

Tests of a Large-Meshed Topside Chafer

by

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Following the recommendation made by the Comparative Fishing Committee at the 1965 Annual Meeting that experiments should be undertaken with large-meshed chafers, Cruise 2/1966 of the R.V. "Ernest Holt" was devoted to these experiments.

The trawl used was a standard Granton trawl with manila cod-ends. To the topside of the cod-end was attached a specially braided double manila chafer with meshes approximately double the size of the cod-end meshes. The chafer was the same width and length as the cod-end and was laced along the selvages, at the top, and along the cod-line of the cod-end. No attempt was made to fit the knots of the chafer exactly over the appropriate knots of the cod-end. A Courlene cover of 70 mm mesh was fitted over the chafer, the cover being $1\frac{1}{2}$ times the width of the cod-end and extending 1 metre beyond the cod-line. A Courlene blinder was fitted to the underside of the cod-end. Mesh-measurements were made with an ICES gauge operating at 4 kg.

Fishing was carried out at Faroe and Iceland, but few fish were caught on the eastern Iceland grounds so the results refer only to hauls at Faroe. Although considerable quantities of cod were caught, too few were of lengths within the selection range to give selection factors; hence the results given are for haddock only. Apart from cod and haddock small quantities (rarely more than one basket) of flatfish were caught and negligible quantities of benthos. A few small redfish (Sobastes viviparus), coalfish, anglers (Lophius), catfish (Anarhichas lupus) and lumpsuckers (Cyclopterus) were also caught.

Results

Details of the gear are given in Table 1. The results for two cod-ends are given in Tables 2 and 3, and the selection curves are shown in Figure 1 a-c and Figure 2 a -d.

The selection factor for all valid hauls with the 110 mm cod-end is 3.4 and that for the 117 mm cod-end is 3.5. These compare with selection factors for haddock at Faroe ranging from 3.1 to 4.1 obtained during thirteen cruises of research vessels "Ernest Holt" and "Explorer" during the period 1959 to 1962 (B. Jones, unpubl. data; Pope and Hall, 1966).

These experiments therefore confirm the results of Polish and Norwegian researches which indicated that large-meshed chafers do not reduce appreciably the selectivity of cod-ends.

Reference

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| Pope, J. A.
& Hall, W. B. | 1966 | "Selectivity of polypropylene cod-ends".
ICES Coop.Res.Rep., Series B, Liaison Cttee.Rep.,
1965. Appendix Paper No.11. |
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Table 1. Details of chafer experiments.

Ship: R.V. "Ernest Holt", 57.9 m overall; 900 bhp
 Gear: Standard Granton otter trawl, 23.8 m headline
 Date: February to March 1966
 Locality: Faroe: All hauls in West Bay except Sta.7 and 8 (Mylings Grund), Sta.43 and 51 (E.of Nolso) and Sta.44(N. of Kadlun)
 Cod-end material: Manila
 runnage: 100.9 m/kg: 4 ply
 braiding: Double
 construction: Twisted, undipped
 Chafer material: As cod-end
 Cover " : 70 mm Courlene
 Blinder " : 70 mm Courlene
 Experimental method: Covered cod-end

Stations 4 to 14

Stations 15 to 51

Cod-end:

Mean mesh-size (mm):
 Range (mm):
 No. measured:

110.3
 85 to 129
 285

117.4
 99 to 143
 543

Chafer:

Mean mesh-size (mm):
 Range (mm):
 No. measured:

202.0
 170 to 290
 28

189.4
 160 to 215
 55

Average duration of haul: 2 hours
 Average towing speed: About $3\frac{1}{2}$ knots
 Depth range: 55 to 90 fathoms
 Species: Haddock

Table 2. Summary of results for a 110 mm cod-end.

Station number:	4, 5 and 6	7, 8, 13 and 14	4-14
50% retention length (mm):	370	396	375
Selection factor:	3.5	3.5	3.4
25 to 75% selection range (mm):	81	55	76
Number of fish within selection range:			
1. Cod-end:	1755	416	2439
2. Cover:	1498	484	2001
Catch of haddock (baskets *):			
1. Cod-end:	26, 18 and 11	10, 15, 7, 7	
2. Cover:	11 $\frac{1}{2}$, 8 $\frac{3}{4}$ and 9	4F, 19F, 15F*, 9	
Catch of other species (baskets):	Average 3 (cod and flats)	$\frac{1}{2}$, 1, 13(cod), 2	

* Average weight of 1 basket of fish is approximately 30 kg.

