

SUMMARY OF MYFISH TASK 3.5 REPORT ON:
**BALTIC SEA PARADIGM OF REGIONALIZATION OF THE COMMON
FISHERIES POLICY — CURRENT FOUNDATION AND FUTURE
OPTIONS FOR SCIENTIFIC ADVICE AND DECISION-MAKING**

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1 Introduction

This report provides a summary of the main outcomes of the case study entitled ‘*Baltic Sea Paradigm of Regionalization of the Common Fisheries Policy — Current Foundation and Future Options for Scientific Advice and Decision-Making*’¹. The case study forms part of a European Union (EU) FP7 project ‘Maximizing yield of fisheries while balancing ecosystem, economic and social concerns’ (Acronym: MYFISH). The study contributes to MYFISH Task 3.5 concerning CFP regionalization and governance in the context of the new 2013 reform of the EU’s Common Fisheries Policy (CFP) as manifested in the 2013 CFP Basic Regulation (*i.e.* EU Regulation No. 1380/2013).

The provision and uptake of scientific advice concerning the CFP represents a cornerstone of scientific support for policy and evidence-based decision-making. Hence, a study of the extent to which the scientific advisory system is appropriately ‘geared up’ for supporting the new (2013) regionalized CFP is of fundamental importance. Thus, this report focuses on the Baltic Sea, as a case study, examining the current foundation and future options for providing scientific advice in support of regionalized ecosystem-based fisheries management, by cooperating EU member states groups (*i.e.* BALTFISH Forum) exercising ‘delegated empowerment’ by the EU, as authorized in the 2013 Basic Regulation.

The report places scientific advice in an EU policy context and identifies and describes the approach, operations, structure and performance of the main actors – both the providers and requesters/receivers of scientific advice. The study examines how the actors relate to each other formally and informally regarding CFP regionalization. Thus, the report places regionalization of scientific advice and decision-making in a wider EU fisheries governance perspective.

2 Methodology

The case study involved: a) a literature review identifying and describing the system components and their efficacy. This comprised a systematic desk study of the relevant literature and web-pages; followed by b) interviews with key stakeholders, recorded for later analyses, using a standard set of open-ended questions for all interview respondents. The interviews served a dual purpose: 1) for filling in gaps in factual knowledge obtained through the literature review; and 2) to uncover controversies and different perceptions on issues related to the providers of scientific advice and the requesters/recipients of scientific advice including their efficacy and interactions.

Interview respondents comprised a total of 12 persons from the following main actors: the International Council for the Exploration of the Sea (ICES); European Commission’s (EC) Directorate-General for Maritime Affairs and Fisheries (DG MARE) and its Scientific, Technical and Economic Committee for Fisheries (STECF); fishery ministries/fishery directorates of Baltic EU member states; and Baltic Sea Advisory Council (BSAC). No interviews were conducted with respondents from the High-Level Group of the BALTFISH Forum. But several of the interviewed respondents from other stakeholders had experiences of working with BALTFISH, particularly in the BALTFISH Forum Seminar. The interview respondents were granted anonymity. Several of the respondents had a multiplicity of experiences in being affiliated with more than one of the stakeholder groups. This multiplicity of experiences was particularly helpful.

¹The full report is available, with more comprehensive Summary Conclusions found in Section 4 of the report: http://www.myfishproject.eu/images/MYFISH/Deliverables/MYFISH%20Task%203.5_CFP-Regionalization_Scientific-Advice_Baltic_AMA.pdf

3 Policy framework, institutional landscape and main conclusions

Based on the Baltic Sea study, the report highlights best practices for the EU concerning the functioning, performance and governance of a regional system for providing scientific advice and its associated user and decision-making system. There are also lessons to be learned, and caveats to keep in mind, concerning the extent to which the outcomes of this study may apply not only specifically to the Baltic Sea region but also potentially to other EU regional sea areas.

3.1 Policy framework and main system components

3.1.1 Policy framework against which the relevancy and quality of scientific advice is measured

Policy provides the framework in which research and technical development (RTD) and scientific advice is provided. In 2009, the European Commission published its Green Paper (COM(2009) 163 final) on the need to reform the CFP in order to tackle *inter alia* the following conspicuous problems facing the EU's fisheries at that time: a) most EU fisheries are overfished by an excessively large fishing fleet; b) catches are declining year by year and detrimentally impacting fishing communities; c) politicians have failed to take hard decisions to prioritize stock conservation over short-term political expediency; and d) the CFP, micro-managed from Brussels, has failed to engage member states, the fishing industry and other stakeholders to take responsibility, and be accountable, in finding regional solutions to the CFP's challenges. The ensuing 2013 CFP reform (Basic Regulation No. 1380/2013) was adopted in order to mitigate these problems.

The four above-mentioned weaknesses of the CFP can be boiled down to two principle issues which are addressed in the 2013 CFP Basic Regulation:

- 1) *The hitherto lack of a strong and legally binding policy to prevent overfishing and achieve optimum yield (catch in biomass) by constraining the fishing effort/capacity of the fleet(s), and hence fishing mortality (F), to levels which do not exceed the maximum sustainable yield (MSY) taken from the target fish or shellfish stock(s). The 2013 CFP placed stock conservation, in the form of the prevention of overfishing and achieving sustainable fishing according to the principle of MSY at the heart of the CFP. Having biologically-based MSY as a policy objective is intuitively attractive because MSY implies efficiency and maximized revenues and associated socio-economic benefits. Furthermore, constraining fishing effort to MSY levels contributes not only to securing sustainable long-term catches from healthy target stocks but also to moderating the wider ecosystem impacts of fishing. Thus, for the CFP, MSY forms the precondition for a sustainable fishery. The 2013 CFP instigates a landing obligation, prohibiting discarding of unwanted/over-quota catches, coupled with full catch accountability and utilization requirements. The landing obligation will reduce resource wastage and contribute to enhanced data for more dependable scientific assessments. Adoption of legally binding MSY-based long-term (i.e. multiannual) management plans (LTMPs) constrains the fishery to pre-agreed measures, so that catch limits do not exceed the formal scientific advice. With catch limits and harvest control rules (HCRs) 'locked in' empirically in LTMPs, there are scant prospects for embarking on politically driven 'decision overfishing'. LTMPs also engage diverse stakeholder participation in the knowledge production and dialogue process, underpinning LTMP formulation.*
- 2) *The hitherto lack of regional empowerment in the centrally dominated CFP hampered solutions being devised and implemented at the local level to solve the CFP's challenges. The 2013 CFP reform permits regionalization in decision-making so that EU member states with a direct management interest—sharing a regional sea area—receive powers 'delegated' by the EU*

