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MRV *Scotia*

Survey 1116S

REPORT

Dates

5– 25 August 2016

Half-landing: Aberdeen, 16 August 2016

Personnel

R. Gillespie-Mules	(SIC – Part 1) (Deck – Part 2)
M. Kinghorn	(Deck – Part 1) (SIC – Part 2)
I. B-Cerezo	
H. Holah	
J. Dooley	(Part 1)
H. Cole	(Part 1)
M. Ho	(Part 1)
N. Ensor	(Part 2)
J. Mills	(Part 2)
J. Rasmussen	(Part 2)
M. Bao	(Visitor – Aberdeen Uni - Part 1)
J. Monhart	(Visitor – Aberdeen Uni - Part 1)

Out-turn days: 21 days – RV1614

Fishing Gear: GOV Trawl (BT 137) fitted with groundgears A + B.

Objectives

1. To complete an internationally coordinated demersal trawling survey in the North Sea in ICES area IV.
2. To participate in the IBTSWG tow duration experiment where for every rectangle that is sampled twice, one tow shall be 30 minutes and the secondary tow will be 15 minutes.
3. To obtain temperature and salinity data from the surface and seabed at each trawling station using a SEABIRD 19+ CTD.
4. To collect additional biological data in connection with the EU Data Collection Framework (DCF).

Narrative

Scotia sailed from Aberdeen at 08:00hrs on 5 August in good sea conditions. Pre-sailing, it was agreed at the IBTSWG that Scotland would continue to participate in a tow duration experiment where the secondary country to survey a square would undertake a tow half the length of the standard duration (15 instead of 30 minutes). This affected a number of planned tows. The first haul northeast of Aberdeen in rectangle 44E8 doubled as a familiarisation haul and was completed successfully with the fishing gear and bottom contact sensors performing well. A further 4 stations were successfully completed during daylight including one for the

German institute. During day two the stations in the outer Moray Firth were completed with the inner Moray Firth stations being completed on the third day as poor weather was forecast. Six stations were successfully completed despite the weather conditions including one foul haul Southeast of Orkney where the net was damaged. This was successfully repeated and Scotia then proceeded to Southeast Shetland to avoid further poor weather, however only two stations could be completed before weather curtailed fishing operations. With improved conditions on 9 and 10 August, Scotia completed transects to the East of Shetland before steaming to the North. During the next 3 days Scotia completed all but one of the remaining stations above 57°30 N with the B rig groundgear before switching to the A rig for the remainder of the survey. One additional station was picked up to the West of Orkney. On 14 and 15 of August Scotia completed 9 hauls including the one remaining B rig station (44F2) prior to docking in Aberdeen for the half-landing and staff changeover.

Scotia left harbour at 10:00hrs on 12 August steaming south for the first additional station off Aberdeen. The survey then headed South and East over the next two days successfully completing 10 stations. Scotia then proceeded Northeast to complete the stations in the Norwegian and Danish sectors. No permission was granted for the Danish sector so two stations were dropped (41F4 and 41F5) but successfully completed by the English survey. Over the next three days, 18 stations to the South and West were completed before heading north. On 23 August, Scotia surveyed the statistical rectangles in and around the Firth of Forth before heading North to complete two tows on the final day prior to docking in Aberdeen at 14:00 on 24 August. Due to making good time and fortunate weather during the second half, 12 additional stations were completed including a further one for the German survey. Staff and equipment departed the vessel on the morning of 25 August.

Results

Trawl Survey

The GOV was deployed on 100 occasions. A total of 99 valid hauls were achieved and all but two target statistical squares were sampled successfully. Of those squares where Scotland was the sole surveying nation (21), 17 of them were sampled twice with 30 minute and 15 minute hauls (see figure 1). There was 1 foul haul during the survey that was repeated successfully. One tow was of a non-standard duration of 16 minutes due to dense fish marks on the Trawleye and sounder. Groundgear A was deployed on all stations south of 57°30 N with groundgear B being used on all stations north of that latitude. In all 49 stations were completed successfully using groundgear A (38 @ 15min tows and 11 @ 30min tows) and 50 stations with groundgear B (27 @ 15min tows, 22 @ 30min tows and one 16min tow). All stations also used the west coast GOV design with strengthening strips to limit the customary damage that has tended to occur on stations trawled in the northwest of the survey area. The locations used for the trawl positions were a combination of established trawl locations as well as completely new locations. The SCANMAR system was used to monitor headline height, wing spread, door spread, and distance covered during each tow. The SCANMAR Trawleye was also used to monitor bottom type and fish density entering the net. A bottom contact sensor was attached to the groundgear for each tow to monitor ground contact as well as to validate touchdown and lift-off of the groundgear. Data was downloaded following every successful haul. All trawls were undertaken during the daylight period.

