

P17/15

Not to be cited without prior reference to the Marine Laboratory, Aberdeen

FRV *Scotia*

Cruise 1796S

## REPORT

14-28 October 1996

**Loading:** Aberdeen

**Unloading:** Aberdeen

### Personnel

W R Turrell	PSO
P A Gillibrand	HSO
R Payne	HSO
G Slesser	HSO
R D Adams	SO
S Dye	University of East Anglia
L Bullough	Aberdeen University
P Bloor	NERC

### Objectives

1. To perform hydrographic surveys along the standard Faroe-Shetland Channel sections.
2. To service the single NWOCE ADCP mooring at the shelf edge west of Shetland.
3. To deploy a deepwater mooring in the centre of the Faroe-Shetland Channel.
4. To perform experimental deep water trawls northwest of Shetland.
5. To deploy a shelf mooring on the Viking Bank.
6. To perform hydrographic surveys along the JONSIS standard section and in the northern North Sea if time permits.
7. To collect the Fair Isle caesium sample.

**Out-turn days per project:** BKC1 - 7, GBG1 - 8

### Narrative

After an initial delay owing to necessary work on the engines, FRV *Scotia* sailed at 1500 hours (all times GMT) on Monday 14 October. She proceeded towards the eastern end of the JONSIS line, performing planned turns during the passage in order to calibrate the

ADCP. The weather, however, deteriorated during the night, and *Scotia* was forced to dodge until 0600 hours on Wednesday 16 October when survey work along the JONSIS line commenced. Work along this line was completed by 1830 hours later that day, and *Scotia* proceeded to the Fair Isle caesium sample position. After the sample was collected *Scotia* proceeded to the start of the Nolso-Flugga section. Work along this line commenced at 0420 hours on Thursday 17 October.

By the time *Scotia* reached the third from last station along this line the weather had deteriorated and work had to be suspended. At 0600 hours on Friday 18 October, *Scotia* proceeded to a sheltered position northeast of Faroe. Work recommenced along the Nolso-Flugga section at 2000 hours, and was completed by 0000 hours on 19 October. *Scotia* then proceeded to the start of the Fair Isle-Munken section, where work commenced at 0500 hours later that day.

Work along the line continued until Sunday 20 October, when, while about to complete the Fair Isle Munken line, two French trawlers were observed approaching the moored ADCP. *Scotia* went to the location of the mooring and failed to locate its position acoustically. During the remainder of the day a search was carried out for the ADCP mooring using a variety of methods. After querying the French trawlers, the Norwegian NWOCE Argos receiver and an extensive *in situ* search, the mooring's acoustic beacons were located at 1750 hours. As retrieval of the mooring had to await daylight, CTD work then recommenced, and the Fair Isle Munken line was completed by 2300 hours that day.

*Scotia* then returned to the ADCP location to await day break on Monday 21 October. A short tow was performed in an attempt to retrieve the mooring. However, the presence of a long-line laid by a Norwegian vessel meant that a proper tow could not be completed, and recovery operations were temporarily suspended. *Scotia* proceeded to perform three deep water trawls, commencing at 1400 hours and finishing at 2000 hours. After the completion of the last tow, *Scotia* returned to the mooring location to again await daylight.

Trawling recommenced for the mooring at 0700 hours on Tuesday 22 October. After this haul there was some doubt whether the net had worked properly. Before a second tow could be attempted, engine failure halted operations until 1100 hours. Two further trawls for the mooring were attempted, but again failed to retrieve it. During the darkness hours of Tuesday further ADCP calibration runs were performed in deep water. *Scotia* then proceeded to the 600 m contour, where fishing recommenced at 0700 hours on Wednesday 23 October. A second haul was performed at the 900 m contour later that day. However, during this haul part of the trawl was damaged and a third planned trawl haul was abandoned. Repairs on the net were made through the evening, although fishing was then no longer possible. Between 0000 hours and 0600 hours on Wednesday 23 October *Scotia* again was reduced to one diesel generator set.

At 0700 hours on Wednesday 23 October the attempt to recover the NWOCE mooring were restarted, and several attempts to retrieve it using a creeper were made up to 1200 hours. At that time *Scotia* had to leave the area in order to steam to the Viking Bank to lay the SEFOS mooring. By 2200 hours *Scotia* had reached the Shetland Isles, but the weather had again deteriorated, and shelter was sought west of Unst. By 0700 hours on Friday 25 October conditions had not improved, with 50-70 knot winds. With the possibility of southerly gales forecast for Sunday, and considering the likely poor sea state at Viking Bank, and considering *Scotia's* continuing diesel generator problems, it was decided, after some discussion, that it was not advisable to proceed to the Viking area. Therefore,

although still awaiting the oncoming gales, by 1800 hours on Friday 25 October conditions had improved, and *Scotia* left shelter and proceeded south towards the Moray Firth.

On arrival in the Moray Firth the weather had improved, but it was still not considered advisable to leave the Firth, hence work in the Moray Firth commenced at 0900 hours on 26 October, and was completed by 2000 hours on 27 October, when *Scotia* proceeded to Aberdeen. *Scotia* berthed at 0600 hours on Monday 28 October.

## Results

Objective 1. The two standard sections were surveyed as normal. There were two areas of concern; salinity values in the bottom water obtained from the Laboratory salinometer and calibration of the CTD below 800 m. Triplicate water samples were collected at selected stations and will be analysed back in Aberdeen to eliminate worries concerning the ship's voltage supply. Low salinity water was collected in the Moray Firth in order to examine whether the CTD calibration offsets were due to pressure effects, or some other factor at low salinity (<35.0). The CTD will be re-calibrated once these results are available.

Objective 2. This was not achieved owing to the removal of the mooring, probably by fishing vessels. Two days before *Scotia* arrived at the mooring location a single Argos transmission was intercepted. This was not enough to obtain a position fix, but the mooring was certainly then at the surface. When *Scotia* arrived at the mooring location there were two large French trawlers operating very close to it. It is possible that they, or a similar vessel, may have lifted the mooring by mistake.

Part of the mooring, the acoustic releases, were located some five miles northwest of the original deployment location. As all attempts to retrieve this part were unsuccessful, it is possible that only the anchor and acoustic beacons remain on the sea bed (at 60°20.83'N 03°53.46'W in 313 m of water). The buoy plus ADCP is either afloat, without the Argos satellite beacon attached, or in the hold of a vessel. On departure from the area the acoustic releases were put into a dormant mode, hence future recovery attempts may be possible.

Objective 3. This mooring was successfully laid and will be recovered in April 1997.

Objective 4. In all five deep water trawls were successfully performed. Although catches were small, the exercise demonstrated that trawls along the standard sections were possible, and it is hoped that these will become a standard feature of the trips

Objective 5. This was not achieved owing to poor weather. It has been agreed that the mooring will now be laid at the start of the December acoustic survey trip, and will be recovered at the end of that trip.

Objective 6. The JONSIS line was successfully completed, as was a comprehensive survey of the Moray Firth. Ninety-one hydrographic stations were completed in all.

Objective 7. The Fair Isle caesium sample was collected.

W Turrell  
8 November 1996

Seen in draft: J Nichols (Master)

# Cruise Track - 1796S



