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FRV *Scotia*

Cruise 0814S

Report

28 June – 17 July 2014

Ports

Departure: Aberdeen, 28 June

Half-landing: Lerwick, 7 July

Arrival and unloading: Aberdeen, 17 July

In setting the cruise programme and specific objectives, etc the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Lab Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the cruise with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Cruise Report, to I Gibb and the Cruise Summary Report (old ROSCOP form) to M Geldart, within four weeks of a cruise ending. In the case of the Cruise Summary Report a nil return is required, if appropriate

Personnel

P Copland	(Scientist In Charge)
S Lusseau	(SIC shadowing) (1- 17 th July)
J Hunter	
M Inglis	
L Ritchie	
M Stewart	(Part 1)
J Rasmussen	(Part 1)
J Wilson	(MSc student, University of Aberdeen, Part 1)
M O'Malley	(Part 2)
R Catarino	(Part 2)
R G-Mules	(Part 2)

Estimated days by project: 20 days – RV1406 (20253)

Sampling Gear

Midwater trawl PT160 x 3.

Multisampling pelagic cod-end with one fine mesh cod-end.

Seabird 911 CTD

1 metre vertical plankton sampling net 350µm mesh

Objectives

- To conduct an acoustic survey to estimate the abundance and distribution of herring in the north western North Sea and north of Scotland between 58°30'-62°N and from the shelf edge to 2°E, excluding Faroese waters.
- To obtain biological samples for echosounder trace identification using a pelagic trawl.
- To obtain samples of herring for biological analysis, including age, length, weight, sex, maturity and ichthyophonus infection.
- To obtain hydrographic data for comparison with the horizontal and vertical distribution of herring.
- To obtain dry weight estimates of macro zooplankton biomass throughout the study area for comparison with acoustically derived plankton biomass estimates and observed herring distribution.

Narrative

All fishing gear and scientific equipment was loaded onto the vessel in Aberdeen between 25th and 27th of June. Marine Scotland staff fitted acoustic transducers for control of the multisampler net to the drop keel prior to sailing. MRV Scotia departed Aberdeen at 1100 on 28th June at 1100 and made passage for Scapa Flow, Orkney Islands. A trial deployment of fishing gear took place en route as requested by the fishing master.

After calibration of the drop keel mounted acoustic transducers in Scapa Flow, MRV Scotia made her way to the westerly end of the 1st transect, off the Pentland Firth, and the survey commenced at 0900 on 29th June. Transecting continued with opportunistic fishing tows being made as necessary to obtain biological samples until 2000 on 1st July when a port call was made into Kirkwall to collect S. Lusseau by small boat. Collection of hydrographic and plankton samples also took place in each ICES rectangle throughout the 1st half of the survey.

After a second calibration of the acoustic transducers at the North end of Bressay on the night of 6th July, MRV Scotia made her way into Lerwick at 0900 on 7th July for the mid cruise break. A scientific crew change took place with R. G-Mules, R Catarino and M O'Malley joining the vessel and M Stewart, J Rasmussen and J Wilson leaving. A spare PT160 fishing net was collected in Lerwick during the port call.

MRV Scotia departed Lerwick at 0900 on the 8th of July and restarted the survey at 1115 off of Fetlar. Fishing and transecting continued until 12th July when an unscheduled small boat transfer of a member of the ships crew took place into Scalloway. A second scheduled small boat transfer of a crew member took place into Stromness on the 15th of July.

MRV Scotia finished the survey at 1253 on the 16th July making passage for Aberdeen where she arrived at 0700 on the 17th July. Unloading took place of all fishing and scientific equipment after which all staff left the vessel.

Results

A total of 42 pelagic trawl hauls took place during the survey of which 25 produced herring in adequate numbers to be used in the analysis. In addition 2 hauls were sampled using the

WESTHERR protocol. In general, fishing operations were very successful throughout the survey with only one net suffering damage.

Only one deployment of the multisampler was made during the survey. The survey did note changes in the distribution and appearance of herring schools with a number of larger schools being observed but less scattered marks than last year. The presence of species such as Norway Pout, sprat and juvenile gadoids were noted in increased numbers from those observed in previous surveys, particularly in the North West and Western areas. This is likely to cause some problems with species allocation to acoustic traces during analysis as traces from these species are very difficult to distinguish from the scattered herring marks normally seen.

Approximately 6500 herring were sampled for length frequency during the survey with 2198 of those being further sampled to provide, weight, sex, maturity and feeding information. 240 fish were sampled using the WESTHER protocol which includes obtaining images to examine body morphology. Ichthyophonous was detected in only 7 fish found in 6 hauls during the survey.

Due to time constraints it was necessary to curtail some of the transect legs on the western side of the survey area. However, adequate acoustic coverage was provided by the accompanying charter vessel, FV Sunbeam, in these areas. Figure 1 shows the actual survey track and trawl haul locations.

