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Realizing the Social Dimension of EU Coastal Water Management

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Abstract: In the last 20 years, the EU has adopted some rather ambitious pieces of legislation with the aim to achieve a good environmental status in freshwater and marine ecosystems. Both the Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD) have a strong focus on the natural environment and biological criteria for assessing the status of the relevant ecosystems. In the same time period, much research on environmental governance has focused on the interconnectedness of social systems and ecosystems, so-called social-ecological systems (SES). While having high aspirations, the legal frameworks underpinning current EU water and marine management do not necessarily reflect the advances of contemporary science relating to SES. Using the geographical intersection of the two directives, i.e., coastal waters as a focal point, the paper explores the inchoate integration of social and ecological perspectives in the EU marine governance. What are the main challenges for the current EU legal regimes for managing coastal waters in a way that builds on the understanding of social and ecological systems as interconnected? Having explored the two directives, the paper introduces the possibility of using marine spatial planning (MSP), and the EU directive establishing a framework for maritime spatial planning (MSPD) as a bridge between the social and ecological dimensions and discusses what implications this would have for the current system for governing coastal waters in Europe.

Keywords: marine management; coastal waters; social dimension; social-ecological systems; water framework directive (WFD); marine strategy framework directive (MSFD); maritime spatial planning directive (MSPD)

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Citation: Langlet, D.; Westholm, A. Realizing the Social Dimension of EU Coastal Water Management. *Sustainability* **2021**, *13*, 2261. https://doi.org/10.3390/su13042261

Academic Editor: Marleen van Rijswick

Received: 23 December 2020
Accepted: 10 February 2021
Published: 19 February 2021

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1. Introduction

Since about the turn of the millennium, the European Union has developed a set of comprehensive legal frameworks, aiming to ensure the protection of the marine environment and the sustainable use of its resources. At the core of this development are two so-called framework directives: the Water Framework Directive (WFD, 2000/60/EC) and the Marine Strategy Framework Directive (MSFD, 2008/56/EC). While leaving a considerable level of discretion to the individual member states, at least in some respects, they aim to achieve management of freshwater and marine resources that is both integrated across policy areas and partly harmonized across member states. Despite significant problems with delivering the desired environmental status on time [1], the EU's legal approach to marine governance has been recognized as one of the most ambitious worldwide [2]. The directives are certainly the most comprehensive and detailed attempts at harmonizing marine environmental management across national boundaries. They also represent an intended shift away from the traditionally strongly sector-based approach to marine environmental protection towards a more holistic and area-based management aimed to ensure that human interaction with ecosystems stays within ecologically safe boundaries [3]. In this, they can be seen as both responding to calls for integrated marine and ocean management [4–6], and as reflective of the emergence of the ecosystem approach

as a core concept in environmental management in general and marine management in particular [7]. While the MSFD is explicitly intended to implement an ecosystem approach (directive 2008/56/EC, art 1), the WFD is generally seen as being based on similar principles [8]. Additionally, the EU common fisheries policy (CFP) has, through a series of revisions, become explicitly oriented towards principles for ecosystem-based management, although significant work remains before EU fisheries can overall be deemed ecologically sustainable [9,10].

This development has led to more integrated approaches in terms of environmental protection and resource management, although much remains to be proved in terms of results. However, it is less clear to what extent social perspectives have been effectively included in the new legal instruments. While there are differing conceptions of ecosystem-based management, such approaches typically recognize that environmental management should not only be ecologically but also socially sustainable and equitable [11,12]. Despite its name, a core tenet of many readings of ecosystem-based management is that social and ecological systems are effectively inseparable and must be considered together. In the scientific literature, this is reflected in the concept of social-ecological systems (see Section 2 below). This understanding of nature and society has led to calls for better inclusion of social aspects in legal and management structures that have tended to rely predominantly on the natural sciences [12–14].

Although social factors are present in some form in both the WFD and the MSFD, a social dimension has often been found lacking both in specific policies and in marine management more generally [9,15–18]. This is problematic since many measures taken in pursuit of marine ecological sustainability, as defined inter alia by the binding objectives of the WFD and the MSFD, can have significant social implications. This applies inter alia to the establishment of marine protected areas (MPAs) [19], measures taken to combat invasive marine species [20], the regulation of marine aquaculture [21], as well as restrictions on the building of water treatment plants and other industrial or infrastructure installations that could allow local communities to adjust to changing technological and economic demands. A narrow focus on ecosystems and environmental quality indicators may undermine the socioecological well-being of local communities [18] in ways that could have been avoided without compromising ecological sustainability had the social impacts of management decisions been better understood and considered. At the same time, including social dimensions in marine management is associated with many challenges. Ecosystems are complex, but managing them may seem rather straightforward compared to agreeing on social objectives, dealing with trade-offs, and devising systems that allow human behavior to be effectively managed while taking into account various types of knowledge and values [12,17].

Recently, the predominantly environmentally oriented WFD and MSFD have been supplemented by a directive on maritime spatial planning (2014/89/EU, maritime spatial planning directive—MSPD), aimed at promoting 'the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources' (2014/89/EU, Art 1). It represents the EU dimension of a global trend towards more comprehensive and integrated planning of marine space [22]. This article aims to first assess how the social dimension is dealt with in the WFD and MSFD and then to explore the potential of maritime spatial planning, as mandated by the MSPD, to answer to at least some of the challenges associated with integrating that dimension in marine environmental and resources governance in the EU, and potentially in a wider context as well.

