

R1/12

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

FRV *Scotia*

Cruise 1402S

REPORT

23 September - 7 October

Loading: Aberdeen
Unloading: Aberdeen

Personnel

G Slesser	In charge
S Hughes	
N Collie	
C Shaw	
P Walsham	
J Beaton	
D Lichtman	
R Swift	University of Aberdeen
G Hastie	University of Aberdeen
B Moate	BODC

Gear

SeaBird CTD's, ADCP's, SonoBuoys, Acoustic releases.

Objectives

1. To perform a hydrographic survey 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 of the Nordic WOCE ADCP moorings.
4. To recover one current meter in the Judd Deep.
5. To perform *ad-hoc* towed array acoustic recordings for cetaceans and recover one and deploy four sonobuoy moorings for Aberdeen University Zoology Department.
6. To perform a wide area CTD eddy survey of the Faroe Shetland Channel.
7. To carry squid jigging as time allows.

Out-Turn Days per Project: 15 days, Ae119o

Narrative

Scotia sailed from Aberdeen at 1045 hours (all times are GMT) on Monday 23 September for the JONSIS standard section. On route a test dip of the 911+ CTD was performed. CTD measurements and water sampling commenced at 0224 hours on Tuesday 24 September and was completed at 1208 hours on Tuesday 24 September (Stns 382-393). *Scotia* then proceeded to the start of the Fair Isle - Munken section for further CTD measurements and water sampling. Work started at 1909 hours. Five stations were completed before breaking off the line to proceed to the NWOCE mooring position NWSD for recovery of the first of two ADCP moorings. During the morning and early afternoon of Wednesday 25 September two ADCP moorings, NWSD (60°26.99'N 004°22.56'W) and NWSE (60°16.50'N 004°20.00'W), and a sonobuoy mooring (60°27.47'N 004°22.83'W) were recovered. Following this, an attempt to locate and recover two sonobuoys (60°22.52'N 004°27.69'W and 60°22.58'N 004°17.61'W) deployed on previous trips were initiated. One sonobuoy mooring was located but the buoy failed to surface on given it's release command.

The Fair Isle - Munken section was resumed and three stations were worked before a cable connector fault caused a delay in operations of six hours till it was traced and repaired. On repair three stations were completed prior to making way to Judd Deep for recovery of a current meter mooring. The Judd Deep mooring (60°24.65'N 005°19.33'W) was successfully recovered at 0830 hours on Thursday 26 September 2002. *Scotia* then proceeded to recommence the Fair Isle - Munken section. Two stations were completed before breaking off at the 500 m contour to carry out a trial deployment of the squid jigging package. On this occasion no squid was caught on the jigs or on video film. The Fair Isle - Munken section was restarted and was completed at 2150 hours on Thursday 26 September (Stns 394-407). *Scotia* then proceeded to Torshavn.

Scotia docked at 0800 hours on Friday 27 September. The ADCPs were transported from the ship to the Faroese Fisheries Laboratory for down loading of the data, replacing of the batteries and the refurbishment of damaged parts of the mooring. *Scotia* left Torshavn at 0900 hours on Saturday 28 September and made passage to the start of the Nolso - Flugga section. Work along this line commenced at 0930 hours and was completed by 1000 hours on Sunday 29 September (Stns 408-423).

Scotia proceeded to the NORDIC WOCE mooring NWSD carrying out a shelf edge transect eddy survey on route, this was completed by 0200 hours on Monday 30 September. This mooring (60°27.01'N 004°22.30'W) and NORDIC WOCE mooring NWSE (60°16.53'N 004°20.00'W) were deployed at 0850 hours and 1226 hours respectively. This was followed by the deployment of four sonobuoys moorings (60°27.61'N 004°23.86'W, 60°22.62'N 004°22.43'W, 60°31.23'N 004°18.75'W, 60°28.97'N 004°30.38'W) for Aberdeen University during the afternoon of the 30 September.

A further squid jigging deployment was made overnight but again no squid was caught on the jigs or on video film.

For the remainder of the trip, *Scotia* carried out 89 water bottle/CTD casts (Stns 423-511) across the shelf in aid of the eddy study. *Scotia* then proceeded to Aberdeen, where she berthed at 2300 hours on Sunday 6 October.

Results

The trip was characterised by good sea conditions throughout and no time was lost due to adverse weather conditions.

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 down loaded, the instruments reset and re-deployed. These data will be processed in the laboratory by in-house software.
4. The current meter mooring deployed in Judd Deep was recovered and the data from the three current meters recovered from the mooring were downloaded successfully. These data will be processed in the laboratory by in-house software.
5. Passive acoustic surveys for cetaceans were carried out in the Faroe - Shetland Channel. Surveys were conducted using a towed hydrophone array between standard hydrographic stations along Fair Isle - Munken and Nolso - Flugga lines, where travel times exceeded one hour, and during transit between lines. Towed array surveys were also carried out during passage between mooring deployments and recovery sites. A total of 61 hours of acoustic data were collected, along 1,294 kilometres of survey line. Sperm whales and dolphin species were acoustically detected during the surveys. In addition, sonobuoys were deployed at 25 hydrographic stations, greater than 600 m depth, to record low frequency vocalisations of baleen whales. Visual sightings of fin whales, Atlantic white-sided dolphins and common dolphins were also made.

Four 'pop-ups' (seabed mounted whale recording units) were deployed in the Foinaven Schiehallion development area as part of long-term project to detect and then monitor the fine-scale movements of fin whales within the Faroe Shetland Channel. These units were deployed on Monday 30 September and will be in place until November 2002. In addition, a single unit that was deployed from the FRV *Cirolana* in May 2002 was recovered for analysis.

6. CTD stations were carried out across the shelf edge for the eddy study in the Faroe - Shetland Channel. Poor overhead conditions allowed only one satellite image to be obtained from the Plymouth Marine Laboratory to help in these investigations. Unfortunately the image arrived near the end of the cruise and was too late for use in the study underway. Seven lines of CTD stations were initially carried out for interpretation. On plotting these data, it was determined that the southern part of the survey area showed more promise for further investigations and a further five CTD lines were carried out at this location. Chlorophyll and phyto-plankton samples were taken for calibration (fluorometer) and analysis.
7. Three deployments of the squid jigging package were made but unfortunately no squid were caught on the lures or on video film.

Throughout the cruise, sea surface temperature, salinity and fluorescence recordings were made using a Sea-Bird SBE21 Thermosalinograph and Sea Tech Fluorometer. Detailed results of the hydrographic data collected during the cruise will be made available as the data are worked up and interpreted in the laboratory.

G Slesser
21 October 2002

Seen in draft: Captain Peter Barratt, FRV *Scotia*