Dr. H. Wood
C.16

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CRUISE REPORT

F.R.S. "SCOTIA"

April-May, 1955

NARRATIVE

"Scotia" left Aberdeen in fair weather at noon on Friday, 22nd April, and occupied the first station of the Butt-Faroe hydrographic line about twenty-four hours later. On the following day the weather began to deteriorate, and at 1730 on Sunday, 24th, the last station on the line was worked in strong winds. It was decided to shelter at Faroe until the gale abated, and the ship anchored in Sorvaag Fjord early on the following day. Gale warnings were in force for the next few days, and it was not until Friday, 29th, that "Scotia" was able to leave Faroe. A line of plankton stations was worked across the deep water between Faroe and Iceland, and the Icelandic coast was reached on the morning of 1st May.

To obtain bait for line fishing the trawl was shot off the Westmann Islands, and a good catch of cod and haddock was made. The following seven days were spent lining off west Iceland. When the sea was too rough for lines, hydrographic and plankton data were collected on a grid of stations covering the fishing grounds.

"Scotia" entered Reykjavik for oil and water on Monday, 9th, and left early on Wednesday, 11th May. While in Reykjavik, scientists from the University Research Institute were received on board, and, on invitation, a visit was paid to the protection vessel "Aegir", which was being converted for use as a temporary research vessel. On leaving Reykjavik "Scotia" ran into bad weather, and after dodging for thirty-six hours off the south-east coast of Iceland, reached Faroe in gale force winds on the morning of Sunday, 15th, and anchored in Fuglo Fjord. Although winds were still strong on the following day it was decided to resume operations. The first station of the Faroe-Flugga hydrographic line was occupied at 1400 on 16th and in spite of a heavy swell the line was completed about thirty hours later. "Scotia" anchored off Lerwick early on 18th May.

At Lerwick, Mr. Steele and Mr. Currie joined the ship and Mr. McIntyre returned to Aberdeen. Because of continued bad weather it was not possible to carry out the productivity section of the programme. "Scotia" left Lerwick at 1000 on Friday, 20th, and reached Aberdeen at noon next day.

HYDROGRAPHY

Surface temperatures on the Butt-Faroe line were very uniform, varying between 8.00 and 9.80°C. On the southern part of the line bottom temperatures were fairly high, above 6.00°C, but sub-zero readings were recorded for the northern part. On the Faroe-Flugga line the surface temperatures ranged between 6.98°C and 9.30°C, while bottom temperatures as low as -0.70°C were recorded from the deep centre section. Water samples were collected for Dr. Redfield of Woods Hole, and several carboys were filled at certain oceanic stations for special biological analysis at Aberdeen. During the cruise a new surface thermograph was tested, and after initial difficulties some fairly satisfactory charts were obtained. It is thought that if the recorder were transferred from the engine room to the ready-use laboratory, where there is less vibration, a smoother line would be produced. Further tests of this apparatus will be made.

PLANKTON

Collections were on the whole very poor. On the Butt-Faroe and Faroe-Flugga lines the townet samples contained small numbers of copepods, sagitta and fish eggs. Only at one station, immediately south of Faroe Bank, was a rich collection (of Calanus) taken. On the Faroe-Iceland line the dominant organisms were Calanus and euphausiids, one particularly abundant collection of the former being taken in the surface nets about 100 miles west of the Faroes.

DENMARK STRAIT SURVEY

Because of time lost earlier in the cruise, when the ship was stormbound at Faroe, only seven days, from 1st to 8th May, could be spent on the survey. The work was thus confined to the east side of the Denmark Strait, and was concentrated on grounds visited by Aberdeen long-line vessels.

The area was covered by a grid of stations as shown on the attached chart. Bottom and surface salinities were taken at all stations, and at those off the shelf full serial hydrographic data were collected. Samples for estimation of chlorophyll and phosphate were taken at 10m., and the Hensen net was used from 150m. for dry weight estimations of the plankton. These data are shown on the chart. As can be seen from the temperature, chlorophyll and dry weight values, the only production appears to be in the warm water which probably entered the area from the south-east over the Reykjanes Ridge. At each station on the grid three 1m. silk townets of No. 16 mesh were towed for one hour between bottom and surface. The samples collected are being examined for eggs and larvae of halibut.

Line fishing was carried out at five grounds between 63° and 65½°N, and on each ground two lines were shot. The depth varied from 130 to 340 fathoms, the latter being the deepest at which lines have been worked from "Scotia". The total catch from 10 lines consisted of 13 large halibut, some tusk and ling, and a few elasmobranchs. On the more northerly grounds "Scotia" was working alongside four Aberdeen long-line boats, and it appeared that our catch, although small, was greater per line than that of the commercial vessels. It was of interest that of thirteen halibut caught, ten were male, and only three female. Also, while the males were ripe and running, the females were spent. Although the numbers were far too small to constitute a representative sample, the data seem to support commercial fishermen's reports of large numbers of ripe male fish occurring together, and suggest that an examination of the sex ratio of halibut concentrations might be of interest. Although the females were all spent, residual eggs were found at the tip of the ovary in two of the fish, and these eggs were preserved for comparison with specimens from the plankton. All the halibut were carefully examined for parasites, and some infected guts were preserved. At the deepest station a number of interesting elasmobranchs were caught. One specimen has yet to be identified, but Dr. B.B. Rae has confirmed the remainder as Centroscymnus coelolepis, Centroscyllium fabricii and Centrophorus squamosus. The first of these is a rare fish in Icelandic waters. Liver samples were taken from these elasmobranchs.

