

R1/12

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FRV *Scotia*

Cruise 0693S

## REPORT

24-31 May 1993

### Ports

Loading - 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 and Pentland Firth radio-caesium samples for analysis by MAFF, Lowestoft.

### Narrative

FRV *Scotia* sailed from Aberdeen at 1000 Monday 24 May (all times are BST). After performing several test casts of the rosette sampler ROSIE and the Seabird CTD system off Aberdeen, 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 0630 Tuesday 25 May. The Munken-Fair Isle lines was completed by 0300 on Wednesday 26 May, and the Nolso-Flugga line by 0800 on Thursday 27 May. *Scotia* then proceeded to the three East Shetland (ES) lines, which commenced at 0900 27 May and were completed by 1530 Friday 28 May. The JONSIS line then commenced at 1900, and was completed by 0800 the following day.

*Scotia* then proceeded to the start of the East Coast EC line, via the Pentland Firth caesium sampling position. The EC line commenced at 0030 on Sunday 30 May, and was completed by 1530 later that day. *Scotia* then steamed to the start of the extended Spey Bay line in the Moray Firth. This line was completed by 2200 and *Scotia* proceeded to Aberdeen, where she berthed at 0600 on Monday 31 May.

In all, 94 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.

## 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 onboard (Figures attached).

A possible calibration error may have been noted in the Seabird salinities, evident in the maximum values recorded in the Norwegian Sea Deep Water:

Depth (m)	Temperature	Salinity	Station
930	-0.74	34.8960	Munken Stn 5
1007	-0.75	34.8962	Munken Stn 6
1183	-0.80	34.8965	Nolso Stn 6
1274	-0.80	34.8967	Nolso Stn 5

These values may be compared to those collected during a recent *Valdivia* cruise:

785	-0.36	34.8916	<i>Valdivia</i> - Dive 1
836	-0.42	34.8942	<i>Valdivia</i> - Dive 2
959	-0.43	34.8952	<i>Valdivia</i> - Dive 3

and to mean values calculated over the period 1960 to 1992:

	-0.58	34.920	Nolso
	-0.56	34.919	Munken

Hence Seabird salinities may be 0.03 too low. This will be investigated using *in situ* calibration samples collected during the cruise.

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).

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 time saving 5 hours of ship time (£1.8K).

