

Ecosystem-based marine management in European regional seas calls for nested governance structures and coordination – A policy brief

Jesper Raakjaer*, Judith van Leeuwen**, Jan van Tatenhove** and Maria Hadjimichael*

* Innovative Fisheries Management (IFM) - an Aalborg University Research Center, Aalborg, Denmark

** Wageningen University Environmental Policy Group, Wageningen, The Netherlands

Correspondence: jr@ifm.aau.dk

Abstract

Marine governance in European seas is at a crossroad. There is strong political desire to move towards ecosystem based marine management through integration of different EU policies or directives (e.g. the Integrated Maritime Policy, the Common Fisheries Policy, Marine Strategy Framework Directive and the Habitats and Bird Directives) to protect the environment, while at the same time marine governance is expected to facilitate growth and employment in support of the blue economy. At the level of the regional sea, the governance landscape is very complex. On the one hand the implementation of marine policies and management has to deal with different institutional rules that exists between the European, Regional, International and Member State level (institutional ambiguity), and on the other stakeholder participation is a dilemma because various sectors are unequally prepared to participate in the policy process related to marine management.

In this paper, we examine the present governance structures in the four European seas (Baltic, Black, and Mediterranean Seas and North East Atlantic Ocean). We argue that the implementation of EBMM at the regional sea level is characterized by a highly fragmented European governance system where there is lack of coordination between relevant DGs within the European Commission, between EU, International organisations, Regional Sea Conventions and the Member States and between sectoral governance arrangements that should provide sectoral management measures that support EBMM. The paper develops suggestions for a nested governance system in which institutions, policies, laws and sectors are nested into a tiered, internally consistent and mutually re-enforcing planning and decision-making system. Developing institutional interaction and soft modes of governance between the EU, the Regional Sea Conventions, Member States and the governance arrangements of the different marine sectors will be crucial in evolving towards such a nested governance system for EBMM. Moreover, there is no one size fits all approach in implementing EBMM, which means that for each European Sea a context-dependent nested governance system should be developed.

Keywords: MSFD; regional cooperation; fragmented governance; nested governance; soft modes of governance

1. Introduction

The implementation of the ecosystem-based approach to marine management (EBMM) in European regional seas is high on the policy and political agendas of the EU. The EBMM concept is gradually accepted as a leading principle in several policies, such as the Integrated Maritime Policy (IMP), Marine Spatial Planning (MSP) and Integrated Coastal Management (ICM), the Common Fisheries Policy (CFP) and the Marine Strategy Framework Directive (MSFD). Instead of the traditional focus of marine management on sectoral policies [1], EBMM requires a move from a “use perspective” to a regional “system perspective” [2]. This can for EBMM be translated to a nested governance system in which EU level institutions sets clear principles and long-term objectives, e.g. Good Environmental Status for European Seas or fish stocks should be exploited at MSY level. Stakeholder involvement is in the form of consultation: e.g. through RACs or the MSFD working groups, although all decisions are taken by EU institutions.

According to UNEP this process of regionalization of EBMM needs to rely on the practice of cross-sectoral and decentralized governance that works to nest policies, laws and institutions into a tiered, internally

consistent and mutually re-enforcing planning and decision making system [3]. At the regional level implementation plans and guidelines tailored to regional conditions and implementation are elaborated between regional member states, stakeholders and users. In addition, the individual sectoral governance arrangements should translate both the principles and long-term objectives (e.g. MSFD, Habitat and Bird Directive (HBD)) and integrate these in the regional level implementation for their specific sector. Yet, these governance arrangements should also support result-based management to make implementation plans into realities and users/industry more accountable. A nested governance arrangement is the result, where stakeholder involvement takes different forms at different levels and where stakeholder (user) powers increases going down the nested system. Following the subsidiarity principles, stakeholder power increases as decisions are moving from principles to operational management plans and implementation thereof.

The implementation of EBMM at the level of the regional seas is faced with several dilemmas. EBMM needs to be implemented in a complicated EU policy seascape, that on the one hand is driven by environmental and nature conservation objectives (MSFD, HBD and Water Framework Directive), while on the other hand faces high political expectations to exploit the potentials from the Blue Economy expressed by the Marine and Maritime Agenda for growth and jobs “the Limassol Declaration” (2012). In addition, the European Commission (2009) points to the need for integration of maritime governance and encourages EU institutions, Member States and coastal regions to establish effective structures for cross-sectoral collaboration and consultation with stakeholders [4]. It has not specified any governing structure to ensure cooperation and coordination at the regional sea nor has the width and depth of stakeholder participation in the decision-making been clarified. The institutional arrangements at the level of the regional seas to support the implementation of EBMM are presently underdeveloped and coordination and collaboration to a high degree based on a mixture of forms of ‘hard’ and ‘soft’ modes of governance [5]. In the absence of accepted rules and norms in the overlapping zones of the institutional settings of the EU, the Regional Sea Conventions (RSC), Member States (MS) and bordering states, actors have the opportunity to negotiate and change the rules of the game and to develop new governance arrangements [6,7].

The central argument of this paper is that instead of the nesting of policies, laws and institutions, the implementation of EBMM at the regional sea level is confronted with a highly fragmented European governance system. We will illustrate this through examining the present governance structure in the four European seas (Baltic, Black, and Mediterranean Seas and North East Atlantic Ocean). This fragmentation manifests itself at different levels of governance and in the dynamics of maritime activities and related sector policies. At the EU level, there is a lack of coordination between relevant DGs within the Commission. The RSC, assigned as regional platforms for coordination in the MSFD, have their own history and role and have to adapt to their expected coordinating role in the MSFD and EBMM process. In general there is only very limited coordination within and between existing sectoral governance arrangements at different levels which will play a role in adopting and implementing sectoral measures that support the objective of EBMM.

Before analysing the current fragmented European governance system in section 3, we will first discuss the methodology on which this paper is based. Section 4 will discuss the notion of polycentric governance, which allows us to envision a nested governance system for EBMM. This will be followed by the analysis of the current fragmented governance system in the Baltic, Black, and Mediterranean Seas and the North East Atlantic Ocean in section 5. We will draw some conclusions in section 6.

2. Methodology

This paper is based on data collected during a sequence of different research activities building upon one and another. This research was done under the FP7 project Options for Delivering Ecosystem-based Marine Management (ODEMM). The following methodological process was used in the research:

- 1) A literature review;
- 2) Key informant interviews (30+) covering 8 EU countries;
- 3) Internet survey in 12 languages, with the aim to understand stakeholder’s view of current marine governance structures in four European regional seas (Baltic, Black, and Mediterranean Seas and

- the North-East Atlantic Ocean). The survey was emailed to 650 stakeholders in 18 EU countries and 5 non-EU countries obtaining a respond rate of 37%;
- 4) Focus group meetings with stakeholders on governance structures to facilitate MSFD and EBMM in each of the four European regional seas and one with stakeholders working on central/EU level issues in Brussels;
 - 5) Road show meetings with policy-makers and stakeholders covering each of the four European regional seas disseminating our ideas for governance reforms and institutional coordination proving a last round of feedback.

