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CRUISE REPORT

FRS "EXPLORER"

15 AUGUST - 17 SEPTEMBER 1973 (ICES EXPEDITION OVERFLOW '73)

OBJECTIVES

1) To lay 5 current meter moorings along a section from 60°N 4°W towards Faroe.

2) To make repeated T,S, chemical and plankton observations along this section.

3) To make additional current observations using parachute drogues and drop probes.

4) To collect water and plankton samples for pollution analysis.

NARRATIVE:

Explorer left Aberdeen at 0030 on 15 August and made a slow passage to the mooring area because of persistent dense fog. Two shallow water moorings were deployed on the 16 August but deployment of the other three moorings was delayed to enable a sick seaman to be landed at Lerwick on 17 August. All moorings were successfully deployed by 19 August, rough weather having meantime caused further delay. From then until 30 August work alternated between hydrographic and plankton sampling and current measurements using parachute drogues and drop probes. On 22 August one of the shallow water moorings was recovered because of apparent damage to the instrument line and was redeployed later that day.

Explorer lay in Thorshavn from 31 August to 2 September in the company of six other research ships also taking part in Overflow '73.

Work continued uninterupted during the remainder of the cruise except for two brief calls at Kirkwall. Mr Martin was landed there on 4 September for compassionate reasons and the ship called there for 24 hours on 8/9 September. All moorings were recovered between 11 and 14 September and Explorer berthed at Aberdeen at 1300 on 16 September.

Hydrography, Chemistry and Plankton

The hydrographic section between Fair Isle and Munken Rock, Faroes was completed 8 times, as planned. Samples for oxygen and nutrient analysis were taken on three of these sections and plankton tows were made on the first and last sections. Conditions were extremely variable from section to section but generally there was a very great scarcity of Atlantic water with approximately 90% of the water sampled being of a salinity less than 35.15‰. Because of this atypical situation the standard Nolso-Flugga section was also worked in order to provide a control on these measurements.

Parachute Drogues and Drop Probes

Drogue tracking was carried out on five separate occasions mostly at the south-eastern end of the section. In addition drift was monitored at each hydrographic station. The north-easterly surface current was more persistent than previously observed and had a strength of about 0.7 knots. Currents increased rapidly to about two knots from time to time and these changes coincided with changes in the temperature and salinity distribution. The three drop probes were used successfully and gave information on the integrated velocity shear over 1,000 m of water.

Current Meters and Moorings

The two deep water current meter moorings, which were in use for the first time, functioned satisfactorily. On two of the three shallow water moorings, which were deployed in about 250 m of water the subsurface floats had collapsed under pressure. These had apparently been pulled more than 60 m below the surface by strong currents associated with the very high tides around 31 August. The subsurface float on the third of these moorings collapsed during recovery. These subsurface floats are recent acquisitions and are made of a different material: they clearly do not meet our requirements.

The ten current meters and one thermistor chain in use functioned satisfactorily. Two of the current meters had however suffered extensive damage because of the subsurface float implosions.

H D DOOLEY
25.9.73