

R1/12

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FRV *Scotia*

Cruise 0410S

REPORT

1-16 April 2010

Personnel

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Objectives

1. To undertake a nationally co-ordinated demersal trawling survey of anglerfish on the Rockall Plateau.
2. To undertake counts of anglerfish and determine coral density using the Seatronics TV chariot.
3. To undertake counts of anglerfish (using the Seatronics TV chariot) in two areas regarded as unsuitable for towing the fishing trawl.
4. To obtain temperature and salinity profiles at each trawling station.

Out-turn days per project: 16 days – MF01T

Narrative

Scotia sailed from Aberdeen at 1130 on 1 April 2010 and proceeded to a recognised fishing location east of Peterhead where a shakedown haul was completed with full instrumentation to ensure that the gear was functioning effectively. A similar exercise was then conducted with the underwater TV system to familiarise the crew with deployment and retrieval techniques as well as a full test on the lighting and camera equipment. With the trials completed at 1700, Scotia then headed for the first underwater TV sampling location near Sule Skerry. The vessel arrived at the sampling site at 1100 on 2 April but weather conditions were unsuitable for underwater equipment deployment. Scotia then set course for the first trawl site on the north east side of

Rockall Plateau, arriving on station at 1000 on 3 April. After completing 4 trawl stations, the vessel then moved into the closed fishing area north west of Rockall where the underwater camera was deployed successfully. A further 5 trawl stations were completed the following day and with a slight improvement in weather conditions in the evening, further camera work was conducted in an area south of the previous nights work. Scotia resumed trawling on the east side of the plateau the following morning but after completing 2 hauls, strong winds intervened, preventing any further trawling or camera work. A slight improvement in weather conditions allowed Scotia to resume fishing the following morning in the south east of the survey area. After completing 4 hauls during the day the vessel was able to deploy the camera system in the closed area in the Empress of Britain Bank area. The following two days were spent covering the trawl stations on the south west of the survey area, followed by camera work on the evening of 8 April in the southern end of the closed area on the west side of the plateau. A further 8 trawls were completed on the west side of the plateau over the next 2 days but strong winds restricted the deployment of the underwater camera system.

A fracture in one of the main hydraulic pipes resulted in delays to trawling operations on the morning of 11 April. The ship's engineers were able to isolate the fractured pipe, allowing trawling to recommence but this action resulted in the loss of the TV winch, effectively ending any further camera work for the trip. With an improvement in weather conditions, Scotia worked on the northern and north east stations, completing the survey stations on the afternoon of 13 April.

Scotia docked in Aberdeen on the evening of 15 April with unloading taking place on the morning of 16 April.

Results

The trawl gear performed very well with all 44 trawl stations being completed. Several stations, particularly on the south west of the survey area and the deeper stations on the eastern edge had to be relocated due to unsuitable ground. It was also clear that there were some discrepancies in the survey design details as some stations appeared to be situated within "closed areas". Scanmar units were used throughout the cruise to monitor headline height, wing spread, door spread, net depth and haul duration with data logged for each of the 44 hauls. A bottom contact sensor was attached to the trawl to provide information relating to the actual time of contact between net and seabed. This system proved to be effective with data logged for all of the 44 hauls completed.

A data storage tag was attached to the net to record temperature and depth but this was restricted to the first 29 hauls as the unit appeared to implode during one of the deep water tows. The recorded temperatures and depth from each station sampled are shown in Figure 1. The output from the data storage tag will be archived along with the hydrographic data.

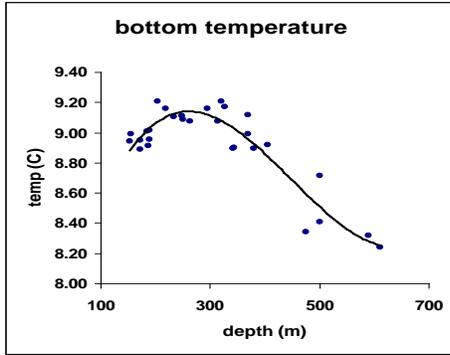


Figure 1: Temperature and depth recorded by DST at each station.

From 11 hauls completed in “deep-water” (405 – 890 metres) all species were sorted, measured and weighed. Additional sample material was also collected for genetic studies, with the species and numbers collected shown in Table 1.

Genetic/otolith sampling			
Group	Species		No. samples
Gadoids	M. dipterygia	BLI	42
	G. morhua	COD	4
	A. melanogrammus	HAD	50
	P. virens	SAI	55
Skates	Raja clavata	TRA	19
	Raja oxyrinchus	LNS	12
	D. batis	SKA	18
Other	S. acanthius	SPU	1
	M. merlangius	WHI	1
	C. conger	CEE	1

Table 1: Samples collected for genetic studies

A total of 519 anglerfish were caught with the total live weight being 1714 kilograms. The number caught and weight caught (standardised to an hour) at each trawl location are shown in Figure 2 and Figure 3 respectively. Although the higher numbers were encountered on and to the east of the plateau, the larger fish tended to be found to the south and west of the plateau. During the course of the survey there were 2 particularly large anglerfish caught. The first was caught during a haul at 500 metres depth and measured 132cms with a total weight of 42.6kg and a gutted weight of 23.3kg. Within the stomach of this fish was an anglerfish of approximately 60 – 65cm in length. The second large specimen, caught at 610 metres depth, measured 136cms with a total weight of 38.2kg and a gutted weight of 28.9kg.

