

Decision-makers need to read the 'fine print' in ICES advice

The Council of Ministers needs to learn to read and understand the scientific advice, and not focus solely on the headlines, when taking decisions on fisheries opportunities. Given the catastrophic state of the herring stocks in particular, the total allowable catches for the Baltic Sea stocks must be set well below the forecasts of F_{MSY} .

On 21–22 October, ministers will meet in the European Council to decide, on the basis of Commission proposals, on the fishing opportunities for next year in the Baltic Sea. The decision-making process is preceded by scientific advice from the International Council for the Exploration of the Sea (ICES). Contrary to popular belief, however, this advice represents answers to a series of questions posed by the Commission, not recommendations from scientists to politicians.

The advice is presented in a document called an 'advice sheet', and the main focus is usually on the upper part of the document, commonly referred to as the 'headline advice'. There, ICES presents a range of catches corresponding to the 'F-ranges' set in EU's multiannual plan for the fisheries in the Baltic Sea, based on the principles for maximum sustainable yield (MSY), and under the provisions of an agreement with a main funder, the European Commission.

For fish stocks covered by the multiannual plan and where sufficient information is available, these catch estimates are based on a forecast of the growth of the stock concerned, which in turn depends on estimates of spawning stock biomass (SSB) based on assessments of key reference values. By their nature, such forecasts are highly uncertain, as evidenced by the fact that the models used have changed several times and that past estimates have often been revised in subsequent years.

One example of the politicians' overreliance on a misunderstanding of the character of the information received from ICES can be

found in the Council of Ministers' defense of its decisions on total allowable catches (TAC) in 2023. This defence was a response to a request from the environmental umbrella organization Coalition Clean Baltic for an internal review of the TAC decisions, where the NGO had argued that the decisions violated EU regulations. This has now resulted in a case currently pending before the General Court of the European Union (Case T-342/24).

TAC decisions are political

Mistaking forecasts for recommendations obscures the fact that the TAC decisions are in effect decisions on how much of a predicted yield should be allocated to recovery of the stock, to maintaining ecosystem functions or keeping fisheries in operation. Aside from the folly of allocating expected returns, such allocation decisions are fundamentally political. And treating forecasts of expected yields as recommendations from biologists dodges discussions on crucial issues such as what risk is acceptable, how to deal with uncertainty, how to weigh long-term benefits against short-term benefits, how to weigh the environment against commercial interests or how to weigh different environmental interests against each other.

The estimated 'maximum sustainable yield' should not be regarded as a catch level that ensures a healthy fish stock and a sustainable ecosystem in the Baltic Sea. In the agreement between the Commission and ICES it is clearly stated that:

Limitations on fisheries may be required to achieve environmental objectives, especially regarding biodiversity, habitat integrity and food webs. This will not affect the catch that can be taken from a stock in accordance with the objectives of MSY and the precautionary approach and will therefore not affect ICES advice on fishing possibilities.

Important environmental aspects are thus not included in the calculations of MSY and these numbers can therefore not be used as



Photo: Bengt Olsson/Mostphotos

a foregone conclusion about the level TACs and quotas should be set, but only as one piece of information among others. Moreover, it is impossible to fish concurrently all species at MSY-levels.

Obligated to take environmental consideration

The objectives of the multiannual plan include the ambition to maintain “*harvested species above levels which can produce MSY*”, but also reaching good environmental status as defined in the Marine Strategy Framework Directive:

The plan shall implement the ecosystem-based approach to fisheries management in order to ensure that negative impacts of fishing activities on the marine ecosystem are minimised. It shall be coherent with Union environmental legislation, in particular with the objective of achieving good environmental status by 2020 as set out in Article 1(1) of Directive 2008/56/EC.

The descriptors for determining good environmental status under this directive (originally intended to be reached by 2020) include biological diversity, populations of all commercially exploited fish and shellfish within biological limits and exhibiting a population age and size distribution that is indicative of a healthy stock (Annex 1). Fulfilling the objectives of the multiannual plan therefore clearly needs more consideration than the MSY estimates.

