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FRV *Scotia*

Cruise 1000S

REPORT

5-26 July 2000

Personnel

| | |
|----------------------|---|
| P Fernandes | (In charge) |
| A P Robb | |
| F Armstrong | |
| M Mathewson | |
| M Harding | |
| F Gerlotto | (5-15 July) Visitor (IRD, France) |
| E Josse | (5-15 July) Visitor (IRD, France) |
| C M Abreu de Freitas | (5-15 July) Visitor (Aberdeen University) |
| K L Gunstone | (5-15 July) Visitor (Aberdeen University) |
| E Jones | (15-26 July) |

Objectives

1. To participate in an ICES coordinated acoustic and midwater trawling survey in the north western North Sea and north of Scotland between 58° to 61°30'N and 4°W to 2°E, excluding Norwegian and Faroese waters.
2. To obtain samples of herring for biological analysis, including age, length, weight, sex, maturity and ichthyophonous infection.
3. To obtain hydrographic data for comparison with the horizontal and vertical distribution of herring.
4. To carry out an acoustic inter-calibration with the Norwegian research vessel *GO Sars*.

Out-turn costs per project: 22 days MF01t

Narrative

Installation and testing of the equipment was carried out from 3-4 July inclusive whilst the vessel was alongside Aberdeen harbour. FRV *Scotia* departed Aberdeen at 0800 GMT on Wednesday 5 July. The vessel then proceeded to Scapa Flow. The pelagic net was deployed en-route to familiarise some new members of the crew with trawling procedures. The vessel arrived in Scapa Flow at 2245 GMT. Calibration of the 38 and 120 kHz EK500 transducers then took place on Wednesday evening continuing into Thursday morning.

Following calibration the vessel proceeded to the start point of the survey arriving at 1000 GMT on Thursday morning. The survey then proceeded northwards as planned, running transects along lines of latitude (Fig 1). Poor weather was experienced on 10 and 11 July which slowed progress but did not prevent the collection of good quality acoustic data. The vessel docked into Lerwick harbour late morning on Saturday 15 July for a half landing and exchange of personnel. F Gerlotto, E Josse, K Gunstone and C de Freitas

departed at this point and E Jones joined the vessel. A meeting with scientific staff of the Norwegian research vessel *GO Sars* was conducted on Saturday afternoon to coordinate the inter-calibration exercise.

The vessel left Lerwick on Sunday 16 July at 0830 GMT. An intercalibration exercise was then conducted with the *GO Sars* on the first transect out of Lerwick. This was completed at 1600 GMT, whereupon both vessels continued with their respective surveys. The survey continued northwards as far as 61°30'N along the eastern side of the Shetland Islands, and then progressed southwards along the western side. The survey was completed on Tuesday 25 July at 1215 GMT. The vessel then proceeded to Scapa Flow to conduct a calibration of the 38 kHz EK500 transducer on Tuesday afternoon. This exercise was complete by 1900 GMT. The vessel then met up with the MFV *Christina S* to conduct another intercalibration exercise whilst on passage to Aberdeen.

Results

1. The survey was completed on schedule with all transects sampled as planned (Fig. 1) giving a total of 1,190 acoustic sampling units (2,975 nmi). Over 7 GB of Acoustic data were collected at four frequencies (18, 38, 120 and 200 kHz) and stored to PC and CD. The 38 and 120 kHz transducers were successfully calibrated at the start of the survey. The primary frequency (38 kHz) was successfully calibrated once again at the end; performance deviation was less than 0.05 dB (consistent to within 2%).
2. Trawling operations were very successful, particularly with regard to the deployment and recovery of the netsonde cable which was not damaged on any occasion. A total of 45 trawl hauls were carried out: 43 with the pelagic trawl (PT160) and two with the demersal trawl (BT101m). Herring were caught in 37 hauls and in significant quantities (>100 individuals) in 33 hauls. A total of 10,329 herring were measured for length and over 3400 of these were sampled for weight, sex, maturity, and otoliths (for age). Herring were examined for evidence of ichthyophonous infection; provisional estimates suggest that the overall level of infection is less than 5%.
3. Young herring (length <21 cm) were detected in large quantities north of the Moray Firth in the southern portion of the surveyed area. Concentrations of larger herring were detected further offshore in the southern portion of the survey, in the central portion around the 110 miles holes area, off the north western coast of Shetland, and off the east coast of Shetland. A significant number and size of pelagic traces attributed to haddock were detected. A full stock estimate for herring and survey report will be prepared shortly.
4. A total of 47 CTD casts and reversing water bottle samples were taken to map the hydrography of the region and for calibration of the CTD probe: where possible, at least one cast was taken in each ICES statistical rectangle sampled. The ship's thermosalinograph was operated continuously throughout the cruise giving sea surface temperature and salinity readings.
5. Intercalibration exercises were successfully carried out with the Norwegian RV *GO Sars* and the Scottish MFV *Christina S*. These data will be analysed at the ICES Planning Group for Herring Surveys meeting later in the year.