centrally to propose 'joint recommendations', facilitated by the establishment of 'regional member states groups', on specific fishery management measures to be applied by the member states in their regional sea area, subject to these measures being in accord with EU policies/legislation. Key decisions concerning the CFP's general principles and objectives will still be taken at the EU level. The 2013 CFP reform involving empowered (delegated) regional fishery management complements the role of regional advisory councils, created following the 2002 CFP reform, which generate regional stakeholder consultation and advice on the CFP. Regionalization creates a more logical framework for decision-making and provides an effective framework for delivering other elements of the 2013 CFP reform package. Thus, regionally implemented fishery governance, with structures such as the empowered regional member states groups (e.g. BALTFISH for the Baltic Sea) and the regional advisory councils (e.g. Baltic Sea Advisory Council, BSAC), should improve the performance of the CFP, which has suffered from legitimacy, credibility and compliance problems. Thus, establishing LTMPs based on MSY principles, and measures to phase out discarding, are more likely to succeed when they are elaborated regionally and consensually rather than when their details are dictated/micromanaged at the central EU level. The new regionalized CFP is better positioned to deliver greater coherence between fisheries and the regionally implemented Marine Strategy Framework Directive (MSFD, Directive 2008/56/EC).

The key policy issues, according to the 2002 CFP (Regulation EC No. 2371/2002) and 2013 CFP reforms, which shape the needs for scientific support for the CFP and its interactions with the MSFD, include:

- a) Full integration and implementation of the ecosystem approach to the management of human activities (EAM, incorporating application of the precautionary approach) into the principles, objectives and operational framework of the CFP and the overarching Integrated Maritime Policy (COM(2007) 575 final). The CFP must mitigate the environmental impacts of fishing in accord with the objectives of the MSFD, which serves as the environmental pillar of the Maritime Policy;
- b) An emphasis shift from the previous primarily tactical, short term (*i.e.* year-to-year single stock management approach towards a longer term (*i.e.* multiannual) strategic, stakeholder involved approach. While implementing MSY principles, the aim is to progress from single species/stock LTMPs to multispecies/stock LTMPs, as well as confronting the challenges of pursuing mixed fisheries. Other key CFP aspirations and challenges include the avoidance/minimizing of unwanted catch and bycatch as already noted; better incorporation of relevant human dimensions (*e.g.*, socio-economics, governance) into the CFP's operation; mitigation and adaptation of fisheries to climate change/variability, and improved *a priori* evaluation of the efficacy of proposed strategies/measures (*e.g.* management strategy evaluation, socio-economic impact assessments).
- c) Regionalization (noting section 3.1.1, point 2) adapted to the specificities of each fishery and sea area ('ecoregion'), removing centralized micromanagement [while adhering to a general framework of CFP policy/principles], for a number of instruments and measures: LTMPs and discard management plans, establishment of fish stock recovery areas and conservation measures necessary for compliance with obligations under the EU's environmental legislation.

3.1.2 Institutional framework and relationships for the Baltic Sea

Regarding CFP regionalization in the Baltic Sea, and CFP and the MSFD interactions, there is an array of institutions which require, receive and are informed by scientific advice, formally and informally, and which are involved to varying degrees with the overall decision-making process (**Figure 1**).

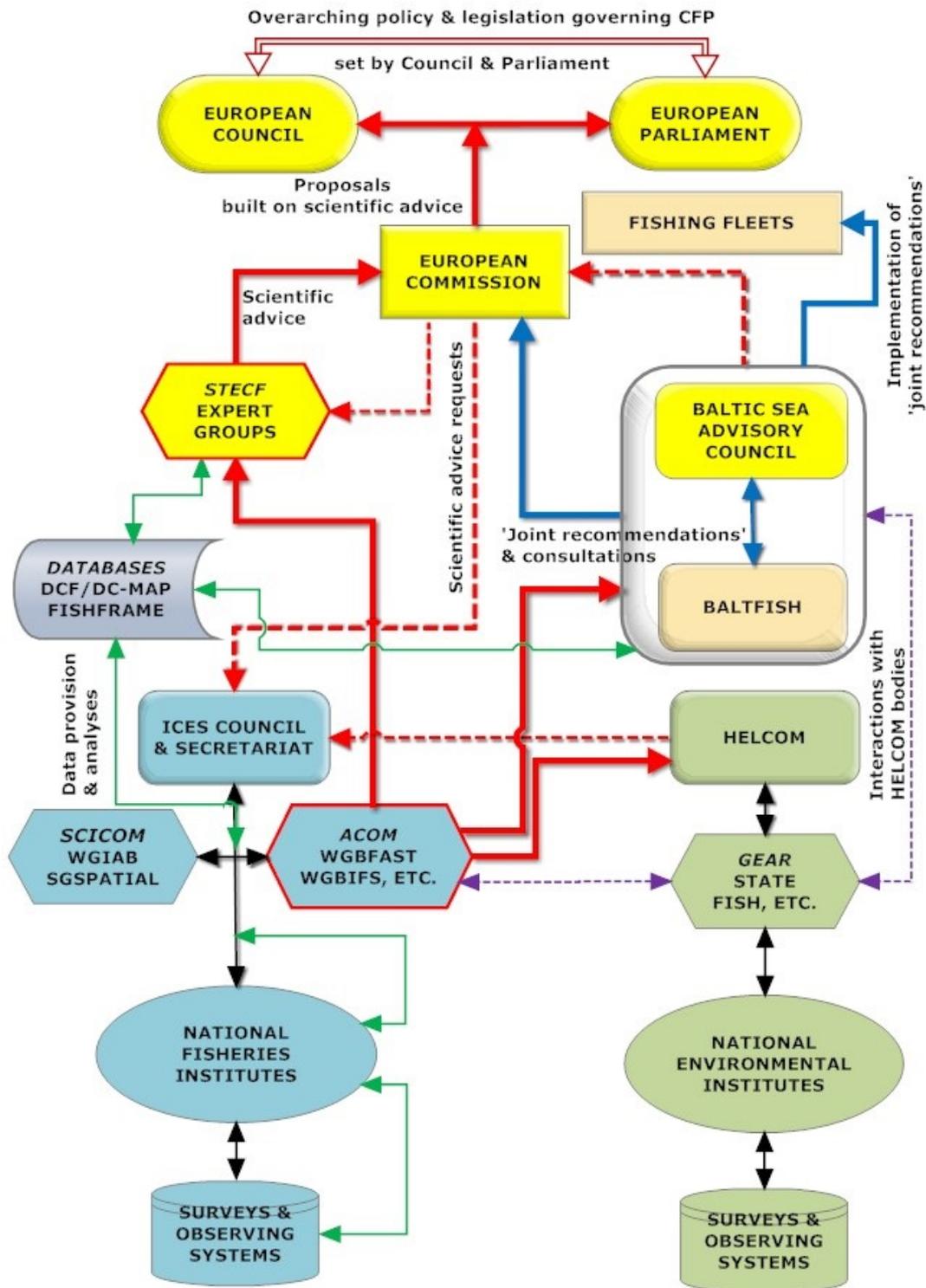


Figure 1. Scientific advice and decision-making for CFP regionalization in the Baltic Sea.

