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MRV Scotia

Survey 0216S

REPORT

23 January – 12 February 2016

Personnel

F Burns	(SIC P1) (Part 1)
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J Monhart	(Visitor AU - Part 1)
E Busturia Cerezo	(Part 2)

Objective

1. To complete an internationally coordinated demersal trawling survey in the North Sea in ICES area IV using the GOV trawl.

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: 21 days, RV1601

Narrative

Scotia sailed from Aberdeen at 0900 hours on 23 January with the GOV trawl rigged with ground gear B. After safety drills and familiarisation protocols, the vessel steamed north to Buchan Deeps (44E8) and completed a shakedown haul. Because all fishing gear and net monitoring instrumentation worked correctly the 30 minute haul was considered valid for the survey and was worked up. Thereafter the vessel continued the survey with GOV trawl stations completed during daylight hours and Method Net sampling during the hours of darkness.

Very strong winds and poor sea conditions were experienced throughout the survey which periodically restricted vessel transit around the survey area. After completing MIK net tows

during the night 3 February the vessel steamed to Aberdeen for the 24 hour half landing on 4 January where a staff changeover was made. After completing the half landing the vessel sailed again at 0900 on 5 February and continued the survey on the southern stations using ground gear A. Because six northern stations were not completed during part 1 of the cruise the ground gear was swapped over to B again on evening 9 February.

The vessel ended the survey on the afternoon of 11 February north east of Aberdeen and then made passage to Harbour. Scotia was alongside Aberdeen harbour by 1130 on 11 February with unloading of all scientific equipment completed by 12 February.

RESULTS

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 in the northern part (north 57'30N). 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 and the data downloaded and checked to ensure correct bottom contact was achieved.

There was one foul haul (25) due to gear damage during part 1 but with the introduction of tearing strips and guard meshes in 2014 the trawl was easily repaired (between stations in same rectangle) and therefore no time lost. All allocated rectangles were surveyed at least once but trawling coverage in rectangles north east of Orkney at 48E7 and 47E7 were restricted to one successful haul instead of the programmed two. However, it was possible to undertake two additional hauls in 50E9 and 45E9 which are shared with Norway and Germany respectively. Despite the poor weather encountered during the survey 57 valid hauls were completed and all of the programmed rectangles were sampled at least once. Chart 1 displays all the completed trawl stations. A total of 77 different species were observed during the trip with a total catch weight of 16048.2kgs. Unusual species encountered during the survey was a tadpole fish (*Raniceps raninum*) and a Ballan Wrasse (*Labrus bergylta*) both caught in square 49E8.

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. The definitive indices will be calculated once all the catch data from all the surveys have been uploaded together with the corresponding age data.

Table 1

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

	Final 2015	Preliminary 2016	Mean (average 1980–2015)
Cod	2.8	**1.2**	7
Haddock	388	**96**	532
Whiting	315	**391**	456
Norway pout	6680	**3703**	2925
Herring	3934	**1081**	2041
Sprat	3218	**1206**	1208
Mackerel	81	**2**	97

Method Net Sampling (MIK)

A total of 99 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 (Chart 2) and the deployment and recovery speeds were adapted in accordance with advice from the Herring Assessment WG. The vertical profile of each haul was monitored using a Scanmar depth sensor. The small 20 mm round frame nets (MIKeyM net) attached to the main MIK frame were also deployed in the 18 programmed rectangles (Chart 3) for the purpose of collecting pelagic fish eggs from the survey area.

As previously highlighted due to weather disruption which reduced vessel transit speed 3 rectangles (50E8, 51E8 and 47E9) received only one MIK sampling event. It was not possible to re-visit these rectangles during the remainder of the cruise.

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.
- Mackerel measurements (Fork length, total lengths relaxed and pinched tail) for T. Jansen DTUaqua.
- Haddock sampling comparing measured lengths with CCTV monitoring system.
- 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 for subsequent aging back at the institute. Hake and plaice otoliths were also retained from the survey and will be aged at a later date and aged back at the

Hydrographic Sampling

The vessels thermosalinograph was run continuously throughout the survey. The CTD was deployed at most stations 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.

