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FRV *Scotia*

Cruise 0808S

REPORT

28 June - 18 July 2008

Ports

Departure: Aberdeen, 28 June
Half-landing: Lerwick, approx. 7 July
Arrival and unloading: Aberdeen, 18 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 FRS' Working Time Policy (which is published on the Intranet). In addition, the Scientist-in-Charge must formally review the risk assessments for the cruise with staff on-board before work is commenced.**

Personnel

Phil Copland	(In Charge)
Paul Fernandes	(Part 1 28/6-7/7/08)
Jim Hunter	
Stephen Keltz	
Owen Goudie	
Rui Catarino	
Andrzej Jaworski	(Part 1 28/6-7/7/08)
David Lee	(Part 2 7/7-18/7/08)
Sascha Faessler	Student, FRS
Jenny Hochmuth	Student, Aberdeen University

Fishing Gear

Midwater trawl PT160 x 3.
Multisampling pelagic cod-end with one fine mesh cod-end.
ARIES oceanographic sampling vehicle.

Project Name	RV0806
Project Number	10591

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 58º30'-62ºN and 4ºW to

2ºE, 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, ichthyophonus 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.
- To obtain in-situ target strength data on herring using the autonomous echosounder mounted in a drop frame.

Narrative

All gear was loaded in Aberdeen on 26 & 27th June. Scientific staff joined the vessel at 0800 BST on 28 June and departed at 0915 on the same day. 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. The 4 hour training period for vessel crew was carried out en route to Scapa Flow. Deployments of the PT160 pelagic trawl with multicodend sampler and ARIES sampler were conducted, during this period, to familiarise staff with the handling of the equipment. Calibration of the hull mounted transducers took place in Scapa Flow between 2330 on 28 June and 0600 on 29 June. Calibration of the autonomous echosounder transducers continued until 1100 after which time Scotia made her way to East of the Pentland Firth to the first survey transect. Transects extended as far east as 1° 45E, and as far as safely possible to the west, on approaching the coast.
On the afternoon of the 6 July, Scotia assisted by standing by and providing pumping equipment to a diver's cruise vessel which had asked for coast guard assistance in the vicinity of Sumburgh head. Scotia stood by for approximately 4 hours until released by the coast guard.
A half landing took place on 7 July in Lerwick in accordance with rest provision for the Working Time Directive and to allow for the exchange of personnel (P Fernandes and Andrzej Jaworski left and David Lee joined). The vessel resumed surveying at 1100 on 8 July. West of the Shetland Isles, transects extended from the coast to the shelf edge or longitude 4° west. The survey was completed on 17 July at around 0500. All four hull transducers were calibrated successfully in Scapa Flow between 0800 and 1400 on 17th July. Scotia returned to Aberdeen on the morning of 18th July.

Results

The survey was completed successfully. However, time was lost due to poor weather on the 15 July with a strong Westerly gale significantly reducing the quality of the acoustic data collected on a transect from Sumburgh Head westwards. However, the charter vessel engaged in the West Coast Herring Acoustic Survey, Chris Andra, was able to survey approximately one third of the transect before the weather deteriorated. Two belly panels were damaged on one PT160 trawl in the early part of the cruise. A large haul of herring, estimated at 9 tonnes, caused the loss of one of the multisampler codends as it was being recovered aboard. No other damage to acoustic transducers, ARIES or the drop frame echosounder was sustained. The

total mileage surveyed was approximately 2600 n.mi. with 980 acoustic log intervals recorded, providing approximately 38 GB of data (*.raw files). All acoustic data were scrutinised and saved as daily Echoview (*.EV) files. A second calibration was carried out in Scapa Flow on 17 July, which confirmed the first calibration results for the transducers. Fishing exercises were generally successful; 29 trawl hauls were carried out, of which 18 contained more than 30 herring. In addition to length frequency data, a total of 5152 herring were measured and 1631 sampled for weight, sex, maturity and otoliths. Most of these were also sampled for fat content.

The distribution of fish appeared to differ from the 2007 survey, with many herring schools being detected along the 0 degree line for most of the length of Shetland. Haul 215 off Fetlar, (60 35N, 0 14E), revealed 7 fish from 94 were infected with Ichthyophonus. As in previous surveys very few herring were detected in the northern part of the area. Most schools in the western area were relatively small and isolated, as well as difficult to catch, although there was a concentration of larger schools seen west of Eysh's Point. (60 35N, 1 63W). Some herring schools were of the typical tall pillar shape, but most were detected as small schools very close to the seabed. A full stock estimate for herring and a survey report will be prepared shortly.

A total of 34 deployments of the ARIES sampler were made, which collected integrated whole water column plankton samples using a 200 micron cod end. Oceanographic data (sea salinity and temperature) were collected from a CTD mounted on the ARIES vehicle. A truncated CTD data set was transmitted daily, by e.mail, to the BODC.

Although it collected valuable data on the majority of hauls, the multisampler exhibited a number of faults during the survey. These were largely corrected on board during the cruise.

The autonomous echosounder system worked very reliably during the survey. Six deployments were made of the system in locations where herring shoals had been identified by trawl sampling.

P. Copland

18/07/08

As seen in draft
R. Jowett