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MRV *Scotia*

Survey 1416S

## **PROGRAMME**

27 September - 9 October 2016

**Loading:** Aberdeen, 23 September 2016

**Unloading:** Aberdeen, TBC

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  
D Lee  
A Taylor  
K McIntosh  
M Marasco (Visitor: University of the Highlands and Islands)

**Out-turn days per project:** 11 days: ST03P; 2 days: RE01U.

## **Gear**

Sea-Bird CTDs, ADCPs and current meter instrumentation, water filtering equipment, freezer, mooring equipment, recovery trawl.

## **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 hydrographic sampling along the long term monitoring Faroe-Shetland Channel sections, Fair Isle – Munken and Nolso – Flugga.
4. Take water samples for long term storage at Fair Isle – Munken section stations FIM-01 and FIM-06.
5. Train one chemist in chemistry analysis at sea and one visitor (UHI) on oceanographic work.
6. Re-programme or recover an oceanographic mooring in Orkney waters (Westray)

Firth).

7. Perform a number of additional hydrographic sections if time allows.
8. The vessel-mounted ADCP will be run during work on the hydrographic monitoring lines.

### **Procedure**

On sailing from Aberdeen *Scotia* will make passage towards the JONSIS monitoring line off Orkney (easternmost station) to commence sampling with the CTD and carousel water sampler). 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). On completion of the JONSIS section, passage will be made to the start of the Fair Isle - Munken (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. At the end of the hydrographic monitoring, *Scotia* will head towards Westray Firth to re-programme a mooring (in-water) or recover it if re-programming is not successful.

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

59° 11.821' N, 002° 54.887' W (re-programme or recover)

(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).

### **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
- 18 - Supervising students and other visitors

### **Chemistry:**

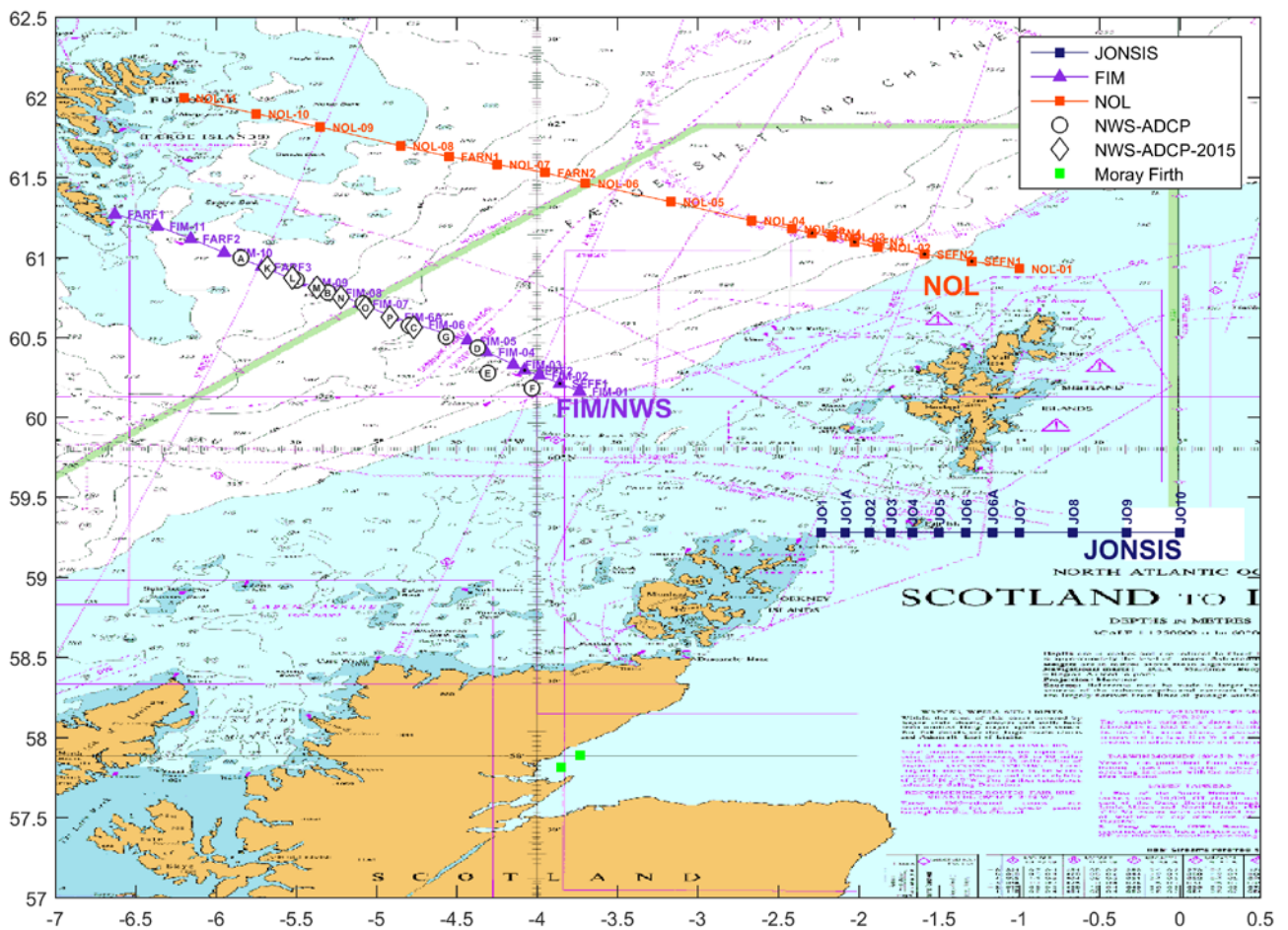
The chemical procedures are covered by the following assessments

