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MRV Scotia

Survey 0217S

REPORT

22nd January – 11th February 2017

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Objectives

1. Completion of an internationally coordinated demersal trawling survey in the North Sea in ICES area IV using the GOV trawl.
2. MIK sampling undertaken for pre-metamorphosed herring larvae during the hours of darkness within the GOV trawl survey area. MIKeyM samples collected from selected MIK deployments.
3. Temperature and salinity data collected from the surface and seabed at each trawling station using a SEABIRD 19+ CTD.
4. Additional biological data collected in connection with the EU Data Collection Framework (DCF).

Out-turn days: 21 days, RV1701

Narrative

Scotia sailed from Aberdeen at 0900 hours on 22nd January with the GOV trawl rigged with ground gear B. Subsequent to completion of the safety drills and the familiarisation protocols the vessel steamed north to Buchan Deep (44E8) to complete a shakedown haul. With all the fishing gear and net monitoring instrumentation working correctly the 30 minute haul was considered valid for the survey and was subsequently worked up. Thereafter the vessel proceeded with the survey completing the GOV trawl stations during daylight hours and switching over to the MIK sampling during the hours of darkness.

After completing MIK tows off Aberdeen during the night 3 February the vessel headed in to Aberdeen for the mid-cruise break and a personnel change. Scotia sailed again at 0900 on 5 February and headed eastwards successfully completing 2 trawls using groundgear A in

rectangles 43E8 and 43E9. Groundgear A was already rigged and ready to go as it had been already been utilised during the last couple of days of part 1 as Scotia had steamed south to minimise the impact of an impending south-easterly weather front. Over the next 2 days Scotia completed the remainder of the stations with Groundgear before swapping back to groundgear B for the remainder of the survey.

The vessel ended the survey on the morning of the 10th February 50nm east of Aberdeen and from there made passage to Harbour. Scotia was alongside Aberdeen harbour by 1400 on the same day with unloading of all scientific equipment also completed on the same day.

Very strong winds and poor sea conditions were experienced during several periods throughout the survey and although periodically it restricted vessel transit speed between trawl and MIK stations only 24 hours of survey time (7th February) were actually lost on account of poor weather.

RESULTS

Minor modification to Scottish Q1 North Sea IBTS area

At the IBTSWG in 2016 it was announced that France was to reduce the number of days made available for the IBTS. In order to cope with this reduction in effort it has been necessary for the survey coordinator to modify slightly the survey area allocated to all nations in order to alleviate the impact caused by this subsequent reduction in overall survey effort. For Scotland, additional rectangles 51F0, 50F0 and 49F0 have been added, whereas rectangles 41E9, 42F1, 42F2 and 43F2 have been removed and will no longer be sampled. Additional (duplicate) hauls were also completed by Scotland in rectangles 42E8 and 43E8. This represents a net increase of 1 additional trawl station and brings the Scottish allocation up to 59 (from 58) although the new area configuration should deliver a decrease in the overall steaming distance which should also save time. See figure 1 for a map of the new survey extent.

Trawling

The GOV was used throughout the survey with ground gear A being used in the southern part of the survey area (south of 57°30N) and ground gear B used for all stations north of that latitude. The Scanmar system was used throughout to monitor headline height, wing and door spread. The vessels GPS navigation system provided data on vessel speed over the ground and distance covered during each haul. A self-recording bottom contact sensor, based on a NOAA design, was attached to the ground gear for each tow with the data being downloaded and checked to monitor groundgear contact with the seabed.

The GOV trawl in total was deployed on 61 occasions with 58 out of the 59 programmed stations being sampled successfully. There were 3 invalid hauls where significant damage was sustained by the trawl. On 2 of these occasions the station was successfully repeated elsewhere within the rectangle however poor weather conditions whilst trawling in 50E9 made this impossible and coverage within this rectangle was therefore restricted to one valid trawl station. See figure 2 for the 0217S trawl survey track and GOV trawl positions. A total of 79 different species were observed during the trip with a total catch weight of 20776kgs. 5374 biological samples were collected. Unusual species encountered during the survey was a Norway Bullhead (*Micrenophrys(Taurulus) lilljeborgii*) caught in 46E6 and a Twaitte Shad (*Alosa fallax*) which was caught in square 46E7.