A more complete assessment of the cruise results will be made when the hydrographic and plankton data are fully available.

A. D. McINTYRE.
3rd June, 1955.

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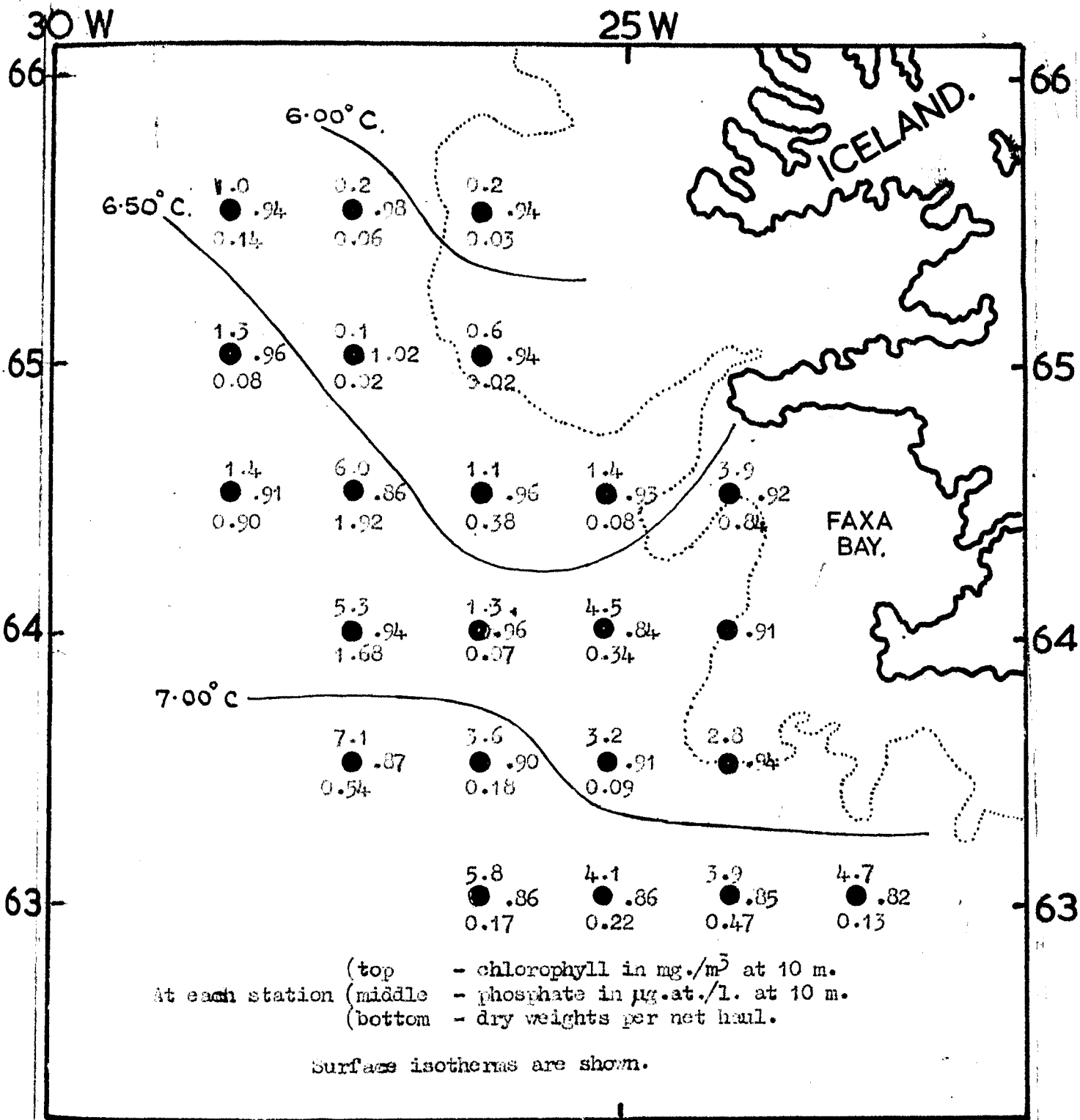

At each station (top - chlorophyll in mg./m^3 at 10 m.
(middle - phosphate in µg.at./l. at 10 m.
(bottom - dry weights per net haul.

Surface isotherms are shown.

DENMARK STRAITS SURVEY.

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