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

MRV *Scotia*

Survey 0915S

REPORT

16-27 July 2015

Ports:

Loading: Aberdeen, 14 July 2015
Sailing: Aberdeen, 16 July 2015
Unloading: Aberdeen, 27 July 2015

Personnel

F Neat	(SIC)
J Drewery	
N Collie	
M Stewart	
M Robertson	
H Stewart	(British Geological Survey)
G Oliver	(National Museum of Wales)
A Jamieson	(Aberdeen University)
A Scott Murray	(Aberdeen University)
T Linley	(Aberdeen University)
D Hughes	(SAMS)
C Welch	(SAMS)

Project Codes: MSMAST1 (20361), 12 days

Gear

- VMUX towed video chariot with HD camera system and integrated CTD.
- 2 X Agassiz trawl
- 1 X epibenthic sledge (supplied by SAMS)
- 2 X maxicorer (one supplied by UoA)
- 1 X Van-veen grab
- 1 X mini gravity corer (supplied by BGS)
- 1 X lander with video cameras (supplied by UoA)
- 1 X DOBO 'whale bone' lander with time lapse camera (supplied by UoA)
- Scanmar depth sensors, bottom contact sensor and depth/temperature logger

Chemicals

- Ethanol
- Formalin

Objectives

1) Deploy 'whale-bone' lander/camera in Rockall Trough for long term observation.

2) Visual survey of seabed in; (a) area west of Rockall where cold-seep ecosystem is suspected and, (b) the 'Hatton-Rockall Basin' marine protected area.

3) Epi-benthic sampling of the two survey areas using epibenthic sledge and Agassiz trawl.

4) Sample benthic infauna and sediments using megacorer, mini gravity corer and van-Veen grab.

5) Deploy baited lander in both survey areas.

This survey was a joint venture between partners of the Marine Alliance for Science and Technology in Scotland (MASTS). *Scotia* departed Aberdeen at 10:00 hours and made steady progress over the next two days, arriving on station east of Rockall Bank at approximately 00:00 hours on 18 July. The whale-bone lander was successfully deployed at position 57° 034.4068" N 12° 020.3805" W. The lander will record images and environmental information over the next year before being recovered.

Scotia then moved approximately 100 miles to the western margin of Rockall Bank to the vicinity of the cold seep arriving around 11:00 hours that morning. Operations began with deployment of the baited lander and then moved to the VMUX towed TV chariot. Two transects were made in approximately 1200 m water depth revealing unusual features (green layers that could be bacterial mats) on the sea-bed. Visibility was exceptionally poor in places with suspended matter in the water column almost totally obscuring the sea-floor in places. This was a good indication we were close to, if not actually right on top of, the cold seep ecosystem and gave a target to aim for the benthic sampling. There were problems with the netsonde cable twisting on the first two deployments and requiring it to be re-terminated, but this was resolved after the first day.

We then established a routine of alternating sampling in eight hour shifts; video survey, epibenthic sledge and Agassiz trawl, coring and lander deployments. The next four days were spent surveying the cold seep area. The TV surveys went very well and we covered the extent of the trench feature within which the cold seep was seen. The lander was deployed and recovered successfully each day, although poor visibility was a problem on two deployments. The maxi-corer worked sporadically, but yielded high quality samples when it did work. On one occasion damage was incurred to the Maxicorer due to the wire looping over the core tubes. The gravity corer worked on every occasion and the Van-Veen grab was also deployed successfully on most occasions. The Agassiz trawl worked well as did the epidbenthic sledge, although there was the odd problem with Scanmar units not working and mis-timings of the automated sledge door closure system. The weather deteriorated on the evening of 21 July and a force nine gale preventing sampling operations until 18.30 hours on 22 July. Core sampling resumed and one final TV transect was made completing the survey for this area.

On 23 July *Scotia* moved approximately 20 miles west to the Hatton-Rockall basin MPA site for a further two days' work. There a similar survey plan commenced as before targeting the polygonal faults geological features present in the area. Sampling details are given in Table 1. Sampling continued until 00:00 hours on 24 July and *Scotia* began passage back to Aberdeen around 01:00 hours, eventually docking in Aberdeen the night of 26 July.

Table 1

Summary of Sampling Results

Area	***Sampling gear***	***Number deployments***	***Successful sample collection***
Cold seep	TV chariot	8	8
	Baited lander	6	4
	Aggasiz trawl	7	7
	Epibenthic sledge	5	3
	Maxi-corer	9	4
	Van-Veen grab	6	4
	Gravity corer	9	9
Hatton-Rockall Basin	TV chariot	3	3
	Baited lander	2	2
	Aggasiz trawl	4	4
	Epibenthic sledge	2	2
	Maxi-corer	0	0
	Van-Veen grab	5	3
	Gravity corer	5	5

Submitted:
F Neat
21 August 2015.