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MRV *Scotia*

Survey 0515S

## **PROGRAMME**

25 April – 8 May 2015

**Loading:** Aberdeen, 20 April 2015 (23 April 2015 for larger mooring equipment and UoA equipment)

**Unloading:** Aberdeen, 8 May 2015

In setting the survey programme and specific objectives, etc the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the survey report, to I Gibb and the Survey Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Survey Summary Report a nil return is required, if appropriate

## **Personnel**

R O'Hara Murray (SIC)  
A Gallego  
J Dunn  
M Geldart  
D Lee  
T Gutierrez (Visitor Heriot-Watt University (HWU))  
L Perez Calderon (Visitor University of Aberdeen (UoA))

**Out-turn days per project:** 14 days: ST03P

## **Gear**

Sea-Bird CTDs, ADCPs and current meter instrumentation, temperature mini-loggers, water filtering equipment, fridge and freezer (UoA's), centrifuge equipment (HWU), bacteria sampling equipment (HWU), sediment sampling equipment (UoA), mooring equipment, recovery trawl, glider, sediment grabs (Hammon and Day), and sediment corers (MSS and UoA).

## **Objectives**

1. Test the CTD in the Buchan Deep off Peterhead.
2. Perform hydrographic sampling along the JONSIS long term monitoring section in the northern North Sea.
3. Perform CTD stations at the ADCP moorings on the cross shelf line adjacent to the Fair Isle – Munken section.

4. Recover and download the data recovered from the four ADCP moorings deployed on the cross shelf section, adjacent to the Fair Isle – Munken section, during 2014.
5. Deploy three ADCP moorings at positions on Fair Isle – Munken section.
6. Deploy and recover the dialysis (DNA) mooring for Heriot-Watt University twice during the cruise at FIM 6a location. Ideally two x three day deployments. Take water samples at this location.
7. Perform hydrographic sampling along the long term monitoring Faroe-Shetland Channel sections, Fair Isle – Munken and Nolso – Flugga.
8. Take water samples for long term storage at Fair Isle – Munken section stations FIM-01 and FIM-06.
9. Take water samples for bacteria analysis at FIM03, FIM08, NOL07, NOL08 and SEFOS (b/w NOL03 and NOL03a).
10. Take sediment samples at or near a number of the Nolso – Flugga section stations.
11. Take micro plastic water samples at a number of locations.
12. Deploy SAMS glider for the BP oil spill exercise.
13. Deploy drifters for the BP oil spill exercise (TBC).
14. Perform a number of other hydrographic sections if time allows.
15. Perform ship board ADCP survey if time allow.s

## **Procedure**

On sailing from Aberdeen *Scotia* will make passage to the start of the JONSIS long term monitoring section to commence sampling with the CTD and carousel water sampler. On route test deployments of the CTD and carousel will take place, using the newly developed deployment procedures (10 m soak). On completion of the JONSIS section passage will be made to the start of the ADCP line across the shelf edge adjacent to the Fair Isle - Munken (FIM) section and the CTD will be deployed at each location. After the completion of all the CTD profiles, the ADCP moorings will be recovered. The ADCP instrumentation data will be downloaded and instruments and moorings refurbished on route to new deployment positions on the FIM section. A CTD dip will be performed at the FIM 6a station in order to gain water samples for the DNA mooring. On completion, *Scotia* will make her way to the westernmost ADCP deployment location. Three ADCPs will be deployed at the new deep mooring locations, and a CTD profile will be carried out at each mooring position once the mooring has been deployed. On completion of the ADCP moorings, the DNA mooring will be deployed at the FIM 6a station. *Scotia* will then make her way to the start of the FIM section for the long term monitoring samples and CTD profiles to be taken. After the FIM section, *Scotia* will return to station FIM 6a for the turnaround of the DNA mooring, involving recovering the mooring, performing a CTD dip and re-deploying the mooring. Thereafter, *Scotia* will make way to the area on the Faroe-Cape Wrath section. During CTD and water sampling of the Nolso-Flugga long term monitoring section, grab samples and water samples will be taken for University of Aberdeen and Heriot-Watt University visiting scientists. Micro plastic samples will be taken opportunistically through the survey. Upon completion of the Nolso-Flugga long term monitoring section the Glider will be deployed at a

location within Scottish waters (Faroe Shetland Channel). *Scotia* will then proceed to the FIM6a station to recover the DNA mooring. Any remaining time will be spent carrying out CTD sampling the Cape Wrath – Faroe section, repeating the Fair Isle – Munken section, and performing ADCP surveys. It is intended to leave the glider deployed.