Based on the literature review, and key informant interviews [2,6,8,9], six major drivers influencing regional collaboration and coordination were identified: institutional ambiguity (scale, complexity); stakeholder involvement (devolution, involvement, unequal footing); decision-making structures, economic efficiency (transaction costs, resources); MS willingness to cooperate and MS capacity to cooperate.

Based on these six drivers: five micro-scenarios or hypothesis for how to organise future governance arrangements for EBMM were elaborated (for details see [10]). In the survey the importance of the drivers were tested and contrasted with the scenarios. The software SurveyXact was used to conduct the survey, which was analysed using the SPSS statistical software (for survey results see [11]).

Based on the survey results, four governance models were developed to cover all potential future governance settings in any European regional sea. These models were based upon two key building blocks: participation, i.e. are stakeholders involved in the decisions and decision-making power, i.e. are decisions binding or non-binding (see [12]). The governance models were developed to be equally “attractive” and foreseeable to stakeholders.

During the focus group meetings, each attended by 9-12 stakeholders (coverings the various sectors and administrations), the four models were used to exemplify and explore the implication of changing direction of existing governance structures to improve regional/sub-regional collaboration. This strategy was chosen to keep the discussions focussed on the one hand and on the other hand allowing stakeholders to add other aspects of importance in the process for creating appropriate governance structures to support EBMM implementation. In all the regional focus group meetings alternative model(s) were suggested often in the form of a combination of the presented models while adding some additional perspectives.

The regional road show meetings turned out to be a very fruitful way to test our ideas for reforming the present governance structures and ensure institutional coordination at the regional scale in support of EBMM. Providing us with thoroughly and inspiring feedbacks.

In sum, the feedback obtained from this step-wise consultation process clearly demonstrated that it might be very difficult to agree on an overarching model suggesting the need to strengthen the interaction between existing institutions by creating platforms providing for nested coordination across sector policies. The inputs from this extensive consultation process were valuable and have influenced the drafting of this policy brief.

3. Portraying the fragmented European governance systems

The implementation of EBMM takes place in a fragmented European governance system (see fig 1, adapted from [13]), in which there is no single authority responsible for problems at the level of the regional seas, while the various sectoral maritime activities have different dynamics [7]. Figure 1 connects the institutional setting of the EU (as laid down in the Treaties) and the regional levels through the Regional Sea Conventions (top part of the figure), with existing sectoral governance arrangements such as those for shipping, fishing, oil and gas production, offshore wind park development and coastal tourism (lower part of the figure). The figure clearly indicates a very fragmented seascape manifesting itself in several ways, i.e. at the EU level, at the regional level, between EU, RSC and sectors and between sectors. EBMM in such a fragmented governance structure calls for coordination as well as showing the challenges in ensuring coordination.

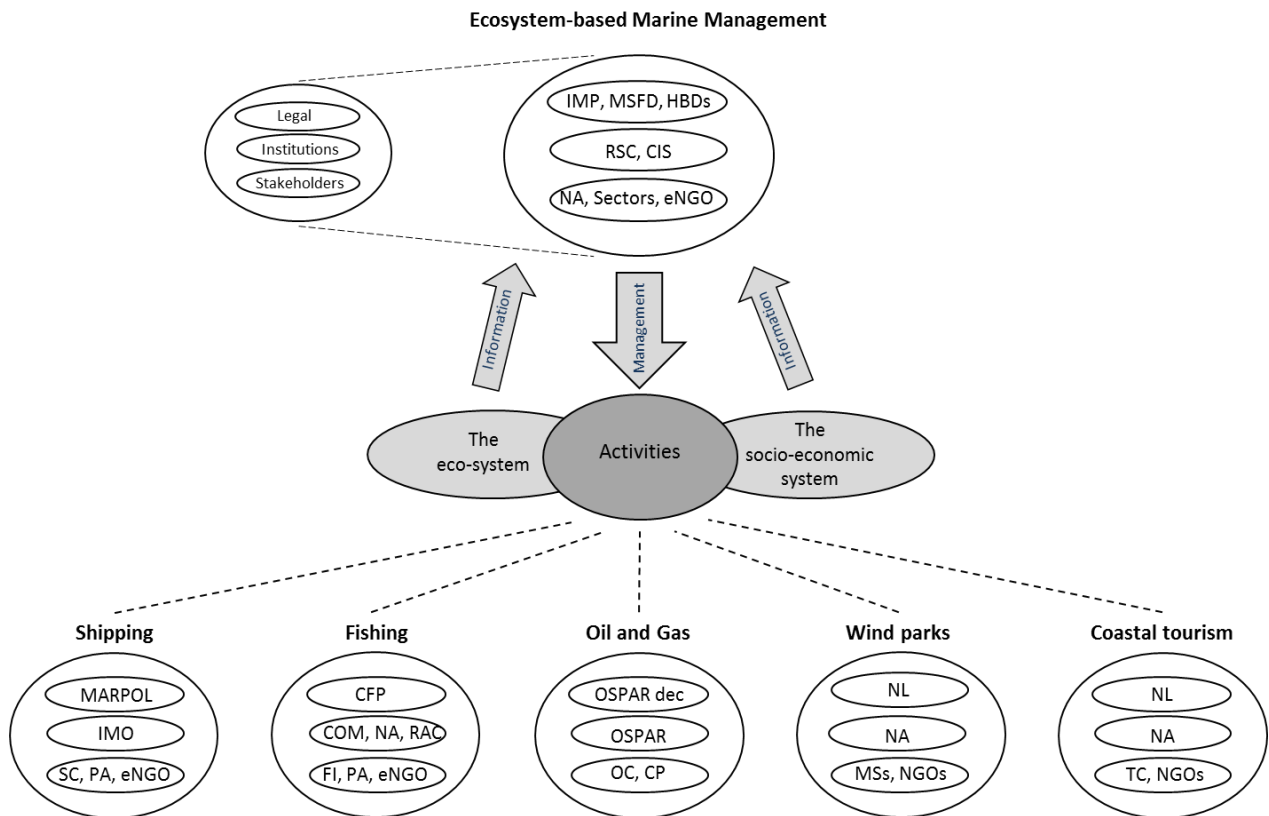


Figure 1. Governance System for EBMM in European Seas

The top part of figure 1 represents the whole suite of EU policies that together form the EBMM approach of the EU. The Integrated Maritime Policy is the overarching policy which aims to maximise sustainable use of the oceans and seas while enabling growth of the maritime economy and coastal regions. The MSFD is the environmental pillar of the IMP. In addition, the Birds and Habitats Directives and the future directive on Marine Spatial Planning and Integrated Coastal Zone Management should offer a set of tools for implementing EBMM (i.e. MPAs, MSP and ICZM plans respectively). Next to that the CFP should support a move to ecosystem-based management by formulating objectives and tools for Ecosystem-based Fisheries Management [14].

