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MRV *Scotia*

Survey 0318S

## **PROGRAMME**

15 February – 7 March 2018

**Loading:** Aberdeen, 12 February 2018

**Half landing:** Greenock, ~25 February 2018 (flexible)

**Unloading:** Aberdeen, 07 March 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 (Lab 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**

F Burns	SIC
R Gillespie-Mules	
M Kinghorn	(Deck)
M Gault	
G McAllister	
M Inglis	(Part 1)
D Copland	(Part 1)
H Holah	(Part 2)
P Clark	(Part 2)
L Lachs	(Visitor, Marine Institute, Galway)
C Henderson	(Part 1)(Visitor, SFF)
S McAuley	(Part 2)(Visitor, SFF)

**Out-turn days: 21 - RV1802/20446**

**Fishing Gear:** GOV Trawl (BT 137) fitted with ground gear D.

### **Objectives**

1. Demersal trawling survey of the grounds off the north and west of Scotland in ICES Subarea VIa.
2. To obtain temperature and salinity data from the surface and seabed at each trawling station.
3. Collect additional biological data in connection with the EU Data Collection Framework (DCF).
4. Opportunistic completion of zero hours hauls to assess unquantified time spent by the trawl on the seabed

5. Opportunistic retrieval/replacement of Compass moorings deployed in November 2017.

## Procedures

### General

Loading of the trawl gear and scientific equipment will take place on 12 February with rigging and testing being completed on the same day. *Scotia* will sail on the morning of 15 February. A training haul will be undertaken during the passage north to ensure all fishing gear/sensors are working effectively. *Scotia* will then commence fishing operations the next morning on predefined stations off the north Scottish coast and west of 4°W with weather conditions thereafter determining the route taken on the survey.

### Trawling

This is a random-stratified survey design with trawl stations being distributed within ten predefined strata covering the sampling area (Figure 1). A total of 64 primary and 45 secondary stations have been generated. The intention is for 64 trawls to be undertaken on suitable ground as near to the specified primary sampling positions (Table 1) as is practicable, and where possible within a radius of five nautical miles of the sampling position. In the event that trawling is not possible within 5 nm of any primary station then the nearest appropriate secondary station will be used. Hauls will be of 30 minutes duration unless circumstances dictate otherwise. Where possible, fishing operations will be restricted to daylight hours. Exact start and finish times will, however, vary slightly according to geographical location. The Scanmar system will be used to monitor the headline height, wing spread and door spread for each haul. Bottom contact data from each trawl will also be collected using the NOAA bottom contact sensor which will be mounted on a bar in the centre of the ground-gear. In addition to the routine sampling, biological data will be collected for target species in line with the EU data regulation. All fish will be processed in accordance with the protocols as described in the Manual of the IBTS North Eastern Atlantic Surveys. *Series of ICES Survey Protocols SISP 15. 92 pp.* <http://doi.org/10.17895/ices.pub.3519>.

Subsequent to discussions at the ICES International Bottom Trawl Working Group (*IBTSWG*) in 2017 regarding the potential inter-vessel variability in unquantified trawl time, additional information on trawl deployment and retrieval will be recorded to better understand variability and provide an accurate estimation of the **total** time required for each vessel to successfully complete a 30 minute tow. Further to this and if time permits, *Scotia* will also undertake several zero-hour trawls, defined as starting the retrieval (hauling) process of the trawl at the exact moment that the net has settled and therefore the haul commences, hence it has zero duration. Zero-hour deployments will be completed in sets of three along a single extended and bathymetrically similar trawl track. The intention is, if time allows, to repeat this process on several different tracks covering a range of depths.

### Hydrography

A CTD cast will be taken at each trawl station, weather permitting.

### Compass Moorings

Six acoustic moorings were deployed at sites within the 0318S survey area in November 2017. If time allows and it is convenient to do so then *Scotia* will attempt to retrieve some/all of these moorings during the survey. An acoustic release system together with release codes and protocols for the retrieval of the moorings will be provided to the Scientist in

Charge prior to the survey's departure. A map displaying the mooring locations together with their positions is provided in figure 2.

Normal contact will be maintained with the Marine Laboratory.

