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

MRV *Scotia*

Survey 0317S

**PROGRAMME**

14 February – 06 March 2017

**Loading**: Aberdeen, 11 February 2017
**Half landing**: Greenock, ~24 February 2017 (flexible)
**Unloading**: Aberdeen, 06 March 2017

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

| | |
|---|---|
| J Drewery | SIC |
| R Gillespie-Mules | |
| M Kinghorn | |
| M Gault | |
| G McAllister | |
| S O'Connel | |
| T Gibson | (Part 1) |
| P Clark | (Part 2) |
| E Browne | (Visitor, Marine Institute, Galway) |

**Out-turn days: 21 - RV1702/20395**

**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).

## Procedures

### General

Loading of the trawl gear and scientific equipment will take place on 11 February with rigging and testing being completed on the same day. *Scotia* will sail on the morning of 14 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 Standing Instructions.

Allowances will be made in the Firth of Clyde for surveying away from cable laying operations which are underway for the Western HVDC Link (high-voltage direct current) between Hunterston and Flintshire Bridge in Wales.

### Hydrography

A CTD cast will be taken at each trawl station.

Normal contact will be maintained with the Marine Laboratory.

Submitted:
J Drewery
02 February 2017

Approved:
I Gibb
02 February 2017

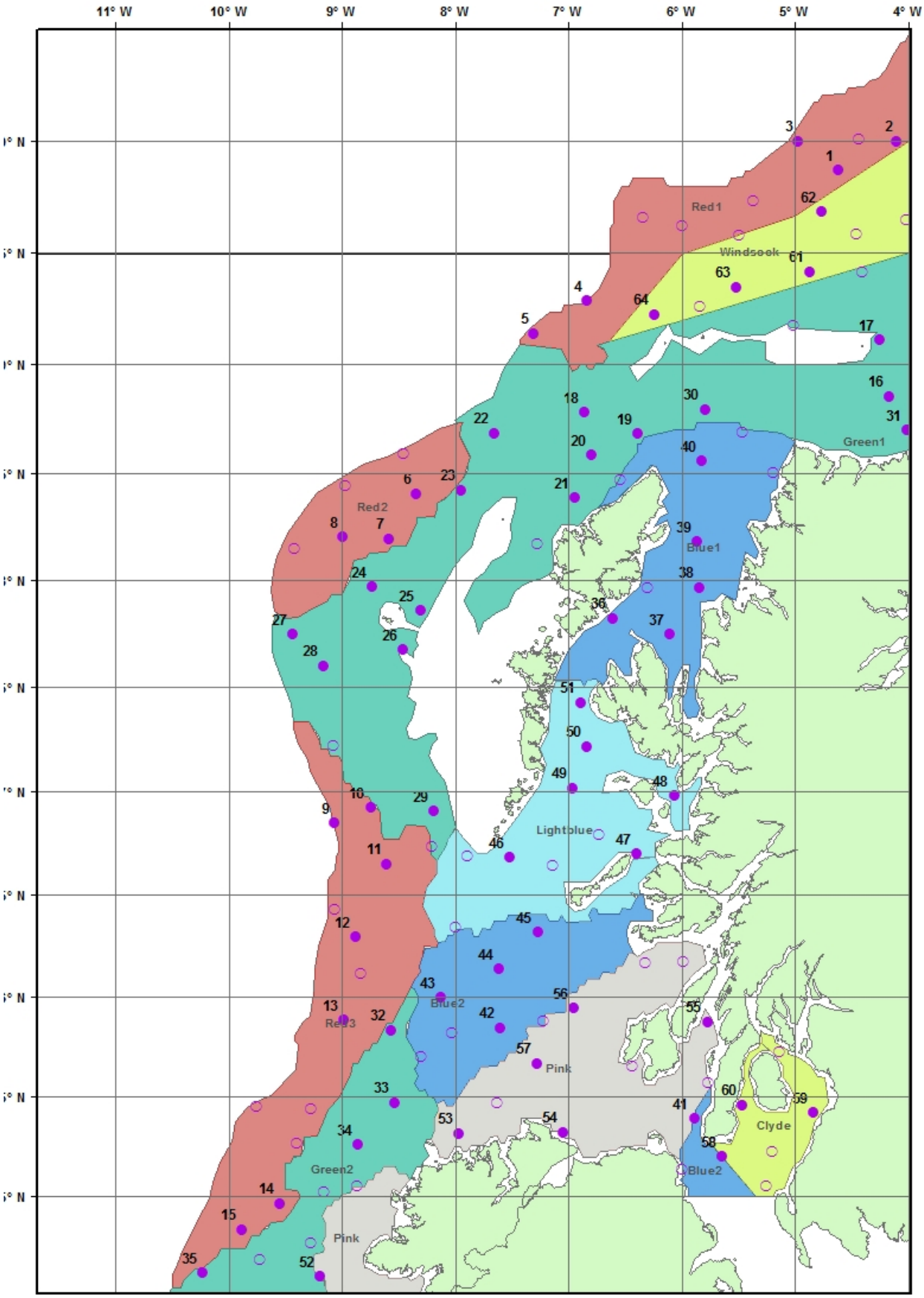


**Figure 1:** 0317S – 2017 ICES Subarea VIa Survey Strata showing primary (filled circles) and secondary stations (open circles).

