



PUBLICATIONS ON OCEAN DEVELOPMENT

THE ECOSYSTEM APPROACH IN OCEAN PLANNING AND GOVERNANCE

Perspectives from
Europe and Beyond

edited by
David Langlet and
Rosemary Rayfuse

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The Ecosystem Approach in Ocean Planning and Governance

Publications on Ocean Development

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OCEAN DEVELOPMENT

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Preface

In a speech at a Side-Event to the United Nations Oceans Conference in June 2017, Karmeau Vella, the European Commissioner for the Environment, Marine Affairs and Fisheries, posed the question: '[w]hy do we need an ecosystem approach?' His answer was simple: '[b]ecause our future depends increasingly on our capacity to manage the accumulation of human activities; our capacity to take account of all the ways the oceans are used and their impacts; our capacity to ensure that the health of the oceans, their productivity and self-repairing capacity is not undermined'. In Vella's opinion it is now 'impossible to look into conservation and sustainable use of the oceans without taking an ecosystem approach to ocean management'.¹ In short, the ecosystem approach to oceans management has come of age.

But what, exactly, is the ecosystem approach and how can it be implemented to ensure that ocean ecosystems, resources and space are not exploited beyond their natural limits? Where already over-exploited, as in the case of overfishing or habitat destruction, how can the ecosystem approach be implemented to restore ecosystem health? Moreover, how can the ecosystem approach be implemented to conserve marine biodiversity, to sustain goods and environmental services, to provide social and economic benefits for food security and to sustain livelihoods?

It was a desire to explore these questions and to look for good examples of the bridging or integration of the forces and logics that govern ecosystems and the legal and administrative systems by which they are managed that gave rise to this book. More precisely, the origins of this book lay in a conference held at the Department of Law in the School of Business, Economics and Law at the University of Gothenburg in November 2016 during which the authors and other conference participants discussed the issues focusing on the following themes: the conceptualization of the ecosystem approach in law; the relationship between the ecosystem approach as a concept of law and ecosystems as understood by natural science; the ecosystem approach and adaptive management; the ecosystem approach and ecosystem services; multilevel interactions in legal and natural systems; sea-land interactions; the relationship between

1 Co-organized together with the United Nations Environment Programme, the UNEP/MAP, the Food and Agriculture Organisation and the General Fisheries Commission for the Mediterranean. See <https://ec.europa.eu/commission/commissioners/2014-2019/vella/announcements/un-ocean-conference-ecosystem-approach-regional-level-contributing-implementation-sdg-14_en>.

maps/mapping processes and legal and administrative measures; and participation and dispute management/resolution pertaining to marine resources. Presentations related to both international and EU law as well as domestic law and planning processes. The chapters in this book represent the outcome of that conference.

As in any project of this nature, many thanks are due. First and foremost, we offer our thanks to the Department of Law at the University of Gothenburg, which is where this project and the collaboration between the editors first took root, Professor Rayfuse having been appointed as a Visiting Professor at the Department for 2014–2017. While it is always invidious to mention a few names only, we would like to thank all those who enabled, through their work and commitment or through their financial contributions, Professor Rayfuse's appointment as well as the establishment of a Chair and an associated well-endowed research environment in Ocean Governance Law at Gothenburg University, thereby making this project as well as many others possible.

We are grateful to Henrik Jansson for his tireless editorial assistance in preparing the draft manuscript. We similarly thank Brill Publishing for its support for this volume and for the helpfulness of its staff, particularly Marie Sheldon and Johanna Lee. Of course, this book would never have been possible without the commitment and hard work of the authors and so our final and deepest thanks go to each of them for their original and thought-provoking contributions.

David Langlet and Rosemary Rayfuse
Gothenburg and Sydney, May 2018

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Case C-453/08 *Karanikolas and Others* [2010] ECLI:EU:C:2010:482
Case C-404/09 *Com v Spain* [2011] ECLI:EU:C:2011:768
Case C-182/10 *Solvay and Others* [2012] ECLI:EU:C:2012:82
Case C-258/11 *Sweetman* [2013] ECLI:EU:C:2013:220
Case C-521/12 *Briels* [2014] ECLI:EU:C:2014:330
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Germany

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Royal Society for Protection of Birds, Scotland (the RSPB) v The Scottish Ministers and first Inch Cape Offshore Limited and second Neart na Gaoithe Offshore Wind Limited and third Seagreen Energy Limited P28/15 [2017] CS1H 31

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- Convention on the Conservation of Antarctic Marine Living Resources (adopted 20 May 1980, entered into force 7 April 1982) 1329 UNTS 48; 19 ILM 841 (1980).
- United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 3; 21 ILM 1261 (1982).
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- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [1992] OJ L 206/7.
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- 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) [2008] OJ L 164/19.
- Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [2009] OJ L 20/7.
- Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Industrial Emissions Directive) [2010] OJ L 334/17.
- Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning [2014] OJ L 257/135.
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- Regulation (EC) No 1367/2006 of the European Parliament and of the Council of 6 September 2006 on the application of the provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community institutions and bodies [2006] OJ L 264/13.
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- Commission Regulation (EU) No 1388/2014 of 16 December 2014 declaring certain categories of aid to undertakings active in the production, processing and marketing of fishery and aquaculture products compatible with the internal market in application of Articles 107 and 108 of the Treaty on the Functioning of the European Union [2014] OJ L 369/37.

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Germany

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Federal Nature Conservation Act of 29 July 2009 (Federal Law Gazette, Part I, No 51/2542), last amended by the Act of 15 September 2017 (Federal Law Gazette, Part I, No 64/3434).

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Kenya

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Latvia

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Sweden

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The United States

National Environmental Policy Act 1969 (NEPA)

Marine Mammal Protection Act 1972 (MMPA)

The Endangered Species Act 1973 (ESA)

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Endangered Species Conservation Act of 1969

The Magnuson-Stevens Fishery Conservation and Management Act 1976 (MSA)

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The American Antiquities Act 1906 (AAA)

United Kingdom and Scotland

Electricity Act 1989

The Environmental Assessment (Scotland) Act 2005

Fishery Limits Act 1976

Land Reform (Scotland) Act 2003

The Local Government etc. (Scotland) Act 1994

Marine and Coastal Access Act 2009

Marine (Scotland) Act 2010
Nature Conservation (Scotland) Act 2004
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Road Traffic Regulation Act 1984
Scotland Act 1998
Scotland Act 2012
Scotland Act 2016
The Town and Country Planning (Scotland) Act 1997
Wildlife and Countryside Act 1981
Wildlife and Natural Environment (Scotland) Act 2011

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The Ecosystem Approach in Ocean Planning and Governance: An Introduction

David Langlet and Rosemary Rayfuse

1 Introduction

In theory, the need for an ecosystem approach to the management of natural resources seems almost intuitive. The management and regulation of human activities that affect species, ecosystems and natural processes should surely be based on scientific knowledge of the wider systems and interactions in which such species (including *homo sapiens*), ecosystems or processes are situated. Moreover, to be effective, management measures should surely be designed and continuously adapted with consideration to the scales and dynamics (including the lack of full understanding) of ecosystem characteristics and with the involvement of concerned stakeholders. Nevertheless, despite its apparently intuitive appeal, the ecosystem approach, as a management principle, is of fairly recent origin. The scientific ideas on which the ecosystem approach is premised can be traced at least to the first half of the 20th century.¹ However, the approach only gained general recognition as a policy concept in 1995 when the parties to the Convention on Biological Diversity (CBD) agreed that the ecosystem approach 'should be the primary framework of action to be taken under the Convention'.² According to a 'common understanding' adopted by those same parties, the ecosystem approach 'is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way ...'. It 'requires adaptive management

1 R Edward Grumbine, 'What Is Ecosystem Management?' (1994) 8 *Conservation Biology* 27.

2 CBD, Decision 11/8, Preliminary Considerations of Components of Biological Diversity Particularly under Threat and Action which could be taken under the Convention (Jakarta, 17 November 1995), para. 1. On earlier expressions of the ecosystem approach or 'ecosystems thinking' in international law and policy, see Arie Trouwborst, 'The Precautionary Principle and the Ecosystem Approach in International Law: Differences, Similarities and Linkages' (2009) 18 *Review of European Community and International Environmental Law* 26.

to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning'.³

A few years later, the 12 so-called 'Malawi Principles for the Ecosystem Approach' were elaborated within the CBD framework and endorsed by the parties to the Convention.⁴ Among these principles is the recognition that management objectives are a matter of societal choice (Principle 1) and that the ecosystem approach should seek the appropriate balance between conservation and use of biodiversity (Principle 10). In terms of how management should be structured, the principles hold that the ecosystem approach should be undertaken at the appropriate scale (Principle 7) and that management should be decentralized to the lowest appropriate level (Principle 2). Ecosystems must be managed within the limits of their functioning (Principle 6), and while change is recognised as inevitable (Principle 9), objectives for ecosystem management should be set for the long term (Principle 8). In addition, application of the ecosystem approach should involve consideration of all forms of relevant information (Principle 11) and involve all relevant sectors of society and scientific disciplines (Principle 12).

In practice, the application of the ecosystem approach is anything but intuitive. The various, and varying, features and complexities of both natural ecosystems and human-created institutional, legal and administrative systems make the effective implementation of the ecosystem approach both complex and highly challenging. Given the vast number of complex issues to be considered in applying an ecosystem approach, it is difficult to stipulate universally applicable rules of any significant specificity for the effective operationalization of the approach. Nevertheless, despite these challenges, the approach is now well established as a guiding principle in many contexts and its application is often seen as a prerequisite for the successful management of ecological systems.

In the international law context, the ecosystem approach has come to feature particularly strongly in the context of marine management. One early iteration is found in Article 11 of the 1980 Convention on the Conservation of Antarctic Marine Living Resources,⁵ which requires any conservation or harvesting and associated activities to be carried out with regard not only to the maintenance of the ecological relationships between harvested and non-harvested species but also to the broader marine ecosystem as a whole. The

3 CBD, COP Decision v/6 Ecosystem Approach (Nairobi, 26 May 2000).

4 CBD, COP Decision VII/11 Ecosystem Approach (Kuala Lumpur, 9–20 and 27 February 2004).

5 Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980 (into force 7 April 1982) (1982) 19 ILM 841.

approach has also been endorsed by the parties to the Helsinki⁶ and OSPAR⁷ Conventions relating to the protection of the marine environment of the Baltic Sea and North East Atlantic, respectively⁸ and, at the global level, is deeply embedded in the 1995 United Nations Fish Stocks Agreement.⁹

In EU law, the Marine Strategy Framework Directive (MSFD)¹⁰ requires adaptive management on the basis of the ecosystem approach to be applied with the aim of attaining good environmental status and, according to the Directive on marine spatial planning (MSPD),¹¹ an ecosystem-based approach will allow for an adaptive management which ensures refinement and further development as experience and knowledge increase.¹² The EU Water Framework Directive (WFD),¹³ which has great significance for marine waters, in particular in coastal areas, is also functionally based on an ecosystem approach even though that exact terminology is not employed. In addition, the EU's common fisheries policy (CFP) aims to implement the ecosystem-based approach to fisheries management so as to ensure that negative impacts of fishing activities on the marine ecosystem are minimized.¹⁴

Although the definition and principles provided within the CBD regime remain a central articulation of the conceptual ideas underpinning 'ecosystem-thinking', there is continued discussion of what precisely the requirements for

6 Convention on the Protection of the Marine Environment of the Baltic Sea Area, Helsinki, 9 April 1992 (into force 17 January 2000) (1992) 2099 UNTS 195.

7 Convention for the Protection of the Marine Environment of the North-East Atlantic, Paris, 22 September 1992 (into force 25 March 1998) (1993) 32 ILM 1075.

8 Record of the First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions (Bremen, 26 June 2003) (OSPAR/HELCOM statement), Annex 5 ('Towards an Ecosystem Approach to the Management of Human Activities').

9 Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 4 August 1995 (into force 11 December 2001) 2167 UNTS 3.

10 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) [2008] OJ L 164/19.

11 Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning [2014] OJ L 257/135.

12 Directive 2008/56/EC (n 10), Art. 3(5) and Directive 2014/89/EU (n 11), preambular para. 14.

13 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy [2000] OJ L 327/1.

14 Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy ... (2013) OJ L 354/22, Art. 2(3).

an ecosystem approach are.¹⁵ Most of the legal instruments cited above do not (clearly) define what is meant by such an approach. There are also a host of related concepts, such as ecosystem-based management (EBM) and the ecosystem approach to management (ESAM), which are sometimes used more or less interchangeably and at other times are ascribed more distinct meanings.¹⁶ However, while the significance of a distinct terminology should not be discounted, more pressing issues relate to the actual implementation of core features of the approach and what lessons can be learned from the experiences of implementation gained in various settings so far.

While a plethora of literature on the ecosystem approach already exists, this literature is largely written from a natural science perspective,¹⁷ or from the perspective of specific sectors, such as fishing.¹⁸ Analyses of the implications and applications of the approach in a marine context from a legal and policy perspective are more scarce.¹⁹ Based on this recognition, this volume brings together a range of scholars, mostly but not exclusively from the legal and social sciences, to provide a thorough analysis of different manifestations of the ecosystem approach, including challenges encountered and potential ways to manage these challenges. The focus is predominantly a European one, both in a geographic sense and in terms of the law and policy that is analyzed. However, the analysis is augmented by adding perspectives from other jurisdictions, such as Kenya and the United States, thus allowing a more nuanced understanding of the particular characteristics of the implementation of the approach in Europe and of more universal challenges associated with the effective achievement of management based on the ecosystem approach. As discussed below, the chapters are grouped into three thematic parts followed by a concluding chapter which seeks to draw out the lessons learned.

15 For examples of various definitions, see Rachel D Long, Anthony Charles, Robert L Stephenson, 'Key principles of marine ecosystem-based management' (2015) 57 *Marine Policy* 53.