As EBMM is about regulating human activities, the suite of EU EBMM policies aims for the development of measures that ensure the sustainable use of the oceans. These interventions focus on different sectors (see figure 1). As the figure suggests, a considerable amount of information about both the ecosystem and the socio-economic systems are needed to base management decision upon. This is why for example the MSFD starts with an initial assessment of the current environmental status of national marine waters and the environmental impact and socio-economic analysis of human activities and why the Integrated Maritime Policy includes a focus on marine data and knowledge. In addition, monitoring of (lack of) improvement can be a starting point for the evaluation and reform of certain policies and interventions.

A second characteristic of the fragmented governance system facilitating the implementation of EBMM at the regional sea level is that maritime activities and sectors are regulated in different, independent governance arrangements. Even the Common Fisheries Policy (CFP), which is under exclusive competence of the EU, still has its own governance arrangement [13,15]. The decisions about setting fish TACs and quotas, multiannual plans and technical measures are a science-based process, where DG MARE gets independent scientific advice from the International Council for the Exploration of the Sea. The Scientific, Technical and Economic Committee for Fisheries, an internal advisory body, validates (and to some extent adds to) and forwards scientific advice to DG MARE [15]. With the 2002 reform of the CFP, Regional Advisory Councils

(RACs) were introduced in order to increase the involvement of the fishing industry and other stakeholders, such as eNGOs, consumer groups and national authorities [16,17,18]. Nevertheless, Member States remain responsible for implementation and enforcement of the CFP. Most MSs have some type of national consultative structures for stakeholder consultation, both in relation to national implementation and MS positions in the Council of Ministers.

The International Maritime Organization (IMO), a UN organization in operation since 1958, governs shipping. The main conventions of the IMO are the 1973 International Convention for the Prevention of Pollution from Ships (modified by the Protocol of 1978 and generally known as the MARPOL Convention), the 1974 International Convention for the Safety of Life at Sea (SOLAS), and the International Convention on Standards of Training, Certification and Watch keeping for Seafarers (STCW). Next to these a whole set of other conventions have been adopted relating to maritime safety and security, marine pollution and liability and compensation. The institutional structure of IMO consists of an Assembly, the Council and 5 main committees and several sub-committees that prepare the adoption of the IMO Conventions. The IMO allows observer seats for a wide variety of stakeholders, including ship-owners, ports and eNGOs in the main and sub-committees.

Depending on the regional sea, offshore oil and gas production is regulated by different governance arrangements. In the Black and Mediterranean Seas, the role of the Regional Sea Convention is limited, making the regulation of offshore oil and gas production mainly a national matter. This is different in the North Sea where individual countries advance offshore production through their national mining laws, but in addition to that developed extensive international collaboration to regulate the environmental aspects through the OSPAR Convention (previously the Paris Convention) [19, 20]. The OSPAR Convention has produced a set of decisions, recommendations and agreements on oil and chemical pollution by offshore platforms. In the institutional set-up of the OSPAR Convention, the Offshore Industry Committee is the Committee that prepares the decisions, recommendations and agreements, subsequently adopted by the OSPAR Commission. The most active observers in the Offshore Industry Committee are the International Association of Oil and Gas Producers and the European Oilfield Speciality Chemicals Association; the eNGOs are only irregularly present [19]. In addition to OSPAR, industry environmental management is important in this industry [21], which has also allowed co-management to develop between the industry and national government in the UK, Norway and the Netherlands [19,20].

Next to these either internationally, or EU associated governance arrangements, national governance arrangements are important in developments that take place within a country's territorial waters or its Exclusive Economic Zone (EEZ), such as developments related to offshore wind farm and the coastal tourism sector. Offshore wind farm development tends to fall under national jurisdictions whereas developments related to coastal tourism can fall under more local governance arrangements. This distance from the EU as the institution setting the umbrella framework suggests that these sectors, which fall under national and sub-national arrangements can end up being the missing link in a potential nested governance system.

The coastal tourism sector does not tend to be very well organised as it is very diverse and can include activities such as hotels/resorts, marinas, golf courses to eco-tourism areas including nature reserves. This within-sector variety, and the fact that expectations of the different sub-groups regarding potential developments differ, can often create clashes between these sub-groups. Depending on which department(s) is in charge of making the final decision (at sub-national or national level), conflicts for or against developments can end up becoming a political power struggle. Tourism is often in conflict with other sectors operating in the coastal zone e.g. when wind-farms are visible from the coast for example, coastal communities and the local tourism sector feel that this has an adverse social or economic impact [22].

Offshore wind farm developments receive widespread political and institutional support at EU and national levels because of the EU aim to produce 20% of its energy from renewable sources by 2020. Legislation for ensuring the minimisation of the environmental impact from the developments stems from EU policies such as the EIA (85/337/EEC) and the Habitats and Bird Directives. Fulfilment of the requirements of these Directives is only one step of the licensing procedures, which is in turn depended upon national legislation and differs between countries. Plans that follow top-down planning procedures that do not take into

consideration the views of local groups are received with hostility and lead to conflicts caused by the visual impacts accompanying the large wind farms structures [22,23].

4. Nested governance systems

The implementation of EBMM requires the development of governance structures and coordination mechanism on the level of the regional seas. This process of regionalisation of governance arrangements requires the nesting of individual sectoral governance arrangements. This nested governance system has to deal with the existing multi-level governance arrangements that have emerged and evolved over the last decades to govern activities such as shipping and fisheries or that focus on marine environmental protection more generally. By developing institutional linkages with these governance arrangements it could be possible to ensure a common discourse, policy objectives and decision-making and implementation of sectoral measures supporting EBMM objectives at the regional sea level.

Inspired by debates on common pool resources [24,25], multi-level governance [26,27] (Hooghe and Marks 2001; 2003), human geography [28] and marine governance (e.g. [29,30]), we develop in this paper a nested (polycentric) marine governance system, which is a “polycentric” substitute for more familiar forms of sovereign authority, operating within a limited subject-matter sphere and at a spatial scale whose boundaries are defined by the nature and scale of the problem to be addressed” [31]. In other words, a new spatial grammar of marine governance needs to evolve in which there is both space for processes of rescaling the state (and other decision making institutions) to the ecosystem level and for network forms of governing to emerge [28].

The term polycentric refers to multiple centres of decision-making, which are formally independent of each other, but function in a coherent manner and with consistent and predictable patterns of interacting behaviour. Fanning et al. use the term policy cycles to point to these independent centres of decision making which have to become vertically (i.e. across jurisdictional levels) and horizontally (across policy domains) linked for effective marine governance [30]. Each policy cycle is characterised by its social and political context, purpose, the jurisdictional level, capacity for implementation and the complexity of the natural resource system [30]. Arts et al prefer to use governance arrangements and point to the dimensions of actor and coalitions, resources and power relations, discourses and rules of the game to characterize different types of policy arrangements [32]. To these dimensions, Van Leeuwen [19] adds the dimensions of steering and compliance mechanisms to include a variety of steering modes in governance.

