Pelagic Advisory Council
Louis Braillelaan 80
2719 EK Zoetermeer
The Netherlands

Phone: +31 (0)63 375 6324
Website: www.pelagic-ac.org

Ms Charlina Vitcheva
Director General
Directorate General Maritime Affairs
and Fisheries
Rue de la Loi 200
1049 Brussels
BELGIUM

Date: 5 October 2023
PelAC reference: 2223PAC02
Subject: PelAC recommendation on the ecosystem-based approach to fisheries management

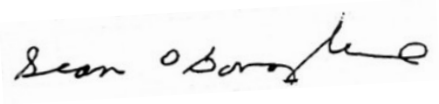
Dear Ms. Charlina Vitcheva,

I am pleased to submit in Annex I the Pelagic AC recommendation on the implementation of the ecosystem-based approach to fisheries management (EAFM) in pelagic fisheries. This recommendation has been unanimously endorsed by the Executive Committee.

This advice has been drafted for the Commission's consideration in the medium to long-term as the Commission moves towards EAFM, but also in the shorter term, as input to the upcoming 2024 TAC-setting discussions and consultations with Northeast Atlantic Coastal States on shared stocks.

In case you have any questions, please do not hesitate to contact the Secretariat. Thanking you in advance for your kind consideration, and looking forward to your response,

Kind regards,



Sean O'Donoghue
Chairman Pelagic AC

Co-funded by
the European Union

Annex I
Recommendation on the implementation of the ecosystem-based approach to fisheries management (EAFM) in pelagic fisheries

October 2023

Background

One of the key objectives of the CFP is to implement the ecosystem-based approach to fisheries management (EAFM), so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimised, and the degradation of the marine environment is avoided. The CFP defines EAFM as "an integrated approach to managing fisheries within ecologically meaningful boundaries which seeks to manage the use of natural resources, taking account of fishing and other human activities, while preserving both the biological wealth and the biological processes necessary to safeguard the composition, structure and functioning of the habitats of the ecosystem affected, by taking into account the knowledge and uncertainties regarding biotic, abiotic and human components of ecosystems".

The Marine Strategy Framework Directive (MSFD) emphasizes the need for managing the marine ecosystem as a whole and applying an ecosystem-based approach to all human activities, including fisheries, with the aim to achieve or maintain Good Environmental Status (GES) of the Community´s marine environments. Moreover, international treaties and policy frameworks such as the United Nations Fish Stocks Agreement (UNFSA), the Kunming-Montreal Global Biodiversity Framework (GBF) and the United Nations High Seas Treaty, as well as HELCOM and OSPAR, require fisheries managers to pursue an ecosystem approach in their work.

The European Commission has published a study on EAFM in 2022, aimed at assessing the current state of EAFM's implementation in the EU and providing recommendations to help further advance it. Developing the EAFM is also identified as a key area for future focus by the Commission in its CFP communication released in February 2023.

Despite the level of research on this topic since the CFP came into force, the uptake of an EAFM in the EU has been limited. The FP7 research project MareFrame has identified a multitude of institutional and scientific barriers as well as lack of stakeholder engagement as main reasons that prevent practical application of an EAFM[1]. Several MSFD descriptors are directly impacted by fishing, e.g. food webs and the status of commercial fish and shellfish species. However, information is often scattered and implementation of the MSFD takes place on Member State level, potentially leading to incoherent measures due to a lack of coordination. This contributes to management difficulties, especially with regards to widely distributed stocks in the Northeast Atlantic which do not respect national boundaries and which are often shared with third countries.

