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FRV *Scotia*

Cruise 1293S

REPORT

20-27 September 1993

PortsLoading Aberdeen
Unloading Aberdeen**Personnel**

W R Turrell	SSO (in charge)
R Payne	HSO
G Slessor	HSO
R D Adams	SO
P A Gillibrand	SO

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. Collect the Fair Isle radio-caesium for analysis by MAFF, Lowestoft.

Out-turn Days per ProjectBKC1 4
GBC1 4**Narrative**

FRV *Scotia* sailed from Aberdeen at 1000 Monday 20 September (all times are BST). She immediately proceeded to the start of the Munken-Fair Isle standard section. The Fair Isle caesium was collected during the passage north.

Hydrographic work commenced at 0700 Tuesday 21 September. The Munken-Fair Isle line was completed by 0600 on Wednesday 22 September, and the Nolso-Flugga line by 1300 on Thursday 23 September. *Scotia* then proceeded to the three East Shetland (ES) lines, which commenced at 1445 23 September and were completed by 0000 Saturday 25 September. The JONSIS line then commenced at 1150, and was completed by 0140 the following day.

Scotia then proceeded to the start of the East Coast EC line. The EC line commenced at 0330 on Sunday 26 September, and was completed by 1900 later that day. *Scotia* then steamed to the start of the extended Kinnairds Head line in the Moray Firth. This line was completed by 2200 and *Scotia* proceeded to Aberdeen, where she berthed at 0600 on Monday 27 September.

In all 90 hydrographic stations were completed during the cruise, partly employing CTD casts, with additional samples for full chemical analysis taken along the JONSIS section. Continuous records of near-surface temperature and salinity were recorded throughout the trip. VM-ADCP data was collected across the Fair Isle-Munken section.

Results

Faroe-Shetland Channel: As the Seabird CTD was employed across the Faroe-Shetland Channel, sections of temperature, salinity, dissolved oxygen and transmission were prepared on board (Figures attached). The ADCP section gave surprising results. A net southwesterly transport was evident. The processing methods will be reviewed.

East Shetland Hydrography: Typical summer-type distributions were observed, with stratification existing offshore, and well-mixed conditions in the inshore deep waters east of Shetland. The stratification was also revealed in the fluorescence measurements obtained using ROSIE, with large values directly above the thermocline (Figure attached). It was noticeable that low salinities existed in the well-mixed waters, suggesting inflow there was not of Atlantic origin. It is also remarkable that at ES3, close to the shelf edge, winter bottom water temperatures exist, suggesting a certain degree of isolation throughout the summer.

Northern North Sea Hydrography: The JONSIS and EC lines again revealed typical summer conditions, with stratification lying offshore from the well-mixed Fair Isle inflow. The use of ROSIE along the JONSIS line reduced the time taken from a typical 14 hours, to 9 hours saving 5 hours of ship time (£1.8k).

W R Turrell

Seen in draft: P Ramsay, Master

14 March 1994