Table 3. Summary of results for a 117 mm cod-end.

Station number:	15 to 18	19 to 23	15 to 51	15 to 51
50% retention length (mm):	380	397	420	406
Selection factor:	3.3	3.3	3.5	3.5
25 to 75% selection range (mm):	66	93	72	84
Number of fish within selection range:				
1. Cod-end:	506	857	945	2,537
2. Cover:	487	885	1,371	2,944
Catch of haddock (baskets):				
1. Cod-end:	8, 8, 3, 1 $\frac{1}{2}$	1, 13, 16, 14, 31	13, 4, 5, 4, 3, 2, 1, 1, $\frac{1}{2}$, 2, 1 $\frac{3}{4}$, $\frac{1}{3}$, 1, 1 $\frac{1}{3}$	
2. Cover:	4, 1 $\frac{1}{2}$, 7, $\frac{3}{4}$	4F, 1 $\frac{3}{4}$, 2 $\frac{1}{2}$, 7 $\frac{1}{2}$, 7 $\frac{1}{2}$	5, 1 $\frac{1}{4}$, 1, 3, 5, 5, 7F, 1 $\frac{1}{4}$, 1, 1 $\frac{3}{4}$, 2 $\frac{1}{2}$, $\frac{3}{4}$, 1 $\frac{1}{2}$, 1 $\frac{1}{2}$	
Catch of other species (mainly cod) (baskets):	36, 2 $\frac{1}{2}$, 10, 2	1, $\frac{1}{2}$, 8 $\frac{1}{2}$, 10 $\frac{1}{2}$, 12	2, 10, 5 $\frac{1}{2}$, 5 $\frac{1}{2}$, 5, 1, 7, 10, 21, 20, 5, 1, 34, 9, $\frac{1}{2}$	

(F = number of fish)

