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MRV *Scotia*

Survey 0214S

REPORT

23rd January – 13th February 2015

Personnel

| | |
|---------------------------------|-----|
| F Burns (Part 1) | SIC |
| R Kynoch(Part 2) | SIC |
| Kinghorn (Part 1) (Deck) | |
| Lines (Part 2) (Deck) | |
| L Ritchie (MIK) | |
| Ensor | |
| Dooley | |
| Catarino (Part 1) | |
| Rasmussen (Part 1) | |
| Barreto (Part 1) | |
| Summerbell (Part 2) | |
| Mills (Part 2) | |
| R Coombes (JNCC) (Part 1) | |
| C Pollack (JNCC) (Part 1) | |
| C Cronin (JNCC) (Part 2) | |
| T Sykes (JNCC) (Part 2) | |
| J Monhart (Part 1) (Visitor AU) | |

Objectives

1. To complete an internationally coordinated demersal trawling survey in the North Sea in ICES area IV.
2. To undertake MIK sampling for pre-metamorphosed herring larvae during the hours of darkness within the trawl survey area. For selected stations additional MIKeyM samples will also be collected from the MIK deployments.
3. To obtain temperature and salinity data from the surface and seabed at each trawling station using a SEABIRD 19+ CTD.
4. Collect additional biological data in connection with the EU Data Collection Framework (DCF).

Out-turn days per project: 22 days, RV1501

Narrative

Scotia sailed from Aberdeen at 0530 hours on 23th January. After safety drills and familiarisation protocols, the vessel steamed to the Buchan Deeps NE of Peterhead and completed a shakedown haul. All fishing gear and net monitoring instrumentation worked correctly. The vessel then commenced the survey starting with the Northern area using the

Strengthened GOV rigged with ground gear B. It should be noted this is the first year using the strengthened GOV with ground gears A and B as agreed at IBTSWG Hamburg 2014.

The Nesco basket weighing balance failed on the first day of the cruise and was put ashore by workboat into MacDuff at around 0800 on 25 January. Further port calls were made using the workboat to drop off one of the crew due to a Family bereavement (Kirkwall – 28 January) and pick up a replacement (Scalloway - 30 January). During the first half of the cruise poor weather was problematic throughout causing disruption with some lost time for both fishing and MIK tows. After completing MIK net tows during the night 2 January the vessel steamed to Lerwick for the 24 hour half landing on 3 January where a staff changeover was made.

Due to an engine problem the sailing time on 4 January was delayed with Scotia eventually departing Lerwick around 1300. The vessel then made passage to start MIK tows east of the Shetlands. Thereafter, the vessel continued the survey with only MIK stations affected by poor weather during the night 7 February. The switch from groundgear B to groundgear A (South of 57° 30 North) was made during the night 6 February. Only one haul was invalid during part 2 due to gear damage, however another tow was sourced in the same statistical rectangle and successfully completed to compensate. Due to lost time in part 1 and insufficient time part 2 no MIK tows were made in statistical rectangles 45E9 and 44E9.

The vessel ended the survey on the 12 February south of Aberdeen prior to Scotia heading into harbour. Scotia was alongside Aberdeen harbour by 1600 on 12 February with unloading of all scientific equipment completed 13 February.

Results

Trawling

The GOV was used throughout the survey with groundgear “A” (152 mm rubber disks) being used in the southern part of the survey area (south of 57°30N) and groundgear “B” (305 mm bobbins) being used in the northern part. The Scanmar system was used throughout to monitor headline height, wing spread, door spread and distance covered during each tow. A NOAA bottom contact sensor was attached to the groundgear for each tow and the data downloaded for further analysis in the laboratory.

There were a number of foul hauls due to gear damage during part 1 which resulted in two statistical rectangles being dropped (49E6 & 48E6) and only one successful haul completed in a further two rectangles (48E7 & 47E6) instead of the programmed two, (see figure 2). As mentioned in the narrative during part 2 there was only one foul haul due to gear damage but after repairs an alternative valid haul was made in the same statistical rectangle. It should be noted the move to the strengthened GOV made a significant contribution in protecting the trawl. Any damage was limited by the use of tearing strips/guard meshes and therefore trawls were easily repaired between stations and not as on previous surveys was there significant time lost in changing over trawls. Figure 1 displays cruise track and trawl locations and figure 2 displays trawl sample coverage by rectangle.

Table 1 shows the preliminary indices for all vessels participating in the Q1 North Sea international bottom trawl survey. The indices are based on the numbers of fish caught per hour below a pre-defined length selected as a probable delimiter of 1+ fish.

