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CRUISE REPORTF.R.S. "SCOTIA"15th-29th September, 1953.

Owing to the sudden illness of the messboy the sailing was deferred for one day to Tuesday, 15th September, at 5 p.m. The strong easterly winds that had been prevailing for the last few days caused "Scotia" to steam to the west side of Orkney to work the sheltered stations there. The first station was occupied at 7.30 a.m. on the 16th, after trawling for an hour up to it. At station 6 (59°40'N 2°30'W midnight of the 16th/17th) it was apparent that no further work could be done in the existing heavy weather. On its way south to Orkney for shelter, at about 2 a.m., "Scotia" saw the distress signals (flashing of a searchlight) of a ship, which on the radar was seen to be too near the coast of Westray. Over the R.T., "Scotia" learned that the vessel, the Norwegian fishing smack "Havegg", had run aground but was in no immediate danger. "Scotia" stood by till daylight when the "Havegg" was seen to be lying on rocks with a list of 15°.

Before the next tide (4 p.m. on the 17th) "Scotia" again took up station near the "Havegg" when happily it was seen that the vessel had floated sufficiently high to come off the rocks under its own power. The "Havegg" then tied up alongside "Scotia" to thank Captain Bruce, and enquire as to the nearest place with a slipway. Apparently it had sustained no serious damage while on the rocks.

It was not till 6 a.m. on the 19th that the weather had moderated sufficiently to resume work, but only nine more stations were completed when another easterly gale drove "Scotia" to shelter. After anchoring at Pierowall from 5 p.m. on the 20th till 2 p.m. on the 22nd, "Scotia" moved to Kirkwall for water and stores, and to effect repairs to some of the steam pipes.

On the 23rd the weather had moderated and the wind had shifted to the west. Under these favourable conditions "Scotia" left Kirkwall at 5.10 p.m. and worked 35 more stations. The night of the 27th/28th was spent in Peterhead bay owing to the heaviness of the weather. Work was resumed under unfavourable conditions that allowed only 8 more stations to be completed, when at 7.30 a.m. on the 29th a S.W. gale caused further work to be abandoned. "Scotia" docked in Aberdeen at 5 p.m. the same day.

HYDROGRAPHY

Only 48 of the 75 listed stations, together with the 12 productivity stations were completed. At all these, temperatures and salinity samples were taken. The attached charts show the isotherms for surface and bottom temperatures, the dots indicating the positions of the stations. The highest surface temperature recorded was 12.87°C., to the west of Orkney, while 11.73°C., the lowest surface temperature, was recorded within the ringed 12°C. isotherm. A strongly developed thermocline existed between 30 m. and 50 m. depths over the areas with the lowest bottom temperature. Over the Fladen the change in temperature through this 20 m. section was as much as 5°.

The 12 productivity stations were fully sampled concurrently with the grid stations. Oxygen values for these stations proved to be between 6.26 c.c. and 5.85 c.c./L for the surface and between 5.47 c.c. and 5.19 c.c./L for the bottom. Free phosphate values showed uniform depletion (or little regeneration) in the layers of water above the thermocline (0 to 40 m.), 0.13 μ gm-a PO₄-P/L being the value over the Fladen. Bottom water over this same ground had the highest value of 1.2 μ .

Drift bottles in batches of 5 were liberated at 24 stations, and at 15 of these a further liberation of 10 drift envelopes was made.

PLANKTON

An aggregate of 185 hauls for plankton was made with the various nets, which included 48 vertical hauls with the 2m. silk net, and 25 oblique hauls with the high speed net. The catches in all nets were from moderate to good.

Clupeoid larvae were present over the greater part of the grid, the east coast of Orkney being the area where they were fairly abundant, although the densest catch of all was taken at D15a (70 miles N.E. of Fraserburgh). Calanus finmarchicus was fairly abundant increasing in density towards the south. Of note was the presence of Clione limacina off the east coast of Orkney, and Galathea australis and Sagitta elegans in the Orkney-Shetland Channel.