The Baltic Sea has nine coastal states of which eight are EU members, leaving the Russian Federation as the sole non-EU state. As over 90% of the Baltic Sea area is covered by the EEZ of EU member states, the Baltic Sea is almost exclusively an EU internal regional sea. About 95% of the fisheries landings arise from within the EEZs of the Baltic Sea’s EU member states. The Baltic Sea states have an enduring history of positive cooperation spanning RTD, the provision of scientific advice for management purposes at the international transboundary levels, as well as intergovernmental and

international organizations and stakeholder engagement for the scientific advice to inform the decision-making system. The Baltic Sea's history of formal collaboration on the international management of fisheries and the environment is linked to the establishment in 1973 of the International Baltic Sea Fisheries Commission (IBSFC) concerning the Gdansk Convention on Fishing and Conservation of the Living Resources in the Baltic Sea and the Belts, and in 1974 with the establishment of Baltic Marine Environment Protection Commission – Helsinki Commission (HELCOM) concerning the Convention on the Protection of the Marine Environment of the Baltic Sea Area. The IBSFC was disbanded in 2007, whereas HELCOM still exists today. Thus, for more than 30 years the Baltic Sea had two regional seas regulatory commissions: one for fishery management and the other for pollution abatement and environmental protection. These two intergovernmental fishery and environmental commissions made the Baltic Sea unique as a regional inland sea. The contracting parties of IBSFC and HELCOM have included all the Baltic Sea states as well as the European Commission representing the EU. The Baltic Sea collaboration on fisheries and environmental issues has been well-served by membership of the nine Baltic Sea coastal states in the International Council for the Exploration of the Sea (ICES), an intergovernmental scientific organization, established in 1902. ICES provides scientific information and advice to its member countries and the international regulatory commissions they have established.

The IBSFC was disbanded on 1 January 2007 when the then European Community (EC) withdrew from what had become—since the 1 January 2004 enlargement of the EC to include all eight of the nine Baltic Sea coastal states—essentially a bilateral forum for decision-making between the EC, coordinated by the European Commission, and the Russian Federation. Following the IBSFC disbanding, a bilateral agreement between the EU (replacing the EC on 1 December 2009 with the Lisbon Treaty) and the Russian Federation on cooperation in fisheries and the conservation of the living marine resources in the Baltic Sea came into force in April 2009 establishing the EU – Russia Joint Baltic Sea Fisheries Committee (JBSFC). However, the JBSFC only deals with bilateral fishery issues between the EU and Russia and does not form a substitute for the wider fisheries mandate of the IBSFC as a regional fisheries management organization (RFMO).

The IBSFC generally was an effective RFMO: it had management powers to set catch and fishing effort limits, technical measures, and control obligations, and it brought together internationally agreed scientific advice supplied by ICES. But the IBSFC had some shortcomings, typical for RFMOs at the time: firstly, a propensity to 'decision overfishing' overriding scientific advice provided by ICES in setting TACs/quotas; and secondly it lacked a fully inclusive forum for stakeholder consultation. Furthermore, as more Baltic coastal states joined the EC in 2004, increased coordination *in camera* from the European Commission often stifled the customary tendencies for wider-reaching, open discussions *in plenum*. The IBSFC provided a good forum for the fishing industry to be associated closely with the national delegations, but environmental NGOs were excluded until close to the end of the IBSFC's life. Thus, the IBSFC did not satisfactorily reflect the EU's focus on inclusive stakeholder consultation as currently practiced in the EU's regional advisory councils. Notably, the EU Council of Fisheries Ministers' meetings in December in Brussels have also had a tendency, at least prior to the 2013 CFP Regulation, to override scientific advice on the setting of fishing opportunities (*i.e.* TACs/quotas). Until the 2013 CFP Regulation permitted regionalization, the CFP's micro-management by Brussels (*i.e.* Commission and the Council), was a major governance weakness.

The CFP's regionalization was put on the agenda with *inter alia* the establishment of regional advisory councils (*e.g.* the Baltic Sea Advisory Council, BSAC, representing a wide range of fishery stakeholders) following the 2002 CFP Basic Regulation, and the opening up following the 2013 CFP Basic Regulation for 'delegated empowerment' of EU member states groups (*e.g.* BALTFISH for the

Baltic Sea) to assume some of the ‘exclusive competence’ concerning fisheries management (*i.e.* CFP) that hitherto had been the sole prerogative centrally of the Council of Ministers.

Since the Lisbon (*i.e.* EU) Treaty’s enactment on 1 December 2009, the European Parliament has been granted a co-decision mandate with the Council on various aspects of CFP legislation. For fisheries, this co-decision includes, for example, approving LTMPs but not fishing opportunities which remain the prerogative of the Council. Thus, the Council and the Parliament, based on advice from the European Commission, set the overarching policy and legislation governing the CFP.

Among the constellation of requesters/users of scientific advice on fisheries concerning the Baltic Sea (**Figure 1**) is the European Commission as the primary contractor of scientific advice for the CFP (*i.e.* proposals put forward to the Council and the Parliament should be founded on scientific advice), as well as the Council, the Parliament, BSAC, and BALTFISH. Since the 2013 CFP’s enactment, the mandate of BALTFISH—acting together with BSAC with which BALTFISH and the Commission are obliged to consult regarding advice—means that it can be viewed as a Baltic Sea ‘mini-Council’. The joint recommendations (*i.e.* management actions and measures) arising from BALTFISH, subject to these being in accord with EU policy/legislation, are implemented primarily on the region’s fishing fleets. Before the 2013 CFP reform, ‘implementation’ of management actions and measures affecting the national fleets came from the Council. Among the requesters/users of advice is HELCOM concerning fisheries issues where the MSFD and the CFP overlap and require integration.

