IN CONFIDENCE: NOT TO BE QUOTED WITHOUT REFERENCE TO THE LABORATORY

CRUISE REPORT

FRS "EXPLORER"

8-28 January 1971

OBJECTIVES

1 Hydrographic investigations in the Faroe-Shetland Channel.

2 The laying of two current meter moorings in the Fair Isle area with associated hydrography.

3 The exchange of current meters off Collieston.

NARRATIVE

FRS "Explorer" sailed at 1015 am on Friday 8 January, the departure having been delayed because of bad weather. The mooring of the current meter off Start Point was not possible until Monday 11 January because of severe gales but it and the current meter mooring off Sumburgh Head were successfully placed that day. The ship proceeded to Flugga and the hydrographic section to Nolso, Faroe was commenced at 0230 on the 12th. It had to be discontinued after two stations because of 50 knot winds. Work was however resumed at 2200 and the line completed in calm conditions on the morning of 14 January. Opportunity had been taken to collect bottom samples and special plankton samples for the pollution section earlier when the ship had been dodging or in shelter. Further samples were taken in Faroese waters. A brief call was made to Klakksvik where the echo sounder was repaired and the Nolso-Flugga line was worked in the reverse direction and successfully completed by the afternoon of Saturday 16 January.

Tests on the parachute drogues were conducted west of Shetland but the experiment only lasted 4½ hours due to increasingly strong winds. It was however possible to resume a similar experiment east of Shetland the following day in the lee of the land.

The ship sailed for Lerwick arriving Monday 18 January where Messrs Martin and Henderson left the ship and Mr Dooley joined as senior scientist.

"Explorer" sailed from Lerwick at 1600 on the 19 January and proceeded to the area of the current meter moorings in poor weather conditions which did not moderate to a great extent until 24 January. Much of this period was spent dodging around the area of the mooring buoys which could not be sighted. 'Creeping' and hydrophone checks over the 24 and 25th did however, confirm that both moorings had been uplifted and removed. The search for the moorings was abandoned at nightfall on the 25th and "Explorer" then proceeded to 61°N 4°W to work a line of stations south to Strathy Point. By the time this position was reached however the weather was too bad to attempt working hydrographic stations. Instead "Explorer" steamed south, the thermo-salinograph being annotated in detail en route. In order to anticipate the spread of the poor weather conditions further south "Explorer" then proceeded towards the Collieston area to uplift the mooring there. This mooring appeared to have been slightly damaged and it had been pulled over a mile off position. Because of the extensive losses in the Fair Isle area and in order to satisfy the immediate programme it was not possible to replace a mooring at Collieston. This marked the end of an unbroken sequence of 16 months of continuous operation at this site. "Explorer" worked hydrographic stations in the Turbot-Aberdeen Bank area before she put into Aberdeen at 1400 on 28 January.

RESULTS

The temperature and salinity data for the Faroe Shetland Channel showed that the temperature of the main core of Atlantic water was almost 1°C higher than at the corresponding time last year (9.45°C as opposed to 8.53°C). The water was also more saline (35.38-35.40‰ this year, 35.30-35.31‰ last year). The value of 35.38‰ is comparable to the very high salinities found during the winter of 1959-60. During the first transect across the Channel a sharp thermal gradient was found between positions 61°14'N 2°40'W and 61°21'N 3°10'W. At the surface the temperature difference between these positions was only 2°C but at 370 metres it was 5.5°C. This has occurred before but previously it has never been possible as on this occasion to repeat the section within a period of two to three days to investigate subsequent changes. Preliminary examination of the data, indicate that while the thermal gradient persisted, changes had taken place during this time interval.

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