A total of 79 species were caught. The full dataset from this as well as from the other surveys undertaken during the quarter 3 North Sea survey programme are uploaded to the ICES DATRAS trawl survey database. From this a set of international abundance indices is calculated for the target commercial species. This international combined survey index is provided to ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK) where it is used as a tuning tool in the stock assessment models for several commercial species.

The 2016 survey has been coordinated in such a way that 2 complete sets of abundance indices will be produced from the combined international survey. One uses the 15 minute

haul data and another uses the 30 minute haul data, the results of which will be presented to the WGNSSK as well as the IBTSWG in 2017.

Hydrography

The CTD (Seabird19+) was deployed at 99 valid trawling stations in order to obtain a temperature and salinity profile.

Biological Sampling

Additional biological data were collected from species in support of EU Data Collection Framework (DCF). A summary of numbers collected by all species is displayed in Table 2.

Electronic Data Capture

All haul summary data, catch composition, and length frequency data were entered into the FSS system at sea.

Miscellaneous

Marine litter

- All litter picked up in the trawl was classified, quantified and recorded then retained for appropriate disposal ashore.

Tissue samples

- Tissue and otolith samples of 17 Striped Red Mullet (*Mullus surmulatus*) were collected for genetic studies.

Seawater samples

- Low nutrient seawater samples were collected in square 43F0 for routine monitoring.