The PelAC has established an Ecosystem focus group (EFG) to explore how to overcome these barriers and try to make the EAFM operational in a pelagic fisheries context. The EFG has recently revised its Terms of Reference in an attempt to break down the vastness of the EAFM into sizable chunks that can be tackled in a more systematic way. The EFG plans to look at ways to develop the work on an issue-by-issue basis (such as noise impacts on delicate spawning areas, bycatch of sensitive species deep-sea mining, climate change impacts etc), without losing track of the overall EAFM scope. The

[1] https://maritime-spatial-planning.ec.europa.eu/projects/mareframe-co-creating-ecosystem-based-fisheries-management-solutions

Co-funded by the European Union

Focus Group aims to ensure that a practical building-in of EAFM into policy is considered. Following this approach, the PelAC hopes to gain a better understanding of the different dimensions and ecological drivers that come into play and should be considered when implementing EAFM in pelagic fisheries. With this knowledge, the group ultimately hopes to contribute to the development of multiannual-multispecies plans.

Taking into account the long-standing interest and capacity of the PelAC and its members to engage constructively with ICES, it is also expected that the EFG and the Advisory Council will look to engage with the scientific body as it develops the adequate processes of data collection, stock assessment and advice drafting for EAFM, which will need to address how to move from a single species approach to a multi-species approach.

The PelAC has continuously advised the Commission to further develop the ecosystem-based approach in numerous past recommendations, such as the annual TAC recommendations[2]. As such, it fully supports the Commission's aspirations to take steps to improve the uptake of EAFM moving forward.

As a follow-up step, the PelAC developed the recommendations as set out below, as a result of discussions and reflections during the PelAC workshop on EAFM organized in February 2023, which sought to identify approaches to implement EAFM in pelagic fisheries, as well as gather elements to enable further progress in relation to integrating ecosystem variables in pelagic fisheries management, and to identify knowledge gaps. The PelAC hopes the Commission will find these recommendations useful in their reflections to gradually move beyond single-species advice and to further develop the uptake of ecosystem considerations and climate driven changes into fisheries advice and management strategy evaluations.

One of the key recommendations from the Commission study on EAFM (2022) to help progress the implementation of EAFM is to improve decision-making through better involvement of stakeholders early on, and by linking tightly to the knowledge base[3]. These recommendations can be considered as a contribution to this, where the PelAC hopes to provide the Commission with elements to improve the knowledge base as well as material for further discussions with ICES on EAFM moving forward. Finally, the PelAC hopes these recommendations form a basis for further engagement with the Commission services on this key topic moving forward.

PelAC workshop on EAFM in pelagic fisheries in NEA

To take stock of ongoing developments in the science, and help shape the PelAC views on what is needed to implement the EAFM in European pelagic fisheries, the PelAC held a workshop on the EAFM in February 2023, to which different scientists from around the world, as well as ICES and the Commission, were invited for an exchange on the state of play: comparing different approaches attempting to apply EAFM in different situations. A debate on the approaches, their uses, results and their applicability to European pelagic fisheries was held.

A detailed report can be found on the PelAC website.

[2] https://www.pelagic-ac.org/wp-content/uploads/2022/10/2223PAC08-Letter-to-COM-PelAC-TAC-Recommendations-2023.pdf

[3] https://cinea.ec.europa.eu/publications/implementation-ecosystem-based-approaches-applied-fisheries-management-under-cfp_en

Co-funded by the European Union

The first session was dedicated to presentations on the SEAwise project, the 2022 Commission's study on EAFM and ICES's view on the use of MSEs to explore ecosystem scenarios. The second portion of the workshop explored several case studies by scientists as examples how the ecosystem-approach could be applied, which included:

- Cod/capelin in the Barents Sea
- Atlantic Menhaden fishery USA
- EAFM in the Irish Sea
- Balanced Harvest

The different case studies applied EAFM through inclusion of key ecological drivers such as predator-prey relationships, productivity or climate considerations. The examples show that one single strong driver can be incorporated into single-species management, by factoring the driver into the assessment, the Harvest Control Rules (HCR) and management. But adding additional layers of complexity, will require new approaches that may need a more integrated and involved management framework, which may be more resource demanding.

