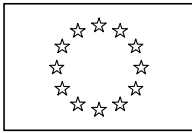


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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 17.01.2008
SEC(2008)*****

COMMISSION STAFF WORKING DOCUMENT

**SCIENTIFIC, TECHNICAL AND ECONOMIC COMMITTEE FOR FISHERIES
(STECF)**

**ADVICE ON SELECTIVITY OF ACTIVE GEARS TARGETING COD IN THE
BALTIC SEA**

STECF adopted this advice by correspondence in January 2008

This report does not necessarily reflect the view of the European Commission and in no way
anticipates the Commission's future policy in this area

STECF Advice on selectivity of active gears targeting cod in the Baltic Sea

1. Background

The technical measures regulation for the Baltic Sea (EC No 2187/2005) requires the Commission to present an evaluation of the selectivity of active gears targeting cod in the Baltic Sea in 2007 on the basis of advice from STECF. The Commission has requested and received scientific advice by ICES based on the information provided by EU Member States

In this regard, STECF is requested to review the ICES advice on selectivity of active gears targeting cod in the Baltic Sea, evaluate the findings and make any appropriate comments and recommendations. The review should focus on trawls, Danish seines and similar towed gears with a mesh size $\geq 105\text{mm}$ equipped with either a Bacoma exit window or a T90 codend as defined in regulation (EC) No 2187/2005.

In addition STECF should evaluate whether the selectivity of the T90 trawl net changes over time (i.e. after 1 year and after two years of its use) in comparison to the selectivity of the "Bacoma" trawl net.

2. ICES' Findings

The ICES Response to the EU on selectivity of active gears targeting cod in the Baltic Sea is given in ICES (2007). The ICES findings were as follows:

2.1. General Comments

- On the basis of an earlier meta-analysis carried out by ICES, both Bacoma windows and T90 codends (provided they are correctly used as per the current regulations) give 50% retention lengths of 38-40cm, equivalent to the MLS for cod of 38cm. There is inherent variability in the data sets used in this analysis, however, and this should be borne in mind.
- In order to make a direct comparison between the gear options, data from structured experiments, specifically designed to assess the relative selectivity of the two designs is still required. In particular robust data on the effect of twine thickness, codend circumference and mesh size needs to be collected given the inherent effect of such parameters on the selectivity of the respective gear options.
- A preliminary analysis of new data provided by Poland and Germany give similar L50s of $\sim 41\text{cm}$ and Selection Ranges of between 4.8-6.5cm and re-affirm the selective properties of T90 codends.
- A modelling analysis carried out in Denmark indicates that codend circumference has a major bearing on selectivity regardless of whether the codend is constructed in standard diamond mesh or T90.
- Only limited additional information on the selectivity of Bacoma windows is available and the results of the earlier meta-analysis are considered as the most reliable estimates.

2.2. Selectivity with Regard to Minimum Landing Size of 38cm

- Both gear options give L50s equivalent to the MLS for cod but based on the available information the likelihood of either gear fully corresponding to the management aim of bringing the MLS into agreement with L25 in all areas of the Baltic is still unclear given the high degree of data variability and other contributing factors such as catch size and catch composition
- Complimentary technical measures such as real-time closures maybe appropriate in areas where high concentrations of cod are encountered or restricted fishing in areas where flatfish catches are high and the effectiveness of the gear measures maybe negated.

2.3. The Rate of Discarding

- Unless coverage by observer schemes is extensive compared to overall fishing effort, it is very doubtful that the available discard data will actually be able to detect any real differences between gears, particularly given that there will be undoubted localised differences (i.e. different fleets using T90 or Bacoma in different areas, fishing on different size distributions and catch compositions).
- The limited information available from recent research cruises carried out and discard sampling indicates similar discard rates of between 5-10% for both gear alternatives.
- The effect on selectivity of large catch sizes and differing catch compositions with both gear options needs to be considered, as there is evidence that both are contributing factors to high discard rates.