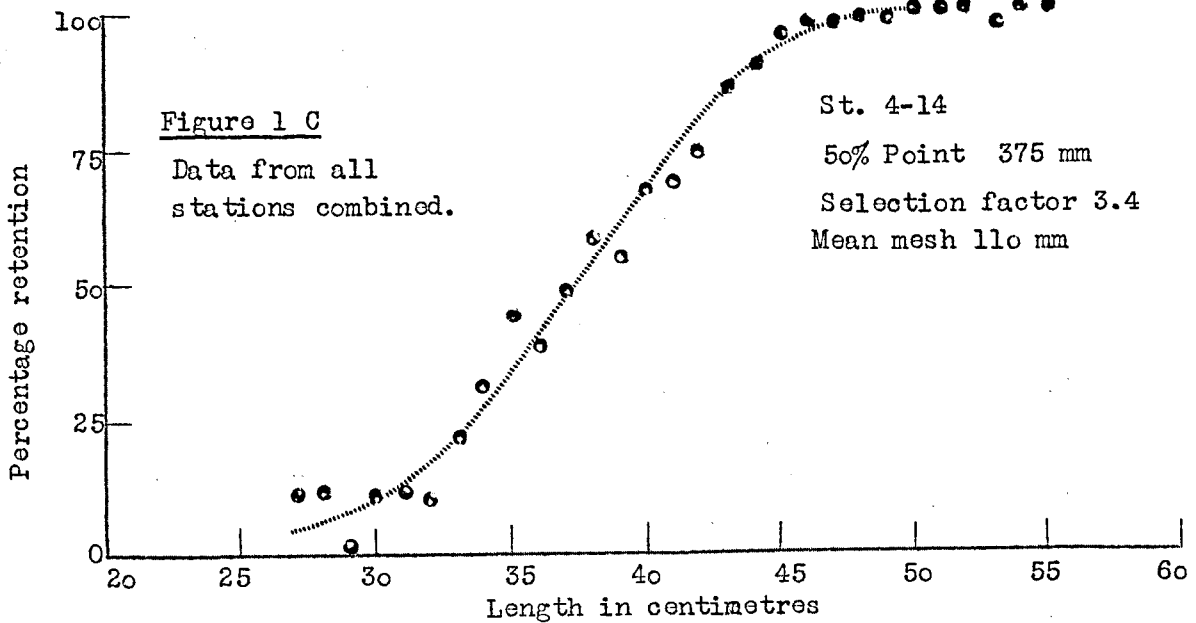
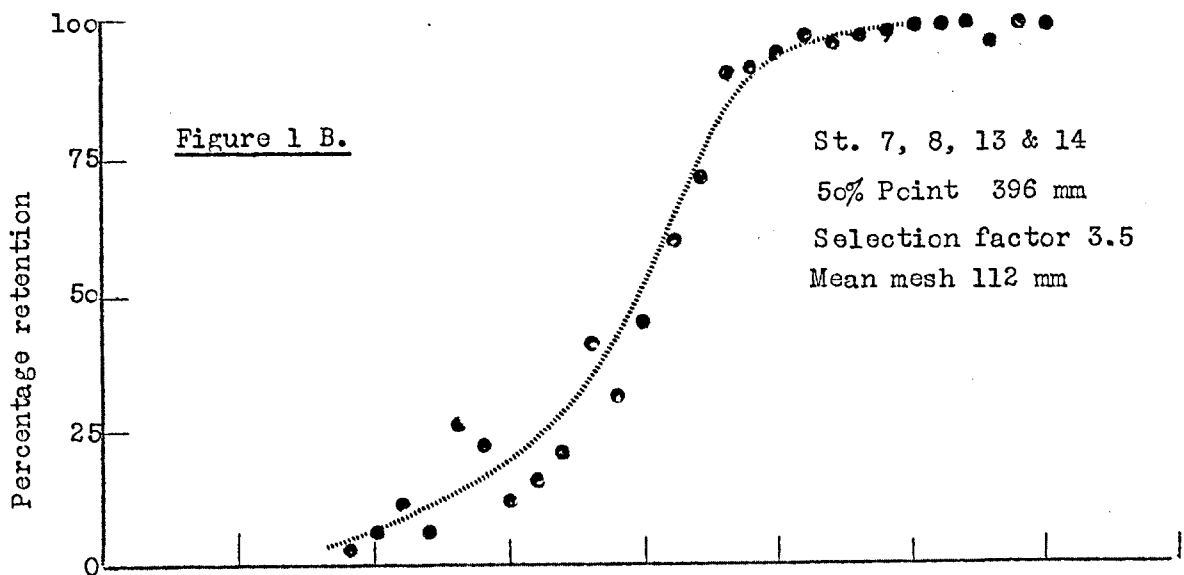
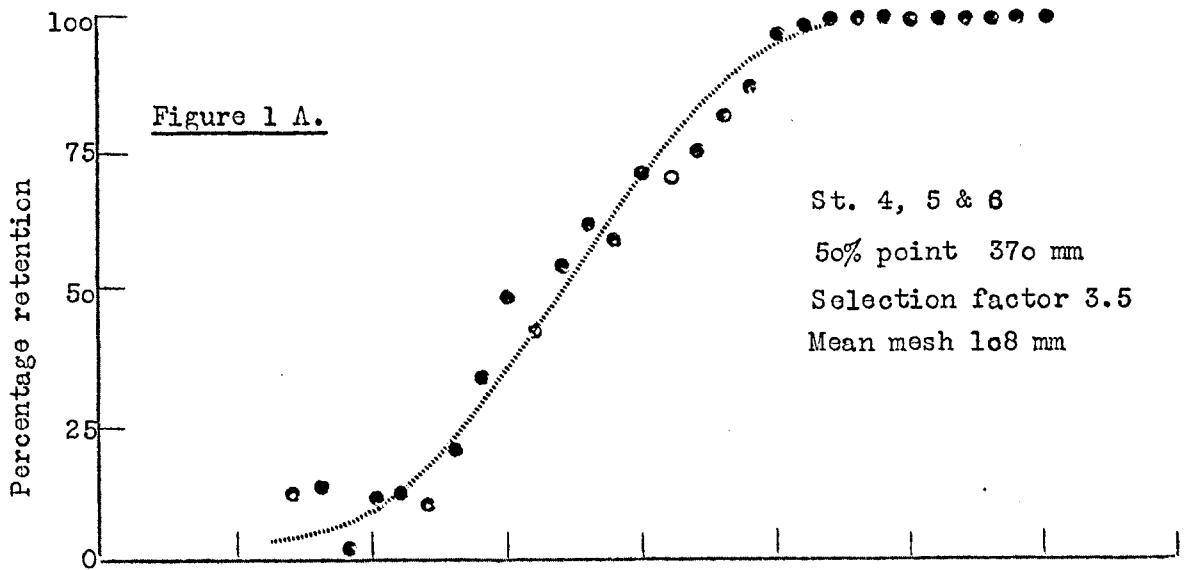


