



Serial No. 540  
(D. Res. c.8)

Document No. 14

ANNUAL MEETING - JUNE 1958

Report to ICNAF Committee on Research and Statistics  
re Topside Codend Chafing Gear

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At the 1957 ICNAF meeting, the Committee on Research and Statistics (ICNAF Ann. Proc., Vol. 7, p. 13, Sect. 14B, 3 and 4) decided:

- (a) to solicit information about the forms of chafing gear used by trawlers fishing in regions outside the ICNAF area;
- (b) to study the problem of devising a substitute method of protection for the top of the codend.

Having been asked to undertake these tasks, we decided that (a) preceded (b) since from the information received it should be possible to:

- (1) find out how extensively topside chafing gear is used;
- (2) get leads to proceed with (b) if various forms of chafing gear were used; and
- (3) begin assessment of how effective chafing gear protection is.

Accordingly, in September, 1957, we sent copies of the attached request to research laboratories or other sources in 14 countries. The specific questions asked were aimed to provide answers to (a) and leads to (b). Information has been received from eight sources and acknowledgement from one (copies of all replies will be filed with the Secretariat). Information has been extracted from these replies and tabulated in the accompanying table. Some of the replies apparently refer to fishing practices both inside and outside the Convention Area. We have accordingly included information about Canadian and United States fishing practices for more complete coverage, even though they were not included within the terms of reference in item (a).

Briefly summarised, the replies indicate:

- (1) Chafing gear, usually netting of mesh size similar to the codend, is used extensively on top of the codend by otter trawlers over 500 gross tons. Many trawlers in the 151-500 gross ton class also use topside chafing gear, but smaller trawlers do not. Systems of codend protection seem similar both inside and outside the Convention Area.
- (2) Usually the topside chafing gear (generally, used netting) covers most of the posterior part of the codend. It extends slightly in front of the splitting strap (halving becket) and terminates at varying distances in front of the codline mesh. Usually it is attached along its forward and lateral edge but is open at the posterior end. Most often the chafing

...../2

gear is about the same width as the codend (an old codend is used).

- (3) The basic reason given for using topside chafing gear is protection of the codend, to increase codend life and decrease the chances of losing fish through bursting from a combination of heavy loads and abrasion. In order of apparent importance, chafing occurs
  - (i) underneath splitting strap (halving becket);
  - (ii) against ship's side and rail when hauling in;
  - (iii) before trawl has straightened out in setting (this seems to be occasional only).
- (4) Protected and unprotected codends used by large otter trawlers are indicated to be of similar mesh size, material and twine size. There were no reports of substitute methods of protection in use. In one instance it was mentioned that a system of cables used for protection had been ineffective.

We believe that experimental testing of any system of protection would be a long-term job. Laboratory tests could probably give preliminary results, but final assessment of wear, for different materials, unprotected and protected codends, etc., would require field testing. Suggestions of substitute methods of protection have not been received through our inquiries. There are cases reported, however, in which topside chafing gear is not used. Preliminary consideration suggests that vessels using protected codends and others using unprotected codends may operate in the same region. Under these conditions, essential basic comparisons would be possible.

After carrying out instructions under item (a) and giving some thought to possibilities under item (b), we should like to suggest:

- (1) that a detailed comparison be made between vessels or fleets of vessels fishing similar areas with and without chafing gear on top of the codends. This detailed comparison should aim to establish factual quantitative information about the protection afforded by topside chafing gear. Details of the analysis could be developed in committee by representatives of laboratories from those countries asked to undertake the work (we believe the survey should include analysis of average range of catches, measures of twine and mesh size, records of codend life, estimates of loss resulting from split codends and details of methods used in hauling codends aboard).
- (2) that experimentation be undertaken to determine how much double codends and topside chafing gear interfere with fish escapement. Except for preliminary experiments, we have very little data on their effects (since the posterior portion of the codend is believed to be so important in allowing fish to escape, the knowledge of protective material action may be as important as mesh selection information).
- (3) that the desirability and necessity for developing substitute methods of protection for the top of the codend be reviewed in relation to results from (1) and (2). Design and testing of substitute methods, if necessary, might be speeded up by underwater observations.

