

Not to be cited without prior reference to Marine Scotland, Marine Laboratory, Aberdeen.

MRV *Scotia*

Survey 0320S

PROGRAMME

16 February – 09 March 2020

Loading: Aberdeen, 13 February 2020

Half landing: Greenock, *dates flexible*

Unloading: Aberdeen, 09 March 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 (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 – RV2002/20544, 2 – C80040/20397

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

Hydrographic Gear: Seabird 19+ CTD

Objectives

1. Demersal trawling survey (SCOWCGFS-Q1) of the grounds off the north and west of Scotland in ICES Subarea 6a.
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 COMPASS moorings located at discrete sites within the survey area.

Procedures

General

Loading of the trawl gear and scientific equipment will take place on 13 February with rigging and testing being completed on the same day. *Scotia* will sail on the morning of 16 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 that cover ICES subarea 6A (see figure 1). A total of 62 primary and 45 secondary stations have been generated (tables 2 and 3 respectively). The intention is for the 62 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 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. The EK60 scientific echosounder will be recording continuously throughout the entire survey with the echograms being scrutinised back in the institute for evidence of pelagic species. 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 and samples will be collected for target species in line with the EU data regulation and other external projects. 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

Six acoustic moorings were deployed at sites within the 0320S survey area during the second half of 2019. Two days have been allocated from this survey in order to retrieve and redeploy these 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. An acoustic release system will be deployed from the vessels side deck to trigger each mooring which will then allow it to surface where it will then be retrieved again from the side deck. Re-deployment of moorings will similarly be undertaken from the side deck. In contrast to the COMPASS mooring schedule from Q1 2019 the Garvellachs mooring will not be retrieved during 0320S with instead an additional deployment being completed in the Clyde. There is also the possibility of a request to deploy a further acoustic device within the Malin Head area although this has yet to be confirmed and this would be deployment only so could conceivably be completed at night. A table and map providing the confirmed mooring locations can be found below in table 1 and figure 2 respectively.

Table 1. Positions of COMPASS moorings located within the 0320S survey area.

Location name	Latitude (deg dec min)	Longitude (deg dec min)	Latitude (dec deg)	Longitude (dec deg)
Hyskier	57° 2.125 N	6° 45.172 W	57.03542	-6.75287
Shiant Isles	57° 52.17 N	6° 16.186 W	57.8695	-6.26977
Tolsta Hd	58° 23.521 N	6° 0.523 W	58.39202	-6.00872
Stoer Hd	58° 15.453 N	5° 32.337 W	58.25755	-5.53895
Stanton Bank	56° 4.257 N	8° 3.313 W	56.07095	-8.05522
Clyde Sill	55° 16.238 N	5° 23.787 W	55.27063	-5.39645

Normal contact will be maintained with the Marine Laboratory.

