

Confidential: Not to be quoted without previous reference to the writer or the laboratory.

CRUISE REPORT

F.R.S. "SCOTIA"

12th October - 1st November, 1951.

Personnel: Mr. A. D. McIntyre, S.O. (in charge)
 Mr. R. B. Burns, S.E.O.
 Mr. D. D. Seaton, Asst. Sci.
 Mr. N. T. Nicoll, Asst. Sci.
 Mr. R. Grierson, Asst. Sci.

GENERAL

"SCOTIA" left Aberdeen at 12.00 hours on 12th October, and after working two stations on the Scottish east coast, proceeded to Butt of Lewis to commence the Butt-Faroe Bank hydrographic line. After completing five stations it was necessary to return for shelter to Broad Bay because of high winds, but we were able to resume work on the following day. Fair weather did not last, however, and in the face of southerly gales we were forced to abandon hydrographic work and make towards Faroe, anchoring in Fugle Fjord early on 17th. Although attempts were made, it was not possible to continue until 22nd, when some of the more sheltered inshore stations were worked. By 24th the weather had moderated sufficiently to allow a start to be made on the Enniberg hydrographic line. This was completed except for the last two stations before weather conditions made it necessary to return to sheltered waters. Trawling was carried out on the west side of the islands but on 25th we were again storm bound. In view of a good forecast on the 28th, it was decided to begin the Faroe-Shetland hydrographic line, which was successfully completed. Two stations were worked off Shetland and the ship entered Lerwick at 11.00 hours on 30th, leaving again the following afternoon. "SCOTIA" docked at Aberdeen at noon on 1st November.

The adverse weather reduced work considerably, and the ship was storm bound for no less than ten days. It was possible, however, to work 37 stations out of the total of 63.

HYDROGRAPHY

Temperature and salinity data were taken at 37 stations, and water was sampled at 25 stations for phosphate, total phosphate, and dissolved oxygen calculations. Drift bottles were liberated in groups of five at 16 stations.

The highest surface temperature of 12.72°C was recorded off Butt of Lewis (Lat. 58°40'N) and the lowest, 8.45°C at the most northerly station (Lat. 63°30'N). The temperatures of Faroese coastal waters varied only slightly about a mean of 9.4°C. Since the thermocline had completely disappeared there was little variation in temperature between surface and 100 metres. Below this, at deep stations, a rapid fall to 0°C was observed, and negative temperatures prevailed from 800 metres to bottom.

Mr. Burns reports that dissolved oxygen values for the Enniberg line (which had not previously been sampled in October-November) indicate a pronounced oxygen maximum layer at 600 metres. The surface value of 6.30 ml. dissolved oxygen per litre falls to 6.00 ml. at 200m., from where there is a sharp rise in values to a maximum of 7.20 ml. at 600m. Below this the value again falls reaching 6.80 ml. at 1500m.

High values of phosphate (0.7-0.8 ugm-a PO₄-P/L for Faroese waters) were found in the photosynthetic layer, probably due to the breakdown of the thermocline. Lower surface values occurred at Butt of Lewis (0.4 u) and at Flugga (0.6 u). The maximum phosphate value recorded was 1.11 u. for the bottom water of the Faroe-Shetland Channel.

PLANKTON/

The Hensen net was used at 16 stations, the standard at 9, oblique townets at 10, and townets (at depths 0, 50, 100m.) at 13 stations. Samples on the whole were not rich, particularly in deep water. The best collections were those from the Shetland area and the Scottish coast. Calanus dominated the tow-net samples in C14d and B15d, and some salps were taken east of the Faroes (YY22, ZZ22). At a station N.W. of Shetland (C21) 7 leptocephalus larvae were captured in the surface townet, and 8 occurred in the same net off Yell (D19).

TRAWLING

Eleven trawls were carried out, and catches were all on the whole poor. Haddock (total 900 approximately) was the only species taken in good numbers. The best haul, containing 397 haddock was from Nolso Bank. Apart from single specimens of flatfish in various hauls, 8 lemon soles were caught on Nolso Bank, and off Nolso Island 7 lemons and 6 halibut were taken in 64m. of water. Aurelia were abundant in the trawl at only one station (off Nolso) when four baskets were collected. It was noted that with the Aurelia a fair catch of haddock was obtained (248 individuals).

OTHER WORK

Tests were carried out with the deep Kelvin Tube, which was lowered at the bottom of several reverser casts to depths indicated by the metre block. The depths given by the tube were rather variable, but it is considered that the results justify a continuation of the experiment.

Throughout the trip the echosounder was run almost continuously, but few fish traces were obtained.

A. D. McINTYRE

12th November, 1951.

CIRCULATION

Mr. W. Russell
Capt. C. H. Champness
Mr. M. Graham
Dr. C. E. Lucas
Dr. J. N. Carruthers
Secretary, I.C.E.S.
Dr. A. V. Tåning
Dr. F. Devold
Dr. H. Thomsen

Mr. F. S. Russell
Mr. E. Ford
Dr. K. M. Rae
Dr. G. Reay
Dr. H. Wood
Dr. J. B. Tait
Dr. J. H. Fraser
Dr. A. Ritchie
Dr. B. B. Rae

Mr. B. B. Parrish
C. O. "Scotia"
Capt. G. B. McLaren
Mr. A. D. McIntyre
Mr. R. B. Burns
Mr. D. D. Seaton
Mr. N. T. Nicoll
Mr. R. Grierson
Spare 5.