Our focus is on how the social dimension is treated by the marine directives that aim to create comprehensive frameworks for dealing with most anthropogenic pressures on the coastal environment. Consequently, sectoral legislation such as the CFP, the directives on urban waste-water treatment (91/271/EEC) or nitrates pollution from agriculture (91/676/EEC) are beyond the purview of the present analysis although they can have both ecological and social implications in a marine context. Social dimensions of fisheries policy and the CFP have also attracted considerably more scholarly attention [23–25] than they

have in relation to the WFD and the MSFD, thus making an analysis of their integration into the regulatory frameworks established by these directives more pressing.

Any analysis of social-ecological systems needs to be cognizant of the importance of space as a determinative factor, not least in the marine environment [8]. Not only the physical conditions but also legal conditions for managing human activities varies considerably between different marine areas. Here, coastal waters of EU member states are used as locus for the investigation. These waters are both heavily affected by human activities and subject to extensive change processes of both natural and anthropogenic origin [26,27]. In the EU context, they are also the areas where the three directives WFD, MSFD and MSFD, meet and potentially overlap.

After this introduction follows a section describing the methods employed and the material that has been studied. This is followed by discussions on what is meant by the social dimension of social-ecological systems and what characterizes coastal waters, in particular from a social and legal perspective. The article then continues with an analysis of how the social dimension has been dealt with in the three marine directives, i.e., the WFD, the MSFD and the MSPD. This is followed by a discussion and conclusions regarding the potential role of the MSPD, and MSP more broadly to bridge the gaps identified in the other marine directives with respect to the identification and handling of social consequences of marine environmental management.

2. Materials and Methods

The theoretical foundation of this research is found in literature concerning social-ecological systems and the perception that marine areas are best understood as such systems (see Section 3 below). As discussed in Section 1, the research is inspired by calls for better integration of social perspectives in marine management in general and EU marine management in particular. The bulk of the article builds on a literature review focusing on how social dimensions of marine environmental management have been accounted for in the drafting and implementation of the WFD, the MSFD and the MSPD. Literature engaging with social dimensions, including as an aspect of participation, of the MSPD has been studied in order to assess the potential of MSP to promote better integration of social perspectives on the management of EU coastal waters. To identify relevant literature, the search engines Scopus and Google scholar where used. Different combinations of 'WFD', 'MSFD', 'MSP', 'coastal waters' and 'social' were used for the searches. Only a minor part of the retrieved texts did in fact engage to any extent with social dimensions of the implementation of theses directives, thereby confirming that these issues have received little attention, at least in the peer reviewed literature. The primary legal sources, comprising of the three directives, i.e., the MFD, the MSFD, and the MSPD have also been closely read in order to identify expressions of a 'social dimension'. These have been supplemented by relevant documents originating from the common implementation strategies (CISs) of the WFD and the MSFD, respectively. The CISs are programs of coordination set up by the member states (and in the case of the WFD, also Norway) and the Commission of the European Communities (the Commission) to aid qualitative and coherent implementation of the directives [28,29]. An important limitation of the scope of the article is that national legislation and other decisions implementing the directives in the legal orders of the member states have not been analyzed. Doing that is a pertinent research task, but one that would require a different and much more ambitious methodological approach than the present study, which is based on scientific literature and official EU sources.

The introductory parts of the article draw on the authors' previous work on various aspects of the ecosystem approach in marine governance, in particular in an EU context [30–33].

3. Exploring the Social Dimension in the Management of Coastal SES

3.1. The Social Dimension of Social-Ecological Systems

This analysis takes as a point of departure the assumption that coastal waters are best understood as parts of social-ecological systems that comprise ecological as well as social and economic dimensions that should be considered in an integrated fashion. In 1998 Berkes and Folke [34] deemed the delineation between social and natural systems to be 'artificial and arbitrary' and used the term 'social-ecological system' to capture the 'integrated concept of humans-in-nature'. A social-ecological system has subsequently been famously defined as 'an ecological system intricately linked with and affected by one or more social systems.' [35].

The notion of sustainable development, as elaborated by the Brundtland commission [36] and subsequently adopted as an overarching objective by, among others, the EU and the UN [37,38], is premised on the interdependence of the social, economic and ecological dimension of development. The best way to understand the relationship between on the one hand the social and economic and on the other hand the ecological dimensions has since been much debated, not least in the context of the strong versus weak sustainability discourse [14,39]. The basic notion, that social systems and ecological systems are intertwined and, in many respects, interdependent has, however, gained increasing recognition and found expression inter alia in the concept of social-ecological systems. It is also a core feature of the ecosystem approach, as defined in many policy contexts. The ecosystem approach has been identified as an instrument for achieving sustainable development [40]. The Food and Agriculture Organization of the UN (FAO) describes an ecosystem approach to aquaculture as 'a strategy for the integration of the activity within the wider ecosystem such that it promotes sustainable development, equity, and resilience of interlinked social-ecological systems' [41].

