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MRV *Scotia*

Survey 1418S

PROGRAMME

5-15 October 2018

Loading: Aberdeen, 01 October 2018
Unloading: Aberdeen, 15 October 2018

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

Out-turn days per project: 10 days: ST05B

Gear

Sea-Bird CTDs, ADCPs and current meter instrumentation, water filtering equipment, mooring equipment, chemistry sampling equipment.

Objectives

1. Perform hydrographic sampling along the ALTERECO monitoring section in the northern North Sea, which will be sampled in all MSS oceanographic surveys in 2018.

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

3. Recover, download and re-deploy an ADCP mooring deployed in a trawl-proof frame on the JONSIS section (the “AlterEco mooring”, AECO).

4. Recover, download and re-deploy one ADCP mooring at a position on Fair Isle – Munken (FIM) section.

5. Perform hydrographic sampling along the long term monitoring Faroe-Shetland Channel Nolso – Flugga (NOL) section.

6. Try to establish communication with previously lost mooring (AL-500) on NOL, and potentially attempt recovery.

7. Perform hydrographic sampling along the long term monitoring Faroe-Shetland Channel Fair Isle – Munken (FIM) section.

8. Take water samples for long term storage on Fair Isle – Munken or Nolso – Flugga

section stations.

9. Perform fine scale VMADCP/CTD survey work on the JONSIS line (around 59° 17' N, 001° 15' W).

10. If weather/time permits perform a short term deployment of an ADCP in AL200 frame.

11. If weather/time permits, perform VMADCP/CTD survey work in the Moray Firth and/or Aberdeen Bay.

12. Run the thermosalinograph throughout the survey.

13. Run the VMADCP on all the standard sections.

Procedure

On sailing from Aberdeen, and after all vessel drills are performed, *Scotia* will make passage to the start (western end) of the ALTERECO monitoring section to carry out sampling with the CTD and carousel water samplers. On completion, *Scotia* will then head to the JONSIS line to carry out further sampling. Either prior, during or after the JONSIS line, depending on weather conditions and time, an ADCP mooring deployed on JONSIS in an AL200 trawl-resistant frame (AECO) will be recovered, downloaded and re-deployed. Passage will then be made towards the NWSE mooring location near the Foinaven Development Area. The mooring will be recovered, serviced and re-deployed. On survey 0618S, a mooring failed to be recovered from this location. Communication with this lost mooring will be attempted, but it is unlikely any communication lines will be established.

Scotia will then make her way to the eastern start of the Nolso – Flugga (NOL) section and start collecting long term monitoring samples and taking CTD profiles. On 0618S a mooring in an AL500 frame also failed to surface. Communication with this lost mooring will be attempted, but it is unlikely any communications will be established.

After the NOL section, *Scotia* will head to the western (Faroe) side of the FIM section to carry out standard CTD and water sampling along the line. *Scotia* will then sail back to the JONSIS line to conduct a fine scale CTD survey around the area of the AECO mooring.

Once that work is completed and if time allows, *Scotia* will carry out additional work (listed in the survey objectives) along the JONSIS line, in the Moray Firth and/or Aberdeen Bay, prior to her return to Aberdeen.

Mooring Positions (Recovery)

AECO - 59° 16.928' N 001° 15.393' W	Trawl resistant AL200 frame
NWSE – 60° 16.42' N 004° 20.46' W	Short single string mooring
NWEA – 61° 38.01'N 004° 32.60'W	(previously lost, attempt to communicate again)

Mooring Positions (Deployment)

AECO - 59° 17.00' N 001° 15.00' W on JONSIS
NWSE – 60° 16.29' N 004° 20.78' W on FIM

Scientific Procedures

It is expected that deployments of hydrographic equipment will be carried out with the CTD crane whilst the vessel is on station. The plankton crane will be used for the deployment of

ADCP moorings in trawl-resistant frames (AL200 and AL500) and short single-string moorings. Longer single-string ADCP mooring deployments will be done from the trawl deck.