16 See e.g. Sara Söderström and others, 'Environmental Governance' and 'Ecosystem Management': Avenues for Synergies between Two Approaches' (2016) 17 *Interdisciplinary Environmental Review* 1.

17 See e.g. David Waltner-Toews, James J Kay and Nina-Marie E Lister, *The ecosystem approach: complexity, uncertainty, and managing for sustainability* (Columbia University Press 2008).

18 See e.g. Villy Christensen and Jay Maclean (eds), *Ecosystem approach to fisheries: a global perspective* (Cambridge University Press, 2011).

19 See, however, Sue Kidd, Andy Plater and Chris Frid (eds), *The Ecosystem Approach to Marine Planning and Management* (Earthscan 2011), and Vito de Lucia, 'Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law' (2015) 27 *Journal of Environmental Law* 91–117.

2 Cross-cutting and Critical Perspectives on the Ecosystem Approach

The chapters in Part I explore a number of cross-cutting issues and critical perspectives on the ecosystem approach. In particular, while an ecosystem approach has long been a central perspective in environmental management and policy, it is still relatively new to the legal setting. Initiatives aimed at creating flexible and dynamic legal instruments have become increasingly common but their interpretation and application has often been subject to criticism relating to the perceived tension between legal certainty, identified as a core tenet of (rule of law based) legal systems, and the flexibility and adaptivity espoused by the ecosystem approach. This potential conflict is examined, from different viewpoints, in the chapters by Niko Soininen and Froukje Platjouw and by Brita Bohman.

Soininen and Platjouw (Chapter 2) take as their starting point the fact that the three core EU directives relating to aquatic environments, the WFD, the MSFD and the MSPD, all embrace the ecosystem approach as a leading paradigm, either implicitly or explicitly. All three also prescribe what is often referred to as a programmatic approach, i.e. an approach that involves the adoption of cyclical and evolving plans and programmes as primary tools for attaining environmental goals. In this prescription the authors identify a fundamental assumption of continuous change as regards management measures and thus a need for the law to be adaptive. This need for adaptive management of socio-ecological systems is underpinned by the insight that human understanding of such systems is incomplete and constantly evolving. Inevitably, this raises questions about what adaptive law should look like in practise and how such law may be reconciled with traditional features of law, such as legal certainty.

Against this background, Soininen and Platjouw explore the linkages between resilience, adaptivity and the rule of law and establish criteria for a systematic and analytic review of regulatory resilience. On that basis, they assess the regulatory design of the three EU directives to identify possible shortcomings of the programmatic approach in achieving an ecosystem approach, and they propose alterations to the legal frameworks in question. Their analysis reveals that while legal certainty may sometimes act as a hindrance to adaptivity, in other circumstances it can serve as a crucial mechanism for driving environmentally friendly adaptive changes to social and economic practices. The authors emphasise that, as a concept, adaptive law is neutral in the sense that it sometimes furthers the cause of the environmentalist and at other times the interests of industry. The actual outcome of adaptive mechanisms will ultimately be decided by policy choices made in the design of regulatory goals

and tools, and by scientific understanding of the socio-ecological systems. The authors find that all three directives possess the substantive capacity to support socio-ecological resilience. However, they note that coherence between the directives could be significantly improved and that the discretion of Member States to balance different substantive goals is sometimes too broad.

Taking the regulation of eutrophication in the Baltic Sea as her object of investigation, Bohman (Chapter 3) assesses the extent and manner in which different aspects of the ecosystem approach can be identified in the regulatory regime established primarily by the regional 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention) with its governing body HELCOM and the main marine related directives of the EU. According to Bohman, the ecosystem approach has become the base for a gradual and perceptible evolution of new normative tools in this regime, shaping the way law is interpreted and applied. Nevertheless, even though many of the features that typically represent an ecosystem approach are reflected in the current regulatory setting for the Baltic Sea, the vagueness and flexibility of their expression in the positive law leaves considerable leeway to States in deciding on specific measures to be adopted. Still, Bohman finds that the concept of the ecosystem approach promotes new ways of applying core environmental law principles, in ways that are better adjusted to complex environmental problems. Not only does the implementation of such features lead to a more ecosystem-focused regulatory system, it might also facilitate more effective implementation of regulatory requirements – even where traditional compliance mechanisms are lacking. Bohman points to the development of a process for making ecosystem assessments at different levels and identifying what kind of regulatory actions might lead to the desired result as perhaps the most important effect of the uptake of the ecosystem approach in the regional regulation of eutrophication. She describes this as enabling a ‘managerial compliance’ process that seems to bridge many of the uncertainties arising from the regulatory structure and the complex environmental factors it seeks to address. However, time-lags between measures taken and visible results, and in the adoption of effective operational targets, offer real challenges even with such a system in place.

In his contribution, Aron Westholm (Chapter 4) addresses the spatial dimension of the ecosystem approach from the understanding that marine management is, to a large extent, a question of delimiting the ocean into smaller, more manageable, units. As stipulated by Principles 2 and 7 of the Malawi Principles, the ecosystem approach requires management to be ‘decentralised to the lowest appropriate level’ and ‘be undertaken at the appropriate spatial and temporal scales’. This inevitably raises questions as to the appropriate geographic

delimitations, in terms of ecosystem functionality, and the appropriate management level within the administrative system for such governance.

Using a theoretical framework grounded in legal geography, and with the transposition of the WFD, the MSFD, and the MSPD in Sweden as examples, Westholm examines the way in which choices of management levels and geographical scales affect the functional application of the ecosystem approach. This in turn enables an assessment of whether there is a coherent definition of an ecosystem approach within EU marine legislation. He makes clear the importance of choices of scale and level by demonstrating that the choice of scale of what is to be governed inevitably entails sacrifices, either in detail, or in how much of a particular marine ecosystem may actually be captured by the governance regime. Westholm identifies similar effects associated with both the choice of management level and of the administrative body that is tasked with performing the management. As he notes, when legal frameworks fail to provide clear or consistent guidance on the scale and level of the management of ecosystems, the nature or content of the management is also likely to differ. Such discrepancies challenge the coordination of efforts, both within and between States, which is essential to the governance of complex and interconnected ecosystems.

Of course, different types of interactions between land and sea have influenced human activity on land as well as at sea since ancient times. Indeed, modern science now shows us how land-sea interaction (LSI) involves both natural processes across the land-sea interface and the interrelationships between human activities in this zone. Against this evolving knowledge, Sue Kidd (Chapter 5) explores the connection between LSI and ocean planning and governance arrangements premised on the ecosystem approach prompted by the EU's MSP Directive. Focusing on what this connection might mean for landward communities and for governance of the land, she identifies a range of options and examples for institutional and legislative arrangements to address LSI and shows how LSI can be addressed in a variety of ways and at a variety of scales of governance. As she notes, consideration of how to effectively address LSI has influenced the recent evolution of ocean governance arrangements at various levels. Nevertheless, when analysing the current situation on the basis of principles for an ecosystem approach, significant ocean governance related challenges may be identified. These challenges call for further innovation in approaches to governance to address LSI issues and to respond to the integrated management of land, water, and living resources required by the ecosystem approach. According to Kidd, the introduction of new systems of MSP heralds an era of governance experimentation that is not only focussed on the ocean but also prompts change in established patterns of governance of the

land. Importantly, however, basic levels of understanding are needed for wide and meaningful engagement to take place and for society to make informed choices regarding environmental trade-offs. This brings to the fore the notion of ocean literacy which, as Kidd explains, is concerned with promoting behavioural change not only at an individual level but also at a societal level.

In their contribution, Michael Gilek, Fred Saunders, and Igné Stalmokaitė (Chapter 6) focus on the role of the ecosystem approach in marine spatial planning and its relationship to sustainable development. Having noted the relative paucity of aspects of social sustainability in the literature on MSP, they develop an analytical framework to explore how different ecosystem approach-practices reflect differing conceptions of sustainable development. The authors argue that, in concrete situations, it is not possible to give equal priority to all aspects of sustainable development, and that to understand how these aspects are weighted in marine spatial planning, insights must be gained into institutional arrangements and how policy goals are identified and negotiated. The authors explore the utility of their framework through three distinct case studies illustrating different MSP contexts in the Baltic Sea region. In each of the case studies, the analysis focusses on stakeholder and knowledge integration, i.e. important aspects of social sustainability. The case studies demonstrate that ecosystem approach principles for MSP developed at the international level and in some national MSP settings acknowledge a wide definition of the ecosystem approach. However, looking more closely at MSP practices, a significant gap is revealed between espoused principles and the practical implementation of the approach, especially regarding social aspects of sustainability such as participation, social inclusion and knowledge pluralism. While seeing possibilities for enhancing social inclusion and knowledge pluralism in ecosystem approach and MSP processes by developing more detailed guidance and requirements the authors see that as difficult to achieve in the short term. As an alternative, they suggest the possibility of developing a parallel and complementary 'Socio-cultural Approach' (SA) which would focus on how issues such as participation, procedural justice, social inclusion and knowledge pluralism could be promoted in MSP.

Turning to a different aspect of the role of humans in the ecosystem approach, an important element of the ecosystem approach, reflected in the guidelines on the ecosystem approach adopted by the parties to the CBD,²⁰ is that humans are seen and treated as part of the ecosystem. In the final chapter

20 Convention Biological Diversity, Rio de Janeiro, 5 June 1992 (into force 29 December 1993) (1992) 31 ILM 822.

in this Part, Kees Bastmeijer (Chapter 7) explores what this recognition may mean for implementing the ecosystem approach in marine planning by examining the protection regime set up by the EU Birds Directive and the Habitats Directive – known as Natura 2000 – and its implementation. The Natura 2000 regime applies to both terrestrial and marine ecosystems, although as Bastmeijer notes, comparatively few marine sites have been identified to date. Nevertheless, particularly when compared to the more recently adopted MSFD, much experience has been gained from the implementation of the Natura 2000 regime, particularly in the context of legal debates focused on the relationship between human ambitions and effective protection of nature. Drawing on implementation practice from The Netherlands, Bastmeijer explores the legal nature of the Natura 2000 regime and various attempts that have been made to undermine its protective capacity in the name of economic necessity.

As Bastmeijer notes, the Natura 2000 regime is not explicitly based on the ecosystem approach. Nevertheless, the regime leaves considerable space for this approach to be applied implicitly, and he demonstrates how the characteristics of an ecosystem-based approach connect well with the requirements of the Natura 2000 regime. In doing so he demonstrates how Natura 2000 may also play an important role in implementing ecosystem-based management in the marine environment. Importantly, Bastmeijer notes that EU legislation relating to the protection of the marine environment appears to allow for more explicit balancing of interests compared to Natura 2000 and he cautions against the risk of giving ‘humans’ too dominant a position in the ecosystem, thereby potentially undermining the effectiveness of an ecosystem-based approach. As he notes, in practice, the notion that humans are considered part of the ecosystem can easily become an excuse for its over-exploitation. In order to remedy this situation, and in view of experiences with the Natura 2000 regime, he calls for implementation of the MSFD to be based on a solid scientific definition of ‘good environmental status’ and that social and economic interests should not be permitted to compromise this definition. Rather, the achievement or maintenance of such status should be seen as constituting the very fundament of implementation efforts.

3 Participation and Collaboration

Public participation and stakeholder engagement and collaboration have been identified as core tenets of the ecosystem approach in ocean governance, not least due to their contribution to acceptance, ownership and support for management measures. The chapters in Part II of the book examine various aspects

of the evolution, impact and practical implementation of public participation in ocean governance.

In her contribution, Antonia Zervaki (Chapter 8) examines the issue of public participation in the context of MSP. Initially introduced strictly for environmental management, MSP has undergone a gradual shift towards a more comprehensive perception of the spatial allocation of human activities and natural processes. It has evolved into a multipurpose organizational framework, founded on the ecosystem-based approach, aiming at the comprehensive management of different and often conflicting uses and processes relating to marine space. Zervaki assesses the evolution of the normative premises of MSP public participation based on an analysis of the relevant *acquis* of international institutions and the experience of certain national and sub-regional MSP ventures in the EU. She traces the development of public participation in MSP from an international soft law framework to regulation at the regional level and then engages in an assessment of actual practice of MSP public participation focusing on the experience of EU member states and MSP cooperation among national authorities and/or stakeholders at the sub-regional level. Based on this analysis Zervaki shows that, although originating from the sphere of environmental protection, public involvement in MSP, in line with the ecosystem approach, contributes to a wider shift in maritime governance from a traditional (inter)governmental logic to one where management of ocean affairs naturally involves actors such as international organizations, advocacy groups, ocean users and individuals. Further linking MSP to the UN sustainable development goals could promote public participation in MSP moving from consensus-seeking to the creation of multi-stakeholder partnerships in line with Sustainable Development Goal 17 on the revitalization of the global partnership for sustainable development.

Anne-Michelle Slater and Alison MacDonald (Chapter 9) let us follow the execution of and insights gained from an elaborate exercise in participatory decision-making relating to MSP in Scotland. The Cooperative Participatory Evaluation of Renewable Technologies on Ecosystem Services (CORPORATES) Project, was carried out by an interdisciplinary research group in order to provide a decision-making framework that would balance socio-economic and ecological issues. It combined the growing body of academic thought and policy work concerning implementation of the ecosystem approach with people having direct experience and knowledge of the local marine environment in order to develop a process for implementing the ecosystem approach in marine planning decisions. The aims of the project were to clarify whether a process could be developed that linked ecosystem services with MSP; to examine how the role of the law could be maximised to enable and enhance the

development and implementation of the process; and to assess whether such a process could increase acceptance and understanding by all stakeholders in decisions relating to the location of large scale Marine Renewable Energy installations. As part of the process both the research team and the stakeholder participants gained insights into the role of law in the participatory process which influenced the design of the process as well as the researchers' conclusions.