The then around 180 parties to the Convention on Biological Diversity (CBD) agreed in 2000 that the ecosystem approach 'should be the primary framework of action to be taken under the Convention' [42]. They also adopted a definition of the ecosystem approach according to which it 'is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way . . . ' [43]. A social dimension may be implicit in 'sustainable', but is made explicit by the use of 'equitable'. While not specifying what is to be understood as equitable, or how it is to be achieved, this clearly mandates and necessitates the adoption of social objectives and the elaboration of instruments for their operationalization and evaluation. This, in turn, makes it imperative to include social dimensions in governance structures focused on preservation and management of important natural resources, inter alia in coastal waters.

It has often been noted that a strict natural science or technical approach misses the multiple social dimensions that need consideration in ecosystem-based management. Although of fundamental importance, knowledge about ecosystem states and processes will not deliver a comprehensive management without sufficient understanding of inter alia perspectives and preferences held by relevant groups or imbedded in social structures. The political challenges and societal implications inherent in many policy and management processes need to be acknowledged [8,44,45].

While social aspects are typically not well covered in policy-making and planning processes in a marine context [18,46] there is an increasing interest in ecosystem management from the social sciences [12]. Social dimensions are also being incorporated in models for the evaluation and development of ecosystem-based management schemes [47–49]. Among the social objectives identified in such exercises are: regional economic benefits to community, socially sustainable communities, health and well-being, traditions and culture, community services, contribution of marginal groups, artisanal fishing opportunities, recreation, and sense of place. Additionally, institutional objectives such as good governance structures and effective decision-making processes are sometimes identified [49].

How to define social objectives as compared to economic and institutional ones is often not obvious. In the analysis of EU-legislation, we have applied an inclusive interpretation of

'social', so as to cover inter alia coastal livelihoods although that is at least partly assessed by economic indicators. In the following section we will set out some important characteristics of coastal waters. Thereafter, we assess the relevant EU policies, with a view to decerning the extent to which and how social objectives are recognized and have somehow been operationalized in terms of targets and prescribed concrete measures.

3.2. Characterizing Coastal Waters—A Legal Perspective

Coastal water ecosystems are important from an ecological point of view as they are among the most productive ecosystems of the world. From a social/human perspective, such ecosystems provide a number of services and approximately one third of the world's population lives in coastal areas [50]. In the EU, almost 50% of the population lives within 50km of the coast [51]. Located at the intersection between freshwater and marine ecosystems, coastal waters make for a particularly complex resource to govern from a legal perspective. Their structure and functioning are changing, often rapidly, due to natural changes and, more importantly, anthropogenic interventions and pressures of various kinds [52]. Typically, these areas are intensely used for human purposes such as tourism, aquaculture, ports and resource extraction. Many of these activities are also functionally dependent on, or affect, both the coast and marine areas further out at sea, thereby creating challenges for law-makers and managers.

In terms of EU law, 'coastal waters' comprise all marine surface water on the landward side of a line, every point of which is at a distance of one nautical mile on the seaward side from the nearest point of the baseline (2000/60/EC, art 2). According to the United Nations Convention on the Law of the Sea (UNCLOS), baselines are either 'normal' or 'straight'. A normal baseline is the low-water line 'as marked on large-scale charts officially recognized by the coastal State' (UNCLOS, art 5). Where the coastline is deeply indented and cut into or, if there is a fringe of islands along the coast in its immediate vicinity, straight baselines may be drawn by joining 'appropriate points' on the coast or on islands and certain low-tide elevations (UNCLOS, art 7). Simply put, all marine waters out to one nautical mile seaward of the baseline are considered 'coastal waters'. In some cases, coastal waters can extend even further to include so-called transitional waters, i.e., bodies of surface water in the vicinity of river mouths which are substantially influenced by freshwater flows (2000/60/EC, art 2).

To be able to protect and preserve the marine environment and otherwise plan human activities, coastal states must have jurisdiction, both in terms of a right to legislate and to enforce such legislation, in relation to relevant areas. In the marine context, jurisdiction is more complex compared to the terrestrial setting and varies between different sea areas. In terms of maritime zones as defined in the international law of the sea, and more specifically UNCLOS, coastal waters comprise of so-called internal waters and part of the territorial sea.

In internal waters, i.e., waters in harbors, smaller bays and many archipelagos, the coastal state has, with few exceptions, full sovereignty and the same legal preconditions for managing human activities as it has on land (UNCLOS, art 2). The situation is similar for the territorial sea, which stretches out to a maximum of 12 nm seaward of the baseline (UNCLOS, art 3). There, however, the sovereignty of the coastal state is subject to a significant limitation: the right of innocent passage. This right, enjoyed by all foreign ships, prevents the coastal state from interfering with the passage of ships through its territorial sea as long as the passage is continuous and expeditious and not prejudicial to the peace, good order or security of that state (UNCLOS, arts. 17–19). However, as long as it does not hamper innocent passage, a coastal state may designate or prescribe sea lanes and traffic separation schemes applicable to foreign ships exercising their right to innocent passage (UNCLOS, art 22). In essence, this means that the coastal state has extensive legal rights to regulate human activities in these areas, with the exception of some elements of shipping. In the case of EU member states, these rights have been partly or wholly transferred from the individual coastal states to the EU to be exercised collectively through decision-making by the EU institutions [53].

