

In Confidence -- Not to be quoted without reference to Lab

FRV EXPLORER
CRUISE 5/80

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REPORT

14 April - 1 May 1980

Objectives

1. To undertake monitoring surveys at Bell Rock and St Abbs Head sludge dumping grounds.
2. To measure the productivity of the outer reaches of the Moray Firth.
3. To investigate the status of the offshore benthic communities in the northern North Sea.

Narrative

'EXPLORER' was due to sail on Friday 11 April but crew shortages delayed her departure until 11.00 hrs on 14 April. The ship under moderate SW winds proceeded to the outer reaches of the Moray Firth where on 14/15 April three sedimentation traps were deployed. On the evening of 15 April the survey of the Benthos stations lying off Moray Firth was commenced. Sampling of the stations on the grid was temporarily discontinued for trials of the underwater TV sledge. The benthic survey having been resumed on 16 April the ship steamed to the east of Orkney and commenced the Orkney to Stavanger sampling line. Under deteriorating weather conditions the benthic survey continued until 19 April when storm force winds made working conditions impossible. The ship steamed to Stavanger earlier than planned, where she arrived at 10.00 hrs. EXPLORER remained stormbound but improvement in the weather allowed her to sail on 21 April and complete the benthos stations along the Norwegian coast. During 22/23 April the sampling of the Bergen to Shetland line was completed and the ship proceeded to Lerwick Bay where trials of the Reineck and Craib corers were carried out. EXPLORER sailed on 24 April at 13.00 hrs and completed the sampling line from Lerwick to the Moray Firth where she arrived on 25 April and retrieved the sedimentation traps. On 25/26 April the benthic sampling line from the Moray Firth to the Firth of Forth was completed. During the period 27-30 April. The sludge dumping grounds in the Firth of Forth were surveyed.

The programmed survey was completed faster than anticipated and additional benthic stations along the coast between the Firth of Forth and Stonehaven were introduced and successfully sampled.

EXPLORER steamed for Leith, docking at 18.30 on 30 April.

Results

Objective 1

Thirty four stations were sampled for macrobenthos, meiobenthos and sediment for particle size analysis, carbon content, heavy metals and organic pesticide residues.

The epibenthos was assessed by Agassiz trawl and underwater television. The latter also provided information on the general appearance and texture of the deposits. Direct observations and preliminary examination of the samples gave no evidence of any important accumulation of organic matter on the Bell Rock ground. At St. Abbs Head, however, the sediments at the centre of the dumping ground were black and anoxic, a condition not observed in the rest of the dumping ground. Samples of fish for bacteriological analysis were also obtained by trawling from the two sites and a control area.

Objective 2

Three sites in the outer parts of the Moray Firth were selected and sedimentation traps were deployed at several depths. Comprehensive hydrographic surveys were also carried out in all areas. On retrieval the traps contained a large amount of resuspended material the result probably of the prevailing stormy conditions.

Objective 3

A total of 61 stations was sampled by 1/10 m² Smith - McIntyre grab for macrobenthos, meiobenthos and sediment for particle size analysis, organic contents, heavy metals and organic pesticide residues. The epibenthos was assessed by Agassiz trawl, GOV trawl and underwater television. Preliminary examination of the samples showed an invertebrate fauna of molluscs, echinoderms crustaceans and polychaetes in varying proportions according to the nature and the texture of the bottom deposits.

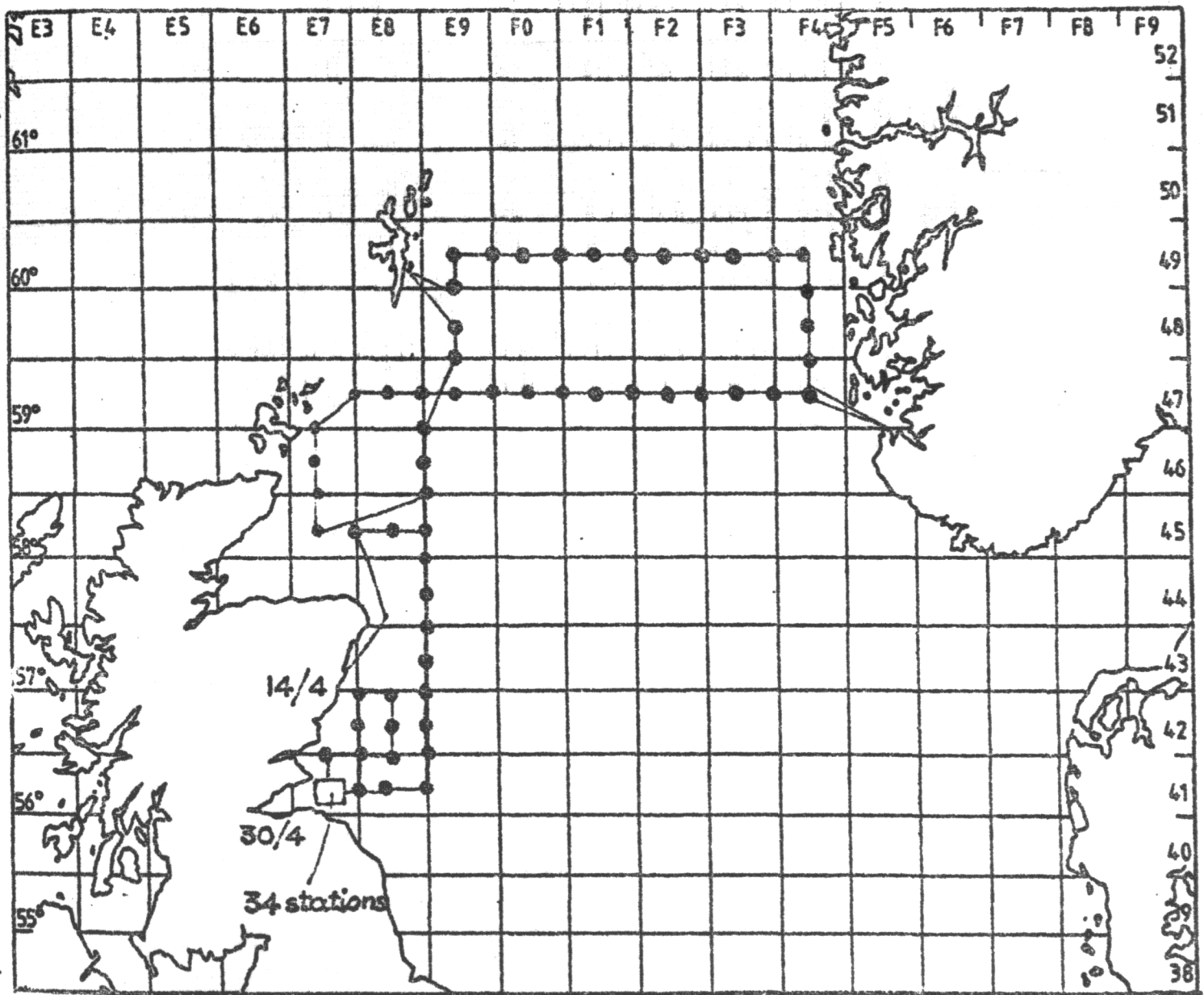
Further information will be available only when the samples are fully analysed.

General

On 1st May during the unloading of the gear at Leith docks the Customs impounded all samples and scientific equipment. After protracted negotiations the Customs agreed to release the equipment under the understanding that future cruises comply with the regulations by providing comprehensive lists of all equipment and gear used during the cruise.

An Eleftheriou
24 July 1980

Seen in draft
T Henderson C.O.



FRV Explorer 14/4 — 1/5/80

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