

CRUISE REPORTF.R.S. "SCOTIA"North-west Atlantic Survey, Part 1, 5-24th July 1954

The cruise commenced on Monday, 5th July, when "Scotia" sailed at 5.30 p.m. from Aberdeen for the first station off North Ronaldsay. Although the weather conditions were steadily worsening the section to Faroe was completed. After one night at anchor the station west of Faroe and the long section of twenty stations from UU24a to the Butt of Lewis were completed in all details. Stornoway was reached early on Sunday morning, July 11. Whilst at Stornoway Dr. Fraser took appendicitis and a relief scientist, D. MacInness, flew out to replace him. Leaving Stornoway on 13th, "Scotia" continued the work towards the Outer Banks, but after crossing Lousy Bank the weather broke down and six days were spent dodging when little work could be undertaken. Continued prospects of bad weather made it advisable to steam slowly towards Barra Head, but during a slight improvement a line of stations, designed to make up for the loss of the 57°N section, was begun and seven stations were worked. Lining could not be carried out in the Stanton Bank region because of the light trim of the ship and excessive drift in the strong wind. Greenock was reached at 6.15 p.m. on Saturday, 24th July, where the ship docked for boiler cleaning.

Hydrography

Surface temperature distribution compared with July 1953 shows a decrease of 1° to 2°C., i.e. about $\frac{1}{2}$ °C. below normal. The region of the 2°C. decrease affects that area of the north-west Atlantic associated with the main oceanic inflow into and through the Faroe Channel. Surface temperatures above 12°C. were not found north of stations 36, 37 and 38 (58°17'N 8°23'W to 58°46'N 9°18'W) and temperatures above 13° were not found at any part of the cruise. Sub-surface temperatures were about normal for the time of the year.

Chemistry

A full programme of sampling was carried out at all stations investigated but analytical results are not yet available.

Chlorophyll

The highest chlorophyll concentration was 1.5 mg/m³. Higher values tended to be in shallower water, but by themselves they do not show obvious pattern.

Plankton

There was a considerable amount of phytoplankton in the Faroe Channel, particularly between Fair Isle and Sydero, though not a great deal in the open ocean. The surface 100 metres or more was extremely poor in crustacean plankton almost throughout the whole area examined, but contained numerous salps and medusae, often in sufficient quantity to clog the nets, the most abundant species being *Salpa fusiformis*, *Aglantha*, *Cosmotira* and *Laodicea*. *Aurelia* was sometimes also present in numbers. Near Fair Isle, at one station only, a dense concentration of *Limacina* extended throughout the water column. *Calanus* was not found in quantity even in Faroese waters where *Aglantha* and *Laodicea* dominated.

This type of plankton existed in the surface waters also in the open Atlantic, but at 250 metres much interesting plankton occurred with rich collections of copepods, decapods, bathypelagic fish, etc., including *Melamphaes eurylepis*.

The Corbin net was shot on only one occasion and was found to work successfully when used as a tow net, although it was awkward to shoot over the stern. The catch was principally large salps. It was towed at 40 revs. on the tow net wire, but speed could probably be increased if the trawl warp was used instead. Weather conditions prevented further trials.

Fishing

Because of the wind drift it was not possible to carry out all the lining programme, but some successful catches of halibut were obtained. Many of the halibut in the Rockall Area were infected with the larvae of the tape worm Grillota erinaceus, and samples of various parts of the fish were brought back to the laboratory for detailed examination.

Echo sounding

The MS.24 was run continuously between Aberdeen and Stornoway. Herring traces were seen between Fraserburgh and Fair Isle and between the Butt of Lewis and Stornoway. Shortly after leaving Stornoway the contactor stopped working and could not be repaired.

The Kingfisher echo sounder was run at intervals before Stornoway was reached and almost continuously thereafter while "Scotia" was under way. Concentrations of fish traces were found near stations 41 (59°31'N 10°43'W) and 45 (60°28'N 12°36'W), near 58°20'N 12°44'W and near station 63 (57°39'N 10°45'W). The CRO scanner of the Kingfisher was in operation at frequent intervals but there was much interference on the time-base, which confused the traces, especially near the surface and in mid water. The paper recorder associated with the Kingfisher was found to be very much more sensitive to traces than the normal MS.24. When the two were compared together the Kingfisher showed many marked traces which were not on the older machine, and any trace found on it was emphatically recorded on the new machine.

Continuous plankton recorder tests

The apparatus worked very satisfactorily on the tow net wire from the after davit. Results, however, were not as useful as was hoped, partly because the weather conditions prevented a full sampling programme, and partly because of the nature of the plankton encountered; salps and medusae are unsatisfactory organisms for comparative catching experiments with this type of apparatus, using rapidly towed instruments with small apertures.

J. H. FRASER
R. JOHNSTON

10th August 1954

CIRCULATION

Mr. Wall, M.A.F.	Mr. G. Rollofsen	Mr. Parrish
Mr. M. Graham	Captain Bruce	Dr. Johnston
Dr. J. N. Carruthers	Captain McLaren	Mr. Saville
Mr. W. K. Rose	Mr. Jappy	Mr. McIntyre
Capt. C. H. Champness	Mr. Smith	Mr. Jones
Mr. F. S. Russell	Mr. T. C. Jones	Mr. Steele
Mr. E. Ford	Mr. G. S. Gault	Mr. J. Sinclair
Mr. K. M. Rae	Dr. Lucas	Mr. D. MacInnes
Dr. G. Reay	Dr. Wood	Circulation 3
Dr. A. Tønning	Dr. Tait	Mr. J. Gordon
Prof. A. Bückmann	Dr. Fraser	Library
Mr. U. Stefansson	Dr. Rae	File, Spare 4.