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## CRUISE REPORT

FRS "SCOTIA"

6 September - 3 October 1969

## OBJECTIVES

1 Herring larval survey in the north-western North Sea.

2 Current Meter mooring.

'Scotia' sailed from Aberdeen at 1030 hours on 7 September and the larval survey was begun at 1830 hours. Apart from two short periods when the ship had to heave to for weather the work continued uninterrupted until 15 September when 'Scotia' returned to Aberdeen to refuel.

After changes in scientific and ship personnel had been made 'Scotia' sailed from Aberdeen at 1630 hours on 16 September and proceeded to a position about  $1\frac{1}{2}$  miles off the Ythan where a current meter mooring was laid.

On 17 September current meter moorings were laid at positions east of Start Point, Orkney, and south east of Sumburgh Head. A short call was made at Lerwick on 18 September to land a member of the crew who had become seriously ill. Thereafter the programme of work continued uninterrupted until the evening of 21 September when 'Scotia' had to heave to in rapidly deteriorating weather conditions. The larval survey was suspended for a period of over 36 hours during which winds gusting to over 90 knots were experienced.

A temporary improvement in the weather enabled the survey to be resumed in the afternoon of 23 September but with the return of stormy conditions on 25 September work had to be suspended and 'Scotia' proceeded to Kirkwall.

After replenishing water supplies 'Scotia' left Kirkwall at 1100 hours on 27 September to resume the larval survey but conditions proved unsuitable for working. Between 27 September and 1 October very severe weather conditions prevailed and 'Scotia' was forced to seek shelter in Scapa Flow from winds which reached hurricane force.

Work was finally resumed on 1 October. At the end of the cruise 'Scotia' returned to Aberdeen and docked at 0600 hours on 3 October.

## HERRING LARVAL SURVEY

The survey area extended east and west of Orkney between longitudes  $0^{\circ}$  and  $5^{\circ}$  W. On the first survey, carried out between 7 and 14 September, stations east and west of Orkney were worked but because of stormy weather only the stations east of Orkney were worked on the second survey which began on 18 September.

Herring larvae concentrations were distributed mainly to the west of Orkney. There was a wide variation in the size of larvae taken which ranged from less than 10 mm to over 20 mm in length, indicating that the larvae were derived from different hatchings. The largest concentrations of recently hatched larvae were located off Whiten Head. There was some evidence from results obtained on the first and second surveys which suggested larvae were being transported from west to east of Orkney through the channel between Orkney and Fair Isle.

## CURRENT MEASUREMENTS

Seven and six days recordings were obtained from the Start Point and Sumburgh Head moorings respectively. The results from the positions differed considerably. There was a strong south to south-east flow exceeding 25 km/day past the Start Point moorings. Flow at the Sumburgh Head buoy was largely insignificant except during the severe north westerly gale when an 8km/day southwesterly residual current developed. Because of the large residual flow at Start Point it was not possible to estimate the effect of the wind there except that the direction of the flow also veered towards the south west.

## OTHER WORK

At all stations surface water samples were collected by pump. During the first survey collections were also made for salinity, phosphate, nitrate and silicate estimations. On the second survey only salinity samples were taken.

At stations worked between 6pm and 6am Plankton Indicator hauls were made for the SMBA Laboratory, Edinburgh.

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