Submitted:
F. Burns
04 February 2020

Approved:
I. Gibb
10 February 2020

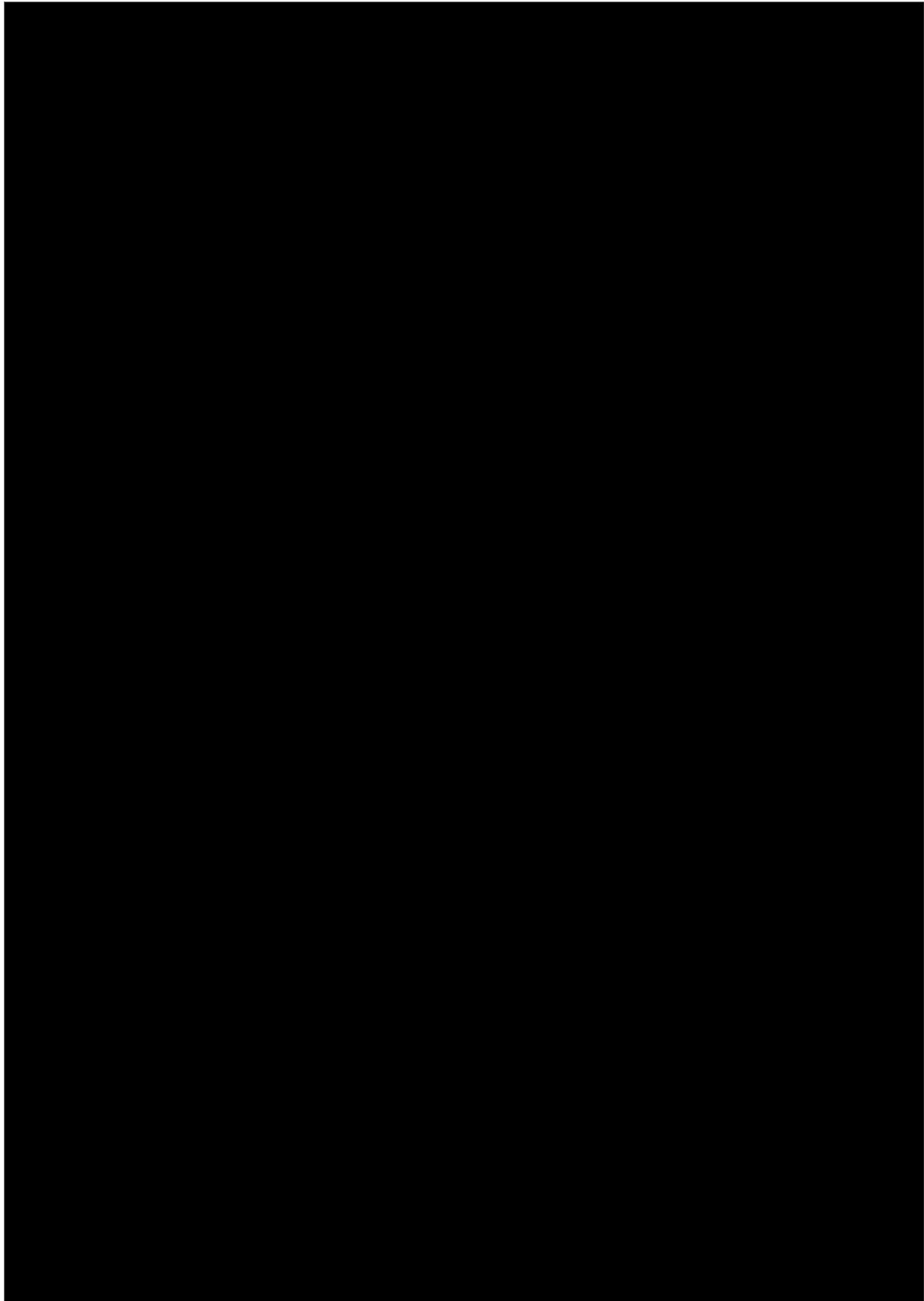


Figure 1: 0320S (SCOWCGFS-Q1) – 2020 ICES Subarea 6a Survey Strata showing primary (bold face) and secondary trawling stations (red dot - plain face).

Table 2: 0320S – Positions of primary sampling stations.

Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum	Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum
1	59.24644	-4.923885	5914.79N	0455.43W	green1	32	55.34439	-9.089113	5520.66N	0905.35W	green2
2	59.43229	-5.081805	5925.94N	0504.91W	windsock	33	55.38303	-9.831208	5522.98N	0949.87W	red3
3	59.44913	-4.536175	5926.95N	0432.17W	windsock	34	55.02329	-9.207338	5501.40N	0912.44W	green2
4	59.47913	-4.002376	5928.75N	0400.14W	green1	35	54.73771	-9.858808	5444.26N	0951.53W	green2
5	59.65748	-4.159157	5939.45N	0409.55W	windsock	36	54.62243	-9.365457	5437.35N	0921.93W	green2
6	60.09284	-4.363531	6005.57N	0421.81W	red1	37	54.78235	-9.005385	5446.94N	0900.32W	pink
7	59.86209	-5.158183	5951.73N	0509.49W	red1	38	54.55759	-8.446209	5433.46N	0826.77W	pink
8	59.78047	-6.202904	5946.83N	0612.17W	red1	39	55.02689	-8.504753	5501.61N	0830.29W	pink
9	59.46216	-6.253317	5927.73N	0615.20W	red1	40	55.43903	-7.99001	5526.34N	0759.40W	pink
10	59.26898	-5.930716	5916.14N	0555.84W	windsock	41	55.61189	-8.312053	5536.71N	0818.72W	blue2
11	59.20831	-5.460749	5912.50N	0527.64W	green1	42	55.80055	-8.345193	5548.03N	0820.71W	blue2
12	59.09672	-6.533875	5905.80N	0632.03W	green1	43	56.01538	-7.774475	5600.92N	0746.47W	blue2
13	59.166	-7.345754	5909.96N	0720.75W	red1	44	55.46006	-7.140222	5527.60N	0708.41W	pink
14	59.01689	-7.173612	5901.01N	0710.42W	green1	45	55.28517	-6.325907	5517.11N	0619.55W	pink
15	58.5485	-6.707571	5832.91N	0642.45W	green1	46	55.16427	-5.731247	5509.86N	0543.87W	blue2
16	58.48952	-7.405422	5829.37N	0724.33W	green1	47	55.43377	-5.287284	5526.03N	0517.24W	clyde
17	58.05596	-7.256969	5803.36N	0715.42W	green1	48	55.64686	-5.008805	5538.81N	0500.53W	clyde
18	58.11717	-8.128068	5807.03N	0807.68W	green1	49	55.68963	-5.433489	5541.38N	0526.01W	clyde
19	58.25655	-8.305705	5815.39N	0818.34W	green1	50	56.25825	-6.946738	5615.49N	0656.80W	blue2
20	58.41711	-7.922456	5825.03N	0755.35W	green1	51	56.5487	-7.918242	5632.92N	0755.09W	lightblue
21	58.66695	-7.957121	5840.02N	0757.43W	green1	52	56.71181	-7.640942	5642.71N	0738.46W	lightblue
22	58.53881	-8.191179	5832.33N	0811.47W	red2	53	56.65272	-7.091619	5639.16N	0705.50W	lightblue
23	58.39894	-8.517419	5823.94N	0831.05W	red2	54	56.84118	-6.373357	5650.47N	0622.40W	lightblue
24	58.11673	-9.19678	5807.00N	0911.81W	red2	55	57.23389	-6.72846	5714.03N	0643.71W	lightblue
25	57.80098	-9.011311	5748.06N	0900.68W	green1	56	57.61073	-6.876682	5736.64N	0652.60W	blue1
26	57.24812	-9.270011	5714.89N	0916.20W	red3	57	57.66171	-6.01194	5739.70N	0600.72W	blue1
27	56.64225	-8.66084	5638.53N	0839.65W	red3	58	58.15114	-5.358628	5809.07N	0521.52W	blue1
28	56.36642	-8.556931	5621.99N	0833.42W	red3	59	58.39421	-5.812624	5823.65N	0548.76W	blue1
29	56.23014	-8.322865	5613.81N	0819.37W	red3	60	58.84425	-6.074559	5850.66N	0604.47W	green1
30	56.14187	-8.915194	5608.51N	0854.91W	red3	61	58.76759	-5.444851	5846.06N	0526.69W	green1
31	55.86738	-9.107658	5552.04N	0906.46W	red3	62	58.96178	-5.027923	5857.71N	0501.68W	green1