P G Fernandes
28 July 2000

As seen in draft: R Walton, Master, FRV *Scotia*

10/10/00

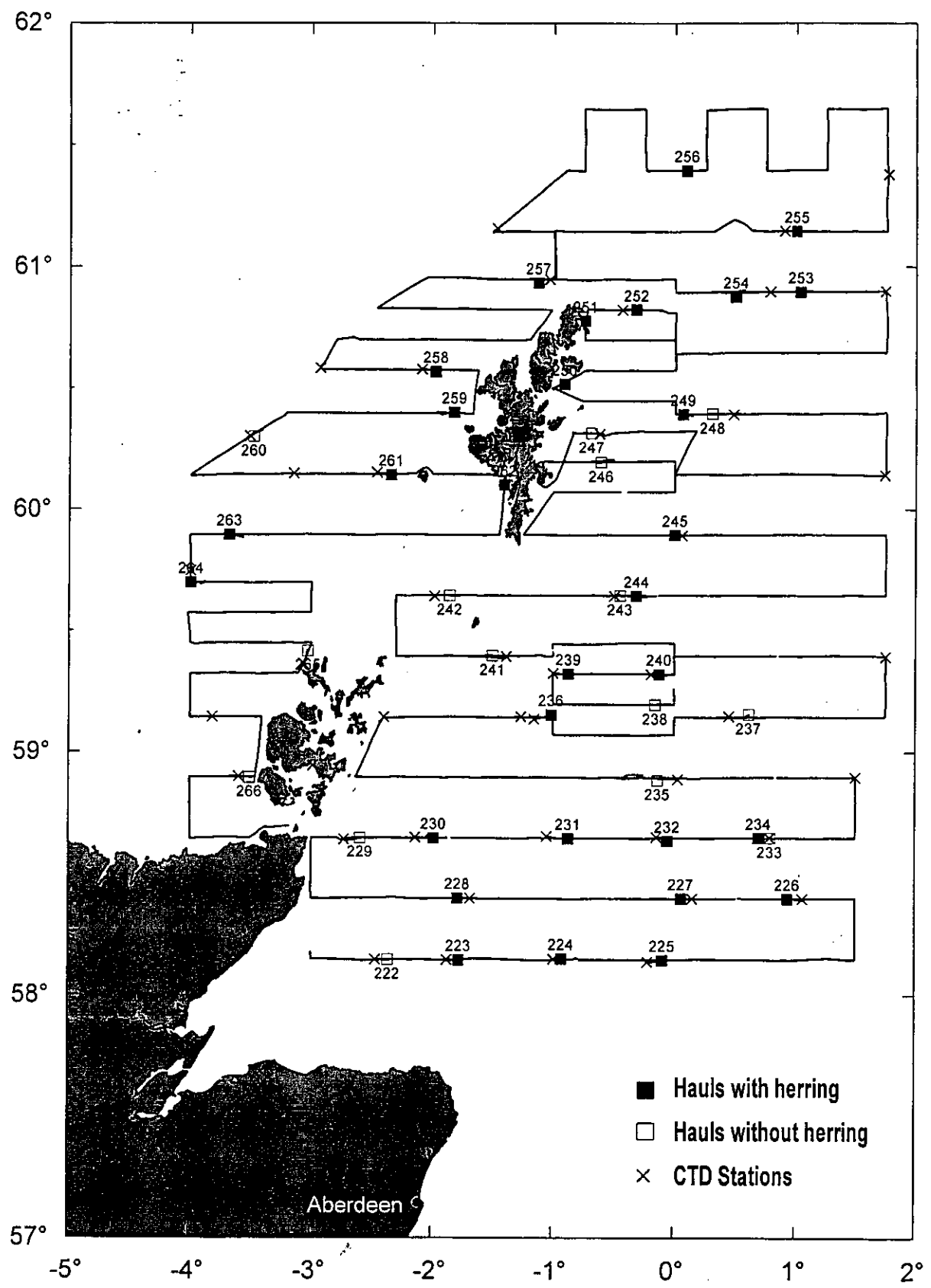


Figure 1. Cruise track and positions of trawl hauls and CTD casts for the North Sea herring acoustic survey July 2000.