

R1/12

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FRV *Scotia*

Cruise 0204S

REPORT

20 January – 14 February 2004

Personnel

- K A Coull (In charge)
- A P Robb
- E Armstrong
- I Gibb
- F Burns (Part II)
- C Millar
- B Ward
- R Watret
- J Mair
- C Sellar
- A Henly (Visitor – Part I)

Objective

1. To take part in the International Bottom Trawl Survey in the North Sea.
2. To collect samples of cod, haddock and whiting for analysis of reproductive development, genetics and otolith chemistry.
3. To tag cod in Viking Bank and Papa Bank for investigations of their movements.

Out-turn days per project: 21 days – MF01tb, 5 days – MF0462

Narrative

Scotia sailed from Aberdeen at 1430 on 20 January after an initial delay in order to allow time for repair to the Gyro compass to be completed. With trawling activities having to be restricted to the daylight period, the vessel completed 8 Methot Net tows off the east coast of Scotland during the first night. Trawling commenced at daylight on 21 January at the trawling station in the Bell Rock area. Favourable weather conditions allowed the vessel to proceed in an easterly direction, with a routine of three trawl hauls being completed each day and a series of Methot Net tows being done during the nights. This routine continued until the evening of 27 January when the vessel broke off from Objective 1 work (at 46F1) to start on Objective 3 work at stations in the region of the Beryl oilfield (48F1). With poor weather conditions restricting operations to a single trawl on the morning of 28 January, *Scotia* steamed further north to the Bergen Bank area (49F7) where work resumed at 1900 the same day. A further 14 trawl hauls were completed before weather intervened on the evening of 30 January to prevent any further work. *Scotia* then headed for Lerwick, docking at 0800 on 31 January for the mid-cruise break.

Scotia sailed from Lerwick at 0800 on 1 February and resumed work on Objective 1 at stations east of Shetland. Stations to the north of Shetland were completed before *Scotia* had to call into Scalloway on the morning of 3 February to permit a crew change. Two further hauls, south west of Shetland were completed before severe weather forced *Scotia* to the more sheltered waters east of Orkney. After completing a series of trawl and Methot Net stations in this area, the vessel then returned to the south west of Foula to complete the coverage of stations in the northern part of the survey area. With this work completed in the late afternoon of 5 February, the fishing gear was then changed in order to carry out work in the Papa Bank area in relation to Objective 3. Severe weather conditions on the morning of 7 February prevented any further work in this area. With continuing gales forecast, the vessel proceeded to the Moray Firth area where several Methot Net tows and four trawls were completed. Strong winds meant that no CTD or plankton sampling could be done at the trawling locations. An improvement in the weather conditions allowed *Scotia* to move offshore on the evening of 8 February. The vessel then proceeded to carry out trawl and Methot Net stations in the central part of the survey area, completing the last trawl on the evening of 12 February. The vessel then moved into the Moray Firth to complete the CTD, Methot Net and plankton stations that had not been done earlier due to severe weather conditions.

Scotia docked in Aberdeen at 2100 on 13 February and unloading took place the following morning.

Results

Trawling

The GOV was used throughout the cruise and all survey stations were sampled with a total of 50 hauls being completed. In the southern part of the survey area the ground gear consisted of the standard set of 152 mm rubber disks, but these disks were replaced with 305 mm bobbins for the stations in the northern part of the survey area. Short sweeps (60 m) were used for all tows. The scanmar system was used throughout the cruise to monitor headline height, wing spread, door spread and distance covered for each tow. Table 1 shows the preliminary indices (based on returns available at the time) for all vessels contributing to this international survey. The index is based on the numbers of fish caught per hour below a pre-defined length selected as a probable delimiter of 1+ fish. For all species other than sprat, the numbers encountered are relatively low compared to the series average.

Table 1. Preliminary Indices for Quarter 1 International Bottom Trawl Survey (All countries)

Year	Cod	Haddock	Whiting	N Pout	Herring	Sprat	Mackerel
Mean							
1980-2003	9	685	590	2997	2091	1283	59
2004	5	72	190	1038	1029	1866	17

Methot Net Sampling

A total of 112 Methot Net hauls (including calibration) were carried out in order to obtain an estimate of the numbers of pre-metamorphosing herring larvae.

Biological Sampling

Morphological measurements were taken from 175 cod. Samples of gill tissue were fixed in ethanol for genetic studies, sagittal otoliths were removed with plastic forceps for otolith

microchemistry and age analysis. Ovary samples were removed and fixed in 8% phosphate buffered formalin for reproductive studies. Ovary and liver samples were also retained in liquid nitrogen for lipid analysis. One hundred haddock were also sampled for genetic analysis from each of three areas during the cruise.