One clear conclusion was that the implementation of such collaborative processes can build greater and shared understandings of the ecological and policy linkages and interactions and that deliberative techniques can reduce conflicts and facilitate planning. Another valuable insight was that although MSP itself is often regarded as a holistic process, effective planning and decision making in the marine environment require consideration of a comprehensive context beyond MSP legislation and policy. Interestingly, contrary to what had been expected, the existing legislative and policy framework was found to provide sufficient support for the decision-making process and to support the implementation of an ecosystem approach, provided that the law was understood and fully embedded into the participatory process.

4 Thematic and National Perspectives and Experiences

The chapters in Part 3 of this book examine a number of experiences in implementing the ecosystem approach in practice at the sectoral and national level. As the human activity that perhaps most immediately and strongly impacts marine ecosystems, fishing is an inevitable theme for any attempt to apply a comprehensive ecosystem approach to marine governance. At the same time, it has long seemed an almost intractable challenge to submit fishing policy and practice to such conditions as to make it compatible with diverse and healthy marine ecosystems. In her contribution Jill Wakefield (Chapter 10) queries why, despite being explicitly required, ecosystem-based management has failed to find traction under the EU's common fisheries policy (CFP) and why achieving good environmental status for EU waters, as currently defined, may not render EU seas resilient and productive.

Despite the serious state of many fisheries and their associated ecosystems, and the recurring revisions of the CFP, Wakefield identifies a severe disjuncture between EU policy on fishing and on the environment. The historical legacy of fisheries regulation in the EU having developed from and been imbued with the logic of agricultural policy, has resulted in a policy that is ill equipped to deal with the challenges of what is – unlike agriculture – essentially an

extractive industry. While the conservation of fish and other marine biological resources within the frame of fisheries policy is under the exclusive competence of the EU, the Union has failed to achieve a consistent approach to marine management and conservation. Although the environmental objectives of the MSFD are dependent on fisheries being conducted in a manner consistent with achieving good environmental status by 2020, there is no formal requirement to this effect, and in practice the MSFD has very limited impact on fisheries policy. Wakefield concludes that achieving both economically and environmentally viable fisheries will require subjecting the CFP to the terms of the MSFD and making extractors pay the full cost for the use of the marine living resources.

Eva Schachtner (Chapter 11) provides an in-depth assessment of the implementation and operationalisation of the ecosystem approach in Germany, one of the largest and most influential EU member states. Her focus is on the extent to which the German legal provisions for marine spatial planning and the spatial plans adopted for the German EEZ correspond to the requirements of the ecosystem approach. She finds that, to a large extent, the legal provisions and the plan are consistent, although there is still considerable scope for improvement with regard to the outcome of the planning process in terms of the content of the actual spatial plans. Taking a more forward-looking perspective, Schachtner also explores the potential of the current legal framework to achieve improved environmental protection in the forthcoming, second generation of spatial plans, by assessing whether the spatial planning tools are flexible enough to reflect the characteristics of ecosystems and whether further components need to be added to these tools.

As a basis for her assessment, Schachtner makes use of the 2016 Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning adopted by HELCOM and VASAB,²¹ which constitute a recent compilation of elements of the ecosystem approach. In line with Westholm's analysis in Chapter 4, she identifies the distribution of MSP competences spatially and between public agencies as a potential threat to the holistic management required by the ecosystem approach. In particular, while EU law expects Member States to ensure protection of the environment as well as promote the sustainable development of various uses including energy generation, maritime transport, fisheries and aquaculture, the balancing of these different objectives in the MSP framework is largely left to the Member States.

21 VASAB is an intergovernmental multilateral co-operation of 11 countries in the Baltic Sea Region in spatial planning and development, see further <http://www.vasab.org/index.php/about-vasab> accessed 15 January 2018.

Schachtner thus notes that the degree of progress towards ecosystem protection in Germany, as in other Member States hinges on the political will to see marine spatial planning not merely as a coordinating mechanism, but as an instrument for effectively implementing ecosystem-based management.

In his contribution, David Fluharty (Chapter 12) puts application of ecosystem approach in Europe in a comparative light through a vivid account for the complex manifestations of ecosystem based marine management in the United States. In contrast to the EU, where the ecosystem approach is introduced in a top-down fashion through the implementation of marine directives, the situation in the US is much more heterogeneous with a variety of approaches that collectively cover the main topics of the EU Directives while leaving much regional autonomy in terms of policy implementation. Fluharty identifies five principal and partly distinct approaches to achieving ecosystem-based ocean management which are being pursued in the US, four of which are further examined in the chapter. This diversity is reflective of the absence of a clear or formally defined view of what marine ecosystem-based management is to achieve and results in uncoordinated and sometimes competitive processes.

As Fluharty's review of the evolution of marine policy in the US reveals, much more is known about marine ecosystems than is being applied when making management decisions. In addition, there is continuing resistance against allowing ecosystem-based management to play an effective role in assessing trade-offs between competing interests. In practice, there is little recognition of the fact that all ocean activities take place in an ecosystem context. At the same time, Fluharty finds that the combined effect of various laws and policies does form a foundation, although a fragmented one, on which ecosystem-based management approaches can build. He notes that the appetite in the US Congress for comprehensive, ecosystem based marine management-oriented legislation appears to be very small. Thus, given the absence of sufficient public and political support for consolidating the legal basis for a more comprehensive policy, the extent to which the US will have an ecosystem approach to marine management is likely, for the foreseeable future, to remain the cumulative effect of multiple stands of policy and implementation.

As a further outlook beyond Europe, and as a concrete illustration of land-sea interaction and the significance of land policy for the marine environment, Collins Odote (Chapter 13) uses wetlands as a lens to assess the application of the ecosystem approach to coastal areas and ecosystems in Kenya. Tracing the causes of the rapid loss and degradation of wetlands to the fact that it is only recently that their value for society has been recognized, Odote notes that for a long time their main perceived utility lay in their potential for conversion

to farmland. Drawing on the Malawi Principles as well as the ecosystem wide approach taken by the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention),²² Odote explores the legal preconditions for effective protection of coastal wetlands. He explains that, since 2013, Kenya has had an Integrated Coastal Zone Management Policy, but that much remains to be done to fully move from a single species approach to one that is inclusive, integrated and adaptive in line with the requirements of the ecosystem approach. The management process, which in view of the complexity of the challenge must be incremental and collaborative in nature, also needs to better align planning processes and structures to the linkages between land and water.

5 Conclusion and Outlook

In Part 4 of the book, David Langlet and Rosemary Rayfuse (Chapter 14) draw on the different perspectives and experiences provided in the preceding chapters in order to identify common themes and challenges as well as distinctive features of the understanding and operationalization of the ecosystem approach in different substantive fields and in different jurisdictions. The chapter highlights important insights and points to remaining challenges that require further work in terms of practical implementation as well as research.

²² Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar, 2 February 1971 (into force 21 December 1975) (1972) 11 ILM 969.

PART 1

Cross-Cutting and Critical Perspectives



Resilience and Adaptive Capacity of Aquatic Environmental Law in the EU: An Evaluation and Comparison of the WFD, MSFD, and MSPD

Niko Soininen and Froukje Maria Platjouw

1 Introduction*

Over the past 50 years, humans have changed aquatic marine and freshwater ecosystems more rapidly and extensively than in any comparable period in human history. These changes have been the effect of meeting growing needs for aquatic ecosystem services crucial for sustaining economic and social development.¹ Aquatic ecosystems provide benefits for humans in terms of transport, irrigation and agricultural production, aquaculture and fish production, drinking water, water purification, climate regulation, water retention, disease management, production of renewable energy, and recreation, to name but a few.² Aquatic ecosystems and the related social systems need to maintain their core functions (resilience) to safeguard the provisioning and sustainable use of these services. Accordingly, the ecosystem approach has been the governance concept of choice for international and European policymakers.³

Three important European Union (EU) directives regulating the planning and management of aquatic environments embrace the ecosystem approach

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1 United Nations Environment Programme, Millennium Ecosystem Assessment, *Living Beyond Our Means. Natural Assets and Human Well-being*. Statement of the MA Board (Island Press 2005).

2 B Grizzetti and others, 'Assessing water ecosystem services for water resource management' (2016) 61 *Environmental Science and Policy* 194.

3 The COP 5 Decision v/6 of the Convention on Biological Diversity (adopted 22 May 1992, entered into force 29 December 1993, 1760 UNTS 79) defines ecosystem approach as following: 'The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.' See also V De Lucia, 'Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law' (2014) 27 *Journal of Environmental Law* 91; FM Platjouw, *Environmental law and the ecosystem approach: Maintaining ecological integrity through consistency in law* (Routledge 2016).

as a leading paradigm for their design and scope, either implicitly or explicitly. While the Water Framework Directive (WFD)⁴ seeks to prevent the deterioration of freshwater ecosystems and restore their good ecological status, the Marine Strategy Framework Directive (MSFD)⁵ seeks to accomplish somewhat similar goals within the marine environment. The Maritime Spatial Planning Directive (MSPD),⁶ although containing a broad set of goals, is designed to help with the implementation of the MSFD.⁷

All three directives have adopted what is commonly referred to as a programmatic approach. In a nutshell, this means that cyclical and evolving plans and programmes are used as primary tools for attaining environmental goals.⁸ This is in line with a widely-accepted view that one of the main mechanisms for achieving the ecosystem approach is adaptive management (and planning).⁹ As emphasized at the international level by the Secretariat of the Convention on Biological Diversity:

The ecosystem approach requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning. Ecosystem processes are often non-linear, and the outcome of such processes often show time-lags. The result is discontinuities, leading to surprise and uncertainty.

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- 4 Council Directive 2000/60/EC of 22 December 2000 establishing a framework for Community action in the field of water policy [2002] OJ L 327/22.
 - 5 Council Directive 2008/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy [2008] OJ L164/19.
 - 6 Council Directive 2014/89/EU of 23 July 2014 establishing a framework for maritime spatial planning [2014] OJ L257/135.
 - 7 MSFD preamble 22; European Parliament, 'European Parliament legislative resolution of 17 April 2014 on the proposal for a directive of the European Parliament and of the Council establishing a framework for maritime spatial planning and integrated coastal maritime spatial planning and integrated coastal management' COM (2013) 0133.
 - 8 See more on the programmatic approach F Groothuijse and R Uylenburg, 'Everything according to plan? Achieving environmental quality standards by a programmatic approach' in M Peeters and R Uylenburg (eds), *EU Environmental Legislation – Legal Perspectives on Regulatory Strategies* (Edward Elgar Publishing 2014) 116, 123–125 and 142–143; L Squintani and H van Rijswijk, 'Improving Legal Certainty and Adaptability in the Programmatic Approach' (2016) 28 *Journal of Environmental Law* 443, 444.
 - 9 See in the marine context AM Farmer and others, *KnowSeas. Knowledge-based Sustainable Management for Europe's Regional Seas. The Ecosystem Approach in Marine Management* (EU FP7 KnowSeas Project 2012) 5–9. Like the ecosystem approach, adaptive management is a broad concept, and consists of several components, see L Rist, BM Campbell and P Frost 'Adaptive management: where are we now?' (2012) 40(1) *Environmental Conservation* 5.

Management must be adaptive in order to be able to respond to such uncertainties and contain elements of “learning by doing” or research feedback.¹⁰

In other words, constant changes and uncertainties in ecosystems, or social systems dependant on them, do not allow for the law to settle aquatic management and planning practices with long-term certainty. If we are to achieve the policy goals set in aquatic environmental legislation – mainly the functioning of social ecological systems¹¹ – there is a need to make sure that this legislation is up to the task.

It seems safe to assert that “[t]he need for “adaptive law” – for law to be adaptive and resilient – is clear. What is not as clear, though, is what adaptive law would look like. What would be its primary features?”¹² In this chapter, we will first explore the linkages between resilience, adaptivity and the rule of law. This analysis will feed into establishing criteria for a systematic and analytical review of law’s resilience and adaptive capacity (the section ‘What does social ecological resilience require from the law?’). In the section ‘Resilience and adaptive capacity of WFD, MSFD and MSPD’, we evaluate the Water Framework Directive, the Marine Strategy Framework Directive, and the Maritime Spatial Planning Directive considering these criteria. Geographically, the analysis will cover an ecological continuum from a river basin to the sea, in other words fresh surface waters to coastal waters and marine waters. Groundwater is excluded from the analysis. By laying down the theoretical background and the regulatory design of these directives, we can dissect the possible shortcomings of the programmatic approach in attaining the ecosystem approach, and propose alterations to the legal frameworks in question (section ‘Conclusions

10 CBD-COP, Conference of the Parties 5 Decision V/6 ‘Ecosystem Approach’ 2000, (22 June 2000) UNEP/CBD/COP/5/23.

11 C Redman, MJ Grove and L Kuby, ‘Integrating Social Science into the Long Term Ecological Research (LTER) Network: Social Dimensions of Ecological Change and Ecological Dimensions of Social Change’ (2014) 7 *Ecosystems* 161, 163 define a social ecological system broadly: ‘In this expanded view, what we call the SES [Social Ecological System] is defined as: 1. a coherent system of biophysical and social factors that regularly interact in a resilient, sustained manner; 2. a system that is defined at several spatial, temporal, and organizational scales, which may be hierarchically linked; 3. a set of critical resources (natural, socioeconomic, and cultural) whose flow and use is regulated by a combination of ecological and social systems; and 4. a perpetually dynamic, complex system with continuous adaptation’.

12 GA Arnold and LH Gunderson, ‘Adaptive Law and Resilience’ (2013) 43 *Environmental Law Reporter* 10426, 10428.

and a way forward'). A resilience and adaptive capacity analysis of the three aquatic directives is especially timely as a regulatory (re-)evaluation of the WFD will take place in 2019, and the MSFD will be evaluated in 2023.¹³ This evaluation provides an opportunity for shifting the existing legal structures – where necessary – towards more adaptive aquatic governance.

