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MRV *Scotia*

Survey 0516S

## **PROGRAMME**

24 April - 04 May 2016

**Loading:** Aberdeen, 20 - 21 April 2016

**Unloading:** Aberdeen, 4 May 2016

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**

A Gallego (SIC)

R O'Hara Murray

B Rabe

J Hindson

M Geldart

D Lee

A Taylor

K McIntosh

M De Dominicis (Visitor: National Oceanography Centre – Liverpool (NOC-L))

**Out-turn days per project:** 10 days: ST03P; 1 day: RE0050.

## **Gear**

Sea-Bird CTDs, ADCPs and current meter instrumentation, water filtering equipment, freezer, bacteria sampling equipment (HWU), sediment grab (Day grab), mooring equipment, recovery trawl.

## **Objectives**

1. Test the CTD in the Buchan Deep off Peterhead.
2. Deploy two moorings in the Moray Firth (on trawlproof frames) (RE0050).
3. Perform hydrographic sampling along the JONSIS long term monitoring section in the northern North Sea.
4. Perform CTD stations at the ADCP moorings on the Fair Isle – Munken section.
5. Recover and download the data recovered from the four ADCP moorings deployed

on the Fair Isle – Munken section in 2015.

6. Deploy four ADCP moorings at new positions on the Fair Isle – Munken section.
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. Train one chemist in chemistry analysis at sea and one visitor (NOC) on oceanographic work.
10. Take water samples for bacterial analysis for Heriot Watt University at designated stations along the Fair Isle – Munken and Nolso – Flugga sections.
11. Take Day grab sediment samples for the University of Aberdeen at or near one Nolso – Flugga section station on the shelf (NOL-09).
12. Perform a number of additional hydrographic sections if time allows.

### **Procedure**

On sailing from Aberdeen *Scotia* will make passage towards the Moray Firth mooring deployment positions. On route test deployments of the CTD and carousel will take place around the Buchan Deep, using the newly adopted deployment procedures (10 m soak). After the Moray Firth mooring deployments, *Scotia* will sail to the start of the JONSIS long term monitoring section (probably the western side) to commence sampling with the CTD and carousel water sampler. On completion of the JONSIS section, passage will be made to the start of the ADCP mooring locations on the Fair Isle - Munken (FIM) section, where the ADCP moorings will be recovered. The ADCP data will be downloaded and instruments and moorings refurbished on route to new deployment positions on the FIM section. ADCPs will be deployed at their new mooring locations and *Scotia* will then make her way to one end of the FIM section for standard monitoring (water samples and CTD profiles). On completion of the FIM section, *Scotia* will make way to one end of the Nolso-Flugga (NOL) section for standard hydrographic monitoring. During sampling of the FIM and NOL long term monitoring sections, grab samples and water samples will be taken for University of Aberdeen and Heriot Watt University collaborating projects, respectively, at designated stations. Any remaining time will be spent carrying out CTD sampling at hydrographic sections (e.g. the Cape Wrath – Faroe section or repeating the Fair Isle – Munken section).

### **Moray Firth**

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

57° 53.50' N 03° 44.00' W

57° 45.85' N 03° 50.97' W (both on trawl-resistant frames)

### **Faroe-Shetland Channel**

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

60° 45.24' N, 5° 13.28' W (NWSN)

60° 41.48' N, 5° 4.06' W (NWSO)

60° 37.90' N, 4° 54.55' W (NWSP)

60° 52.63' N, 5° 31.53' W (NWSL, trawl-resistant frame)

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

60° 47.00' N, 5° 18.00' W (NWSB)  
60° 34.00' N, 4° 46.00' W (NWSC)  
60° 27.00' N, 4° 22.00' W (NWSD)  
60° 17.00' N, 4° 18.00' W (NWSE)

(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).

The thermosalinograph will be run throughout the survey.

