

Indexed *JSR*

86

R1/12

PB

Not to be cited without prior reference to the Laboratory

FRV "Scotia"  
Cruise 7/86

REPORT

11-31 July 1986

Personnel

E J Simmonds	PSO
S T Forbes	SSO
J Dunn	HSO
R B Mitchell	HSO
P W Rankine	SO
J Staples (Miss)	ASO
I Gibb	ASO
T V Taylor	ASO
M J D Mowat	SSO

Objectives

- 1 To participate in an ICES coordinated acoustic survey of herring in the north western North Sea and north of Scotland.
- 2 To obtain samples of herring for biological analysis.
- 3 To obtain target strength data on herring using a dual beam system.
- 4 To test multidepth plankton sampling systems.
- 5 To collect water samples for radio-caesium monitoring.

Narrative

"Scotia" sailed from Aberdeen at 1150 on 11 July and made a course for Inganess Bay in Orkney. A calibration of survey and dual beam sounders was carried out on the morning of 12 July. The acoustic survey began to the east of Orkney at 59°N and the area to the north east of Shetland and west of 0° was surveyed until 17 July. The following 3 days were spent surveying to the west of Shetland, south to Foula. The survey was conducted from 0200 to 2200 GMT and the remaining 4 hours were spent carrying out trials of a multidepth plankton sampler and tests of a large volume pumping plankton sampler. "Scotia" docked at Lerwick for a half-landing at 1000 on 21 July, sailed at 0900 the following day.

A second calibration of equipment was carried out on 22 July at Gulberwick bay, south of Lerwick. The survey was resumed south of Foula and the area to the west of Orkney east of 4° west was covered in 3 days to 24 July. "Scotia" made a passage through the Pentland Firth and resumed the survey south of 59°N and west of 0° for the 6 days to 30 July and then docked at Aberdeen at 0800.

Results

1 Acoustic and Midwater Trawling Survey

The cruise track and midwater haul positions are shown on the attached chart. Concentrations of herring were found east of Shetland, south of Foula, west of Orkney, and south of Fair Isle and east of Scottish main land 30 miles offshore. A total of

25 hauls were carried out, herring being caught in 19 of them. Sixteen hauls were used for weight samples providing 800 fish weights. Fifteen hauls were sampled for age giving 1681 otoliths all of which were read on board. Eleven hauls were sampled for vertebral number (V3). Large herring were caught east of Shetland and west of Orkney. Small herring were found nearer to the shore east of the Scottish mainland with large fish further offshore.

Other species included mackerel north of Orkney and catches of 0 group whiting east of Shetland and 0 group pout north of Foula. Older Pout and whiting were found only in very small quantities.

## 2 Target strength measurement on herring

The dual beam system was deployed 13 times following successful identification of other traces. A total of 14 hours of data were collected, analysis will be completed following this cruise.

## 3 Tests of Plankton Samplers

The Multidepth Plankton Sampler was deployed on 20 occasions. Initial problems were identified and rectified. A fully functional system was attained during the final 7 hauls. Plankton samples from these hauls were obtained and will be analysed.

The Large Volume Pumping System was assembled and tested. After initial problems, the system was calibrated and a test sampling of 6981 gallons of sea water was successfully pumped in a heavy swell. Hose deployment and retrieval concepts proved to be safe, successful and practical.

4 Two samples of water were collected for radio-caesium monitoring.

5 During the cruise development was carried out on the ship's display and communication system for navigational data. The programming of the Chameleon controller was continued to incorporate the enhanced requirements and to fix several minor deficiencies. It is envisaged that after a few hardware modifications have been made, that the system will be fully operational in time for the next cruise. Presentation of steering waypoints and information on the Decca chains is now available on the displays. A test program has been run to verify the presentation of data to a BBC micro computer. A preliminary version of the user documentation is now available.

E J Simmonds  
11 August 1986

Seen in draft: A E McInnes

