

CRUISE REPORT

F.R.S. "SCOTIA"

4th-19th December, 1956.

OBJECT:- To survey and follow a patch of herring larvae.

In the previous "Scotia" cruise (7th-24th November 1956) the main concentration of herring larvae was found within the limits $56^{\circ}37\frac{1}{2}'N$ $55^{\circ}57\frac{1}{2}'N$ and $1^{\circ}58'W$, $1^{\circ}04'W$, with a bulge towards the east beyond $0^{\circ}45'W$. In view of the short daylight hours available in this month, it was decided not to spend time searching for indicators set adrift in the previous cruise, but to commence working a square grid of 50 miles side with stations 10 miles apart from $56^{\circ}35'N$ to $55^{\circ}45'N$ and from $1^{\circ}40'W$ to $0^{\circ}10'W$.

The grid was commenced on the 4th December and with one interruption owing to bad weather, was completed in the early hours of the 8th. At each station an oblique haul with the 1 m silk (26 mesh) was made. "Scotia" then anchored in St. Andrews Bay, where the samples were examined and the numbers of larvae estimated. The result showed that the main concentration lay to the east and north of this area. To get a better coverage of the patch, it was decided to work a second grid of similar dimensions as the first, but with the centre shifted 10 miles further east and north. In steadily deteriorating weather only three sides of the perimeter of this grid could be worked on the 9th and 10th December, when it was found expedient to abandon the remaining stations.

For the next three days "Scotia" sheltered in St. Andrews Bay or in the Firth of Forth according as the wind shifted. On the 13th December when the forecast promised no respite from the gale in operation, she made passage for Aberdeen and docked that night. The next day part of her gear was unloaded preparatory to the forthcoming refit.

Continued bad weather prevented a resumption of work till Wednesday, 19th December. At the moment of casting-off it was discovered that the after winch had broken down beyond immediate repair. The sailing had to be cancelled, and subsequently owing to lack of time this was the end of the cruise.

Herring Larvae

The main concentration of herring larvae lay to the east and north of the first grid sampled. In this region of abundance most of the hauls happened to be made in the hours of darkness and averaged 44 individual larvae per haul, with a range in numbers per catch from 0 to 110. In the south-west corner where larvae were less abundant, hauls made in darkness averaged only 8 per haul. The 10 hauls made in the hours of daylight happened to lie between these two areas and averaged 2 larvae per haul.

The north and east sides of the perimeter of the second grid were worked in darkness. The average number of larvae per haul on these two sides were 3 in the north and 20 in the east - showing that the northern limit of the patch did not lie much beyond $56^{\circ}35'N$, but that the eastern limit was not reached even at $0^{\circ}07'E$.

General Plankton

The volume of all collections was fairly large and contained Sagitta elegans, Calanus, Aglantha and Themisto in every one of them, while less frequently there occurred Euphausiids, Luidia sarsi, Pleurobrachia, Beroe, Clione and Sagitta setosa. Sagitta elegans and Calanus were most abundant to the north of the area surveyed and least abundant in the south. Aglantha was most abundant in the east and west of the area, where Clione and Beroe only occurred. Luidia sarsi was present in the east and south where Themisto was most abundant. Pleurobrachia occurred principally in the north and in small numbers in the south.

Hydrography

Temperatures within this small area ranged from 9.0 to 9.6°C, the slightly warmer water being found in the north. Bottom temperatures were uniform with those at the surface. Dissolved oxygen values lay between 6.2 and 6.3 ccs/l, while phosphate values were 0.5 to 0.6 $\mu\text{gm-a. PO}_4^{\text{P}}/\text{l}$.

R. B. BURNS.

2nd January, 1956.

CIRCULATION

Mr. Wall
Mr. Graham
Dr. Carruthers
Mr. Rose
Captain MacCallum
Mr. Russell
Mr. Rae
Dr. Reay
Dr. Loloup
Dr. Ancellin
Dr. Furnestin
Professor Bückmann
Dr. Havinga

Dr. Höglund
Dr. Tåning
Dr. H. W. Graham
Mr. Jones
Mr. Gault
Fishery Officers
Captain Bruce
Captain Finlayson
Mr. Jappy
Dr. Lucas
Dr. Wood
Dr. Tait
Dr. Fraser

Dr. Rae
Mr. Parrish
Mr. Saville
Mr. Steele
Mr. Burns
Mr. Lovegrove
Mr. Jemyn
Mr. Gordon (2)
Library (2)
File
Spare (4)