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R1/4

FRV "Explorer"  
Cruise 8/82

8ER82

Report

18th August - 2nd September

### Objectives

- 1) To undertake chemical/microbiological surveys and collect fish samples from the St Abb's Head and Bell Rock sewage sludge dumping grounds.
- 2) To conduct a hydrographic/benthos survey on the Jonsis line and in the Orkney/Fair Isle/Shetland area.
3. To conduct a hydro-chemical and plankton survey of the Faroe - Shetland Channel.

### Narrative

'Explorer' sailed from Leith at 1500 hrs on August 18th and commenced sampling at the St Abb's Head dumping ground at 1930 hrs. Sampling was suspended at 1000 hrs on the 20th August because of engine problems requiring docking for repair. The ship docked at 1600 hrs on the 20th and sailed at 1000 hrs on the 22nd August with repairs completed. Due to loss of time the remaining effort in Part 1 was put into sampling the Jonsis line. The line was completed at 2300 hrs on the 23rd August and the ship returned to Aberdeen for half landing at 1230 hrs the following day. Departure from Aberdeen was delayed because of engine problems until 1130 hrs on the 26th August. Bad weather delayed sampling in the Faroe - Shetland channel until the 28th August. This work was completed on the 29th and additional trace metal sampling carried out on the 30th. Because of deteriorating weather conditions this latter work was suspended and analysis of samples undertaken at anchor. As a result of the strong westerly winds prevailing at this time only two more stations were occupied for trace metal samples within the remaining part of the cruise. The ship returned to Aberdeen at 2000 hrs on the 1st September.

### Results

#### Dump Ground Sampling

Seventeen stations were occupied at each dump ground. Sediment samples for Coliform/Streptococci, carbon/chlorophyll, particle size, trace metal and ATP content taken at each station. Agassiz trawl samples were taken from nine stations at each dumping ground but core sampling for  $E_{11}$  measurement was abandoned due to bad weather. The bacteriological samples indicate that low densities of faecal streptococci were present at both sites ( $< 5 \text{ g}^{-1}$  dry weight sediment). A low level of coliform contamination was observed at the Bell Rock ground but no coliforms were detected at the St Abb's Head ground.

### Hydrography

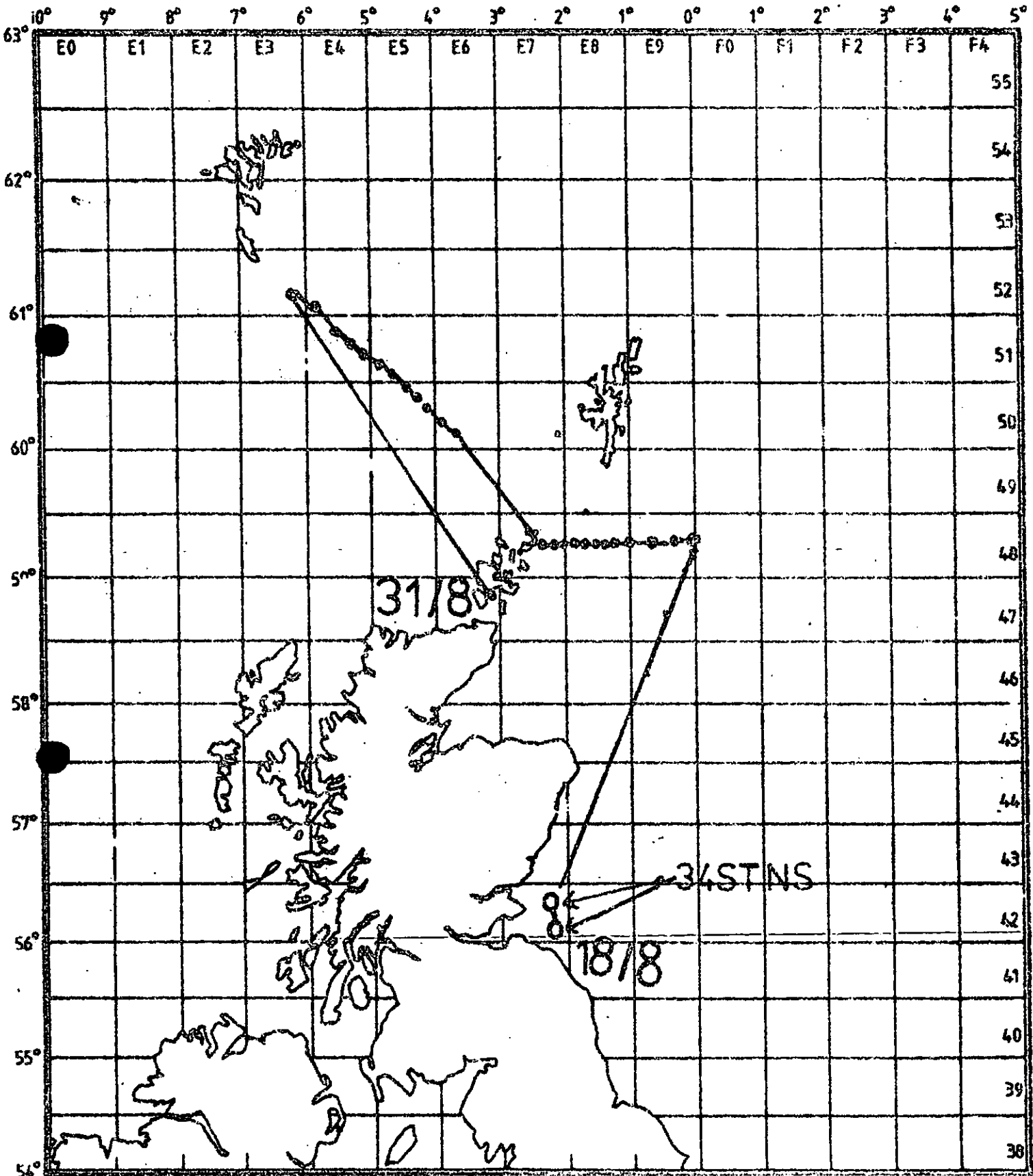
Twenty-four hydrographic stations were occupied, 12 on the Jonsis line and 12 on the Fair Isle - Munken line. Preliminary results show that hydrographic conditions were similar to those observed at the same time last year with temperatures in the Farøe - Shetland channel approximately  $0.7^{\circ}\text{C}$  above the 1960 - 1974 level.

### Trace Metal Sampling

Three stations were occupied with additional surface water sampling from the pumped water supply. Filtration and analysis of the samples of seawater were carried out on board ship. As a preliminary test of shipboard analysis the results were most encouraging and suggest that in future studies, shipboard sample contamination should not be a serious problem. The levels of cadmium ( $< 20 \text{ ng l}^{-1}$ ) measured in these seawater samples are similar to the low levels recently reported in coastal and open ocean waters.

J M Pirie  
12 Oct 1982

Seen in draft: W Findlay



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