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

Normal contacts will be maintained with the laboratory.

Submitted:  
A Gallego  
21 September 2016

Approved:  
I Gibb  
22 September 2016



CTD lines and existing oceanographic mooring locations. Note that these mooring will not be disturbed on this cruise and that the mooring in Westray Firth is not marked in this chart.

## JONSIS Line

CODES	#	Name	Latitude	Longitude	Depth	Spacing
<b>N,O,CH, DS</b>	01	JO 1	59° 17.00' N	02° 14.00' W	75 m	
<b>CH,DS</b>	02	JO 1A	59° 17.00' N	02° 5.00' W	90 m	4.59 nm
<b>CH,DS</b>	03	JO 2	59° 17.00' N	01° 56.00' W	100 m	4.59 nm
<b>N, O,CH, DS</b>	04	JO 3	59° 17.00' N	01° 48.00' W	80 m	4.08 nm
<b>CH,DS</b>	05	JO 4	59° 17.00' N	01° 40.00' W	90 m	4.08 nm
<b>CH,DS</b>	06	JO 5	59° 17.00' N	01° 30.00' W	95 m	5.10 nm
<b>CH,DS</b>	07	JO 6	59° 17.00' N	01° 20.00' W	110 m	5.10 nm
<b>N,O,CH, DS</b>	08	JO 6A	59° 17.00' N	01° 10.00' W	120 m	5.10 nm
<b>CH,DS</b>	09	JO 7	59° 17.00' N	01° 0.00' W	125 m	5.10 nm
<b>CH,DS</b>	10	JO 8	59° 17.00' N	00° 40.00' W	120 m	10.20 nm
<b>CH,DS</b>	11	JO 9	59° 17.00' N	00° 20.00' W	140 m	10.20 nm
<b>N, O,CH, DS</b>	12	JO10	59° 17.00' N	00° 0.00' W	135 m	10.20 nm
				Totals	1180 m	68.36 nm

Priority Stations are JO-01, JO-03 and JO-06a, JO-10

### Standard depths of water bottles:

5, 10, 20, 30, 50, 75, 100 and bottom\*

\*Fire a 'bottom' bottle if seabed is more than 20m below the lowest standard bottle

## Fair Isle - Munken

(Amended for presence of Foinaven oil platform; SEFFOS naming changed Nov-2014, Updated for 2015 to include additional Faroese Stations)

