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FRV *Scotia*

Cruise 1107S

REPORT

23 July – 7 August 2007

Personnel

P Hayes	23 July-7 August
D Moore	23 July-7 August
C Megginson	23 July-7 August
*P Stainer	23 July-30 July
*C Shand	30 July-7 August
*G Rodger	30 July-7 August
*M McCann	23 July-30 July
*J Heron	23 July-30 July
**J Hartley	23 July-30 July
**A Brown	23 July-30 July
**A Henly	23 July-7 August

Objectives

1) To collect surface sediment grab samples from CSEMP locations within the Fladen ground, Minches and Shetland area

2) To undertake surface sediment grab survey of the East of Shetland basin.

3) To collect surface sediment grab samples from near to Lerwick on behalf of SEPA.

4) To undertake RoxAnn, swathe bathymetry, grabbing, TV sledge survey/trials at potential tidal energy sites located at the Pentland Firth, SW Islay, Canna and Eigg (subject to change) using grab, TV, RoxAnn and swathe bathymetry

5) To undertake a check monitoring survey within the MOD BUTEC range near Raasay using grab, TV sledge, RoxAnn and swathe bathymetry.

6) To undertake swathe bathymetry, Roxann and grabbing surveys within the Minches, 20 km east of Mingulay.

7) To undertake RoxAnn, swathe bathymetry, grabbing, TV sledge survey/trials within the Moray Firth SAC.

8) To undertake check monitoring of the Loch Linnhe artificial reef using grab, TV sledge, RoxAnn and swathe bathymetry (Contingency)

9) To undertake RoxAnn, swathe bathymetry, grabbing, TV sledge survey/trials at the Ullapool Harbour, Stranraer Harbour, Ayr and Troon Harbour sea disposal sites (Contingency).

10) To undertake a surface sediment craib core survey of the Garroch Head and Cloch Point sea disposal site for the determination of flame-retardants (Contingency).

11) To undertake swathe bathymetry, RoxAnn, grab and TV sledge survey work at a possible offshore windfarm site near Bell Rock (Contingency).

Out-turn days per project: 14 days – AE02n 2 days AE11p
Narrative

All work undertaken on the *Scotia* was completed using a 24 hr watch. *Scotia* sailed from Aberdeen at 100 on 23 July and commenced grab sampling at the CSEMP stations located within the Fladens Ground area. On completion of the Fladen Ground survey, grab sampling continued at the East of Shetland basin on 25 July. The survey was completed on 29 July and passage was made to collect grab samples for SEPA located on the northern margin of Lerwick Port Authority limits and the CSEMP Eastern Shetland site. Poor weather terminated the grab survey of the CSEMP Western Shetland site. Scotia moved southwards for Ullapool arriving early in the morning of 30 July. Scientific personnel were exchanged the following day and TV equipment loaded. Scotia sailed from Ullapool at 000 on 31 July and proceeded to the BUTEC test range located between Applecross and Rasaay. The site was surveyed using predefined grab stations and TV tows. The entire test site was also surveyed using RoxAnn and the EM950 swathe bathymetry multibeam system. On 1 August, the vessel proceeded to the Mingulay reef site to ground truth the site using the TV drop frame. On completion of the grountruthing work, the vessel moved south to survey potential offshore renewable sites off the south west of Islay. Two sites were surveyed to the north and south of the Leanning fault escarpment. The southern site was surveyed using RoxAnn and swathe bathymetry. The output from these surveys together with the tidal conditions governed the location of the TV tows using the drop frame. The northern site was only surveyed using RoxAnn and swathe bathymetry. TV work was not undertaken due to the tidal conditions at the time and the predicted poor weather coming from the southwest. Scotia proceeded northwards to the Sound of Eigg to survey a second potential offshore renewable site. The surveys undertaken on 3 August included RoxAnn, swathe bathymetry and TV tows using the drop frame. Poor weather during the early hours of 4 August resulted in a short period of down time off the north east of Trotternish as S-SW winds exceeded 50 knots. As the weather eased, the vessel moved northwards through the Minch collecting grab samples from CSEMP locations. On arrival in the Pentland Firth on 5 August timing, weather and tidal conditions impeded any survey work. The following morning conditions were more favourable enabling RoxAnn, swathe bathymetry and TV drop frame surveys to the east of Dunnet Head and Duncansby Head. The vessel moved southwards to the offshore wind demonstration site adjacent to the Beatrice Platform in the Moray Firth. A repeat RoxAnn and swathe bathymetry survey was undertaken at the proposed commercial offshore windfarm site. Work on the survey area was completed on the afternoon of 9 February and the vessel then proceeded to Aberdeen, docking on the evening of 6 February.

Unloading of all the gear and samples took place on the 7 February.

Results

Poor weather and unsuitable working conditions for the type of work to be undertaken accounted for only a small fraction of downtime during the cruise and did not interfere with the completion of the aims of the cruise. All FRS sampling equipment worked to a sufficient standard to ensure the recovery of suitable samples for their intended purpose.

In total, 267 day grab samples were successfully collected for a combination of physical, chemical and biological analysis. The drop frame was deployed for 27 TV tows and detailed swathe surveys were completed for 7 of the sites surveyed.

The grab samples collected will contribute to the on going monitoring of the CSEMP stations and the monitoring the potential impact of the offshore oil and gas industry on the East of Shetland Basin. The surveys undertaken at the potential renewable energy sites has provided considerable insight into the logistical requirements for working in these areas and the importance of the sites in terms of local bathymetry and benthic habitats. Completion of the BUTEC site survey has ensured that check monitoring in relation to the site FEPA licence conditions has been undertaken.

P Hayes
31 August 2007