Submitted:  
F Burns  
6 February 2018

Approved:  
I Gibb  
09 February 2018

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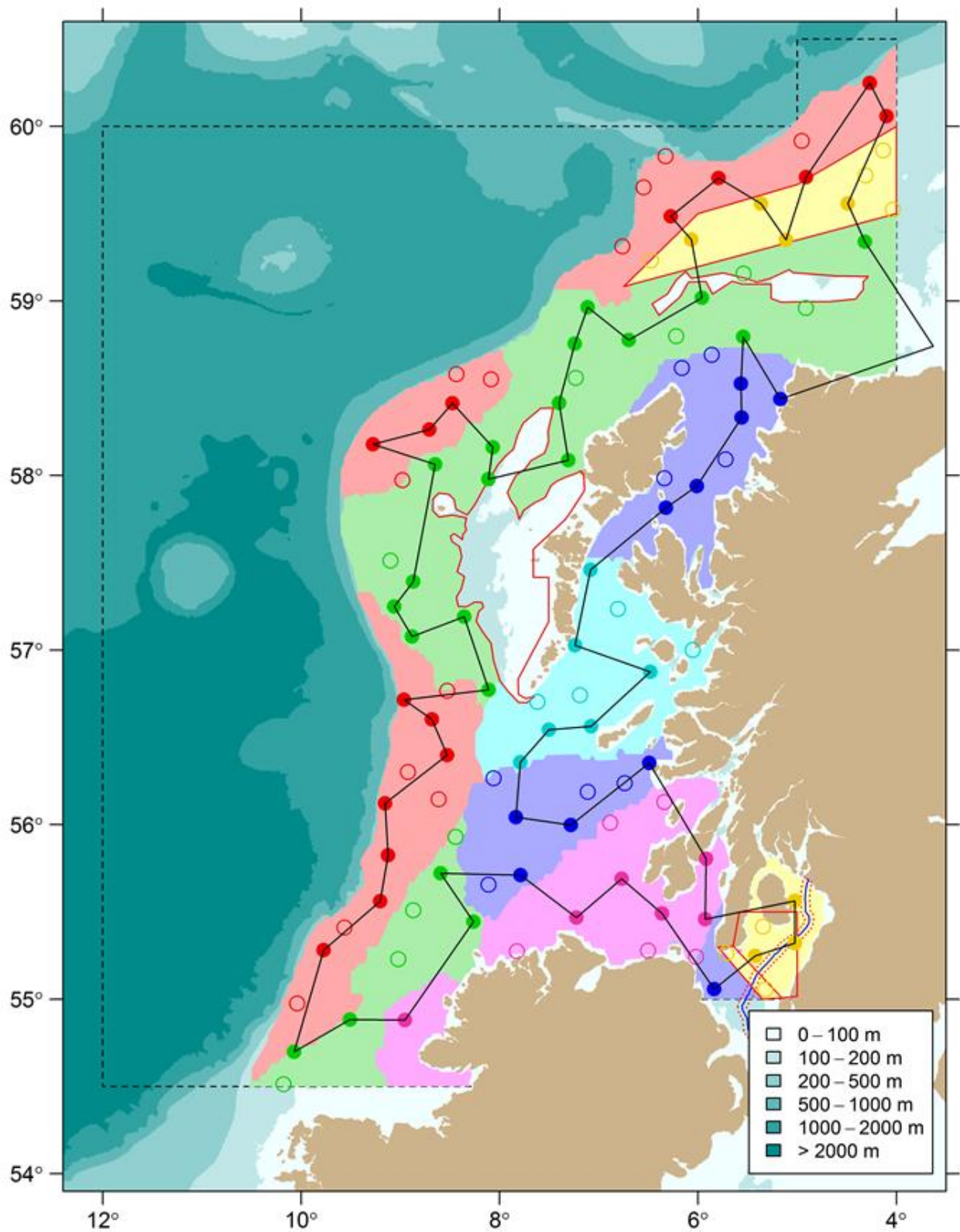
MRV Scotia

Survey 0318S

#### **PROGRAMME AMENDMENT**

A Tait will now participate on Part 1 of the survey and E Edwards will now participate on Part 2 of the survey