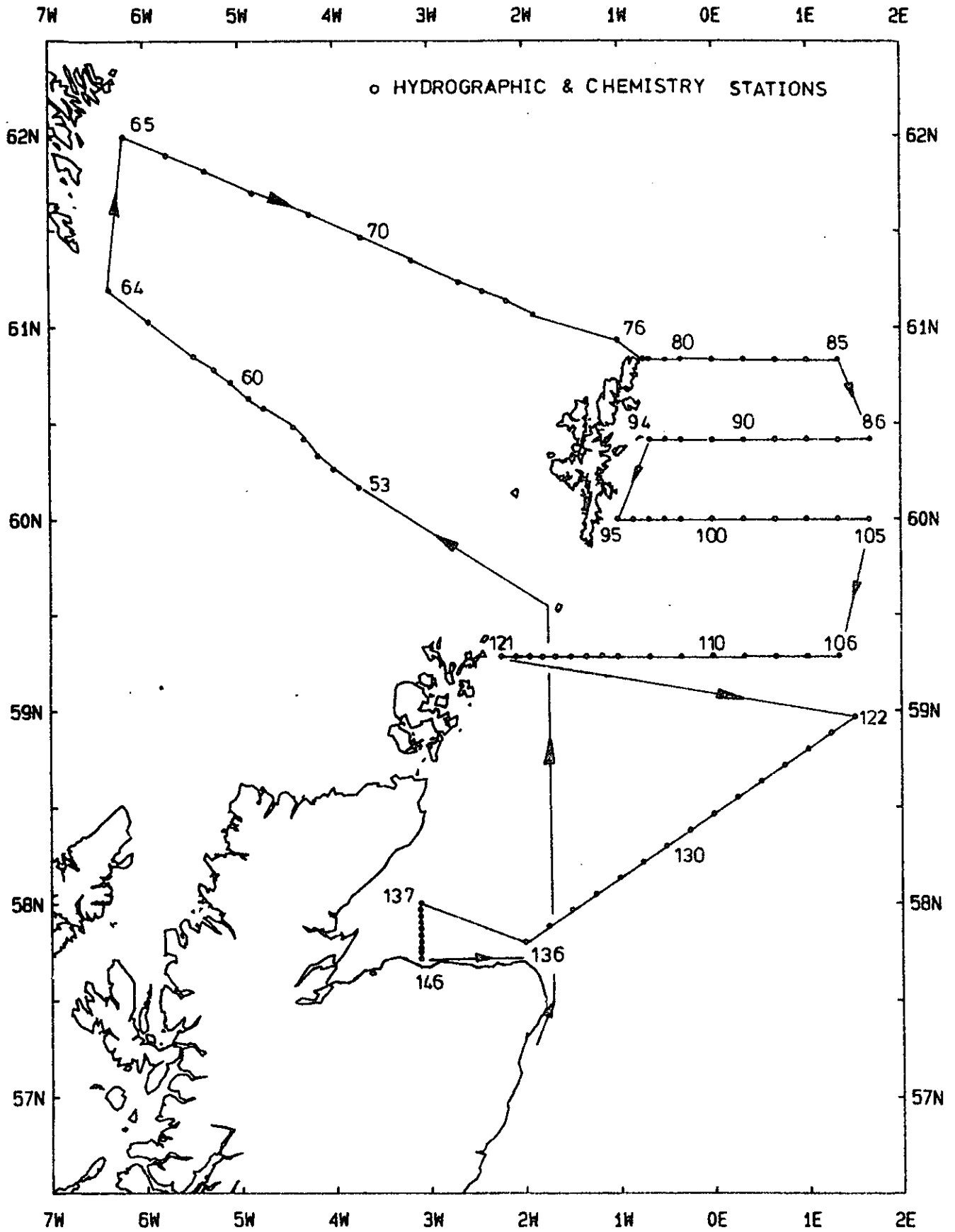
Moray Firth Hydrography: The hydrographic stations performed in the Moray Firth revealed a predominantly well mixed water column. Temperatures and salinities were typically 7.93°C and 34.77 respectively.