The vertical and horizontal linking of independent governance arrangements is discussed by an emerging body of literature on institutional interplay or interaction in reaction to the dense web of international environmental policies and institutions that have emerged since the 1970s. Drawing on this literature we discuss in more detail how and why independent governance arrangements become linked through EBMM. Applying the term institutional interaction, which is defined as the influence of one institution on the development and effectiveness of another (adapted from Gehring and Oberthür, [33]). Within the institutional web there might be overlap due to shared substantive problems (in biogeophysical or socioeconomic terms) or because of political linkages through deliberate actions of actors [34]. The resulting interaction between institutions can range from highly iterated interaction, when two institutions affect each other to a similar extent, to unidirectional interaction, where one institution affects the other but not vice versa [35]. Institutional interaction can have positive effects when it leads to synergies, or negative effects when it leads to disruption between the institutions [33,34].

Institutional interaction can emerge unintentionally, but can also be the result of strategic action of actors when they seek to forge issue linkages in pursuing their individual or collective goals. This is also known as interplay management where “deliberate efforts by any relevant actor or group of actors, in whatever form or forum to address and improve institutional interaction and its effects” are taken [36]. Causal mechanisms that can be used to create institutional interaction are transfer of knowledge, discourses and ideas, shared or competing commitments, shared or competing expected changes in behaviour and shared or competing objectives of impact on society and the environment [37].

EBMM fosters institutional interaction because it creates a shared discourse facilitating the development of shared commitments, shared expected changes in behaviour and shared objectives of impact on society and the environment while making the existing conflicts between commitments and objectives visible. In other words, the nested governance system needed to implement EBMM should create interaction between EU and sectoral governance arrangements, ensuring synergy in achieving sustainable use of the marine environment. EBMM should be to focus on building an effective nested governance structure serving as an umbrella body facilitating interplay between relevant (sectoral) policy domains contributing and supporting EBMM implementation and approach across different maritime activities in a particular region.

4.1. Soft modes of governance in nested systems

A key characteristic of decision making in fragmented and nested governance system for EBMM is that decision making is decentralised, creating a non-hierarchical network of decisions. A nested system could also be conventional top-down if interaction is predominantly to control from upper to lower levels, but it is more likely that EBMM is based on a network structure where the linkages facilitate self-organization, because of the numerous levels in geographic and jurisdictional scales [30]. Similarly, Gruby and Basurto argue that a nested system where decision-making is centralized is less likely to succeed in supporting sustainability and resilience of the resources it governs [29]. They argue that decentralised decision-making in “nested polycentric systems is advantageous because, through the involvement of resource users, local knowledge can inform the design of diverse, context-specific rules, while larger organizations (including but not limited to governments) can enhance local capacity to deal with non-contributors or local tyrants, share and invest in information, and coordinate cross-boundary problems, for example [25,29]”.

The nested governance approach we put forward in this paper refers to the layer of constitutional rules and principles that define the organisation of the system, i.e. the links between EU, regional and sectoral governance arrangements in EBMM. These governance arrangements in turn define the collective-choice rules for issues within their domain and under their competence. They can also set forward operational rules for daily management of the area, issue or sector they are responsible for.

To create constitutional rules and principles within the nested governance system for EBMM, soft modes of governance are of vital importance. During the last decade, soft modes of governance have been applied as a mechanism to contribute to good governance in the EU. Soft modes of Governance will according to Diedrichs introduce innovative modes of decision-making, such as Open Method of Coordination (OMC) [38]; based on soft law in terms of voluntary agreements and peer pressure, which does not lead to binding law-making procedure and to a larger degree involve public and private actors and institutions in the policy-making process. The aim is to develop “unofficial” common guidelines to set specific targets and adopting measures; establish indicators and benchmarks (quantitative or qualitative) as a mean of comparing best practice; and conducting implementation monitoring – including so-called ‘naming and shaming’ - and peer review, all underpinned by voluntarism [5,39]. By maintaining a devolved and unofficial approach to establishing guidelines it can raise the level of expertise and standards of performance without having to alter the formal regulatory framework (which often carries with it financial, political and administrative burdens).

Soft governance in the marine domain, more specific OMC like arrangements in the nested governance system at the regional sea levels can prove to be a useful tool for steering policy implementation, because the non-binding nature leaves room for innovative practices, the capacity for policy learning, deliberation as well as policy coordination [5,40].

It is evident from figure 1 that EBMM cannot rely solely on an embroiling umbrella institution covering all aspects related to EBMM. But as mentioned above serve an important role as umbrella body facilitating interplay between and ensure coordination and collaboration between several semi-autonomous governance systems within various policy domains. Allowing soft modes of Governance to be applied through networks (consisting of public and private actors) making a direct contribution to fulfil good governance principles, such as openness, participation, accountability, effectiveness and coherence [41]. Networks are important to establish mutual understanding among actors creating common values and move decision-making beyond self-interested intergovernmental bargaining [42]. Networks can be the glue that holds the different

institutional structures together applying soft modes of governance. The non-legal binding nature of this approach might likely foster transparency and improves the quality of the decision-making processes. Allowing decisions to be made in accordance to the principle of subsidiarity and make it possible to benefit from institutional coexistence. Overcoming the challenges associated with the implementation of EBMM will likely require the creation of new alliances or networks through marine OMC arrangements to facilitate this process and enhance the capacity for policy learning.

5. Governance situation in four European regional seas

In this section, we discuss the fragmented governance situation and the challenges to realise institutional interaction and linkages for each of the four European regional seas (Baltic, Black, Mediterranean Seas and the North East Atlantic Ocean). Since EBMM is space-directed and operating at ecosystem level, we provide some empirical background information to address some of the core policy issues associated with fragmentation. This section will show how fragmentation differs between the four European regional seas and that in some cases some form of institutional interaction already takes place.

5.1. The Baltic Sea

The Baltic Sea is a semi-enclosed and highly developed and industrialised catchment area. The pressure on the Baltic Sea ecosystem comes from agriculture, coastal infrastructure, fishing, shipping, tourism and recreation [43]. Furthermore, the Baltic Sea has always received large inputs of nutrients and hazardous substances from the atmosphere and rivers outflows causing high accumulative impacts on the ecosystem [44].

In relation to figure 1, the Helsinki Convention and its coordinating body (HELCOM) through the Group for the implementation of the ecosystem approach (HELCOM GEAR) is forming the upper governance structure. HELCOM has adopted an Ecosystem Approach in 2003 and the Baltic Sea Action Plan (BSAP) to implement this Ecosystem Approach as well as the MSFD [45]. HELCOM GEAR initiates actions to implement the BSAP for its Parties. The GEAR group directs HELCOM's efforts to achieve GES for the Baltic Sea relying on strong regional coordination and the use of scientific knowledge as the basis for protection and sustainable use of the Baltic Sea. Stakeholder involvement is warranted through observership of interest groups within the Helsinki Convention. Yet, another way in which stakeholders make their voice heard is through the Baltic Environmental Forum (BEF), which is composed of the main eNGOs and acts as an environmental agency engaging stakeholders to present their views in relation to maritime and marine strategies.