As for the applicability of relevant EU law in coastal waters, it must be noted that while the WFD applies to all coastal waters, the MSFD only applies 'in so far as particular aspects of the environmental status of the marine environment are not already addressed' through the WFD or other EU legislation. The MSPD applies to coastal waters, but only to the extent that such waters do not fall under a particular member state's town and country planning (2014/89/EU, art 2). As will be further discussed below, this can make the legal context of coastal waters quite challenging.

3.3. The Water Framework Directive

The WFD, which calls for a river basin approach to the management of freshwater ecosystems of the EU (2000/60/EC, art 3), can be seen as an attempt to rescale the water management regime [54]. It entailed a move away from traditional management structures, towards a system based on the ecological characteristics of freshwater rather than pre-existing administrative structures [55]. Within the directive, river basins become the overarching ecosystem scale for water management. These are subsequently divided into smaller units, water bodies (2000/60/EC, art 2 and Annex II). The novelty of the directive is also that it approaches environmental management in a holistic manner, acknowledging that environmental, economic and social aspects are interconnected [56]. For each river basin, member states are obliged to adopt a river basin management plan (2000/60/EC, art 13), as well as programs of measures to be able to achieve the objective of attaining good ecological status in all freshwaters (2000/60/EC, arts 4 and 11). When developing these plans, consultation with the public is mandated (2000/60/EC, art 14). The bulk of the information that needs to be included in a river basin management plan relates to ecological and biological data, but the plans also need to include an economic analysis and certain information regarding results from the public consultation process (2000/60/EC, Annex VII). In terms of economic analysis, member states are required to perform an economic analysis of water use, as well as to take into account the principle of recovery of costs for water services (2000/60/EC, arts 5 and 9).

The CIS guidance document concerning river basin management plans, stresses that socio-economic factors need to be accounted for, even though these are not mentioned in the text of the directive. It is also stated in the guidance document that the planning process needs to take into account issues such as development of regional industrial zones, building of houses and infrastructure projects, and that a wide and open dialogue will increase the legitimacy of decisions [57]. In this regard, it is noteworthy that except for a provision concerning cost recovery of water services (2000/60/EC, art 9), there is no reference to 'social' interests or values in the legal provisions of the WFD. In the guidance document, the complexity and integrated perspective of the directive is more pronounced. While the directive only has a few provisions concerning public participation and economic analysis, the guidance document recognizes that planning needs to take into account issues of redistribution of wealth, environmental quality, social welfare and economic efficiency. The guidance document continues to note that there is a need to handle conflicting aims, as it can be impossible to achieve environmental, social and economic goals simultaneously [57]. In addition to the guidance document concerning river basin management plans, there is a CIS guidance document relating entirely to public participation [58]. While noting that there is no explicit mentioning of public participation in the WFD, this guidance document refers to the provisions concerning 'information supply', 'consultation', and 'active involvement' as relating to public participation. The document makes a distinction between active involvement and consultation in that consultation is where the public reacts to proposals developed by authorities, and active involvement includes participation in the planning process [58]. Although there is no blue-print for participation, active involvement should be encouraged at all scales at which activities take place to implement the directive [58].

Wuijts et al. [59] have studied social-economic, legal and ecological perspectives on the effectiveness of water quality governance, inter alia in the implementation of the WFD.

Their findings indicate that for a successful governance, all three of these perspectives need to interact. The social-economic perspective, in their conceptual model, relates to decision-making, and whether it is effective, efficient and legitimate. This is realized through involvement of stakeholders with different priorities and balancing different interests. However, they also note that it may be difficult to measure the outcomes of stakeholder processes in terms of ecosystem status, as there generally is a time lag between the interventions by stakeholder and the response of the ecosystem. As noted by the authors, the paper does not include aspects of environmental equity, which may be of relevance when discussing social aspects of social-ecological systems.

As seen above, the guidance document on planning elaborates on how a planning process can be designed and how the integrated nature of the directive should be accounted for. It could even be seen as going further than the text of the directive in promoting the social aspects of water management, as the directive text appears heavily focused on public participation to that end. The need of understanding the social dimension of the directive as something more than ensuring public consultation, has also shown in the implementation process. Pellegrini et al. [60] conclude that the river basin districts are too large for meaningful stakeholder participation and that the data-oriented focus of the directive, which makes it prone to top-down decision-making, hampers the participation processes. In their view, sub-river basin districts should be given priority in these processes. However, the authors also note that there are some promising measures taken in many member states where coordination and participation boards have been implemented on a sub-river basin district scale.

The technocratic, top-down structure of the directive is also noted by Dawson et al. [61]. In their research they find that much of the WFD-related information is produced by external consultants, which leads to tacit knowledge not being transferred and included in the process. Other challenges in participatory processes can be power structures. Söderberg [62] notes that within the Swedish water boards, fisheries organizations and municipalities have had a stronger position than inter alia Sámi organizations and local populations. Most conflicts in the studied area were solved on a case-by-case basis through negotiations, and water quality goals were often outweighed by other societal interests. In a study concerning the implementation of the WFD in 13 EU member states, Jager et al. [63] found that most changes in participation were rather modest, even though member states with very low levels of participation pre-WFD showed a somewhat bigger increase in participation following the implementation of the directive. They also note that where the WFD did bring about institutional change, the political power and responsibilities were not transferred to the new river basin authorities, or to the public. Finally, it has been noted that the focus on biophysical indicators tends to hamper aspirations to apply a 'cross-sector nexus perspective' [61]. In that sense, participation as such may not be enough to achieve social objectives within the frame of the WFD; as there is a lack of clear legal provisions taking such objectives into account.

