

International Council for the  
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Comparative Fishing Committee

Experiments with a Topside Chafer of Double Mesh-size

by

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At the 1965 meeting of this Committee a verbal report was submitted about Polish experiments with double topsides of very large mesh-size. These experiments indicated that such a chafer, with a mesh-size two or more times that of the inner cod-end has little or no effect on the selectivity. The North-East Atlantic Fisheries Commission has for years tried to find a satisfactory solution of the topside chafer problem, and the Comparative Fishing Committee consequently resolved to recommend that similar experiments with large-meshed chafers should be undertaken by other member countries.

In accordance with this recommendation covered cod-end experiments were conducted in March this year with the R/V "G.O. Sars" on the North Cape Bank, where suitable sizes of cod and haddock were found, although in rather low abundance.

The trawl used was a standard "Small Granton" trawl with an "Ulstron" (polypropylene) cod-end of 140 mm mesh-size. To the topside of the cod-end was attached another top-half, originally of the same mesh-size, but with every second knot cut away to make the outer mesh-size exactly twice as large as that of the cod-end proper. The outer net was carefully laced knot by knot around all four sides, as well as along the mid-line, with forks to each of the rear corners (see Figure 1).

Records of the experiments are given in Table 1, and the resulting selection curves and plots of the percentages retained (3 cm grouping, smoothed) for cod and haddock respectively are shown in Figure 2.

The selection factors estimated from the present data should be compared with the figures reported by the author in 1964 (Olsen, 1964) from experiments with a 145 mm "Ulstron" cod-end. Those experiments were carried out in February 1964 in the same locality, with the same ship and gear, and the estimated selection factors for single cod-end were 3.5 for cod and 3.4 for haddock. It was noted that the results might have been biased because of the quantities of large sponges caught at the same time, and that the estimate for haddock was based on a rather scanty material.

The present material is also rather limited both with regard to number of hauls and number of fish within the selection range. The difference in selection factor for haddock between the present estimate and that from 1964 is therefore hardly significant; and it may be justified to conclude that these experiments seem to confirm the Polish findings that double topsides with mesh-sizes being a multiple of that of the inner cod-end have little effect on the selectivity.

Reference

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| Olsen, Steinar | 1964 | "Norwegian mesh experiments in 1963 and 1964". ICES, C.M. 1964. Doc.No. 118. |
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Table 1. Records of experiments

1. Ship - R/V "G.O. Sars"
2. Gear - standard "Small Granton" trawl
3. Date - 1/3 - 2/3 1966
4. Time - 07 A.M. - 10 P.M.
5. Locality - North Cape Bank
6. Depth range - 220 - 250 metres
7. Cod-end material - Polypropylene ("Ulstron"), double-braided,  
110 yds./lb = 4510 R.tex
8. Mesh-gauge - ICES
9. Mesh-size - mean 140.5 mm range 132 to 157 mm, no. of measurements 40
10. Experimental method - covered cod-end with topside chafer two  
times the mesh-size of the cod-end
11. Cover - ICES specification, mesh-size 30 mm
12. Species - cod and haddock
13. 50 % retention length - cod 49.8 cm, haddock 46.3 cm
14. Selection factor - cod 3.5, haddock 3.3
15. 25-75 % selection range - cod 45.7 to 57.0 cm  
haddock 39.3 to 52.2 cm
16. No. of fish in selection range - cod-end : cod 85, haddock 84  
cover : cod 92, haddock 105
17. Average weight (quantity) of all fish per haul - cod-end 251 kg  
cover 110 kg
18. Other catch - coalfish, catfish, redfish, long rough dab
19. No. of hauls - cod 4, haddock 3
20. Average duration of haul - 1.23 hours
21. Towing speed - 3-3.5 knots.

