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MRV *Scotia*

Survey 1719S

PROGRAMME

04 - 25 November 2019

Loading: Aberdeen, 1 November 2019

Half Landing: Greenock / Ullapool, 14 or 15 November 2019 (TBC)

Unloading: Aberdeen, 25 November 2019

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.

Estimated days by project: 21 days – RV1916 (20541) & 1 days – C80040 (20397)

Fishing Gear

GOV Trawl (BT137) and ground gear D (hoppers).

Objectives

1. To participate in the ICES coordinated western division demersal trawling survey.
2. To obtain temperature and salinity data profiles at each trawling position.
3. To collect additional biological data in connection with the EU data collection framework (DCF).
4. Retrieval and redeployment of Compass mooring at Stanton Bank deployed during previous survey.

Procedures

The majority of the fishing gear and scientific equipment for 1719S will be loaded on 1 November. *Scotia* will sail on 04 November and (after all safety drills & shakedown trawling) commence fishing operations the following morning on stations to the west of the Orkneys. Weather conditions at the time will determine the exact start area. Survey schedule and operations will be decided by SIC after daily consultation with Fishing Master and Captain. A half landing will be made at Greenock or Ullapool around 14 or 15 November to exchange staff, but the date and port are to be confirmed once the vessel has commenced operations. The survey will finish in

Aberdeen on 25 November with all staff and equipment/fishing gear not required for 1819S will be returned to the Marine Laboratory.

Trawling

This is a random-stratified survey design with trawl stations being distributed within twelve predefined strata covering the sampling area (Figure 1). A more detailed map showing the Clyde trawl stations in relation to the underwater cable installed in 2017 is provided in Figure 2. A total of 60 primary and 38 secondary stations have been generated. The intention is for 60 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 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 middle 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.

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 Sampling

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

Compass Moorings

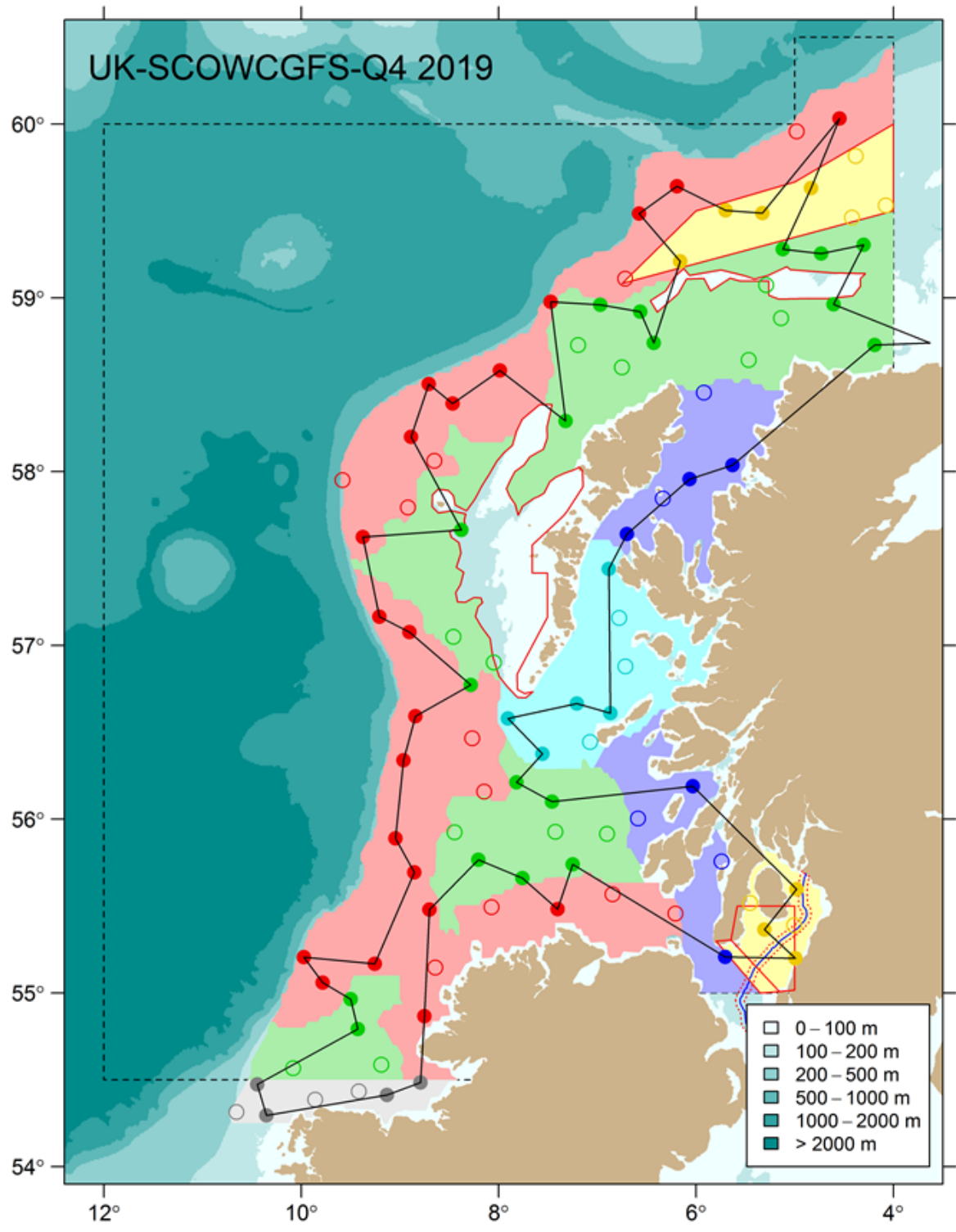
During the survey one day will be allocated to the retrieval and redeployment of two acoustic moorings deployed during a previous survey. The intention is to undertake this objective during Part 1 of the survey with an acoustic release system being deployed from the vessels side deck to trigger the moorings.