The key areas of the 2013 CFP Basic Regulation requiring scientific information and advice relate to scientific support for developing and implementing policy. The provision of scientific advice on fisheries concerning the Baltic Sea (**Figure 1**) hinges on ICES (primarily ICES Advisory Committee, ACOM, supported by its Science Committee, SCICOM) and the European Commission’s STECF. The national fisheries institutes (NFIs) supply the core of ICES work and they also support much of STECF’s work. HELCOM plays a coordination role for scientific advice concerning the MSFD, mainly via its supporting network of national environmental institutes (NEIs). The latter form a parallel network to the NFIs. However, for fisheries advice HELCOM depends on ICES. As scientific advice relies on evidence, the collection and use of data is an essential feature of providing advice. For the CFP and its interactions with the MSFD, the management and use of databases by ICES, STECF and the NFIs provide the evidence necessary to justify decision-making.

3.2 Conclusions and optimization challenges for advice providers and recipients

The Baltic Sea has an exemplary foundation for providing the necessary scientific advice for scientific support for fisheries and environmental policy. Both ICES and STECF, as the main scientific advice providers, have a reputation for supplying top-quality scientific advice on ecosystem-based fisheries management for the Baltic Sea. Together ICES and STECF cover, via their expert working groups (EWGs), scientific advice associated with bio-ecological, economic and social sustainability. ICES, in particular, has progressed far in organizing its scientific advice with respect to marine ‘ecoregions’, of which the Baltic Sea is one, and the aspiration to conduct integrated ecoregion assessments.

For the Baltic Sea, concerning the 2002 CFP and the 2013 CFP, ICES and STECF have supported the European Commission, the Baltic Sea member states and BSAC by providing scientific advice on developing single stock and multispecies fishery plans, discard management plans, and generally elaborating MSY-based HCRs and associated indicators/reference points. However, ICES and STECF, supported by the European Commission, should collaborate closer to match advice requests to available resources, avoid duplication, and achieve greater complementarity and rationalization.

BALTFISH aims to act as the regional decision-making fisheries forum. But it is an informal body lacking a legal stature, and so cannot fill the vacuum left by the 2007 disbanding of the IBSFC. Thus, HELCOM and ICES lack a high-level formally constituted regional fisheries management partner. This is a major weakness of the current organizational system. A more cohesive, legally mandated ‘umbrella’ organization is needed to facilitate effective fisheries collaboration. The organizational approach of the U.S. North Pacific Fisheries Management Council (NPFMC) may provide, with some modification, a useful model for this purpose, as it effectively integrates key components involving, science, stakeholder representation and management in an overarching organization.

Besides these general conclusions, the main outcomes of the study can be grouped into 11 key, aspirational optimization challenges for both the providers and recipients of scientific advice. These are summarized in sections 3.2.1 to 3.2.11. These challenges can be viewed as not only applying to the Baltic Sea but also as being generally applicable to many other EU regional sea areas.

3.2.1 EU member states groups: Empowerment and legitimacy.

In the 2013 CFP, the EU delegated limited empowerment to member states, acting cooperatively (BALTFISH), for ‘joint recommendations’ (JRs) about the best ways to implement the CFP regionally. The JRs are submitted as ‘Delegated Acts’ via the Commission (DG MARE) and vetted for policy conformity. However, the Fisheries Council maintains the right to set ‘fishing opportunities’.

BALTFISH is an ‘informal’ group lacking legal status either at the level of the Baltic Sea member states or by the EU. Notably, regional advisory councils (*e.g.* BSAC) are judicially recognized by the EU. The Memorandum of Understanding (MoU) establishing BALTFISH notes that the MoU is not legally binding. The ‘delegated empowerment’ of the member states groups (*e.g.* BALTFISH) can be withdrawn at short notice by the Council and Parliament. Accordingly, BALTFISH cannot, in its current form, fill the vacuum after the 2007 disbanding of BSFC. Thus, HELCOM and ICES lack a formal Baltic RFMO partner. HELCOM – BALTFISH collaboration occurs in the informal HELCOM ‘FISH’ Group. So, the formal collaboration route on fisheries for ICES and HELCOM will continue via the Commission, and BALTFISH’s *gravitas* depends on using DG MARE as its conduit. Moreover, BALTFISH lacks both a fixed Headquarters and durable Secretariat; these rotate frequently and periodically among member states. It lacks a website informing of its activities. Many stakeholders view BALTFISH as having a covert and non-transparent decision-making system conducted by *in camera* meetings—which are only exceptionally open to observers—of its High-Level Group (HLG) comprising the member states’ Fishery Directors. The BALTFISH Seminar exists for stakeholder input and consultation, but it is not clear as to how/why stakeholder positions are/are not incorporated into HLG decisions. *Ad hoc* groups (*e.g.* technical groups) typically are not open to stakeholder participation (*e.g.* BSAC). Such participation constraints are in stark contrast to transparency norms in BSAC and the member states themselves.

The informal stature of BALTFISH is a major weakness in the Baltic Sea governance system. Empowerment and legitimacy concerns must be tackled effectively.

3.2.2 Science: Balancing bio-ecological, economic and social sustainability.

The CFP and MSFD require analyses of bio-ecological, economic and social sustainability. There is not only a need for more balanced multidisciplinary approaches spanning these sustainability ‘pillars’, but also more interdisciplinary (*i.e.* integrative) analyses. This applies to the provision of both ‘recurrent’ (repetitive, year-on-year) and ‘novel’ (special, non-repetitive) advice.

The composition of the national experts in ICES and STECF networks primarily reflects the disciplines of the staff comprising the NFIs. The NFI's core expertise is based primarily on the natural and physical sciences related to fisheries, *e.g.* fish stock assessment scientists and modelers. Many of the NFIs have expanded their scientific horizons and competencies in response to the evolving expectations of the science – policy interface ordained by the scientific advice contractors. However, there is not only an excess of requests for advice placed on the NFIs compared with available expert resources but also deficiencies in scientific expertise exacerbate the challenges. As fisheries and environmental issues need to be integrated in advice, the NFIs are confronted by the need to include personnel with complementary expertise beyond the conservation of fish stocks. This expertise includes plankton, benthos, seabirds and marine mammals, *i.e.* ecosystem components which may affect, and be affected by, fish and fisheries either directly or indirectly.

Besides the bio-ecological expertise challenges facing the NFIs, a major concern is the lack of economists and sociologists on the staff of the NFIs. Most fisheries economists and sociologists are employed in academia. Substantial economic and social data are collected by the Data Collection Framework/Data Collection – Multiannual Plan (DCF/DC-MAP), but this is not matched by the NFI expertise needed to quality assure and analyze these data. It is only the richest and most strategically far-sighted countries which can recruit staff to compensate for such deficiencies. In the Baltic region the difference between the ‘have and have not’ countries is marked in terms of GDP and associated science coverage and outputs as measured in peer-reviewed publications. Several options exist for organizing mitigation/adaptation measures in the fisheries and environmental sciences of relevance to the CFP and the MSFD: a) merge/integrate the primarily sectorally segregated national institutes which ‘answer’ to either fisheries or environment ‘masters’ (*e.g.* fishery and environment ministries); and b) merge/integrate the economists and sociologists primarily found in academia with the NFIs or their new merged fishery and environment equivalents. Irrespective of the solution selected, the justification is clear for strengthening and integrating the expertise base to match the challenges. As DG MARE and the Directorate-General for the Environment (DG ENV) are the major forces connected with the NFIs and NEIs, respectively, the European Commission should drive discussions on how to optimize the scientific foundation for providing integrated advice by both enhancement of expertise and rationalization of common human resources and infrastructures.