2 What Does Social Ecological Resilience Require from the Law?

2.1 *Resilience and Adaptive Law*

Resilience is often defined as a characteristic of a system (whether social, cultural, economic, ecologic, legal)¹⁴ that can respond – and has the capacity to adapt – to changing circumstances without losing its core functions.¹⁵ Even though resilience is at its core a descriptive concept (a characteristic of systems) – and not all resilience in all the systems is desirable – the concept has normative implications in legal contexts. As many ecosystem functions are crucial for human survival and prospering, the law needs to safeguard some of these functions (i.e. desirable ecological resilience).¹⁶ In order to achieve this goal, law as a system needs to have capacity to adapt to changing social ecological circumstances in the systems it seeks to steer without losing its own core characteristics, such as coherence and due process (legal resilience). Designing regulation that has both resilience and adaptive capacity stands at the core of adaptive law theories.¹⁷ The idea is that law's resilience and adaptive capacity will support and maintain valuable resilience characteristics in social ecological systems the law seeks to steer.

¹³ WFD art. 19; MSFD art. 23.

¹⁴ See on the different systems AMH Clayton and NJ Radcliffe, *Sustainability: A Systems Approach* (Routledge 1996) 21; B Walker and others, 'A Handful of Heuristics and Some Propositions for Understanding Resilience in Social-Ecological Systems' (2006) 11 *Ecology & Society* 13, 14: 'Resilience is the capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity.'

¹⁵ RK Craig, "'Stationarity Is Dead' – Long Live Transformation: Five Principles for Climate Change Adaptation Law' (2010) 34 *Harvard Environmental Law Review* 9, 22; Intergovernmental panel on climate change, *Climate Change 2007: Impacts, Adaptation and Vulnerability* (Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press 2007) 727.

¹⁶ JB Ruhl, 'General Design Principles for Resilience and Adaptive Capacity in Legal Systems – With Applications to Climate Change Adaptation' (2011) 89 *North Carolina Law Review* 1373, 1381–1382.

¹⁷ See one of the early formulations of adaptive law, JB Ruhl, 'Thinking of Environmental Law as a Complex Adaptive System: How to Clean Up the Environment by Making a Mess of Environmental Law' (1997) 34 *Houston Law Review* 101, 105–106.

One – although incomplete – answer to the question of why the regulation and management of social ecological systems needs to be adaptive is that these systems are constantly changing, and there are considerable gaps and uncertainties in the human understanding of the systems.¹⁸ These uncertainties are caused, *inter alia*, by the lack of scientific data and understanding of biological systems, economic and social risks, and the dynamic and complex nature of social ecological systems.¹⁹ The constant changes and uncertainty need to be taken seriously, and regulated accordingly.²⁰

Some sceptics have questioned whether there is a need for any kind of management of social ecological systems, and whether we could cope with law that did not consider the social ecological consequences of regulation at all. These questions seem to merit in many cases a negative answer. As humans are not only managing social ecological systems, but are part of them affecting their functioning regardless of any management, there is a fundamental need to manage human actions toward and within these systems. Humans have changed and are changing the global ecosystem to such an extent that refraining from management is also a management decision, albeit a passive one. Without active management, human actions would at worst result in the downfall of the core functions of social ecological systems, or at the very least, in an inequitable distribution of costs and benefits emanating from their use. The only question we can rationally ask in this situation is how to manage social ecological systems, and how to regulate this process.²¹

18 CS Holling, *Adaptive Environmental Assessment and Management* (John Wiley and Sons 1978); CJ Walters, *Adaptive Management of Renewable Resources* (Macmillan 1986); L Rist and others, 'A New Paradigm for Adaptive Management' (2013) 18(4) *Ecology & Society* 63, 64.

19 Ruhl (n 17) 132; Rist and others (n 18) 71.

20 According to Hart, adaptivity is a necessary feature of all legal regulation: 'If the world in which we live were characterized only by a finite number of features, and these together with all the modes in which they could combine were known to us, then provision could be made in advance for every possibility. We could make rules, the application of which to particular cases never called for a further choice. Everything could be known, and for everything, since it could be known, something could be done and specified in advance by rule. This would be a world fit for 'mechanical' jurisprudence. Plainly this world is not our world; human legislators can have no such knowledge of all the possible combinations of circumstances which the future may bring. This inability to anticipate brings with it a relative indeterminacy of aim.' HLA Hart, *The Concept of Law* (2nd edition, Oxford University Press 1994) 128.

21 This is a somewhat contested claim as the Pardy – Ruhl debate demonstrates, see B Pardy, 'Changing Nature: The Myth of the Inevitability of Ecosystem Management' (2003) 20 *Pace Environmental Law Review* 675; JB Ruhl, 'The Myth of What is Inevitable Under Ecosystem Management: A Response to Pardy' (2004) 21 *Pace Environmental Law Review*

By way of conclusion, adaptive law seeks to establish a close linkage between scientific knowledge of the social ecological systems, and policy responses to their management.²² This requires knowledge of how social ecological systems function; how social, cultural, economic and ecological systems interact; and what kind of factors may threaten their core functions. The law needs procedural and substantive mechanisms that allow for new understandings of these different systems to penetrate aquatic management practices. To accomplish this, the core claim of adaptive law scholars is that the law needs to mimic the social ecological systems it seeks to regulate in order to be effective.²³

2.2 *The Rule of Science and the Law*

Regulatory tools that support resilience of social ecological systems, and their adaptive management, come in different shapes and sizes. First, we can distinguish between substantive and procedural tools.²⁴ From a substantive perspective, adaptive law theories often emphasise the need for diverse substantive goals (e.g. aiming on the one hand at protecting ecological processes, and on the other at economic or social uses of natural resources).²⁵ The legal tools of choice are often flexible standards or principles that allow managers discretion for considering the insights of the newest scientific knowledge, and changes in technology and values, in managing human actions toward and within the social ecological environment.²⁶

From a procedural perspective, law needs to cater for environmental management that facilitates learning. The management process must require

315; B Pardy, 'The Pardy-Ruhl Dialogue on Ecosystem Management Part v: Discretion, Complex-Adaptive Problem Solving and the Rule of Law' (2008) 25 *Pace Environmental Law Review* 341.

22 MH Benson, 'Integrating Adaptive Management and Oil and Gas Development: Existing Obstacles and Opportunities for Reform' (2009) 39 *Environmental Law Reporter* 10962: 'It is a method by which scientific research is incorporated in the management actions through an iterative process.' Most often environmental management is divided into trial & error-management, passive adaptive management, and active adaptive management. For a good overview of the separation between passive and active adaptive management, see BK Williams, 'Passive and active adaptive management: Approaches and an example' (2011) 92 *Journal of Environmental Management* 1371.

23 Ruhl (n 17) 108; AE Camacho and RL Glicksman, 'Legal Adaptive Capacity: How Program Goals and Processes Shape Federal Land Adaptation to Climate Change' (2016) 87(3) *University of Colorado Law Review* 711, 722.

24 See on the separation Ruhl (n 17) 155–159; JB Ruhl (n 16) 1382; E Biber and J Eagle, 'When Does Legal Flexibility Work in Environmental Law?' (2015) 42 *Ecology Law Quarterly* 787, 793–799.

25 Ruhl (n 17) 155–158; Arnold and Gunderson (n 12) 10429.

26 Arnold and Gunderson (n 12) 10436.

constant monitoring of the environment, its pressures, and the human – environment interactions, as well as feedback loops that facilitate the integration of new knowledge into developing management practices.²⁷ The accumulation of this knowledge is often not possible without involving scientists who have expertise from all the fields of science pertaining to the management of social ecological systems in question, public officials responsible for the management of natural resources, industries whose activities are concerned, and local people who have knowledge and preferences regarding the environment.

The link between adaptive management and the law is discussed in very diverse contexts. First, adaptivity of substantive and procedural law may be discussed at a project level pertaining to the adaptivity of environmental impact assessments, licensing and its conditions, and monitoring.²⁸ Second, it can be discussed at the level of plans and programmes seeking to facilitate effective and legitimate regulation of adaptive management of the environmental media more generally.²⁹ Bearing in mind the level of abstraction on which the regulation of adaptive management is discussed helps to avoid misunderstandings regarding the tools needed to manage social ecological resilience, or criteria used to measure law's resilience and adaptive capacity to this end.

In the context of aquatic environments, the need to facilitate the ecosystem approach through substantive and procedural regulation at the project level, and at the level of planning can be justified and illustrated by two examples, one from the management of rivers and migratory fish, and another from the management of diffuse pollution of the marine environment.

Illustrating the first example, freshwater ecosystems such as lakes and rivers have been historically subject to heavy structural alterations and usage. For instance in Finland, all the major rivers were licensed for damming to produce hydropower after the second world war, which resulted in a major loss of migratory fish species, such as salmon and trout.³⁰ Throughout their lifespan,

27 Ruhl (n 17) 158–159; Arnold and Gunderson (n 12) 10438–10442. On page 10440 they state: 'All four elements are critical: (1) continuous monitoring of multiple indicators of system functions and resilience; (2) assessment of data from monitoring; (3) scientific and social learning from the lessons that the monitoring and assessment provide about the effects of particular decisions or actions; and (4) adaptation of plans, policies, programs, management, governance, and laws based on these lessons learned.'

28 See e.g. M Olszynski, 'Failed Experiments: An Empirical Assessment of Adaptive Management in Alberta's Energy Resources Sector' (2017) 50 *University of British Columbia Law Review* 697.

29 See e.g. Squintani and van Rijswijk (n 8) 470.

30 B Jonsson and N Jonsson, 'Fennoscandian freshwater fisheries: diversity, use, threats and management' in JF Craig (ed), *Freshwater Fisheries Ecology* (Wiley Blackwell 2016) 105.

hydropower operations and the related licenses have enjoyed strict protection against administrative or legal review that would result in significant economic losses to the plant operator.³¹ In this way, the Finnish legal system has been highly resilient against the restoration of ecological flows and migratory fish species to the Finnish rivers, even though there is no lack of scientific knowledge of the harmful effects of damming on the fisheries and local livelihoods, recreation and tourism.³² Here, the permanence (maladaptivity) of earlier legislative, administrative and judicial decisions has resulted in the permanence of hydropower licenses. This example highlights that in some contexts adaptive management needs to deal with problems *caused by the law* and, from a present perspective, flawed scientific knowledge, rather than by the lack of (present) scientific knowledge. For this reason, adaptive management cannot always – or even often – begin on an empty slate. Maintaining the resilience of freshwater ecosystems, and social and cultural systems of the people relying on them, sometimes requires increasing substantive legal uncertainty.³³ Here, legal adaptive capacity and one of law's resilience trait (stability of social relations) stand in stark contrast and in need of reconciliation.

The second example of diffuse pollution, however, suggests that safeguarding valuable ecosystem resilience may require a somewhat different legal approach. This is well illustrated by the Baltic Sea which suffers from severe eutrophication.³⁴ Here, adaptive management often faces wicked problems caused by the complexity of diffuse pollution as marine waters are the natural drains for rivers and the land-based pollution contained therein.³⁵ In this context, there may be a need for increased legal certainty to address non-point source pollution by setting limitations, among others, on agricultural practices. Here, adaptivity may, in substantive terms, require legal certainty and strict legal rules to force adaptivity of agricultural practices that threaten the functioning of the marine ecosystem.³⁶

31 A Belinskij and N Soinenen, 'Bringing back ecological flows: The case of migratory fish and the Regulation of Hydropower in Finland' (2017) *X Ympäristöpolitiikan ja –oikeuden vuosikirja* 89, 93–94 (in Finnish).

32 *Ibid.*, 121–122.

33 This is essentially the argument that JB Ruhl made in one of his early papers on adaptive law, see Ruhl (n 17) 107–108.

34 HELCOM, *Eutrophication status of the Baltic Sea 2007–2011 – A concise thematic assessment* (Baltic Sea Environment Proceedings No. 143, HELCOM 2014) 5–6.

35 *Ibid.*

36 B Bohman, *Transboundary Law for Social-Ecological Resilience. A Study on Eutrophication in the Baltic Sea* (Stockholm University 2017) 388. A somewhat similar argument has been presented in discussing the application of art. 6 of the Habitats Directive (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild

Two observations can be made so far. First, the regulation of adaptive management is discussed in substantive and procedural terms, on different levels of abstraction, and in very different social ecological contexts. Stating the social ecological problems that adaptive management seeks to address is paramount for establishing what is required from the law. Without a clear picture of the illness, it is hard to administer a regulatory cure.

Second, environmental regulation should facilitate the inclusion of new scientific knowledge and account for the changes in social ecological systems while holding environmental managers and stakeholders accountable to the (rule of) law and legal certainty.³⁷ Legal certainty is important for mainly three reasons: 1) to safeguard legitimate expectations of different actors; 2) to control administrative and judicial powers; and 3) to effectively drive social ecological change in the world (e.g. change towards more effective waste – and run-off water treatment techniques). Without some predictability and permanence of what the law requires, no amount of scientific knowledge or changes in legislation will contribute to the effective achievement of the ecosystem approach (i.e. fostering desired resilience of social ecological systems) because science in itself does not have the force of the law.

To sum up, legal certainty can function as a crucial mechanism for driving adaptive (environmental) changes to social and economic practices, but it can also function as a hindrance to this adaptivity.³⁸ Adaptivity, then, has a dual meaning here. First, the law needs to be adaptive to social ecological changes and new knowledge. Second, social ecological systems under management need to be adaptive to the requirements of the law. While the first meaning of adaptivity often requires flexible laws, the second may require more strict laws. Environmental regulation needs to contain both if it is to be effective in effectively managing resilience of social ecological systems and attaining the

fauna and flora [1992] OJ L206/7). See H Schoukens, 'Ongoing activities and Natura 2000 Biodiversity Protection vs Legitimate Expectations?' (2014) 11 *Journal for European Environmental & Planning Law* 1 who argues that legal certainty of ongoing activities – such as dredging and forestry – cannot preclude the application of protection rules contained in art. 6 of the Habitats Directive. In other words, the Habitats Directive has (or at least should have) legal force to adapt existing land uses.

37 The rule of law enhances legal certainty in two arenas: between citizens and the government (vertical), and among citizens (horizontal). See J Waldron, 'The concept and the Rule of Law' (2008) 43 *Georgia Law Review* 1, 8–9.

