

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

CRUISE REPORT

FRV "MARA"

5-15 NOVEMBER 1974

OBJECTIVES:

- 1) To carry out a background hydrographic/chemistry survey of Shetland coastal waters including Sullom Voe and Yell Sound.
- 2) To collect sediment samples in Sullom Voe for Redox analysis.
- 3) Current measurements in Sullom Voe using parachute drogues.

NARRATIVE:

"Mara" sailed for Sullom Voe on 5 November and arrived there at 1430 on 6 November. Three parachute drogues were released near the mouth of the Voe before "Mara" sailed for Sella Ness which was to be her regular base. The next two days were spent working stations in Sullom Voe and, with Dr Pearson on board, grab samples were collected for Redox analysis. Stations were then worked in Yell Sound and adjacent Voes (including Orka, Firths, Dales, Swining and Vidlin Voes and Colla Firth). An axial section of Sullom Voe was worked on 11 November in order to monitor the effect of a severe gale which prevented work on 10 November. "Mara" left the area on 12 November and docked in Buckie during the afternoon of 13 November.

Staff movements were as detailed in the programme.

RESULTS:

- 1) Nitrate and oxygen values were uniformly distributed. Typical values were 6-8  $\mu\text{g-at/l}$  and 8-9  $\text{mg/l}$  respectively.
- 2) For four miles from the head of Sullom Voe water was colder and fresher ( $7.5^{\circ}\text{C}$ , 34.8‰) than elsewhere ( $9.7^{\circ}\text{C}$ , 35.2‰) and in spite of weak tidal streams there, water was well mixed vertically.
- 3) As a consequence the differences in water density between inside and outside the Voe was very slight indicating a weak circulation and poor flushing.

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19 February 1975