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

MRV *Scotia*

Survey 0514S

PROGRAMME

24 April – 9 May 2014

Loading: Aberdeen, 21 April 2014
Unloading: Aberdeen, 9 May 2014

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

G Slesser	(SIC)	
J Dunn		
M Geldart		
S Hughes		
D Lee		
A Taylor		
J Wright		
A Angelova	Heriot Watt University	Visitor
J Cross	Plymouth Marine Laboratory	Visitor
R Ferguson	Aberdeen University	Visitor
M Porter	SAMS	Visitor

Out-turn days per project: 16 days: ST03P

Gear

Sea-Bird CTDs, ADCP and current meter instrumentation, water level recorders, temperature mini-loggers, mooring equipment, recovery trawl, drifters, glider, turbulence profiler, grab.

Objectives

1. Perform hydrographic sampling along the JONSIS long term monitoring section in the northern North Sea.

2. Perform hydrographic sampling along the long term monitoring Faroe-Shetland Channel sections, Munken - Fair Isle and Nolso - Flugga.

3. Take water samples for long term storage at Fair Isle – Munken section stations FIM-01 and FIM-06.

4. Take sediment samples at or near the Nolso - Flugga section stations - NOL-4 (1080m), NOL-3 (500m), NOL-2 (200m).

5. Take water samples for a Salford University pilot study on fish DNA analysis at Faroe – Cape Wrath section stations FWZ-12, FWZ-14 and FWZ-19.

6. Recover and download the data from the five ADCP moorings deployed on the Faroe – Cape Wrath section during October 2013.

7. Deploy five ADCP moorings at positions adjacent to the Fair Isle – Munken section for the FASTNET project.

8. Deploy the SAMS glider at a position > 1000m on the Fair Isle - Munken section.

9. Deploy 15 SAMS drifters at the east end of the Wyville – Thomson Ridge.

10. Deploy 10 Marine Scotland drifters at the east end of the Wyville – Thomson Ridge.

11. Deploy a turbulence profiler for a tidal cycle at moorings NWSD, NWSE and NWSF.

12. Take 3 litre water samples for Heriot Water University from selected stations along the long term monitoring sections.

13. Repeat CTD sampling of the Fair Isle – Munken section.

14. Perform CTD sampling along the Cape Wrath – Faroe section.

Procedure

On sailing from Aberdeen (24 April) *Scotia* will make passage to the start of the JONSIS section to commence sampling with the CTD and carousel water sampler. On route test deployments of the CTD and carousel will take place. On completion of the JONSIS section passage will be made to the start of the Nolso-Flugga section. During CTD and water sampling of the Nolso-Flugga section grab samples will also be taken for Aberdeen University. On reaching the end of the Nolso-Flugga section passage will be made to the area of the NWSD mooring where the SAMS glider will be deployed in a depth greater than 1000m. Thereafter, Scotia will make way to the area on the Faroe-Cape Wrath section where the five ADCP moorings will be recovered and DNA water samples taken. The ADCP instrumentation data will be downloaded and instruments and moorings refurbished on route to new deployment positions along the shelf edge adjacent to the Fair Isle - Munken section. The five ADCP moorings will be deployed at the new positions. A CTD profile will be taken after each mooring deployment at a position nearby. Passage will be then made to one end of the Fair-Isle – Munken section where CTD and water sampling will be undertaken. On completion the turbulence profiler will deployed for 13 hour periods nearby moorings NWSD, NWSE and NWSF. Following this the drifters will be deployed in the area where the moorings were picked up on the Cape Wrath section (east end of the Wyville -Thomson Ridge). Any remaining time will be spent CTD sampling the Cape Wrath – Faroe section and repeating the Fair Isle – Munken section. It is intended to leave the glider deployed and depending on battery usage the glider will either be picked up by the Scotia during cruise 1414S or by a NERC vessel if to be recovered earlier. Water samples will be taken at selected long term monitoring stations for Heriot Watt University when sampling the long term monitoring sections. It is not planned to pick up any of the drifters prior to returning to Aberdeen unless circumstances dictate.

Mooring Positions (recovery)

Faroe-Shetland Channel

60° 04.01'N 006° 10.06'W (NWZD)
59° 54.32'N 006° 10.19'W (NWZE)
59° 46.44'N 006° 09.92'W (NWZG)
59° 37.26'N 006° 09.99'W (NWZH)
59° 59.22'N 006° 10.03'W (NWZI)

Deployment Positions (deployment)

60° 28.50'N 004° 38.70'W (NWSJ)
60° 25.14'N 004° 33.36'W (NWSG)
60° 20.58'N 004° 27.24'W (NWSD)
60° 15.60'N 004° 19.80'W (NWSE)
60° 07.98'N 004° 08.64'W (NWSF)

The thermosalinograph will be run throughout the survey.