38 See N Soininen, 'Torn by (un)certainity – Can there be peace between rule of law and other SDGs?' in D French and L Kotzé (eds), *Sustainable Development Goals: Law, Theory & Implementation* (Edward Elgar 2018) who analyses how different rule of law theories hinder adaptive management and regulation.

ecosystem approach to those systems. Law should be a careful combination of adaptivity and certainty, rule of science and the rule of law.

2.3 *Criteria for Evaluating the Resilience and Adaptive Capacity of Environmental Regulation*

Considering the substantive and procedural requirements for adaptive law, and requirements stemming from the rule of law, there is a need to establish how exactly one goes about measuring the resilience and adaptive capacity of environmental regulatory instruments. Academic literature and policy documents are rife with criteria for the task. In the following, we seek to synthesise briefly the main observations and requirements present in the discussion, before moving on to the analysis of the three aquatic EU-directives.

Perhaps not surprisingly, several accounts of legal resilience and adaptive capacity share characteristics. In substantive terms, law should have clear goals against which the legality of environmental management is judged. As discussed in the previous section, these goals must be diverse and must take simultaneously into account environmental, social, and economic aspects.³⁹ In general, there are two ways of accomplishing this. The first strategy sets goals of a narrow scope (e.g. purely ecological goals without social or economic considerations) coupled with an exemption regime to remove any undue tensions between different goals and regulatory instruments. The second strategy is to set goals so broad that they can deal with differing environmental, societal and economic needs at the outset. Needless to say, the former regulatory design is much easier to enforce, but may put too much weight on safeguarding ecological resilience at the cost of social and economic resilience (e.g. if public works, such as roads, bridges, production of electricity, or other societally important projects would be weighed against narrow ecological goals).

Procedurally, there would seem to be a rather uniform understanding that regulatory resilience and adaptive capacity require establishing an iterative management process that facilitates learning. The main procedural goals are to reduce scientific uncertainty while securing the rights to information, participation, and access to justice for stakeholders.⁴⁰ It is crucial that these

39 See e.g. Craig (n 15) 40–69; Arnold and Gunderson (n 12) 10428–10432; J McDonald and MC Styles, 'Legal Strategies for Adaptive Management under Climate Change' (2014) 26 *Journal of Environmental Law* 25, 41–42.

40 Ruhl (n 16) 1394–1397; AM Keessen and HFMW van Rijswijk, 'Adaptation to Climate Change in European Water Law and Policy' (2012) 8(3) *Utrecht Law Review* 38, 41; Arnold and Gunderson (n 12) 10432–10442; McDonald and MC Styles (n 39) 41–51; Squintani and van Rijswijk (n 8) 446.

iterative processes are accompanied by constant monitoring of the environmental media, as well as human pressures affecting them.⁴¹ There is also a need for long-term planning processes that are closely linked to substantive regulatory goals and environmental management practices, and integrated and connected across environmental media, sectors, interests and governments.⁴² This connectivity is often understood in terms of linking the different sectors of governance at domestic and transboundary scales, as well as involving the private sector in designing and making governance functional.⁴³

Bridging substance and procedure, Robin Craig has suggested that regulatory resilience requires societies to prepare for known unknowns and unknown unknowns (black swans) in environmental management by seeking to boost social ecological resilience where possible, based on scientific knowledge that *is* available. Building social ecological buffers by improving marine and freshwater biodiversity and improving the chemical composition of the water may help in responding and adapting to future changes, including those caused by climate change.⁴⁴

It is also rather widely acknowledged that regulatory resilience and adaptive capacity are tied to the utilisation of policy instruments outside the scope of direct (legal) regulation. In particular, economic, but also purely voluntary, instruments, such as dissemination of information, are considered crucial complements to the policy mix, in addition to direct regulation.⁴⁵ Overall, governance seeking to safeguard the core functions of social ecological systems needs to facilitate polycentric sources of power and a versatile choice of policy instruments which foster innovative responses to constantly evolving social ecological challenges.⁴⁶

In addition, to facilitate effective enforcement, both substantive and procedural goals must be accompanied by implementing rules – or objectives themselves must be legally binding – to foster compliance with adaptive aquatic planning and management. Furthermore, environmental regulations must set

41 Craig (n 15) 40–43.

42 Ibid., 53–63. See also Keessen and van Rijswick (n 40) 41.

43 K Pasteur, *From Vulnerability to Resilience. A framework for analysis and action to build community resilience* (Practical Action Publishing 2011) 4; UN Water (2017) *Water, Food and Energy* <<http://www.unwater.org/water-facts/water-food-and-energy/>> accessed 22 September 2017.

44 Craig (n 15) 43–53.

45 Arnold and Gunderson (n 12) 10432–10436.

46 Ibid., 10436.

certain time limits for reaching the goals, and be linked to obligations and penalties in a case of non-compliance.⁴⁷

Finally, it is important to safeguard a degree of coherence between legal instruments. A coherent understanding of resilience and adaptive capacity in law and governance plays an important part especially in geographical areas where several regulatory and/or governance arrangements overlap.⁴⁸ In our view, coherence is linked to most of the analysis categories presented above. First, substantive coherence is needed to prioritise and/or reconcile mismatching and contradictory substantive goals. Second, coherence is procedurally desirable for facilitating transboundary compatibility of regulation, and easier transposition and implementation of international and transnational legislation at state and local levels. Third, coherence of enforcement regulation may be desirable in supporting the achievement of transboundary legal and policy goals.

Overall, the above set of resilience and adaptive capacity criteria is mostly based on adaptive law and governance literature which often takes a rather critical view towards the rule of law – at least if considered as protecting legitimate expectations based on old laws that are, under present scientific knowledge, misguided in their regulation.⁴⁹ In its most archaic form, the rule of law is seen to require certainty of management decisions, as well as access to courts.⁵⁰ Crudely speaking, the rule of law is said to require permanence of

47 Squintani and van Rijswijk (n 8) 446.

48 Given the degree of fragmentation in international, European Union and national environmental law, it is crucial to safeguard coherence within and between pieces of legislation, see House of Lords Committee, European Union Committee, 'The North Sea under pressure: is regional marine co-operation the answer?' (10th Report of Session 2014–15, House of Lords paper 137, 2015) 94–95. See also FM Platjouw, 'Transboundary marine spatial planning in the North Sea – Are national policies and legal structures compatible enough? The case of Norway and the Netherlands' (2018) 33(1) *International Journal of Marine and Coastal Law* 34. See also Keessen and van Rijswijk (n 40) 39. This coherence must, however, be limited by the characteristics of the social ecological environment that is being regulated, see in more detail section 'The rule of science and the law' above.

49 See Craig (n 15) 64–66. Many of the regulatory resilience and adaptive capacity criteria presented above are also visible in EU's aquatic policy, see European Commission, 'Adapting to climate change: Towards a European framework for action, COM (2009) 147 final 7–16. According to the White Paper, climate change adaptation requires: 1. building the knowledge base; 2. integrating adaptation into EU policy; 3. Increasing the resilience of coastal and marine areas as well as biodiversity, ecosystems and water; 4. employing a combination of policy instruments, and; 4. promoting international coordination on adaptation.

50 See J Ebbesson, 'The rule of law in governance of complex socio-ecological changes' (2010) 20 *Global Environmental Change* (3) 414; B Cosens, 'Transboundary River Governance in

existing management decisions, as well as predictability and foreseeability of new ones.⁵¹

While access to court as a procedural criterion is reconcilable with law's adaptive capacity, permanence (finality) of old and new management decisions is not necessarily so. Against this background, it is no surprise that many legal analyses of resilience and adaptive capacity have turned on procedural certainty, while maintaining the position that substantive questions will have to be somewhat open in the face of scientific and policy uncertainties faced in aquatic planning and management.⁵² As always, overly flexible rules are feared because of the discretion left to environmental managers to choose – considering the best science – which management options best satisfy the regulatory goals. While this is a legitimate concern, it bears remembering that the rule of law is no singular concept. The formal conceptions of the rule of law require clear and foreseeable rules, but the procedural conception of the rule of law – which maintains that substantive rules may be uncertain if due process is followed in their application – downplays the controversy between the adaptive capacity of the law and the rule of law.⁵³ So, too, does the fact that law's resilience requires predictability and permanence from the rules in certain contexts (as opposed to always requiring adaptivity), as demonstrated in section 'The rule of science and the law' above.

From a formal rule of law perspective, it is also important to remember that adaptive law as a theoretical concept is neutral in the sense that it sometimes furthers the cause of the environmentalist (case of bringing back ecological flows to Finnish rivers, and regulating diffuse pollution of the marine environment), and on other occasions the cause of the industrialist (derogating from strict nature conservation for economic and social purposes). The policy choices made in the design of regulatory goals and tools, as well as science

the Face of Uncertainty: Resilience Theory and the Columbia River Treaty' (2010) 30(2) *Journal of Land Resources and Environmental Law* 229.

51 HC Bugge, 'Twelve Fundamental Challenges in Environmental Law' in C Voigt (ed), *Rule of Law for Nature. New Dimensions and Ideas in Environmental Law* (Cambridge University Press 2013) 3, 7–8. For many adaptive law scholars, this dichotomy between legal certainty and uncertainty would be too crude. For instance, Keessen and van Rijswijk (n 40) 40–41 state that there is a need for the law to facilitate changes in old (poorly guided) environmental management decisions while retaining to the requirement of substantive legal certainty.

52 See e.g. Keessen and van Rijswijk (n 40) 41–44 analyzing the importance of multilevel governance, information, participation and access to justice in European water policy. They argue that rule of law sets mainly procedural criteria for resilience, mainly certainty of the laws and access to justice.

53 See Soininen (n 38).

regarding the social ecological systems, lock down the answers to the question of whose side adaptivity resides on.

Based on the above discussion, our legal resilience and adaptive capacity criteria are as follows:

TABLE 2.1 Criteria for analysing resilience and adaptive capacity of legal instruments

<p style="text-align: center;">Substance</p> <ol style="list-style-type: none"> 1. Plurality of goals, or goals of narrow scope coupled with exemptions; 2. Discretion to adjust management in light of new scientific knowledge. 	<p style="text-align: center;">Procedure</p> <ol style="list-style-type: none"> 1. Increasing knowledge; 2. Iteration; 3. Crossing sectoral, jurisdictional and public/private boundaries; 4. Access to information and justice.
<p>Regulatory resilience and adaptivity</p>	
<p style="text-align: center;">Instrument choice</p> <ol style="list-style-type: none"> 1. Direct regulation coupled with economic and voluntary instruments. 	<p style="text-align: center;">Enforcement</p> <ol style="list-style-type: none"> 1. Legally binding and specific obligations to achieve procedural and substantive goals; 2. Time limits for goals; 3. Sanctioning of non-compliance.

In the following sections we analyse, using the above criteria, the extent to which the European Water Framework Directive, the Marine Strategy Framework Directive, and the Maritime Spatial Planning Directive fulfil these criteria. Each sub-section in 'Resilience and adaptive capacity of WFD, MSFD and MSPD' begins with a brief overview of each directive followed by the resilience and adaptive capacity analysis. In the section 'Comparing the resilience and adaptive capacity of the three directives' we compare the directives in light of these criteria. Finally, in the section 'Conclusions and a way forward', we evaluate which directive(s) should be used as a model for the future regulatory designs in the field of water and marine policy.

3 Resilience and Adaptive Capacity of WFD, MSFD and MSPD

3.1 *Water Framework Directive*

The Water Framework Directive marks a significant change in the European governance of inland surface waters, coastal waters and transitional waters.⁵⁴

⁵⁴ Squintani and van Rijswijk (n 8) 455–456.

Instead of a sectorally fragmented system of governance based on administrative and national boundaries, the directive adopts a holistic approach to aquatic environmental protection and regulation.⁵⁵ It requires EU member states to establish river basin districts that are based on geographical and hydrological criteria instead of administrative or political boundaries.

The directive aims at achieving, among other things, Good Ecological Status (GES) of all the said waters by 2015 or, failing that, by 2021 (or 2027 at the latest).⁵⁶ Simultaneously, all the waters are regulated by the non-deterioration clause, which requires EU member states to implement all the necessary measures to prevent the further deterioration of the water bodies.⁵⁷

In the WFD-system, the assessment of ecological status is primarily based on three or four Biological Quality Elements (BQEs) depending on the water body in question. In the context of lakes, the BQEs comprise of 1) Composition, abundance and biomass of phytoplankton; 2) Composition and abundance of other aquatic flora; 3) Composition and abundance of benthic invertebrate fauna; and 4) Composition, abundance and age structure of fish fauna. Good Ecological Status requires, on a general level, that the BQEs show only a low level of distortion resulting from human activity.⁵⁸ With regard to fish fauna, for instance, the GES requires that there are only slight changes in species composition and abundance attributable to anthropogenic impacts.⁵⁹ In addition to the BQEs, physical-chemical and hydro-morphological quality elements must also be considered in the assessment of the GES. This evaluation must consider 1) the quality of the structure and functioning of aquatic ecosystems associated with surface waters; 2) the physical-chemical nature of the water and sediment; 3) the flow characteristics of the water; and 4) the physical structure of water bodies.⁶⁰

The substantive goal of good ecological status is implemented via several procedural requirements. First, the directive requires the member states to identify all the river basins in their area, and to ensure appropriate administrative arrangements, including the identification of competent authorities responsible for implementing the WFD.⁶¹ Second, member states must conduct an analysis of the characteristics of each water body, a review of the

55 Keessen and van Rijswijk (n 40) 41–42.

56 WFD art. 4.1(a)(ii); art. 4.1(b)(ii). See on the time limits also Squintani and van Rijswijk (n 8) 461–462. The directive's other goals, mainly the good chemical status and the good ecological potential, will not be discussed here.

