

In Confidence - Not to be quoted without reference to the Laboratory.

Cruise Report

F.R.S. "SCOTIA"

September 12-29, 1964

Narrative

F.R.S. "Scotia" left Aberdeen at 0700 hours on 13th September and the work of the herring larval survey commenced at 0940 the same day. By 2115 seven stations had been completed when the ship had to return to Aberdeen with a crew member who required medical attention.

When "Scotia" arrived at Aberdeen at 0700 on the 14th it was found that a crack had developed from the deck into the stokehold, and as it was essential that this be repaired, the ship did not depart until 1945 on the 15th. That evening radio contact was made, as previously arranged, with F.R.S. "Anton Dohrn" and the ships agreed to meet in an area of known abundance of herring larvae, south-west of Aberdeen Bank, at 0900 on the 16th. In the interval "Scotia" continued to work on the herring larval survey.

Dr. Hempel and his colleagues from "Anton Dohrn" visited "Scotia" on the morning of the 16th to arrange details of the comparative sampling and to see the Gulf III being used from "Scotia". Messrs. Adams and Bourret returned with Dr. Hempel to "Anton Dohrn". The comparative sampling commenced at 1116 and continued until 2115 on the 17th when weather conditions made it necessary for "Scotia" to dodge. As conditions were still impossible for work on the morning of the 18th it was agreed that the two ships should meet in the shelter of the land near Tod Head. Officers, students and scientific staffs on the two ships exchanged visits and the records and further plans for the comparative sampling were discussed.

That evening weather conditions showed a marked - but only temporary - improvement and the ships proceeded to the comparative sampling area. From 0400 to 1245 on the 19th comparative sampling was continued and completed. Dr. Hempel then visited "Scotia" to exchange the haul records of the comparative sampling. "Scotia" left "Anton Dohrn" at 1315 but due to weather conditions work had to be stopped and later that afternoon "Scotia" proceeded to Aberdeen Bay where work on the coastal stations was started at 2140. From then, till 1355 on 20th September, ten survey stations were completed. Tests with the Icelandic High Speed Sampler were then attempted but due to weather conditions this had to be abandoned at 1930 hours.

Weather conditions continued to deteriorate and "Scotia" dodged towards the coast and then to the Moray Firth where work recommenced at 1200 on the 21st. Work then continued, apart from a short period of rough weather, until 0600 hours on 23rd September when the ship proceeded to Stromness for stores and water, docking there at 1000 hours.

"Scotia" left Stromness 24 hours later and went to work the stations to the east of the Orkneys, but increasing winds from the SSE forced the ship to leave this area and to work the stations west of the Orkneys. These latter stations were completed by 0300 on the 26th, when, in view of the weather conditions, it was decided to remain in this area to do tests with the Furuno depth telemeter. This work was completed by 1800 hours; the ship then proceeded to the Fair Isle area and the herring larval survey was recommenced at 0300 on the 27th. Sampling continued until 1800 hours on the 28th when work had again to stop due to deteriorating weather. "Scotia" docked at Aberdeen at 0645 on the 29th.

## Results

### Herring Larval Survey

Due to the time lost through weather conditions and the two days that the ship had to stay in Aberdeen, 28 stations of the herring larval survey were not occupied. These stations were mainly at the margins of the survey area.

The main centre of herring larvae was to the south-west of Aberdeen Bank where in one haul of the Gulf III sampler about 1,000 larvae were caught. Other areas where the Gulf III sampler gave above average catches of larvae were south-east of Helmsdale and east of the North Shoal. The 1 m (26) townets caught large numbers of herring larvae in the 90 and 100 metre nets to the north-east of Orkney.

### Comparative Gulf III Sampling with the "Anton Dohrn"

80 comparative Gulf III samples each were obtained by "Scotia" and "Anton Dohrn". These samples will now be worked up in Hamburg and in Aberdeen.

### Tests with the Icelandic High Speed Sampler

Only six samples were obtained with this sampler before weather caused the work to stop. Time was not available to return to this work.

### Hydrography and plankton of the spawning area

Surface temperatures (uncorrected) ranged from 10.62 to 12.69°C, and bottom temperatures from 8.70 to 12.62°C.

Calanus was abundant to the west and to the east of Orkney and also along 1°W, north of 58°N. Between the latter two areas a narrow tongue of Salpa fusiformis extended south to the Duchan coast; one branch turned west into the Moray Firth and a second south-south-east towards the Aberdeen Bank.

### General

49 Plankton Indicator samples were obtained for the Oceanographic Laboratory, Edinburgh.

Current indicators were released at the standard positions.

Phytoplankton was preserved in alcohol for Dr. Mowat.

The echo-sounder was run continuously during the survey but nothing of interest was seen.

Tests with the Furuno depth telemeter mounted on the Gulf III sampler were unsuccessful; only intermittent signals were received although the depressor type receiver was used. Attention will now have to be given to remounting the transmitter.

JAMES A. ADAMS  
8th October, 1964.