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MRV *Scotia*

Survey 1722S

PROGRAMME

14 November – 6 December 2022

Loading: Aberdeen, 11 November 2022

Half landing: 25-26 November (Port TBC)

Unloading: Aberdeen, 6th December 2022

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.

Out-turn days: 21 – IBTSWC/20672, 2 – C80040/20397

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

Hydrographic Gear: RBR Duo CTD

Objectives

1. Demersal trawling survey (SCOWCGFS-Q4) of the grounds off the north and west of Scotland in ICES Subarea 6a and 7b.
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. Retrieval and re-deployment of up to 6 COMPASS moorings located at discrete sites within the survey area.

Procedures

General

Loading of the remaining trawl gear and scientific equipment will take place on Friday 11 November with rigging of the gear also commencing on the same day. *Scotia* will sail early on Monday 14 November. 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 12 predefined strata that cover ICES subarea 6A and 7B (see Figure 1). A total of 60 primary and 38 secondary stations have been generated (Tables 2 and 3 respectively). The intention is for the trawls to be undertaken on suitable ground as near to the specified primary station positions as is practicable, and within a radius of five nautical miles of the station location. In the event that trawling is not possible within 5 nm of any primary station then the nearest appropriate secondary station located within the same stratum 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 daylight 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. Biological sampling will be collected for target species in line with the UK Work Plan, EU data collection regulation as well as for other external projects.

Fish Sampling

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>.

Hydrography

A CTD cast will be taken at each trawl station, weather permitting. Top and bottom temperatures will be reported and in addition a calibration sample will be retained from the surface.

Compass Moorings

Potentially, six acoustic moorings may be required to be retrieved during survey 1722S and their locations are provided below in Table 1. 2 days have been allocated from within the operational survey window for retrieval and redeployment of COMPASS moorings. Completion of this objective will be at a time and period within the survey that is conducive to both the vessel captain as well as the SIC. Once *Scotia* has arrived at the mooring location an acoustic release system will be deployed from the vessels side deck which, once within range will trigger the hydrostatic release mechanism for each mooring. It will then surface where it will then be retrieved from the side deck. Re-deployment of moorings will similarly be undertaken from the side deck. A table and map providing the confirmed mooring locations can be found below in Table 1 and are also plotted in Figure 1. The intention during this survey will be to redeploy five moorings in total and at three locations. The Tolsta and Shiants locations will be the same as the current mooring location, however, an additional three moorings will be deployed within a triangular formation at the Hyskier site with the precise deployment locations being provided to the SIC prior to the survey's departure along with any updates regarding changes to the current mooring retrieval plan.

Table 1: Positions of current COMPASS mooring locations within the 1722S survey area.

Location name	Depth(m)	DecLat	declon	Lat (Deg dec min)	Long (Deg dec min)
Garvellachs	78.6	56.2351	-5.7595	56° 14.106' N	5° 45.570' W
Hyskier	48	57.03633	-6.75458	57° 2.180' N	6° 45.275' W
Hyskier2	51	57.03542	-6.75282	57° 2.125' N	6° 45.169' W
Shiant Isles	69	57.87612	-6.27268	57° 52.567' N	6° 16.361' W
Stoer	103	58.2575	-5.53861	58° 15.450' N	5° 32.316' W
Tolsta	50	58.3947	-6.01246	58° 23.682' N	6° 0.747' W

Normal contact will be maintained with the Marine Laboratory.