To sum up, the social aspect of the WFD seems to be realized first and foremost through the requirement of public consultation or active participation. One important and in some respects promising such participation practice is the type of advisory groups, or participation boards discussed both in the guidance document on public participation [58] and by Pellegrini et al. [60] However, as shown above, consultation has its limits and the 'social' in social-ecological systems needs to be understood as something more than public participation in decision-making.

Rouillard et al. [64] have analyzed EU policies relating to the protection and restoration of biodiversity in Europe. While the paper does not discuss policy challenges in terms of social-ecological systems, the issues that are raised clearly reflect how the social aspects of SES need to be discussed in a broader way than as merely participation. One of the most interesting findings in this sense is how EU directives relating to economic expansion or agriculture have adverse effects on the achievement of the environmental objectives set up

through inter alia the WFD. Such findings show the need of management tools that take into account the complex relations between sectors.

3.4. The Marine Strategy Framework Directive

The 2008 MSFD forms part of the wider Integrated Maritime Policy (IMP) of the EU, presented by the Commission in 2007 [65]. The directive is explicitly intended to deliver the 'environmental pillar' of that EU policy (2008/56/EC, preamb. para 3), which also aims to stimulate inter alia increased marine research, better use of marine space and blue growth. In many respects, it takes a similar approach to environmental management as the WFD, but does so on a larger scale and in a partly less detailed manner. Like the WFD, it is based on an implementation cycle comprising assessment of the state of the marine environment, defining a desired state of the environment specified through targets, implementing measures to reach these targets, and monitoring to detect change over time [2].

The directive applies to the 'marine waters' of each EU member state. That means that it covers the waters, the seabed and subsoil from the baseline out to 'the outmost reach of the area where a member state has and/or exercises jurisdictional rights' (2008/56/EC, arts 2 and 3). In principle, this means that it can apply out to 200 nm from the baseline, unless the sea space has been delimited with another coastal state. It also means that the MSFD and the WFD are both applicable to 'coastal waters' as defined in EU law. However, coastal waters are only covered by the MSFD 'in so far as particular aspects of the environmental status of the marine environment are not already addressed through [the WFD or other EU] legislation' (2008/56/EC, art. 3). Two important issues covered by the MSFD but not by the WFD, thus making the MSFD very relevant also for coastal waters, are marine litter and noise [3].

The aim of the MSFD is the achievement or maintaining of good environmental status (GEnS) in the marine environment (2008/56/EC, Art 1). GEnS is subject to a lengthy definition, including that it entails an 'environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations' (2008/56/EC, art. 3). More concretely, GEnS is to be determined on the basis of 11 qualitative descriptors (2008/56/EC, art. 9). All of these relate to the status of the natural environment, and make no direct reference to social aspects.

The MSFD has been lauded as taking a more holistic approach than the WFD and ensuring the integrity of the ecosystem [66]. At the same time, the scale of large sea areas entails challenges [67]. The determination of GEnS is to be made at the level of the marine region or subregion as defined in the directive (2008/56/EC, art. 3). These are huge areas such as the whole of the Baltic and Black seas, as well as the North-east Atlantic and the Mediterranean. However, implementation of the directive may be based on further subdivisions at an appropriate level in order to take into account the specificities of a particular area (2008/56/EC, art. 4). Such subdivisions must be compatible with marine subregions defined for the north-east Atlantic and the Mediterranean. Descriptors that are not deemed appropriate for the specific region are not required to be used (2008/56/EC, Annex 1). In practice, a wide variety of geographical scales are used by the member states for the assessment of environmental status under the MSFD [68]. Not surprisingly, achieving coherence across member states has been challenging. In practice, achievement of GEnS according to the MSFD is largely dependent on measures taken within the framework of the WFD, as many pressures on the wider marine environment originate from human activities located by rivers, in harbors or other areas on or close to the shoreline, i.e., in many respects beyond the purview of the MSFD.

Social dimensions are more explicitly recognized in the MSFD than in the WFD, but never much elaborated. When assessing the environmental status of their marine waters, the member states must include 'an economic and social analysis of the use of those waters

and of the cost of degradation of the marine environment' (2008/56/EC, art 8). When drawing up programs of measures that need to be taken in order to achieve or maintain GEnS, the member states must give due consideration to sustainable development and, 'in particular, to the social and economic impacts of the measures envisaged' (2008/56/EC, art 13). 'Due consideration of social and economic concerns' is also required in the setting of the targets which, together with associated indicators, are to guide the member states' progress towards achieving GEnS (2008/56/EC, Annex 4).

To support the implementation of these parts of the MSFD, a European working group on Economic and Social Analysis (WG ESA) was set up in 2009 and subsequently renamed Working Group on Program of Measures for Economic and Social Analysis (WG POMESA). This working group forms part of the MSFD CIS, which brings together the Commission, the EU member states, representatives of relevant regional sea conventions, other marine protection conventions, and international marine scientific organizations, as well as stakeholder organizations to support the implementation of the directive. The work of the member states' representatives in WG POMESA is mainly focused on performing socioeconomic analyses to support national implementation of the directive and reporting to the Commission and their work is usually not published in scientific journals [69].