Table 1 shows the preliminary indices for all vessels participating in the 2017 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. The definitive indices will be calculated once all the catchdata from all the surveys have been uploaded together with the corresponding agedata.

Table 1. Preliminary indices of 1+ grp for Quarter 1 International Bottom Trawl Survey (All countries).

	Final 2016	Preliminary 2017	Mean (average 1980–2016)
Cod	1.328	8.6	7
Haddock	96	158	521
Whiting	314	503	451
Norway pout	2881	4171	2897
Herring	1081	1680	2010
Sprat	1388	2577	1199
Mackerel	2	549	95

Method Net Sampling (MIK)

A total of 96 MIK hauls were successfully completed in order to obtain an estimate of the numbers of pre-metamorphosing herring larvae. The circular MIK frame was deployed at least twice in each statistical rectangle within the survey area with the exception of 47E6 and 49E6 where bad weather/time constraints prevented a second deployment being made. See figure 3 for the 0217S MIK track and deployment positions. The vertical profile of each haul was monitored using a Scanmar depth sensor. The 200mm round MIKeyM nets which are attached to the MIK frame were also deployed (together with the MIK net) in every one of the 48 survey rectangles within the Scottish survey area. The MIKeyM samples will then be sent to Norway to be processed at a later date.

Biological Sampling / Age determination

In total 5374 biological samples were collected as part of the routine biological sampling programme on a broad range of mainly commercial species. Otoliths from cod, haddock, whiting, saithe, Norway pout, herring, mackerel and sprat were collected for ageing back at the institute. In addition hake and plaice otoliths were also retained from the survey and will be aged at a later date. Table 2 provides the numbers of routine biological observations collected by species during 0217S.

Table 2. Numbers of routine biological samples collected.

Species	Nos. Sampled	Total Weight(g)	Gutted Weight(g)	Nos. Aged
Angler	58	58	54	-
Blue Skate	2	2	-	-
Cod	759	759	758	759
Cuckoo Ray	75	75	-	-
Flapper Skate	8	8	-	-
Haddock	1212	1210	1209	1212
Hake	131	131	120	-
Halibut	1	1	1	-
Herring	527	527	32	527
Lemon Sole	105	105	102	-
Mackerel	101	101	-	101
Megrim	72	72	60	-
Norway Pout	475	475	412	475
Plaice	109	109	108	-
Saithe	435	433	432	435
Spotted Ray	51	51	-	-
Sprat	219	219	-	219
Spurdog	28	28	-	-
Starry Ray	17	17	-	-
Starry Smooth Hound	20	20	-	-
Thornback Ray	1	1	-	-
Turbot	2	2	1	-
Whiting	966	966	957	966

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

- Genetics sampling of saithe (100) and haddock (100) for IMR, Bergen
- Genetics sampling of whiting for MSS Ecology and Conservation Group (50)
- Dissection material/ other frozen samples for Aberdeen University
- Shelled Mollusc + haddock stomach sampling for the McKay reference collection.
- Haddock measurement exercise to compare measurements on select sample of fish to study sampler variance – MSS/COF/FAA
- 3 bags of frozen whole specimens of mixed gadoids/flatfish for Stirling University

Hydrographic Sampling

The CTD was successfully deployed at 52 out of a possible 58 valid GOV stations (with a reverser bottle attached) in order to obtain temperature/salinity data. In addition nitrate, silicate and phosphate samples were also retained for analysis back in the lab.