Table 1

Preliminary indices for Quarter 1 International Bottom Trawl Survey (All countries).

| | Final 2014 | Preliminary 2015 | Mean (average 1980–2014) |
|--------------------|-------------------|-------------------------|---------------------------------|
| Cod | 3.8 | 3 | 7.5 |
| Haddock | 24.1 | 316 | 529 |
| Whiting | 269.9 | 378 | 460 |
| Norway pout | 831.6 | 6988 | 2847 |
| Herring | 2635 | 5161 | 1971 |
| Sprat | 3007 | 4285 | 1150 |
| Mackerel | 14.8 | 76 | 98 |

Methot Net Sampling

A total of 92 Methot Net (MIK) hauls were carried out in order to obtain an estimate of the numbers of pre-metamorphosing herring larvae. The circular frame was used to complete at least two hauls in each statistical rectangle of the survey area and the deployment and recovery speeds were adapted in accordance with advice from the Herring Assessment WG.

As highlighted in the Narrative MIK stations were dropped in two rectangles due to poor weather conditions encountered during part 1 and insufficient time to complete them during part 2. Additionally, 3 other rectangles received only one MIK sampling event also as a result of weather disruption. Figures 3 and 4 display location of MIK samples and MIK area coverage by rectangle for survey 0215S.

Biological Sampling

In addition to the routine sampling undertaken for commercial assessed species the following biological sampling was also undertaken :

- * Dissection material/ other frozen samples for Aberdeen University
- * Shelled Mollusc + haddock stomach sampling for the McKay reference collection.
- * Frozen whole specimens of several species retained for several PhD projects.

Age determination

Otoliths from cod, haddock, whiting, saithe, Norway pout, herring, mackerel and sprat were collected and were aged back at the institute. Hake otoliths were also retained from the survey and will be aged at a later date.

Hydrographic Sampling

The ship's thermosalinograph was run continuously throughout the survey. The CTD was deployed at each station when weather/time allowed (with a reverser bottle attached) in order to obtain temperature/salinity data. In addition water samples were retained for analysis for salinity, nitrates, silicates and phosphates.

Submitted:
F Burns/R Kynoch
20 March 2015

Figure 1: 0215S Cruisetrack and Trawl locations. Invalid hauls are marked as red crosses.

