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MRV *Scotia*

Survey 1520S

## **PROGRAMME**

12 – 22 October 2020

**Loading:** Aberdeen, 09 October 2020

**Unloading:** Aberdeen, 22 October 2020

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:** 11 days: ST05B

## **Gear**

Sea-Bird CTDs, mooring frames and 40" buoys, ADCPs and current meter instrumentation, water filtering equipment, mooring equipment including moorings cage, 650 kg clumps and rope lengths for deployments from Altens, chemistry sampling equipment.

## **Objectives**

1. Test the SBE911 and CTD carousel (main CTD crane) and the SBE25 and Aquatracker (using plankton crane) in the Buchan Deep.
2. Perform hydrographic sampling along the JONSIS long term monitoring section in the northern North Sea
3. Recover ADCP (FIGN) in trawl-resistant seabed frame from the Fair Isle Gap
4. Deploy one ADCP (NWSE, RD longranger) on a single string mooring at a position on Fair Isle – Munken (FIM) section
5. Deploy one ADCP (NWER, Sig100)) on a single string mooring on the NOL section
6. Perform hydrographic sampling along the long term monitoring Faroe-Shetland Channel Nolso – Flugga (NOL) section
7. Deploy an ADCP (Sig250) in the AL-500 just north of Solan Bank
8. Deploy one ADCP (AWAC) in a trawl resistant AL-200 frame in the Little Minch
9. Deploy one ADCP (Sig500) in steel frame in Loch Carron

10. Run the thermosalinograph throughout the survey
11. Run the VMADCP on all the standard sections
12. Perform hydrographic sampling along the long term monitoring Faroe-Shetland Channel Fair Isle – Munken (FIM) section
13. Take water samples for long term storage on Fair Isle – Munken or Nolso – Flugga section stations
14. If weather/time permits repeat the JONSIS line at the end of the cruise and extend to 001° 30' east
15. If weather/time permits perform fine scale VMADCP/CTD survey work on the JONSIS line (around 59° 17' N, 001° 15' W)
16. If weather/time permits, perform VMADCP/CTD survey work in the Moray Firth and/or Aberdeen Bay
17. If weather/time permits, perform CTD line along the AlterECO line

## **Procedure**

On sailing from Aberdeen *Scotia* will make passage to the Buchan Deep to test the CTD and carousel water sampler on the main CTD crane and the SBE25+Aquatracker CTD using the plankton crane.

On completion of these tests, *Scotia* will head to the JONSIS section to carry out sampling with the CTD and carousel water sampler. On completion of the JONSIS section *Scotia* will make way to the Fair Isle Gap to recover an ADCP in an AL-200 trawl-resistant bed frame (during daylight hours).

Depending on conditions and weather forecast we will either head west to complete the west coast mooring deployments, or north to the Faroe Shetland Channel.

*West coast moorings (all deployments during daylight hours):*

Passage will then be made to the Solan Bank deployment position and the AL-500 trawl resistant frame will be deployed. We then intend to deploy the AL-200 trawl resistant frame in the Little Minch and the steel frame in Loch Carron.

*Faro Shetland Channel (all mooring deployment during daylight hours):*

Passage will then be made towards the NWSE mooring location near the Foinaven Development Area to deploy the single string mooring. Passage will then be made towards the NWER mooring location on the Nolso – Flugga (NOL) section where the ADCP mooring will be deployed. *Scotia* will then make her way to the eastern end of the Nolso – Flugga (NOL) section and start collecting long term monitoring samples and taking CTD profiles from the start of the section.

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 that line.

Once that work is completed and if time allows, *Scotia* will carry out additional work (listed among the cruise objectives) along the JONSIS line, in the Moray Firth and North Sea prior to

her return to Aberdeen.

### Mooring Positions (Recovery)

FIGN	59° 46.61' N	001° 31.90' W	AL-200 trawl-resistant bed frame
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### Mooring Positions (Deployment)

NWSE	60° 16.32' N	004° 20.76' W	Short single string mooring
NWER	61° 08.00' N	002° 05.00' W	Short single string mooring
SOLB	59° 10.62' N	004° 58.80' W	AL-500 trawl resistant frame
LM01	57° 28.80' N	006° 57.60' W	AL-200 trawl resistant frame
LC01	57° 21.43' N	005° 40.41' W	Steel ADCP seabed frame

### 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 (AL-200 and AL-500) and short single-string moorings from the hanger deck using an acoustic release to release the frames once they are on/close to the seabed. The steel ADCP frame will most likely be deployed off the aft using the gamma frame, or cod end crane, with the ADCP frame threaded on a bite of rope going back to the net drums. The deployment rope is then pulled through once the frame is on the seabed.

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  
04 October 2020

Approved:  
I. Gibb  
07 October 2020



## 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

**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

**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	<i>FIM-03</i>	<i>60° 20.00' N</i>	<i>04° 10.00' W</i>	<i>390 m</i>	<i>3.03 nm</i>
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