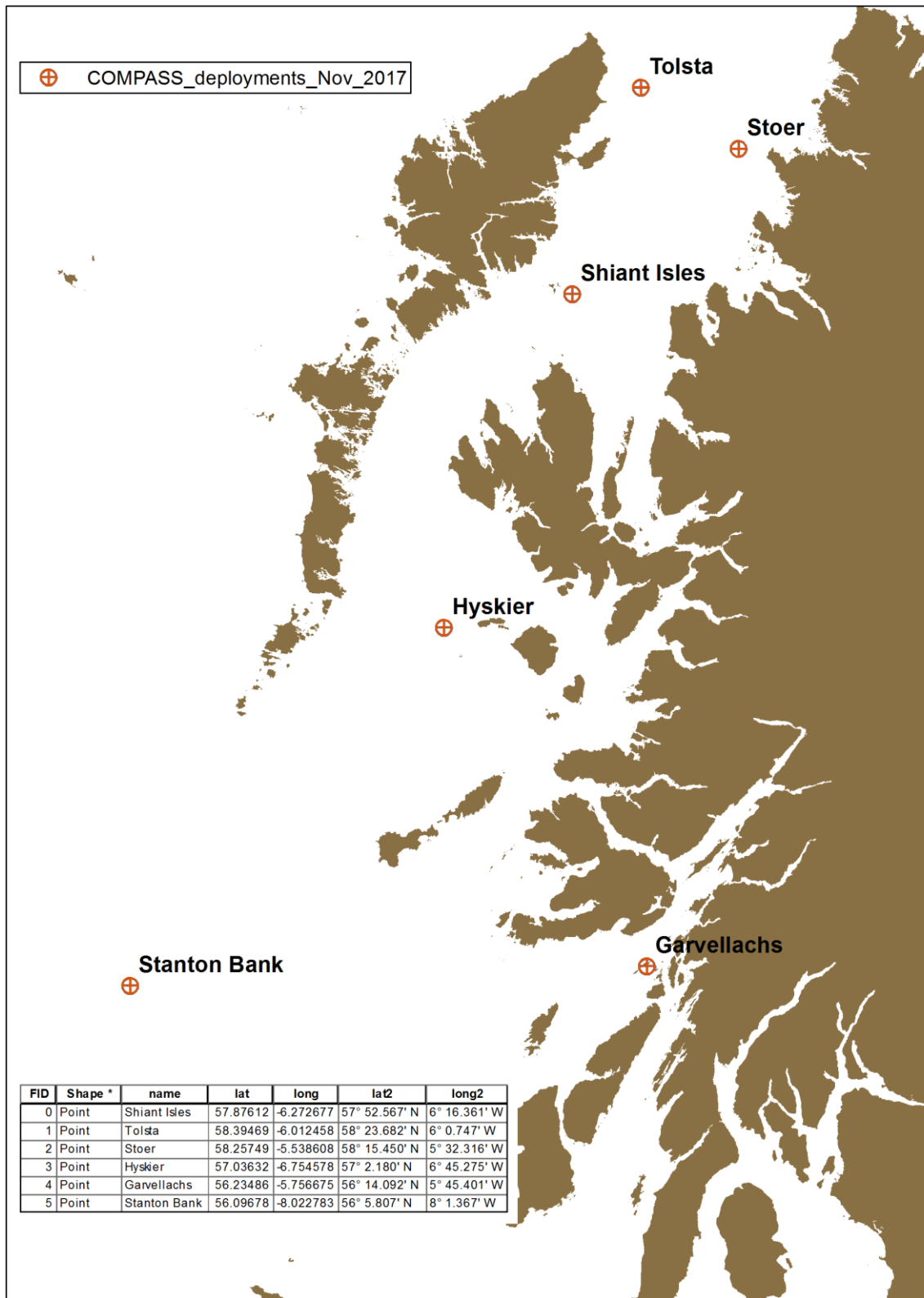
F MacKay  
12/02/2018



**Figure 1:** 0318S – 2018 ICES Subarea VIa Survey Strata showing primary (filled circles) and secondary stations (open circles). A potential survey route is also provided.

Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum	Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum
1	60.058	-4.099471	6003.48N	0405.97W	Red 1	33	54.88298	-9.507628	5452.98N	0930.46W	Green 2
2	60.2494	-4.269485	6014.96N	0416.17W	Red 1	34	55.44442	-8.264398	5526.66N	0815.86W	Green 2
3	59.70964	-4.911898	5942.58N	0454.71W	Red 1	35	55.72205	-8.59366	5543.32N	0835.62W	Green 2
4	59.70373	-5.792937	5942.22N	0547.58W	Red 1	36	57.81469	-6.324422	5748.88N	0619.47W	Blue 1
5	59.48414	-6.274666	5929.05N	0616.48W	Red 1	37	57.94015	-6.01154	5756.41N	0600.69W	Blue 1
6	58.41364	-8.476513	5824.82N	0828.59W	Red 2	38	58.33245	-5.560484	5819.95N	0533.63W	Blue 1
7	58.26379	-8.707257	5815.83N	0842.44W	Red 2	39	58.52629	-5.568367	5831.58N	0534.10W	Blue 1
8	58.17846	-9.276482	5810.71N	0916.59W	Red 2	40	58.43786	-5.170229	5826.27N	0510.21W	Blue 1
9	56.71572	-8.964973	5642.94N	0857.90W	Red 3	41	55.71061	-7.789981	5542.64N	0747.40W	Blue 2
10	56.60336	-8.682832	5636.20N	0840.97W	Red 3	42	55.05767	-5.837192	5503.46N	0550.23W	Blue 2
11	56.39796	-8.52819	5623.88N	0831.69W	Red 3	43	56.35367	-6.490412	5621.22N	0629.42W	Blue 2
12	56.12169	-9.153784	5607.30N	0909.23W	Red 3	44	55.99838	-7.281863	5559.90N	0716.91W	Blue 2
13	55.82475	-9.12387	5549.48N	0907.43W	Red 3	45	56.04326	-7.835298	5602.60N	0750.12W	Blue 2
14	55.56154	-9.203282	5533.69N	0912.20W	Red 3	46	56.35718	-7.791698	5621.43N	0747.50W	Light Blue
15	55.28101	-9.773745	5516.86N	0946.42W	Red 3	47	56.54408	-7.503394	5632.64N	0730.20W	Light Blue
16	59.33945	-4.31861	5920.37N	0419.12W	Green 1	48	56.56365	-7.077548	5633.82N	0704.65W	Light Blue
17	59.018	-5.960527	5901.08N	0557.63W	Green 1	49	56.87507	-6.482166	5652.50N	0628.93W	Light Blue
18	58.77627	-6.698004	5846.58N	0641.88W	Green 1	50	57.02735	-7.239379	5701.64N	0714.36W	Light Blue
19	58.96408	-7.113108	5857.85N	0706.79W	Green 1	51	57.45923	-7.084119	5727.55N	0705.05W	Light Blue
20	58.75566	-7.241664	5845.34N	0714.50W	Green 1	52	54.88131	-8.954916	5452.88N	0857.29W	Pink
21	58.41563	-7.400953	5824.94N	0724.06W	Green 1	53	55.46841	-7.225525	5528.10N	0713.53W	Pink
22	58.08777	-7.306558	5805.27N	0718.39W	Green 1	54	55.68992	-6.771225	5541.40N	0646.27W	Pink
23	57.97952	-8.112974	5758.77N	0806.78W	Green 1	55	55.49106	-6.363308	5529.46N	0621.80W	Pink
24	58.16194	-8.068569	5809.72N	0804.11W	Green 1	56	55.45875	-5.92816	5527.53N	0555.69W	Pink
25	58.06355	-8.650707	5803.81N	0839.04W	Green 1	57	55.80453	-5.919574	5548.27N	0555.17W	Pink
26	57.39288	-8.871753	5723.57N	0852.31W	Green 1	58	55.24858	-5.422273	5514.92N	0525.34W	Clyde
27	57.24925	-9.061474	5714.95N	0903.69W	Green 1	59	55.32053	-5.02258	5519.23N	0501.35W	Clyde
28	57.07769	-8.88189	5704.66N	0852.91W	Green 1	60	55.56263	-5.025511	5533.76N	0501.53W	Clyde
29	57.19111	-8.356667	5711.47N	0821.40W	Green 1	61	59.55804	-4.490156	5933.48N	0429.41W	Windsock
30	56.77289	-8.109683	5646.37N	0806.58W	Green 1	62	59.3498	-5.114015	5920.99N	0506.84W	Windsock
31	58.79488	-5.545044	5847.69N	0532.70W	Green 1	63	59.55757	-5.364086	5933.45N	0521.85W	Windsock
32	54.69858	-10.07078	5441.91N	1004.25W	Green 2	64	59.3516	-6.068817	5921.10N	0604.13W	Windsock

**Table 1:** 0318S – Positions of primary sampling stations.



**Figure 2:** Location and positions of Compass moorings.