57 WFD art. 4.1(a)(i); art. 4.1(b)(i).

58 WFD annex v.

59 WFD annex v.

60 WFD annex v.

61 WFD art. 3.1; 3.2.

impact of human activity on the status of waters, and an economic analysis of water use in each river basin.⁶²

Third, member states must establish a register of all areas lying within each river basin district which have been designated as requiring special protection under specific EU legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water.⁶³ Fourth, member states shall identify, within each river basin all bodies of water used for the abstraction of water intended for human consumption providing more than 10 m³ a day as an average or serving more than 50 persons, and those bodies of water intended for such future use.⁶⁴

Fifth, member states must establish programmes for the monitoring of the water status.⁶⁵ These monitoring programmes are directly linked to a programme of measures which must also be established for each river basin. Each programme of measures shall include the basic measures and, where necessary, supplementary measures to achieve the ecological objectives of the directive.⁶⁶ Where monitoring or other data indicate that the objectives set under WFD art. 4 for the body of water are unlikely to be achieved, the member state shall ensure that the causes of the possible failure are investigated, relevant permits and authorisations are examined and reviewed as appropriate, the monitoring programmes are reviewed and adjusted as appropriate, and additional measures as may be necessary to achieve those objectives are established.⁶⁷

Finally, member states shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory.⁶⁸ The river basin management plan shall include the information detailed in WFD annex VII.⁶⁹ In practice, a river basin management plan is a summary of the procedural obligations set by the directive.⁷⁰

62 WFD art. 5.1.

63 WFD art. 6.1.

64 WFD art. 7.1.

65 WFD art. 8.1.

66 WFD art. 11.1; 11.2.

67 WFD art. 11.5.

68 WFD art. 13.1.

69 WFD art. 13.4.

70 According to WFD art. 13, a river basin management plan must include: 1) a general description of the characteristics of the river basin; 2) mapping the location and boundaries of surface water and groundwater bodies, mapping of the ecoregions and surface water body types within the river basin, identification of reference conditions for the surface water body types; 3) a summary of significant pressures and impact of human activity on the status of surface water and groundwater; 4) identification and mapping of

The legal resilience and adaptive capacity criteria established above in section 'Criteria for evaluating the resilience and adaptive capacity of environmental regulation' are visible throughout the directive. Substantively, the ecological emphasis of the goal (good ecological status of waters) is clear from a regulatory perspective, but some scholars have criticised the achievement of good ecological status as being unrealistic.⁷¹ Furthermore, the ecological goals of the directive may be too narrow to facilitate *social* ecological resilience. To accommodate a more balanced set of goals (as required by the first analysis criteria), WFD art. 4 contains exemptions from the ecological goals. These exemptions can be justified, *inter alia*, by force majeure, reasons of overriding public interest, or if the failure to achieve the goals is not within the powers of a member state (i.e. actions of other states are causing the failure to achieve the goals).⁷² The exemption system of the WFD does contain potential to balance different aspects of social ecological systems, but it involves risks, too. Too broad an interpretation of the exemptions would water down the ecological goals of the directive, while too narrow an interpretation could be harmful for achieving social and economic goals outside the scope of the directive.⁷³ Overall, the substantive goals of the directive contain great potential for social ecological resilience, but also possible pitfalls. However, a more precise evaluation of the directive's resilience and adaptive capacity will have to wait until more experiences from the implementation of the directive, and the exemptions, are at hand.

The procedural framework of the WFD meets most resilience and adaptive capacity criteria as well. The directive contains several mechanisms for accumulating knowledge of the water bodies. First, the definition of good

protected areas; 5) a map of the monitoring networks established; 6) a list of the environmental objectives established under article 4 of the WFD; 7) a summary of the economic analysis of water use; 8) a summary of the programme(s) of measures adopted; 9) a summary of the public information and consultation measures taken, their results and the changes to the plan made as a consequence; 10) a list of competent authorities; and finally 11) the contact points and procedures for obtaining the background documentation and information.

71 D Paganelli and others, 'Critical appraisal on the identification of Reference Conditions for the evaluation of ecological quality status along the Emilia-Romagna coast (Italy) using M-AMBI' (2011) 62(8) *Marine Pollution Bulletin* 1725.

72 WFD art. 4.4–4.7. See also Squintani and van Rijswijk (n 8) 463–464.

73 Many of the exemption clauses under WFD art. 4 are tied to a 'disproportionate cost' – requirement which has been criticised for being too adaptive and discretionary for the member states considering the ecological goals of the directive, see Squintani and van Rijswijk (n 8) 463.

ecological status is mostly based on natural sciences,⁷⁴ but an economic analysis of the use of waters is also required.⁷⁵ Second, the directive requires the establishment of monitoring programmes that provide information on the status of waters. Based on constant monitoring, the analysis of the characteristics of waters, the review of human impacts, and the economic analysis of water uses shall be reviewed every six years.⁷⁶ A similar re-evaluation interval is set for the reasons for granting exemptions from the goals of the directive, for the programmes of measures, and the overarching river basin management plan. Overall, the directive meets – at least on paper – the first two procedural criteria.⁷⁷

Crossing sectoral, public/private and jurisdictional boundaries in planning is safeguarded through several mechanisms. First, member states must establish an authority (or multiple authorities) for carrying out the obligations set in the WFD.⁷⁸ Second, member states have an obligation to encourage the active involvement of all interested parties in the implementation of the directive. This means other sectoral authorities whose activities are affected by river basin management planning, EU institutions (mainly the Commission), industries, and the public.⁷⁹

Access to information is secured by requiring member states to publish and make available for comments to the public a timetable and work programme for the production of the plan, an interim overview of the significant water management issues identified in the river basin, and draft copies of the river basin management plan.⁸⁰ Transparency at an early stage of planning is desirable as it increases local knowledge in the planning process, and may reduce future legal challenges.⁸¹

Some authors have criticised the directive for not containing provisions on access to justice.⁸² More specifically, the question has been whether EU-citizens have a right of appeal to enforce the WFD on procedural grounds only (if the planning *process* violates EU-law), or whether the right of appeal also contains substantive grounds. Currently, the prevailing view is that the WFD

74 WFD annex II and v.

75 WFD annex III.

76 WFD art. 5.2.

77 WFD art. 4.7(b); 11.8; 13.7.

78 WFD art. 3.2–3.3; annex I.

79 WFD art. 3.3–3.5; 3.9; 12.1; 13.2; 14.1; 15; 24.1.

80 WFD art. 14.1. See also European Commission, 'Common Implementation Strategy for the Water Framework Directive (2000/60/EC). Guidance document no. 8 Public Participation in relation to the Water Framework Directive (Office for Official Publications 2003).

81 Squintani and van Rijswijk (n 8) 459.

82 *Ibid.*, 459.

establishes for EU citizens a right to enforce the procedural establishment of plans and programmes required by the WFD.⁸³ After the decision of the Court of Justice of the European Union (CJEU) in the *Weser* case it seems that – as the substantive goals of the directive are legally binding – citizens would have access to court on substantive grounds as well.⁸⁴

Evaluating the third resilience and adaptive capacity criterion (instrument choice), the WFD is based on direct regulation coupled with economic instruments. WFD art. 5.1 requires member states to conduct an economic analysis of water uses in their river basin districts and to take account of the principle of recovery of costs in designing their national legislation.⁸⁵ In this way, some aspects of the third analysis criteria are present on paper but their functionality has been criticised in practice. Keessen and van Rijswijk argue that in most EU-countries economic instruments regarding the use of water are not extended beyond payments for drinking water.⁸⁶ The CJEU has emphasised that the cost recovery of water uses is not limited, as per the WFD, to the use of water for drinking. The obligation to price different water uses depends, however, on whether the directive's goals can be achieved without pricing or not.⁸⁷

The fourth resilience and adaptive capacity criterion (enforcement) is secured by procedural and substantive grounds, as discussed above. Furthermore, enforcement is secured by legally binding time limits for the member states in reaching the substantive and procedural goals of the directive.⁸⁸ Finally, the non-compliance of member states is monitored by the Commission (art. 17 TEU⁸⁹), and sanctioned by art. 258 of the TFEU under which the European Commission may bring a case before the CJEU after first giving the member state concerned the opportunity to submit observations on its alleged infringement of EU law. While the enforcement of the directive will most

83 See Case 237/07 *Dieter Janecek v Freistaat Bayern* [2008] ECLI:EU:C:2008:447, and on the analysis Keessen and van Rijswijk (n 40) 44.

84 Case 461/13, *Bund für Umwelt und Naturschutz Deutschland eV v Bundesrepublik Deutschland* [2015] ECLI:EU:C:2015, 433. See on the analysis of the case T Paloniitty, 'The Weser Case: Case C-461/13 BUND V GERMANY' (2016) 28(1) *Journal of Environmental Law* 151.

85 WFD art. 9.1.

86 Keessen and van Rijswijk (n 40) 43.

87 See Case 525/12, *European Commission v Federal Republic of Germany* [2014] ECLI:EU:C:2014:2202. See on the analysis of the case, A Belinskij, 'Recovery of costs for water uses at the different levels of water law' in E Hollo (ed), *Water Resource Management and the Law* (Edward Elgar 2017) 213.

88 WFD 4.4–4.5; 4.7–4.8; 5.1; 8.2; 9.1; 11.7; 24.1.

89 Treaty on the Functioning of the European Union (2007) (consolidated version) 2012 OJ C 326/47.

likely be connected to the procedural implementation of the directive, a door for substantive enforcement has been opened after the *Weser* case.

Finally, the WFD seeks to safeguard coherence towards other EU-law by establishing an integrated overall framework for water management.⁹⁰ The WFD does not contain regulatory links to the marine directives (MSFD and MSPD) for the obvious reason that it was adopted several years prior to them. For this reason, securing cross-regulatory coherence falls on the marine directives. The resilience and adaptive capacity of these directives will be analysed in the next two sub-sections.

3.2 *Marine Strategy Framework Directive*

The Marine Strategy Framework Directive was adopted on 17 June 2008, after an extensive consultation process including EU member states, third countries, international organisations, key industry and civil society actors, as well as members of the scientific community.⁹¹ The directive establishes a framework requiring member states to achieve Good Environmental Status (GES) of their marine waters by 2020.⁹² The ultimate goal of the directive is to maintain biodiversity of the seas that are clean, healthy and productive, and to secure sustainable use of the European seas.⁹³ The Commission has emphasised that in all community and state actions, priority should be given to achieving or maintaining the GES.⁹⁴ The Good Environmental Status is defined by the following factors: 1) biological diversity; 2) the level of non-indigenous species; 3) populations of commercial fish and shellfish; 4) elements of marine food webs; 5) eutrophication; 6) sea floor integrity; 7) alteration of hydrographical conditions; 8) contaminants; 9) contaminants in fish and seafood for human consumption; 10) marine litter; 11) introduction of energy, including underwater noise.⁹⁵

The main driver for adopting the directive was to prevent a significant deterioration of the marine environment,⁹⁶ which, in turn, would jeopardise the very basis on which a large part of the European blue economy stands. Second, the directive seeks to tackle sectoral fragmentation of marine environmental

90 Squintani and van Rijswijk (n 8) 456.

91 European Commission, 'Proposal for a Directive of the European Parliament and of the Council establishing a framework for Community Action in the Field of Marine Environmental Policy (Marine Strategy Directive)' (Communication) COM (2005) 505 final 2–3.

92 MSFD art. 1.1.

93 MSFD preamble 3 and 4.

94 MSFD preamble 8.

95 MSFD annex I.

96 European Commission (n 91) 2.

governance.⁹⁷ Third, the Commission saw a need to adopt the MSFD to fulfil compliance with the EU's international obligations under the Convention on Biodiversity,⁹⁸ as well as under several regional seas conventions.⁹⁹

The substantive goal of GES is implemented via several procedural requirements. Procedurally, the directive requires: 1) the establishment of national contact points;¹⁰⁰ 2) assessment of the ecological condition of the marine areas and drivers affecting it;¹⁰¹ 3) establishment of criteria for measuring the GES;¹⁰² 4) programmes of measures to maintain and reach the GES;¹⁰³ and 5) a monitoring programme tasked to keep track of the condition of the marine environment.¹⁰⁴ The preamble of the MSFD emphasises the role of the programmes of measures describing them as the 'culmination point' for achieving the GES.

Safeguarding the resilience of the marine environment takes central place in the directive. Substantively (the first analysis criterion), the directive seeks to safeguard the functioning of marine ecosystems. It is the marine sister of the WFD.¹⁰⁵ Similarly to the WFD, the MSFD contains an exemption regime for action or inaction beyond the powers of a member state due to natural causes, force majeure, and projects of overriding public interest.¹⁰⁶ From a resilience perspective, the biggest substantive question is whether the goals of the MSFD are legally binding on the member states. If they are not binding, the directive risks failing to deliver on adaptation of existing uses of the marine environment into a more ecologically sustainable path.¹⁰⁷ The Marine Strategy of Finland, for example, clearly states that the Good Environmental Status cannot be achieved, on all accounts, by 2020 as required by the directive.¹⁰⁸ In

97 Ibid.

98 The Convention on Biological Diversity (adopted 22 May 1992, entered into force 29 December 1993) 1760 UNTS 79.

99 European Commission (n 91) 10–11.

100 MSFD art. 7.

101 MSFD art. 8.

102 MSFD art. 9.

103 MSFD art. 11.

104 MSFD art. 13.

105 See on the comparison also Bohman (n 39) 19–20, 80 and 151.

106 MSFD art. 14.1.

107 The present ecological condition of the Baltic Sea is a fine example of the current management and regulatory problems, and the need for more stringent regulatory tools, see HELCOM, *Ecosystem Health of the Baltic Sea. HELCOM Initial Holistic Assessment* (Baltic Sea Environment Proceedings No. 122, 2010).