Figure 1 A - 1 C

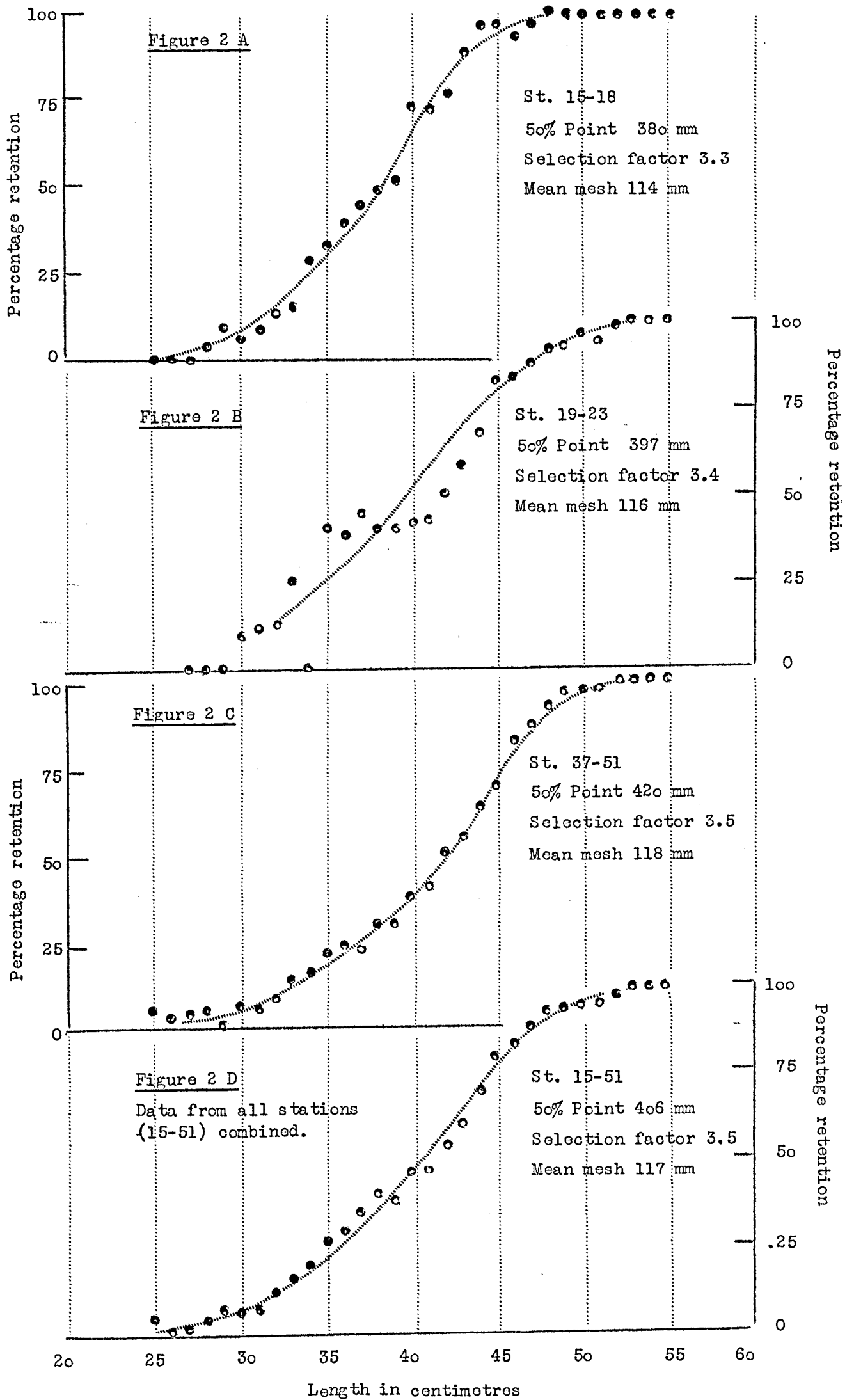


Figure 2 A-D. Selection curves for a nominal 120 mm cod-end (double-braided manila).