### **Health and Safety**

The procedures described above are covered by the following risk Oceanography Group risk assessments

01 - Mobilisation of Equipment  
03 - Deployment and Recovery of Moorings  
04 - Operation of 911+/Sealogger Carousel and CTD  
05 - Salinity Analysis  
07 - Chlorophyll Sampling  
23 - Deployment of Maxi-Corer or Grab  
18 - Supervising students and other visitors

Chemistry:

The chemical procedures are covered by the following assessments

Fluorometric Chlorophyll COSHH and RISK.docx  
DO COSHH and RISK.docx  
NUTS COSHH and RISK.docx

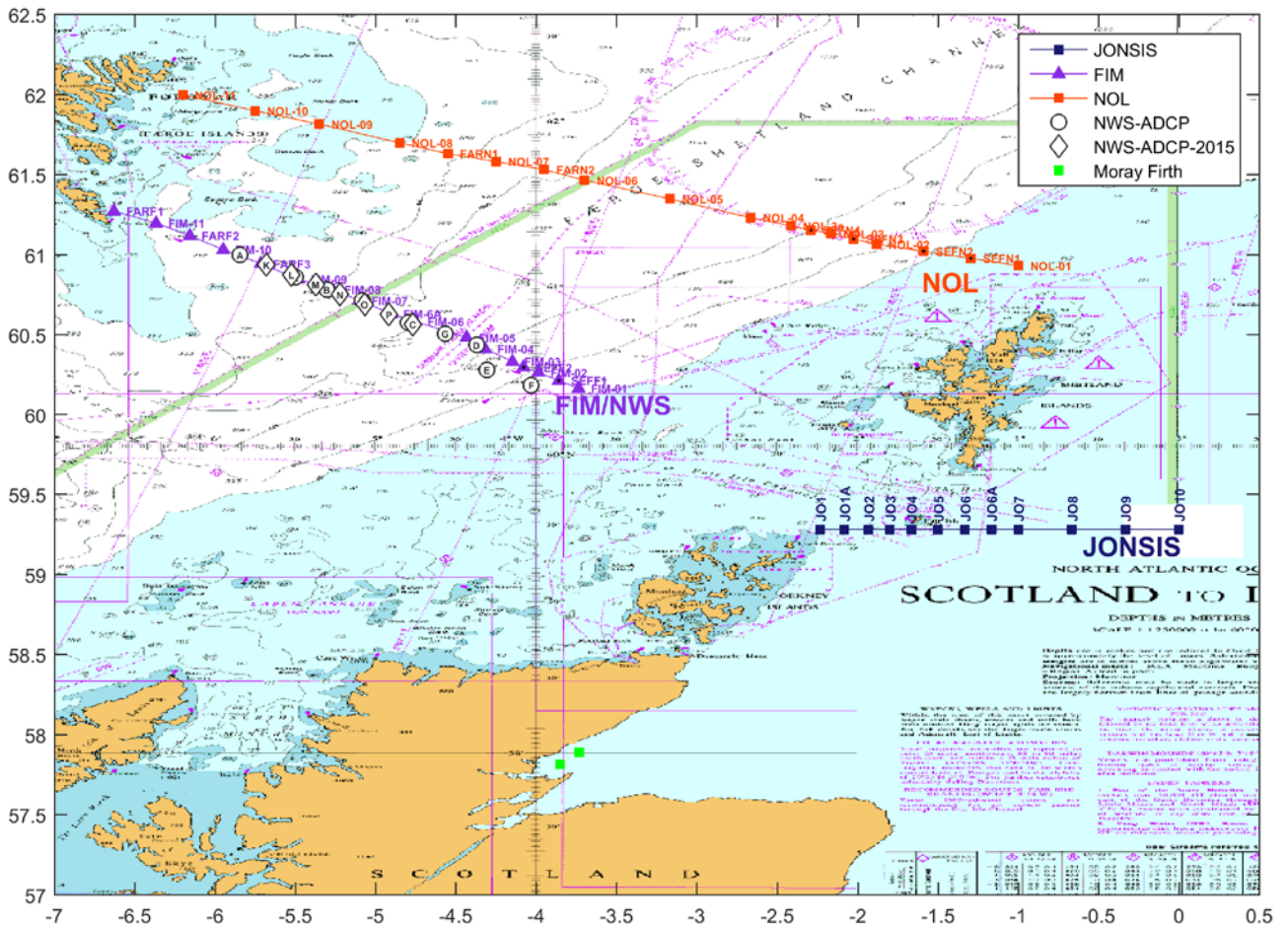
Collaborative Work:

Laura Duran (Heriot Watt University) has submitted sampling-specific SOPs for her work, which would also be covered by Risk Assessments 04 and 07 and "TG Afloat COSHH Form April 2016.docx"

Normal contacts will be maintained with the laboratory.