A total of 35 vertical hydro dips were carried out and 32 dips for collection of plankton samples during the survey (Figure 2). Time constraints did not allow samples to be collected in each ICES rectangle as had been possible in previous surveys and sampling was reduced in the Western areas. The vessel mounted thermosalinograph was run continuously during the entire cruise to provide surface temperature, salinity and fluorescence information.

The vessels PCO2 system was monitored throughout the cruise with 5 calibration samples in support of the Ocean Acidification Programme being collected.

For the first time the electronic measuring boards were used throughout the cruise to collect data from the trawl hauls and enter it directly into the FSS data base. Consultation between the EDC system and fish house manager and the data users has resulted in the provision of a very comprehensive suite of data collection and reporting utilities being made available for pelagic surveys.

Normal contact was maintained with the Marine Laboratory. Radio and e.mail contact was maintained with the other vessels taking part in the coordinated survey.

Seen in draft D. Smith (Captain) 16/07/2014

Figure 1: Survey track Scotia 0814S. Black triangles represent trawl positions.

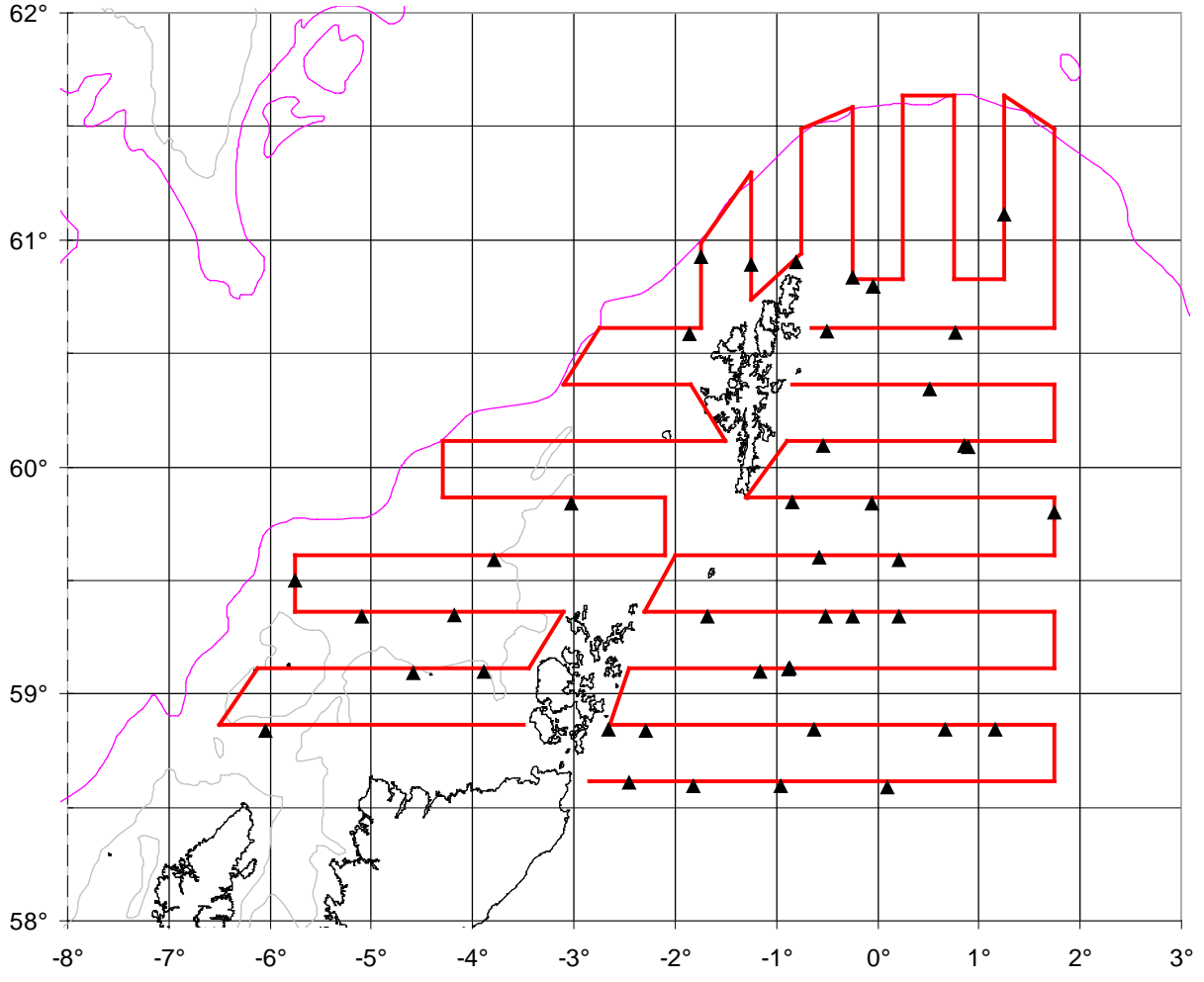


Figure 2: Survey track Scotia 0814S. Black squares represent hydro stations Scotia 0814S.

