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A STUDY TO DETERMINE IF TOPSIDE CHAFING GEAR CAN BE ELIMINATED IN SUBAREA 4

by

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The topside chafing gear problem has been discussed annually since the inception of the International Commission for the Northwest Atlantic Fisheries. The problem has, also, been the subject of reports by Beverton, by McCracken and by McCracken and Clark. Regulations for topside chafing gear were recommended at the 1955 meeting of the Commissioners. At the 1956 meeting, France indicated reluctance to accept certain of the provisions and the question was referred to an ad hoc committee. France offered to initiate some experiments to solve the problem and other countries concerned offered to carry out similar experiments. At the 1957 annual meeting, the recommendations set forth by France were adopted by the Commission. In 1958, the United Kingdom expressed difficulty in the regulation when applied to their stern trawlers. The Plenary adopted a draft resolution permitting the United Kingdom to adopt chafing gear suitable for stern trawlers. The Standing Committee on Research and Statistics recommended that continued chafing gear investigations be carried out.

At the 1961 Annual Meeting of I.C.N.A.F., the continued use of topside chafing gear in Subarea 4 was noted. It was the recommendation of Panel 4 that its present status be investigated and to arrive at a determination of the feasibility of prohibiting its use in Subarea 4.

Topside chafing gear is a piece of netting which is attached to the top of the cod-end to protect that portion of the cod-end from being damaged by chafing. The chafing action can be caused by (1) movement of the net alongside the vessel as a large bag of fish is split and on the rail as the cod-end is hauled on board (2) net turning over when towing on an edge or in making a turn and (3) towing over a rough bottom.

The manner in which the chafing gear is attached to the cod-end is prescribed in Section 11C IV of the regulations of the International Commission for the Northwest Atlantic Fisheries. Section IV (b) was amended at the 1957 Annual Meeting.

The present report does not propose to determine the effect of top chafers on selectivity, but is directed at present practices and usage of the gear. A survey by McCracken and Clark in 1958 was somewhat similar to the present one, but the use of synthetic materials for cod-ends is in more general use now and therefore should have brought about some changes in gear make up.

Each country holding membership in Subarea 4 was requested to have someone interview the Captains of their vessels for information regarding the use of topside chafing gear. The questionnaires (Figure 1) were directed to the Captains because it was felt that the experience of the men engaged in using the gear could best be used to advise this committee of the actual need of the chafers and could suggest some practical method of eliminating its use in the fishery.

The number of vessels fishing all or part time in Subarea 4 is greater than the number interviewed; it was physically impossible to contact them all. Many of the vessels interviewed had fished in other subareas in addition to Subarea 4 and a few had not fished in Subarea 4 at all during the preceding year. Inasmuch as it is common practice to fish where fish are more available regardless of subarea boundaries it was decided to include all interview information (Table 1) in this report.

The interview reports for those vessels which fished in Subarea 4 all or part of the time may be summarized as follows:

<u>Nationality</u>	<u>Interviewed</u>	<u>Fished Subarea 4</u>	<u>Did not fish Subarea 4</u>
U.S.A.	75	67	8
Canada	64	52	12
Spain	17	2	15
France	0	29	--
Portugal	22	22	--

Canada advises that there are an estimated 75 small draggers that fish in the Gulf of St. Lawrence and about 30 from Southwestern Nova Scotia and New Brunswick fishing in Subarea 4 which do not use topside chafing gear. These vessels were not interviewed. Spain reports that 24 side trawlers actually fished in the Northwest Atlantic, but only 17 of these were interviewed. In addition there were approximately 25 Spanish pair trawlers which had fished within Subarea 4 which had not been interviewed. France was able to supply information on 29 of the 32 vessels known to have fished in the various subareas. Spain, Portugal and France are interested primarily in codfish, the United States in haddock and redfish and Canada in all groundfish. At the present time, nearly three times as many cod-ends made from synthetic material are used than those made of natural fibers. The usage of topside chafing gear by those vessels fishing subareas other than Subarea 5 is very outstanding. Of the 75 United States vessels interviewed, 68 do not use topside chafing gear. The majority of these vessels are primarily engaged in the haddock fishery and fish on Browns Bank in Subarea 4 usually only during the Spring of the year. The Canadian vessels are nearly split in two in the usage of chafers. The Spanish and French vessels use topside chafing almost to a vessel whereas none of the Portuguese vessels make use of it. The majority of Captains felt that fishing could be conducted without using chafing gear, but that it would be most impractical and expensive to replace cod-ends torn or worn out in a very short time. In the opinion of Captains, the nets receive the most excessive chafing as the cod-end was being swung in over the rail. Considerable damage was suffered when the nets were towed over rough bottom, along a sloping edge or in making a turn to tow back over a "fishy" spot. Damage to some degree occurs at the splitting strap. The Portuguese side trawlers do not use topside chafing gear at all as the use of synthetic nets and the use of power blocks to lift the net over the side has eliminated its necessity.

During the years following World War II and before synthetic materials had become readily available, fishing nets were made up of natural fibers. Unless protected by heavy chafing gear, these nets wore out rapidly. During this period it was common practice to use double cod-ends in addition to chafing gear. This was to insure against the cod-end splitting open from the weight of the fish.

At the present time about 75 % of the vessels use nets made from any one of the many synthetic materials available. The use of the lighter, stronger materials has all but eliminated the natural fibers and the need for using double cod-ends.

Despite the present usage of synthetic net material the use of topside chafing gear appears to be necessary unless chafing can be reduced or eliminated as has been done by the Portuguese. It will be noted that the majority of Captains advised that fishing operations could be carried out without topside chafing gear, but at the expense of wear and tear on the nets.

