

ICES Mixed Stock Guidelines

1 Purpose

ICES developed guidelines for advice on fisheries that concurrently catch a mix of stocks of the same species. This document outlines those guidelines and the implementation in the advice for 2025.

MIRIA is asked to provide their perspective on how this issue can be handled and communicated in the advice.

2 Background

At MIRIA, MIACO and in bilateral meetings the issue of consistency in approach for ICES advice on the management for mixed stock fisheries was repeatedly raised. ACOM discussed this in March 2024 and published version 1 of the [ICES Guidelines for advice on fisheries that concurrently catch a mix of stocks of the same species in May 2024](#).

It describes the issues related to the provision of advice for fisheries that occur concurrently on multiple stocks of the same species and provides guidance on how such advice should be formulated under circumstances with different levels of information about stock mixing in these concurrent fisheries. The information in this document is relevant for ICES expert groups delivering evidence for advice on fishing opportunities, for advice drafting groups, and for interested policymakers, stakeholders, and the wider scientific community.

The amount of information available will determine the type of advice that can be given. However, advice should be consistent with ICES advisory framework; specifically:

- Advice should be precautionary for all stocks in a fishery which concurrently catches a mix of stocks of the same species.
- The advice for individual stocks should be set according to the ICES advice rules including if the stock is below B_{lim} . In such situations, advice should be for zero catch where there is no fishing mortality that will bring the stock to above B_{lim} with > 50% probability in the year after the year for which the advice applies.
- Information on the existence of a concurrent fishery on stocks should be included in the headline advice.
- Information on concurrent fisheries should be included in the advised catch levels in the headline advice to the extent possible.

3 Experience with implementation of the guidelines in 2024

The mixed stock guidelines were published in May and were not implemented for all stocks with fisheries that concurrently catch a mix of stocks of the same species in 2024. The main stocks where the guidelines were implemented are listed below.

Stock Name	Approach taken
Irish Sea Herring	<p>ICES advises that when applying the precautionary approach to the Irish Sea stock, in order to protect the Celtic Sea herring stock, there should be zero catch of herring from the northern Irish Sea in 2025. The application of the precautionary approach is due to the presence of herring from other populations including the Celtic Sea for which ICES advises zero catch. ICES advises that when the maximum sustainable yield (MSY) framework is applied without accounting for precautionary considerations linked to stock mixing, catches of herring in the northern Irish Sea in 2025 should be no more than 5 223 tonnes. It is not possible for ICES to evaluate the risk of any management actions taken for the northern Irish Sea to the development of the weaker stocks.</p>
North Sea herring	<p>Headline advice is for NSAS with the following information:</p> <p>Western Baltic spring spawning WBSS herring (subdivisions 20–24 and the eastern part of Subarea 4) is caught in a mixed fishery with NSAS herring, and ICES advises that there should be zero catch of WBSS in 2025. WBSS herring is mixed with NSAS herring in the eastern part of divisions 4.a and 4.b and in Division 3.a. Catches of WBSS herring in the fishery for herring should be avoided for the effective recovery of WBSS herring.</p>
North Sea Cod	<p>Northern shelf cod comprises three substocks (Northwestern, Southern and Viking) which mix and are caught together. ICES advises that when the MSY approach is applied for the Southern substock and precautionary considerations to protect the Southern substock are applied for the Northwestern and Viking substocks, catches in 2025 should be no more than 15 511¹ tonnes, which corresponds to 9 920[*] tonnes from the Northwestern substock, 3 343[*] tonnes from the Viking substock, and 2 248[*] tonnes from the Southern substock.</p> <p>These catches by substock should not be taken as area-specific advice.</p> <p>Juveniles of northern shelf cod migrate into the northern part of the Kattegat and are caught together with the Kattegat cod.</p>
West Greenland Inshore Spawning Cod	<p>Two stocks are included in the advice sheet both with catch advice consistent with single stock F_{msy}</p> <p>Headline advice has the following information:</p> <p>Cod in NAFO Subarea 1 is caught in a fishery comprising a mix of West Greenland inshore spawning cod, West Greenland offshore spawning cod, and East Greenland–Iceland offshore spawning cod outside the spawning season. This should be taken into account when defining management actions to avoid exceeding the advice for any of the stocks.</p>