Submitted:
F Burns
2nd March 2017

Modified Scottish Survey area - Q1 North Sea IBTS

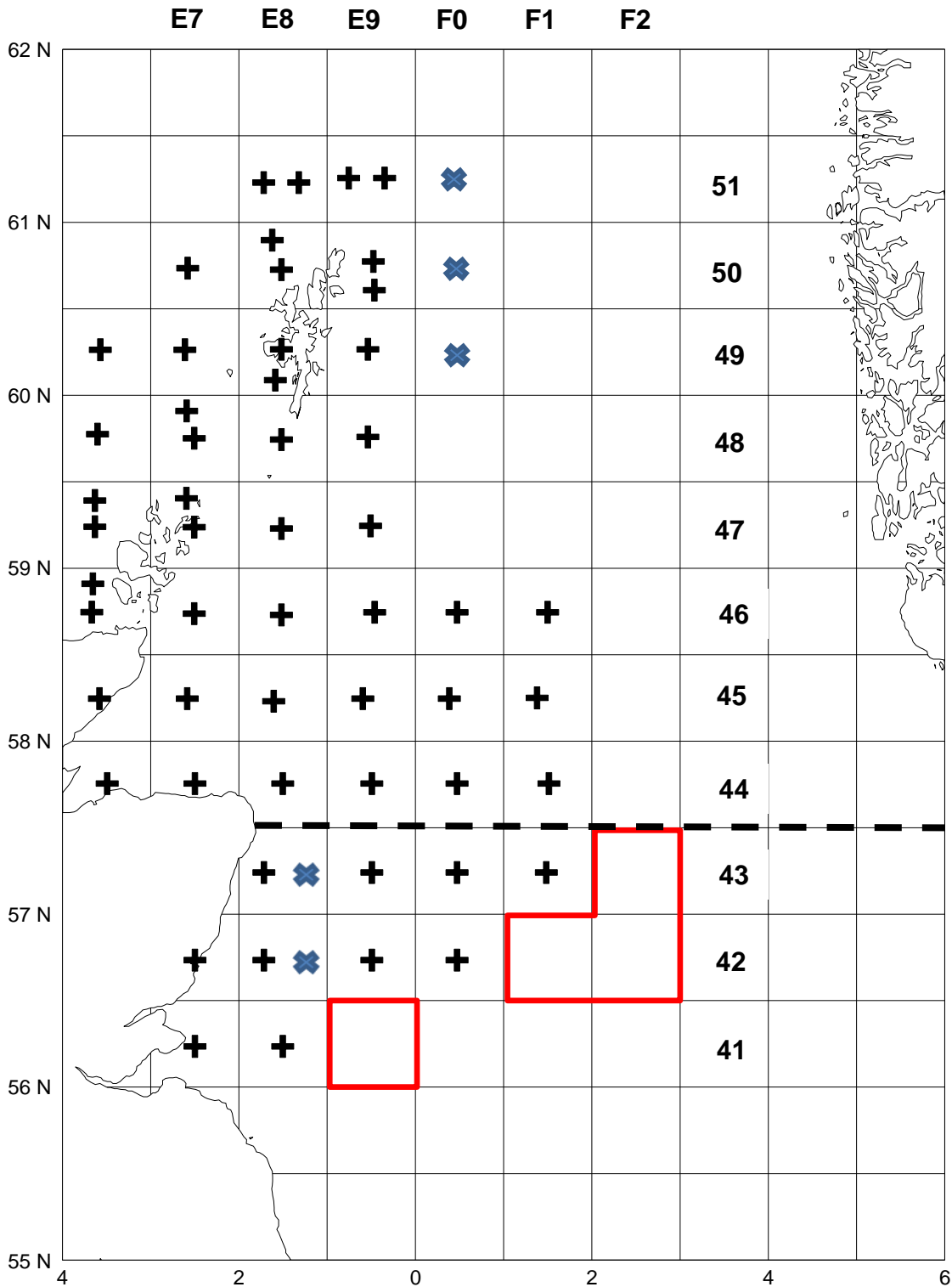


Figure 1. Modified Scottish North Sea Q1 IBTS area for 2017. Red polygons represent areas no longer sampled by Scotland and blue flattened crosses represent rectangles/stations added to Scottish survey area. Dashed line represents dividing line at 57'30N between groundgears (A – South of division line, B – North of division line).

