

R1/12

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FRV *Scotia*

Cruise 1695S (Part 1)

REPORT

24-30 November 1995

Personnel

W R Turrell	PSO (in charge - part time)
P A Gillibrand	HSO (in charge - part time)
R Payne	HSO
G Slesser	HSO
R D Adams	SO
P Copland	HSO
P Bloor	Visitor
S Dye	Visitor

Objectives

1. To perform hydrographic surveys along the shelf edge east, north and west of the Shetland islands.
2. To perform repeat acoustic surveys of mackerel patches in the same area.
3. To perform exploratory trawls (maximum one per day) of observed acoustic targets.
4. To recover a single current meter mooring in the centre of the Faroe Shetland.
5. To deploy the NORDIC WOCE ADCP mooring west of Shetland.

Out-turn days per project: EBBY 7

Narrative

The specialised ADCP housing, manufactured for the deployment at the shelf edge west of Shetland by Floatation Technology (USA) was expected to be delivered by courier at 1100 hours on the day of sailing (Friday 24 November). Despite repeated assurances of its delivery, it was eventually traced to a depot in Glasgow. After some discussion, and influenced by the poor weather at the time, staff travelled to Glasgow and retrieved the item. *Scotia* then sailed at 0000 hours Saturday 25 November, the Aberdeen caesium sample was collected, and passage was made to the start of the JONSIS line. Survey work commenced along this line at 1440 hours and was completed by 0200 hours the following day. The Fair Isle caesium sample was then collected, and *Scotia* then proceeded to the start of the Nolso-Flugga standard section (SEFOS standard section 19). Work commenced along this line at 1300 hours on Sunday 26 November, but unfortunately owing to

deteriorating conditions work was abandoned at 1625 hours and *Scotia* proceeded to shelter in St Magnus Bay. Some limited sonar buoy deployments were carried out in the Bay.

By 1830 hours on Monday 27 September conditions had improved sufficiently for *Scotia* to leave the Bay and proceed to the start of the Fair Isle Munken line (SEFOS standard section 18). Survey work commenced along this line at 0040 hours on Tuesday 28 November, and continued until 0500 hours when *Scotia* proceeded to the position of the mooring which was to be recovered. This was accomplished by 0920 hours that day, and *Scotia* proceeded to the shelf edge location, where the ADCP mooring was deployed by 1320 hours. Sonar buoy deployments were carried out during the mooring deployment, and subsequently for a period of four hours. Survey work along the Fair Isle Munken section recommenced at 2030 hours, and continued until 0200 hours on Wednesday 29 November, when *Scotia* proceeded to the centre station of the Nolso Flugga section. This section was then worked back into the Scottish shelf, and survey work was completed at 0000 hours, Thursday 30 November. Sonar buoy deployments then took place until 0600, when *Scotia* made for Lerwick.

Results

Objective 1: Unfortunately, only part of the Faroe Shetland Channel standard sections were completed during the cruise. The warm saline core was again evident at the Scottish shelf edge. Conditions continue to demonstrate low salinities at intermediate and bottom depths in the Faroe-Shetland Channel. The decline of salinity below 800 dbar continues, with possibly an associated warming. The salinity of Norwegian Sea Intermediate (NSI) water is falling, while that of Arctic Intermediate/North Icelandic (AI) water rose from minimum values in 1993/94. While salinities in surface waters remain low on the Faroese side of the channel, at the Scottish shelf edge salinities are increasing from minimum values in 1993/94.

Objective 2 and 3: A total of three acoustic surveys were performed. Few targets were located and no fishing performed. However, in combination with later surveys during Part 2, these helped delineate the extension of the mackerel migration.

Objective 4: The single string mooring was successfully recovered. All data was valid and initial results indicate a strong, but variable outflow within the bottom water in the Channel. Transport was of the order of 1.3 Sv during the deployment period, but with peaks of up to 8 Sv and also periods of reversal.

Objective 5: The NORDIC WOCE ADCP mooring was successfully deployed at the designated location.

W R Turrell
3 September 1996

Seen in draft: J Nichols