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

FRS "EXPLORER"

6-29 AUGUST 1974

OBJECTIVES:

1. To lay six current meter moorings in positions to the west and east of Orkney and to recover at the end of the cruise.
2. To work a hydrographic section towards Faroe. This section may be repeated if unsettled weather conditions are encountered.
3. To recover the two current meter moorings which were deployed by "Scotia" in May, from the Faroe-Shetland Channel.
4. To carry out hydrographic and parachute drogue surveys in the vicinity of Orkney.
5. To work hydrography/chemistry sections normal to the 50 fathom contour between Orkney and Norway. In accordance with JONSIS recommendations a section along $59^{\circ}20'N$ will be worked before the ship returns to the Orkney area.

NARRATIVE:

"Explorer" sailed from Aberdeen at 1430 on 6 August. The six shallow water current meter moorings were deployed by the following evening. After working hydrographic stations in the locality of these moorings the ship made passage to the Faroe-Shetland Channel. A hydrographic section was worked there before the two deep water current meter moorings, which were laid in this area in May, were recovered on 11 August. The ship then returned to the Orkney area and hydrographic and parachute drogue surveys were conducted there until 18 August.

"Explorer" called at Lerwick on 19 August. The following 4 days were spent working hydrographic sections in the northern North Sea but lack of time prevented sampling from proceeding further east than $1^{\circ}30'E$. Because of poor weather prospects the 6 moorings were recovered slightly earlier than planned, on 25 and 26 August. Further station work was then carried out before "Explorer" proceeded to Aberdeen where she docked at 0600 on 28 August.

RESULTS:

1. Current measurements:- the 15 current meters recovered during this cruise appear to have functioned satisfactorily. The deep water moorings, which were deployed for 77 days, were recovered in near perfect condition but it does appear that some current meter gymbal assemblies are being slightly bent because of deployment stresses. Two of the shallow water moorings had suffered slight damage but the reasons for this are not clear.

2. Station work:- The areas sampled most frequently were in the locality of the current measurements east and west of Orkney. Considerable day to day variability was observed because of the strong hydrographic gradients existing in these areas. Nevertheless some of the moorings appear to have been located within the mixed water area of presumed current flow. Station work in the northern North Sea indicated the location of this current, and variations in its salinity, as it progresses eastwards across the area. In the central part of the northern North Sea its main distinguishing features were a weaker thermocline and higher bottom temperatures over a width of about 20 NM's.

H D DOOLEY

9 September 1974