HELCOM plays a role in generating institutional interaction between its own institutional structure, which is geared towards coordinating EBMM in the Baltic Sea, and the sectoral governance arrangements that are relevant for achieving EBMM objectives. Depending on both the exact role of HELCOM in regulating relevant sectors and the level of institutional interaction with sectoral decision-making institutions, synergy between the objectives of EBMM in the Baltic Sea and developing sector specific measures to contribute to these objectives are created. For example, while the CFP is leading in governing fisheries in the Baltic Sea [46], the HELCOM FISH/ENV Forum is established to improve communication and cooperation between the fisheries and environmental administrations of the HELCOM Contracting Parties and with the International Council for the Exploration of the Sea (ICES) and NGOs related to fisheries and environmental/nature conservation as well as with the Baltic Sea Regional Advisory Council (BSRAC). Nevertheless, collaboration between HELCOM and BSRAC is not well developed and stakeholder involvement has largely been from science and partly eNGOs, but seldom from industrial sectors such as fisheries [11,47]. For example, also BALTFISH, which is composed of the national fisheries administrations, are interacting with the fisheries stakeholders (BSRAC), but this has merely turned out to be more than weak consultation and has not developed into a partnership.

Similarly, some institutional interaction seems to exist between HELCOM and the IMO, even though IMO remains the main regulatory body for shipping [48]. The Maritime Group of HELCOM not only aims to ensure that adopted regulations are observed and enforced effectively and uniformly, but also initiate actions to limit sea-based pollution while ensuring safe navigation within the Baltic Sea. This group uses soft modes of

governance in doing so as it develops scientific expert groups, organizes symposia and guidelines and recommendations. However, it is a question whether HELCOM's Maritime Group influences IMO decision making in such a way that the effects of shipping in the Baltic Sea meets the level aimed for by the BSAP.

Next to some examples of existing (or potential) institutional interaction, there are also some noticeable (or potential) gaps in the interaction and coordination between HELCOM and other marine and sectoral institutions [49]. The Baltic Sea Region Energy Cooperation (BASREC) was initiated by the Baltic Sea countries and the European Commission in 1998 among others aiming to promote sustainable growth and pursuing energy efficiency and renewable energy measures. However, it is unclear how and to what degree BASREC is collaborating or interacting with the other governance structures within the marine domain. Similarly, the Council of the Baltic Sea States (CBSS) composed of all the bordering countries as well as the European Commission, Iceland and Norway is an overall political forum for regional inter-governmental cooperation. However, in terms of the marine environment and thus EBMM the collaboration and coordination is taking place under the auspice of HELCOM and no known institutional interaction takes place on these issues with the CBSS.

5.2. The Black Sea

The Black Sea is an enclosed sea with a complex ecosystem. It is one of the most environmentally threatened regional seas, and vulnerable from successive over-exploitation of fish stocks, oil pollution, land based human activity and invasive species [50]. Agriculture, coastal infrastructure, fishing, shipping, tourism and recreation, and waste water treatment have been identified as the sectors exerting highest pressures to the Black Sea ecosystem [43]. Diversification from mainly fishing activities has been taking place towards coastal tourism, whereas the oil and gas sector has been and still is an important activity in the Black Sea [2]. With a new oil and gas pipeline and nuclear projects being underway, the energy sector appears to be expanding [51].

The Bucharest Convention on the protection of the Black Sea against pollution signed in 1992 and the adoption of the Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea (BS SAP) in 2009 are the first signs for the creation of institutional structures for the implementation of EBMM. The Black Sea Commission (BSC) of the Bucharest Convention is the coordinating institution for EBMM (and the MSFD) in the Black Sea and forms the upper governance structure (figure 1). The effectiveness of the BSC is facilitated by the small area of the Black Sea. In terms of ecosystem sub-divisions for example, no further sub-divisions are suggested within the MSFD, meaning that the regional convention can operate at a level closer to the marine ecosystem boundaries established under the MSFD. However, the fact that only 1/3 of the bordering countries are EU Member States, makes agreeing and transposing EU EBMM legislation into binding regional measures challenging. The BS SAP identified four priorities that are both relevant and important in the context of an EBMM approach: eutrophication/nutrient enrichment; changes in marine living resources; chemical pollution (including oil); and biodiversity/habitat changes, including alien species introduction. The BS SAP also prepared a Transboundary Diagnostic Analysis with the hotspots, and legal and institutional analyses relevant to those priorities.

The seven Advisory Groups (AG) / Activity Centres in the seven strategic sectors of the BS SAP that already exist under the BSC can form the lower governance structures particularly those that relate to specific sectors in order to involve them in the process (figure 1). Specifically, there are AGs on the Environmental Safety Aspects of Shipping, Control of Pollution from Land Based Sources, on the Development of Common Methodologies for Integrated Coastal Zone Management, and on the Environmental Aspects of the Management of Fisheries and other Marine Living Resources. Regional cooperation and collaboration in relation to EBMM and MSFD primarily is inter-governmental and the AGs include experts from focal points from all Black Sea states. The AGs are encouraged to include relevant NGOs and public participation but in reality, possibilities for stakeholder participation seem to be limited. Similar to Mediterranean countries, Black Sea countries have limited tradition in consulting stakeholders. This was evident in the responses of the survey by Hendriksen et.al [11] where despite sector and e-NGOs stakeholders have at least some capacity to participate in the MSFD process, actual consultation and influence in decision-making is none to limited.

These AGs provide some potential for institutional interaction to create synergy between the EBMM objectives of the BS SAP and the necessary measures for different sectors to achieve these EBMM objectives. However, the level of institutional interaction and the potential of synergy depend on the actual influence of these AGs on decision making institutions relevant for these sectors such as the IMO, CFP or national authorities regulating tourism and land-based sectors in the Black Sea. For example, similar to the Maritime Group of HELCOM in the Baltic Sea, the AG on the Environmental Safety Aspects of Shipping seems to focus mostly on supporting the implementation of IMO regulations, rather than influencing IMO regulations to allow for realization of EBMM objectives in the Black Sea in relation to shipping activities. It therefore remains the question to what extent the potential of institutional interaction is achieved in practice at this moment in time.

Additionally, the experience on the implementation of the EU's WFD suggests that cooperation is possible, with the International Commission for the Protection of the Danube River (ICPDR) (in which Black Sea coastal states are part of and the BSC has an observer status) which prepared a common analysis of the basin and developed a shared river basin management plan. In this respect it needs to relate to "land-based" institutions. There is no particular group dealing directly with MSFD even though an ad hoc Working Group on the WFD has been established for the implementation of the BS SAP which could be extended to include the MSFD as there are links between the WFD and the MSFD, and there is already exchange of data on WFD indicators relevant to the MSFD.

5.3. The Mediterranean Sea

The Mediterranean Sea, despite its relatively small area (more than three times smaller the size of the NEAO), has many ecological specificities which is why the UNEP/MAP and the MSFD Directive suggest that MS implement the Directive by references to four subdivisions: the Western Mediterranean Sea, the Adriatic Sea, the Ionian and the Central Mediterranean Sea, and the Aegean-Levantine Sea. There are a number of sectors that exert a high pressure in the Mediterranean Sea, namely aggregates, agriculture, aquaculture, coastal infrastructure, fishing, navigational dredging, non-renewable energy (oil & gas), shipping, tourism and recreation and waste water treatment [43]. The shipping sector is of particular importance in the Mediterranean with maritime traffic accounting for 15% of global shipping activity [52]. Coastal tourism is also an important economic sector and even though there is no renewable energy sector, there is an increasing focus on the oil and gas sector (natural gas in particular) in the Eastern Mediterranean.