Normally, ICES provides some information that could help guide the political decisions on total allowable catches, available for those who read further than the headlines. This can include the probability of the spawning stock biomass not reaching the target level (exceeding B_{trigger}). For the herring stock in the central Baltic Sea the probability of not reaching the target level with zero catches is 55 per cent. This in itself should be a warning signal to fisheries managers to take their foot off the gas pedal and put it on the brake.

Uncertainties in the estimations

Other information contained in the scientific advice includes some indications of uncertainties in the estimates and forecasts. Regarding the central Baltic herring, there are uncertainties due to uncertain recruitment and misreporting, according to the advice:

The recruitment in 2023 and 2024 are uncertain, and this uncertainty will be propagated into the forecasted catch in 2025 and SSB in 2026.

Species misreporting of herring and sprat has occurred in the past, and there is evidence that this is an ongoing problem. These effects have been neither quantified nor included in the assessment because a lack of access to representative data.

These uncertainties are in themselves ground for keeping the total allowable catches below ICES yield forecasts based on

MSY. According to a recent article in Science, there is a general tendency for fisheries models to overestimate the size of the stock. If treated as a certainty instead of a forecast, basing decisions on such overestimates will tend to lead to a decline in the stock.

The consequences of such uncertainty can be seen in the assessment of the Gulf of Bothnia herring: despite a nominal rather low fishing mortality, for most of the time well below F_{MSY} , the SSB has continuously declined for about 35 years.

Conservation considerations

The scientific advice also gives information on risks connecting to decline of biodiversity:

The herring stock in the management area consists of several different spawning components that have been shown to be genetically distinct. Differences in genetics and migration routes between spawning components and spatial differences in growth and maturity, make the central Baltic herring stock complex vulnerable to loss in both genetic diversity and overall productivity.

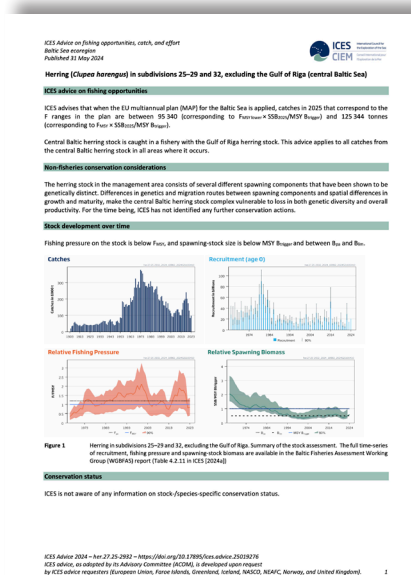
The risk of depletion of subpopulations that would have large effects on the future stocks as a whole, as well as marine biodiversity and resilience, is another argument for setting the TACs significantly below the forecast MSY levels.

Call to the Council of Ministers

The situation for the fish stocks in the Baltic Sea is critical. Three of the seven managed stocks – the western and eastern cod stocks and the western herring stock – are in a crisis, with a biomass below B_{lim} . Two more are at risk – the central and the Bothnian herring stocks – with a biomass below B_{trigger} , and the classification of the sprat stock as productive is explicitly dependent on optimistic assumptions about the strengths of the latest year-classes.

The multiannual plan for the Baltic Sea fisheries aims to keep the fish stocks at a productive level and the environment at good status. Obviously, the implementation of this plan has failed. An important reason for this is probably that policy decisions on fishing opportunities have been based too much on forecasts that are taken as recommendations, rather than taking into account all available information and known uncertainties.

At its meeting on 21-22 October, the Council of Ministers needs to read more than the headlines in the scientific advice. Decisions on total allowable catches for 2025 must be based not only on (highly uncertain) yield forecasts, but also on the risk of extinction of subpopulations and collapse of stocks, and the need to pull the emergency brake in the future.



The scientific advice from ICES contains more than its headline.

BRIDGING THE GAP BETWEEN SCIENCE AND POLICY

This is a policy memo produced by Stockholm University Baltic Sea Centre. Scientists, policy analysts and communication experts work together to bridge the gap between science and policy.

We compile, analyse and synthesise scientific research on Baltic Sea related issues and communicate it at the right moment to the right actor.

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