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Charter Fishing Vessel *Bountiful* (BF 79)

Charter Cruise 1701H

REPORT

3-17 September 2001

Ports

Loading: Fraserburgh

Unloading: Fraserburgh

Personnel

R J Kynoch (In charge)

I Penny

Objectives

1. To measure the selectivity of 100 mm and 110 mm diamond mesh cod-ends, both fished with a 90 mm square mesh top panel.
2. To measure the selectivity of a 120 mm diamond mesh cod-end with no square mesh panel fitted.

Procedure

Staff and fishing gear joined *Bountiful* at Fraserburgh on 3 September 2001. The fishing gear was rigged aboard the vessel in Fraserburgh harbour. During the evening of 3 September the vessel sailed to fishing grounds 25-30 miles SE of Fraserburgh.

Cod-end selectivity trials were thereafter carried out with the experimental cod-ends attached to the starboard trawl and a small mesh cod-end attached to the port trawl.

During 10 September the starboard trawl was lost on an underwater obstruction. The vessel then sailed back to Fraserburgh harbour where new nets were taken aboard. On 11 September the vessel sailed to new fishing grounds 25 miles NE of Fraserburgh. Cod-end selectivity trials were thereafter continued for the remainder of the cruise.

During the cruise a number of days fishing were lost to weather. Due to this the cruise was extended by three days. The cruise therefore ended at Fraserburgh on 17 September with the staff and fishing gear returning to Aberdeen.

Results

There were sufficient quantities of haddock on the grounds for every haul but there were few fish above 35 cm. For whiting there were large quantities of fish below 30 cm but none above 100% retention length (>40 cm) and very few cod were caught during the trials. The average duration of each haul was two hours and the towing speed over the ground ranged between 2.2-2.9 kts.

A total of twenty one selectivity hauls were made of which five were invalid due to debris in the test cod-end or the gear becoming fouled on the sea bed. Analysis of the data obtained for haddock from the two different twin rigs indicated that there was no significant effect on selectivity detected when the fishing gear and grounds were changed after haul 10.

The mean selection parameters for haddock for each codend are given in Table 1. These figures assume that both nets fished the population on the grounds evenly. Preliminary analysis shows that an increase in mesh size does improve codend selectivity. With an increase in mesh size from 100 to 110 mm the length at which 50% of the fish are retained (L50) is increased by 4%. An increase in mesh size from 110 mm to 120 mm the L50 is increased by an additional 8%. The increases in L50 are possibly lower than might be expected for an increase in mesh size of 10 mm. This may in part be due to the 90 mm square mesh panel since it is present in both 100 m and 110 mm cod-ends. Because the 90 mm panel significantly improves selectivity for both cod-ends, the effect of increasing from 100 to 110 mm is lessened. The 110 mm mesh cod-end with the 90 mm panel will have a selectivity closer to 120 mm than a 110 mm mesh cod-end alone.

Table 1. Haddock mean selection parameters.

Cod-end	Number of valid hauls	Haddock	
		L50	SR
100 mm with 90 mm square mesh panel	7	27.1	6.3
110 mm with 90 mm square mesh panel	6	28.1	5.4
120 mm no square mesh panel	3	30.3	5.1

For the population of fish on the grounds at the time of the trials, the % retention rates for the juvenile and % escapes of marketable haddock and whiting are given in Tables 2 and 3. The percentages are expressed in terms of the total numbers of juveniles or marketable fish entering the codend. They are based on the assumption that both nets fish the population on the grounds evenly. The results indicate that the gears become more selective as the mesh size increases.

It must be noted however that these percentages apply only to the population on the grounds fished at the time of the trials. If there were more large marketable fish (>40 cm), then the % escapes of marketable fish would be smaller. A fuller statistical analysis will be carried out in the Laboratory.

Table 2. Percentage retention rates of juvenile and % escapes of marketable haddock entering each cod-end.

Cod-end description	% retained below 30cm	% escapes 30 cm and above
100 mm with 90 mm SMP	28	29
110 mm with 90 mm SMP	19	36
120 mm no SMP	12	44

Table 3. Percentage retention rates of juvenile and % escapes of marketable whiting entering each cod-end.

Cod-end description	% retained below 27 cm	% escapes 27 cm and above
100 mm with 90 mm SMP	4	76
110 mm with 90 mm SMP	1	86
120 mm no SMP	0	98

R J Kynoch
4 December 2001