Tagging

A total of 27 hauls were conducted on Viking and Papa Bank with 20 cod >30 cm and in good condition tagged using Starr-Oddi data storage tags. Tagged fish were released in the same area as caught. Fin clips were taken from all tagged fish for genetic analysis. A minilogger attached to the trawl collected information on bottom temperature throughout each tow.

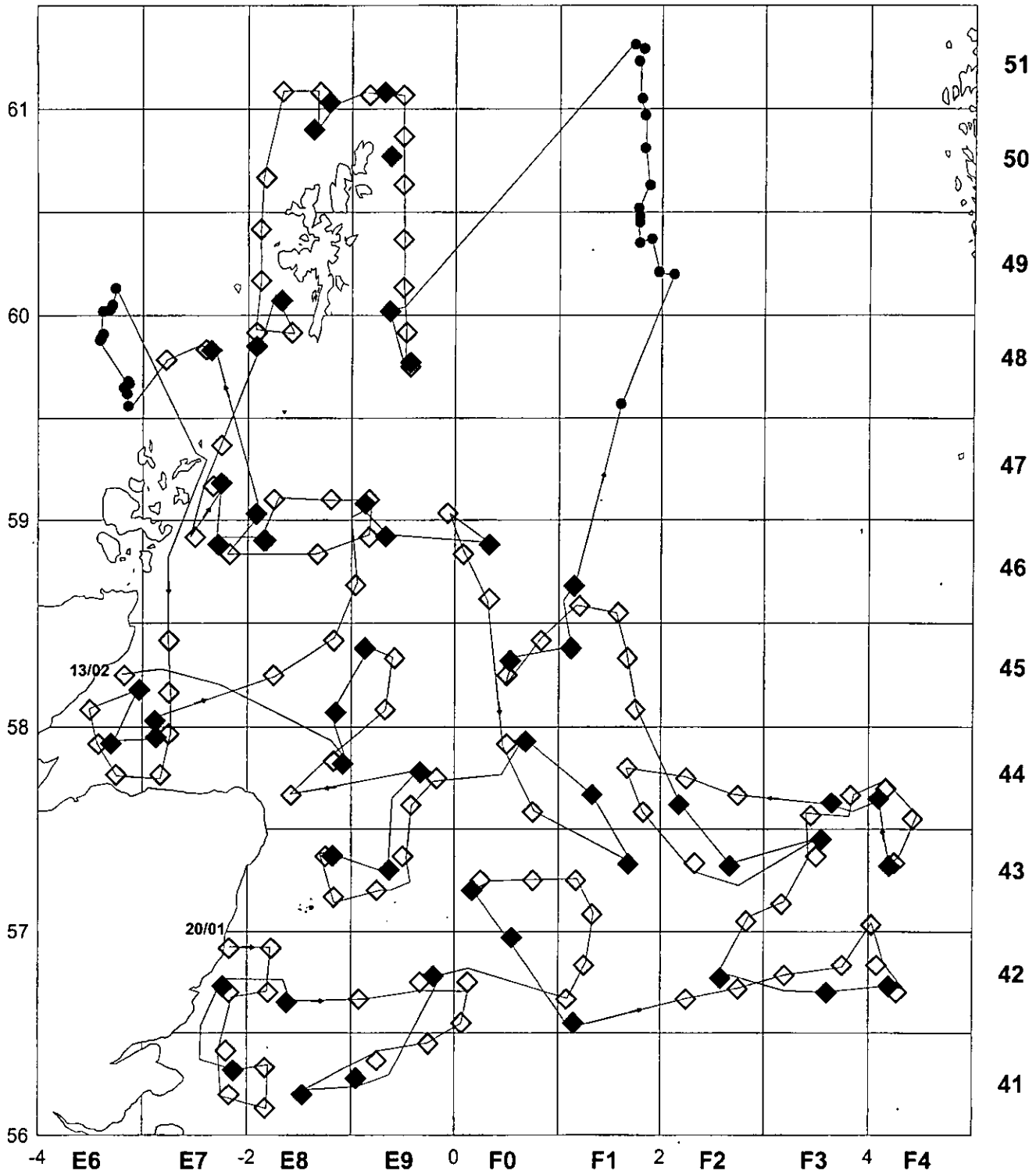
Acoustics

Throughout the survey, 80 Gigabytes of data was gathered at 4 frequencies (18, 38, 120 and 200 kHz), along with Roxann ground discrimination data. During the trawls more than one Gigabyte of EM950 multi-beam sonar data was also gathered.

K A Coull
23 April 2004

Seen in Draft: Captain Peter Barratt, OIC, *Scotia*

IBTS - Quarter 1 Survey 20 Jan - 14 Feb 2004



- ◇ Trawl Stations
- ◆ Methot Stations
- Cod Trawl Positions