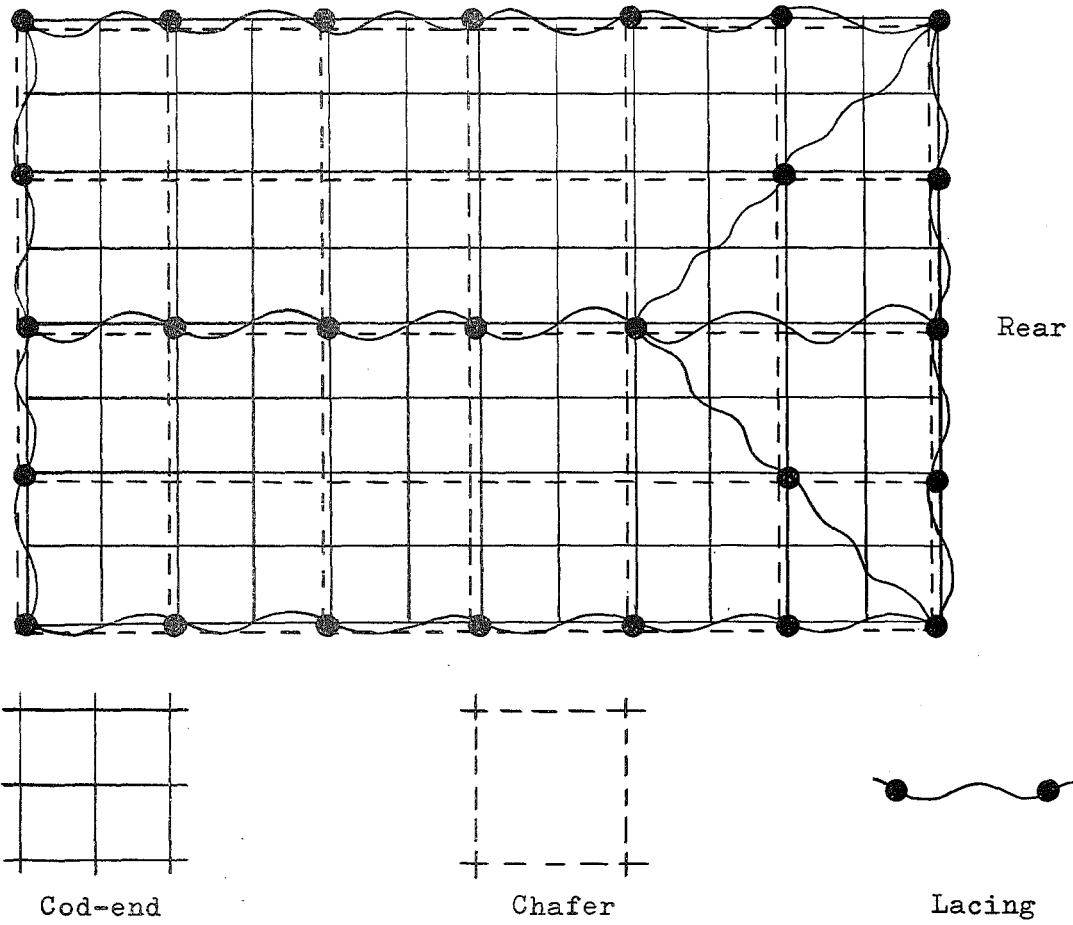


Figure 1. Schematic drawing of the top half of the cod-end with the chafer attached.

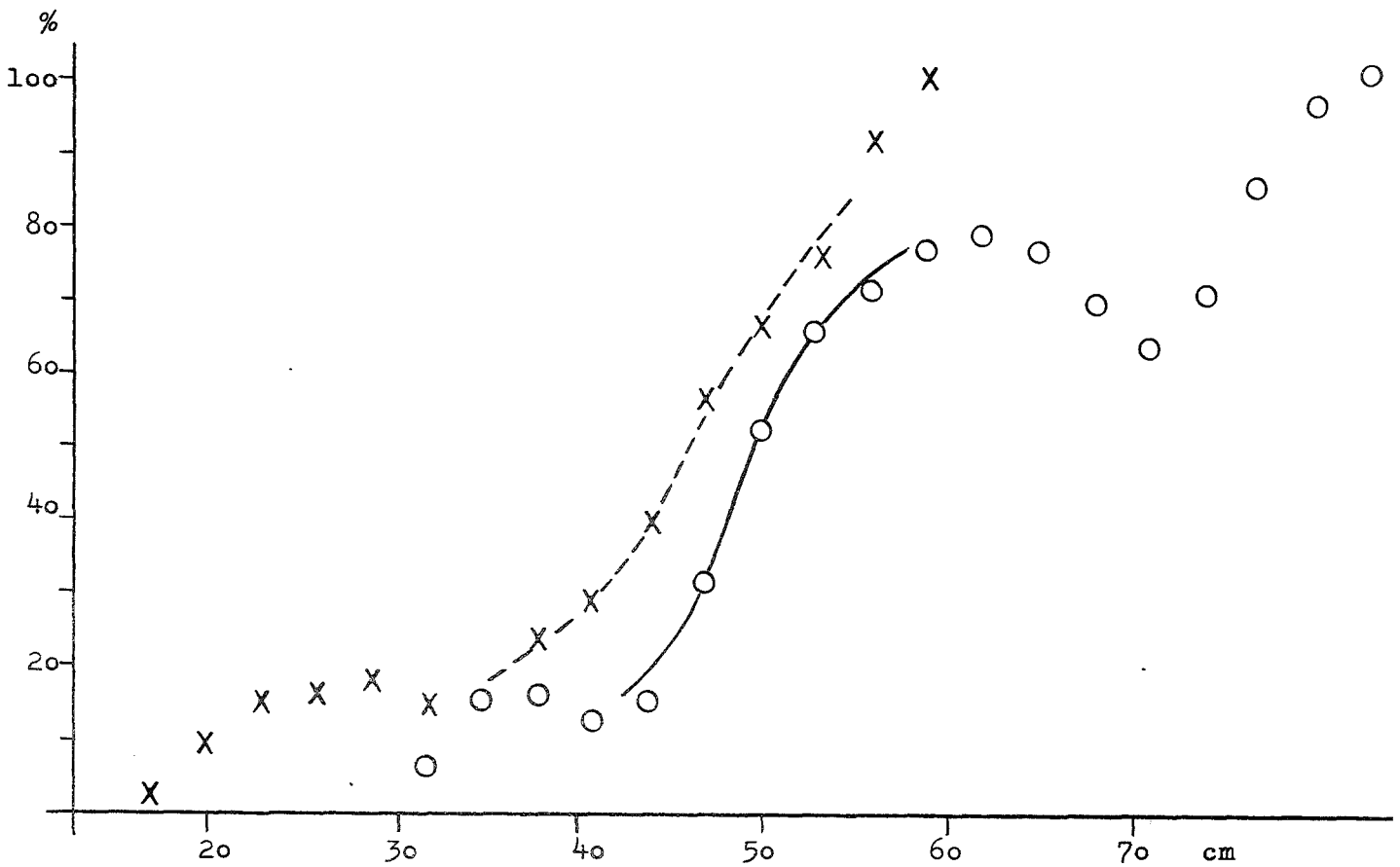


Figure 2. Selection curves for cod (solid line) and haddock (broken line).