| Station | Decimal Lat | Decimal Lon | Lat | Lon | Stratum | Station | Decimal Lat | Decimal Lon | Lat | Lon | Stratum |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 59.8718 | -4.6196 | 5952.31N | 0437.17W | Red 1 | 33 | 55.4739 | -8.5260 | 5528.43N | 0831.56W | Green 2 |
| 2 | 60.0012 | -4.0998 | 6000.07N | 0405.99W | Red 1 | 34 | 55.2605 | -8.8580 | 5515.63N | 0851.48W | Green 2 |
| 3 | 60.0005 | -4.9733 | 6000.03N | 0458.40W | Red 1 | 35 | 54.6105 | -10.2243 | 5436.63N | 1013.46W | Green 2 |
| 4 | 59.2892 | -6.8404 | 5917.35N | 0650.42W | Red 1 | 36 | 57.8253 | -6.6088 | 5749.52N | 0636.52W | Blue 1 |
| 5 | 59.1412 | -7.3089 | 5908.47N | 0718.53W | Red 1 | 37 | 57.7502 | -6.1001 | 5745.01N | 0606.00W | Blue 1 |
| 6 | 58.4058 | -8.3422 | 5824.35N | 0820.53W | Red 2 | 38 | 57.9710 | -5.8431 | 5758.26N | 0550.59W | Blue 1 |
| 7 | 58.1961 | -8.5806 | 5811.77N | 0834.83W | Red 2 | 39 | 58.1822 | -5.8618 | 5810.93N | 0551.71W | Blue 1 |
| 8 | 58.2059 | -8.9883 | 5812.36N | 0859.30W | Red 2 | 40 | 58.5578 | -5.8156 | 5833.47N | 0548.94W | Blue 1 |
| 9 | 56.8474 | -9.0667 | 5650.84N | 0904.00W | Red 3 | 41 | 55.3914 | -5.8877 | 5523.48N | 0553.26W | Blue 2 |
| 10 | 56.9236 | -8.7455 | 5655.42N | 0844.73W | Red 3 | 42 | 55.8471 | -7.5947 | 5550.83N | 0735.68W | Blue 2 |
| 11 | 56.6497 | -8.6089 | 5638.98N | 0836.54W | Red 3 | 43 | 55.9973 | -8.1207 | 5559.84N | 0807.24W | Blue 2 |
| 12 | 56.2943 | -8.8788 | 5617.65N | 0852.73W | Red 3 | 44 | 56.1358 | -7.6095 | 5608.15N | 0736.57W | Blue 2 |
| 13 | 55.8844 | -8.9827 | 5553.07N | 0858.96W | Red 3 | 45 | 56.3168 | -7.2685 | 5619.01N | 0716.11W | Blue 2 |
| 14 | 54.9659 | -9.5412 | 5457.95N | 0932.47W | Red 3 | 46 | 56.6831 | -7.5120 | 5640.99N | 0730.72W | Light Blue |
| 15 | 54.8310 | -9.8812 | 5449.86N | 0952.87W | Red 3 | 47 | 56.6986 | -6.3966 | 5641.92N | 0623.80W | Light Blue |
| 16 | 58.8532 | -4.1631 | 5851.19N | 0409.79W | Green 1 | 48 | 56.9802 | -6.0658 | 5658.81N | 0603.95W | Light Blue |
