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Not to be cited without prior reference to the Marine Laboratory, Aberdeen

FRV *Scotia*

Cruise 1602S

REPORT

30 October - 8 November 2002

Landings

Buckie – 3 November

Personnel

D G Reid	(In charge)
E G Jones	
R Kynoch	
P J Barkel	
M Burns	
N S Collie	(29 October – 3 November)
K Peach	(3-8 November)
C G Davis	
I Penny	
G Thain	Visitor (30 October - 3 November)

Objectives

1. To assess the feasibility of twin trawling with GOV nets on *Scotia*.

2. To obtain quantitative information on fish populations in the mouth of the trawl and between the wings using the Reson Seabat mounted on the RCTV along with simultaneous video footage using the SIT and ccd cameras to give information on species identification.

3. To use the Seabat to make an assessment of possible areas where fish escapes are high in the GOV trawl.

Out-turn Days Per Project: MF0662 - 10 days

Narrative

Equipment was loaded in Aberdeen between 26–29 October. Staff joined the vessel on Wednesday 30 October and *Scotia* sailed at c 1030 hours. The first period (up to 3 November) was dedicated to twin rig trials. These were carried out in the inner part of the Moray Firth. Initial trials were conducted using twinned BT101 bottom trawls. These took place on 30 and 31 October and on 1 November. Trials started with simple shooting of the gear without clump and doors. Once this was perfected the doors and clump were included and finally the complete rig was deployed on the seabed for a full instrumented (Scanmar and load cells) tow. All trials were completely successful. On 2 November the BT101 trawls were replaced with GOVs, and again full trials were carried out with instrumentation and the

gear on the seabed. These trials were also fully successful. A number of difficulties were encountered due to the vessel not being completely set up for twin rigging. These were:

- Lack of hydraulic pillars in the centre at the top of the ramp for keeping the nets apart.
- Lack of central flanges on the split drums, again for keeping the sides of each net apart.
- The unsuitability of the Methot net winch for the task – no spooling gear leading to poor metering, leading to the impossibility of using the auto trawl system for twin trawling.

Otherwise the trials were an unqualified success. This was in no small degree due to the support and advice provided by Mr G Thain and the willingness and adaptability of the officers and crew of the *Scotia*.

The RCTV – Seabat system was tested successfully in the water during the first half of the trip. The system was tested using the ship power supply but again the electrical noise under load required us to use the mobile generator.

After the staff exchange by small boat at Buckie on the evening of 3 November, the vessel steamed to the same trawling area used in the trials in May (59.2'N, 2.3'W). Initial trials on 4 November appeared to go well. Some problems were encountered with the generator, but these were sorted by the Chief Engineer. The initial tows were carried out using a single GOV in standard rig and using ground gear B. The spooling on the TV winch was a cause for concern, as the cable was winding on extremely raggedly, with little possibility of remedial action. The bulk of the activity on 4 November was spent fine tuning the deployment of the RCTV, with only the last three tows yielding useable data. On 5 November, the trials continued, however, it became immediately apparent that there were problems in the communication links for both the TV and sonar. Both these use coaxial cables, and these are particularly susceptible to damage from poor spooling. The equipment was thoroughly checked but problems persisted and worsened, to the point where no further work could be done with the RCTV.

For the remainder of the trip, the time was used to study the performance of the GOV in single configuration for comparison to the twin rig. We also took the opportunity to examine the performance of the gear at different speeds and under different tidal scenarios. This was done using two of the GOVs on board, a new net and an older repaired version. These trials yielded useful data, which will be analysed in detail later.

Scotia returned and docked in Aberdeen harbour at 0100 hours on Friday 8 November.

Results

The trials on twin rigging (Objective 1) were completely successful. Improvements to the vessel set-up were identified and all problems with conducting this difficult operation were overcome.

Due to the problems with the spooling arrangements on the TV winch, it was not possible to complete objectives 2 and 3.

The time released as a result of this was used for detailed monitoring of the performance of the GOV in single mode. A total of eight tows were completed using two different nets. Each trial was carried out for 15 minute blocks at 3.5, 4 and 4.5 knots both with and against the tide. The impact on performance of slight modifications to the footrope length, was

examined and this revealed how sensitive the gear was to minor notifications. Full data from Scanmar and load cells was recorded as well as tide and weather data. These will be analysed and reported on later

Twin Rigging – 6 complete tows

Shooting and hauling techniques were developed as far as possible with existing deck lay-out.
Two fully instrumented tows were completed with Scanmar and load cells on the BT101s.
Four fully instrumented tows were completed with Scanmar and load cells on the GOVs.

RCTV-Seabat work – 4 standard tows

Only achieved 4 useable tows with the RCTV and Seabat out of 1.5 days work, including 2 night time tows.

Single GOV Performance – 7 complete tows

Three fully instrumented tows on a standard GOV net
Three fully instrumented tows on a new GOV net
One fully instrumented tow on a standard GOV net with lower bridle length increased

Data indicated fluctuations with how GOV fished, ie, sometimes towing off headline, sometimes off groundgear, as well as tendency to lift off the bottom at standard speeds when towed into tides of 1.5 knots or greater. Lengthening the lower bridles did ensure greater load on the headline, which should improve bottom contact.

Total number of hauls – 17
Time lost to bad weather – approximately one day
Time lost due to equipment failure – one morning (winch and generator problems)

Dave Reid
18 November 2002

Seen in draft: Captain P Ramsay, OIC *Scotia*