TRAWLING

Of the 15 trawls that were made during the cruise, one was fouled, there being no catch at all in it, and another was partly fouled, the catch consisting of two small fish; thus only 13 of the trawls were productive, and the catches in the cod-end may be described as from poor to moderate. Aggregates for round fish were haddock 1382 (19-50 cm.), whiting 1175 (16-40 cm.), seabastes 106, saithe 44 (27-40 cm., all caught in the same trawl at C18d), Squalus acanthias 41 (58-94 cm.), gurnard 24, cod 21 (30-69 cm.), and hake 7 (36-64 cm.). Flat fish were poorly represented in all the trawls, totals being, dabs 106 (12-33 cm.), witch 19 (24-41 cm., all caught in the same trawl at C15a), lemon soles 9 (19-32 cm.), plaice 3 (29-41 cm.), megrim 3 (40-43 cm.), anglers 6, skate 2. The two best catches were made at 58°50'N 1°30'W (54 fms.) where 450 haddock (from 19-40 cm.) formed the bulk of the catch and at 58°25'N 1°40'W (56 fms.) where 109 haddock (22-33 cm.) and 434 whiting (20-31 cm.) were taken. The positions of both these trawls lie a little to the east of the 11° isotherm for bottom water.

Small mesh catches were distinctly poor, only the two trawls mentioned above had catches worthy of note, while only 9 trawls of the 15 had anything in the small mesh to go down in the record. Aggregates for small fish in all trawls were, haddock 348 (12-21 cm.), whiting 731 (10-26 cm.), dabs 153 (10-16 cm.) and Gadus esmarkii 1226 (8-20 cm.).

ECHO SOUNDING

The echo sounder was not equal to the task of continuous running for long periods. Often the stylus failed to mark the paper at all, and once the synchronisation mechanism went completely wrong. Traces, however, for the greater part of the cruise were obtained. These showed only two small fish marks at the bottom and nothing that would indicate the presence of shoals of pelagic fish. In the squares C15c and d a fine trace of a scattering layer 20-30 m. deep was obtained.

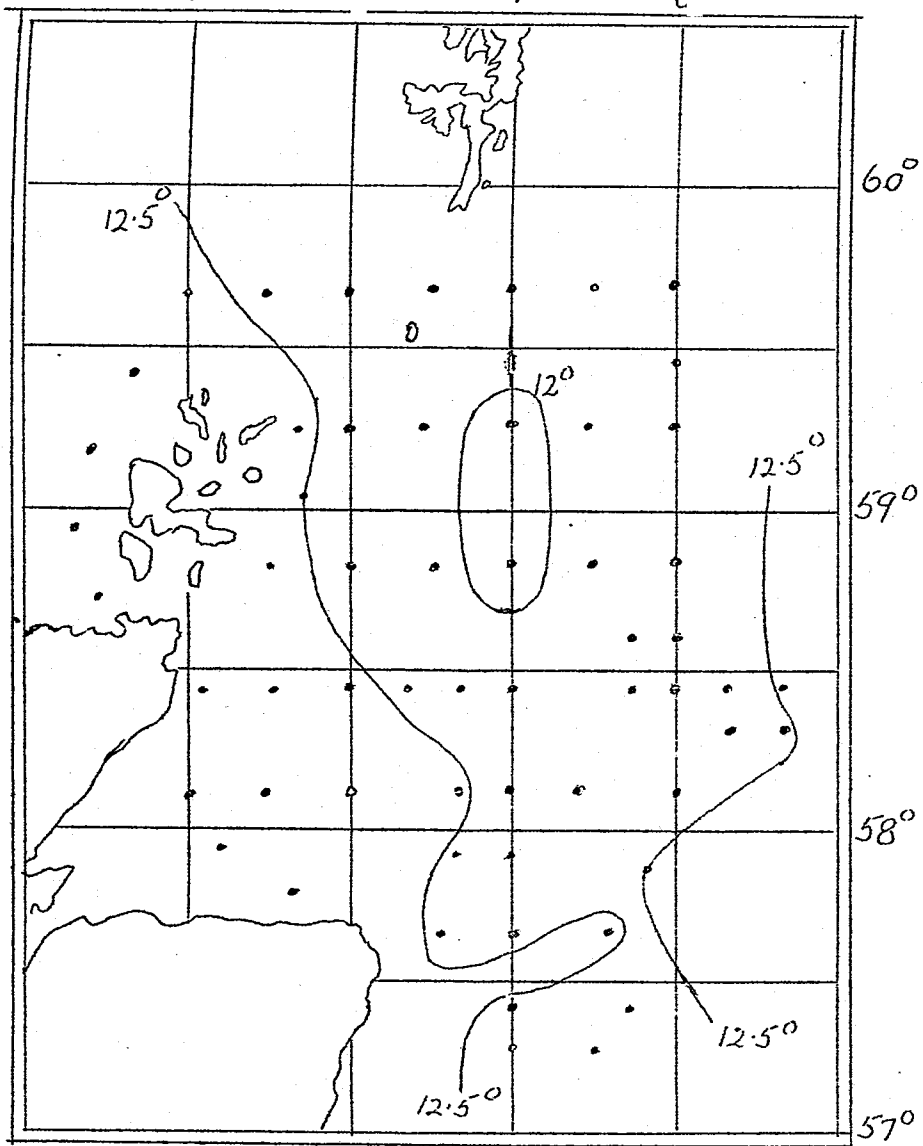
At station 58°50'N 0°00' a large shoal of herring or mackerel was seen and heard on the surface while at the next station 58°35'N 0°00', reached at 8.30 p.m. on 24th September, a school of whales was heard "blowing" but was not seen.

