

R1/12

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FRV *Scotia*

Cruise 0600S

REPORT

14 April - 4 May 2000

Personnel

Part 1: Contaminant Impact Investigations, 14-20/21 April

D Moore (In charge)
A McIntosh
P Simpson
J Byrne
G Packer

Part 2: Drill Cuttings Disturbance Studies, 21/22 April - 4 May

D Moore (In charge)
C Hall
F Armstrong
S Hughes
A McIntosh
P Barkel
S Halewood
J Bilbrough Visitor, Environmental Tracing Systems (ETS)
L Carles Visitor, Innovative Engineering Systems

Project Code

Part 1: AE080, 7 days

Part 2: AE0857, 14 days

Objectives

See Programme 0600S.

Narrative

Part 1

Scotia departed from Aberdeen on 14 April and made passage towards Shetland. Sampling of fish by bottom trawl and sediments taken at the start, mid and end points of the trawl were completed at seven locations between the Little Halibut Bank and Unst to the northeast of the Shetland mainland. Sediment was additionally sampled by grab along seven transects between southeast Fair Isle and Sumburgh Head. Core samples for sediment horizon analysis were

taken at southeast Fair Isle, the Burra Haaf and, as a reference station, on the East side of the Shetland mainland.

The vessel returned to Aberdeen for the half-landing on 21 April 2000, when scientific staff and equipment were exchanged.

Part 2

Scotia sailed from Aberdeen at about 1000 hours on 22 April 2000.

On arrival at the experimental site, it was initially surveyed using RoxAnn, the EM950 swathe bathymetry and side scan sonar, commencing on arrival. The previously detailed programme of pre-deployment grabbing and sediment trap deployment work was continued until bad weather halted operations at 0410 hours on 26 April 2000. Conditions abated sufficiently by 0210 hours the following day to allow grabbing to recommence. No further losses to weather were encountered. Deployment of the tracer blocks was then conducted around 0930 hours with successful ROV operations to detect the deposited blocks following.

Repetitive trawling, post deployment grabbing and sediment trap recovery and deployment, as dictated by the previously detailed programme continued until the morning of 3 May 2000, when the vessel recovered the seabed ADCP and sediment traps for a final time. The ROV was then deployed twice to observe the trawl scars created by our activities. Thereafter, *Scotia* sailed to Fraserburgh to offload Alistair McIntosh in mid afternoon. Grabbing continued until midnight when *Scotia* sailed for Aberdeen, docking in the early hours of 4 May 2000.

Results

Part 1

All the objectives of this part of the cruise were met and 74 Day grab site and 27 core sites being investigated providing a total of 192 sediment samples for PAH analysis. The seven trawl sites provided 140 fish liver samples for PAH chemistry and biochemical analysis. In addition, a sufficient sample of *Nephrops* were obtained from the Burra Haaf for sensory and chemical analyses.

The results of the analyses conducted from this cruise support previous data which led, in May 2000, to the lifting of the FEPA Exclusion Zone. In this zone fishing and harvesting of mussels had been barred subsequent to the grounding of MV *Braer* in 1993.

Part 2

All aspects of this experimental part of the cruise were covered. Adequate coverage of the experimental area being achieved by RoxAnn, side scan sonar and swathe bathymetry. The tracer block deployment, grab sampling and trawling strategies were demonstrated to be satisfactory. Video footage and still photographs of the deployed blocks were obtained, demonstrating the strategy employed was satisfactory.

In total, the experimental area was sampled by grab on six occasions, once pre-deployment and five times post block deployment, with 354 stations being occupied. Four trawl disturbance episodes, of one, two, four and nine sweeps, were satisfactorily completed. The trawl headline mounted camera detected the tracer during the first trawling exercise, although repeats did not show this due to poor visibility. The use of the ships navigation and telemetry systems, all of

which functioned well, ensured the trawl properly impacted the tracer line on each sweep. The sediment traps were successfully deployed and recovered on seven occasions and the ADCP was deployed and recovered at the start and end of the experiment.

Subsequent analysis for the presence of tracer in the sampled sediments demonstrated that the disturbance was detectable using this methodology.

D Moore
30 January 2001

Seen in draft: P Ramsay

Scotia Cruise 0600S