| 17 | 59.1101 | -4.2522 | 5906.61N | 0415.13W | Green 1 | 49 | 57.0161 | -6.9603 | 5700.97N | 0657.62W | Light Blue |
| 18 | 58.7818 | -6.8556 | 5846.91N | 0651.34W | Green 1 | 50 | 57.2155 | -6.8331 | 5712.93N | 0649.99W | Light Blue |
| 19 | 58.6825 | -6.3881 | 5840.95N | 0623.28W | Green 1 | 51 | 57.4259 | -6.8873 | 5725.55N | 0653.24W | Light Blue |
| 20 | 58.5846 | -6.7925 | 5835.07N | 0647.55W | Green 1 | 52 | 54.5930 | -9.1856 | 5435.58N | 0911.13W | Pink |
| 21 | 58.3874 | -6.9403 | 5823.25N | 0656.42W | Green 1 | 53 | 55.3198 | -7.9693 | 5519.19N | 0758.16W | Pink |
| 22 | 58.6867 | -7.6480 | 5841.20N | 0738.88W | Green 1 | 54 | 55.3233 | -7.0479 | 5519.40N | 0702.87W | Pink |
| 23 | 58.4233 | -7.9451 | 5825.40N | 0756.71W | Green 1 | 55 | 55.8767 | -5.7722 | 5552.60N | 0546.33W | Pink |
| 24 | 57.9732 | -8.7301 | 5758.39N | 0843.81W | Green 1 | 56 | 55.9443 | -6.9468 | 5556.66N | 0656.81W | Pink |
| 25 | 57.8608 | -8.3049 | 5751.65N | 0818.29W | Green 1 | 57 | 55.6698 | -7.2746 | 5540.19N | 0716.48W | Pink |
| 26 | 57.6774 | -8.4536 | 5740.64N | 0827.21W | Green 1 | 58 | 55.2028 | -5.6377 | 5512.17N | 0538.26W | Clyde |
| 27 | 57.7486 | -9.4307 | 5744.92N | 0925.84W | Green 1 | 59 | 55.4218 | -4.8334 | 5525.31N | 0450.00W | Clyde |
| 28 | 57.6003 | -9.1559 | 5736.02N | 0909.35W | Green 1 | 60 | 55.4617 | -5.4604 | 5527.70N | 0527.63W | Clyde |
| 29 | 56.9069 | -8.1845 | 5654.41N | 0811.07W | Green 1 | 61 | 59.4180 | -4.8652 | 5925.08N | 0451.91W | Windsock |
| 30 | 58.7949 | -5.7939 | 5847.69N | 0547.63W | Green 1 | 62 | 59.6866 | -4.7656 | 5941.20N | 0445.94W | Windsock |
| 31 | 58.6984 | -4.0094 | 5841.90N | 0400.56W | Green 1 | 63 | 59.3484 | -5.5171 | 5920.91N | 0531.03W | Windsock |
| 32 | 55.8334 | -8.5606 | 5550.01N | 0833.63W | Green 2 | 64 | 59.2261 | -6.2338 | 5913.56N | 0614.03W | Windsock |

**Table 1:** 0317S – Postions of primary sampling stations.