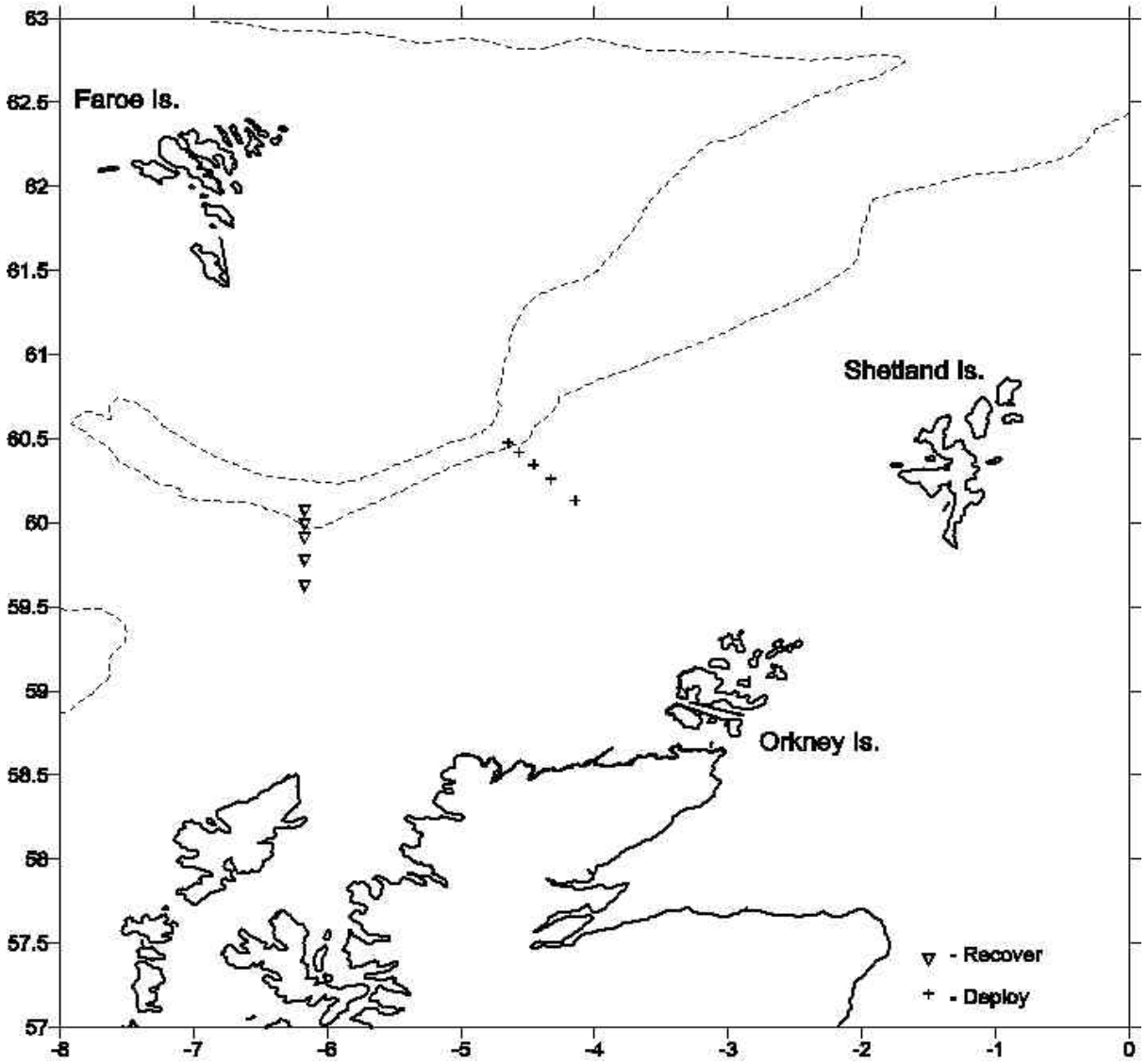
(NOTE: The survey will take *Scotia* into the Foinaven Development Area. This is now standard practice, and normal on-site communications will be established with the Foinaven co-ordinating officer).