What is clear, however, is that the approach taken by the working group is one strongly focused on economic aspects. A guidance document on economic and social analysis for the initial assessment for the MSFD developed by WG POMESA explicitly interprets the 'social' in 'economic and social analyses' as 'socio-economic' and no clear distinction between 'economic' and 'social' analyses are made. The methods proposed for the assessments are also largely centered on costs valuation and distribution of economic effects of measures [70]. Even with these limitations, the socio-economic assessments have been challenging for member states to carry out due, inter alia, to lack of data on costs of measures, and limited understanding of the cause-effect relationships and ecological processes [69]. The guidance document is recommendatory and non-exhaustive [70]. This weakens its harmonizing capacity but also allows for member states to engage with more inclusive and ambitious forms of social assessments at their own discretion.

Like with the WFD, the MSFD contains requirements on participation. These are not detailed but make clear that member states must give all interested parties early and effective opportunities to participate in the implementation of the directive. To that end, they must make available to the public for comment, summaries of their initial assessment and determination of GEnS, environmental targets, and programmes of measures (2008/56/EC, art 19).

Public participation as a feature of the MSFD has generated limited attention in the scientific literature, in particular the empirical study of how participation in the implementation of the MSFD plays out in practice [71,72]. van Leeuwen et al. [73] point to the complicating factor that the MSFD is 'layered upon pre-existing regulatory instruments and policy initiatives' at national, EU and international level. These, in turn, are premised on different scales, have different sets of concerned parties and often also have existing structures for participation. Against this complicated background, they see the lack of a clearly defined structure for stakeholder participation in the MSFD as an inherent weakness in the directive's governance system. The varied approaches to MSFD-implementation between member states as well as the sometimes complex relationship between this directive and other pieces of EU law, including the WFD, are sources of concern for some marine stakeholders [72], and arguably make effective and transparent avenues for participation particularly important. At the same time, a case study by Oates and Dodds [74] finds that effective stakeholder engagement is critical for delivery of the ecosystem approach as prescribed by the MSFD.

3.5. The Maritime Spatial Planning Directive

In 2007, the Commission had realized that the marine areas of the EU were subject to increasing pressures. At the same time, these areas showed potential for economic growth,

and the maritime economy was seen as important for the economic development of the EU. As a result, the Commission adopted the IMP [75]. As mentioned above, the IMP included measures aimed at both promoting economic development and environmental protection, with evident tensions between the two [46]. The most prominent measure relating to environmental protection was the support for the already proposed directive for a marine strategy, which was consequently realized through the adoption of the MSFD in 2008. The economic ambitions of the IMP were set out in the communication on Blue Growth, adopted in 2012 [76].

An additional important aspect of the IMP, was that it recognized that marine management cannot be divided into sectors. Rather, all matters related to the sea are interlinked and need to be approached accordingly. As a consequence, the IMP proposed that MSP and Integrated Coastal Zone Management (ICZM or ICM) be used as tools for an integrated governance framework [75]. While MSP was a novelty within EU maritime policy, ICZM had already been promoted through a recommendation published by the European Council in 2002 [77]. However, the recommendation did not entail any mandatory provisions in relation to member states. Together, the commission envisioned, MSP and ICZM would contribute to protecting the marine environment, as well as improving predictability for operators in relation to planning of future investments [75]. The rationale behind the ICZM recommendation was that the coastal zones are of great environmental, economic, social, cultural and recreational importance and that they are subject to continuing degradation [77]. The recommendation includes a number of features that are consistent with MSP approaches, such as the application of an ecosystem approach, call for adaptive management, and public participation. The tight connection between MSP and ICZM was kept when the work towards an MSP directive continued. In 2008, the Commission adopted a Roadmap for Maritime Spatial Planning [78], identifying ten key principles of MSP, including adaptive management, stakeholder participation, and ensuring coherence between terrestrial and marine spatial planning, which included ICZM. In addition, the ecosystem approach was to be used as an overarching principle for MSP.

The work on developing a directive on MSP and ICZM continued, and in 2013 the Commission published a proposal for such a directive [79]. In the impact assessment accompanying the proposal, it was stressed that the aim was to move away from a sectoral approach, towards a more integrated and coherent governance system for European seas and coastal zones [80]. The assessment stressed that MSP and ICZM applied together would strengthen the sea-land interface of planning and management. This was seen as particularly important for offshore wind, which requires coordinated planning efforts on land and at sea. As the geographical scope of ICZM also covers coastal land areas, the assessment concluded that there were 'strong arguments to examine the benefits of a joint approach on MSP and ICZM at EU level and integrate both process tools into a streamlined maritime planning and coastal management process'.

The proposed directive was not as well received as the Commission could have hoped for. The Committee of the Regions (CoR) published an opinion on the proposal where particular concerns were raised in relation to ICZM. The CoR had 'strong reservations about making the production of ICM strategies an obligation in all coastal member states' [81]. The reasoning behind this reservation was that the proposed directive was seen as potentially having a direct impact on planning at regional and local level, something that primarily falls under the competence of the individual member states [27]. Consequently, when the MSP directive was adopted in 2014, ICZM had been taken out, and the directive explicitly excludes coastal waters falling under a member state's town and country planning (2014/89/EU, art 2).