Submitted:
F Burns
13 October 2022

Approved:
I Gibb
8 November 2022

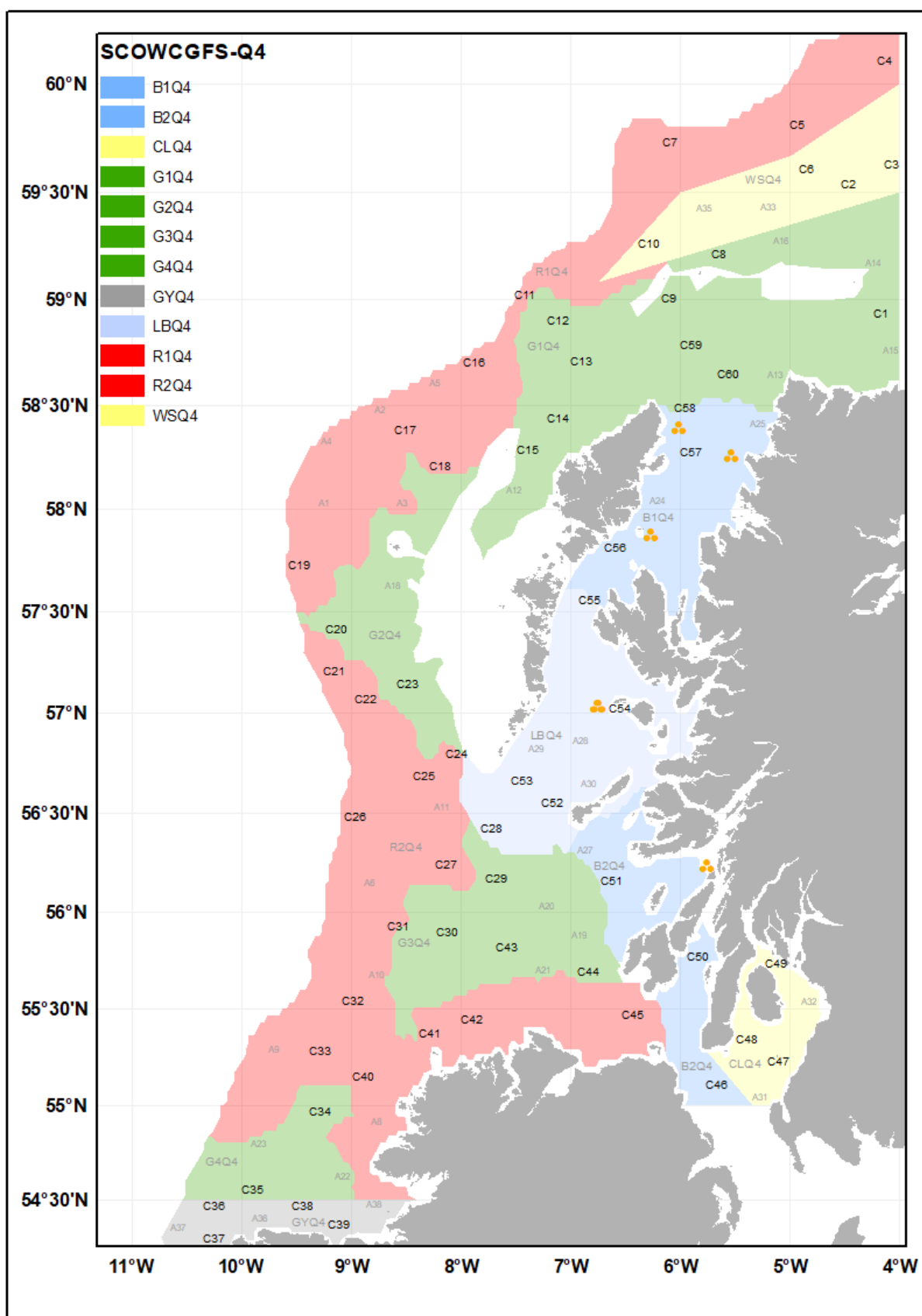


Figure 1: 1722S (SCOWCGFS-Q4) – 2022 ICES Subarea 6A/7B Survey Strata showing primary (bold face) and secondary trawling stations (red dot - plain face). Orange clustered floats denote locations of COMPASS moorings.

Table 2: 1722S – Positions of primary sampling stations.

Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum	Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum
C1	58.92732	-4.165839	5855.64N	0409.95W	green1	C31	55.92164	-8.561999	5555.30N	0833.72W	green3
C2	59.53275	-4.46513	5931.97N	0427.91W	windsock	C32	55.53444	-8.985426	5532.07N	0859.13W	red2
C3	59.62326	-4.017793	5937.40N	0401.07W	windsock	C33	55.2796	-9.274961	5516.78N	0916.50W	red2
C4	60.09868	-4.129446	6005.92N	0407.77W	red1	C34	54.9873	-9.280588	5459.24N	0916.84W	green4
C5	59.80621	-4.936374	5948.37N	0456.18W	red1	C35	54.54908	-9.972516	5432.94N	0958.35W	green4
C6	59.60549	-4.847226	5936.33N	0450.83W	windsock	C36	54.4868	-10.24926	5429.21N	1014.96W	grey
C7	59.7291	-6.08632	5943.75N	0605.18W	red1	C37	54.26326	-10.248743	5415.80N	1014.92W	grey
C8	59.22988	-5.645382	5913.79N	0538.72W	green1	C38	54.46029	-9.436689	5427.62N	0926.20W	grey
C9	59.00186	-6.136745	5900.11N	0608.20W	green1	C39	54.36256	-9.013629	5421.75N	0900.82W	grey
C10	59.25461	-6.374974	5915.28N	0622.50W	windsock	C40	55.14644	-8.883496	5508.79N	0853.01W	red2
C11	59.01542	-7.42187	5900.92N	0725.31W	red1	C41	55.36851	-8.284522	5522.11N	0817.07W	red2
C12	58.89453	-7.056507	5853.67N	0703.39W	green1	C42	55.44087	-7.924878	5526.45N	0755.49W	red2
C13	58.70585	-6.993778	5842.35N	0659.63W	green1	C43	55.81307	-7.58262	5548.78N	0734.96W	green3
C14	58.43362	-7.001078	5826.02N	0700.06W	green1	C44	55.68492	-6.831305	5541.10N	0649.88W	green3
C15	58.28173	-7.404737	5816.90N	0724.28W	green1	C45	55.46959	-6.428918	5528.18N	0625.74W	red2
C16	58.71306	-7.872813	5842.78N	0752.37W	red1	C46	55.10235	-5.66004	5506.14N	0539.60W	blue2
C17	58.37785	-8.49958	5822.67N	0829.97W	red1	C47	55.22319	-5.08302	5513.39N	0504.98W	clyde
C18	58.20443	-8.208081	5812.27N	0812.48W	red1	C48	55.33896	-5.421457	5520.34N	0525.29W	clyde
C19	57.72266	-9.476008	5743.36N	0928.56W	red1	C49	55.72734	-5.116464	5543.64N	0506.99W	clyde
C20	57.40904	-9.176554	5724.54N	0910.59W	green2	C50	55.76582	-5.838016	5545.95N	0550.28W	blue2
C21	57.20391	-9.152937	5712.23N	0909.18W	red2	C51	56.15235	-6.667411	5609.14N	0640.04W	blue2
C22	57.06328	-8.861446	5703.80N	0851.69W	red2	C52	56.54624	-7.160641	5632.77N	0709.64W	lightblue
C23	57.13923	-8.478702	5708.35N	0828.72W	green2	C53	56.65915	-7.435632	5639.55N	0726.14W	lightblue
C24	56.789	-8.037786	5647.34N	0802.27W	red2	C54	57.0179	-6.546954	5701.07N	0632.82W	lightblue
C25	56.67876	-8.336693	5640.73N	0820.20W	red2	C55	57.55554	-6.817826	5733.33N	0649.07W	lightblue
C26	56.47754	-8.955691	5628.65N	0857.34W	red2	C56	57.84517	-6.593957	5750.71N	0635.64W	blue1
C27	56.23578	-8.135457	5614.15N	0808.13W	red2	C57	58.26878	-5.895074	5816.13N	0553.70W	blue1
C28	56.41597	-7.721976	5624.96N	0743.32W	lightblue	C58	58.48036	-5.948421	5828.82N	0556.91W	blue1
C29	56.16403	-7.678439	5609.84N	0740.71W	green3	C59	58.7814	-5.988846	5846.88N	0559.33W	green1
C30	55.89035	-8.122927	5553.42N	0807.38W	green3	C60	58.64177	-5.56183	5838.51N	0533.71W	green1