A total of 1822 megrim, weighing 482 kilograms was achieved for the cruise. This is a significant increase on the 2009 total of 1421 megrim (including Four-spot megrim) with indications being that the distribution patterns are similar. Additional biological data on sex, maturity, total weight and gutted weight was collected from 1212 megrim to supplement coverage for the DCF (Data Collection Framework) requirements with individual total weights

also collected for 323 Four-spot megrim. Length frequency data was also recorded for cod, haddock, whiting, saithe and *nephrops* from each haul, where encountered.

Camera Visual Survey

Due to adverse weather conditions it was not possible to deploy the Underwater Camera system at the planned station near Sule Skerry. Continuing variable weather conditions meant it was only possible to conduct the Visual Camera Survey in 5 of the first 8 days on survey location and a fracture to one of the main hydraulic pipes on 11 April effectively ended all camera work for the cruise. Although some difficulties were encountered in maintaining suitable towing speeds it was possible to carry out a series of tows with a total of 6 hauls being conducted (Table 1), allowing us to capture about 20 hours of sea bed film that will allow us to complete part of the objectives for this survey; estimate the abundance of anglerfish and Coral in two areas North West Rockall; and the Empress of Britain Bank. It was not possible to carry out any work to estimate the abundance of anglerfish in two areas en route to and from Rockall.

Table 1: Summary of camera deployment

Area Surveyed	Latitude	Longitude
North West Rockall	57° 13.53N	14° 24.27W
North West Rockall	56° 59.93N	14° 34.38W
Empress of Britain Bank	56° 15.06N	15° 28.07W
North West Rockall	57° 13.94N	14° 33.84W
North West Rockall	57° 22.96N	14° 31.47W
North West Rockall	58° 01.59N	14° 00.43W

All data relating to Scanmar sensors, bottom contact sensors and DST will be downloaded on return to the laboratory.

Submitted:
K A Coull
16 May 2010

Approved:
I Gibb
18 May 2010.