Several attempts have been made by the larger trawlers to fish without chafing gear. It was found that within two days the knots on the top of the cod-end were showing excessive abrasion and within four days that section of the cod-end that lies alongside the vessel during splitting operations and which is dragged over the rail when being brought aboard full of fish has to be replaced due to the weakened condition of the net material.

Several comments were made by the Captains at the time they were asked if they had any suggestions to make about eliminating the use of topside chafing gear. The one voiced most frequently was to develop a better method of hoisting the cod-end over the rail. It was noted that the Spanish trawlers were rigged with a boom which was fitted to eliminate a certain amount of chafing on the rail as does the use of power blocks by the Portuguese. The other suggestion was to use the flap type chafing gear. This is the type of chafing gear more commonly used in the Northeastern Atlantic. This latter suggestion would

remove at least one criticism of the I.C.N.A.F. chafing gear--the tying down the trailing edge to prevent any fish from escaping. This criticism is strictly an enforcement problem because it has been demonstrated that the escapement of small fish to be about the same from either the flap type or the I.C.N.A.F. envelope type chafing gear.

Recommendations:

1. Topside chafing gear is a necessary part of the net and its immediate elimination is not recommended.
2. Inasmuch as it is recommended that chafing gear not be eliminated, the Panel might wish to consider the change from the present I.C.N.A.F. chafing gear to the flap type used in the Northwest Atlantic.
3. It is recommended that the use of polypropylene ends tied into every other knot of the top of the cod-end (sample attached) be tried with the possibility of making it an alternative type of chafer.
4. It is recommended that the use of double cod-ends (where cod-ends of equal mesh size or not are placed one inside the other) be eliminated not only from Subarea 4, but the entire Convention Area.

This committee is most grateful to the many people in the fishing industry and the Research Laboratories for their many suggestions and comments and to those who gave so much of their time in personally conducting the interviews.

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FIGURE 1

TOPSIDE CHAFING GEAR INTERVIEW -SUBAREA 4 FISHING VESSELS

Place of Interview:

Date of Interview:

Name of Vessel:

Nationality:

Vessel tonnage (circle one) To 25 26-50 51-150 151-500 Over 500

Stern trawler or Side trawler:

Statistical area fished:

Species fish fishing for:

Mesh size of cod-end:

Material made of:

Topside chafing gear used: (circle one) regularly, irregularly, never

Material topside chafing gear made of:

Could trawling operations be carried out without topside chafing gear being used: ?

If not, why not:

Suggestions or recommendations how to change or eliminate topside chafing gear:

Interviewed by:



Polypropylene ends being used as bottom chafing gear, in place of cowhide, on a Gloucester, Massachusetts medium otter trawler.

TABLE 1

	<u>U.S.A.</u>	<u>CANADA</u>	<u>SPAIN</u>	<u>FRANCE</u>	<u>PORTUGAL</u>
<u>Tonnage</u>					
Under 25	--	--	--	--	--
26-50	2	18	--	--	--
51-150	35	22	--	--	--
151-500	38	24	2	--	--
Over 500	--	--	15	29	22
<u>Gear Fished</u>					
Side	75	64	17	29	22
Stern	--	--	--	--	--
<u>Statistical Area Fished</u>					
3K	--	1	--	--	--
3L	--	1	--	--	--
3M	--	--	--	--	--
3N	--	--	--	--	--
3O	--	2	--	--	--
3P	--	2	--	--	--
3 General	6	6	--	--	--
4R	--	3	--	--	--
4S	--	--	--	--	--
4T	--	1	--	--	--
4V	--	--	--	--	--
4W	1	4	--	--	--
4X	58	--	--	--	--
4 RST	--	21	--	--	--
4 RSTV	--	--	--	--	22
4 General	--	17	--	--	--
3 & 4 General	2	6	1	--	--
1,2,3, General	--	--	7	--	--
1,2,3,4, General	--	--	1	29	--
2 & 3 General	--	--	7	--	--
1 & 2 General	--	--	1	--	--
4 VXW	8	--	--	--	--
Not specified	2	--	--	--	--
<u>Major Fish Caught</u>					
Cod	--	--	27	29	22
Haddock	46	--	--	--	--
Cod & Haddock	--	5	--	--	--
Redfish	27	11	--	--	--
Flounder	--	5	--	--	--
Mixed *	1	41	--	--	--

\*Includes all species

	<u>U.S.A.</u>	<u>CANADA</u>	<u>SPAIN</u>	<u>FRANCE</u>	<u>PORTUGAL</u>
<u>Mesh Sizes</u>					
<u>Synthetic-inches</u>					
Under 3	25	--	--	--	--
3-4	6	1	--	29	--
4 1/8 - 4 1/2	27	17	--	--	--
4 5/8 - 5	--	19	--	--	--
Over 5	--	--	17 <u>1/</u>	--	22 <u>2/</u>
<u>Mesh Sizes</u>					
<u>Natural -inches</u>					
Under 3	3	2	--	--	--
3-4	--	1	--	--	--
4 1/8 - 4 1/2	19	8	--	--	--
4 5/8 - 5	--	12	--	--	--
Over 5	--	--	--	--	--
<u>Chaffing gear use</u>					
Regularly	3	34	13	29	--
Irregularly	4	2	1	--	--
Never	68	28	--	--	22
Not recorded	--	--	3	--	--
<u>Material used</u>					
Synthetic	2	6	17 <u>1/</u>	29	--
Natural	1	27	--	--	--
Both	--	3	--	--	--
<u>Fishing carried out</u>					
Can	70	46	15	--	22
Cannot	--	18	2	29	--
No Comment	5	1	--	--	--
<u>Why Not</u>					
Protect at rail	3	18	16	--	--
Rough bottom	2	7	1	--	--
Splitting strap	--	8	--	--	--
No comment	--	31	--	29	22

1/ when it is available

2/ some manila is used