108 Programme of measures of the Finnish marine strategy 2016–2021, 4 <http://www.ymparisto.fi/en-US/Sea/Protection_and_management_of_the_marine_environment/Development_of_Finlands_marine_strategy> accessed 20 September 2017.

short, the MSFD goals may allow for too much discretion at present to enable support for and maintenance of desirable ecological resilience.¹⁰⁹

Procedurally (the second analysis criterion), the directive sets clear obligations for the member states to study and constantly monitor the condition of the marine environment and the pressures affecting it.¹¹⁰ The states must also establish specific environmental quality targets for their marine areas and introduce measures taking them towards GES. This whole process must be iterated at least every six years taking into consideration the latest scientific knowledge.¹¹¹ The need for an adaptive planning process established by the directive is a testament to the uncertainties underlining marine planning and management.¹¹² There is knowledge of the changes that are harmful, and of their drivers,¹¹³ but their cumulative effects and non-linear changes are uncertain. For this reason, the procedural framework needs to allow for developing science and societal needs to be integrated into the marine planning and management processes. In line with resilience principles, the directive emphasises the role of interdisciplinary marine scientific research and monitoring in informed policy making.¹¹⁴ To allow for adaptivity to new scientific knowledge, the Commission is empowered to adapt annexes III, IV and V – which establish methodology and criteria for the GES and the monitoring of the marine environment – to scientific and technological progress.¹¹⁵

The marine strategy process is run either by a single authority or multiple authorities at the member state level.¹¹⁶ In establishing the programmes of

109 Bohman (n 36) 155–156.

110 Scholars are presently seeking to establish general criteria for the monitoring of the marine environment and the impact assessment of human activities, see e.g. A Borja and others, 'Overview of Integrative Assessment of Marine Systems: The Ecosystem Approach in Practice' (2016) 3 *Frontiers in Marine Science* 1.

111 MSFD art. 17.2.

112 The preamble 34 of MSFD establishes that '[i]n view of the dynamic nature of marine ecosystems and their natural variability, and given that the pressures and impacts on them may vary with the evolution of different patterns of human activity and the impact of climate change, it is essential to recognise that the determination of good environmental status may have to be adapted over time'.

113 European Commission (n 91) 4–5: 'The principal threats to the marine environment that were identified include effects of climate change; impacts of commercial fishing; oil spills and discharges; introduction of non-native species; eutrophication and the related growth of harmful algal blooms; litter pollution; contamination by dangerous substances and microbiological pollution; radionuclide discharges; and noise pollution.' The result of this analysis was that the European seas are 'at high risk'.

114 MSFD preamble 23; MSFD annex I, III and IV.

115 MSFD art. 24.1.

116 MSFD art. 7.1.

measures, member states are obliged to consult competent authorities in the field of water and nature conservation policy. The inclusion of other sectoral authorities in planning is left to the discretion of the member states.¹¹⁷ In addition, member states shall, where practical and appropriate, use existing regional institutional cooperation structures, including those under Regional Sea Conventions, covering the relevant marine region or subregion.¹¹⁸ The directive also embraces – at least as a matter of black letter law – an inclusive approach towards stakeholder and public participation. Member states shall ensure that all interested parties are given early and effective opportunities to participate in the implementation of the MSFD.¹¹⁹ This means that member states shall publish, and make available to the public for comment, summaries of the initial assessment and the determination of good environmental status, environmental targets, monitoring programmes, and programmes of measures.¹²⁰

Overall, the inclusion of several sectoral authorities at the national and international levels is secured, as is public access to information. It is unlikely, however, that stakeholders or the public would have access to court on any other than procedural grounds. At some point, the CJEU will likely be asked to deliberate on this issue. From a procedural resilience and adaptive capacity perspective, then, the MSFD is a mixed bag containing most of the crucial elements but some potential challenges, too.

Considering the third analysis criterion (instrument choice), the directive combines direct regulation with the latest available science. Economic instruments are required in evaluating the alternative costs of degrading marine environments if no action is taken towards improving the ecological condition.¹²¹ The member states shall also ensure that measures to achieve or maintain GES are cost-effective and technically feasible, and shall carry out impact assessments, including cost-benefit analyses, prior to the introduction of any new measure.¹²² The directive does not, however, explicitly link such economic analysis to the management (e.g. licensing) of development activities in marine areas.

Evaluating the fourth analysis criterion (enforcement), the Commission opted for a framework directive, instead of a regulation or a more prescriptive directive, as it saw that these two regulatory strategies would have neglected

117 MSFD art. 13.2; 13.4.

118 MSFD art. 6.1. See also Bohman (n 36) 153–154.

119 MSFD art. 19.1.

120 MSFD art. 19.2.

121 MSFD art. 8.1(c).

122 MSFD 13.3(2).

‘the diversity of conditions and needs in the EU’s marine environment by not allowing Member States to make a number of policy choices for implementation at regional level.’¹²³ It did, however, leave broad discretion to the member states to derogate from the GES if reasons outside the powers of individual member states prohibited them from taking effective action.¹²⁴ It also acknowledged that the GES may not be achieved by 2020 throughout the EU.¹²⁵

To safeguard some level of enforcement, the Commission did not opt for a non-binding recommendation because it was not convinced that the member states would commit to ‘rigorous implementation’ of the regulatory goals in the absence of any binding obligations.¹²⁶ Rather, the directive may be enforced on procedural grounds if a member state fails to transpose the directive into its national legislation, or fails to establish the procedures required by the MSFD. Substantive enforcement is, however, uncertain. If the CJEU adopts a similar approach to the substantive bindingness of the MSFD goals as it did regarding the goals of the WFD in the *Weser* case, the MSFD will come to have a significant role in improving the ecological condition of the European seas by adapting unsustainable marine management through increased ecological certainty.¹²⁷ This is, however, unlikely since, first, the WFD is written substantively in much more binding language than the MSFD. Second the WFD is much more detailed and technical compared to the MSFD. Third the MSFD places heavier emphasis on the marine planning procedure, at the expense of substantive obligations.¹²⁸

Finally, the MSFD emphasises the need for coherence across EU’s policy sectors (the fifth analysis criterion).¹²⁹ On a more concrete level, this is visible in: 1) demarcating the regulatory line between the WFD and the MSFD regarding coastal waters;¹³⁰ 2) the role of nature conservation established under the

123 European Commission (n 91) 7.

124 MSFD preamble 30–31 includes two justifications for not acting to achieve the goals: 1) action or inaction or other countries of which MS is not responsible, force majeure, overriding national interest, or natural conditions do not permit the achievement of the goals (preamble (30)); 2) EU-wide or international action needed (preamble (31)).

125 MSFD preamble 29.

126 European Commission (n 91) 7.

127 Case 461/13, *Bund für Umwelt und Naturschutz Deutschland eV v Bundesrepublik Deutschland* [2015] ECLI:EU:C:2015:433.

128 See in detail Table 2.2.

129 MSFD preamble 9.

130 MSFD preamble 12.

Habitats Directive¹³¹ and the Birds Directive¹³² for achieving the GES;¹³³ 3) a requirement to consider the effects of the Common Fisheries Policy on the GES;¹³⁴ 4) an obligation for transboundary marine planning and management;¹³⁵ and 5) an obligation to develop common EU-wide methodology for establishing the GES and monitoring the marine environment.¹³⁶ With these provisions, the MSFD is well on its way to providing a sound regulatory basis for coherence between legal instruments that have an aquatic environmental agenda.¹³⁷ Coherence with instruments embracing socio-economic goals may, however, be a different story. We analyse one such instrument, the MSPD, in the following sub-section.

3.3 *Maritime Spatial Planning Directive*

On 23 April 2014, the parliament and the council adopted the Framework Directive for Maritime Spatial Planning, establishing an EU-wide framework for MSP.¹³⁸ The MSPD recognizes that

[t]he high and rapidly increasing demand for maritime space for different purposes, such as installations for the production of energy from renewable sources, oil and gas exploration and exploitation, maritime shipping and fishing activities, ecosystem and biodiversity conservation, the extraction of raw materials, tourism, aquaculture installations and underwater cultural heritage, as well as the multiple pressures on coastal resources, require an integrated planning and management approach.¹³⁹

131 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [1992] OJ L 206/7.

132 Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [2009] OJ L 20/7.

133 MSFD preamble 6.

134 MSFD preamble 40.

135 MSFD preamble 13.

136 MSFD preamble 25.

137 The integrative role of the MSFD has also been highlighted by Bohman (n 36) 156–159.

138 Most commonly, MSP is referred to as *marine* spatial planning but the Commission of the European Union – and accordingly the MSPD – uses the concept of *maritime* spatial planning to refer to the same instrument. See on the conceptual differences between the EU and other parts of the world, H Backer, ‘Trans-boundary Maritime Spatial Planning: a Baltic Sea Perspective’ (2011) 15 *Journal of Coastal Conservation* 279.

139 MSPD preamble 1.

Marine spatial planning has been identified as a cross-sectoral tool supporting the implementation of an Integrated Maritime Policy in the EU.¹⁴⁰ MSP has been described as ‘an integrated and balanced tool that has the potential to provide long-term stability and predictability, as well as to manage competition for space in intensively used areas’.¹⁴¹ In the Roadmap for Maritime Spatial Planning, which the Commission adopted in 2008, the ecosystem approach was highlighted as an overarching approach for MSP.¹⁴² The European Commission emphasises that even though a great deal of marine spatial planning can be achieved at the national level, the Commission considers it important to pursue action at the EU level to achieve a coherent framework for MSPs within the EU. A common approach would enable efficient and smooth application of MSPs in cross-border marine areas, favouring the development of maritime activities and the protection of the marine environment based on a common framework and similar legislative implications. MSP is also crucial for legal certainty, predictability and transparency, reducing the costs to investors and operators, particularly those operating in more than one EU member state.¹⁴³

With the MSPD, the Commission opted for a framework directive that requires the establishment of a procedural framework, and includes, as a minimum obligation, the establishment of a spatial planning process for the sea.¹⁴⁴ Such a planning process should take into account land-sea interactions and promote cooperation among the member states.¹⁴⁵ Pursuant to article 6, member states shall, among other things, ensure the involvement of stakeholders, organise the use of the best available data, ensure transboundary cooperation between member states, and promote cooperation with third countries. Member states remain responsible and competent for designing and determining, within their marine waters, the format and content of such plans, including institutional arrangements and, where applicable, any apportionment of

140 European Commission, ‘An Integrated Maritime Policy for the European Union’ (Blue Paper) COM (2007) 574 final; European Commission, ‘Action Plan on an EU Integrated Maritime Policy’ SEC (2007) 575 final.

141 European Commission, ‘Maritime Spatial Planning in the EU – Achievements and future development’ COM (2010) 771, 2.

142 European Commission, ‘Roadmap for Maritime Spatial Planning: Achieving Common principles in the EU’ COM (2008) 791 final.

143 European Commission (n 141) 1. For a summary of the policy background of EU’s MSP-legislation, see N Soininen, ‘Marine spatial planning in the European Union’ in D Hassan, T Kuokkanen and N Soininen (eds), *Transboundary Marine Spatial Planning and International Law* (Routledge/Earthscan 2015) 189.

144 MSPD preamble 8.

145 MSPD preamble 9.

marine space to different activities and uses respectively.¹⁴⁶ Moreover, the Commission decided that the MSPD should not impose any new obligations, but should rather aim to contribute to existing policies through the planning process.¹⁴⁷ The goals set by the directive are formulated so broadly, that a large degree of discretion is left to the member states in implementing them.

Substantively (the first analysis criterion), the directive promotes sustainable blue growth, sustainable development of marine areas and sustainable use of marine resources.¹⁴⁸ It does not, however, set (m)any substantive obligations for the member states.¹⁴⁹ The directive does, however, require the member states to aim to contribute to the sustainable development of energy sectors at sea, of maritime transport, and of the fisheries and aquaculture sectors, and to the preservation, protection and improvement of the environment, including building resilience to climate change impacts. Other objectives may also be pursued, such as the promotion of sustainable tourism and the sustainable extraction of raw materials.¹⁵⁰ The MSPD respects the member states' prerogatives to tailor the content of the plans and strategies to their specific economic, social and environmental priorities, as well as their national sectoral policy goals and legal traditions. The member states themselves determine how the different goals are reflected and weighted in their marine spatial plan(s).¹⁵¹ From a legal resilience and adaptive capacity perspective, this approach respects the plurality of social ecological goals, but it is uncertain what the added value of MSPD is substantively. Furthermore, one can ask whether the directive has the legal force to transform existing – or steer new – spatial planning practices at sea. Much of the criticism addressed at the ambiguity of the MSFD's objectives is amplified with the MSPD.

Procedurally (the second analysis criterion), the directive endorses an iterative and adaptive planning process noting that marine spatial planning should cover the full cycle of problem and opportunity identification, information collection, planning, decision-making, implementation, revision or updating, and the monitoring of implementation.¹⁵² In addition, an ecosystem-based

146 MSPD preamble 11.

147 MSPD preamble 9; art. 2.3.

148 MSPD art. 1.1.

149 See Sojininen (n 143) 192.

150 MSPD art. 5.1.

151 MSPD art. 5.3. See also European Parliament, 'European Parliament legislative resolution of 17 April 2014 on the proposal for a directive of the European Parliament and of the Council establishing a framework for maritime spatial planning and integrated coastal maritime spatial planning and integrated coastal management' COM (2013) 0133.

152 MSPD preamble 18.

approach should be applied in a way that is adapted to the specific ecosystems and other specificities of the different marine regions. This approach will also allow for adaptive management of marine areas which ensures refinement and further development as experience and knowledge increase, and takes into account the availability of data and information at sea-basin level to implement that approach.¹⁵³ The directive requires member states to review their marine spatial plans at least every 10 years.¹⁵⁴

The directive also crosses sectoral and jurisdictional boundaries. Marine spatial planning is a cross cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated, and transboundary approach.¹⁵⁵ The directive requires cooperation among member states with the aim of ensuring that marine spatial plans are coherent and coordinated across the marine region concerned.¹⁵⁶ The directive also endorses an inclusive approach towards stakeholder and public participation by requiring member states to establish means of public participation by informing all interested parties and by consulting relevant stakeholders and authorities, and the public concerned, at an early stage in the development of marine spatial plans. The stakeholders and the public should also have access to the plans once finalised.¹⁵⁷

Considering the third resilience and adaptive capacity criterion (instrument choice), the directive mainly, if not only, uses direct regulation to foster marine spatial planning. The directive does not prescribe the use of any economic or voluntary instruments. Member states will design and determine the format and content of marine spatial plans, including the institutional arrangements.¹⁵⁸ Overall, the directive itself does not facilitate a versatile choice of policy instruments.