Seen in Draft: Captain Andy Somerton, OIC, *Scotia*

2010 - Angler number per hour

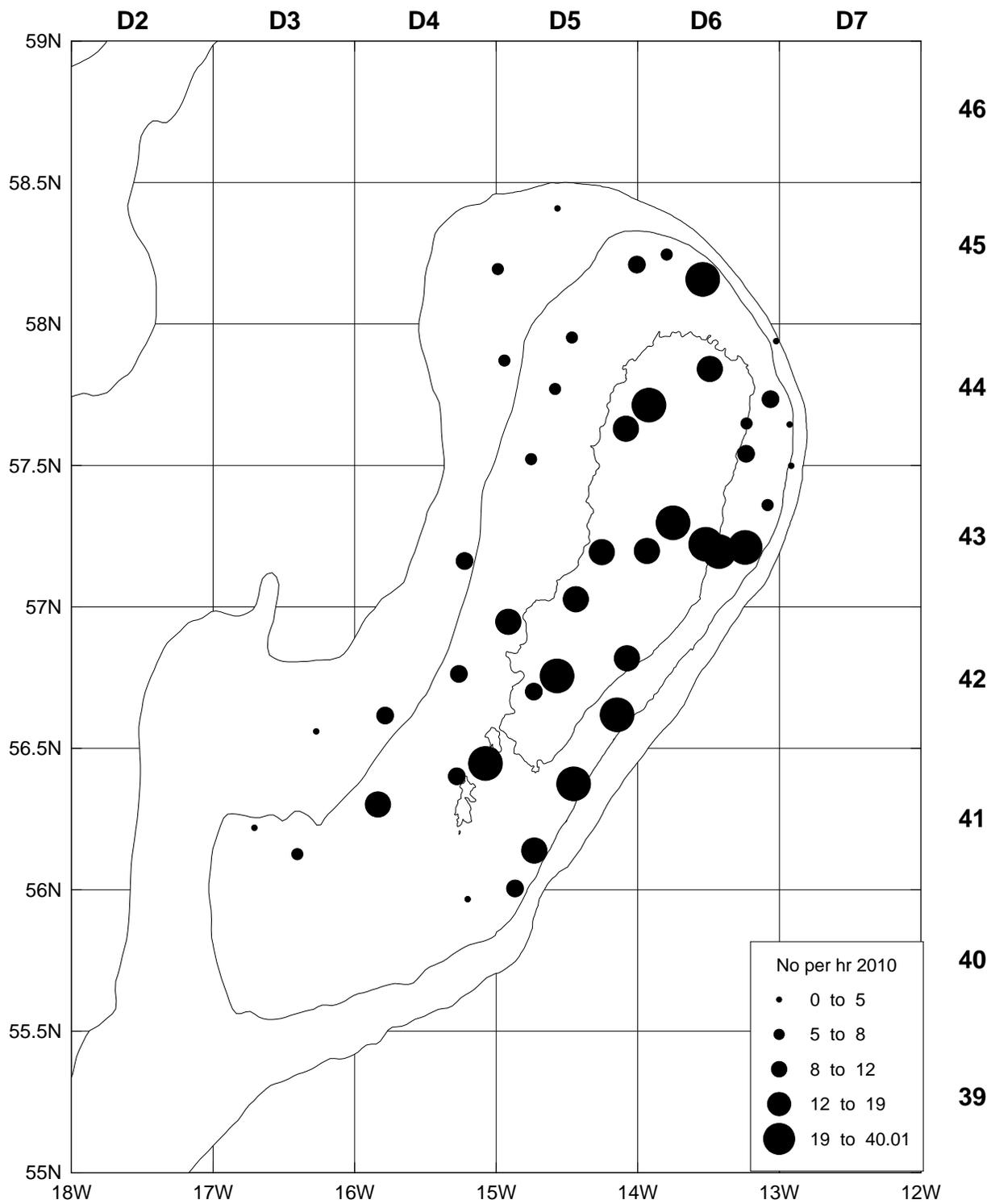


Figure 2

2010 - Angler weight (kgs) per hour

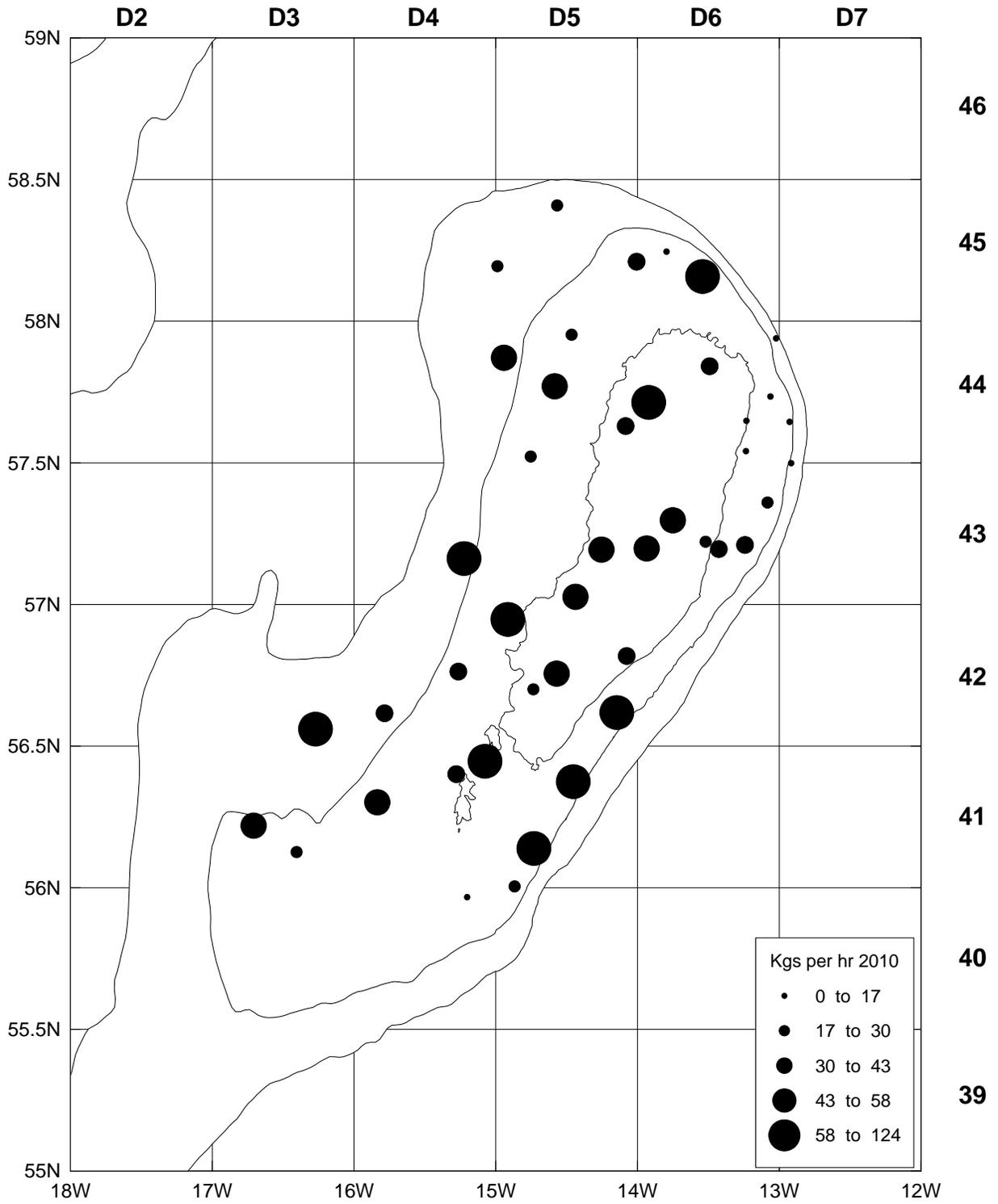


Figure 3

2010 Trawl Station Positions