Normal contacts will be maintained with MSS.

Submitted:
R J Kynoch
19 September 2019

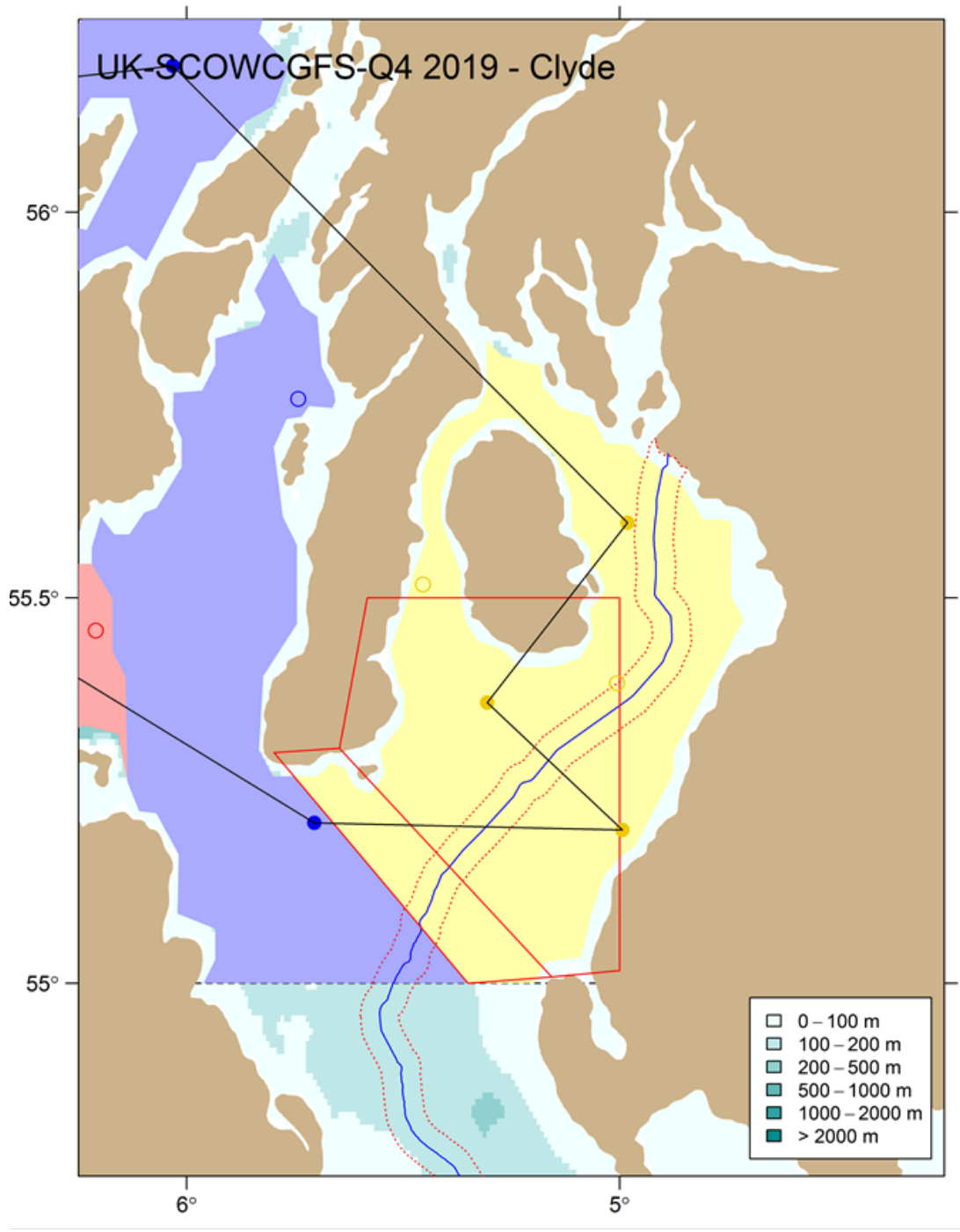
Approved
I. Gibb
31 October 2019

Figure 1: 1719S trawl locations.