3.2.3 Capability challenges: Matching RTD and advice requests to available resources.

The marine science laboratories, owned and/or financed by ICES member governments, form the backbone of the ICES network. Most funding for periodic surveys, monitoring and assessments of fish stocks and fisheries comes from the NFIs and their national ministries. In EU member states, the NFI's receive significant funding, directly and indirectly from the European Commission for these activities as well as the national and regional data collection feeding the DCF/DC-MAP. Much of this money links to the ICES system, and the NFIs' directors are the single most influential group in ICES governance, approving ICES work programme and the disposition of ICES budget. This very close bond involving the NFIs, the national fishery ministries (acting as the government focal points), and the European Commission including STECF, ensures a unique commitment to ‘getting the job done’ in a regional context concerning the CFP and MSFD issues. The coverage of surveys, monitoring and assessments in time and space, including deployment of scientists, databases and infrastructures (*e.g.* analytical laboratories, research/survey vessels, computing and modeling facilities) underpinning the value added provided by the ICES advisory services, EWGs, workshops, *etc.*, is immense and unmatched by any other marine science organization. The interlinked ICES and NFI system is, nevertheless, overstretched by the frequency, magnitude and nature of the requests for scientific

information and advice, both for recurrent (standard) and special (novel) requests, from ICES client regulatory commissions.

As NFI experts also contribute to the core of STECF's work, the concerns regarding being overstretched applies not only to the network underpinning ICES but also to that underpinning much of STECF's work. Since the European Commission is the single largest requester and recipient of wide-reaching and complex scientific advice from ICES and STECF, it should be incumbent on the Commission, in collaboration with ICES, to ensure that a 'resource planning/coordination tool' (RCT) is applied to match the requests to the available human resources (skills/gaps of national experts) and associated logistics. This applies not only to 'standard' (*i.e.* 'recurrent') advice but especially to 'novel' advice requests where standing expertise may not be present in dedicated (year-on-year) EWGs. The resource matching challenge besides applying to the work of ICES, also applies to the work of STECF and that relating to the interface between ICES and HELCOM. Although the RCT will be applied to link mainly to the NFIs, the issue arises of how the RCT should be linked to the relatively autonomous NEIs and academia.

3.2.4 Improving cohesion of NFIs and NEIs for tackling 'fuzzy' ecosystem issues.

The MSFD, as an EU environmental policy, is governed by 'shared competence'. But the EU's 'exclusive competence' concerning *conservation of marine biological resources* under the CFP potentially blocks how far the MSFD may impose on fishery management, *i.e.* the European Commission determines CFP resource conservation measures. However, fishery measures aimed at general environmental conservation and protection fall under 'shared competence'. Consequently, there is a fuzzy boundary between the CFP and MSFD jurisdictions.

The CFP must ensure that fisheries meet the standards required to achieve Good Environmental Status (GES) under the MSFD. Four of the 11 MSFD high-level GES descriptors are potentially impacted by fisheries, *viz.* descriptors 3 (*Commercially exploited fish and shellfish*), 1 (*Biodiversity*), 2 (*Foodwebs*) and 6 (*Seafloor integrity*). Descriptor 3 essentially concerns the CFP's 'exclusive competence', while descriptors 1, 2 and 6 represent fuzzy 'biodiversity' dispute areas between fishery and environmental competences. HELCOM coordinates MSFD implementation for Baltic Sea EU member states, but HELCOM does not have fisheries management competency. Thus, DG MARE requires that HELCOM related advice for commercial fish and fisheries and their ecosystem interactions are channeled through ICES. This places considerable demands on ICES and the NFIs.

Biodiversity conservation advice is a key feature of the EAM. But biodiversity investigations concerning MSFD GES descriptors are fraught with major difficulties. Investigations concern establishing appropriate surveys, monitoring, and modeling of the abundance and spatio-temporal distributions of key species, communities and habitats coupled to assessments of the susceptibility of particular biota to the cumulative impacts of various human and naturally induced forcing. The 1994 HELCOM Convention expanded HELCOM's focus, beyond pollution abatement in its 1974 Convention, to encompass nature/biodiversity conservation. This had substantial capacity repercussions for the NEIs, particularly as offshore biodiversity assessments did not hitherto figure prominently in their remits. HELCOM recognizes that significant deficiencies remain concerning integrated biodiversity assessments of several key biota due to a dearth of comprehensive data and associated indicators.

The EAM envisages close CFP and MSFD integration. The national implementation approaches are sectoral, *i.e.* for implementation of the MSFD via environmental agencies, on the one hand, and for the CFP via fisheries agencies, on the other hand. This is a hindrance to optimizing scientific delivery.

Also, the EU (DG ENV) provides relatively little financial support for member state environmental agencies/institutes for the MSFD compared with major levels of support provided by the EU (DG MARE) for member state fisheries agencies/institutes for the CFP. Currently, the NFIs and the NEIs are generally overstretched and lack cohesion. They work in disconnected systems: the NEIs support HELCOM but rarely figure in ICES work, and the reverse applies to the NFIs. Thus, more rational collaboration and integration is needed between the NFIs and the NEIs regarding experts, infrastructures and RTD for bridging the CFP and MSFD. Notably, the long-standing knowledge and infrastructures (*e.g.* research vessels) for coastal and offshore monitoring, assessing and modeling of living marine resources, residing with ICES and the NFIs, potentially forms a good foundation for building out MSFD biodiversity science. Greater integration and rationalization of roles, responsibilities, human resources and infrastructures between the NFIs and NEIs will provide significant benefits, nationally and regionally.

3.2.5 Databases: Importance and regional stewardship of DCF/DC-MAP.

Following IBSFC's creation, ICES and all Baltic Sea states have conducted collaborative fisheries-related surveys, banking the data collected and using it for fish stock assessments. From 1996 this engagement was coordinated and quality assured by ICES Working Group on International Fishery Surveys (WGBIFS). Outcomes include the Baltic International Trawl Surveys (BITS) and Baltic International Acoustic Surveys (BIAS) with their regional databases (the BITS and Baltic Acoustic Database (BAD1), Database of Trawl Surveys (DATRAS)), and the regional database FishFrame forming a platform for fisheries assessments. ICES Baltic Fisheries Assessment Working Group (WGBFAS) uses the data to conduct fish stock assessments and ICES/HELCOM Working Group on Integrated Assessments of the Baltic Sea (WGIAB) uses the data for its work. The ICES fish stock and fisheries data forms a key foundation for the CFP's DCF/DC-MAP.