West Greenland offshore spawning cod	<p>Headline advice has the following information:</p> <p>Cod in NAFO Subarea 1 is caught in a fishery comprising a mix of West Greenland inshore spawning cod, West Greenland offshore spawning cod, and East Greenland–Iceland offshore spawning cod outside the spawning season. This should be taken into account when defining management actions to avoid exceeding the advice for any of the stocks.</p>
East Greenland-Iceland offshore spawning cod	<p>Mixing not mentioned in the headline</p> <p>Cod from this stock mix with the other cod stocks in Greenland waters outside the spawning season (Figure 2), and this should be taken into account when defining management actions (such as area-based TACs) to avoid exceeding the advice for any of the stock units.</p>
Western Horse mackerel	<p>North Sea horse mackerel is caught in a mixed fishery with western horse mackerel in Division 7.e, and ICES advises that there should be zero catch of North Sea horse mackerel in 2025. Catches of North Sea horse mackerel in the fishery for Western horse mackerel in Division 7.e should be minimized to support the recovery of the North Sea stock.</p>
Atlantic salmon Gulf of Finland	<p>ICES advises that when the MSY approach and precautionary considerations are applied, to protect weak stocks from Assessment Unit (AU) 5 there should be zero catch of Atlantic salmon in 2025 from the mixed-stock at-sea fisheries (both commercial and recreational in the offshore and coastal areas).</p> <p>ICES advises that there should be zero catch in AU 5 rivers with weak Atlantic salmon stocks in 2025.</p> <p>Coastal fisheries in the Åland Sea and Gulf of Bothnia (subdivisions [SDs] 29N–31) only catch Atlantic salmon from rivers in AUs 1–3 during the spawning migration. As such, ICES considers that if at-sea fishing can be confined to existing coastal fisheries during the spawning migration (from the beginning of May until the end of August) in the Gulf of Bothnia and the Åland Sea, total at-sea catch (both commercial and recreational) in these areas of no more than 40 000 Atlantic salmon could be taken in 2025.</p>

4 ACOM subgroup discussions

In December 2024 an ACOM subgroup met to discuss the implementation of the guidelines in 2024. Increasing data and knowledge around stock structure and mixing may have the perverse consequence that restrictive management will be needed in healthy populations to protect and sustain the most vulnerable stocks or sub stocks. A paper by Okamoto et. al 2020 highlighted that unanticipated declines among exploited species have commonly occurred despite harvests that appeared sustainable prior to collapse and that this is particularly true in the oceans where spatial scales of management are often mismatched with spatially complex metapopulations (i.e. where different stocks of sub stocks of the same species are mixed at different times and/or areas). They argue that multiple nested scales of management may be necessary to avoid cryptic collapses in metapopulations and the ensuing ecological, social, and economic consequences.

ACOM have previously discussed that data collection and monitoring of stock mixing requires considerable resourcing and planning as can be seen with the joint special request for Northern shelf cod. The alternative extreme is to not monitor

the stock mixing but set harvest rates low enough to ensure the sustainability of the most vulnerable stock or sub-stock. Where there are issues with mixed stock fisheries there is clearly a need for dialogue between scientists, managers and other stakeholders to identify an agreed approach.

In the short term the ACOM sub-group concluded that ICES role is to communicate the risk in our advice sheets where there are mixtures of stocks of the same species concurrently caught. It is a management choice how that risk is managed. Where possible the advice sheet should include actionable information on mitigating the risk (e.g. spatial and temporal information on the mixing levels). However, there may also be qualitative information available that can help guide management decisions (e.g. historic tagging data).

Guidance and feedback from MIACO on how ICES could improve the structuring of the advice when there are mixed stock issues would be welcome.

5 References

- ICES. 2024. ICES Guidelines for advice on fisheries that concurrently catch a mix of stocks of the same species. Version 1. ICES Guidelines and Policies - Advice Technical Guidelines. 4 pp.
<https://doi.org/10.17895/ices.pub.25764972>
- Okamoto, D. K., M. Hesson-Lewis, J. F. Samhour, A. O. Shelton, A. Stier, P. S. Levin, and A. K. Salomon. 2020. Spatial variation in exploited metapopulations obscures risk of collapse. *Ecological Applications* 30(3):02051. 10.1002/eap.2051