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Baltic Eye's reply to DG MARE's consultation on fishing opportunities for 2017 under the CFP

Who we are

Baltic Eye, part of the Baltic Sea Centre at Stockholm University, is made up of a team of scientists, policy and communication experts who analyse and synthesise scientific research on the Baltic Sea - and communicates it to stakeholders in the decision-making process. The realm of work is transdisciplinary and covers the broad areas of science important for Baltic Sea management. It focuses on four themes: eutrophication, sustainable fisheries, environmental pollutants and management of marine habitats and protected areas.

Summary of main points

- In order to secure the stability of the western Baltic cod stock, and the fisheries associated with it, as well as to fulfil Art. 5.3 of the Baltic MAP, a drastic reduction of TAC for the western cod stock needs to be put in place for 2017.
- In order to fulfil Art. 11 in CFP requiring coherence of fisheries policy and environmental legislation, a long-term ecosystem based fisheries management strategy needs to be defined. One that incorporates multiple factors beyond a commercial single-species approach.
- The European Commission needs to re-evaluate the framework for research demanded by ICES and review their MoU in order to incorporate long-term ecosystem based fisheries advice.
- Baltic Eye has the scientific capacity to develop scenarios on different management options for the Baltic Sea, which includes broader ecosystem considerations important for commercial fish species. Such input can be valuable for the future work of the JRC in this field.

General remarks

Baltic Eye welcomes this opportunity to provide input to the process for a successful implementation of the Common Fisheries Policy (CFP) and the Baltic Multiannual Plan (MAP). We fully support the important work done to end overfishing and to reach the objective of maximum sustainable yield (MSY). As the aim of this process is to base the decisions on the best available scientific advice, we would like to raise our concern about the narrow and short-term view on fisheries management and propose a more ecosystem based and longer-term approach.

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In our reply we first focus on the necessity for extraordinary measures to secure the western Baltic cod stock. The following section is on the process of setting fishing opportunities for the region as a whole, bringing in strategic considerations.

Western Baltic cod stock

The western Baltic cod is the most controversial fish stock when deciding Total Allowable Catches (TACs) for 2017 and for which opinions on appropriate management differ the most between different stakeholders.

Baltic Eye would like to stress that it is now crucial to take extraordinary measures for alleviating the poor state of the stock. Adjusting F levels to an MSY level would have been possible already when the revised CFP took effect in 2014. One of the consequences of not having done so can be the low stock size that we see today. We recommend that the commercial catch in 2017 should be in accordance with the ICES MSY advice and not exceed 917 tonnes (or in total 3475 tonnes when including recreational catches).

During several consecutive years agreed TACs for the stock have exceeded the scientific advice considerably. The improved assessment of the stock, provide by ICES last year, revealed that the biological reference points related to the risk of impaired reproductive capacity of the stock (B_{lim} and B_{pa}) was higher than previously estimated. ICES also adjusted the spawning stock biomass (SSB) downwards and the fishing mortality rate (F) upwards.

Even though the stock size has shown a small positive trend over the last year, it is still far below all biological reverence points (69% of B_{lim} and 49% of B_{pa} /MSY $B_{trigger}$). In fact, the biomass has been low since the early 1990's, including the period of 2008-2013 when the stock was managed in accordance with the previous multiannual plan for the Baltic cod stock (COM 1098/2007). This indicates that the fishing pressure was too high during this period as well.

Especially worrisome was the historically low numbers of recruits (age 1 individuals) found last year. The number only made up 3,2 % of the average number of recruits for the period 1994-present. Even though the reason for this is not totally clear, the relatively low water temperatures of 2015 might be an obvious reason. This stresses the necessity to fine tune the scientific advice process to include more environmental factors, as we propose in the section below, and as is described in the ICES report from the workshop on developing integrated advice for Baltic Sea ecosystem-based fisheries management (ICES 2016)[1].

[1] ICES. 2016. Report from the Workshop on Developing Integrated Advice for Baltic Sea Ecosystem-based Fisheries Management (WKDEICE), 18-21 April 2016, Helsinki, Finland. ICES CM 2016/SSGIE:13. 41 pp.

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Baltic Eye acknowledges the importance of ensuring opportunities and continuity for the fisheries industry and is aware of the short-term economic consequences that may occur due to a drastic reduction of western cod TAC. However, under these circumstances the sustainability and future of the fish stock have to be prioritised in line with Art. 5.3 in the Baltic MAP. Also to ensure that the long-term economic opportunities for the fisheries industry are secured, in line with the ecosystem based fisheries approach under Art. 2.3 in CFP.

Further, to ensure a recovery of the stock, it is necessary for the Member States to regulate the recreational fishery for cod in the area where western Baltic cod is distributed, in accordance with preamble (3) of the CFP. This is partly needed due to the previous mismanagement of the stock by Member States, which over past years have repeatedly agreed on TACs that exceed the scientific advice.