The regional institution that is the focal point of EBMM (and the MSFD) in the Mediterranean is the 1976 Barcelona Convention for Protection against Pollution in the Mediterranean Sea. The Convention sets the legal framework for the Mediterranean Action Plan (MAP) which aims to protect the environment and to foster sustainable development in the Mediterranean Sea and has been signed by all the 21 bordering states of the Mediterranean Sea and the EU under the auspices of United Nations Environment Program (UNEP). In relation to figure 1, the Barcelona Convention can form the upper governance structure, as it has adopted the ecosystem approach (ECAP) in 2008 which brings "*MAP's many sectoral analyses and management measures into a single integrated framework*" [53].

The institutional set-up of MAP is simple giving authority to two organs: the Meetings of the Contracting Parties and the Secretariat [54]. In addition to that, there are six MAP Regional Activity Centres (MAPRACs) based in six Mediterranean cities, each offering expertise in specific fields of action to facilitate the operation of MAP. Some of these focus on specific sectors, i.e. the MAPRACs on land-based pollution, maritime traffic, and coastal management. The relevance of the MAPRACs with the different indicators of the MSFD suggests that the MAPRACs could form the lower governance structures in figure 1, albeit a greater stakeholder involvement of the sectors and NGOs would be required and desired at the level of the regional sea. In this light, it should be noted that one of the MAPRACs (on information and communication) aims to allow easily accessible information and knowledge on MAP themes to both policy-makers and citizens. Moreover, institutional interaction between these MAPRACs and sectoral decision making procedures and institutions at other levels is necessary to ensure synergy between the EBMM approach of the Barcelona Convention and sectoral specific measures to achieve EBMM. Similar as in the Baltic and Black Seas, opportunities for that seem to exist, but the actual level of institutional interaction with sectoral governance arrangements is unknown.

One sector falling outside the scope of the Barcelona Convention is fisheries. In the Mediterranean Sea, two regional fisheries institutions are relevant, i.e. the General Fisheries Commission for the Mediterranean (GFCM) (the management body regarding all exploited living resources except tuna and tuna-like species) and the International Commission for the Conservation of Atlantic Tunas (ICCAT). No evidence exists about institutional interaction between the Barcelona Convention and these institutions, creating a clear gap in the nested governance system for EBMM in the Mediterranean Sea.

5.4. The North East Atlantic Ocean

NEAO is the biggest regional sea in Europe, which is why the MSFD defines four sub-regions in the NEAO: the Atlantic Ocean, the Bay of Biscay and the Iberian Coast, the Celtic Seas and the Greater North Sea [55]. Of these, the Greater North Sea is one of the busiest sea worldwide [56], while future increase of activities is highly likely for the Arctic Waters [57]. The following sectors were identified for exerting widespread pressures to marine ecological characteristics in the NEAO: agriculture, aquaculture, coastal infrastructure, fishing, military, non-renewable energy (oil & gas), research, shipping and telecommunication [43]. The oil and gas sector has been extremely important, as this politically powerful sector is economically important for both employment and revenue for the MS [2], while the renewable energy sector is gaining importance in the NEAO region, especially wind and wave.

The regional institution that plays a central role in coordinating EBMM (and the MSFD) in the NEAO is the OSPAR Commission of the OSPAR Convention, the legal instrument guiding international cooperation on the protection of the marine environment in the North-East Atlantic. Parties of the OSPAR Convention adopted a North-East Atlantic Environmental Strategy in 2010 in which the MSFD is specifically mentioned and the ecosystem approach is highlighted as the overarching concept and basis for OSPAR's work [58]. Institutional ambiguity is low taking into consideration the consistency between the aims of OSPAR's Environmental Strategy and the MSFD, however progress on becoming more than a forum for information exchange is limited [6]. In addition, stakeholder involvement within the OSPAR Convention for the MSFD is limited as only some eNGOs attend the meetings of the Intersessional Correspondence Group for the Implementation of the MSFD, although compared to the other regional seas, the perception of the level of stakeholder participation in MSFD implementation are higher for NEAO [11].

Going beyond the MSFD towards a broader EBMM approach for the NEAO, the OSPAR Convention is relevant for its focus on marine biodiversity protection (among others in the form of MPAs), eutrophication through nutrient inputs from agriculture, hazardous substances emitted by a variety of land-based industries, discharges from offshore petroleum industry, dumping and discharges of radioactive substances from nuclear activities and monitoring of environmental quality in the NEAO. Institutional interaction between the coordinating body for the MSFD and EBMM in the NEAO on the one hand and the main environmental issues and sectors affecting the good environmental status of the NEAO on the other hand thus seems to be safeguarded. Moreover, stakeholder involvement of targeted sectors within OSPAR is possible through the issue specific committees of OSPAR.

Yet, it depends on the exact role of the OSPAR Convention in the sector specific governance arrangements, to what extent this institutional interaction contributes to synergy between the objectives of EBMM in the NEAO and developing sector specific measures to contribute to these objectives. For example, the OSPAR Convention plays a central role in the governance arrangement regulating offshore oil and gas production in the NEAO [19,20] allowing for synergy between measures for this sector and achieving EBMM objectives. In the case of agriculture, OSPAR's role is more limited, because the sector is regulated under the Common Agricultural Policy of the EU. In the past, institutional interaction did exist between OSPAR and directives of the EU dealing with combating eutrophication through urban waste water and nutrient emissions from agriculture, although it should be noted that it were actually the North Sea Ministerial Conferences that spurred this institutional interaction [59]. The North Sea Ministerial Conferences, organized between 1984 and 2006, acted as a soft mode of governance in the marine management of the North Sea.

There are a number of other regional institutions operating in the North-East Atlantic that are relevant in the nested governance system for EBMM. These institutions focus on fisheries, i.e. the North Sea Regional Advisory Council (NSRAC) under the CFP and the North East Atlantic Fisheries Commission (NEAFC). The

Strategies under the OSPAR Convention do mention the intention to collaborate and exchange information with fisheries management authority, although it is not specified which ones [58]. Yet, to our knowledge, no illustrative cases of institutional interaction exist between the OSPAR and the NSRAC. Some institutional interaction already exists between the OSPAR Convention and the NEAFC. While overlap in membership and geographical focus already existed, it was not until the overlap in objectives to establish marine protected areas that a case of synergetic interaction developed [60].

The institutional interaction with the NEAFC is a new development of OSPAR. When adopting the OSPAR Convention in 1992, the parties to the OSPAR Convention deliberately emphasized working on issues not addressed by other institutions [61]. That also explains why limited institutional interaction was sought with the IMO so far, because OSPAR Parties subscribed to the IMO being the appropriate forum to adopt decisions that impact shipping operations [19,61]. The Environment Strategy opens up the possibilities for future institutional interaction with the IMO by referring to the relevance of ratification, implementation and enforcement of IMO instruments [58]. The need for institutional interaction with institutional bodies for sectors such as fisheries and shipping, which are relevant to achieving EBMM objectives, is therefore recognized within the OSPAR Convention, but is still in its infancy.

