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CRUISE REPORT

F.R.S."SCOTIA"

2nd-21st May, 1959

Narrative

F.R.S. "Scotia" sailed from Aberdeen on 2nd May 0900 hrs, after slight delay caused by shipping in new warps and plankton winch wires. On the way to the hydrobiological survey area a fault in the radio transmitter was discovered and it became necessary to go to Lerwick for repairs. The stay in Lerwick was prolonged by the progressive deterioration of the weather conditions, which did not allow us to leave the harbour till 5th May 0530 hrs. The first hydrographical station was occupied on the same day at 1320 hrs, with winds still strong and the working conditions difficult. The Shetland - Norway line (61°01'N) required almost three days to complete, during which time the ship had to heave to for more than 12 hours on two occasions. With two lines completed (except for 3 stations) the ship had to seek refuge in Mid Yell on 7th May 2200 hrs. An attempt was made to resume work on the following day at 1730 hrs, but weather conditions were still too difficult and the ship anchored in Lerwick Bay at 2330 hrs. Continuing SE winds resulted in heavy swell which made work difficult even when the wind decreased for some hours. Having left Lerwick Bay on 9th May, the ship worked till 11th May 1200 hrs, with one more period of enforced inactivity of 15 hours' duration. Having completed only a half of the intended hydrobiological survey, the ship docked in Aberdeen to take water and pay the crew. After 24 hrs in Aberdeen, Scotia left for the Firth of Forth on 13th May 1700 hrs. The standard Nephrops survey was carried out between 0100 and 1000 hrs on 14th May. The ship then made its way to the Dogger Bank, the area of the parasitological survey. The population of whiting was sampled by trawling between 15th May and 20th May, during which time the work was interrupted only on two occasions, once due to a damaged net and once due to a high wind and heavy swell. Having left Dogger Bank on 20th May, "Scotia" arrived and docked in Aberdeen on 21st May 1200 hrs.

Parasitological survey

The object of this survey was to find the border between the populations of whiting infected with Ceratomyxa (a gall bladder protozoan) and those infected with Myxidium (also a gall bladder protozoan) in the hope of using this infection as a biological indicator. The survey was carried out by the usual trawling samples of 1 hour each and covered central and southern part of Dogger Bank. Eighteen hauls, each in a different statistical square were made. Fishing was light, catches not being greater than 2 baskets per haul, but an adequate sample of whiting was obtained almost in every case. It appears from the survey that the dividing line between the two populations of whiting pas.es between 54°N and 53°N. Ceratomyxa, which infects up to 75% of whiting in the Scottish waters drops to 2-10% near 54°N, while Myxidium, almost absent from the northern whiting appears near that line in about 10-45% of them. The highest known infection with Myxidium south of that line is 58% (Noble, 1957). The gall bladders were examined aboard under the high (dry) power objective. In all 390 bladders were examined.

Hydrobiological survey

Due to the bad weather conditions only 31 of the 62 planned stations were completed.

Plankton: Plankton was quite rich at the stations sampled, particularly in reference to Calanus and phytoplankton. Heavy concentrations of phytoplankton occurred west of the prime meridian with R. styliformis as the dominant form, whilst to the east of this line the phytoplankton was more scattered. It was there that the richest Calanus catches were obtained. In this latter area R.alata dominated over the spring forms and was associated with the presence of Sulculeolaria which had overwintered in the area. Anomalocera, Thysanoessa and

decapod larvae occurred more commonly in the extreme eastern and western stations sampled, the copepods in the uppermost layers and the other forms in the deepest layers. The more central stations sampled showed denser catches of fish eggs, with the presence of Thalassicola, Aglantha, Limacina and Pleurobrachia in the west and the main bulk S.elegans in the east.

Thirty one plankton indicator samples were collected for the Oceanographical Laboratory in Leith.

Hydrography: The main feature of the survey was the uniformity in the water temperatures throughout the depth of the water. The temperature distribution was as shown below:

Line:	Temperature range	
	Surface	Bottom
61°01'N	6.80-9.14°C	7.09-9.18°C
60°30'N	8.12-8.74°C	7.07-7.93°C
60°00'N	7.01-8.32°C	7.04-8.23°C
59°30'N	7.06-8.03°C	6.36-7.21°C

The general tendency was for the temperature to decrease from west to east and from north to south. Samples for salinity, oxygen and phosphate were taken at each station.

Echosounding: The echosounder was run continuously on the three lines (not on 61°01'N) but no distinct fish traces were found either on these lines or on the run to Aberdeen.

Z. KABATA

2nd June 1959

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