

R1/12

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FRV "Scotia"

Cruise 5/89 Part 2

5pt2SR89

REPORT

6-13 June 1989

Personnel

A McIntosh	HSO (in charge)
D Moore	SSO
J McHenry	HSO
J Rusin	SO
S Forsyth	ASO
P Mackie	TRS
A Judd	Visitor (Sunderland Polytechnic)
D Robson (Miss)	Visitor (Sunderland Polytechnic)
J Limia	Visitor (Sunderland Polytechnic)

Objectives

1. To investigate the distribution of hydrocarbons in sediments in the Fladen area of the North Sea, and the Brae and Fulmar fields as time allows.
2. To check monitor in the vicinity of the toppled Piper Alpha platform.
3. To assess the immunological status of fish and invertebrates at clean and contaminated sites.
4. To obtain samples of sediments and epibenthos from within, and from the near vicinity of, gas seepages and pock marks.

Narrative

"Scotia" departed from Aberdeen at 1200 on 6 June after a short delay due to technical problems encountered during the temporary installation of the Pulse 8 positioning system. Uninterrupted passage was made to the Fladen grounds where sampling commenced at 2300.

The survey involved sampling by grab at regular intervals along 5 transects covering an area of the Fladen ground which has been exposed to considerable exploration and development activity by the offshore oil industry. During the course of the cruise specific surveys were conducted successfully around the Brae 'A' platform in the north and the Ivanhoe-Rob Roy development in the southern Fladen area. The survey around the toppled Piper Alpha platform was conducted by sampling the same grab and trawl locations as had been occupied during the 7/88 "Scotia" cruise, with the addition of grab and core stations closer to the centre which were not previously accessible. Additionally one trawl was taken at each of the northern and southern limits of the monitoring area.

Approximately 24 hours were assigned to locating, delineating and sampling an active area of gas seepage (pock mark) to the eastern side of the Fladen ground.

"Scotia" worked continuously from 2300 on 6 June until 2200 on 12 June when passage was made for Aberdeen where docking was completed by 0800 on the 13th.

Results

The monitoring programme in the Fladen area resulted in 123 sediment samples being obtained by grab at the sites indicated on the attached maps. The specific survey work around platforms resulted in 35 grab and 4 multicore samples being taken from the toppled Piper Alpha, 23 grab and 4 multicore samples covering the Ivanhoe-Rob Roy development and 16 grab samples from around the Brae 'A' platform. These samples were taken for total and selected detailed hydrocarbon analyses and, at selected stations, for heterotrophic mineralisation studies. At 45 sites covering the general Fladen area, and around Piper specifically, replicate samples were taken for organic chemical analysis. From the trawls, shrimps and fish (liver and flesh) were sampled for organic chemical analysis. All samples were stored frozen on board ship and returned to the Laboratory in Aberdeen and results will become available when analyses are complete and the data evaluated.

A sample of shrimps (Pandalus borealis) was requested and supplied to the Shellfish Section for sex ratio and length frequency distribution analysis.

Ten grab samples were taken at a given location to obtain a sample of Socarnes for the Biology Section.

By synchronous use of the Pulse 8 position fixing facilities and the echo sounder, a 1 km square area, centred on the known peck mark, was carefully surveyed, and gas seepage, further to that previously recorded, was demonstrated. Sediment samples obtained from within and from the immediate vicinity of the peck mark were treated and stored for subsequent analysis and the results will be made available in due course.

