P17/8

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Charter fishing vessel *Heather Sprig* BCK181

Charter Cruise No 1294H

REPORT

1-26 August 1994

Personnel

J H B Robertson	HSO (in charge)
C D Hall	SSO (24 August)
R J Kynoch	SO
P J Barkel	PTO
G Petrakis	Visitor (8 August)

Objectives

1. To investigate whitefish size and species separation using rigid grids with various bar spacings.

2. To evaluate the effectiveness of rigid grids in releasing juvenile *Nephrops* from a commercial prawn trawl.

3. To test a new acoustic net profiling sonar.

Out-turn days per project: 20 days IBD1

Narrative

Access to the vessel was obtained outwith the charter period over the weekend of 29-31 July to load and set up the RCTV equipment. The cruise started at Buckie on 1 August 1994. TV trials were carried out on grounds in the Moray Firth (ICES Area IVa) off Macduff, Buckie and Fraserburgh. Weather conditions remained settled with light winds for the whole period. The cruise ended at Buckie on 26 August.

Results

A total of 31 sample tows were obtained.

1. Two versions of whitefish grid were used. The original grid tested at another time had been considered too large but it had demonstrated the possibility of size selection as well as species separation. A smaller rectangular cage grid with a sloping platform to rise the fish towards a top grid so that the small haddock and whiting would be encouraged to escape was used. A vent to allow larger species to move down into a cod-end was designed into the cage at its aft end. Good colour film

was obtained from inside the grid of haddock, whiting and flatfish species. The system worked and the data are being analysed.

A simple flat rectangular grid was inserted in the extension ahead of the cod-end. It had longitudinal bars with a spacing of 40 mm in its top two thirds and an open hole in the lower part to which the cod-end was attached. The grid angle was about 30 degrees sloping up forwards. Large numbers of juvenile haddock and whiting were filmed by the miniature camera and RCTV passing between the bars. Larger species passed into the codend. The fishermen liked this version saying it was easy to install and that with plastic construction would pack onto a netdrum without damage. The following table gives the percentage of total catch which escaped through the grid. The greater proportion were undersized.

Haul no	% haddock	% whiting
21	64	83
22	48	73
24	63	74
25	75	80
26	34	57
28	57	71

The data are being further analysed.

2. The same design of *Nephrops* grid was used as was previously used on *Clupea* (Ref 2093C) with one difference. The prodders were removed and a single truncated cone front deflector had its side angled steeply towards the grid bars. This worked well and ensured that the turbulence behind the deflector held the *Nephrops* in the escape zone of the grid. Good escapes of juveniles were observed. The selectivity results from five combined tows using a hooped small mesh cover to capture escapees (between haul variation taken into account) gave a L50 of 28.9 mm, selection factor of 0.36 and selection range of 9.1 mm (9,181 total cod-end, 3,929 total cover animals). The data are being further analysed.

3. A Simrad FS3300 acoustic scanning sonar is routinely attached to the RCTV to assist in manoeuvring around the fishing gear and for real time measurement of the net. A cheaper alternative device (a Tritech ST325) was tested on the RCTV to assess its performance relative to the Simrad. The ST325 is physically smaller, thus saving weight on the RCTV, and the surface controller is more practical for use on fishing vessels where space is usually limited. It gave usable images when close to the net but the scanning rate was too slow for use at greater ranges, and control of the screen image was limited. It was not possible to identify wires, sweeps or sand clouds due to the low resolution of the display. Interference was generated by the RCTV drive system which caused some data to be lost.

J H B Robertson
22 March 1995