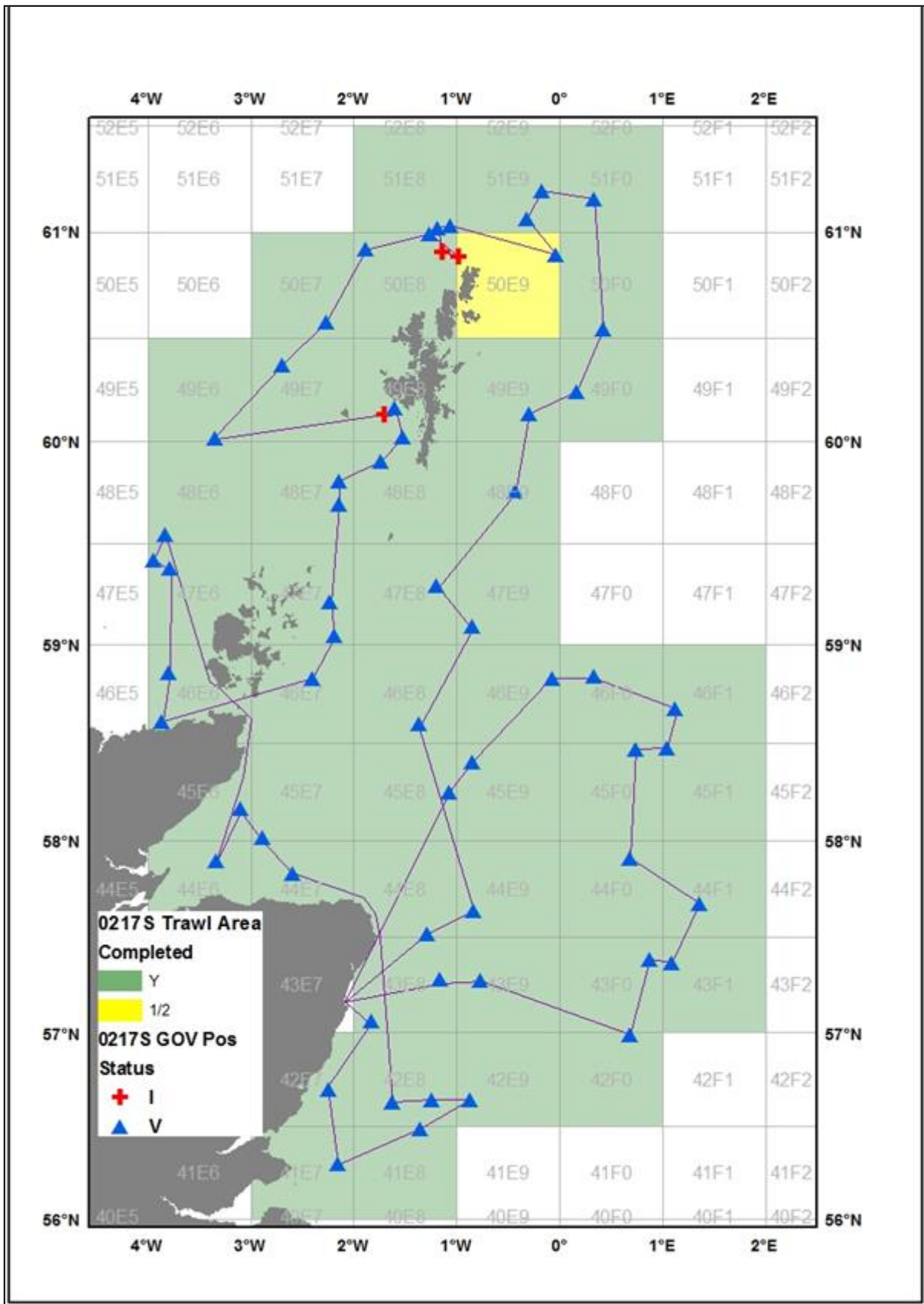


Figure 2: 0217S GOV trawl locations and completion status of Scottish survey area.