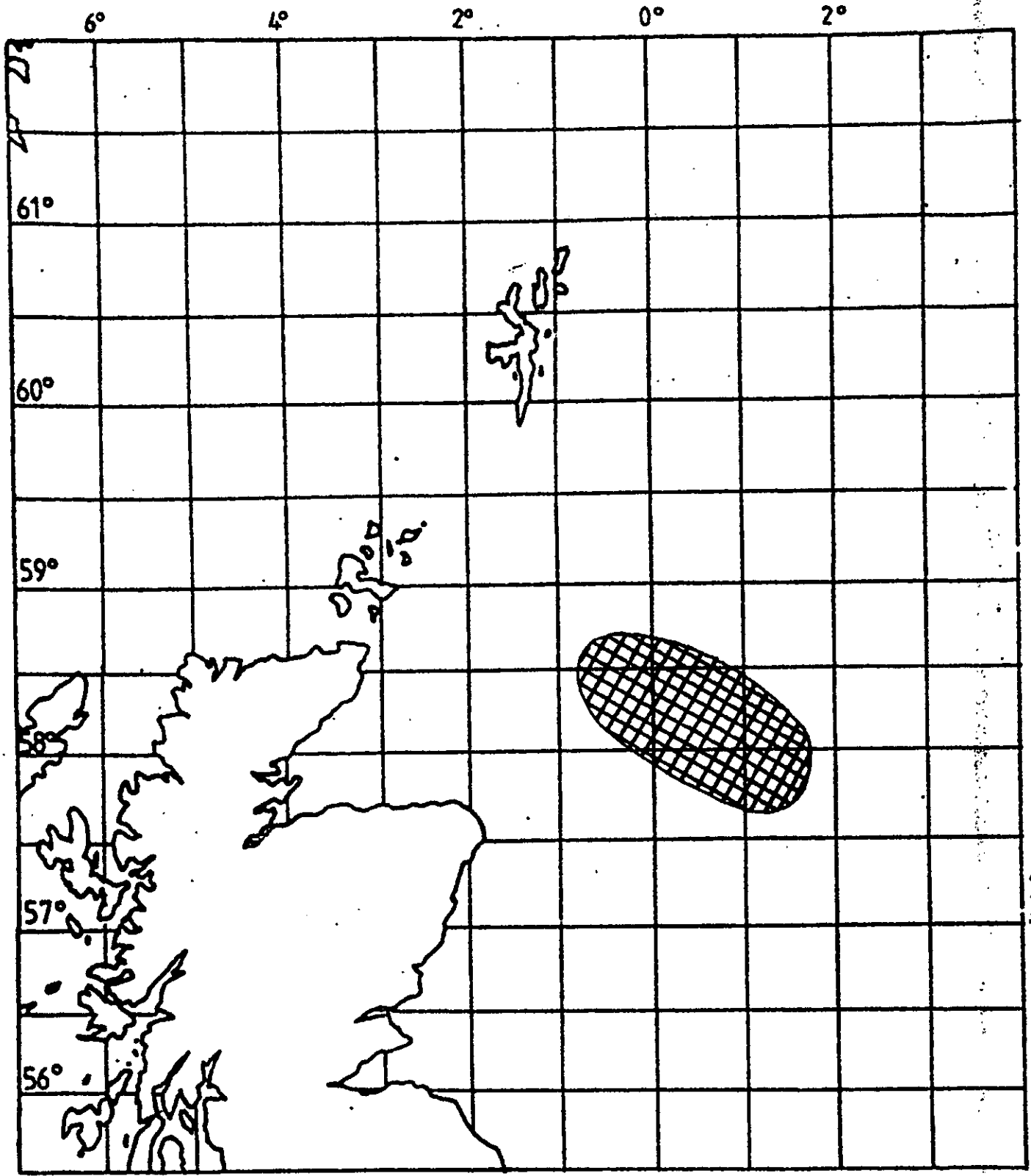
Unfortunately, no suitable animals were obtained from the trawls or by Agassiz trawl to meet the immunological work objective.

The accurate position fixing permitted by the Pulse 8 system fully justified its use. Its capabilities were fully utilised by the bridge staff in achieving and maintaining the prescribed positions during sampling.

This intensive programme, with the exception of one objective, was completed successfully due to predominantly good weather prevailing throughout and to the excellent cooperation and enthusiasm of the Master and crew of "Scotia".

A McIntosh

11 July 1989



FRV Scotia

Cruise 5/89
Part 2

General Sampling Area

Sampling Locations - Fladen Area - Scotia 5/89(pt 2)