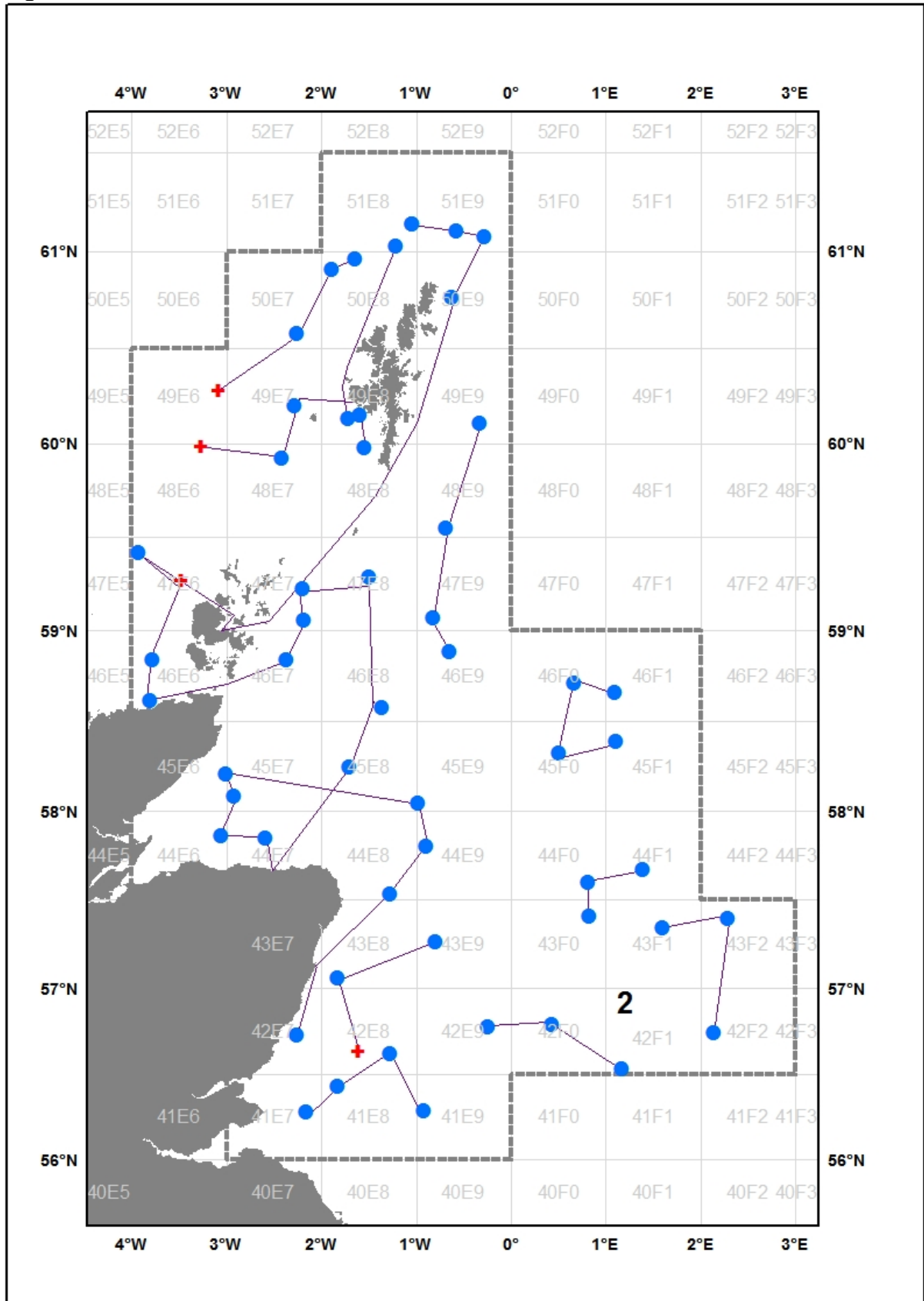


Figure 2: 0215S Trawl coverage by rectangle. Green denotes full coverage, orange denotes partial coverage (one trawl completed from 2) and red colour denotes rectangles that were dropped.

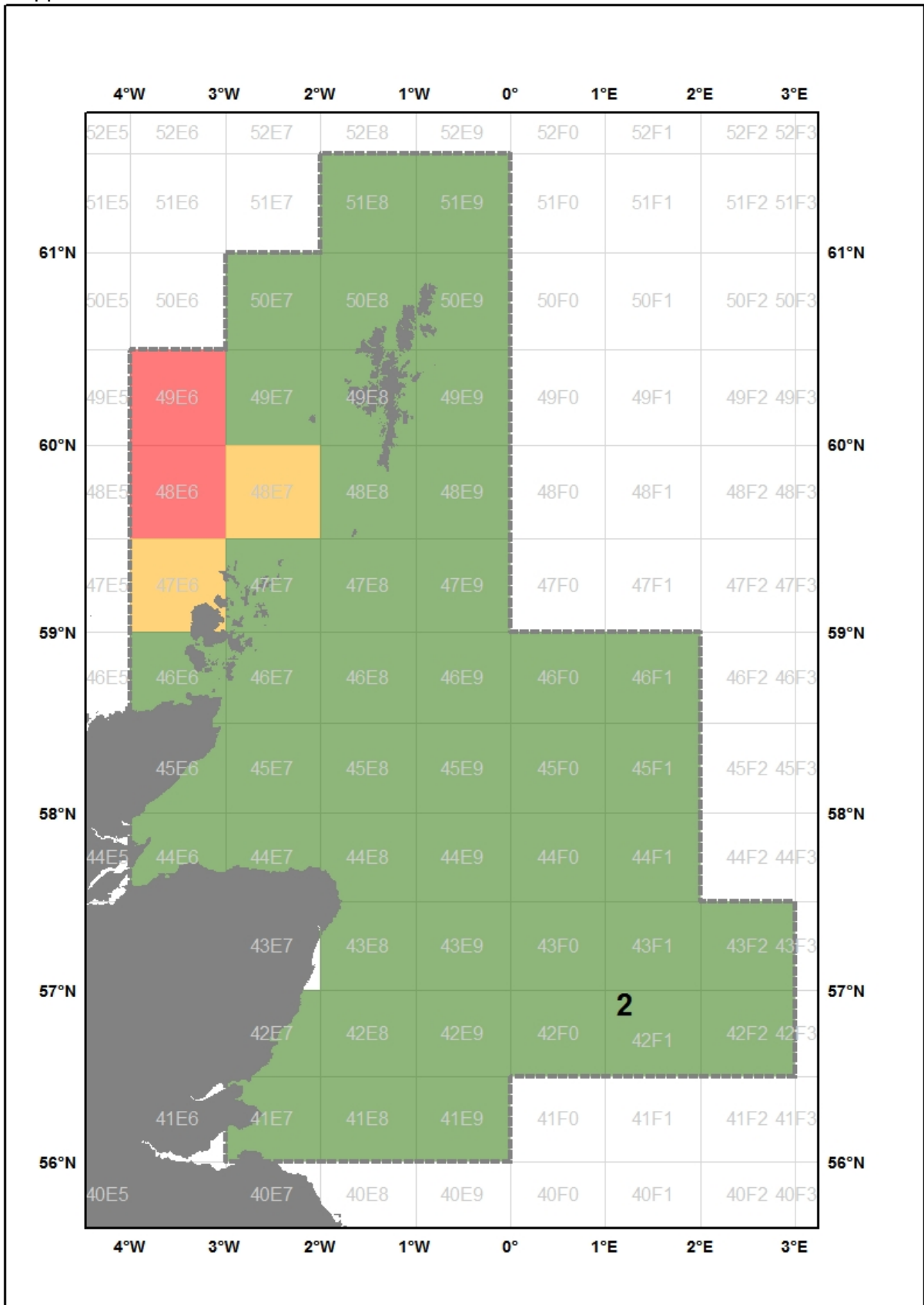


Figure 3: 0215S MIK Sampling locations.

