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CRUISE REPORT

F.R.S. "SCOTIA"

1st March - 21st April, 1961

Narrative

The ship sailed from Aberdeen on 1st March and after working the Rattray-Fladen line of productivity stations started the Norwegian Deep herring environmental survey. This was completed on 8th March and part of the trawling survey was worked until the ship returned to Aberdeen on 11th March for stores and to exchange scientific staff. "Scotia" sailed again on 13th March and continued the trawling survey until 19th March when, in the face of continued bad weather, the ship returned to Aberdeen. After being storm-bound for two days the rest of the trip was abandoned on 21st March.

The second part of the cruise commenced on 30th March and the trawling survey was successfully worked in moderate to good weather until 13th April when "Scotia" called into Lerwick for water and to exchange scientific staff. A previous call had been made in Lerwick for water on 5th April. "Scotia" left Lerwick on 13th April and proceeded to the Norwegian Deep where a second survey was carried out until the 18th April when the ship left the area to work the Rattray-Fladen line. This was completed on the evening of the 20th and the ship docked in Aberdeen on the morning of the 21st April. The Firth of Forth Nephrops survey was completed on 23rd April and the ship docked in Leith on the 24th.

Trawling

The first part of the trawling survey was severely hampered by bad weather and only 20 stations were worked. Better conditions during the second part of the cruise enabled a further 30 stations to be done. Thus a total of 50 trawls were completed out of a possible 75.

Herring were scarce; the only catches of any size were made in the Moray Firth and consisted of young herring about 15 - 18 cm in length. At all stations where sufficient numbers were caught a racial analysis was carried out.

Haddock and whiting were taken in moderate numbers over most of the area sampled but good catches were recorded S.E. of Shetland. To the north of the grid, at the 61°01'N stations, a large haul of Sebastes viviparus was made, 393 fish being taken.

Gadus esmarkii was sampled over the whole grid of stations. Catches were smaller than on the corresponding survey last year.

Large cod were examined for nematodes and whiting gall bladders were collected from each statistical square.

All fish were treated as per standing instructions.

Nephrops

In addition to the routine sampling of Nephrops during the trawling survey the Firth of Forth Nephrops survey was completed.

Norwegian Deep

During the first survey the herring traces were found on the western edge of the Baltic outflow and mainly between 58°30'N and 59°00'N. There was a large fleet of Russian drifters working in this area. The phytoplankton outburst had not yet started and euphausiids were dominant in the zooplankton with copepods comparatively scarce.

During the second survey the main traces were found between 59°10'N and 59°40'W where the Russian fleet was now working. The edge had broken down and the traces were more scattered to the west. The main phytoplankton outburst was probably past its peak in this area and the production was mainly to the west of the original edge. The euphausiids were still confined to the east of the original position of the edge but very large Calanus populations to the west of this now provided the dominant component and corresponded roughly with the main area where traces were found. A herring sample kindly provided by the drifter "Ethel Mary" showed that the herring in this area were feeding very actively on Calanus.

Plankton

In addition to 1 m 26 tow nets and standards at selected stations, the Gulf III sampler was used at all trawl stations, as well as in the Norwegian Deep area. During March the collections were generally poor but in April high concentrations of zooplankton were present in the north-eastern area of the northern North Sea where Calanus was very abundant, and by far the most dominant species, especially along the edge of the shelf. Further to the east Euchaeta norvegica formed a conspicuous element of the collections. Larval fish and fish eggs were also present in large numbers in most collections.

Euphausiids were present in the greater part of the collections. Thysanoessa inermis seems to be widely spread but over the Norwegian Deep Meganyctiphanes norvegica was the dominant species associated with the latter species were Thysanoessa longicaudata and T. raschii.

Siphonophores were noted to the east of Shetland, midway between Shetland and Norway, and also on Fladen.

The plankton indicator was towed for the S.M.B.A. at all trawl positions.

Hydrography

Temperature observations and salinity, silicate, phosphate and nitrate samples were taken at all stations on the trawl survey. All standard depths were worked at the first and last stations each day, only surface and bottom observations being made at all other stations. Additional detailed hydrographic observations were made during the course of the herring environmental study.

Echosounding

The echo sounder was run continuously during the cruise. Very few traces were observed during the trawling survey.

General

During the trawling survey radio contact was established with "Anton Dohrn" and "Clione" and information was exchanged on the progress of the various ships taking part in the international survey and on the whereabouts of the commercial herring fleets.

The usual contacts were maintained with the laboratory.

J. H. STEELE
D. F. S. RAITT
24th May, 1961.

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