Submitted:  
A Gallego  
06 April 2016

Approved:  
I Gibb  
06 April 2016



CTD lines and mooring locations. Note that on NWS moorings will be deployed at locations B, C, D and E.

## 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	4.59 nm
03	JO 2	59° 17.00' N	01° 56.00' W	100 m	4.59 nm
04	JO 3	59° 17.00' N	01° 48.00' W	80 m	4.08 nm
05	JO 4	59° 17.00' N	01° 40.00' W	90 m	4.08 nm
06	JO 5	59° 17.00' N	01° 30.00' W	95 m	5.10 nm
07	JO 6	59° 17.00' N	01° 20.00' W	110 m	5.10 nm
08	JO 6A	59° 17.00' N	01° 10.00' W	120 m	5.10 nm
09	JO 7	59° 17.00' N	01° 0.00' W	125 m	5.10 nm
10	JO 8	59° 17.00' N	00° 40.00' W	120 m	10.20 nm
11	JO 9	59° 17.00' N	00° 20.00' W	140 m	10.20 nm
12	JO10	59° 17.00' N	00° 0.00' W	135 m	10.20 nm
Totals				1180 m	68.36 nm

**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	SEFF1	60° 13.00' N	03° 51.50' W	170 m	4.78 nm
03	FIM-02	60° 16.00' N	03° 59.00' W	200 m	4.77 nm
04	SEFF2	60° 18.00' N	04° 04.50' W	330 m	3.38 nm
* +05	<i>FIM-03</i>	<i>60° 20.00' N</i>	<i>04° 10.00' W</i>	<i>390 m</i>	<i>3.37 nm</i>
06	FIM-04	60° 25.00' N	04° 19.00' W	655 m	6.68 nm
07	FIM-05	60° 29.00' N	04° 26.00' W	995 m	5.28 nm
08	FIM-06	60° 35.00' N	04° 45.00' W	1090 m	11.09 nm
+09	FIM-6a	60° 38.00' N	04° 54.00' W	1030 m	5.33 nm
10	FIM-07	60° 43.00' N	05° 06.00' W	915 m	7.71 nm
+11	FIM-08	60° 47.00' N	05° 16.00' W	830 m	6.31 nm
12	FIM-09	60° 51.00' N	05° 29.00' W	600 m	7.49 nm
14	FIM-10	61° 02.00' N	05° 57.00' W	280 m	17.47 nm
16	FIM-11	61° 12.00' N	06° 22.00' W	240 m	15.66 nm
Totals				8,558 m	108.18 nm

\* FIM-03 - Use 60 20.25'N 004 09.00'W if above position is occupied.

+ Water samples may 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	SEFN1	60° 58.70' N	01° 17.70' W	125 m	9.00 nm
03	SEFN2	61° 01.40' N	01° 35.40' W	155 m	8.99 nm
04	NOL-02	61° 04.00' N	01° 53.00' W	270 m	8.91 nm
05	SEFN3	61° 06.00' N	02° 01.50' W	440 m	4.57 nm
06	NOL-03	61° 08.00' N	02° 10.00' W	550 m	4.57 nm
07	SEFN4	61° 09.30' N	02° 17.50' W	630 m	3.85 nm
08	NOL-3a	61° 11.00' N	02° 25.00' W	730 m	3.98 nm
09	NOL-04	61° 14.00' N	02° 40.00' W	1080 m	7.82 nm
10	NOL-05	61° 21.00' N	03° 10.00' W	1370 m	16.03 nm
11	NOL-06	61° 28.00' N	03° 42.00' W	1235 m	16.84 nm
+12	NOL-07	61° 35.00' N	04° 15.00' W	990 m	9.08 nm
+13	NOL-08	61° 42.00' N	04° 51.00' W	235 m	9.44 nm
*14	NOL-09	61° 49.00' N	05° 21.00' W	180 m	15.84 nm
15	NOL-10	61° 54.00' N	05° 45.00' W	290 m	12.37 nm
16	NOL-11	62° 00.00' N	06° 12.00' W	125 m	14.04 nm
Totals				10245 m	162.60 nm

\* Grab samples may be taken at or nearby this station for UoA.

+ Water samples may be taken for HWU