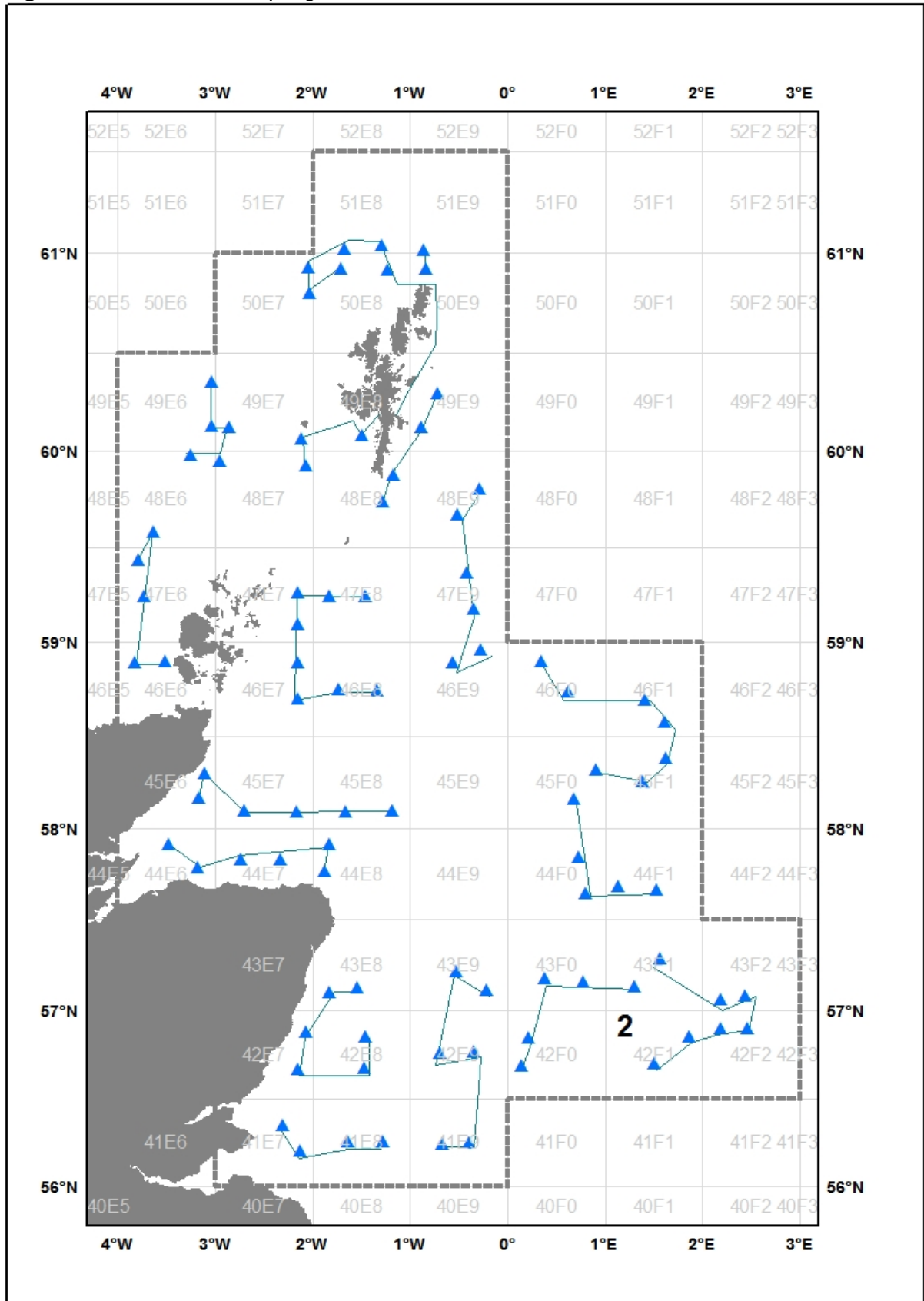


Figure 4: 0215S MIK coverage by rectangle. Green denotes full coverage, orange denotes partial coverage where only one deployment was completed and red colour denotes rectangles that were dropped