W Turrell

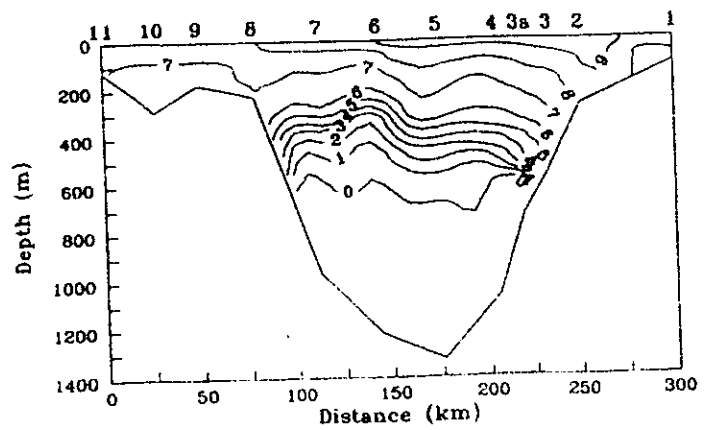
17 June 1993

Seen in draft: P Ramsay

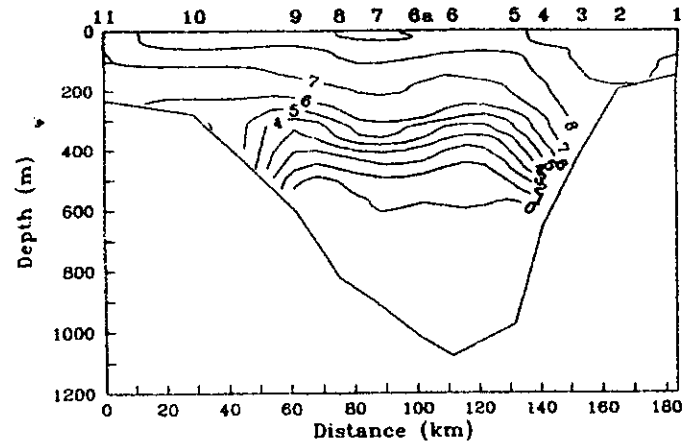
F.R.S. SCOTIA CRUISE 6 24-30 MAY 1993



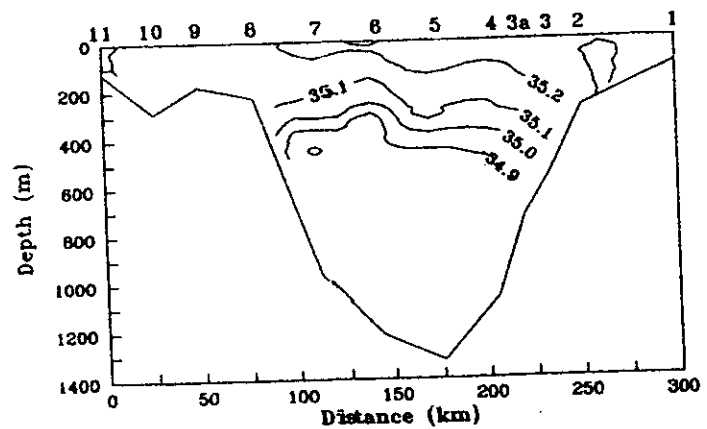
NOLSO - FLUGGA LINE SCOTIA 6/93 TEMPERATURE



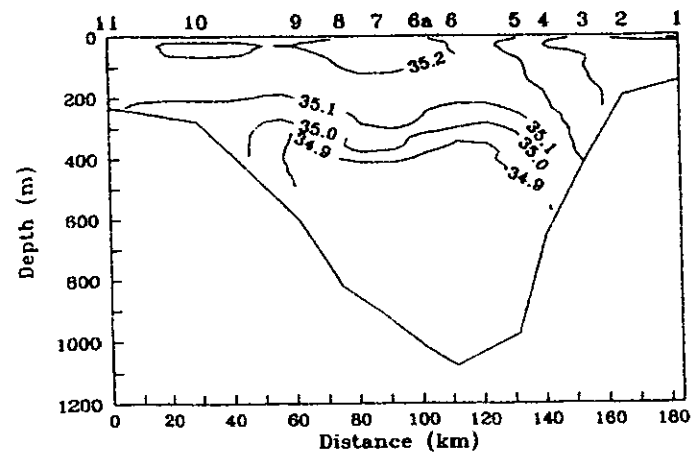
FAIR ISLE - MUNKEN SCOTIA 6/93 TEMPERATURE



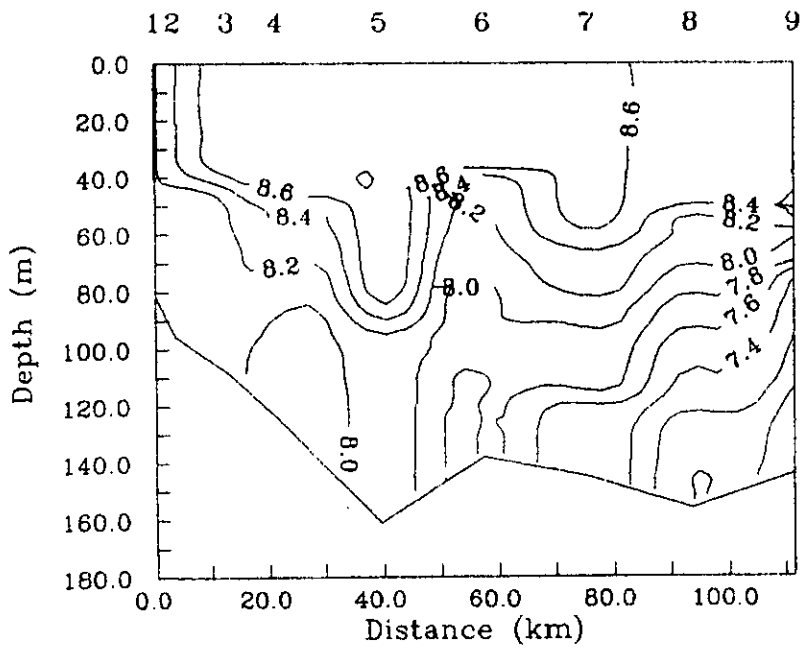
NOLSO - FLUGGA LINE SCOTIA 6/93 SALINITY



FAIR ISLE - MUNKEN SCOTIA 6/93 SALINITY



ES3 LINE SCOTIA 6/93 TEMPERATURE



ES3 LINE SCOTIA 6/93 FLUORESCENCE