R Kynoch / F Burns
15 March 2016

Chart 1: 0216S trawl locations – Haul 25 was foul haul due to gear damage.

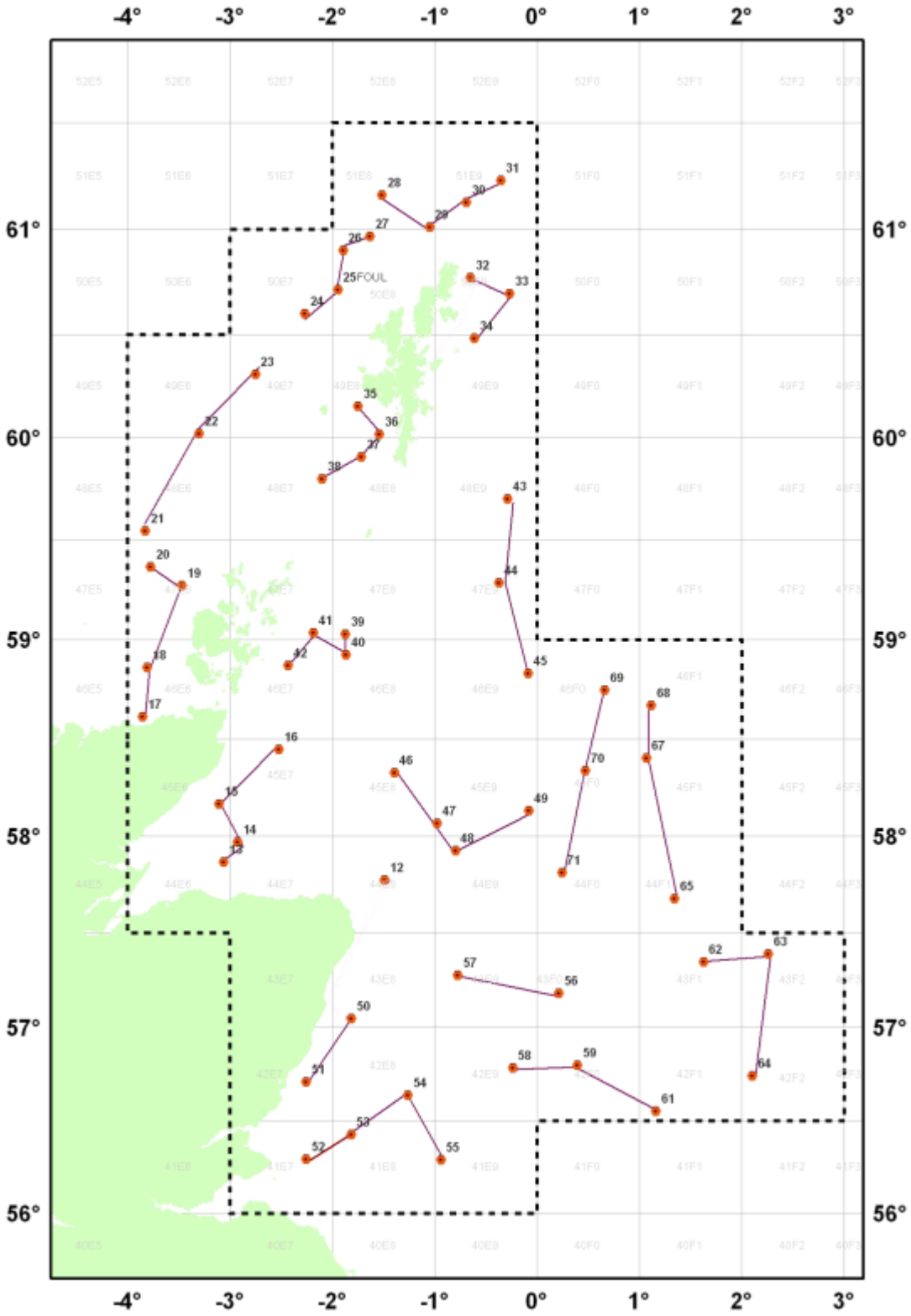

Chart 2: 0216S MIK sampling locations.