Since 2008, the DCF has promoted a common framework for the EU to collect, manage, share and use data for scientific advice supporting the CFP and MSFD. DCF and DC-MAP introduce provisions to move towards fisheries- or fleet-based management as opposed to managing fish stocks, the integration of environmental data, and the shift towards the EAM regarding human activities. DCF/DC-MAP aspires to collect data associated with essentially all aspects of marine fisheries and to make these data available for scientific analyses and for providing advice on the CFP's performance. Major financial support comes from the European Maritime and Fisheries Fund (EMFF) for 2014 – 2020. The DCF/DC-MAP places fisheries ahead of the marine sectors concerning data supporting analyses concerning the Integrated Maritime Policy and MSFD.

EU member states are responsible for national collection of reliable biological, environmental, technical, social and economic data and for making these data available to end-users (*e.g.* ICES and STECF). Member states must coordinate their efforts in their particular regional sea area with other member states and coordinate with third countries, *e.g.* the Russian Federation for the Baltic Sea. For the 2013 CFP, DC-MAP aims to take effect by 2017 and is now more adapted to MSFD requirements. Under DC-MAP, member states must draw up multiannual data collection programmes, which aid following parameter changes over time, with EU harmonized precision targets. DC-MAP enables assessment of: a) the state of the exploited stocks; b) fishing levels and impact on marine ecosystems; and c) social and economic performance of fisheries, aquaculture and processing sectors. For the catching sector, the data allows analyses of fleets, métiers, gears, *etc.*

DCF/DC-MAP depends on coordinated regionalized data collection and not least its use in the regionalization of the CFP. Regional Coordination Groups (RCGs) exist for the Baltic Sea and other

sea areas where EU fisheries occur, to evaluate the regional coordination aspects of the national programmes and to recommend better integration of national programmes and for member states task-sharing. ICES participates in RCG meetings, and STECF regularly reviews (*i.e.* audits) national and regional progress in data delivery for DCF/DC-MAP. Both ICES and STECF perform coordination and quality assurance activities for DCF/DC-MAP and advise DG MARE on the needs for various types of data and indicators required by the CFP and the MSFD.

The success of DCF/DC-MAP regionally depends on collaborative stakeholder stewardship by scientists, managers and stakeholders. The regional advisory councils (*e.g.* BSAC) have a crucial role in contributing, in close cooperation with scientists, to stewardship (*i.e.* collection, supply and analysis) of data necessary for the development of conservation measures (2013 CFP, Article 53).

3.2.6 ICES and STECF: Rationalization of roles.

The Scientific and Technical Committee for Fisheries (STCF), STECF's predecessor, was established in 1983 mainly to 'audit' the scientific advice provided by ICES to the European Commission for the CFP on fish stock conservation and fishing opportunities. STECF replaced STCF in 1992 in order to include the previously deficient socio-economic dimension of fisheries that was not covered by ICES advice. Because STECF is the Commission's own official scientific body advising on all ecosystem-based fisheries issues, STECF has a very wide remit. As with ICES, the demands placed on STECF to respond to advice requests are escalating. STECF's work is underpinned mainly by the same network of NFIs as ICES. Thus, the work of ICES and STECF should be better coordinated and rationalized.

ICES and STECF should complement each other, and not duplicate and compete with each other. However, there has been substantial duplication in STECF and ICES work concerning fish stock assessment, stock conservation and setting fishing opportunities (*e.g.* TACs). These aspects of fisheries science are areas where ICES products represent the state of the art. Given satisfactory levels of peer-review and quality assurance in the ICES system, the ICES scientific advice should not need to go through additional review and quality control by STECF. For example, STECF should concentrate on: evaluation of effort regimes/balancing capacity and fishing opportunities; fisheries management plans and socio-economic impact assessments of these; further elaboration of the 'human dimension' of fisheries socio-economics; and 'auditing' the performance of the 2013 reformed CFP (*e.g.* discard management plans with catch authentication and technical measures) as well as delivery of DCF/DC-MAP. Thus, ICES, the European Commission and the NFIs should agree on integrated (non-competitive) 'portfolios' (including funding issues) governing their work over the short- to long-term.

3.2.7 Balancing regional and trans-regional approaches in delivering advice.

The most appropriate model for constituting the necessary advice supporting EWGs concerning the CFP's regionalization depends on the nature and frequency of advice requests, the availability of nationally balanced regional expertise, and robustly impartial peer review. The precondition for credible EWG analysis is the availability of pertinent quality assured regional data.

ICES has progressed far in elaborating RTD and scientific advice at the ecoregion level. In ICES Baltic Sea modular approach focusing primarily on the bio-ecological aspects of fisheries, where recurrent advice (*i.e.* standard, repetitive year-on-year) is provided to the European Commission, this has been achieved by establishing 'regionally dedicated' EWGs (*e.g.* WGBFAS, WGBIFS, whose experts come solely from Baltic Sea states) supported by dedicated Baltic Sea databases. However, where non-recurrent advice (*i.e.* special/novel) is required on challengingly innovative topics where nationally balanced regional expertise may be found inadequate (*e.g.* seabirds, marine mammals,

biodiversity issues), then a core of ‘local’ experts can be bolstered by experts from outside the region, analyzing regionally available data. STECF has not come as far as ICES in organizing its work regionally. STECF tends to use a different regional approach to ICES ‘regionally dedicated’ EWG model, as STECF and its EWGs often supplement and integrate expertise from the specific region (*e.g.* Baltic) with external expertise. This is beneficial when dealing with challenging issues bridging bio-ecology, economics and social sciences. Providing advice for the Mediterranean, for example, is particularly difficult as many coastal states are not EU members, and the region is relatively deficient in core expertise compared with other EU sea areas that are covered by the ICES network.

Both ICES and STECF apply robust peer-review (via ACOM and STECF itself) to outcomes generated by advice supporting EWGs. So, the advice emanates from ICES and STECF rather than the EWG. Thus, the advice has wide international legitimacy as it has been agreed in a widely constituted transnational committee ensuring that ‘best practices’ are applied and ‘lessons learned’ are extensively spread, thereby counteracting potential regional parochialism. It is important that robust peer-review is maintained under the new CFP, as ‘joint recommendations’ from regional member states groups (*e.g.* BALTFISH) must meet high, scientifically justifiable standards. Thus, ICES and STECF have a vital role in advising on the development of prudent proposals for regional measures.