2.4. Additional Aspects

- From all the available information there seems a clear dichotomy between countries such as Denmark and Sweden whose fishermen clearly prefer to use the Bacoma window and other countries particularly Poland and Germany where the T90 codend is the more attractive alternative.
- There are allegations of circumvention of the gear measures but without documented evidence no assessment of the impact of such practices on selectivity can be made.
- Both gears have their advantages and disadvantages in terms of practicality or perceived benefits in terms of fish quality or fuel efficiency. These are of limited relevance from a stock management perspective but are seen as additional incentives for fishermen to adopt the selective gear options.
- Given there likely negative effects on selectivity, a review of the current regulations regarding permissible gear attachments e.g. chafers, rescue floats etc. should be carried out in order to establish whether there is a need for their continued usage.

A review of the information that forms the basis and justification for the conclusions are detailed in the technical annex of ICES (2007).

3. STECF Observations

STECF notes that a preliminary analysis of new data gave similar results to an earlier meta-analysis conducted by the ICES (ICES 2004, 2005)). The results from the meta-analysis indicated that gears fitted with either a Bacoma exit window or a T90 codend both give similar results in terms of L50, which is broadly in accordance with minimum landing size for cod in the Baltic (MLS = 38 cm total length). ICES concluded that no difference in selectivity between the two gears could be detected. STECF notes that this may have been largely a result of the inherent variability in the data used in the meta-analysis. The data used were not obtained from appropriately designed structured experiments aimed at comparing the selectivity of the two gears and as a result, it proved impossible to disentangle ‘true’ from confounding effects.

STECF also notes that the majority of data from T90 cod-ends used in the earlier meta-analysis, on which the current findings are based, were obtained mainly from experiments using cod-ends that are likely to have lower selectivity than the specification for codend construction in the current regulation. The data used were obtained from trials in which the T90 cod-ends had a higher number of meshes in circumference (mean 87) compared to the current legal maximum of 50. The number of meshes in circumference is known to affect L50 in conventional diamond mesh cod-ends. It is therefore plausible that the selectivity of the T90 cod-end determined from the earlier meta-analysis underestimates the L50 of cod-ends based on current regulations. In fact, results in the ICES report indicate slightly higher L50’s from more recent data obtained from trials using T90 cod-ends constructed according to current regulations. Furthermore, the technical Annex to the ICES report presents one data set comparing both the T90 and Bacoma cod-ends configured in accordance with current legislation, but further statistical analysis where gear type is used as an explanatory variable is required to determine whether the higher L50 and lower selection range observed for the T90 codend is statistically significant. STECF advises that in order to ascertain whether the selectivity of the T90 cod-end as per current legislation has higher selective properties than that of the Bacoma gear variant a series of rigorously designed, structured (comparative) selectivity experiments using commercial fishing vessels are required.

ICES notes that catch size and catches of flatfish can negatively influence selectivity for the Bacoma and T90 gear respectively. STECF suggests that the effect of catch composition on selectivity be explored further and notes that it may be possible to get an indication if this is a problem affecting the overall exploitation pattern for cod by evaluating information on catch size distribution observed during commercial fishing.

STECF agrees with the ICES findings that discard data from observer schemes cannot be used to draw any comparisons between the two gears due to low levels of sampling relative to overall fleet effort.

STECF is unable to determine whether the selectivity of a T90 cod-end changes over time due to lack of appropriate data.

4. STECF Conclusions and Recommendations

STECF supports the ICES findings and concludes that it has not been possible on basis of the available information to answer the question if the Bacoma and the T90 trawls have similar

selectivity properties. Answering the question would require a series of coordinated experiments.

STECF notes that the current exploitation pattern on cod of the trawl fishery allows the exploitation of immature cod. This results in a suboptimal utilisation of the cod stocks in the Baltic. Improved exploitation pattern with reduced mortality on juveniles will not only provide for higher yields but also contribute to the recovery of the eastern cod stock. Therefore STECF recommends that measures resulting in improved exploitation pattern for Baltic cod be considered.