Normal contacts will be maintained with the laboratory.

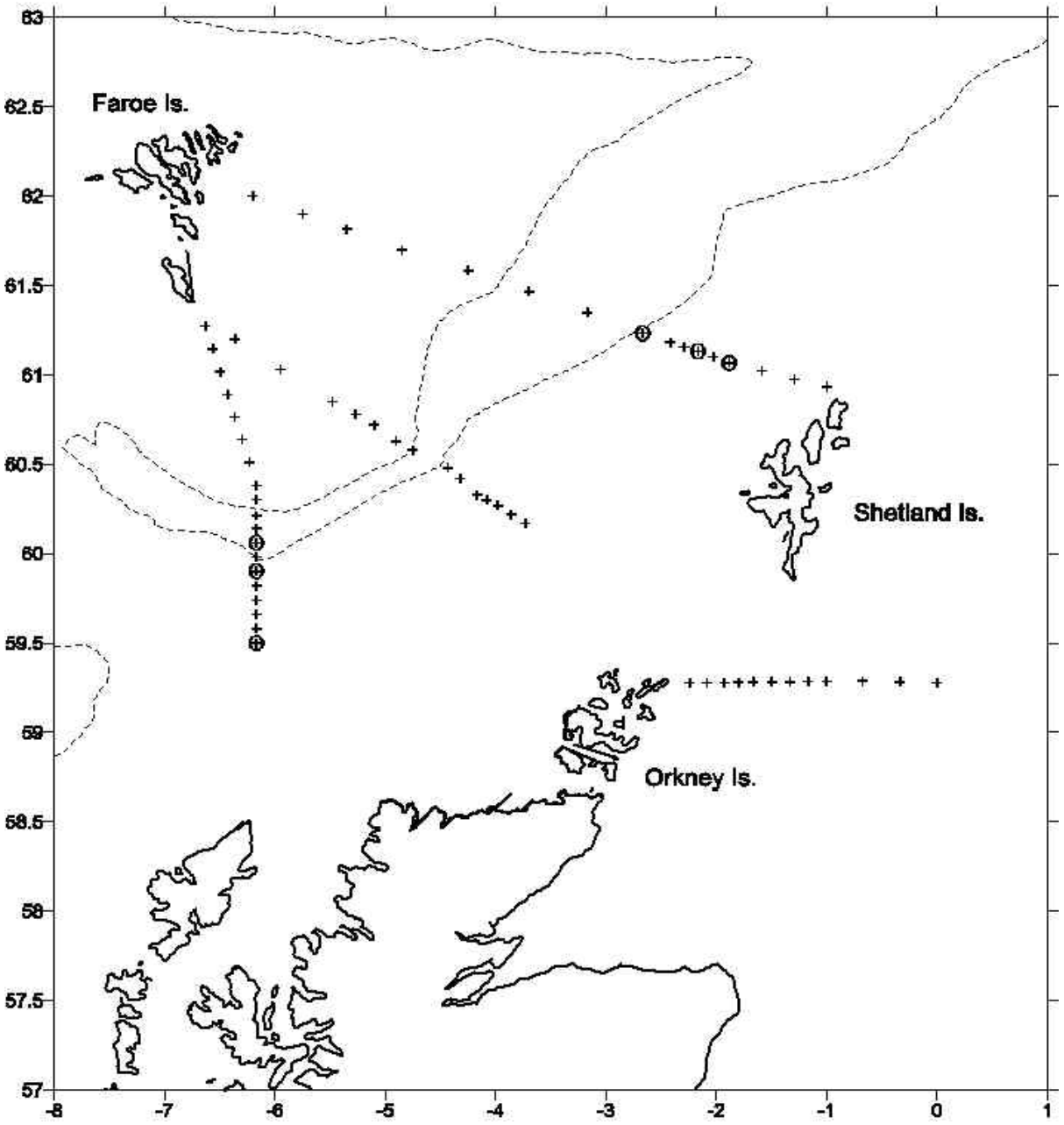
Submitted:
G Slesser
11 April 2014

Approved:
I Gibb
22 April 2014

Mooring Deployment and Recovery Positions



Station Positions



Circled positions indicated grab and DNA sample stations.

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° 5.00' 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° 0.00' 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° 0.00' 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	7,585.00	155.40

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 samples at or nearby these stations

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

* Water samples for DNA analysis

Take a water sample (500-1000ml) near bottom
Fill plastic bottles 2/3 full and freeze
Mark on bottles time, date, depth sampled, position