Table 3: 1722S – Positions of secondary sampling stations.

Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum	Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum
A1	58.00556	-9.251535	5800.33N	0915.09W	red1	A20	56.02634	-7.215179	5601.58N	0712.91W	green 3
A2	58.49886	-8.737121	5829.93N	0844.23W	red1	A21	55.6732	-7.252922	5540.39N	0715.18W	green 3
A3	58.00459	-8.539482	5800.28N	0832.37W	red1	A22	54.61874	-9.047332	5437.12N	0902.84W	green 4
A4	58.32547	-9.260083	5819.53N	0915.60W	red1	A23	54.79332	-9.840929	5447.60N	0950.46W	green 4
A5	58.60228	-8.241669	5836.14N	0814.50W	red1	A24	58.0361	-6.20533	5802.17N	0612.32W	blue 1
A6	56.14199	-8.832906	5608.52N	0849.97W	red 2	A25	58.4073	-5.234561	5824.44N	0514.07W	blue 1
A7	55.64526	-9.377857	5538.72N	0922.67W	red 2	A26	55.25474	-5.802741	5515.28N	0548.16W	blue 2
A8	54.90648	-8.771106	5454.39N	0846.27W	red 2	A27	56.30538	-6.865091	5618.32N	0651.91W	blue 2
A9	55.28647	-9.703894	5517.19N	0942.23W	red 2	A28	56.8567	-6.906761	5651.40N	0654.41W	lightblue
A10	55.67381	-8.738028	5540.43N	0844.28W	red 2	A29	56.81858	-7.311819	5649.11N	0718.71W	lightblue
A11	56.52064	-8.178122	5631.24N	0810.69W	red 2	A30	56.64213	-6.834663	5638.53N	0650.08W	lightblue
A12	58.08714	-7.51245	5805.23N	0730.75W	green 1	A31	55.03546	-5.268054	5502.13N	0516.08W	clyde
A13	58.64052	-5.133276	5838.43N	0508.00W	green 1	A32	55.53176	-4.819989	5531.91N	0449.20W	clyde
A14	59.15067	-4.237892	5909.04N	0414.27W	green 1	A33	59.42788	-5.192383	5925.67N	0511.54W	windsock
A15	58.75708	-4.068801	5845.42N	0404.13W	green 1	A34	59.61531	-5.253359	5936.92N	0515.20W	windsock
A16	59.2699	-5.019816	5916.19N	0501.19W	green 1	A35	59.42265	-5.777496	5925.36N	0546.65W	windsock
A17	57.36688	-8.380665	5722.01N	0822.84W	green 2	A36	54.39972	-9.835254	5423.98N	0950.12W	grey
A18	57.62263	-8.61987	5737.36N	0837.19W	green 2	A37	54.34699	-10.573141	5420.82N	1034.39W	grey
A19	55.87428	-6.998394	5552.46N	0659.90W	green 3	A38	54.47141	-8.787538	5428.28N	0847.25W	grey