### **Mooring Positions (Recovery)**

#### **Faroe-Shetland Channel**

60° 20.27' N, 4° 30.07' W (NWSD)

60° 17.00' N, 4° 21.93' W (NWSE)

60° 7.98' N, 4° 8.64' W (NWSF) AL200 and 300 kHz ADCP to be taken home

60° 25.14' N, 4° 33.36' W (NWSG)

### **Deployment Positions (Deployment)**

60° 45.22' N, 5° 13.22' W (NWSN)

60° 41.49' N, 5° 4.12' W (NWSO)

60° 37.76' N, 4° 55.05' W (NWSP)

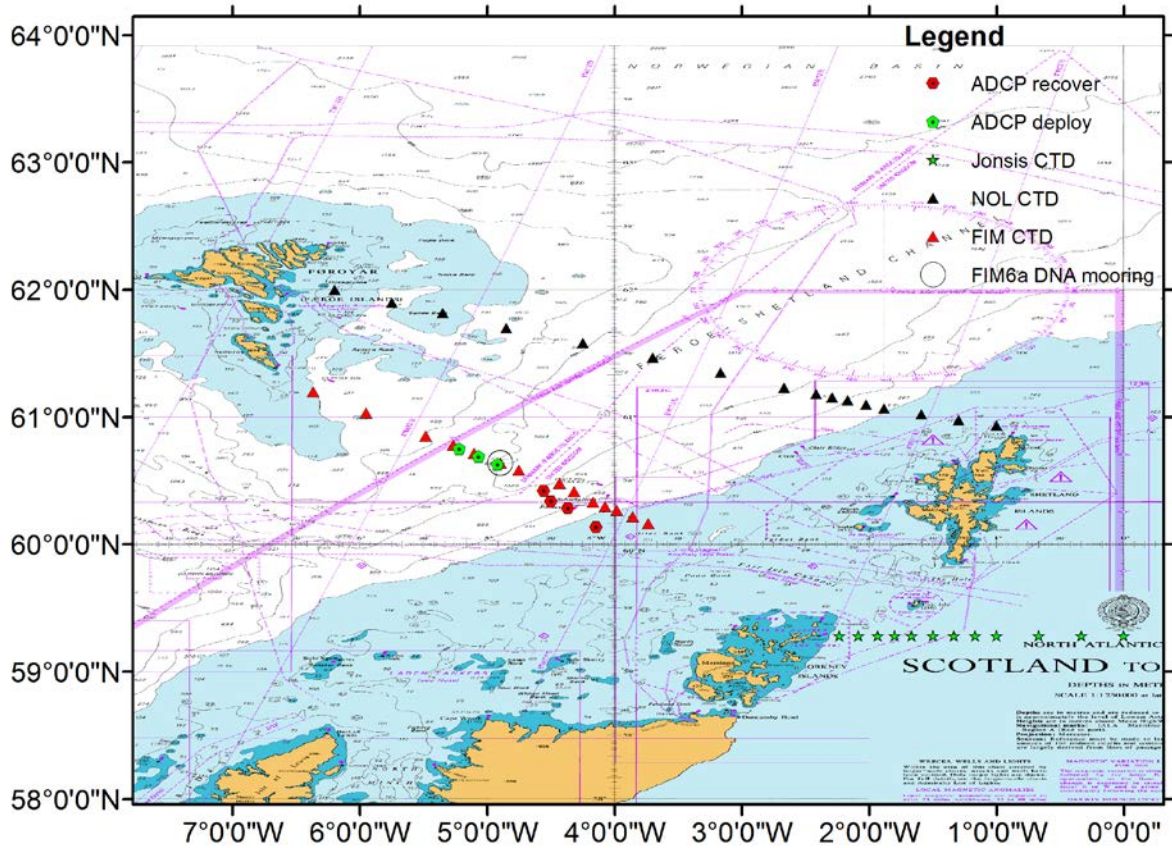
The thermosalinograph will be run throughout the survey.

(NOTE: The survey will take *Scotia* into the Foinaven Development Area. This is now standard practice and normal on-site communications will be established with the Foinaven co-ordinating officer).

Normal contacts will be maintained with the laboratory.

Submitted:  
R O'Hara Murray  
14 April 2015

Approved:  
I Gibb  
17 April 2015



CTD lines and mooring locations.

**JONSIS Line**

	Name	Latitude	Longitude	Depth	Spacing
01	JO 1	59° 17.00' N	02° 14.00' W	75 m	
02	JO 1A	59° 17.00' N	02° 05.00' W	90 m	8.5 km
03	JO 2	59° 17.00' N	01° 56.00' W	100 m	8.5 km
04	JO 3	59° 17.00' N	01° 48.00' W	80 m	7.6 km
05	JO 4	59° 17.00' N	01° 40.00' W	90 m	7.6 km
06	JO 5	59° 17.00' N	01° 30.00' W	95 m	9.5 km
07	JO 6	59° 17.00' N	01° 20.00' W	110 m	9.5 km
08	JO 6A	59° 17.00' N	01° 10.00' W	120 m	9.5 km
09	JO 7	59° 17.00' N	01° 00.00' W	125 m	9.5 km
10	JO 8	59° 17.00' N	00° 40.00' W	120 m	18.9 km
11	JO 9	59° 17.00' N	00° 20.00' W	140 m	18.9 km
12	JO10	59° 17.00' N	00° 00.00' W	135 m	18.9 km
Totals				1180 m	126.9 km