6. Conclusion

The aim of this paper is to provide an overview of the current fragmented European governance system that implements EBMM and the associated EU policies and directives (e.g. IMP, MSFD and HBD) across the four European Seas. Our main concern is that the present governance structures (European, regional, international or national) cannot fully deal with the foreseen challenges of EBMM implementation, in particular that of ensuring coordination and collaboration in a multi-governance setting with a dynamic policy environment and various stakeholder groups and interests (national authorities, economic sectors and NGOs). The FP7 ODEMM project allowed us to follow the implementation efforts of the EU and Regional Sea Conventions over the past 4 years and to engage with stakeholders in discussions about the institutional setting that should facilitate coordination at the regional sea level.

Clearly EBMM calls for regionalisation of the governance system to match the (sub) eco-system. In this process, institutional ambiguity should be eliminated where possible and regionalisation, in the sense of developing institutional interactions in a nested governance system at the level of the regional sea, should occur knowing that (in an EU context) such approach lacks legal support from EU treaties. The reformed CFP might show a way forward for regionalisation in European marine governance drawing on soft modes of governance. We emphasized the importance to understand the nested governance system, having RSC or alike institutions (see [12] for different alternatives) to serve as a coordination body encouraging institutional interactions to avoid duplication of activities and benefit from institutional coexistence while applying OMC like arrangements for marine policies.

The analysis of the governance situation in the four regional seas shows similarities across seas and sectors in the lack of synergetic institutional interaction between the coordinating top part of figure 1 and the relevant sectoral governance arrangements in the lower part of the figure. An important conclusion is that governance structures need to be context dependent (as they to some degree already are) and should avoid a “one size fits all” approach, which tries to create an embroiling umbrella without taking sectoral and regional, national and sub national policy dynamics into account. Because the implementation of EBMM takes place in a policy environment of nested institutions, the way forward is to mobilise and allow specific forms of institutional networking and interaction for each of the regional seas to secure collaboration and policy coordination.

Competing interests

The authors declare that they have no competing interests.

Acknowledgements

This article has been written in connection with the Options for Delivering Ecosystem-Based Marine Management project (ODEMM, project website: www.liv.ac.uk/odemmm), funded by the European Commission through FP7 (Project number: 827301). This article does not necessarily reflect the Commission views and in no way anticipates its future policy. We remain grateful to our ODEMM project partners for their support all along the completion of this paper, in particular with their help in translating the survey to send it throughout Europe.

References

- [1] Mee, LD, RL Jefferson, Dd Laffoley and M Elliott (2008). How good is good? Human values and Europe's proposed Marine Strategy Directive. *Marine Pollution Bulletin*; 56(2): 187-204.
- [2] Ounanian K, Delaney A, Raakjær J and Ramirez P. On Unequal Footing: Sector Perspectives on the Marine Strategy Framework Directive as a Mechanism of the Ecosystem-based Approach to Marine Management. *Marine Policy* 2012; 36(3): 658-666.
- [3] UNEP/GPA (2006). *Ecosystem-based management: Markers for assessing progress*. UNEP/GPA, The Hague. ISBN 92-807-2707-9.
- [4] European Commission (2009). *Towards an Integrated Maritime Policy for better governance in the Mediterranean*. Brussels: Commission of the European Communities. COM 2009; 466.
- [5] Simpson S. The interactive nature of 'soft' and 'hard' governance in the EU information Society, in: *Information, Communication & Society* 2013; 16(6): 899-917.
- [6] Van Leeuwen J, Van Hoof L, Van Tatenhove J. Institutional ambiguity in implementing the European Union Marine Strategy Framework Directive. *Marine Policy* 2012; 36: 636-643.
- [7] Van Tatenhove J. How to turn the tide: Developing legitimate marine governance arrangements at the level of the regional seas. *Ocean & Coastal Management* 2013; 71: 296-304.
- [8] Long R. Legal aspects of Ecosystem-based Marine Management in Europe. 2012. In Chircop A, McConnell ML, Coffen S (editors). *Ocean Yearbook* 26: 417-484. University of Chicago Press.
- [9] Long R. The Marine Strategy Framework Directive: A new European approach to the regulation of the marine environment, marine natural resources and marine ecological services. *Journal of Energy & Natural Resources Law*. 2011; 29: 1-44.
- [10] Van Hoof L, Hendriksen A, Bloomfield H. Drivers and scenarios for regional cooperation in implementing the MSFD, forthcoming.
- [11] Hendriksen A, Jouanneau C and J Raakjær. Fishing for opinions: stakeholder views on MSFD implementation in European Seas, forthcoming.
- [12] Van Tatenhove J, Raakjær J, Van Leeuwen J and Van Hoof L. Regional cooperation at for European Seas: Governance models in support of the implementation of the MSFD, forthcoming.
- [13] Raakjær J. *A Fisheries Management System in Crisis - the EU Common Fisheries Policy*. Senior doctoral thesis. Aalborg: Aalborg University Press. 2009; 174 pp. ISBN: 978-87-7307-975-1.
- [14] European Commission (2011). *Proposal for a Regulation of the European Parliament and of the Council on the Common Fisheries Policy*. Brussels: Commission of the European Communities. COM 2011; 425.

- [15] Hegland TJ. Fishing for Change in EU Governance: Excursions into the Evolution of the Common Fisheries Policy. PhD thesis. Aalborg: Aalborg University. 2012.
- [16] Symes D. Regionalising the Common Fisheries Policy: Context, Content and Controversy. *Maritime Studies* 2012; 11(6).
- [17] Raakjær J and Hegland TJ. Introduction: Regionalising the Common Fisheries Policy. *Maritime Studies* 2012; 11:5.
- [18] Linke S and Jentoft S. A communicative turnaround: Shifting the burden of proof in European fisheries governance. *Marine Policy* 2013; 38(2): 337-345.
- [19] Van Leeuwen J. Who green the waves? Changing authority in the environmental governance of shipping and offshore oil and gas production (Vol. 1). Wageningen: Wageningen Academic Publishers. 2010.
- [20] Van Leeuwen J and Van Tatenhove J. The triangle of marine governance in the environmental governance of Dutch offshore platforms. *Marine Policy* 2010; 34(3): 590-597.
- [21] Van de Wateringen SL. The Greening of Black Gold; Towards International Environmental Alignment in the Petroleum Industry, in *Faculteit der Economische Wetenschappen en Econometrie. Universiteit van Amsterdam: Amsterdam. 2005.*
- [22] Gee K. Offshore wind power development as affected by seascape values on the German North Sea coast. *Land use policy*, 2010; 27: 185-194.
- [23] Wolsink M. Near-shore wind power – Protected seascapes, environmentalists' attitudes, and the technocratic planning perspective. *Land Use Policy* 2010; 27(2): 195-203.
- [24] Ostrom V, Tiebout CM and Warren R. The organization of government in metropolitan areas: a theoretical inquiry. *The American Political Science Review* 1961; 55(4), 831-842.
- [25] Ostrom E. Beyond markets and states: polycentric governance of complex economic systems. *The American economic review* 2010; 100(3): 641-672.
- [26] Hooghe L and Marks G. *Multi-level governance and European integration.* Rowman & Littlefield. 2001.
- [27] Hooghe L and Marks G. Unraveling the Central State, but How? Types of Multi-level Governance. *American Political Science Review* 2003; 97(02): 233-243.
- [28] Bulkeley H. Reconfiguring environmental governance: towards a politics of scales and networks. *Political geography* 2005; 24(8): 875-902.
- [29] Gruby RL and Basurto X. Multi-level governance for large marine commons: Politics and polycentricity in Palau's protected area network. *Environmental Science & Policy* 2013; 33: 260-272.
- [30] Fanning L, Mahon R, McConney P, Angulo J, Burrows F, Chakalall B and Toro C. A large marine ecosystem governance framework. *Marine Policy* 2007; 31(4): 434-443.
- [31] Karkkainen BC. Post-Sovereign Environmental Governance. *Global Environmental Politics* 2004; 4(1): 72-96.
- [32] Arts B, Van Tatenhove J and Leroy P. Policy Arrangements. In Van Tatenhove J, Arts B & Leroy P (eds.). *Political Modernisation and the Environment; The Renewal of Environmental Policy Arrangements.* Dordrecht: Kluwer Academic Publishers. 2000; 53-69.
- [33] Gehring T and Oberthür S. The Causal Mechanisms of Interaction between International Institutions. *European Journal of International Relations* 2009; 15(1): 125-156.

