FISHSEC
THE FISHERIES SECRETARIAT

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Recommendations to get ecosystem-based fisheries management in the Baltic Sea on the right track

FishSec here presents a set of recommendations for the implementation of ecosystem-based fisheries management (EBFM) in the Baltic Sea region. The recommendations are based on the EBFM seminar that was organised by Stockholm University Baltic Sea Centre, The Fisheries Secretariat (FishSec) and the International Council for Exploration of the Sea (ICES) in Stockholm, June 2016.

The Food and Agriculture Organization of the United Nations has proposed to define EBFM as:

"An approach that takes major ecosystem components and services - both structural and functional - into account in managing fisheries... It values habitat, embraces a multispecies perspective, and is committed to understanding ecosystem processes... Its goal is to rebuild and sustain populations, species, biological communities and marine ecosystems at high levels of productivity and biological diversity so as not to jeopardize a wide range of goods and services from marine ecosystems while providing food, revenues and recreation for humans". (US National Research Council, 1998).

Summary of recommendations

- Develop a regional vision for what the Baltic Sea fisheries should look like within EBFM and a fully implemented Common Fisheries Policy (CFP).
- Ensure coherence between different EU legislation and directives, e.g. between the CFP and Marine Strategy Framework Directive (MSFD). Managers need to have the tools necessary within CFP to achieve Good Environmental Status (GES) under the MSFD, which the EU has committed to achieving by 2020.
- Allow for more local management of commercially exploited fish stocks.
- Develop a Baltic Sea management structure that efficiently channels existing scientific knowledge into the decision making process and includes stakeholders and communities of interest. The science is often in place, but managers need to ask scientists the right questions. Thus, In order to move the implementation of EBFM forward Baltic Sea EU member states should:
    - Create a BALTFISH EBFM working group.
    - Develop scoping studies of stakeholders and their interests in the Baltic Sea's ecosystem services.
    - Set up regular regional meetings for EBFM stakeholders and communities of interest.
    - Integrate ecosystem scenario modelling to better understand the trade-offs between different ecosystem services that managers need to consider.
    - Begin preparing to revise the Baltic Sea multiannual management plan to support the implementation of EBFM and the EU legislation underpinning EBFM, such as the MSFD.

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An ecosystem with many stressors and stakeholders

The Baltic Sea is a dynamic and variable water body. As a brackish water body, and given the large variability in salinity and temperature, plus the heavy influence of human activities, it is important not to manage fish stocks in isolation. Currently, fish stocks are managed as single species. Interactions between stocks, as well as the reciprocal relationship between the ecosystem and stocks, are not sufficiently taken into account.

In order to implement EBFM in this unique context, there is a need for management structures that channel the existing scientific knowledge of the Baltic Sea into the decision making process. Essential is the inclusion of the Baltic Sea's diverse stakeholders and communities of interest, and a long-term commitment to welfare of both ecosystem and human societies.

Today's fisheries management lacks the tools to implement EBFM

Today, like in the rest of the EU, Baltic fisheries are managed under the CFP. This governs where, when and how fishing can take place. In addition, annual quotas are set which are negotiated every fall. The CFP states that the ecosystem-approach to fisheries management must be implemented. Moreover, during 2016 the Baltic multiannual management plan was adopted, which covers the cod, herring and sprat fisheries.

Management is also regionalised through the CFP. The Baltic Member State forum called BALTFISH acts as the regional decision-making body. The Baltic Sea Advisory Council (BSAC) also provides advice and recommendations from stakeholders in the region. The Helsinki Commission (HELCOM) coordinates work on the MSFD in the sea basin. Member States have exclusive competence over their national quota allocation systems.

Moreover, a range of other EU Directives govern human activities impacting the marine environment and provide targets and objectives that need to be met by fisheries managers. The CFP is complimented by the MSFD, the Water Framework Directive and the Habitats Directive.

Focusing on the MSFD, a number of descriptors relate to fisheries management and have a direct connection to EBFM and to achieving GES, namely healthy stocks of "commercial fish and shellfish" (Descriptor 3), "sea floor integrity" (Descriptor 4), and "food web structure" (Descriptor 6).