R. B. BURNS.

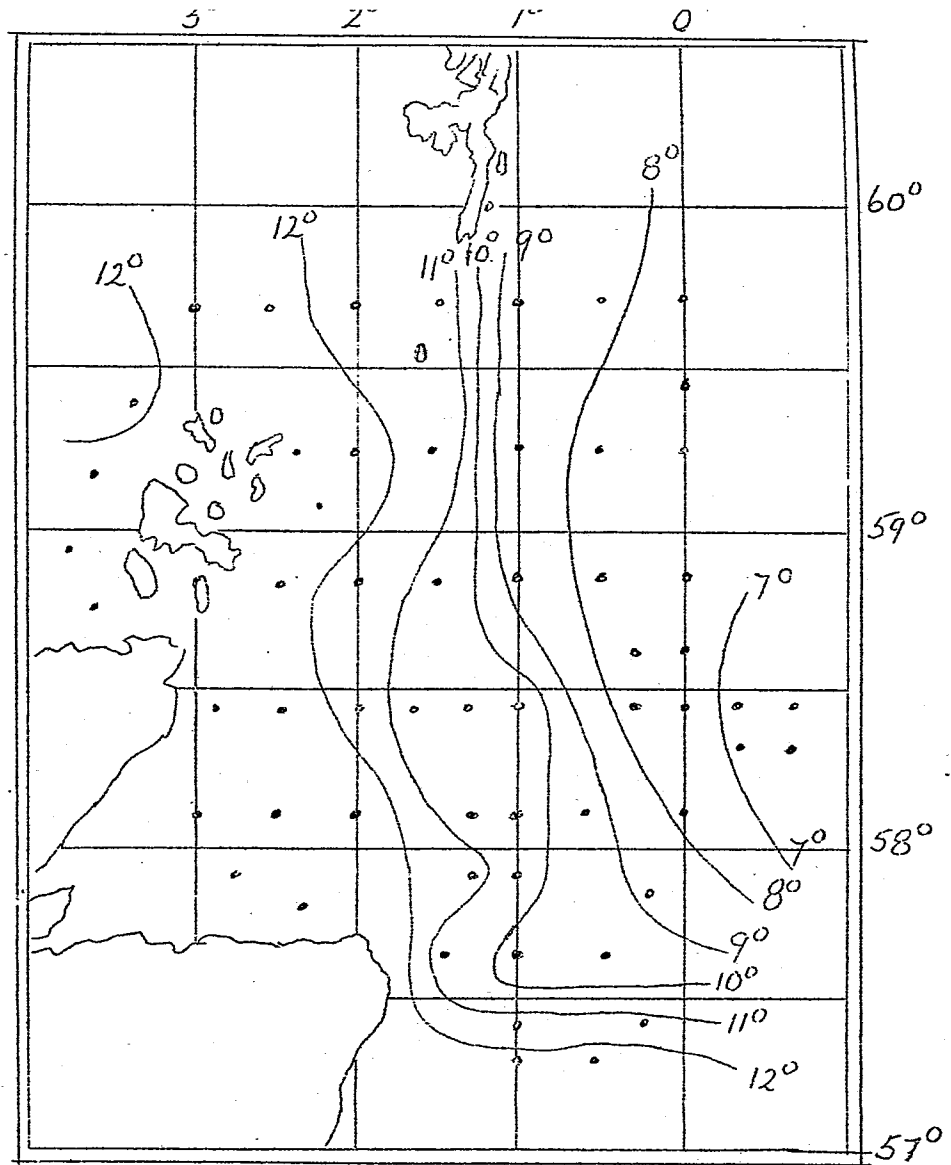
12th October, 1953.

CIRCULATION

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SURFACE TEMPERATURES



BOTTOM TEMPERATURES

SCOTIA 16-29 SEPT. 1953