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ICES COUNCIL MEETING, 1961
Co-opted Members' Draft
Report on
Cod-end Selectivity 1)

A. Mesh Selection in Manila and Sisal.

The Mesh Selection Working Group, set up by the Comparative Fishing Committee in 1959, submitted the final report at the ICES 1961-meeting. In this report all available mesh selection data from the Convention Area for plaice, sole, haddock, cod, whiting and redfish are recorded.

The average selection factors for trawl cod-ends made of manila and sisal (obtained mainly from covered cod-end experiments) are summarised in the following table (number of estimates in brackets).

Gear	T r a w l					
	North Sea	Arctic	Iceland	Faroes	S.W.Greenland	Baltic
Plaice	2.1 (5)	-	-	-	-	2.5 (3)
Sole	3.3 (15)	-	-	-	-	-
Haddock	3.1 (19)	3.3 (19)	3.2 (12)	2.9 (8)	-	-
Cod	3.4 (5)	3.5 (52)	3.3 (6)	-	3.7 (1)	3.3 (3)
Whiting	3.7 (49)	-	-	-	-	-
Redfish	-	2.9 (5)	-	-	2.4 (1)	-

The North Sea figures differ only slightly from those given in the Ad-Hoc Committee Report.

The report further indicates that experiments with alternate hauls give selection factors for roundfish which are about 10% higher than those obtained with the covered cod-end method.

The differential between these two methods of estimating selection factors is less apparent in the reported flat-fish experiments, partly due to the use of other types of covers in those experiments. There is also some evidence to the effect that escapement is affected by the size of the catch.

1). The Chairman of the ICNAF Working Group on Gear Research and Selectivity has desired the Secretariat to make copies of the following ICES report available to members of the Working Group. As the report may be of interest also to other persons, it is circulated as a document for the 1962 Annual Meeting.

Executive Secretary.

Allowance for these factors have already been made in the assessments of the Arctic Working Group and the North Western Working Group reported to the Permanent Commission in May 1961. Thus, it can be stated that the assessments of the expected effect of changes in mesh size, submitted to the Permanent Commission at its various meetings, remain virtually unaltered by the new information referred to above. This applies notably to the estimates for the fisheries in the 110 mm area, and the fisheries for flatfish in the 80 mm area.

B. Mesh Differentials

1) Single and double-braided cod-ends.

Such evidence as is available does not support the view that single-braided cod-ends have a higher selection factor than double-braided ones, although the available figures are rather variable.

2) Differentials between materials

A review of the data contained in the Mesh Selection Working Group Report confirms the views previously expressed, that with respect to their effect on selection, the fibres presently used in the fisheries can be grouped into three:-

- a) manila and sisal;
- b) cotton, hemp, rami, polyamides (nylon, perlon, kapron, etc.), polyesters (terylene, trevira, etc.), polyvinylalcohol (Kuralon etc.), and
- c) polyethylene (courlene, nymplex, etc.)

From the experiments within the 80 mm area, in which direct comparisons have been made, the following summary table, expressing the selection factors in percentages of those of manila and sisal, can be given (double twines only): -

	A <u>Manila and sisal</u>	B <u>Cotton, hemp, rami, perlon, nylon, terylene, trevira</u>	C <u>Nymplex and courlene</u>
Haddock	100	106	103
Whiting	100	114	103
Dab	100	103	102
Plaice	100	103	-
Sole	100	102	-

Taking into account that the haddock figure for "light twines" has been greatly affected by an experiment giving adverse results (four other experiments on this species give differentials between 10 and 15%), it can be concluded that the mesh differential between group A and group B twines for roundfish amount to about 10-15%, whereas the differential for flatfish is much lower, about 3%.

The differential between group A and group C twines is only about 3%. It should be noted that the figures of the differentials for all species except whiting had to be based on a rather small number of experiments, but it is assumed that they do show the order of magnitude of those differentials.

3. Comparison trawls and seines

The following table shows the average selection factors of manila and sisal trawl cod-ends, compared with those of seines of different materials.

	<u>Trawl</u>		<u>Seine</u>				
	<u>Manila and sisal North Sea</u>	<u>Manila and sisal Baltic</u>	<u>Manila and sisal Baltic</u>	<u>Cotton North Sea</u>	<u>Cotton and hemp Baltic</u>	<u>Cotton Irish Sea</u>	<u>Courlene Irish Sea</u>
Haddock	3.1	-	-	3.9	-	-	-
Whiting	3.7	-	-	4.1	-	4.0	4.2
Dab	2.4	2.6	2.0	-	2.3	-	-
Plaice	2.1	2.5	2.0	-	2.1	-	-

There appears to be a differential between seine and trawl of about 20% for haddock and 10% for whiting, but again the number of experiments from which these figures are derived is small.

As a first approximation it could be taken that a seine with a mesh size between 10 and 20% smaller than a manila trawl cod-end will have about the same selective effect on roundfish.

The experiments carried out outside the 80 mm area (Baltic) indicate that the type of seines used in this region have a lower escapement of flatfish than the trawls.

At the 1961 ICES-meeting new data on redfish selection experiments were reported. The results of these experiments gave selection factors ranging between 2.2 and 3.2, that is, the same as found in previous experiments reported in Appendix I of the Liaison Committee Report to the 1961 Permanent Commission meeting.

The new data clearly demonstrate a very marked reduction in escapement of redfish with increasing catch size.

There is further some indication that the selection factor for redfish may, to some extent, increase with increasing mesh size, and that it is somewhat higher for the mentella type redfish than for the marinus type.

In contrast with other trawl fisheries for roundfish, meshed fish are relatively frequent in the redfish fisheries. The amount of meshing seems to depend on cod-end mesh size and material (there is less meshing in trawls made of polyamide fibres than in manila trawls), catch size and length distribution, but it does not appear to be a serious problem which effects the selectivity to a considerable extent.

This new material does not seem to invalidate the assessments made with regard to the effect of changes in mesh size on the fisheries for redfish.

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