Table 3: 0320S – Positions of secondary sampling stations.

Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum	Station	Decimal Lat	Decimal Lon	Lat	Lon	Stratum
1	59.77082	-5.609376	5946.25N	0536.56W	red1	24	57.92991	-5.774127	5755.79N	0546.45W	blue1
2	59.19158	-6.9428	5911.49N	0656.57W	red1	25	57.99196	-6.126769	5759.52N	0607.61W	blue1
3	59.50656	-6.6043	5930.39N	0636.26W	red1	26	56.11654	-7.260621	5606.99N	0715.64W	blue2
4	59.76977	-6.542372	5946.19N	0632.54W	red1	27	55.9814	-8.095887	5558.88N	0805.75W	blue2
5	58.06617	-9.544581	5803.97N	0932.67W	red2	28	55.66675	-7.628504	5540.00N	0737.71W	blue2
6	57.94697	-9.215396	5756.82N	0912.92W	red2	29	56.3863	-6.510818	5623.18N	0630.65W	blue2
7	58.27207	-8.752023	5816.32N	0845.12W	red2	30	56.47643	-7.059924	5628.59N	0703.60W	lightblue
8	55.47466	-9.5727	5528.48N	0934.36W	red3	31	57.29042	-7.05906	5717.43N	0703.54W	lightblue
9	55.95226	-8.716092	5557.14N	0842.97W	red3	32	57.0577	-6.932708	5703.46N	0655.96W	lightblue
10	56.2841	-9.079372	5617.05N	0904.76W	red3	33	57.47689	-7.131266	5728.61N	0707.88W	lightblue
11	55.08436	-9.720154	5505.06N	0943.21W	red3	34	55.80295	-7.205638	5548.18N	0712.34W	pink
12	56.82426	-8.732233	5649.46N	0843.93W	red3	35	55.8165	-6.537214	5548.99N	0632.23W	pink
13	57.95516	-7.86156	5757.31N	0751.69W	green1	36	55.55821	-6.321398	5533.49N	0619.28W	pink
14	56.92805	-8.27467	5655.68N	0816.48W	green1	37	55.51	-6.837098	5530.60N	0650.23W	pink
15	58.70578	-4.863146	5842.35N	0451.79W	green1	38	56.10917	-6.487793	5606.55N	0629.27W	pink
16	57.50459	-8.890436	5730.28N	0853.43W	green1	39	55.52252	-4.75329	5531.35N	0445.20W	clyde
17	59.18038	-4.44432	5910.82N	0426.66W	green1	40	55.25836	-5.069253	5515.50N	0504.16W	clyde
18	55.53805	-8.583967	5532.28N	0835.04W	green2	41	55.04651	-5.150924	5502.79N	0509.06W	clyde
19	54.84356	-9.346356	5450.61N	0920.78W	green1	42	59.45833	-5.863699	5927.50N	0551.82W	windsock
20	55.15944	-8.80493	5509.57N	0848.30W	green2	43	59.53305	-5.420512	5931.98N	0525.23W	windsock
21	55.34442	-8.773968	5520.67N	0846.44W	green1	44	59.85094	-4.301859	5951.06N	0418.11W	windsock
22	58.40815	-5.388926	5824.49N	0523.34W	blue1	45	59.66804	-4.972198	5940.08N	0458.33W	windsock
23	58.72488	-5.807936	5843.49N	0548.48W	blue1						