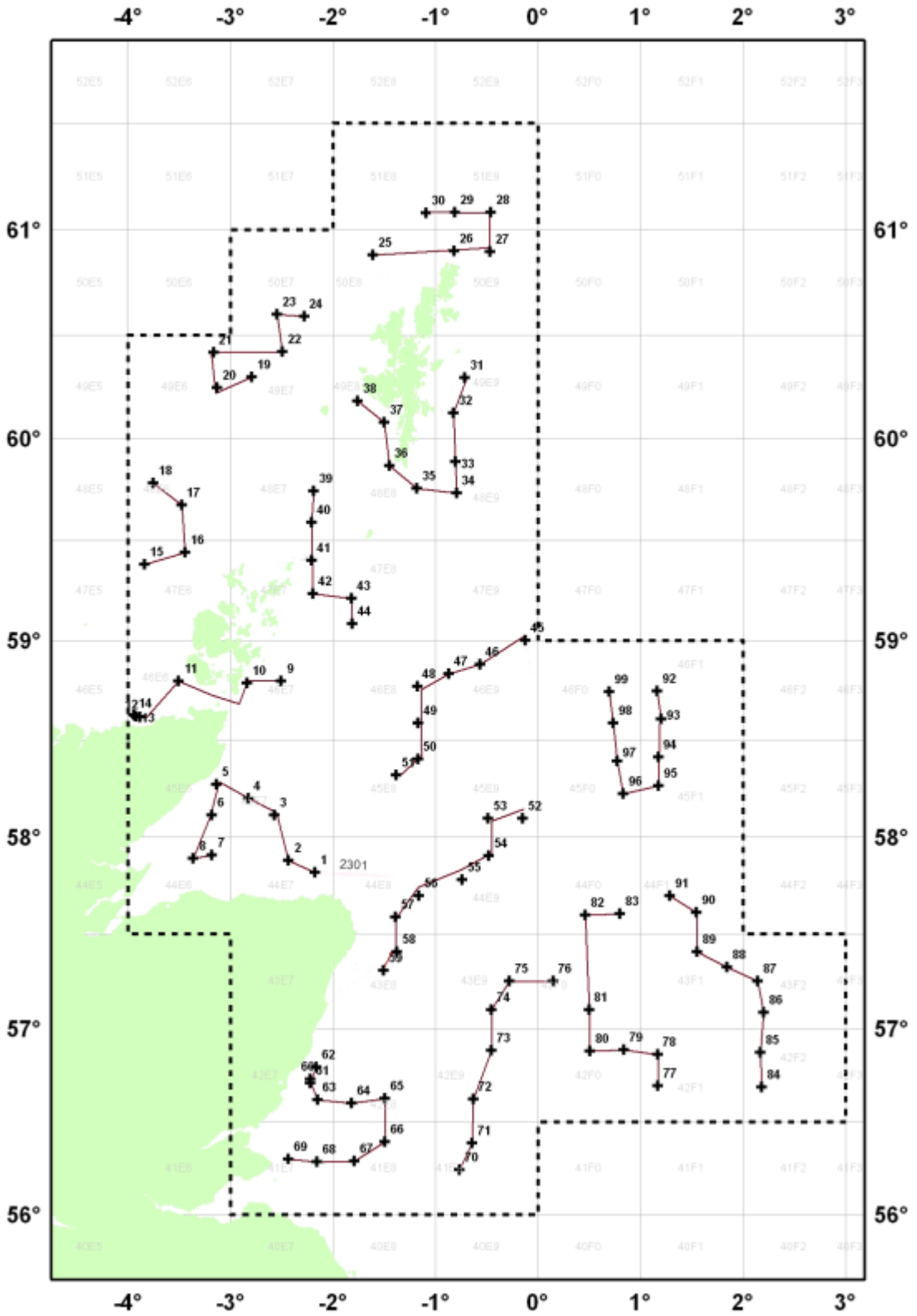

Chart 3: Statistical rectangles sampled using MIKey M rig 1st Q IBTS 2016 (Scottish sample rectangles denoted by 'S')