Implementation EAFM: issues to consider

- A first key discussion point that emerged in the workshop was the need for a common understanding of the underlying definition of EAFM set by the FAO, which defines the ecosystem-based approach as an integral approach to managing fisheries that takes into account the knowledge and uncertainties of biotic, abiotic and human components of ecosystems and their interactions[4]. The FAO frames the ecosystem-approach through ecological, but also social and economic components related to human activity. During this workshop, the PelAC established that different entities such as ICES, the Commission and scientists, applied this FAO definition of EAFM 'loosely', often only focussing on the environmental pillar, and thereby disregarding the socio-economic component. This is an issue in the implementation of EAFM and highlights the importance of agreeing that EAFM is not a one-dimensional concept. The lack of appropriate socio-economic data and agreement on suitable socio-economic indicators, were mentioned as key contributors hindering the application of the full definition.

- In the workshop, ICES presented the potential of MSE as a tool to evaluate ecosystem-based scenarios. There are MSE approaches that explore the consequences of management actions accounting for ecosystem dynamics, productivity or climate change[5]. ICES is evolving to provide ecosystem-informed advice and MSE has potential to develop to account for ecosystem dynamics and productivity, but in order to deliver on that, ICES needs specific management objectives defined by advice requesters framed in EAFM terms. This requires development and time. The PelAC considers it important to ensure EAFM management objectives are included in the MoU between ICES and the Commission, where possible.

- One of the biggest challenges the PelAC is faced with in terms of further developing multi-species management, are realities when species in a predator/prey complex belong to the remit areas of different ACs. For example, if following fishing strategy that takes not account

[4] https://www.fao.org/documents/card/en/c/cb3669en
[5] https://www.sciencedirect.com/science/article/abs/pii/S0165783622001151?via%3Dihub

Co-funded by the European Union

predatory/prey relationships, cod must be fished down in order for a pelagic species to thrive, this may lead to difficult discussions if cod falls outside the remit of the PelAC. Similarly, the same mixed-management difficulties exist in a Coastal State context, where some CS may have quota for a predator species while others only for the prey species. These CS may not necessarily agree on the management affecting one species to protect another. Any development of EAFM approach in stocks shared with CS will need to pass through these international fora as well, which can add to difficulties in international management.

Knowledge Gaps

In response to the recommendations from the Commission study on EAFM (2022) to improve the knowledge base and seek to address obstacles within the existing advisory and decision-making processes. The workshop identified the following gaps to further explore moving forward:

- Defining the socio-economic dimension and governance aspects of ecosystem-based fisheries management (EBFM).

- There is potential for added R&D in the incorporation ecological parameters into MSEs.

- Key features of pelagic fisheries are that they are heavily influenced by climate, but there is a need for better understanding of the exact dynamics, trends and impacts on pelagic stocks. In addition, there is a need to strengthen empirical science and work on genetic stock-ID to get a better understanding of populations structures, to avoid incorrect speculations and modelling of perceived changes in species distributions. This can lead assumptions of changes in distribution etc when in reality there are changes in the abundance and productivity of local populations. In order to put effective management in place for these populations and to ensure they 'survive' these low abundance periods and changing environmental conditions there needs to be a solid understanding of their delineation. In absence of knowledge, leading to a lack of a full-analytical assessment, the PelAC is of the view a precautionary buffer could be considered as an added tool in the advice setting process.

- MPAs have different rationales for the preservation of biodiversity, such as to reduce seafloor disturbance, where the impacts of pelagic gears on the surrounding demersal habitat are low. The overall impact of existing MPAs on pelagic stocks is limited or unknown. Therefore, there is a need to further evaluate the possible impacts of spatial and temporal measures that are designed specifically for the preservation of small pelagic species.

- Competition between fisheries and megafauna competing for the same food source can be an issue (e.g. seabirds preying on small pelagic fish). This reinforces the need to develop science and management approaches that better take into account the relevant trophic interactions that affect a particular stock, including non-commercial species and sensitive/protected species.

