

R1/12

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FRV *Scotia*

Cruise 0706S

REPORT

23 April – 12 May

Loading: Aberdeen

Unloading: Aberdeen

Personnel

G Slesser	In Charge	
J Beaton		
N Collie		
M Rose		
C Megginson		
J Turriff		
D Watson		
P Provost	4-12 May	SAMS

Gear

SeaBird CTDs, ADCPs, Acoustic releases

Objectives

1. To perform hydrographic surveys along the JONSIS standard section in the northern North Sea.
2. To perform hydrographic surveys along the standard Faroe Shetland Channel sections.
3. To service two ADCP moorings in the Faroe Shetland Channel.
4. To recover the remaining part of a West of Shetland mooring.
5. To recover a current meter mooring from the Anton Dohrn Seamount.
6. To carry out CTD hydrographic surveys across the Anton Dohrn Seamount.
7. To service an ADCP mooring on the Wyville-Thomson Ridge.
8. To carry out CTD hydrographic surveys in the Wyville-Thomson Ridge area.

Out-Turn Days per Project: 19 days: Ae11r0

Narrative

Scotia sailed from Aberdeen at 1000 (all times are GMT) on Sunday 23 April for the start of the JONSIS standard section. CTD measurements and water sampling commenced at 2331 on Sunday 23 April. The line was completed at 1045 on Sunday 24 April (Stns 157-168).

Passage was made to the West of Shetland mooring position (60°45.83'N 001°27.12'W) to make a further attempt to locate the bottom half of this mooring. This mooring had been towed over by a seismic vessel late 2004. At the beginning of 2005 a current meter from this mooring was returned to FRS by personnel from the seismic vessel. On the latest information received from personnel aboard the seismic vessel a grid of 30 positions was surveyed to locate the remaining part of the mooring. Unfortunately, no signals were received back from interrogating the acoustic release on this mooring. It is unlikely that any further attempts will be made to recover the remaining part of this mooring.

Scotia then made passage to the start of the Nolso-Flugga line for CTD measurements and water sampling. Work commenced at 0507 on Tuesday 25 April. This line was stopped due to gale force conditions on two occasions and once for a sea cable failure. The line was eventually completed at 1931 on Thursday 27 April (Stns 169-184). Ships passage was then made to the start of the Fair Isle - Munken section where CTD stations commenced at 0017 on Friday 28 April. A break was made during sampling of this section to recover the ADCP moorings NWSD (60°27.09'N 004°22.62'W) and NWSE (60°16.91'N 004°19.25'W). Moorings NWSE and NWSD were recovered at 1430 and 1556 Friday 28 April respectively. The remaining part of the Fair Isle – Munken section was recommenced and was completed at 2214 on Friday 28 April (Stns 185-198). Ships passage was then made to the current meter mooring site on the Anton Dohrn Seamount. During the passage the data from the recovered ADCPs was downloaded and the equipment refurbished for deploying after the half landing.

On arrival at the Anton Dohrn Seamount at 0600 on Sunday 30 April the mooring was interrogated and found to be on position. Several attempts were made to release the mooring. Despite replies received from the acoustic release indicating that the mooring had been released from its anchor the mooring failed to surface. The remaining part of the morning was spent attempting to get a more precise mooring position before attempting to recover the mooring using the recovery trawl. Several attempts were made during the afternoon to recover the mooring using the recovery trawl but all ended in failure. This work was abandoned at 1730 and passage was made to the start of a CTD survey of the Anton Dohrn Seamount. This survey commenced at 1959 on Sunday 30 April and continued until gale force weather conditions caused a cessation of this work at 0437 on Tuesday 2 May (Stns 199-212).

Scotia proceeded to make passage to the Minch to sample CTD stations prior to entering Stornoway for the half landing. On arriving at the southern end of the Minch at 2300 an attempt was made to sample the southern most line of CTD stations but the gale force weather conditions prevented any work being done. After sheltering overnight, passage was made to the more sheltered waters of the North Minch area to survey sections of CTD stations. This work commenced at 1412 and finished at 2326 on Wednesday 3 May (Stns 213-223). Thereafter, passage was made to Stornoway for the half landing. *Scotia* docked at 0830. In Stornoway Dr Provost (SAMS) joined the ship.

Scotia set sail at 0900 on Friday 5 May to sample a long term monitoring station (Stn 224) at the north end of the Minch. Once this was completed passage was made to the ADCP mooring NWSE (60°16.63'N 004°20.17'W) which was deployed at 2048 on Saturday 6 May this was followed by the deployment of ADCP mooring NWSD (60°27.02'N 004°22.54'W) at 0501 on Sunday 7 May. *Scotia* then made way to the Wyville-Thomson Ridge area to recovery the SAMS ADCP buoy.

This buoy was recovered at 0520 on Saturday 7 May. Following downloading the data and maintenance work on the buoy, the mooring (60°14.97'N 07°44.23'W) was successfully deployed at 0744 on Sunday 7 May. Between recovery and deployment of this mooring the time was used to do a bathymetric survey of the Ellett Gulley.

Over the remainder of the cruise further bathymetric survey work of the Ellett Gulley and the surrounding area was conducted together with a CTD section from Rosemary Bank to Bill

Bailey's Bank and CTD sections through the SAMS mooring position (Stns 225-271). During this time the Seabird 911 CTD failed when sampling station 228. The Seabird 25 Sealogger CTD was used for the remainder of the cruise.

On completion of these transects *Scotia* returned to Aberdeen, where she berthed at 2200 on Thursday 11 May.

Results

The weather conditions were mixed throughout the trip and some ship time was lost due to gale force conditions. Despite this most of the main objectives were completed.

1. The JONSIS standard section in the northern North Sea was surveyed.
2. The two standard Faroe Shetland Channel sections were surveyed.
3. The two Nordic WOCE ADCP moorings NWSD and NWSE were recovered successfully, the data downloaded and redeployed. The recovered ADCP data will be processed in the laboratory by in-house software.
4. A final attempt was made to find the remaining part of the west of Shetland mooring with no success and therefore will most probably be written off.
5. The mooring on the Anton Dohrn Seamount was located on position. Several attempts were made to release the mooring. Indications from instrumentation suggest that the mooring was released from its anchor but the mooring failed to surface. Several attempts were made to recover this mooring using a "recovery" trawl with no success. Further attempts may be made to recover this mooring in the future.
6. A partial CTD survey was carried out on the Anton Dohrn Seamount before gale force weather conditions caused this work to cease.
7. The SAMS ADCP mooring was successfully recovered and redeployed in the Ellett Gulley.
8. CTD surveys were carried out in the Wyville-Thomson Ridge area with additional sounding data collected for the Ellett Gulley.

Throughout the cruise, sea surface temperature, salinity and fluorescence recordings were made using a Sea-Bird SBE21 Thermosalinograph and Sea Point Fluorometer. Surface samples were taken throughout the cruise to calibrate the salinity and fluorescence data. Thirty water samples were taken to monitor the presence of phytoplankton in the Faroe-Shetland Channel. Detailed results of the hydrographic and plankton data collected during the cruise will be made available as these data are worked up and interpreted in the laboratory. Conductivity sensor calibrations were carried out on *Scotia* for both the Sea-Bird 911 and Sealogger CTD instrumentation. All hydrographic data will be delivered to the ICES and BODC data centres over the course of the following year.

G Slesser
11 July 2006