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In Confidence: Not to be quoted without reference to the Laboratory

CRUISE REPORT

FRS EXPLORER

15 September - 7 October 1971

Objective

Herring larval survey in the north-western North Sea.

Narrative

Explorer sailed from Aberdeen about 2300 hours on 15 September and made a passage to the area off Dunnet Head where the larval survey was begun at 1150 hours on 16 September. The first survey was completed in the evening of 22 September. "Explorer" then returned to the Dunnet Head area where the second survey was commenced at 0340 hours on 23 September.

Stormy weather hindered the work between midday on 23 September and 0600 hours on the 24. Thereafter the work continued without interruption until the evening of 27 September when "Explorer" put into Aberdeen to replenish water supplies and make repairs to the boiler feed pump.

The repair work was completed in the evening of 30 September when "Explorer" sailed to resume the larval survey. The programme of work continued without interruption until the end of the cruise when "Explorer" returned to Aberdeen at 1300 hours on 7 October.

Herring Larval Survey

A total of 308 stations were completed during the cruise. The area surveyed extended between longitudes $0^{\circ}00'$ and $4^{\circ}00'W$, and from Fair Isle to the Moray Firth. A complete survey was made of this area between 16 and 22 September. From 23-27 September all stations between longitudes $1^{\circ}00'W$ and $4^{\circ}00'W$ were worked. A second complete survey was carried out between 1 and 7 October.

Herring larvae were distributed over a wide area but mainly between longitudes $1^{\circ}00'W$ and $4^{\circ}00'W$. Results from the 1st survey between 16 and 22 September showed that the main concentrations of larvae were distributed to the west of Orkney and to the north and north east of Orkney. A large proportion of these larvae were less than 11mm in length. In the 2nd survey, between 23 and 27 September, concentrations of larvae were found off the north coast of Scotland, and particularly in the Whiten Head area. The majority of these larvae were relatively small in size suggesting that a major hatching had taken place in the interval between the 1st and 2nd surveys. Results from the 3rd survey

which was made between 1 and 7 October showed that the main concentrations of larvae were located to the west of Orkney. It appeared that larval concentrations located off Whiten Head during the 2nd survey were being transported in a north easterly direction.

Other Work

In addition to the larval sampling work, collections of plankton were made for heavy metal and pesticide analysis. 150 Plankton Indicator hauls were also made for the IMER Laboratory at Edinburgh.

At selected stations temperatures and salinity samples were taken at surface and bottom. Pump samples were taken for salinity analysis at all stations and continuous sub-surface temperature records were obtained with a thermograph.

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11 November 1971