

CRUISE REPORT

F.R.S. "SCOTIA"

20th April-21st May, 1964

Narrative

Messrs. Adams and Ranachan joined "Scotia" at Leith on the afternoon of 20th April, and the ship sailed later that night. During the morning and afternoon of the 21st, trials of the Furuno depth telemeter, mounted on the Gulf III high speed sampler were carried out; the ship then docked at Aberdeen.

Scientific gear and ship's stores were loaded on the 22nd, and the ship sailed at midnight for work on the Rattray-Fladen line, which was successfully completed during the afternoon of the 24th. The ship then returned to Aberdeen for scheduled changes in scientific staff and sailed at 2400 hours on 25th April. During the first day drift indicators, bottom current markers and drift bottles were liberated in the north-western North Sea; the ship then proceeded to the Coral Bank-Norwegian Deep area where the first herring-plankton survey was started at 0530 hours on the 27th. Work continued in this area almost continuously until 0130 hours on 1st May when the ship proceeded to Haugesund for water. Up to that time only ten hours were lost due to sea conditions.

"Scotia" sailed from Haugesund at 1100 hours on the 2nd and proceeded to continue the herring-plankton survey in the area north of  $59^{\circ}\text{N}$  and from Shetland to  $4^{\circ}\text{E}$ . Work continued in this area until 0230 hours on the 7th when the ship proceeded to Aberdeen; only twelve hours had been lost due to weather conditions. During passage to Aberdeen, the echo-survey for pelagic traces was continued and Indicator samples obtained for the Edinburgh Laboratory of the S.M.B.A.

The ship docked at Aberdeen at 0900 hours on 8th May. After the completion of necessary engine repairs, and the loading of ship's stores, "Scotia" left Aberdeen on the afternoon of 11th May. The three current indicator stations off Wick and three tow-net stations between Pentland and Fair Isle were completed by 1100 hours on 12th May, when, because of deteriorating weather conditions and a gale forecast, it was decided to anchor off Fetlar. No work was possible on 13th May. Conditions eased during the night and "Scotia" left Fetlar at 0800 hours on 14th, but the improvement was only temporary and after one trawl haul the ship anchored in Balta Sound at mid-day.

Conditions again eased during the night of 14th-15th May, and the ship proceeded to the  $61^{\circ}01'\text{N}$  line. However, on reaching the first station at 1000 hours work was impossible because of a heavy swell and freshening winds; "Scotia" returned to Balta Sound. As "Scotia" had to be in Lerwick on the 19th May to land a sick stoker and pick up a relief, it was decided, if weather allowed, to continue the herring-plankton survey rather than return to the  $61^{\circ}01'\text{N}$  line. By 0730 hours on 16th May weather conditions had improved and the ship proceeded to carry out a limited herring-plankton survey in the area from Shetland to  $3^{\circ}\text{E}$ , thus filling a gap left during the first survey.

"Scotia" docked at Lerwick at 1500 hours on 18th May. A leak in the ship's boiler was reported to the Engineer-Superintendent, who instructed that the ship should return direct to Leith for repairs. After consultation with the Laboratory, one member of the scientific staff sailed to Leith to supervise the unloading of the scientific gear, while the other three returned to Aberdeen on the "St. Clair".

## First Herring-Plankton Survey

One hundred and forty-seven Gulf III zooplankton samples were obtained during the first survey.

Calanus appeared to be the dominant species present over most of the area surveyed. The large euphausiid, Meganyctiphanes norvegica, as normal, appeared in two main areas - the Fladen area and the Norwegian Deep. Shipboard estimates of settled volume showed two main areas of high zooplankton standing crop ( $>300$  cc per  $100\text{ m}^3$ ); a small area to the west of Coral Bank and a larger area, between  $0^\circ$  and  $2^\circ\text{E}$  and  $59^\circ$  and  $60^\circ30'\text{N}$ .

Pelagic fish traces were recorded from east of Shetland and over a large area extending from Coral Bank in the south to Viking Bank in the north. As in the May surveys in 1962 and 1963 the main concentration of pelagic fish traces were outside the areas of high zooplankton standing crop.

## Second Herring-Plankton Survey

Forty-nine Gulf III zooplankton samples were collected. The results agreed well with those of the first survey and again there was a marked negative correlation between high zooplankton and fish traces.

B.T. results, thermograph results and chlorophyll a results have not yet been processed.

## General

Two hauls with the Vinge trawl were made in the Coral Bank area (G16d and H15d) and one haul east of Shetland (D20c). At G16d, 942 herring and 1124 mackerel were caught, at H15d 99 herring and 34 mackerel. Neither herring nor mackerel were caught at D20c. The other most abundant species were haddock and whiting at all positions and common dab at G16d. All hauls were of one hour's duration.

Seven shipboard zooplankton feeding experiments were carried out using Chlorophyll a and  $\text{C}^{14}$  technique.

JAMES A. ADAMS  
GEORGE McPHERSON  
1st June, 1964.