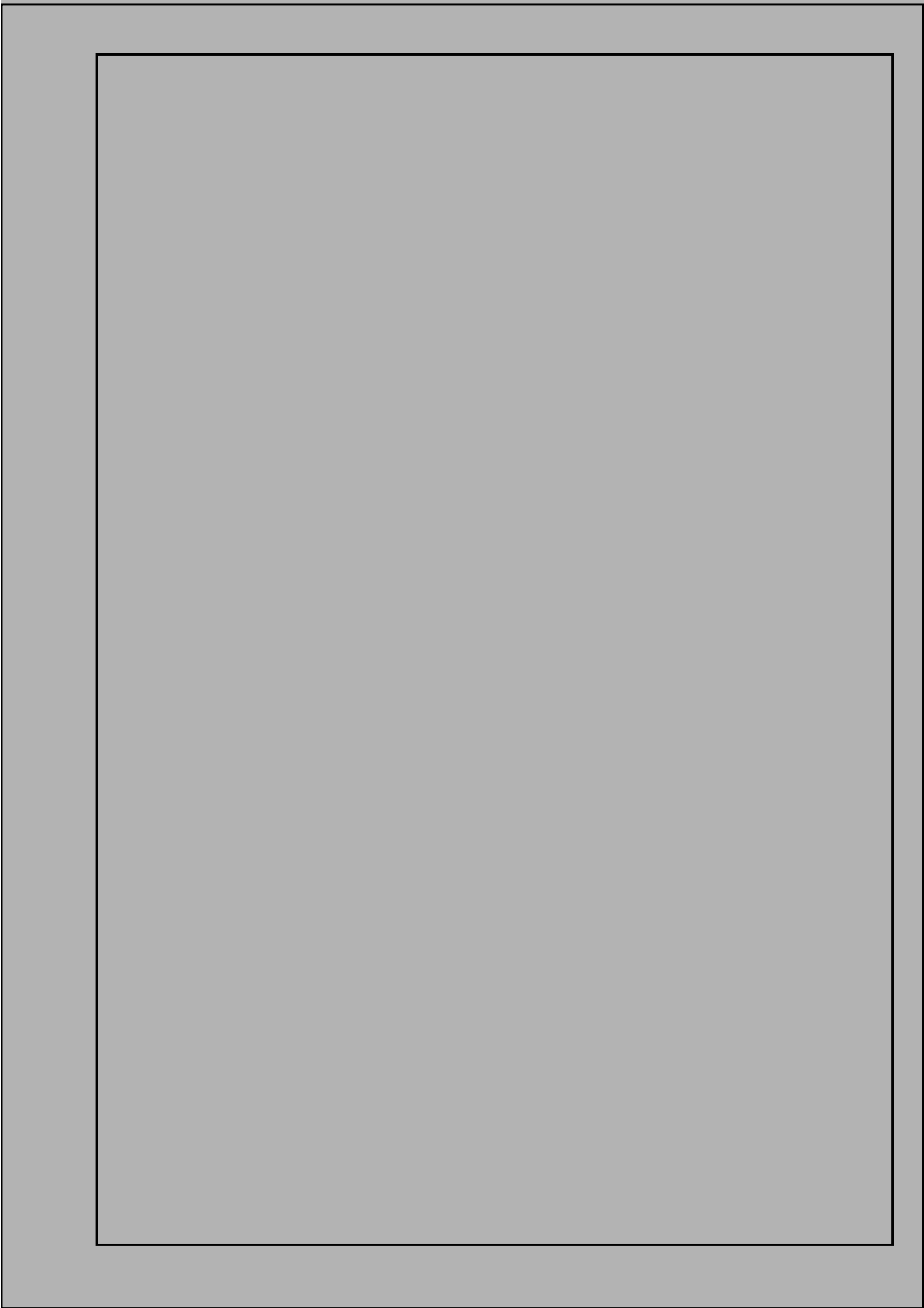


Figure 2: 0320S - Location of Compass moorings