- There is a lack of knowledge to ascertain the impacts of bycatch of sensitive species caught in pelagic gear has on populations. The PelAC highlights that the newly started CIBBRiNA project seeks to develop and implement best practice in bycatch reduction in the Northeast Atlantic regions, and would therefore serve as an excellent basis to increase the knowledge base on bycatch data, impacts on sensitive species and effective measures.

Co-funded by the European Union

- In addition, the PelAC reminds the Commission of two recommendations issued by the Pelagic AC in 2020 *(references 1920PAC87* and *2021PAC06)* requesting non-recurrent advice from ICES on the impacts of seismic and offshore renewable energy (ORE) activities on fish stocks and spawning areas. The ICES advice on NS herring further strengthens the need for increasing the knowledge base for this field, based on which appropriate management measures can be developed that protect essential spawning areas.[6]

Recommendations

Moving towards a multi-species approach

As highlighted in the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks[7], the PelAC believes that fisheries management should evolve to consider "conservation and management measures for species belonging to the same ecosystem or associated with or dependent upon the target stocks". While the science is still being developed and there are few cases where these approaches are being implemented in practice, the PelAC encourages the Commission to look to these in order to define the way forward.

- Recalling its recommendation in light of the Fisheries Action Plan consultation in 2021[8], the PelAC considers the work done in the Irish sea by the ICES WKIRISH workshops, aimed at incorporating ecosystem information into the ICES single-species stock assessment process for the Irish Sea, as key example from which to build on to progress the implementation of EAFM moving forward.

- The WKIRISH workshop led to the development of the "F_{eco}" approach, a modelling of fishing mortality based on ecosystem information, which was implemented in an ICES stock (Irish Sea cod). The PelAC considers the approach followed by the WKIRISH project for developing and implementing "F_{eco}" as a key starting point to further explore EAFM implementation in a pelagic context. In WKIRISH, the Northern Irish Sea herring was tested and could serve as a possible candidate pelagic stock to apply the "F_{eco}" approach to a pelagic species.

- As a key step to progress this work on herring, the "F_{eco}" ranges for the stock would need to be defined, and suitable indicators, such as abundance of large zooplankton as an indicator for herring productivity, would need to be selected. Indicators can be selected when there's a strong signal and where there's a clear biological understanding linking the indicator to productivity changes. The PelAC strongly advises the Commission to discuss with ICES taking this next step in herring, in order to progress the development of EAFM in a pelagic stock[9].

[6] ICES (2023). Herring (Clupea harengus) in Subarea 4 and divisions 3.a and 7.d, autumn spawners (North Sea, Skagerrak and Kattegat, eastern English Channel). ICES Advice: Recurrent Advice. Report. https://doi.org/10.17895/ices.advice.21907947.v1

[7] https://www.un.org/depts/los/convention_agreements/convention_overview_fish_stocks.html

[8] https://www.pelagic-ac.org/wp-content/uploads/2021/10/2122PAC18-Letter-to-COM-FAP-Questionnaire.pdf

[9] *That being said, the PelAC highlights that it is important to address the significant stock identification issues between the Irish Sea and Celtic Sea herring, where evidence indicates that a significant proportion of the surveyed biomass of the herring in the Irish Sea are from the Celtic Sea stock. This issue also likely affects the*

Co-funded by the European Union

- The 2019 WKIRISH workshop recommended that the ecosystem models, update and development, should form an integral part of the ICES benchmark process, and in particular the definition of reference points. According to WKIRISH, ecosystem models should 'sit alongside' the single-species benchmark process. This would enable to start a process of aligning the work across other stocks and having ecosystem information inform the selection of reference points, ranges and the selection of indicators[10]. The PelAC fully supports these recommendations by WKIRISH and considers them beneficial to further progress the development of implementing EAFM. Therefore, the PelAC recommends the Commission to bring this issue forward in its discussions with ICES.