3.2.8 Coordination and filtering of advice requests: Interactions between actors.

Regarding the formulation of requests for scientific advice, the European Commission requires that proposals for such requests, from BSAC and BALTFISH, are addressed to the Commission, which in turn filters and modifies these as it deems fit before the requests are directed onwards to ICES and STECF. The Commission forms the system’s hub: it acts as the advice contractor, manages the associated budget, and forms the interface between the advice providers and recipients. Obviously the Commission will maintain its commanding role in the regionalized CFP. However, the advisory councils find this advice formulation and filtering process with the Commission frustrating. As yet it is not clear how member states groups (*e.g.* BALTFISH) view this. However, a more interactive process (without circumventing the Commission) for formulating/agreeing advice requests, including also interactions with the advice providers (ICES and STECF), is desirable.

The advisory councils, besides providing stakeholder advice, have a legitimate interest in being informed by RTD and scientific advice concerning their stocks/fisheries and ecosystems. They have distinct views on the nature of the necessary regional scientific advice as well as what types/themes of RTD and data are necessary to support the advice. The advisory councils are considering the possibility of establishing their own shared scientific experts, so as to be better able to engage with the scientific advice providers (*i.e.* ICES and STECF). The advisory councils are motivated to participate in research projects (*e.g.* EU FP7/Horizon 2020) concerning their regions but earmarked funding is needed. The advisory councils have prioritized their interest in RTD underpinning advice on issues related to: the discard ban; trade-offs concerning MSY management strategies; and on developing effective ways of working/participation among the key actors, including improving cooperation between the advisory councils and their regional members states groups, European Commission, STECF and ICES.

3.2.9 Evolving advice perspectives: From limited choice to balancing multiple strategic options.

Fisheries scientific advice has focused traditionally on single species management in which limited ‘societal choice’ options were involved. Multispecies (*i.e.* biological) interactions and mixed-fisheries (*i.e.* technical) interactions typically were not manifest in either the assessment models or the resultant advice. However, since the 2002 CFP and especially with the 2013 CFP, multispecies and mixed-

fisheries management were placed high on the agenda. This has included operationalizing the landings obligation, phasing out discards and counting all commercial fish caught against TACs/quotas. Accordingly, there is an aspirational evolution from providing scientific advice focusing on fish stocks to providing advice on fisheries (multi-fleet, multi-gear, *etc.*), as well as expanding the focus from single species/stock advice to multiple species and mixed-fisheries advice.

Accordingly, multispecies and mixed-fisheries management must address complex multiple ‘societal choice’ options which are related to diverse perspectives about future developmental paths (scenarios) of the fisheries ecosystem. This should take account of environmental (*e.g.* climate) forcing, and various preferences, and options and trade-offs, reflecting the views of multiple stakeholders. These choice preferences reflect the priorities given by different stakeholders to attaining or maintaining particular species and stocks, or groups of these, at particular population levels. Such preferences and trade-offs mirror, for example, assorted national predilections for harvesting particular target species/stocks by specific fleets (*i.e.* gears or métiers), and how much of the potential catch of small pelagic forage fish should be kept for top predators such as cod, seabirds, and marine mammals. For integrating the CFP and the MSFD, trade-offs involve, for example, attaining fishing mortality levels on targeted stocks consistent with MSY, while limiting the incidental effects of fishing on the wider marine ecosystem. Thus, the options and trade-offs regarding management outcomes reflect bio-ecological, economic and social sustainability criteria, informed by relevant policies. Addressing such multifaceted options and trade-offs requires evolution in the form of engagement and associated interactions between the involved actors.

3.2.10 Changing rules of engagement for scientists, managers and stakeholders.

We are facing changing perspectives for the delivery and uptake of scientific advice and the rules of engagement between science, management and stakeholders. These form a ‘new paradigm’ for how a modern scientific advisory and decision-making system eventually is practically coupled.

As already noted, in scientific advice there is a move from single choice options (*e.g.* single species/stock management) to multiple choice options (*e.g.* multispecies and mixed-fisheries management concerning multi-fleet/multi-gear/multi-métier) involving various ‘trade-offs’ signifying the preferences of the diverse actors. In this advisory role, scientists assist the various actors by informing them of potential ecosystem developments given different envisaged scenarios for ‘what if’ changes of stocks, fisheries and fishing communities, ecosystem components, *etc.* The scientifically assessed options are supported by decision-support tables indicating the various management ‘options’ and trade-offs given potential constraints. This is a complex, new world where all involved actors are on a ‘learning curve’ in which they must learn the terms of engagement/collaboration. The single option world was highly formal, *e.g.* the European Commission posed the question and ICES had to answer it, and the Commission made the resulting decisions with limited stakeholder interactions. In order to formulate the ‘correct’ question and achieve the necessary outcomes to the question, in the new world of multiple options/choices, a blend of informal and formal dialogue processes are needed among the key actors. This dialogue process requires various interactions, properly recognizing and understanding each other’s views and opinions, before eventually trade-offs are aired prior to reaching final agreements in formal *plenum* sessions. For ICES and STECF there is a need to collaborate more closely to ensure mutual coverage of the advisory issues (bio-ecological, economic and sociological) and to build trust and confidence in meaningful collaboration with diverse stakeholders, *i.e.* be seen as an ‘honest broker’. Additionally, the managers (*e.g.* the Commission, BALTFISH) must ‘learn the new game’ in which they contribute more as facilitators and moderators ensuring that the whole ‘system’ works optimally and that agreed and scientifically justifiable stakeholder-consulted decisions

are effectively implemented. Finally, in this new, complex and interactive world, there is an incontestable requirement for an organizational model whereby business may be best brought together. Regrettably, there is currently no ‘fit for purpose’, holistically integrated regional ‘umbrella’ structure for conducting this business.

3.2.11 Advice and decision-making: Prospects for a holistically integrated system.

The current organizational system is disjointed and the decision-making system’s core (*i.e.* BALTFISH) is inadequately empowered. However, the USA’s regional fishery management council system, as exemplified by USA’s *North Pacific Fisheries Management Council* (NPFMC) (**Figure 2**) provides an excellent model to learn from.