Two container laboratories will be required (one for water filtering and a dry container for communications with sampling equipment). Chlorophyll samples will be stored frozen in the freezer in the Fish House. Nutrient samples will be stored frozen in an empty freezer on the lower container deck.

(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
25 September 2018

Approved:
I Gibb
26 September 2018

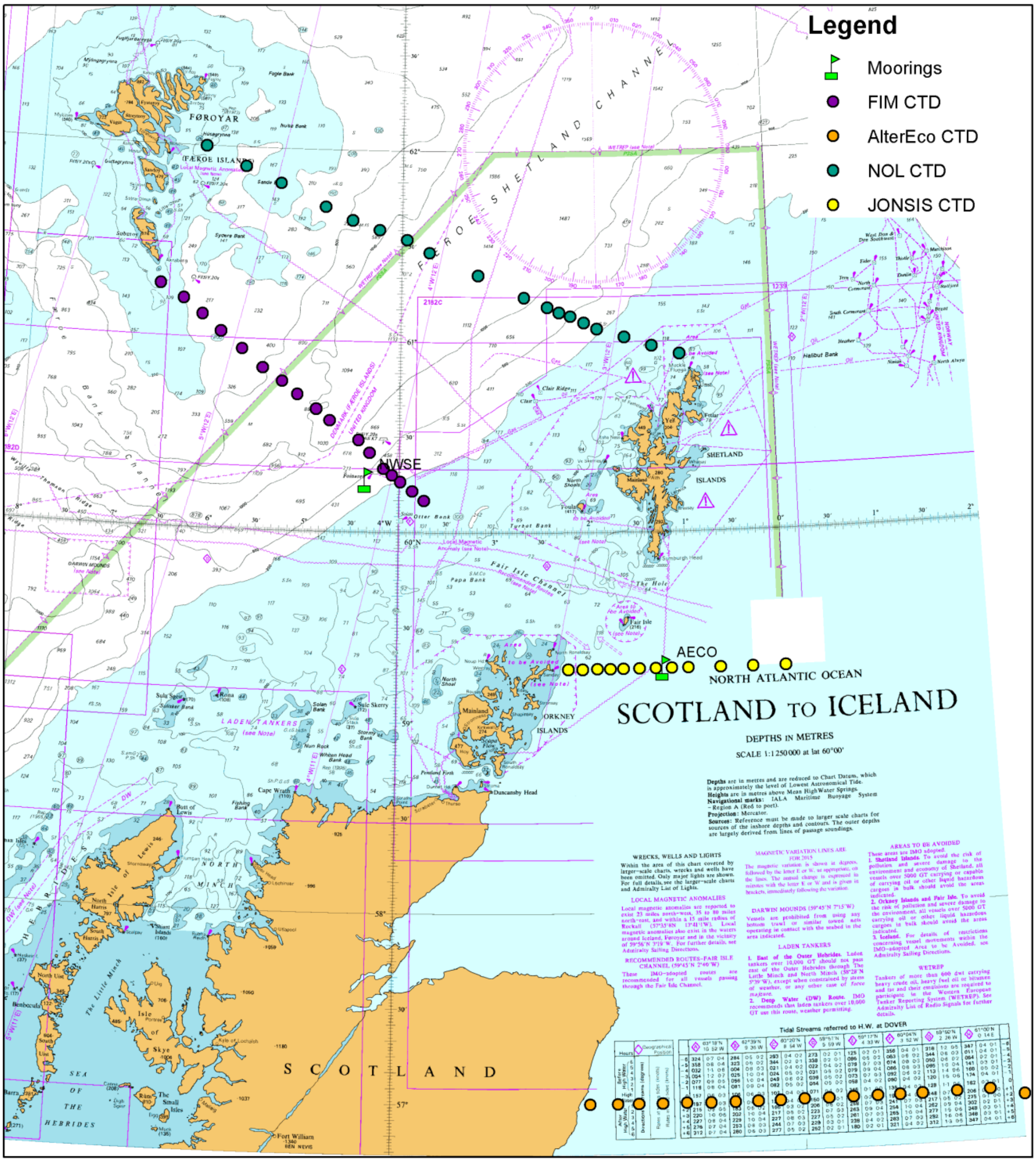

Chart showing key activities on 1418S (moorings shown with green flags).