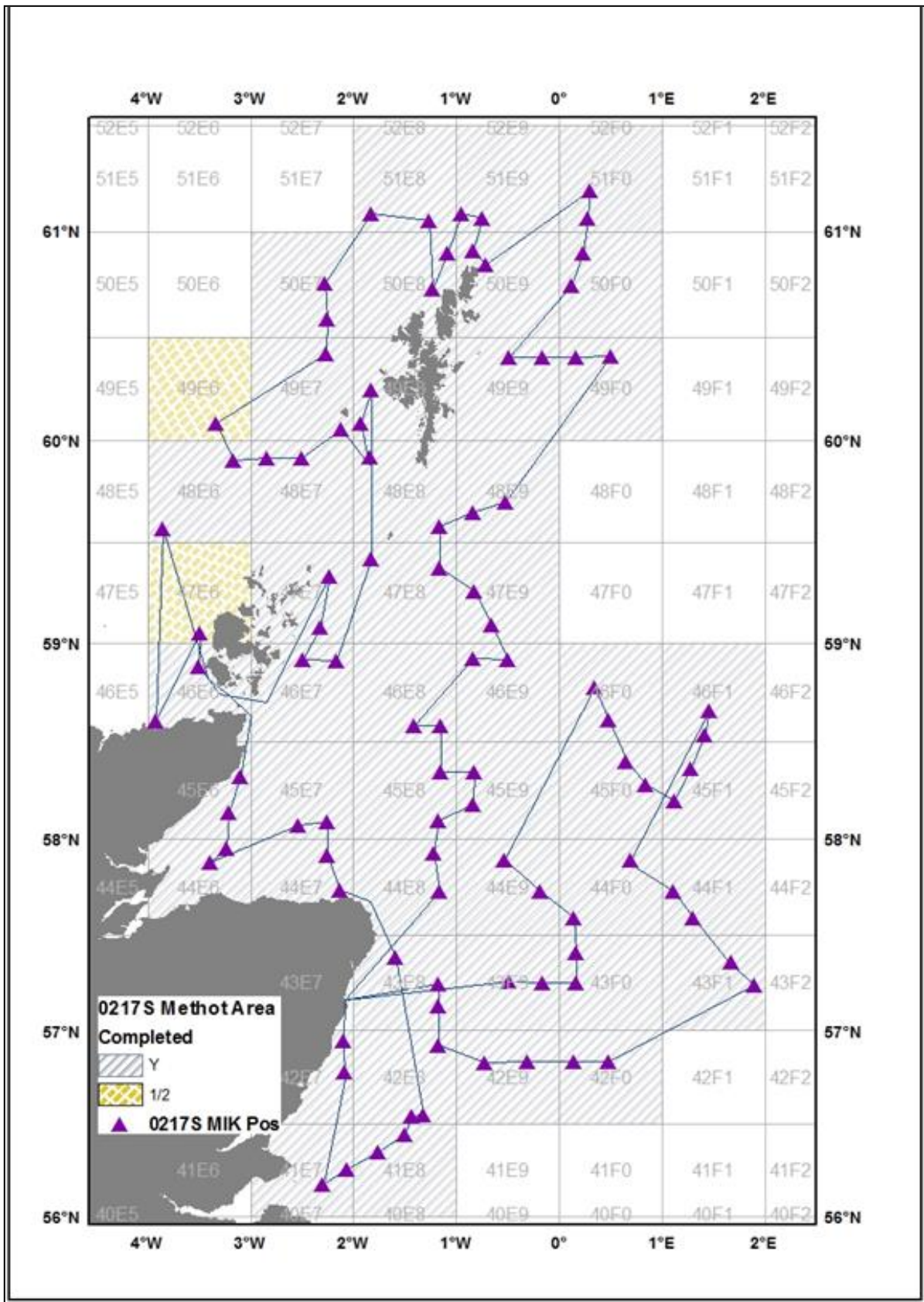


Figure 3: 0217S MIK sampling locations and completion status of Scottish survey area.