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FRV SCOTIA

Cruise 1692S

REPORT

12-21 December 1992

Ports: Loading and Unloading - Aberdeen

Personnel

W R Turrell	SSO (in charge)
R Payne	HSO
G Slesser	HSO
R D Adams	SO
P A Gillibrand	SO
T McInnes	PPH (12-14 December)

Objectives

1. To collect hydrographic and chemical samples along the Fair Isle-Munken (Faroe) and Nolso (Faroe)-Flugga (Shetland) standard sections.
2. To survey the standard JONSIS, East Shetland (ES) and northern North Sea (EC) sections.
3. Conduct restricted survey of the Moray Firth.
4. Collect the Fair Isle and Aberdeen radio-caesium samples for analysis by MAFF, Lowestoft.
5. To obtain photographs of sampling procedures and also of oil platforms.

Narrative

FRV *Scotia* sailed from Aberdeen during the morning of Saturday 12 December. After collecting the first caesium sample off Aberdeen, she immediately proceeded to the start of the east coast (EC) standard section, and hydrographic work commenced at 1640. This line was completed by 1012 the following day, when she proceeded west along the JONSIS standard section. After initial problems with the ROSette Instrumented Environmental (ROSIE) sampler, the JONSIS line was completed by 0750 Monday 14 December. Following a calm-water test of ROSIE off Lerwick these problems were identified as owing to vessel motion in heavy weather. This is to be corrected in software for future deployments.

Following completion of the JONSIS line, *Scotia* proceeded to Fair Isle where the second caesium sample was collected. During the first few days of the cruise Mr McInnes considered the weather too poor to permit photography, and hence he was landed at Lerwick by boat at 1300 Monday 14 December. *Scotia* then proceeded to the start of the East Shetland 1 (ES1) line. By 0507 on Wednesday 16 December all three east Shetland lines had been successfully completed and *Scotia* sailed to the start of the Nolso-Flugga section. This commenced at 1309 that day, and was completed by 1530 Thursday 17 December.

During the passage west to the start of the Munken-Fair Isle section the weather rapidly deteriorated and gale force winds were encountered. Large seas and winds exceeding 60 knots resulted in cancellation of hydrographic work until 0800 Saturday 19 December. During this time all previously collected CTD data was processed and edited, and vertical contour sections drawn using SURFER. On resumption of the hydrographic survey, the Munken-Fair Isle section was completed by 0430 on Sunday 20 December when *Scotia* proceeded to Aberdeen, entering the harbour during the early hours of Monday 21 December.

After sailing from Aberdeen on 12 December the vessel mounted Acoustic Doppler Current Profiler was deployed beneath the hull and tested. A series of software problems were encountered, and these were solved over the following few days. However, an error was identified in the ship's heading as received by the ADCP. This was eventually traced back to the vessel's master gyro compass. On the trip preceding 1692S the compass had failed and the connection of the ADCP control unit to the gyro had been broken during its subsequent repair. Although it was arranged for an engineer to attend *Scotia* on Saturday 19 December in order to remake the connection and hence permit an ADCP survey in the Moray Firth to take place, the delay caused by the poor weather resulted in this being cancelled.

In all 93 hydrographic stations were completed during the cruise, partly employing CTD casts, with additional samples for full chemical analysis taken along the JONSIS and Faroe-Shetland Channel sections. Continuous records of near-surface temperature and salinity were recorded throughout the trip.

Results

Faroe-Shetland Channel: Only the first three stations crossing the Scottish continental shelf edge of each of the two standard sections were surveyed using the CTD, hence allowing analysis on board. North Atlantic water typically exhibited salinities of 35.32 (35.27) and temperatures of 9.28°C (8.77°C) as observed at the Fair Isle-Munken (Nolso-Flugga) section.

East Shetland Hydrography: The three sections east of Shetland revealed homogeneous conditions extending out from the coast to the edge of the Norwegian Trench. Water immediately east of Shetland exhibited typical temperatures and salinities of 8.50 and 35.19.

Northern North Sea Hydrography: Results obtained along the JONSIS line again revealed homogeneous conditions. The Fair Isle Current exhibited S=34.97 and t=8.50°C, while water lying offshore from the FIC had typically S=35.19 and t=8.47°C.

Moray Firth Hydrography: The hydrographic stations performed in the Moray Firth revealed a predominantly well-mixed water column. Temperatures and salinities were typically 7.93°C and 34.77 respectively.

W Turrell
27 February 1993

Seen in draft: P Ramsay
20 December 1992

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