R. G-Mules /M. Kinghorn
28 September 2016

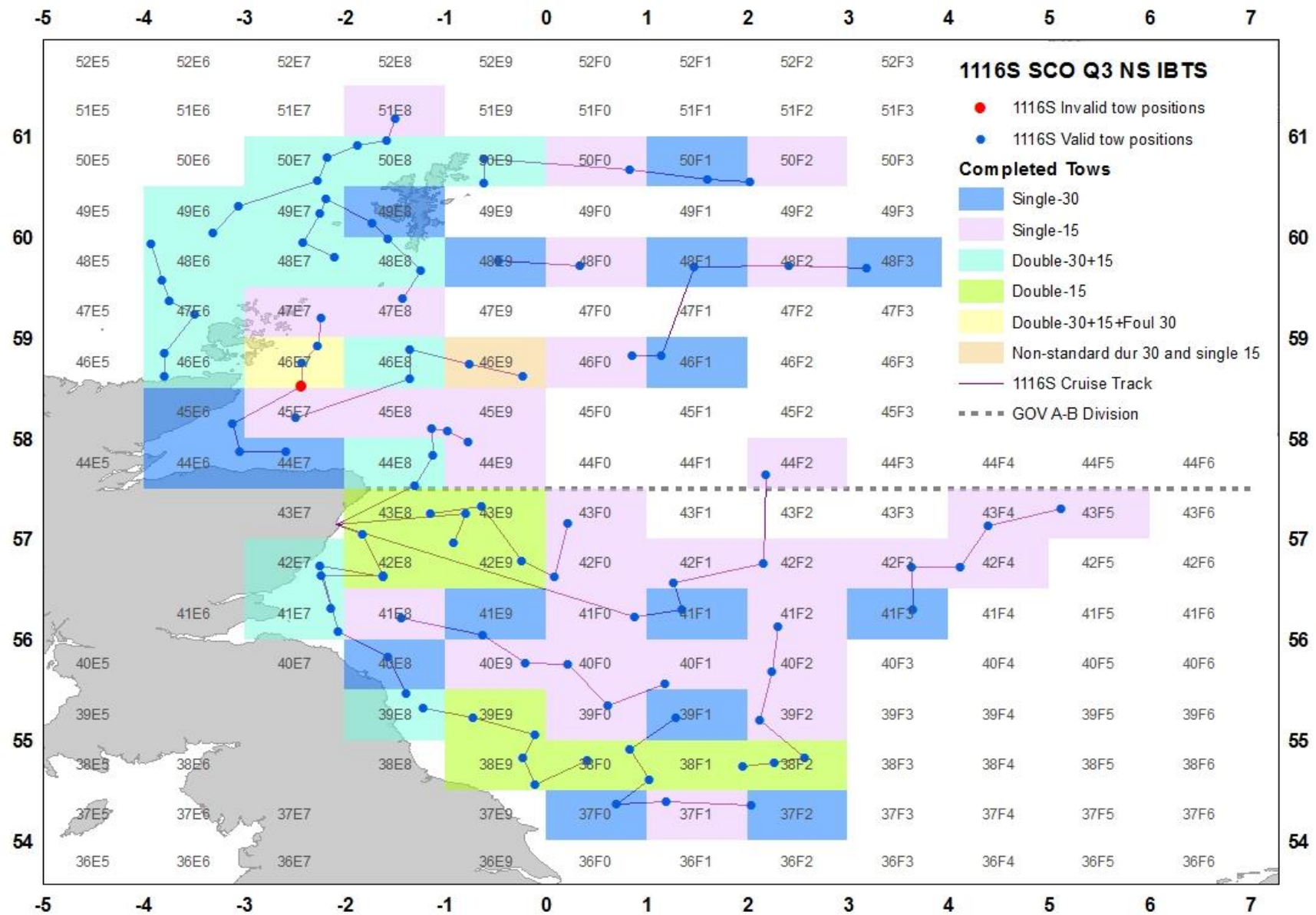


Figure 1: Survey map showing completed squares, tow duration, successful hauls, foul hauls and daily survey track for 1116S.

Table 1: CPUE of major species observed during 1116S.

Species	CPUE kg/h	CPUE No.s/h
<i>Clupea harengus</i>	202.2	1357.5
<i>Melanogrammus aeglefinus</i>	134.5	948.8
<i>Trisopterus esmarkii</i>	102.9	17583.1
<i>Merlangius merlangus</i>	92.4	1657.1
<i>Limanda limanda</i>	59.8	933.1
<i>Gadus morhua</i>	35.4	43.8
<i>Eutrigla gurnardus</i>	31.4	274.6
<i>Sprattus sprattus</i>	28.1	2681.3
<i>Trachurus trachurus</i>	19.7	67.2
<i>Pollachius virens</i>	19.2	17.7
<i>Scomber scombrus</i>	18.6	63.3
<i>Pleuronectes platessa</i>	16.9	79.5
<i>Merluccius merluccius</i>	14.9	11.4
<i>Scyliorhinus canicula</i>	12	14.7
<i>Microstomus kitt</i>	10.7	82.6
<i>Hippoglossoides platessoides</i>	10.6	272.3
<i>Lophius piscatorius</i>	6.2	2.3
<i>Molva molva</i>	4.2	2.1
<i>Raja montagui</i>	2.2	1.7
<i>Squalus acanthias</i>	1.8	1
<i>Gadiculus argenteus thori</i>	1.7	137.5
<i>Loligo forbesii</i>	1.4	70.1

Table 2: Numbers of biological observations per species collected during 1116S (length, weight, sex and age, * length, weight, sex and maturity, ** length, weight, sex plus otoliths retained but not aged).

Species	No.	Species	No.
<i>Merlangius merlangus</i>	1459	<i>Amblyraja radiata</i> *	53
<i>Melanogrammus aeglefinus</i>	1396	<i>Leucoraja naevus</i> *	35
<i>Clupea harengus</i>	1306	<i>Squalus acanthias</i> *	34
<i>Pleuronectes platessa</i> **	550	<i>Mullus surmuletus</i> **	17
<i>Trisopterus esmarkii</i>	510	<i>Dipturus intermedia</i>	6
<i>Gadus morhua</i>	509	<i>Scophthalmus rhombus</i> *	3
<i>Scomber scombrus</i>	386	<i>Zeus faber</i> **	3
<i>Sprattus sprattus</i>	299	<i>Raja brachyura</i>	2
<i>Pollachius virens</i>	274	<i>Raja clavata</i>	2
<i>Merluccius merluccius</i>	144	<i>Psetta maxima</i> *	1
<i>Raja montagui</i> *	58	<i>Mustelus asterias</i>	1