- [34] Young OR. Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions. In Committee on the Human Dimensions of Global Change (Ed.), *The Drama of the Commons*. Washington D.C.: National Academy Press. 2002.
- [35] Selin H and Van Deveer SD. Mapping Institutional Linkages in European Air Pollution Politics. *Global Environmental Politics* 2003; 3(3): 14-46.
- [36] Oberthür S. Interplay management: enhancing environmental policy integration among international institutions. *International Environmental Agreements: Politics, Law and Economics* 2009; 9(4): 371-391.
- [37] Oberthür S and Gehring T. Conceptual Foundations of Institutional Interaction. In S. Oberthür & T. Gehring (Eds.), *Institutional Interaction in Global Environmental Governance; Synergy and Conflict among International and EU Policies*. Cambridge: MIT Press. 2006; 19-51.
- [38] Diedrichs U. New Modes of Governance and the Evolution of the EU System: A Theoretical Perspective. *New Modes of Governance (NEWGOW): Policy Paper*. 2008.
- [39] Peters BG. Forms of Informality: Identifying Informal Governance in the European Union, in: *Perspectives on European Politics and Society* 2006; 7(1): 25-40.
- [40] Pochet P. The Open Method of Co-ordination, in: *Perspectives on European Politics and Society* 2006; 7(1): 75-90
- [41] Commission of the European Communities (2003). Report from the commission on the European governance. Luxembourg: Office for Official Publications of the European Communities.
- [42] Nilsson J. Soft Modes of Governance in the Global South? A study on how Soft Modes of Governance can be used in countries in the global south. Unpublished MPA thesis, Goteborg University. 2013.
- [43] Knights AM, Koss RS, Papadopoulou N, Cooper LH and Robinson LA. Sustainable use of European regional seas and the role of the Marine Strategy Framework Directive. Deliverable 1, EC FP7 Project (244273) 'Options for Delivering Ecosystem-based Marine Management'. University of Liverpool. 2011. ISBN: 978-0-906370-63-6: 165 pp.
- [44] Korpinen SL, Meski JH and Laamanen M. Human pressures and their potential impact on the Baltic Sea ecosystem. *Ecological Indicators* 2012; 15(1): 105-114.
- [45] Helsinki Commission (2007). HELCOM Baltic Sea Action Plan. HELCOM Ministerial Meeting, Krakow, Poland, 15 November 2007.
- [46] Rätz HJ, Dörner H, Scott R and Barbas T. Complementary roles of European and national institutions under the Common Fisheries Policy and the Marine Strategy Framework Directive. *Marine Policy* 2010; 34(5): 1028-1035.
- [47] Jouanneau C and Raakjær J. The Hare and the Tortoise: Lessons from the Baltic and Mediterranean governance, forthcoming.
- [48] Hassler B. Accidental versus operational oil spills from shipping in the Baltic Sea: Risk governance and management strategies. *Ambio* 2011; 40(2): 170-178.
- [49] Kern K. Governance for sustainable development in the Baltic Sea region. *Journal of Baltic Studies* 2011; 42(1): 21-35.
- [50] GFCM (2012). Background document on the Black Sea fisheries. First meeting of the GFCM Working Group on the Black Sea, Constanta, Romania, 16-18 January 2012. Accessed online, 12 November 2013 from: <http://151.1.154.86/GfcmWebSite/SAC/WGBS/2012/GFCM-Background-Doc-BlackSea-Fisheries.pdf>.

- [51] Makarenko I. Environmental policies in the Black Sea related to MSFD principles. 2012. Accessed online, 11 November 2013, found at: <http://www.perseus-net.eu/assets/media/PDF/Chios%20Training/269.pdf>.
- [52] REMPEC (2008). Study of Maritime traffic flows in the Mediterranean Sea. Final Report - Unrestricted Version, July 2008. Accessed online, 10 November 2013, on: <http://www.euromedtransport.eu/En/image.php?id=2493>
- [53] UNEP/MAP (2012). Note on the Ecosystem Approach process in 2012-2013 Biennium. Accessed online, 12 November 2013, from: <http://www.medpan.org/documents/10180/0/EcAP+process+-+information+note/c964b753-7f33-4e00-b622-4ebfdb50563c>.
- [54] Frantzi S, Carter NT and Lovett JC. Exploring discourses on international environmental regime effectiveness with Q methodology: A case study of the Mediterranean Action Plan. *Journal of Environmental Management* 2009; 90(1): 177-186.
- [55] European Parliament and Council (2008). Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive). L 164/19, 19-40.
- [56] Halpern BS, Walbridge S, Selkoe KA, Kappel CV, Micheli F, D'Agrosa C et al. A Global Map of Human Impact on Marine Ecosystems. *Science* 2008; 319: 948-952.
- [57] Berkman PA and Young OR. Governance and environmental change in the Arctic Ocean. *Science* 2009; 324(5925): 339-340.
- [58] OSPAR Commission (2010). The North-East Atlantic Environment Strategy; Strategy of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic 2010-2020 (OSPAR Agreement 2010-3).
- [59] Skjaerseth JB. Protecting the North-East Atlantic: Enhancing Synergies by Institutional Interplay. *Marine Policy* 2006; 30(2): 157.
- [60] Kvalvik I. Managing institutional overlap in the protection of marine ecosystems on the high seas. The case of the North East Atlantic. *Ocean & Coastal Management* 2012; 56: 35-43.
- [61] De La Fayette L. The OSPAR Convention Comes into Force: Continuity and Progress. *The International Journal of Marine and Coastal Law* 1999; 14(2): 247-297.