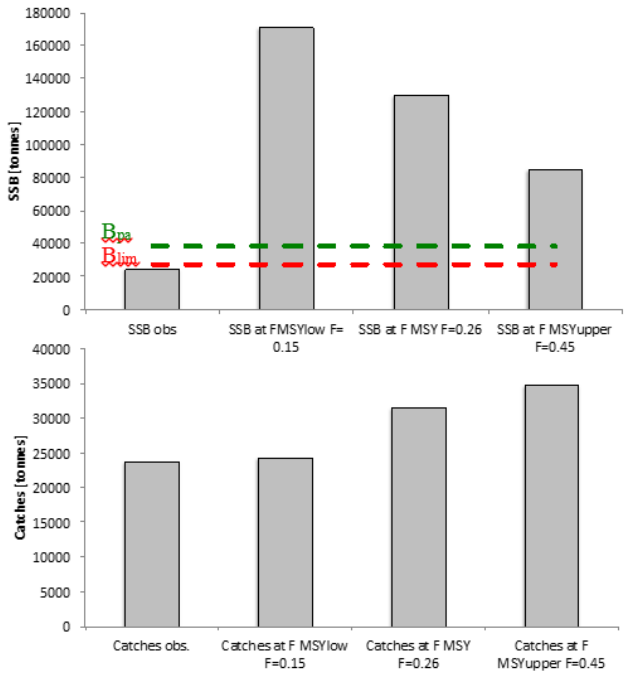

Figure 1. Average Spawning Stock Biomass (upper panel) and average catch (lower panel) for the period 1994-2005. From left to right the columns represent: observed values; modelled scenarios on: F MSY_{lower}, F MSY and F MSY_{higher}. F MSY $_{lower}$ and F MSY_{higher} represent the lowest and highest values within the range of F MSY, respectively (Ref EU 2016/1139).

To illustrate the deviation between how the stock was actually managed for the period 1994-2015 (Fig.1 first bar from the left), compared with what would have been the stock size (SSB) and catches if an MSY approach would have been adhered to, we have run a basic age-structure model under different constant fishing mortality scenarios, that is: FMSY lower; FMSY and FMSY upper. As illustrated in the figure above, if an MSY approach had been

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adopted for the period, we would have at least the same catch as observed today or even much higher catches and a much higher fish stock. Thus, our models indicate that a fishery policy sustaining both higher fish stocks and higher catches in the Baltic Sea are possible when adopting a MSY approach.

If drastic measures are not implemented now there is a risk that there will not only be long-term effects for the commercial fishing industry, as well as for recreational fisheries, but also for the whole ecosystem. The fact that cod, being the main predatory fish species, plays a key role in the Baltic Sea ecosystem is evident. This is true for both the western and eastern stock. Based on historical data strong variations in the eastern cod stock population size have resulted in clear regime shifts and ecological cascade-effects across the Baltic Sea ecosystem.

Long-term ecosystem based strategy for the Baltic Sea

Fisheries management in the Baltic Sea must take greater account of environmental factors. The current structure lacks a mechanism for responding to large and sudden changes in ecosystem conditions such as salinity that varies much more than in other European seas. The Baltic Sea is an estuarine system with an upper layer of low salinity water and a deeper layer of high salinity water; the resulting strong vertical stratification acts like a strong lid preventing exchange of oxygen. The extremely slow water exchange in combination with perennial human impact in the form of nutrient inputs driven by agricultural activities and sewage systems, makes the Baltic Sea especially sensitive for large scale oxygen depletion affecting commercial fish species such as cod.

The MAP is a tool for ensuring longer-term management of Baltic Sea fish stocks. But the scope is limited. It covers the commercially important fish stocks but only marginally considers how these stocks affect each other. Further, the CFP only covers commercially important fish species and aims to secure the stock dynamic of these, irrespective of other species important for the Baltic Sea ecosystem and for ensuring that the goals under the Marine Strategy Framework Directive (MSFD) are met.

To be truly effective, fisheries management tools cannot be limited only to the fisheries sector but need to take broader environmental conditions (i.a. salinity, temperature and stratification patterns) and the effects of other drivers such as agriculture, industry, urban agglomerations and economy into account.

Thus, it would be advisable that ICES scientific advice on fishing opportunities includes ecosystem variables to a further extent. To truly ensure this, an ecosystem approach needs to be reflected in the MoU between the European Commission and ICES. Currently, the scientific advice given by ICES for Baltic Sea stocks consider single stock dynamics, not taking into account environmental variables and only rarely relates to how fishing activities affect the whole ecosystem. A more holistic and precautionary approach to fisheries management may complicate matters, especially policy responses, but is necessary if the overall goal of Good Environmental Status for the Baltic Sea, in agreement with the MSFD, is to be attained. Further, this is important to ensure compliance with Art. 2.3. of the CFP on implementation of the ecosystem based approach to fisheries management.