For example, an important indicator of successful implementation within descriptor 3, one of the criterion for achieving GES, is a fish stock exhibiting a healthy age and size distribution. However, today's fisheries management is lacking the tools to efficiently manage the fish stocks to achieve this criterion. Developing these tools for managers to use is crucial for achieving GES within the MSFD.

The science is ready - but managers have to ask the right questions

In comparison to many other European waters, the Baltic Sea ecosystem is well studied and understood. However, commercial fisheries and fish stocks are managed and researched in an isolated silo and the consequences from fisheries on the rest of the ecosystem are set aside.

ICES is the main scientific body providing expert advice to the European institutions and Member States regarding fishing opportunities and the state of fish stocks. The advice provided is dependent upon the requests made by their clients. With regard to the Baltic Sea, this tends to be the European Commission and occasionally regional Member States. At present, these requests usually focus on short-term advice for single species, with the aim of setting quotas according to the Maximum Sustainable Yield (MSY) principle within the CFP. Their advice and recommendations are subsequently evaluated by the Scientific, Technical and Economic Committee for Fisheries (STECF) which also provides advice to the Commission. The Commission then develops a proposal for quotas that are negotiated by the European Council of Ministers, with preparatory work at BALTFISH. ICES also deal with specific requests, and much of this scientific work is conducted at universities in the different Member States.

A more flexible ecosystem approach to fisheries, in which environmental factors are taken into consideration is from a scientific point of view already possible to apply. For example, ICES has developed multispecies models for the Baltic Sea. These models informed part of the process for developing the Baltic multiannual management plan, but were not integrated into the final legislation as the science behind single species models were deemed to be more robust at the time. Moreover, ICES have recently developed ecosystem overviews, and for the Baltic Sea basin this is currently in development.

Not all approaches to an EFBM management have been tested and analysed. ICES' activities depend on what they are requested to do, since they only receive funding for dealing with requests. In order to move towards EBFM, more explicit requests are needed. The following section will discuss some focus areas that we have identified and for which the science has to be further developed and adopted.

Everyone with a stake or interest needs to be identified and heard

EBFM not only goes beyond the CFP, meaning that aspects of objectives in other EU environmental legislation need to be considered, but also beyond interests traditionally connected to commercial fisheries which mainly use fish for human consumption or fodder. Therefore there is a need to analyse who the different stakeholders are and what are their priorities. That means that it should not focus on just one segment of the fishing industry. Baltic commercial fish species are, for example, targeted in recreational fishing and the species have key ecological functions for the whole Baltic ecosystem.

To address these concerns, transdisciplinary-scoping analyses on the interest groups/stakeholders both within and outside the commercial fisheries, should be performed. Although not all decisions can be based on consensus, it is important that everybody participates and feels that they are heard. A better understanding of the rationales behind management decisions is likely to increase among stakeholder and improve their level of acceptance and compliance. A tentative approach could be to make descriptive analyses of how the Baltic fisheries currently look, how it was in the past and the potential for future development.

Commercial fish stocks interactions with the ecosystem must be considered

Currently commercial fish stocks are managed in isolation. Ecosystem effects are typically overlooked. Even though models featuring biological links among commercial species exist, single stock assessments with occasional references to predator-prey interactions are mostly used. To be able to address both the direct and indirect effects on associated species and the ecosystem, derived from the management of commercial fish stocks, more studies need to be conducted – and in cases where the scientific knowledge is already in place, this should be considered and integrated into the management process. Examples of links that need to be highlighted are ecosystem cascade effects and trade-offs between commercial fisheries and effects on non-commercial stocks, coastal zones, and other parts of the ecosystem.

Management areas should permit more local management of stocks

Management areas (or units) and the geographical distributions of stocks do not always match, which can complicate management. Most of these differences are due to fluctuations in the spatial distribution of stocks between years and seasons. There are also different subgroups within several commercial fish species that are managed as one stock even though there are local adjustments and behavioural variations. Some examples include the Öresund cod in subdivision 23 of the Baltic Sea, which is managed as part of the western Baltic cod stock in areas 22-24, and local populations of herring managed as one Central Baltic herring stock. One example of how a regional adjustment could improve management is to introduce spatial management of sprat in the southern Baltic Sea. This would potentially increase the most important prey for the small sized cod in the region.

