Dr L Rickards
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Charter Fishing Vessel *Harmony* (LK63)

Charter Cruise 0701H

REPORT

16-30 April 2001

Ports

Loading: Scalloway
Unloading: Scalloway

Personnel

R J Kynoch (In charge)
I Penny

Objectives

1. To determine the effect of the position of a 90 mm square mesh panel on the selectivity of a 100 mm diamond mesh cod-end, constructed from 5 mm diameter double twine, attached to a commercial seine net.

2. To measure the selectivity of the same cod-end with no square mesh panel.

3. If time allows, to measure the selectivity of a 100 mm diamond mesh cod-end without a lifting bag or square mesh panel.

Narrative

Staff and equipment joined the vessel at Scalloway harbour on the morning of 16 April. The fishing gear and equipment were then rigged aboard the vessel in Scalloway harbour. The vessel sailed during the morning of 17 April to the Scalloway Deeps, 15 miles south west of Scalloway. Cod-end selectivity trials were thereafter carried out on the four test cases using the alternate haul method. This method allows paired hauls to be compared, one with the test cod-end and the other with a 40 mm small mesh cod-end. The hauls made with the 40 mm cod-end give an estimate of the population of fish entering the test cod-end.

During the cruise the 3 m long square mesh panel was tested at three different positions in the gear with the rearmost row of meshes 9 m, 6 m and 3 m from the codline. The standard 100 mm diamond mesh cod-end with no square mesh panel was tested as a comparison.

The cruise ended at Scalloway on 30 April with staff and equipment returning to Aberdeen.

Results

There were few haddock on the grounds of marketable size though there were large quantities below 30 cm. For whiting there were sufficient quantities for every haul with lengths ranging from 16-45 cm. No significant numbers of cod were caught throughout the trials.

Due to the length of time taken to sample the large catches retained by the 40 mm small mesh cod-end it was possible to carry out only one haul per day with this cod-end. Therefore the decision was taken after the third day of the cruise to modify the experimental work plan. Each day for the remainder of the

cruise one set of paired hauls were made to collect selectivity data with a second set made to compare catches between the different test cod-ends. During the cruise 13 paired selectivity hauls and nine paired catch comparison hauls were made.

The mean catch rates of juvenile and marketable haddock and whiting for the combined hauls for each cod-end are given in Tables 1 and 2. The net fishing time is the elapsed time from when the winch is engaged to start heaving the ropes until the bridles reach the stern of the vessel.

Table 1. Mean catch rates for juvenile and marketable haddock for each cod-end (Minimum landing size (mls) is 30 cm).

Panel position	40 mm control no panel	No panel	Panel 9-12 m	Panel 6-9 m	Panel 3-6 m
Number of valid hauls	12	7	11	2	8
Mean net fishing time per haul (mins)	61.2	67.6	66.5	65	63.4
Length range of fish (cm)	13-44	14-46	15-48	15-43	14-47
Catch rate less than mls (kg/min)	16.9	8.6	3.9	2.2	6.6
Catch rate mls or greater (kg/min)	0.47	0.44	0.22	0.12	0.41

Table 2. Mean catch rates for juvenile and marketable whiting for each cod-end (Minimum landing size (mls) is 27cm).

Panel position	40 mm control no panel	No panel	Panel 9-12 m	Panel 6-9 m	Panel 3-6 m
Number of valid hauls	12	7	11	2	8
Mean net fishing time (mins)	61.2	67.6	66.5	65	63.4
Length range of fish (cm)	16-44	18-43	20-44	20-44	20-45
Catch rate less than mls (kg/min)	19.3	1.9	1.5	1.4	2.1
Catch rate mls or greater (kg/min)	11.2	2.1	1.9	1.7	2.1

Preliminary analysis shows that significant numbers of juvenile haddock and whiting are being released by all four test cases when compared with the catch rates for the 40 mm cod-end. For the standard 100 mm cod-end with no panel there is a reduction in catch rate of juvenile haddock and whiting of 49% and 90% respectively. The catch rate for marketable whiting is also reduced by 81%; however, for marketable haddock the catch rates are similar. With the inclusion of a panel at 9-12 m and 6-9 m the catch rates of both juvenile and marketable haddock are reduced considerably further although the numbers of marketable haddock are small. For whiting, there is only a slight further reduction. However, there is less difference when the panel is positioned at 3-6 m compared to the standard cod-end. A fuller statistical analysis will be carried out in the Laboratory.

R J Kynoch
21 December 2001