- The PelAC recommends the Commission to ensure that the development and implementation of Ecological Reference Points (ERPs), such as the "F_{eco}" approach, for other stocks including herring, is included in next Memoranda of Understanding (MoUs) with ICES. In addition, the PelAC recommends to include the recommendation from WKIRISH that ecosystem models, updates and development should form an integral part of the ICES benchmark process, and in particular the definition of reference points, in its MoU with ICES as well.

- The PelAC recommends the Commission to request ICES to create an ecosystem-focused working group that can evaluate the potential for the application in other regions of an approach similar to the one developed by WKIRISH, as well as other alternative approaches that take into account the interactions between all the relevant species in a given area or trophic web.

- The PelAC recommends the Commission strengthen the allocation of resources (e.g. from Horizon Grants) to collect necessary data for the incorporation of ecosystem considerations in scientific assessments.

Potential of MSE in EAFM

- The PelAC considers it worthwhile to explore the full potential of Management Strategy Evaluation (MSE) as a tool to capture ecosystem elements into fisheries models and advice, and recommends the Commission to drive ICES' work in this area forward to develop these methods further.

- Through proper stakeholder engagement, MSE process can allow stakeholders and managers to understand trade-offs of management objectives and scenarios that may help fisheries managers work through the challenges, both within the EU as well as with other Coastal States.

- The PelAC recommends the Commission to step up efforts in formulating management objectives that follow the ecosystem-approach, to fully explore the potential of incorporating

commercial catches in the Irish Sea. This would be a key starting point before moving forward with developing an appropriate assessment for either Irish or Celtic Sea herring.

[10] ICES (2020). Workshop on an Ecosystem Based Approach to Fishery Management for the Irish Sea (WKIRISH6; outputs from 2019 meeting). ICES Scientific Reports. Report. https://doi.org/10.17895/ices.pub.5551

Co-funded by the European Union

additional ecological objectives (e.g. securing food base for predator species), beyond the harvest-related objectives for the target species. The PelAC believes it can play a key role in shaping the objectives for advice on key stocks under its remit, and asks to be actively involved in the process of drafting key questions and objectives to ICES.

- As an example, the PelAC recalls its recommendation issued in light of the 2021 consultation on the Fisheries Action Plan*: "Addressing the interlinkages between North Sea and Western Baltic spring spawning herring, serves as another example that would benefit from taking a broader ecosystem approach to management. The PelAC reiterates its previous recommendation on North Sea and Western Baltic spring spawning herring, reminding the Commission that a substantial part of WBSS herring is by-caught in fisheries under the remit of the PelAC. The PelAC recommends the Commission, Member States and ICES evaluate the effects of special management measures introduced in both herring and industrial fisheries in 3A in 2021 in order to minimize the risk of unavoidable bycatches of WBSS herring.*[11]"

MSE could be a tool to evaluate the effects of management measures introduced to protect bycatch species, and assess their effectiveness.

- Further to this, the PelAC recommends asking ICES for insights on criteria for the overall composition of the ecosystem and dealing with different types of strategies.

Socio-economics

- The PelAC stresses that any approach to implement the EAFM needs to take into account the full three-dimensional definition as set by the FAO. The Commission 2022 study made little reference to the socio-economic component of EAFM. The PelAC is of the view that approaches to implement EAFM should eventually include socio-economic and governance aspects of ecosystem-based fisheries management, and therefore recommends the Commission to expand the knowledge-base on socio-economic data. In addition, the PelAC recommends the Commission to seek agreement on appropriate and suitable socio-economic indicators, in close consultation with all appropriate stakeholder groups (including groups representing civil society).

- Once defined, the PelAC asks the Commission to push for their gradual uptake of these indicators in ecosystem models and MSEs.