The regional governance framework needs to be strengthened

At present, management of the Baltic Sea fisheries is governed predominantly by the European institutions, the Commission, Council and Parliament. The Council has sole competence in deciding annual quotas. Other measures and regulations, such as the Baltic Management Plan or the Technical Measures Framework, go through the co-decision procedure, whereby the Commission makes a proposal after a public consultation and this then becomes legislation after negotiations and amendments by the decision-making bodies.

In recent years the CFP has been regionalised and there has been increasing devolvement, with the regional institutions BALTFISH and the Baltic Sea Advisory Council (BSAC) playing an important role. The capacity of these regional bodies to effectively implement EBFM is currently lacking. In order to enable the transition to EBFM regional governance reforms are necessary. A closer cooperation between BALTFISH and HELCOM would be an important step to increase the capacity of the regional bodies to implement EBFM.

Improved transparency to better inform stakeholders

BALTFISH is a de facto decision-making body comprised of civil servants representing the eight EU Member States bordering the Baltic Sea. These civil servants attend the High Level Group along with representatives from the European Commission. Here, transparency must be improved concerning meeting minutes, agendas and an official website at which documents are available. Improving transparency is necessary for EBFM implementation, as it will better inform stakeholders and the scientific community, enabling a stronger foundation for collaboration.

BALTFISH working group to identify trade-offs among objectives

Preceding the High Level Group is the BALTFISH Forum at which stakeholders, primarily from the BSAC, can participate. This interaction is positive and can be deepened through the creation of an *EBFM working group*.

We recommend that BALTFISH identify different objectives for how fisheries should be managed. Trade-offs need to be understood to determine our shared goals. This necessitates a more complex discussion than merely focusing on next year's quotas and maximizing catches. An example of reform would be to agree on the objective of healthy cod stocks, defined by biomass levels above Bmsy as well as a healthy age, size and spatial distribution. Such an objective would lead managers to take account of a broader spectrum of ecosystem considerations that both affect and are affected by the cod fisheries. We recommend that an EBFM working group is created, to allow for detailed analyses of the trade-offs involved and expected outcomes to take place.

Four concrete steps towards ecosystem based fisheries management

Scoping studies: We recommend a scoping exercise of stakeholders as soon as possible to understand what the different interests are and so that everyone feels that they are able to contribute to the process. Considering commercial fisheries, it is important for decision makers to understand how fisheries in the Baltic Sea area are conducted and how different fish are used and marketed, and what social and economic values they provide.

Regular regional meetings: To implement an EBFM is a step-by-step process. We highlight the need for stakeholders to meet regularly and discuss the continuous process. Depending on the state of the implementation, these meetings can be more or less practical and deal with both scientific and management issues.

Ecosystem scenario modelling: The fragile brackish Baltic Sea ecosystem with its many stressors requires a precautionary management approach. Understanding the state and health of the ecosystem, in its present and prior states, can help to provide perspectives within a wider spectrum. More sophisticated models that are based on multispecies considerations and also take into account the way in which fishing affects the ecosystem and vice versa will enable scientists to provide a more holistic picture. This in turn allows inputs to be managed and alternative scenarios to be developed that will better inform management. For example, scenarios that can provide information on how to mitigate negative effects due to Climate Change on the eastern Baltic cod stock should be developed.

Revision of the Baltic multiannual management plan: In terms of implementing EBFM in the Baltic Sea, an opportunity is provided by the revision of the Baltic multiannual plan, which will take place in 2019. In order to implement EBFM, the updated plan could further aim to manage fisheries within the ecosystem and account for interactions, in order to provide a more accurate basis for managing the Baltic fisheries and minimise risk. E.g. spatial management in the southern Baltic Sea to secure availability of sprat as prey for cod in the area should be included. Furthermore, the fishing mortality ranges, which provide the framework for quota setting, included in the plan could be revised including setting fishing levels below Fmsy. Such an approach would also align the Baltic management plan with the CFP and the maximum sustainable yield objectives.