CODE	#	Name	Latitude	Longitude	Depth	Spacing
<b>N, CH, DS, 4S</b>	<b>01</b>	<b>FIM-01</b>	<b>60° 10.00' N</b>	<b>03° 44.00' W</b>	<b>150 m</b>	
<b>CH, DS</b>	<b>02</b>	<b>SEFF1</b>	<b>60° 13.00' N</b>	<b>03° 51.50' W</b>	<b>170 m</b>	<b>4.74 nm</b>
<b>N, O, CH, DS</b>	<b>03</b>	<b>FIM-02</b>	<b>60° 16.00' N</b>	<b>03° 59.00' W</b>	<b>200 m</b>	<b>4.84 nm</b>
<b>CH, DS</b>	<b>04</b>	<b>SEFF2</b>	<b>60° 18.00' N</b>	<b>04° 04.50' W</b>	<b>330 m</b>	<b>3.36 nm</b>
<b>N, CH, DS</b>	<b>* 05</b>	<b>FIM-03</b>	<b>60° 20.00' N</b>	<b>04° 10.00' W</b>	<b>390 m</b>	<b>3.03 nm</b>
<b>CH, DS</b>	<b>06</b>	<b>FIM-04</b>	<b>60° 25.00' N</b>	<b>04° 19.00' W</b>	<b>655 m</b>	<b>6.88 nm</b>
<b>N*, CH, DS</b>	<b>07</b>	<b>FIM-05</b>	<b>60° 29.00' N</b>	<b>04° 26.00' W</b>	<b>995 m</b>	<b>5.45 nm</b>
<b>N, O, CH, DS, 4S</b>	<b>08</b>	<b>FIM-06</b>	<b>60° 35.00' N</b>	<b>04° 45.00' W</b>	<b>1090 m</b>	<b>11.15 nm</b>
<b>CH, DS</b>	<b>10</b>	<b>FIM-07</b>	<b>60° 43.00' N</b>	<b>05° 06.00' W</b>	<b>915 m</b>	<b>7.70 nm</b>
<b>CH, DS</b>	<b>11</b>	<b>FIM-08</b>	<b>60° 47.00' N</b>	<b>05° 16.00' W</b>	<b>830 m</b>	<b>6.34 nm</b>
<b>N, O, CH, DS</b>	<b>12</b>	<b>FIM-09</b>	<b>60° 51.00' N</b>	<b>05° 29.00' W</b>	<b>600 m</b>	<b>7.36 nm</b>
<b>N*, CH, DS</b>	<b>13</b>	<b>FARF3</b>	<b>60° 56.70' N</b>	<b>05° 42.80' W</b>	<b>333 m</b>	<b>8.90 nm</b>
<b>nil</b>	<b>14</b>	<b>FIM-10</b>	<b>61° 02.00' N</b>	<b>05° 57.00' W</b>	<b>280 m</b>	<b>8.68 nm</b>
<b>N, CH, DS</b>	<b>15</b>	<b>FARF2</b>	<b>61° 07.20' N</b>	<b>06° 09.40' W</b>	<b>250 m</b>	<b>7.95 nm</b>
<b>nil</b>	<b>16</b>	<b>FIM-11</b>	<b>61° 12.00' N</b>	<b>06° 22.00' W</b>	<b>240 m</b>	<b>7.67 nm</b>
<b>N, O, CH, DS</b>	<b>17</b>	<b>FARF1</b>	<b>61° 16.40' N</b>	<b>06° 37.70' W</b>	<b>100 m</b>	<b>8.80 nm</b>
				<b>Totals</b>	<b>8,558 m</b>	<b>108.18 nm</b>

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

### Standard depths of water bottles:

5, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 and bottom

If all 12 bottles used drop 50m depth.

Fire a bottom bottle if seabed is more than 50m below the lowest standard bottle

If stations need to be missed they should be dropped in this order

[Priority 4: FARF1, FARF2, FARF3], [Priority 3: SEFF1, SEFF2]

[Priority 2, FIM-04, FIM-06a, FIM-07]

## Nolso-Flugga

(SEFOS naming changed Nov-2014, Updated for 2015 to include additional Faroese Stations)

CODE	#	Name	Latitude	Longitude	Depth	Spacing
N, CH, DS	01	NOL-01	60° 56.00' N	01° 00.00' W	110 m	
CH, DS	02	SEFN1	60° 58.70' N	01° 17.70' W	125 m	9.00 nm
CH, DS	03	SEFN2	61° 01.40' N	01° 35.40' W	155 m	8.99 nm
N, O, CH, DS	04	NOL-02	61° 04.00' N	01° 53.00' W	270 m	8.91 nm
CH, DS	05	SEFN3	61° 06.00' N	02° 01.50' W	440 m	4.57 nm
N, CH, DS	06	NOL-03	61° 08.00' N	02° 10.00' W	550 m	4.57 nm
CH, DS	07	SEFN4	61° 09.30' N	02° 17.50' W	630 m	3.85 nm
CH, DS	08	NOL-3a	61° 11.00' N	02° 25.00' W	730 m	3.98 nm
N, O, CH, DS	09	NOL-04	61° 14.00' N	02° 40.00' W	1080 m	7.82 nm
N*, CH, DS	10	NOL-05	61° 21.00' N	03° 10.00' W	1370 m	16.03 nm
N, O, CH, DS	11	NOL-06	61° 28.00' N	03° 42.00' W	1235 m	16.84 nm
nil	12	FARN2	61° 32.00' N	03° 57.00' W	1200 m	8.18 nm
N*, CH, DS	13	NOL-07	61° 35.00' N	04° 15.00' W	990 m	9.08 nm
nil	14	FARN1	61° 38.00' N	04° 33.00' W	530 m	9.07 nm
N, O, CH, DS	15	NOL-08	61° 42.00' N	04° 51.00' W	235 m	9.44 nm
N, CH, DS	16	NOL-09	61° 49.00' N	05° 21.00' W	180 m	15.84 nm
CH, DS	17	NOL-10	61° 54.00' N	05° 45.00' W	290 m	12.37 nm
N, O, CH, DS	18	NOL-11	62° 00.00' N	06° 12.00' W	125 m	14.04 nm
				Totals	8250 m	162.60 nm

### Standard depths of water bottles:

5, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200 and bottom  
If all 12 bottles used drop 50m, 200m and 400m depths in this order.

Fire a bottom bottle if seabed is more than 50m below the lowest standard bottle

If stations need to be missed they should be dropped in this order

[Priority 4: FARN1, FARN2], [Priority 3: SEFN1, SEFN2, SEFN3, SEFN4]

[Priority 2, NOL-3a, NOL-05, NOL-07, NOL-10]