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FRV *Scotia*

Cruise 1603S

REPORT

⁵
24 October – 8 November 2003

Landings

Aberdeen, 31 October 2003

Personnel

| | |
|------------|---------------------------|
| D G Reid | In charge - 1-8 November |
| E G Jones | In charge - 25-31 October |
| PJ Copland | |
| P J Barkel | |
| R Kynoch | |
| C G Davis | |
| K Peach | |
| I Penny | |
| M Burns | |
| A Tait | |

Objectives

1. To obtain quantitative information on fish populations in the mouth of the trawl, between the wings and as close to the doors as possible. The upgraded SM200 sonar mounted on the RCTV and new fibre-optic cable will be used.
2. Simultaneous video footage using the self-recording ccd cameras will be collected to give information on species identification. On some hauls a stereo-pair configuration will also be used.

Narrative

Equipment was loaded in Aberdeen between Wednesday 22 and Friday 24 October. Staff joined the vessel on Saturday 25 October and *Scotia* sailed at 1030 hours for the Southern Trench of the Moray Firth to carry out an RCTV cable test. Arriving on station at 1600 hours, bad weather prevented RCTV deployment and *Scotia* continued on to Orkney (59.2°N, 2.3°W). Work began at 0800 hours on Sunday 26 October with RCTV deployments to establish performance of the vehicle with the new cable. Due to problems with the winch counter, the cable itself was marked in 20 m intervals. Following these initial trials, fishing commenced at approximately 1600 hours. *Scotia* remained in this area and a series of half hour GOV tows were carried out using the RCTV with both the SeaBat and SM2000 multibeam to collect acoustic data on the behaviour of fish between the wings and in the mouth of the net. The stereo camera system was deployed at the taper of the net, but the quality of video footage obtained was poor due to low light levels. Light intensity profiles were made between hauls using the photomultiplier mounted on a small frame deployed using the plankton winch. On the evening of Tuesday 28 October *Scotia* steamed to

Scrabster in order to collect equipment, returning to Orkney overnight. Work continued here until 30 October, when bad weather forced *Scotia* to move to the more sheltered Helmsdale area of the Moray Firth (58.0°N, 3.3°W). Arriving on station at 1630 hours, a single tow was carried out. Due to the unsuitable catch composition for this study there was a further shift, overnight to Aberdeen Bank (56.5°N, 1.5°W). Fishing continued in this region, with four tows completed with CCD footage also obtained before *Scotia* proceeded to Aberdeen for the half-landing (1800 hours, 31 October – 1900 hours, 1 November). D Reid joined the vessel on 1 November. In a change to the original plan, A Tait stayed onboard to support the fish house work.

After the half landing *Scotia* returned to Aberdeen Bank, but poor weather prevented operations being resumed. The vessel moved north overnight into the Moray Firth (57.5°N, 2.4°W) and fishing operations started at 0700 hours on Monday 3 November. A further series of tows were made to collect acoustic data of fish distributions in the mouth and between the wings of the net over a range of light levels. Poor weather conditions curtailed fishing operations on the afternoon of both 4 and 5 November. In an attempt to obtain a representative number of tows at lower light levels, work began at 0600 hours on 6 November, with downtime in the afternoon and recommenced at 1730 hours until 2200 hours. An early start was also planned for Friday 7 November, however, a fault with the plankton winch used to deploy the light meter, delayed the start of fishing operations until 0720 hours. On completion of three more standard 30 min tows, *Scotia* proceeded to an inshore shallow fishing tow in order to collect live gadoids required for experiments in the Marine Laboratory. The opportunity was used to deploy the RCTV and make visual observations on the GOV net. Unfortunately, the grounds were much harder than expected and substantial damage was sustained to the net. Following this tow, *Scotia* steamed back to Aberdeen, arriving on the evening of 7 November.

Results

A total of 48 fishing tows were completed, all using ground gear B, in three regions; East of Orkney, Moray Firth and Aberdeen Bank. Of these, 40 were considered valid experimental tows with multibeam acoustic data collected. No useable video footage was obtained using the stereo camera system, but a single camera positioned at the taper of the net did provide video footage adequate for species identification in some cases. Out of the 40 valid tows, 27 were made during "daylight" hours and 13 during "darkness" (hauls before 0800 hours or after 1800 hours). The light intensity recorder was deployed before the first haul of the day, between successive hauls thereafter and after the final tow. Fifty dips were made in total. The RCTV was deployed in a number of different locations:

- 13 tows with the RCTV above the groundgear
- 15 tows with the RCTV centrally over the wings
- 6 tows with the RCTV moving between the wings and the ground gear
- 6 tows with the RCTV positioned to one side above a single wing

The acoustic and video data collected builds on those collected in previous cruises and will be used to study the distribution and behaviour of fish populations between the wings and entering the net mouth in order to assess the efficiency of the GOV survey net for catching different species. Of particular interest on this cruise was the apparent behavioural differences observed at different light levels. The master and crew of the *Scotia* should be complimented for their co-operation and hard work during this cruise.

Summary

Total number of hauls – 48

Time lost to bad weather – approximately two days

Time lost due to equipment failure – approximately ½ day (winch problems)

Emma Jones
6 February 2004