

REPORT OF F.R.S. "SCOTIA"

March-April, 1949.

The ship left Aberdeen at 3 a.m. on 30th March, 1949, proceeding to complete the outer ring of stations. On 5th April one of the boiler tubes burst just as the trawl was being lowered. The trawl was immediately hauled and the ship set on a course for Leith. However, by the time the next station was reached the damage had become no worse and work was continued at this and the next two stations. The "SCOTIA" arrived in Leith early on Monday, 4th April just before the loss of fresh water from the boiler became serious. Repairs took three days and the ship left at 9 a.m. on Thursday to complete the remainder of the programme. Owing to bad weather it became necessary to dodge for 36 hours but thereafter all the work was carried out and the "SCOTIA" returned to Aberdeen at 11 p.m. on Sunday, 10th April.

Trawling:

The new 30' trawl was used for the first 9 hauls and various modifications were made. The wire 'legs' were reduced from 20 ft. to 10 ft. and then discarded altogether. The belly split owing to the bosom being too weak and this was therefore replaced by a thicker one, so obviating further trouble from this source. The angle of the boards was altered to give greater spread to the gear and floats were attached to the headline. In spite of all these alterations the trawl did not catch many fish though it took plenty of invertebrates. An experiment was tried in which various lengths of twine were attached between the headline and bosom, in the hope of ascertaining the approximate height of the headline when fishing, but without success. All lengths (calculated to give heights of 3', 4'6", 5' and 6' when fishing) were broken on hauling, but it is not known whether or not these became broken during shooting, towing or hauling.

Experiments in increasing and decreasing speed of towing were also tried, and the best speed was 65 revs. according to wind and tide. The 20 ft. trawl was used after the first 9 stations and worked more efficiently than the 30 ft. trawl. It would seem that the boards and warps are too light for the 30 ft. trawl.

Fishing was poor in the whole area examined, and especially poor east of 30°E. Small dabs (P. limanda) were most common in the centre of the area, the only other common fish being Trigla. Haddock never occurred in numbers greater than 27 in a 1-hour haul and were usually less than 10; in 5 eastern stations none at all was taken. Haddock were mostly spent or immature. Whiting were slightly more numerous and were mostly ripe. In E10a a distinct fish trace appeared on the echo-sounder whilst the trawl was down, and judging from the catch, this was made by a shoal of mackerel.

The invertebrates caught were more numerous than those taken by the "EXPLORER" in the same or similar positions, and consisted largely of Eupagurus spp., Taelia, Spatangus and Echinocardium. A big bag of Flustra and Alyconidium was taken in H13a where fishing was very poor indeed.

Plankton:

Plankton samples were taken by Standard fine silk net, Hensen, and by 1-metre townets of stramin and 26 mesh silk. A method of attaching the townets to a shackle free to revolve between two clamps fixed to the warp was tried out, and with minor adjustments should be very satisfactory: (The fitted screws were hardly long enough to grip the clamps tightly before becoming screwed home).

Rich collections of Coscinodiscus concinnus were taken almost throughout the cruise, with dense quantities of Thalassiosira at C13d, G9a, and B11d. A dying Chaetoceros population was found at K13a. Plutei larvae were abundant, and Balanus nauplii abundant near the coast. Calanus (St. IV - V) were moderately common in G13a, K13a, C12a and D10a, with Pseudocalanus and Temora (adults and young stages). Sagitta elegans was common near the coast, but S. setosa was very abundant east of the Gut, in the Dogger area and off the English coast. When both species occurred at the same stations (e.g. E12a, D8a) S. elegans was chiefly found in the bottom townet and S. setosa in the surface and mid-water nets. Dense masses of Cbelia medusae were found in J10d where mysids (Schistomysis ornata and Gastrosaccus spinifer) and amphipods (Paratylus) were also common. Fish eggs, mostly long rough dab (Drepanopsetta platessoides), haddock (G. aeglefinus) and G. esmarkii, were abundant near the coast (especially in D13c) and young larvae of those species, with saithe, were also present. Plaice eggs were taken in D8a, C10d, and B11d. Larval nephrops, catfish, Agonus and a few autumn-spawned herring larvae were also found in D8a and B11d.

Hydrography:

Temperatures and salinity samples were taken at the required depths from all stations and five drift bottles released at each. Temperatures were mostly between 5.5 and 6.5°C with no great difference between surface and bottom, (usually less than 0.2°C). Phosphate and oxygen samples were taken at 0, 20 and 50 metres at 16 stations, and the appropriate fixation and titrations done on board. Actual figures are not yet available but it would appear that the phosphate content was poor generally, as might be expected from this area at this time of year.

J. H. FRASER.

13th April, 1949.

Circulate:-

Mr. London
Captain Champness
Mr. Graham
Dr. Tanning
Mr. Lea
Mr. Wimpenny
Dr. Jespersen
Dr. Egevad
Dr. Lucas

Dr. Carruthers
Dr. Fraser
Mr. Lawrie
Mr. Balmain
Captain Bruce
Captain Sandison
Mr. Rae (Hull)
Dr. Henderson (Leith)
Spare 7