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FRV *Scotia*

Cruise 0909S

REPORT

28 June - 16 July 2009

Ports

Departure: Aberdeen, 28 June

Half-landing: Lerwick, 6 July

Unloading: Aberdeen, 16 July

Personnel

P Copland	SIC
S Keltz	
O Goudie	
R Catarino	
J Stewart	Observer, SPFA
F McIntyre	Student, Aberdeen University
J Hunter	(Part 1)
C Main	(Part 1)
B Mclver	(Part 1)
P Fernandes	(Part 2)
C Hall	(Part 2)
D Kaminski	(Part 2)

Fishing Gear

Midwater trawl PT160 x 3.

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

OCEAN sampler oceanographic sampling vehicle.

Project Name: RV0906

Project Number: 10667

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 4°W 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, ichthyophonous infection and fat content.

- To obtain hydrographic data for comparison with the horizontal and vertical distribution of herring.
- To obtain plankton samples to map the distribution and abundance of zooplankton.

Narrative

All gear was loaded in Aberdeen between 24-26 June. *Scotia* departed at 0900hrs on 28 June. A short meeting was held with all scientists to explain the objectives of the survey, to describe general operating procedures and discuss risk assessments for tasks. Deployments of the PT160 pelagic trawl with multicodend sampler and the OCEAN sampler were conducted en route to Scapa Flow to familiarise staff with the handling of the equipment.

Calibration of the hull mounted transducers took place in Scapa Flow between 2330hrs on 28 June and 0600hrs on 29 June. *Scotia* then made her way to East of the Pentland Firth to the first survey transect beginning the survey at 1000hrs. Transects extended as far east as 1°45E, and as far as safely possible to the west, on approaching the coast. A large haul of herring, estimated at 2 tonnes, caused the loss of one of the multisampler codends on 1 July as it was being recovered aboard.

A half landing took place on 6 July in Lerwick in accordance with the rest provision for the Working Time Directive and to allow for the exchange of personnel (J Hunter, B McIver and C Main left and P Fernandes, C Hall and D Kaminski joined the vessel). The *Scotia* crew fabricated another cod end for the multi sampler during the half landing using material on board and netting sent from Aberdeen. They also added strengthening lines to each cod end to avoid a repetition of the net failure.

Scotia resumed surveying at 1000hrs on 7 July. Time was lost due to poor weather on the 9 July when a strong Northerly gale forced *Scotia* to heave to for approx 10 hours until the gale had subsided. Recurring problems with both netsonde systems and the starboard netsonde winch caused the loss of a small amount of time during the cruise but repairs to both systems proved effective and they worked well for the remainder of the trip

The survey was completed on 15 July at around 0920hrs. A second calibration was carried out in Scapa Flow on 15 July, which confirmed the first calibration results for the transducers. *Scotia* returned to Aberdeen on the morning of 16 July.

Results

Despite the time lost to poor weather and equipment failure, the survey was completed successfully. However, the original survey track was modified for the second half of the cruise to accommodate for lost time. The total mileage surveyed was approximately 2400 nmiles with 860 acoustic log intervals recorded, providing approximately 30GB of data (*.raw files). All acoustic data were scrutinised on board to assign species allocation to fish traces. Fishing exercises were generally successful; A total of 37 trawl hauls were carried out, of which 7 were late night tows targeting hake, although these proved largely unproductive. 12 trawls in total contained more than 30 herring. A number of trawl hauls were directed at identifying echosounder traces from aggregations found to be juvenile gadoids, Norway Pout and Euphausiids. Herring traces were very sparse in the second half of the cruise in particular.

Despite fishing very close to the bottom it proved difficult to catch herring from the small marks seen on the ground.

In addition to length frequency data, a total of 2825 herring were measured and 911 sampled for weight, sex, maturity and otoliths. Most of these were also sampled for fat content. All otoliths collected were aged on board.

A total of 31 deployments of the OCEAN sampler were made. In addition to collection of 104 individual water and 245 plankton samples at discrete depths, integrated whole water column plankton samples were collected using pup nets. Hydrographic data were collected continuously from a CTD mounted on the OCEAN sampler during deployments as well as from the thermosalinograph which ran throughout the cruise.

Submitted:
P Copland
29 July 2009

Approved:
I Gibb
19 February 2010

As seen in draft
R Jowett