ALTERECO Line

#	Name	Latitude	Longitude	Depth [m]	Spacing
01	AlterEco1	57° 00.00' N	02° 04.00' E	92	
02	AlterEco2	57° 00.00' N	01° 48.00' E	94	8.72 nm
03	AlterEco3	57° 00.00' N	01° 36.00' E	99	6.54 nm
04	AlterEco4	57° 00.00' N	01° 22.00' E	104	7.63 nm
05	AlterEco5	57° 00.00' N	01° 08.00' E	85	7.63 nm
06	AlterEco6	57° 00.00' N	00° 54.00' E	102	7.61 nm
07	AlterEco7	57° 00.00' N	00° 40.00' E	92	7.61 nm
08	AlterEco8	57° 00.00' N	00° 27.00' E	89	7.09 nm
09	AlterEco9	57° 00.00' N	00° 14.00' E	84	7.09 nm
10	AlterEco10	57° 00.00' N	00° 00.00' E	83	7.61 nm
11	AlterEco11	57° 00.00' N	00° 14.00' W	79	7.61 nm
12	AlterEco12	57° 00.00' N	00° 28.00' W	82	7.63 nm
13	AlterEco13	57° 00.00' N	00° 42.00' W	68	7.63 nm
14	AlterEco14	57° 00.00' N	00° 55.00' W	75	7.07 nm
15	AlterEco15	57° 00.00' N	01° 08.00' W	67	7.07 nm
16	AlterEco16	57° 00.00' N	01° 28.00' W	68	10.91 nm
17	AlterEco17	57° 00.00' N	01° 47.00' W	98	10.56 nm
18	AlterEco18	56° 57.80' N	02° 06.80' W	47	10.78 nm
			Totals	1508 m	136.83 nm

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 (FIM) (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	4.74 nm
03	FIM-02	60° 16.00' N	03° 59.00' W	200 m	4.84 nm
04	SEFF2	60° 18.00' N	04° 04.50' W	330 m	3.36 nm
* *05*	*FIM-03*	*60° 20.00' N*	*04° 10.00' W*	*390 m*	*3.03 nm*
06	FIM-04	60° 25.00' N	04° 19.00' W	655 m	6.88 nm
07	FIM-05	60° 29.00' N	04° 26.00' W	995 m	5.45 nm
08	FIM-06	60° 35.00' N	04° 45.00' W	1090 m	11.15 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	7.70 nm
11	FIM-08	60° 47.00' N	05° 16.00' W	830 m	6.34 nm
12	FIM-09	60° 51.00' N	05° 29.00' W	600 m	7.36 nm
13	FARF3	60° 56.70' N	05° 42.80' W	333 m	8.90 nm
14	FIM-10	61° 02.00' N	05° 57.00' W	280 m	8.68 nm
15	FARF2	61° 07.20' N	06° 09.40' W	250 m	7.95 nm
16	FIM-11	61° 12.00' N	06° 22.00' W	240 m	7.67 nm
17	FARF1	61° 16.40' N	06° 37.70' W	100 m	8.80 nm
			Totals	8,558 m	108.18 nm

Nolso-Flugga (NOL)

#	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	FARN2	61° 32.00' N	03° 57.00' W	1200 m	8.18 nm
13	NOL-07	61° 35.00' N	04° 15.00' W	990 m	9.08 nm
14	FARN1	61° 38.00' N	04° 33.00' W	530 m	9.07 nm
15	NOL-08	61° 42.00' N	04° 51.00' W	235 m	9.44 nm
16	NOL-09	61° 49.00' N	05° 21.00' W	180 m	15.84 nm
17	NOL-10	61° 54.00' N	05° 45.00' W	290 m	12.37 nm
18	NOL-11	62° 00.00' N	06° 12.00' W	125 m	14.04 nm
			Totals	10245 m	162.60 nm