Note - tow positions for each core station (solid circle) and alternative/additional positions (empty circles) will be added as time allows.

Figure 2: Detailed map showing Clyde stations in relation to cable installed in 2017.



Note - The blue line shows the location of the deep-water cable installed in 2017 and the red dotted line shows the ± 1.5 nmi safety area around the cable.

Table 1: 1719S – Position of primary sampling stations.

Station	lat	lon	deglat	deglon	stratum
1	58.96247	-4.607729	5857.75N	0436.46W	green1
2	59.3044	-4.30137	5918.26N	0418.08W	green1
3	59.25443	-4.732363	5915.27N	0443.94W	green1
4	59.28047	-5.119988	5916.83N	0507.20W	green1
5	59.63196	-4.834488	5937.92N	0450.07W	windsock
6	60.03191	-4.545194	6001.91N	0432.71W	red1
7	59.48743	-5.328187	5929.25N	0519.69W	windsock
8	59.50362	-5.699959	5930.22N	0542.00W	windsock
9	59.64184	-6.193042	5938.51N	0611.58W	red1
10	59.48501	-6.576728	5929.10N	0634.60W	red1
11	59.21047	-6.160272	5912.63N	0609.62W	windsock
12	58.74089	-6.429035	5844.45N	0625.74W	green1
13	58.92074	-6.565814	5855.24N	0633.95W	green1
14	58.96038	-6.969687	5857.62N	0658.18W	green1
15	58.9769	-7.473466	5858.61N	0728.41W	red1
16	58.2913	-7.32209	5817.48N	0719.33W	green1
17	58.58162	-7.988137	5834.90N	0759.29W	red1
18	58.39124	-8.466181	5823.47N	0827.97W	red1
19	58.5036	-8.70768	5830.22N	0842.46W	red1
20	58.20023	-8.886268	5812.01N	0853.18W	red1
21	57.66401	-8.378741	5739.84N	0822.72W	green2
22	57.62313	-9.37477	5737.39N	0922.49W	red1
23	57.16478	-9.20848	5709.89N	0912.51W	red2
24	57.07604	-8.903222	5704.56N	0854.19W	red2
25	56.77223	-8.283156	5646.33N	0816.99W	green2
26	56.59257	-8.842584	5635.55N	0850.56W	red2
27	56.33942	-8.96371	5620.37N	0857.82W	red2
28	55.88948	-9.045951	5553.37N	0902.76W	red2
29	55.69321	-8.855828	5541.59N	0851.35W	red2
30	55.16835	-9.2548	5510.10N	0915.29W	red2
31	55.20564	-9.972894	5512.34N	0958.37W	red2
32	55.05976	-9.784037	5503.59N	0947.04W	red2
33	54.96405	-9.499039	5457.84N	0929.94W	green4
34	54.7919	-9.428163	5447.51N	0925.69W	green4
35	54.47329	-10.444974	5428.40N	1026.70W	gray
36	54.29499	-10.352855	5417.70N	1021.17W	gray
37	54.413	-9.131841	5424.78N	0907.91W	gray
38	54.4843	-8.792802	5429.06N	0847.57W	gray
39	54.86623	-8.753432	5451.97N	0845.21W	red2
40	55.47931	-8.700307	5528.76N	0842.02W	red2
41	55.7661	-8.204705	5545.97N	0812.28W	green3
42	55.66018	-7.7588	5539.61N	0745.53W	green3
43	55.48171	-7.402395	5528.90N	0724.14W	red2
44	55.73953	-7.248396	5544.37N	0714.90W	green3
45	55.20804	-5.705191	5512.48N	0542.31W	blue2

46	55.19889	-4.993599	5511.93N	0459.62W	clyde
47	55.36414	-5.306141	5521.85N	0518.37W	clyde
48	55.5974	-4.982199	5535.84N	0458.93W	clyde
49	56.1898	-6.032125	5611.39N	0601.93W	blue2
50	56.10104	-7.45851	5606.06N	0727.51W	green3
51	56.21185	-7.819209	5612.71N	0749.15W	green3
52	56.37653	-7.55737	5622.59N	0733.44W	lightblue
53	56.57917	-7.905759	5634.75N	0754.35W	lightblue
54	56.66497	-7.208751	5639.90N	0712.53W	lightblue
55	56.60989	-6.868622	5636.59N	0652.12W	lightblue
56	57.43943	-6.883278	5726.37N	0653.00W	lightblue
57	57.64108	-6.700875	5738.46N	0642.05W	blue1
58	57.95637	-6.064734	5757.38N	0603.88W	blue1
59	58.03786	-5.631351	5802.27N	0537.88W	blue1
60	58.72933	-4.18985	5843.76N	0411.39W	green1