...../3

Re: Use of Chafing Gear on top of Codends

At the request of the International Commission for the Northwest Atlantic Fisheries, we are attempting to obtain information about the types of "chafing gear" (protective material on top of the codend of otter trawls) used in the Northeast Atlantic. Continued investigation has led to the conclusion that some form of protective material on top of codends is commonly used by the large trawlers of most countries fishing in the Northwest Atlantic.

At the 1957 Annual Meeting, the Research and Statistics Committee (Chairman's Report) recommended that:

- (a) "The use of chafing gear on top of the codend is not desirable in principle, but because of the practical problems involved, chafing gear should be permitted on top of the codend so long as"... it conforms to certain specifications.
- (b) "Studies should be carried out to determine if some substitute method of protection for the top of the codend can be devised."
- (c) "The Committee on Research and Statistics should solicit information on the forms of chafing gear which are used in regions of the North Atlantic outside the Convention Area."

As we have been asked to undertake the tasks outlined in (b) and (c), we should appreciate obtaining any information you can give us in answer to the following questions:

- A. Is chafing gear or double layers of netting on top of the codend used in fishing for cod, haddock, redfish and/or flat-fish by otter trawlers of any size category?

(i.e.) Trawlers up to about 50 gross tons  
" " " " 50-150 gross tons  
" " " " 150-500 gross tons  
Trawlers over 500 gross tons

- B. If chafing gear is used on top of the codend:

- (1) What type is used (i.e. loose netting, double layered codends, other material)?
- (2) What area of the top of the codend is covered?
- (3) Why is chafing gear used?
- (4) Describe how chafing gear is attached.
- (5) Is chafing gear used with all types of codend materials?
- (6) Other descriptive details.

- C. If chafing gear is not used on top of the codend:

- (1) Do vessels attempt to protect codend in any other way while it is being hauled over the side of the vessel?
- (2) What type and size of twine is used for codends?
- (3) What size of mesh is used in codend (state dimension measured)?
- (4) How long do codends last?
- (5) Give some estimate of average catch per haul.

Statistics of topside chafing gear in use in the Northeastern Atlantic and in the ICNAF area

Countries	Topside chafing gear and type		Used to prevent abrasion occurring against		Codend specifications for large trawlers		Catch size				
	Is it used?	Netting over bag, closed aft	Substituted tubes reported	Ship's side	Splitting strap	Sea bottom		Fibres	Syn-thetics	Mesh size	Average catch/haul
Canada <sup>1)</sup>	Yes	Yes	No	None	Yes	Yes	--	Manila, double 50-75/4	Nylon, double 114	100-80 mm.	1 ton
Denmark <sup>2)</sup>	No	--	Pre-regulation	None	Yes	Yes	Some	Manila, double 165 kg.	Nylon, double 106 kg.	120 mm.	2 tons
France <sup>1)</sup>	Yes	Yes	No	None	Yes	Yes	Some	--	--	--	--
Germany	Yes	Yes	No	None	Yes	Yes	Some	--	--	--	--
Holland	Yes	Yes	No	None	Yes	Yes	--	--	--	--	--
Iceland	Yes	Yes	No	None	Yes	Yes	--	--	--	--	--
Italy	--	--	--	--	--	--	--	--	--	--	--
Norway	No	--	--	--	--	--	--	--	--	--	--
Poland	No	No	Occas-	None	Yes	Yes	--	Manila, 4 ply	--	110 mm.	4 tons?
Portugal <sup>1)</sup>	Yes	Yes	Occas-	None	Yes	Yes	--	Manila, double 3 ply	--	114+ mm.	3-5 tons?
Russia <sup>2)</sup>	Yes	Yes	No	None	Yes	Yes	--	Manila, double 50-75/4	--	110+ mm.	2 tons
Spain <sup>2)</sup>	Yes	Yes	No	None	Yes	Yes	--	Manila, double 45-60/4	Nylon	114 mm.	1 ton
Sweden <sup>2)</sup>	No	--	--	--	--	--	--	--	--	--	--
U.K. <sup>3)</sup>	Some	Yes	No	None	Yes	Yes	--	--	--	--	--
U.S. <sup>1)</sup>	Occas.	Yes	No	None	Yes	Yes	--	--	--	--	--

1) Information for ICNAF area.  
 2) From replies given during previous ICNAF meetings.  
 3) Precise answer to extent of chafing gear use deferred.