The MSPD is a framework directive, leaving the details of implementation to member states. It sets a baseline, which includes establishing and implementing maritime spatial planning, guided by the ecosystem-based approach, by March 2021 at the latest (2014/89/EU, arts 4, 5 and 15). In contrast to the WFD and the MSFD, the MSPD does not have a clear environmental focus. Rather, it has the dual objective of promoting growth of

the maritime and coastal economies and ensuring that the pressure of maritime activities does not compromise the achievement of good environmental status. As the purpose of adopting an MSP directive was to move away from previous sectoral approaches, towards a more holistic planning, social-ecological aspects may have a more natural place within this new regime. Criticisms towards both the WFD and the MSFD has been that a too narrow focus on hard science has led to a neglect of the social dimension of natural resource management [8,60]. This cannot be said to be the case with the MSPD. As seen above, even though the Commission stressed that the inclusion of coastal areas was of paramount importance to be able to apply a holistic planning, these were excluded from the scope in the final version of the directive. Nevertheless, it is required in the MSPD that national MSP processes take land-sea interactions into account, although without further specification as to how that is to be done (2014/89/EU, art 4).

The MSPD stipulates seven minimum requirements for what the MSP of members states shall include. These requirements are broad and open for interpretation, but include inter alia taking land-sea interactions into account, taking environmental, economic and social aspects into account, and involving stakeholders in the planning process. (2014/89/EU, art 6). In addition, there are requirements for public participation (2014/89/EU, art 9), as well as data sharing between member states concerning inter alia social data (2014/89/EU, art 10). As long as these minimum requirements are met together with the broad objectives of achieving a sustainable development and growth in the maritime sector, it is up to the member states to formulate the national planning objectives as they see fit in their respective context.

The directive clearly states that it is 'without prejudice to the competence of member states to determine how the different objectives are reflected and weighted in their maritime spatial plan or plans.' (2014/89/EU, art 5). This leads to the question of whether, and if so how the MSPD can be used to integrate social dimensions in the ocean management already going on based on the WFD and the MSFD. While participation is a central aspect of most comprehensive planning regimes [82], it has been pointed out that there are challenges within MSP in identifying and including stakeholders in a meaningful way [83]. Part of the challenge is that users of the marine and coastal spaces are not necessarily based in the area being planned, making it difficult to reach them in the planning processes. An additional issue that has been raised in relation to MSP, is that the scale of planning is not adjusted to take into account local perspectives [84], similar to the challenges with the WFD raised by Pellegrini et al. [60]. It has also been pointed out that MSP has taken a turn towards a more scientific, technological approach, to the detriment of social aspects of planning [84]. In order to have socially accepted planning solutions, MSP must capture and integrate the social aspects into marine planning practices [18].

Nevertheless, the minimum requirements of the MSFD include clear references to social data and public participation. While the prioritization between objectives is up to the individual member states, the directive opens up for social aspects of planning, and as such, it holds a promise to better cater to the needs of social-ecological systems than the WFD and the MSFD do. It also lies in the nature of comprehensive spatial planning systems, that all factors and interests need to be accounted for in the planning process, which is not the case for more strictly environmental management regimes. However, as discussed in the following section, realizing this potential of the MSDP will require the member states to make full use of the integrating potential of MSP when implementing the directive.

4. Discussions

The WFD and the MSFD both promote management of natural resources in a comprehensive fashion, based on knowledge of ecosystems. They also both include provisions that require some social aspects of management to be taken into account. However, these requirements tend to be general in nature and focus on purely socio-economic aspects or rely heavily on public participation. While being of profound importance for MSP [85], public

participation is not sufficient in terms of understanding social-ecological interactions [18]. Ineffective participation can alienate local communities, but neither good public participation nor thorough economic analysis can substitute for proper social impact assessment as instruments for assessing and integrating social aspects in marine governance [86].

While revising the WFD and MSFD in this regard may not be feasible, at least not in the near future, we propose that the latest addition to EU marine management policies, the MSPD, be used to overcome at least some of these shortcomings. This would arguably be a way to provide mechanisms that can fill gaps in current governance approaches by applying a more systemic approach to marine and water management, rather than trying to find simplistic 'one-size-fits-all' solutions [49].

The MSPD distinguishes itself from the WFD and the MSFD by its broader aim and less strong focus on scientific approaches. It is in many ways also a typical result of political compromises and is open to quite varied interpretations. Nevertheless, a promising aspect of the MSPD is that it recognizes the need to look beyond the natural sciences and include all sectors to be able to understand and deal with pressures on the marine environment. It goes further in integrating human aspects of social-ecological systems, as it aspires to be a holistic directive that takes all uses of marine space into account. It is also designed to take in information from other sectors in order to inform decision-making. One such source of information is the MSFD: the MSPD is supposed to facilitate the attainment of the MSFD objectives of good environmental status (2014/89/EU, preambular para 2 and 14).

