

CRUISE REPORTF.R.S. "SCOTIA"December, 1952

Taking advantage of the early return from the November Faroe Cruise, the commencement of the "SCOTIA" December cruise was brought forward to Sunday, 30th November. Since, also, a call was required at Aberdeen on December 3rd or 4th for ship inspection prior to the annual refit, it was arranged to set off from Leith and to work the stations south of Aberdeen en route. Gear having been already taken on board at the termination of the previous cruise "SCOTIA" left Leith at 11.30 p.m. Sunday in calm weather with patches of fog. Ring net fishing was observed in progress in the Firth of Forth to the east of Inchkeith where an interesting echo-trace was obtained which appeared to indicate a herring concentration. Stations at the mouth of the Firth of Forth were worked uneventfully. The calm weather broke suddenly into a full gale on Tuesday evening and a passage was made to Aberdeen through heavy seas arriving at 2.30 p.m. Wednesday, 3rd December.

The cruise was resumed on Friday at 2.45 p.m. and stations worked to Smith Bank, where a brief trawling and bottom survey was carried out. Work was continued northwards on the west side of the Orkney and Shetland Isles to the 61°01'N line; the section across the Fair Isle passage being completed on route as conditions were favourable. Stations on the 61°01'N line were worked eastwards to 01°00'E when bad weather interrupted progress. Shelter was sought in Mid Yell until Thursday when the weather appeared more favourable. To resume the 61°01'N line it was necessary to steam some 90 miles but after a fair passage only one station was completed when strong winds again set in. The ship dodged for some hours but the wind although strong did not increase and the 61°01'N line was completed to 4°E and the 60°01'N line westwards to 1°30'E when the already difficult conditions became unworkable. A passage was made to anchor at Lerwick arriving at 7.30 p.m. Saturday, 13th December. Water, stores and mail were taken on board on Monday. Forecasts of adverse weather on Tuesday morning made a move to more suitable shelter imperative. A passage to anchorage at Long Hope was made just in time to avoid severe NW gales which lasted for several days. Two stations were worked in the Moray Firth, on the 18th December, when again shelter had to be sought this time in Gamrie Bay. In a final spell of moderately good weather between Saturday, December 20th and Monday, 22nd, eighteen stations in the herring larvae survey, off the Buchan coast were completed and "SCOTIA" docked for refit at 3.30 p.m. on Monday, 22nd December. Of the 98 stations scheduled, 71 were completed as listed, or in one or two cases, with minor amendments to suit weather conditions.

HYDROGRAPHY

The 61°01'N hydrographic line was worked from 1°52'W to 4°E and the 60°01'N line westwards as far as 1°30'E when further work had to be abandoned. Temperatures were generally uniform with depth and ranged from 9.6 - 8.6°C eastwards along the 61°01'N line to 3°30'E when colder surface water ca. 7.1° (0-40 m.) was encountered and where also water below 250 m. to the bottom was ca. 7.0 to 6.8°C.

On the 60°01'N line corresponding temperatures were lower, 7.6° cf. 8.6° on the average, west of 3°E but farther east were little /different

different, 8.7° cf. 8.9°. These temperatures indicate an extension eastwards of water ca. 8.9° to 3°30'E compared with 2°30'E in 1951 for the 61°00'N section.

Temperatures in the herring larvae survey area were always completely uniform with depth and varied only from 7.3° to 8.7°C.

Two hundred plastic drift envelopes were liberated in conjunction with normal drift bottles. It was noted that in gale force winds there was a tendency for the envelopes to be tossed into the air by the waves and blown freely across the surface for a distance of several metres.

PLANKTON

(a) Zooplankton species

Plankton collections were of two major types, one extending over the area off the east Scottish coast and northwards as far as Orkney; and the other north of Orkney, west and north of Shetland and on the Viking Bank. Larvae Clupeoids were confined to the first type which was also characterised by fair numbers of Sagitta elegans, Aglantha, young stages of Euphausiids, some Calanus, Themisto and Clione. The northern type contained plankton of poor feeding value and often also in only small quantity. Very obvious in these collections were the survivors of a warmer oceanic plankton carried from the area west of Scotland, e.g. Hippopodius, Galetta australis and Salpa fusiformis with Physophora. A striking feature of this plankton was the number of elvers of Anguilla which were taken in the Fair Isle Passage, west and north of Shetland and in F21d on the 61°N line. This northern type of plankton extended over the Norwegian Deep but here Meganyctiphanes was fairly abundant in the deeper water. There was distinct evidence of an infiltration of the northern type into the area east of Buchan where Galetta australis was taken and elvers were also found in E13a and C12b.

(b) Herring larvae

The densest concentration of herring larvae was found in the Farne Deep to Berwick Bank region which is somewhat farther south than expected. Considerable numbers were also taken at several stations worked in the vicinity of Turbot Bank whilst lesser numbers occurred around the Orkney Isles and on the outer boundary of the Moray Firth.

TRAWLING

During the cruise 31 hauls of one-hour duration were made with the 30' otter trawl and small mesh cover. Catches varied widely from almost nil to 20 baskets in extreme instances. The best areas fished were B15, E21, C13 and D 11 with haddock and whiting by far the greatest component of the catches. The least productive areas were A16 and B18.

Haddock was present in almost all hauls. The 0 group (1952 brood) was not abundant; the highest catch being in area H19c. Larger sizes ranged from 22-59 cm, chiefly 24-31 cm. of the 1951 brood. The greatest concentrations of these larger sizes were taken in areas B15, E21, C13, D14 and D11.

Whiting/

Whiting, like the haddock, were taken in most hauls. Sizes ranged from 12-47 cm. with the larger sizes most abundant in E21, C11 and D11.

Saithe. One haul in area B16a gave 20 baskets of 29-51 cm. fish and no other species.

Other fish. Cod were found only in small numbers of small fish. Few lemon soles and plaice were taken. Along the 61°01'N line megrim occurred in small numbers. A large haul of small *Sebastes* (495 from 9-18 cm. bimodal at 10 and 15 cm) was obtained in area C20. Gurnards of good marketable size and in fair quantity were caught on several occasions.

BOTTOM SURVEY SMITH BANK

A number of mud dredge samples were attempted but the amount of sample, and the depth of penetration achieved were deemed inadequate for investigations of the macrofauna.

Two trawls by daylight yielded light hauls of *Ammodytes* and *G. minutus*. The same stations at night gave fair catches of lemon sole, cod, haddock and whiting and large numbers of common dabs.

R. JOHNSTON
5th January, 1953.

CIRCULATION

Mr. W. Russell	Mr. K. M. Rae	Dr. R. Johnston
Capt. C. H. Champness	Dr. G. Reay	Mr. J. M. Lamont
Mr. M. Graham	Dr. H. Wood	Mr. D. D. Seaton
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Dr. J. N. Carruthers	Dr. J. H. Fraser	Circulation
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Dr. B. Havinga	Dr. B. B. Rae	File
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