**Fair Isle - Munken** (Amended for presence of Foinaven oil platform)

	Name	Latitude	Longitude	Depth	Spacing
01	FIM-01	60° 10.00' N	03° 44.00' W	150 m	
02	SEFOS	60° 13.00' N	03° 51.50' W	170 m	8.9 km
03	FIM-02	60° 16.00' N	03° 59.00' W	200 m	8.9 km
04	SEFOS	60° 18.00' N	04° 04.50' W	330 m	6.3 km
+05	FIM-03	60° 20.25' N	04° 09.00' W	390 m	6.3 km
06	FIM-04	60° 25.00' N	04° 19.00' W	655 m	12.4 km
07	FIM-05	60° 29.00' N	04° 26.00' W	995 m	9.8 km
08	FIM-06	60° 35.00' N	04° 45.00' W	1090 m	20.6 km
+09	FIM-6a	60° 38.00' N	04° 54.00' W	1030 m	9.9 km
10	FIM-07	60° 43.00' N	05° 06.00' W	915 m	14.3 km
+11	FIM-08	60° 47.00' N	05° 16.00' W	830 m	11.7 km
12	FIM-09	60° 51.00' N	05° 29.00' W	600 m	13.9 km
13	FIM-10	61° 02.00' N	05° 57.00' W	280 m	32.4 km
14	FIM-11	61° 12.00' N	06° 22.00' W	240 m	
Totals				7,585.0 0	155.40

+ Water samples to be taken for HWU

## Nolso-Flugga

	Name	Latitude	Longitude	Depth	Spacing
01	NOL-01	60° 56.00' N	01° 00.00' W	110 m	
02	SEFOS	60° 58.70' N	01° 17.70' W	125 m	16.7 km
03	SEFOS	61° 01.40' N	01° 35.40' W	155 m	16.7 km
04	NOL-02	61° 04.00' N	01° 53.00' W	270 m	16.7 km
05	SEFOS	61° 06.00' N	02° 01.50' W	440 m	8.5 km
*06	NOL-03	61° 08.00' N	02° 10.00' W	550 m	8.5 km
+07	SEFOS	61° 09.30' N	02° 17.50' W	630 m	7.1 km
08	NOL-3a	61° 11.00' N	02° 25.00' W	730 m	7.4 km
09	NOL-04	61° 14.00' N	02° 40.00' W	1080 m	14.5 km
10	NOL-05	61° 21.00' N	03° 10.00' W	1370 m	29.6 km
11	NOL-06	61° 28.00' N	03° 42.00' W	1235 m	31.2 km
*+12	NOL-07	61° 35.00' N	04° 15.00' W	990 m	31.9 km
*+13	NOL-08	61° 42.00' N	04° 51.00' W	235 m	34.2 km
*14	NOL-09	61° 49.00' N	05° 21.00' W	180 m	29.3 km
*15	NOL-10	61° 54.00' N	05° 45.00' W	290 m	22.9 km
*16	NOL-11	62° 00.00' N	06° 12.00' W	125 m	26.0 km
Totals				8250 m	301.20 km

\* Grab or sediment core samples at or nearby these stations for UoA. We may do more sediment sampling at deep (>1000m stations if time allows)

+ Water samples to be taken for HWU

**Faroe – Cape Wrath**

	Name	Latitude	Longitude	Depth	Spacing
01	FWZ-19	59° 30.00' N	06° 10.00' W	152 m	
02	FWZ-18	59° 34.82' N	06° 10.00' W	196 m	4.81 nm
03	FWZ-17	59° 39.64' N	06° 10.00' W	220 m	4.81 nm
04	FWZ-16	59° 44.45' N	06° 10.00' W	277 m	4.80 nm
05	FWZ-15	59° 49.27' N	06° 10.00' W	457 m	4.81nm
06	FWZ-14	59° 54.09' N	06° 10.00' W	600 m	4.81 nm
07	FWZ-13	59° 58.91' N	06° 10.00' W	970 m	4.81 nm
08	FWZ-12	60° 03.73' N	06° 10.00' W	1082 m	4.81 nm
09	FWZ-11	60° 08.54' N	06° 10.00' W	1195 m	4.80 nm
10	FWZ-10	60° 12.76' N	06° 10.00' W	1212 m	4.21 nm
11	FWZ-09	60° 18.18' N	06° 10.00' W	616 m	5.41 nm
12	FWZ-08	60° 23.00' N	06° 10.00' W	423 m	4.81 nm
13	FWZ-07	60° 30.63' N	06° 13.88' W	302 m	7.86 nm
14	FWZ-06	60° 38.26' N	06° 17.77' W	275 m	7.86 nm
15	FWZ-05	60° 45.89' N	06° 21.69' W	184 m	7.86 nm
16	FWZ-04	60° 53.52' N	06° 25.65' W	138 m	7.86 nm
17	FWZ-03	61° 01.14' N	06° 29.63' W	142 m	7.85 nm
18	FWZ-02	61° 08.76' N	06° 33.65' W	125 m	7.85 nm
19	FWZ-01	61° 16.38' N	06° 37.70' W	100 m	7.86 nm
Totals				m	107.12 nm