A potential weakness of the MSPD lies in its framework nature, where all conflicts and trade-offs are left to the discretion of member states. In addition, the exclusion of coastal waters from its purview limits the directive's potential further. To achieve its environmental objective, MSP needs to effectively address environmental effects beyond the planned area [87] and that certainly holds true also for the social dimension. As seen above, it was noted already in the process of designing the directive, that integration between land and sea is crucial to ensure coherence between terrestrial and marine spatial planning.

In order for MSP to be an effective instrument for comprehensive management of the SES of coastal waters, member states will need to bridge the gap created by excluding areas subject to town and country planning. This is aided by the open wording of the MSPD which allows it to be implemented in a way that is closely linked to, or coordinated with, existing planning processes for marine areas in the member states. However, as illustrated by O'Hagan et al. [27], there is a clear risk that when new approaches to marine and coastal management are 'retro-fitted' to existing ones, such as established town and country planning processes, old problems are perpetuated. Effective integration of old and new planning instruments and processes is imperative from both an ecological and social perspective. This will require institutional coordination, clear mandates and consideration of how planning processes can be made to match in terms of spatial scale of planning as well as revision cycles.

The requirement of the MSPD (2014/89/EU, art 5) to apply an ecosystem-based approach when implementing the directive should in itself necessitate close coordination of existing town and country planning processes and the planning undertaken according to the MSPD. Ecosystem-based management cannot be effectively or seriously pursued while neglecting the strong links between adjacent marine areas and across the land–sea divide. In fact, the directive requires land-sea interactions to be taken into account in MSP processes (2014/89/EU, art 6). In its monitoring of the implementation of the MSPD, the Commission should pay close attention to the extent to which member states achieve the integration of different planning instruments needed to effectively capture ecological as well as social dimensions of land-sea interaction.

While the MSPD itself is rather vague, the processes that it mandates can be made to serve the interest of a more integrated maritime management. A number of instruments have been developed that can aid coastal states in integrating various social dimensions in decision-making under the MSPD or extended, more geographically inclusive, national processes. These include social impact assessments [88,89] and stakeholder perceptions

and interests assessments [90]. The member states can also benefit from a large scholarly literature specifically focusing on participation as part of marine spatial planning [91,92]. Although the MSP processes and plans put in place initially may not be ideal, the iterative nature of MSP should facilitate continued adjustments and improvements. In this, the member states should benefit from the forthcoming 'systems and tools' for assessment, monitoring and revision of maritime spatial plans, including by the use of social assessments, that have been commissioned by the Commission [93].

As noted in Section 3.2, coastal states have extensive jurisdiction over coastal waters that enable them to regulate most activities there in a way that supports the attainment of ecological objectives, while also being cognizant of the social implications of various management options and the attendant trade-offs. Their control of land-use planning, property rights and licensing processes for marine development [27] provides the legal preconditions for letting the programs of measures and other activities under the WFD and the MSFD be informed by social data and knowledge generated in the context of MSP. A useful way of promoting such integration would be to revise the relevant CIS guidance documents pertaining to the WFD and the MSFD, showing how the implementation of these directives can draw on knowledge generated in the MSP process. As seen in Section 3.3, guidance documents have already been used to elaborate the meaning of public participation as a social dimension of the WFD. Using them to help the member states broaden the social dimension of WFD and MSFD implementation beyond participation and economic analyses should be fully in keeping with what is demanded by an ecosystem approach to the management of coastal waters.

5. Conclusions

The above analysis confirms that the WFD and the MSFD are strongly focused on environmental aspects of marine management and rely heavily on natural science approaches. The WFD is particularly vague on any social dimensions beyond economic aspects of water use. Some more emphasis is placed on social dimensions in the CIS guidance documents, but it fails to provide a platform for a more inclusive consideration of various social aspects of the management of coastal waters and their resources. The clearest link to such dimensions in found in the requirement for public consultation, but it is evident from the literature that consultation or participation in itself is far from sufficient for effectively integrating social aspects in marine environmental management.

While the MSFD engages more explicitly with social issues, it still does so on a general level and in the elaboration of the directive's provisions in the relevant guidance document, the social dimension is largely interpreted as purely 'socio-economic'. This clearly risks failing to capture important aspects of inter alia well-being, traditions and culture, and sense of place. The MSFD is also applicable to coastal waters only to the extent that particular aspects of the environmental status of the marine environment are not already addressed through the WFD or other EU legislation. What this means in relation to social aspects it not clear and it also generally makes the relationship between the two directives challenging to understand, not least for the public.

The MSPD is quite inclusive in substantive terms, but suffers from a high degree of vagueness which allows for a broad spectrum of potential approaches to social dimensions of use and preservation of coastal waters. A major drawback of the MSPD is the exclusion of all coastal water areas that are subject to a member state's town and country planning. While allowing for great flexibility, the directive misses the chance to effectively facilitate integration across the land-sea divide and goes against the recognized need for treating coastal waters, and adjacent land and sea areas as integrated SES. Still, it provides an inclusive framework for MSP that can be used by individual member states to pursue more comprehensive and integrated planning processes that include social dimensions across the artificial boundaries on which the MSPD itself is premised. Fully utilizing the potential of MSP in this regard will arguably be necessary if the member states are to apply an ecosystem approach to the management of coastal water SESs.

Author Contributions: The authors have contributed in equal measure to the conceptualization, analysis and writing of the whole manuscript. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no specific external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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