Dr. H. Wood.



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# CRUISE REPORT

## F.R.S. "SCOTIA".

## JULY, 1950.

GENERAL:

Duration of cruise: 8th to 21st July.

Area traversed: Northern North Sea between the latitudes 57°N and 60°04'N, from Scottish coasts to Norway.

OBJECTIVES:

Survey of hydrographic and plankton conditions and sampling of the fish populations in the area.

HYDROGRAPHY:

Surface temperatures between Scotland and Norway showed a progressive increase from west to east. The lowest figure recorded was 10.65°C. in the vicinity of Fair Isle and the highest, 14.94°C. over the Norwegian Deep in rectangle J 15a.

A body of colder water extending to the bottom from depths of from 20 to 40 metres was present in areas mostly lying to the east of the prime meridian. The lowest figure recorded, 6.40°C., was for a sample from 200 metres taken in the Norwegian Deep.

PLANKTON:

Rich hauls were obtained in the open sea areas with Calanus, larval and post-larval fishes very much in evidence and Sagitta occurring at some stations. The outstanding feature, however, was the widespread occurrence, in quantities, of medusae. Cosmetira and Beroe were specially predominant with some Agalantha at more easterly localities.

In the more coastal areas of the Moray Firth collections were not so rich in variety of species and medusae were less common.

TRAWLING:

Catches were disappointing, ranging from moderate to poor. Representatives of the 1950 brood of Haddock - the first records for the year - were taken in rectangles A.14 and 15, C.14 and 18, D.14, and G.15 and 19. Baby whiting were also taken in H.16a and B.14b. Best catches of older Haddock and whiting were obtained on the Fair Isle and Scalloway Deep grounds.

Plaice and Lemon Soles and other edible species were captured in insufficient numbers to provide a basis for comment.

Enormous quantities of Jellyfish, Aurelia and Cyanea with the former predominant, were present over the entire area.

Loligo/

Loligo forbesii of adolescent sizes were very plentiful at Moray Firth stations and were present in considerable numbers in the vicinity of Fair Isle and in the Scalloway Deep.

E. WILSON.

26th July, 1950.

CIRCULATION:

| | | | |
|---|---|---|---|
| Mr. W. Russell | Dr. F. Devold | Mr. F.S. Russell | Dr. A. Ritchie |
| Capt. C.H. Champness | Mr. R.S. Wimpenny | Mr. E. Ford | Dr. B.B. Rae |
| Mr. M. Graham | M. P. Desbrosses | Mr. K.A. Rae | Capt. E.A. Bruce |
| Dr. C.E. Lucas | Dr. B. Havinga | Dr. G. Reay | Mr. E. Wilson |
| Dr. J.N. Carruthers | Dr. A.R. Molander | Dr. H. Wood | Mr. W. Main |
| Dr. $H_0$ Blegvad | Dr. H. Thomsen | Dr. J.B. Tait | Mr. R. Lawrie |
| Dr. A.V. Tåning | Prof. Ch. Gilis | Dr. J.H. Fraser | Mr. R. Grierson |
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# CRUISE REPORT

## F.R.S. "SCOTIA"

## JULY, 1950.

GENERAL:

The cruise commenced on the scheduled date, July 8th, and the "Scotia" returned to Aberdeen on the evening of July 21st.

The region traversed comprised that part of the northern North Sea bounded by the lines of latitude 57° and 60°04' North and by the Scottish north-east coasts and the coast of Norway.

The purpose of the cruise was to collect data relevant to the hydrographic and plankton conditions and to sample the fish populations in the area.

Weather and sea conditions were very favourable except for a period of three or four days when strong wind from the south-east reaching gale force raised a heavy beam swell and necessitated operations along the 60° parallel of latitude being abandoned.

RESULTS:

HYDROGRAPHY: In the open-sea area between the Scottish coast and Norway surface temperatures showed a progressive increase from west to east. The lowest recorded, 10.65° C., occurred in the vicinity of Fair Isle and the highest, 14.94° C., at the Norwegian Deep station in rectangle J.15a. Isotherms take the form of irregular arcs conforming roughly to the general run of the Shetland - Orkney - Caithness - Aberdeenshire coast line.

In the Moray Firth surface temperatures were highest along the south coast. The isotherms 14.5, 14, and 13° C. run east and west approximately parallel to the south coast.

In sub-surface sampling a colder bottom water layer was encountered in rectangles east of the prime meridian, E to J, with a projection westwards in the region of rectangle D.17, and transitional conditions in other rectangles immediately adjoining. The depths at which decided discontinuity occurred varied from between 10 and 20 metres to between 30 and 40 metres. The lowest temperature recorded was 6.40° C., at 200 metres depth in the Norwegian Deep.

Samples for the determination of ogygen and phosphate content were taken from pre-selected stations and depths. These samples received preliminary treatment at Egersund and Lerwick and, when opportunity offered, during operations in the Moray Firth.

PLANKTON: Collections from the inner Moray Firth were inferior in volume and except for medusae, in variety of species to those from the more open sea area. Over most of the latter dense concentrations of Calanus and various species of medusae, with some Sagitta and numerous larval and post-larval fishes, were encountered. The outstanding feature, however, was the wide distribution in enormous quantities of medusae. On several occasions the silk nets and filter gauze in the buckets were badly clogged. Cosmetira was specially abundant with Beroe and Agalantha at some stations. Larval flatfish, in which metamorphosis was either complete or approaching completion, were noted in the collections from rectangles B15d, B16c, D17d and D19c. At the station in B15d specimens at this stage of development were present in a horizontal tow-net haul at a depth of only 20 metres. The total depth of water here was 62 metres. At this station, too numerous post-larval Motella were taken in the surface tow-net and this genus of fish also occurred at the Bressay Bank station in E17d.

TRAWLING/

TRAWLING: Catches of edible species with the 30 ft. otter trawl with small mesh cover to the cod-end were moderate to poor. Much better results especially as regards Plaice and Lemon Soles were anticipated in the Moray Firth area but the numbers on the grounds sampled were very small.

The first appearance in the small mesh cod-end of haddock brood of the year was recorded from rectangles A14 and 15, C14 and 18, D 14 and C15 and 19. These baby fish occurred in very small numbers the highest yield at any one station being five. In length they ranged from 6 to 10 cm., the bigger fish being from Moray Firth grounds.

Best catches of the older year-classes were obtained at the Fair Isle ground- 874 fish comprised mainly of two groups with modal sizes of 20 and 27 cm. respectively, and in rectangle C15a - 383 fish with similar size distribution.

Whiting of the 1950 brood were represented in the catch in rectangle H16a, one specimen of 8 cm., and in B14b where 17, ranging from 8 to 10 cm., were captured. The best catch of older whiting was also obtained on the Fair Isle ground - 327 fish, size range 18 to 32 cm.

Other species appearing in the catches were too few to provide matter for even provisional comment other than to suggest, perhaps, a possible association between the scarcity of fish on the grounds sampled and the enormous numbers of jellyfish present. Aurelia and Cyanea in numbers were observed from the ship's deck throughout the whole cruise and at B14b, on emptying the trawl cod-end, the fish pond was more than ankle deep, with Aurelia greatly predominating.

The cephalopod, Lolingo forbesii, mainly adolescent sizes, was also present in large numbers on all Moray Firth stations and at Fair Isle and Scalloway Deep.

E. WILSON

26th July, 1950