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At Baltic Eye we are working on an ecosystem model which includes various factors instrumental for Baltic Sea fish stocks, such as overall climate conditions, nutrient and trophic status, fishing pressure and marine protected areas. By combining these interdependent factors and testing their impacts on the Baltic Sea food web at large and various fish stocks, different scenarios can be compared to evaluate integrated management strategies for the Baltic Sea.

Strategic cross-sectorial management

Current agricultural practices in the catchment area together with specific environmental conditions such as stratification of water masses is a cause for large scale hypoxic areas which is one of the most important factors influencing the size of fish stocks in the long-term. The fish stock most sensitive to eutrophication is the eastern cod stock as they in young developmental stages primarily feed on bottom-living pray and are dependent on deeper well-oxygenated areas for recruitment. Research shows that the extension of hypoxic areas limit cod growth and recruitment.

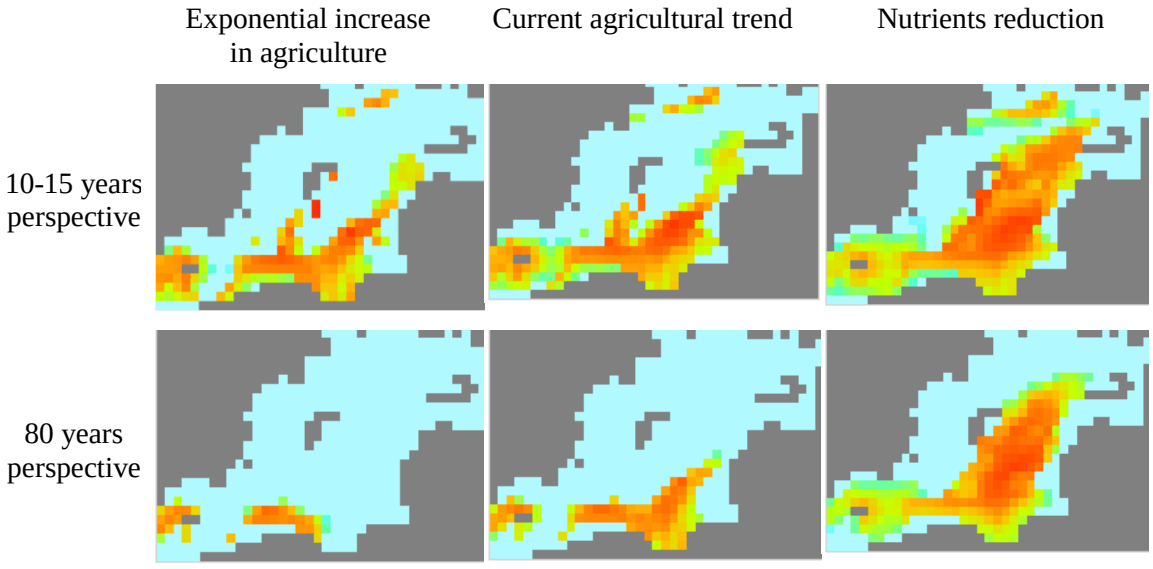

Figure 2. Simulated Eastern Baltic cod stock biomass distribution. Colours of the map indicate relative cod biomass compared to initial value (red: higher, green: similar, blue: lower)

Our analysis shows negative effects of the current nutrient management on the Baltic cod stock. Managing fishing pressure, as is currently done, without incorporating a long-term perspective (10-15 years), and not taking into account elements such as nutrients input from land and climate change, will pose a risk to attaining the expected goals foreseen under CFP and MAP. One of the simulation scenarios (Fig.2), which looks at fishing at FMSY under different options of nutrients management, shows that even exploiting the cod stock at FMSY (according to MAP), may lead to a change in distribution and a drastic reduction of cod biomass with a potential future collapse.

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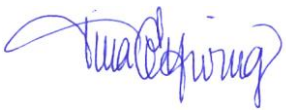
Baltic Eye sees a need for long-term cross-sectoral coordination, linking agricultural management with fisheries. Marine ecosystems are strongly related to catchment areas – and environmental management strategies of the catchment influences especially the Baltic Sea. Not taking agricultural effects, climate change and hydrographical conditions into account in fisheries management is likely to contradict the goals under MSFD and thus risks contradicting Art. 11 in CFP requiring coherence of fisheries policy and environmental legislation.

Integrated simulation scenarios can encompass wider factors, additional to single fish species, and thereby draw a longer-term picture of the ecosystem based effects of changing one component in relation to another. As a policy tool this can be useful for decision-makers when evaluating trade-offs and policy coherence between different legislative objectives that many times have different timeframes and scope for implementation.

Tools available at the Baltic Sea Centre (models and scenarios) may help scientific advisory bodies as the Join Research Centre to deliver the best available scientific knowledge to support strategic planning and sound decisions for Baltic Sea management.

Yours sincerely,



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