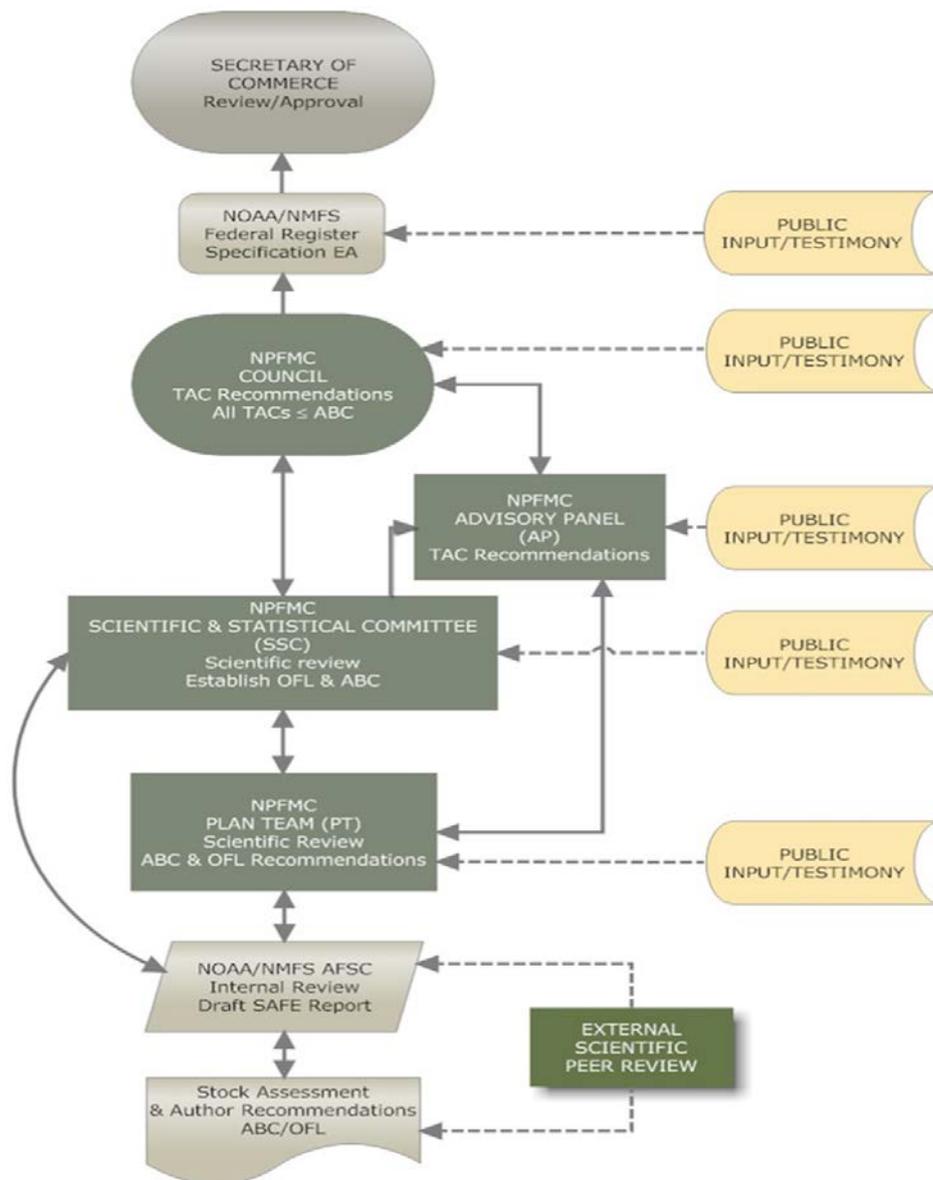


Figure 2. The advisory and decision-making structure of the U.S. North Pacific Fishery Management Council (Source: Hopkins & Hadjimichael, 2013²).

² Hopkins, C.C.E., & Hadjimichael, M.M. 2013. Review of the Fisheries Governance System for Alaska Pollock under the North Pacific Fisheries Management Council; Objective Setting and Implementation. MYFISH WP1 Task 1.2 Report. [Available on request from the first author]

The foundation that the Baltic Sea region has for building on is broadly existent but there is no holistically integrated ‘home’ (*i.e.* overarching architecture) to bring the various ‘building bricks’ together regionally. The EU imported the consultation part, as incorporated into the CFP by the regional advisory councils, from the USA. However, the decision-making part was overlooked as the 2002 CFP still operated as a ‘single pond’. It is important to recall the loss of the best aspects of the IBSFC’s *gravitas* and learn from the USA’s NPFMC as a first-rate example of an open and transparent, regionally holistic, and legally empowered system where several US states conduct their fisheries business. The NPFMC effectively integrates key components involving science, stakeholder representation and management in an overarching organization (**Figure 2**).

The Council *sensu stricto* is the NPFMC’s decision-making body, representing a wide range of constituents. It corresponds approximately to the BALTFISH HLG (with voting rights) extended to include various stakeholders. An important part of the NPFMC system is its openness to public/input and testimony in all its structures. The NPFMC has two formal advisory groups: a Scientific and Statistical Committee (SST, corresponding approximately to an amalgamation of ICES ACOM and STECF) and an Advisory Panel (AP, corresponding approximately to an EU advisory council, *e.g.* BSAC). There is also a Plan Team (PT) which periodically reviews/modifies the draft stock assessment and fishery evaluation (SAFE) report from the federal equivalent of ICES and STECF EWGs. Thus, the PT acts as an equivalent of an ICES advice drafting group, before the amended report is peer-reviewed by the SST. The SST review modifies the advice foundation as appropriate before it is submitted to the Council with copy to the AP for comment. The outcome from the SST sets the MSY related boundaries, in the context of LTMPs, within which the AP must agree on TACs/quotas for the various fisheries. If the AP cannot agree on TACs/quotas, the Council sets these. Given that clear policy (US Magnuson–Stevens Fishery Conservation and Management Act, comparable to the CFP Basic Regulation, *etc.*) and rules of procedure are followed, agreed TACs/quotas, *etc.*, are approved by the Council and ‘rubber stamped’ by the Secretary of State for Commerce and written into legislation.

3.3 Epilogue

The Baltic Sea region has had many decades of regional collaboration in providing scientific information and advice for formalized regional decision-making concerning fisheries and fisheries – ecosystem interactions. It has the essential foundations for providing a model of good governance which can lead the way for the regionalization of the EU’s CFP. It should be enhanced by taking onboard proven models used elsewhere, such as in the U.S.’s NPFMC. The Baltic Sea collaboration can build on lessons learned from the activities of the IBSFC, HELCOM, BONUS, BALTFISH, BSAC, ICES, STECF and the European Commission. A new, holistically integrated ‘Baltic Sea Regional Fisheries Management Council’ can emerge as a hub of this collaboration. In this collaboration, key actors should take on agreed and non-competitive roles and responsibilities in a culture of cooperation, outstanding research and scientific advice, and data collection and sharing.