Impacts of other marine activities on fisheries

- The PelAC underlines the importance of approaching EAFM from a dualistic point of view: by not just addressing the impacts of fishing activities on the ecosystem, but also to manage the broader impacts from all marine activities on the entire ecosystem, including fishery resources, through this concept as well. The PelAC recalls its 2021 recommendation submitted in response to the Fisheries Action Plan consultation:

"*The PelAC feels it is equally important to better understand collateral impacts of other marine activities on fisheries and the marine environment (e.g. sand and gravel extraction), as well as those of land-based activities (e.g. agriculture and industry).*

[11] https://www.pelagic-ac.org/wp-content/uploads/2021/10/2122PAC18-Letter-to-COM-FAP-Questionnaire.pdf

Co-funded by the European Union

"*The latest ICES advice for North Sea herring calls for measures to protect the stock's spawning habitats. The PelAC underlines the importance of protecting essential spawning grounds for pelagic species, and reiterates its previous recommendation, encouraging the EU Commission to request from ICES an overview of possible further temporal and spatial management measures options for the directed herring fisheries in the North Sea and 3A and related fisheries with unavoidable by-catches of WBSS herring, in order to reduce critical and unwanted pressure on these stocks*[12]*."*

- Further to this, the PelAC recommends the Commission to explore with ICES the potential of incorporating spatial data into ICES models, and to develop spatial measures based on these results. Spatial protection is a recognized tool that contributes to the implementation of EAFM. This involves protecting the habitats of targeted species, particularly zones where these species are at vulnerable life stages, such as nursery and spawning areas. The PelAC recommends the Commission to ask ICES to further evaluate the possible impacts of spatial and temporal measures that are designed specifically for preservation of pelagic species, and make sure that this work is included in its MoU with ICES[13].

- Finally, the PelAC recommends the Commission to ask ICES to increase the knowledge base on the impacts of noise from marine activities (seismic and ORE activities) on pelagic fish and fish life stages, in order to adequately develop measures to protect essential spawning components of pelagic stocks.

Climate considerations

- The WUR MSc thesis co-supervised by the PelAC and completed in 2023 revealed the impacts of changing seawater temperatures to the distribution and migration patterns of the Northeast Atlantic mackerel stock[14], which is in line with other observations for changes in mackerel distributions in recent years. The PelAC has concerns that climate change aspects are significantly affecting fish stock dynamics. Considering that knowledge on this field is still lacking, the PelAC is of the view there is an increasing and urgent need to develop the science in this area to enable the uptake of climate considerations into fisheries models and advice, as part of taking an EAFM approach.

- As a key component of further developing EAFM, the PelAC recommends the uptake climate considerations in fisheries advice, and encourages added investment of resources to evaluate the impacts and trends of climate change on pelagic stocks, such as pelagic stock biology, their distribution patterns, but also the impacts on trophic changes and species abundance.

- The PelAC considers ongoing work on genetic stock-ID a key requirement to strengthen the understanding of climate change considerations on stock dynamics and progress their uptake into assessments. The PelAC recommends the Commission to allocate resources to undertaking empirical research and to request ICES to expand ongoing work on genetic stock-ID to ensure correct conclusions are drawn with respect to perceived changes in distributions.

[12] https://www.pelagic-ac.org/wp-content/uploads/2021/10/2122PAC18-Letter-to-COM-FAP-Questionnaire.pdf

[13] *In this case as well, there is an urgent need to expand the stock-identification work. This is particularly evident in the situation of the WBSS herring where genetic assignment of a larger proportion of the NS herring catch would enable a full picture of the levels of mixing to be developed. Further within the NS stock there are two distinct populations (autumn spawners and winter spawners) and this is not currently accounted for properly in the assessment.*

[14] https://www.pelagic-ac.org/wp-content/uploads/2023/03/WGI-Final-presentation-MSc-thesis-WUR-on-essential-habitats-herring-and-mackerel-by-Annebelle-Jonker.pdf

Co-funded by the European Union

We hope you find these recommendations useful and remain at your disposal for a continued dialogue with the Commission on the progress of implementing EAFM. We look forward to an opportunity in the future to engage with the Commission further on this very important topic and recommend that the Commission includes the relevant the recommendations listed above in future MoUs with ICES.

Co-funded by the European Union