued, almost free of interruption, until it was completed about midnight on the 22nd. The third survey began at 1300 hours on the 23rd, but had just got under way when the ship had to steam to Fraserburgh to land one of the seamen, who had been informed of his brother's death by radio-telephone. The ship proceeded back to the plankton patch which was reached at 0230 hours on the 24th. The third survey was completed at 1500 hours on the 25th.

The ship proceeded to the Southern trench where a depth meter was calibrated and then to Aberdeen Bay where Clarke-Bumpus flowmeter calibrations were carried out on the measured mile.

The ship docked at Aberdeen at 1600 hours on the 26th for changes in scientific personnel and scientific gear. The ship sailed at 2030 hours on Sunday, 28th, and from then until the following Sunday work continued in excellent weather. Two positions were occupied for studies of the depth distribution of Metridia lucens through 24 hour periods, and two positions for the collection of haddock stomachs throughout 24 hour periods. The remainder of the time was devoted to trawling at selected positions and trials of the Isaacs-Kidd mid-water trawl and the bottom sledge net.

By 0930 hours on the 5th of August the weather had deteriorated rapidly and the ship proceeded to Point Law to take on fuel, the ship then docked at 1330 hours for further changes in scientific staff.

"Scotia" sailed on 6th August to work a diurnal C¹⁴ station on the Fladen ground. Two other stations on the Fladen-Rattray line were then worked and the ship returned to Aberdeen on the 9th to enable Mr. McIntyre to analyse live samples of meiobenthos. On the 10th and 11th a further diurnal station was worked off Rattray and more live samples of benthos collected. "Scotia" then returned to Aberdeen docking at 1930 hours on the 11th August.

Plankton Patch and Depth Distribution of Metridia lucens

A large number of samples were collected, but it will be some time before the analysis can be obtained.

Trawling and the Food of Haddock in relation to the Bottom Fauna

Trawling, either diurnal or single hauls, was carried out at six positions. The catches were dominated by haddock, whiting and Gadus esmarkii. At the diurnal stations the numbers of haddock were fairly constant throughout the period of sampling, but the numbers of herring varied, e.g. an average of 12 per hour haul between 0800 and 2300 hours and an average of 39 per hour haul between 2300 and 0800 hours at 59°00'N 1°00'W.

Haddock stomachs were collected from 5 cm groups from all hauls. The plan to collect bottom fauna samples from all trawl positions had to be abandoned due to the failure of the Smith-McIntyre grab. However, six successful samples were obtained.

General

Trials with the bottom sledge net on Fladen were unsuccessful, the net being badly torn by the large quantities of mud brought up.

The Isaacs-Kidd mid-water trawl was used for the first time from F.R.S. "Scotia". It was shot and hauled with the aid of the trawl gilson, and seemed to be fishing perfectly, although the catch was similar to that experienced on the April-May cruise of F.R.S. "Explorer", being "not unlike what might have been expected had the cod end net been towed alone as a plankton net without the Isaacs-Kidd". Calanus and euphausiids were the dominant forms caught.

The net was towed at 3 knots and some slipping of the net along the belly-line occurred during the first haul.

About 50 Plankton Indicator samples were obtained for the Oceanographic Laboratory, Edinburgh, over the area $56^{\circ}45'N$ to $59^{\circ}45'N$, $2^{\circ}30'W$ to $1^{\circ}0'E$.

Six zooplankton feeding experiments were carried out, both Chlorophyll and C^{14} techniques being used.

Although the laboratory echo-sounder was not working, continuous records were obtained during the plankton patch surveys, thanks to the co-operation of the ship's officers. A few pelagic traces were observed.

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