The directive may be enforced (the fourth analysis criterion) on procedural grounds if a member state fails to transpose the directive into its national legislation, or fails to establish the MSP process required by the MSPD. Time limits have been set for the designation of authorities, the establishment of marine spatial plans, and the bringing into force of laws, regulations and administrative provisions necessary to comply with the directive.¹⁵⁹ Substantive enforcement is, however, uncertain or even unlikely given the large degree of discretion left to member states. In practice, it will be rather difficult, if not impossible,

153 MSPD preamble 14.

154 MSPD art. 6.3.

155 MSPD preamble 3.

156 MSPD art. 11.

157 MSPD art. 9.

158 MSPD preamble 11.

159 MSPD art. 15.

to assess whether member states' MSPs, including the procedural steps listed in article 6, support the wide objectives listed in article 5. Objectives such as 'sustainable development' and 'the protection of the environment' will render any substantive enforcement complicated.

Finally, the MSPD emphasises the need for coherence across the EU's policy sectors. This is visible in: 1) aligning the timelines for marine spatial plans with the timetables set out in other relevant legislation, including the MSFD;¹⁶⁰ 2) defining the geographical scope for marine spatial planning in conformity with existing legislative instruments of the Union and the international law of the sea;¹⁶¹ 3) requiring that marine spatial planning should apply an ecosystem-based approach as referred to in the MSFD art. 1.3 with the aim of ensuring that collective pressure of all activities is kept within levels compatible with the achievement of GES;¹⁶² 4) requiring that MSPs will contribute to achieving the aims of the WFD, the MSFD, the Habitats Directive and the Birds Directive, and others;¹⁶³ and defining the term 'marine regions' as referred to in the MSFD article 4,¹⁶⁴ 'marine waters' as in the MSFD article 3, and 'coastal waters' as in the WFD article 2.¹⁶⁵

Overall, supporting and maintaining the resilience of the social ecological marine environment through the five legal criteria established above in section 'Criteria for evaluating (...)' takes a central place in the preamble of the directive, but is on a modest footing in the directive itself. On one hand, the degree of discretion within the substantive goals of the directive is significant, rendering substantive enforcement uncertain. On the other hand, the use of marine spatial planning as a planning tool to attain a more ecosystem-based governance approach to the marine regions in Europe may certainly enhance the social ecological resilience of these areas.¹⁶⁶ The adaptive process of the MSPD is its strongest suit from a regulatory resilience and adaptive capacity perspective.

3.4 *Comparing the Resilience and Adaptive Capacity of the Three Directives*

The Water Framework Directive, the Marine Strategy Framework Directive, and the Maritime Spatial Planning Directive all seek the ecosystem approach

160 MSPD preamble 22.

161 MSPD preamble 10.

162 MSPD preamble 14.

163 MSPD preamble 15.

164 MSPD art. 3.3.

165 MSFD art. 3.4.

166 Platjouw (n 48); House of Lords Committee (n 48).

to aquatic governance. They utilise a programmatic and adaptive regulatory approach to achieve this goal. The WFD and the MSFD prioritize ecological goals within that ecosystem approach, while the MSPD seeks to reconcile the ecosystem approach with the EU's Blue Growth agenda. In sustainability language, the WFD and the MSFD seek primarily ecological sustainability, while the MSPD seeks sustainable development. The three directives differ significantly in the way they seek to fulfil the ecosystem approach.

One immediate observation from studying the three directives side by side is that they are wildly different in terms of complexity and level of regulatory detail. An introduction to the WFD requires several pages, while the MSFD and MSPD can be summarised in a couple of paragraphs. The same observation can be made from Table 2.2 (annexed to this chapter) which lays out the regulatory resilience and adaptive capacity analysis in more detail. It is hard to avoid thinking that particularly the WFD has suffered, and will continue to suffer, from implementation and enforcement problems due to this complexity. Even resilient and adaptive laws need to be clear in what they ask of the regulatory subjects, in this case the EU member states.

In terms of substantive resilience and adaptive capacity analysed in this article all the three directives have capacity to support social ecological resilience, but contain different tools for achieving this. While the WFD and the MSFD prioritise ecological goals, they contain a broad exemption system that can be used to secure social and economic goals at a member state level. The MSPD does not require an exemption system for two primary reasons: because it does not contain (m)any substantive obligations; and because its goals are versatile, embracing ecological, social and economic goals simultaneously.

Because of the differences in substantive goals, the resilience and adaptive capacity challenges facing the three directives are also quite different. The MSPD faces the problem of not having enough legal force to adapt existing marine spatial planning practices (or steer new ones) in the member states onto an ecological path. Quite the opposite, the WFD and the MSFD may suffer from overt formalism which, at worst, would turn a blind eye to other than ecological aspects of resilience. The exemption systems of the WFD and the MSFD need to balance a strict interpretation of their goals. Too loose an interpretation will, however, be likely to water down even the strictest of ecological goals. From a resilience and adaptive capacity perspective, this would be problematic as well because blue economies rely on the ecological output and capacity which the WFD and the MSFD seek to protect.

From a procedural perspective (the second analysis criterion), the three directives utilise an iterative and adaptive planning process that seeks to secure broad participation, access to information, and access to justice. The directives differ wildly, however, in their linkages to scientific knowledge. While the WFD

and the MSFD are directly linked to the best available science in categorising and classifying fresh and marine waters, the MSPD's knowledge is more of the policy kind. All three directives seek to bridge sectoral and public – private gaps, and force, or coerce, transboundary cooperation in planning. The procedural design of the directives draws heavily from the adaptive governance literature and, overall, scores high in regulatory resilience and adaptive capacity.

All the three directives are based on direct regulation (the third analysis criterion). The WFD and the MSFD also contain economic instruments. Within the WFD system, the principle of recovery of costs is designed to accommodate the pricing of water uses, and to drive the external costs for water uses into the price of commodities and services provided by water. Within the MSFD, economic instruments are mostly utilised for evaluating the alternative costs of not taking measures to improve the ecological condition of the European seas, and evaluating the costs of the measures that are taken. Interestingly, all the three directives rely heavily on direct regulation despite their effort to broaden the policy mix towards more progressive conceptions of governance. All three directives leave, however, discretion to the member states to decide the measures needed to achieve the substantive goals of the directives. In this way, voluntary measures are also encouraged.

The fourth criterion (enforcement) is a mixed bag. While all three directives are procedurally enforceable, and create rather clear procedural obligations for the member states, the substantive goals and obligations are trickier to enforce. Considering the recent judgment(s) of the CJEU (particularly the *Weser* case), the WFD seems to be substantively enforceable, while the jury is still out on the MSFD. The MSPD, as it does not contain (m)any substantive obligations, is not substantively enforceable against the member states. Overall, the freedom for the member states to craft national and local solutions to aquatic environmental problems is a positive feature from a social ecological resilience perspective; however, it also gives rise to risks in safeguarding the ecological basis of those systems.

The final criteria (cross-categorical coherence) is the most difficult to evaluate. While the three directives contain many substantive and procedural similarities, they are also very different as stated above. One of the biggest problems for evaluating coherence between the three directives – or towards other EU-law – is the openness of the MSFD and the MSPD on one hand, and the complexity of the WFD on the other. Nevertheless, the MSFD is closely linked in its scope and definitions to the WFD. Moreover, the linkages between the MSFD and the MSPD are close, and marine spatial planning is often seen as one of the tools in the overarching framework of marine planning. Thus, in conclusion, at least a modest notion of coherence is achieved.

4 Conclusions and a Way Forward

This chapter has focused on the resilience and adaptive capacity of aquatic environmental law in the EU. We studied the linkages between resilience, adaptivity and the rule of law, and sought to systematise criteria for the evaluation of regulatory resilience and adaptive capacity. Three important EU directives have been evaluated and compared in light of these criteria. We concluded that the WFD, the MSFD, and the MSPD differ in the way they seek to fulfil the ecosystem approach, as well as in their degree of regulatory resilience and adaptive capacity. In the following conclusions, we suggest a regulatory design which combines the triumphs of the WFD, the MSFD and the MSPD, while overcoming some of their failures.

In a perfect world, the law promotes the ecosystem approach and manages the resilience of social ecological systems – such as aquatic ecosystems and their use – in a manner which is sustainable, effective and coherent. An ideal directive should then contain strong goals capable of ensuring the maintenance of desirable ecological resilience, combined with a set of specific exemptions that would allow for striking a fair balance with economic and social resilience – ensuring the overall legitimacy of the design. An alternative design consisting of a broad set of vague or ambiguous goals may not function as effectively, as this design entails a risk that the goals will not be attained at a member state level. The pull of socio-economic goals is often so strong that ecological goals must be overcompensated just to reach a fair balance between the different elements of social ecological resilience. Based on these reflections, we consider the discretion to balance the different substantive goals mentioned in the MSPD as being too broad, not least due to the lack of (m)any enforceable substantive rules. The MSFD is substantively on the right regulatory track, but in our view the WFD contains the most well-balanced system of substantive goals broadened by an exemption system, provided that the criteria for exemptions are not interpreted in a too limiting fashion. Overt formalism looms on the horizon of the WFD's regulatory resilience and adaptive capacity.

From a procedural perspective, all three directives fair rather well. An iterative, science-based, integrated and inclusive planning process of each of the directives is a good starting point for resilient and adaptive regulation. The processes of the WFD and the MSFD are, however, directly linked to the development of science, while the MSPD is not. In addition, although the procedural rules of the MSPD require that member states develop and adapt marine spatial planning practices, the extent to which these practices support the maintenance of ecological resilience might be different from one

member state to the next, and is not ensured by the directive itself. As aquatic ecosystems are often transboundary in nature, we consider it necessary – in light of ecological resilience – that different member states work towards unified overall goals. Procedurally, the WFD and the MSFD are thus more developed, although the WFD may suffer from its overcomplicated nature. The MSFD, as a matter of regulatory design, is procedurally the most balanced of the three.

From a policy instrument perspective, the WFD and the MSFD contain some economic instruments while the MSPD relies more on direct regulation and voluntary actions at the member state level. Although all three directives are expanding the policy mix towards the outer edges of direct regulation, one of the main problems seems to be the implementation and enforcement of these policy instruments. As a matter of regulatory design, however, the directives illustrate some opportunities for sharing regulatory powers between EU institutions, member states, local actors, and the markets.

Enforceability often requires that environmental goals should be complemented by a set of specific and binding substantive and procedural rules. These rules should facilitate and ensure that member states attain the overall environmental goal(s) of a directive. These rules should be designed in a way which does not unnecessarily complicate national governance approaches (e.g. create overlapping processes geared towards similar substantive goals), or set unrealistic goals or time frames, in order to ensure their effectiveness. Moreover, the rules should be clear and specific enough to be enforceable. The enforceability of both the substantive and procedural rules is an important prerequisite for effectively managing social ecological resilience. At the same time, however, an ideal aquatic directive would contain procedural mechanisms that would allow and force the accumulation of new scientific knowledge to penetrate aquatic planning and management practices. As regards enforceability, the WFD is clearly the strongest of the three.

An ideal directive would also be coherent with already existing directives. This would facilitate its transposition into national laws, and avoid any unnecessary delay in meeting the overall goal of the directive – the social ecological resilience of aquatic systems. Here, the MSFD and the MSPD should have regulatory linkages to the WFD which is the oldest of the three directives. For instance, it would have been expected that the MSPD would have made some references to the WFD, as the MSFD does. If one aims at law promoting the resilience of aquatic social ecological systems and providing a seamless and coherent governance approach to watersheds, coasts and seas, the different directives should at least identify how they interrelate. Even though the European Union officially has no powers regarding land use planning and coastal

zone management, at a member state level issues of spatial planning in the coastal and marine areas are highly interrelated. For this reason, the coherence of the three directives can still be significantly improved.

Answering the question of what kind of governance and regulation should be used to safeguard the core functions of social ecological systems is no walk in the park. First, this is so because of the different aquatic media having environmental problems somewhat particular to each media, as well as particular sectors and uses that are causing these problems. Second, the walk is obstructed by the lack of empirical analysis generally – and in this chapter specifically – regarding the functionality of existing regulatory instruments. Our analysis here will have to be complemented in the future by a more empirically oriented analysis to see whether the potential triumphs and failures of the directives actualise. Nevertheless, it makes sense to anticipate regulatory failures and respond to them where possible as the regulation or management of aquatic environments cannot wait for perfect science. Regulatory designs must keep this in mind, and embrace experimental and adaptive governance, without abandoning the rule of law and legal certainty. Law's resilience and adaptive capacity is a careful combination of all these criteria.

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Appendix: Regulatory Resilience and Adaptive Capacity of the WFD, the MSFD and the MSPD

Substance	WFD	MSFD	MSPD
<i>Substantive goals</i>	Protection of inland surface waters, transitional waters, coastal waters and groundwater to, <i>inter alia</i> , prevent their further deterioration and enhance their status, and to promote sustainable water use (art. 1).	Good environmental status (GES, art. 1.1; 1.3; 1.4); but also, sustainable use (art. 1.3; 3.5; 13.3; 14.1(d)) and coherence with other EU law (art. 1.4).	Promoting sustainable growth, sustainable development of marine areas and sustainable use of marine resources through the establishment of a framework for marine spatial planning (art.1.1).
	Main environmental objectives clarifying the main goals of art. 1: Member states shall implement the necessary measures to <i>prevent deterioration</i> of the status of all bodies of surface water (art. 4.1(a)(1)); and <i>protect, enhance and restore</i> all bodies of surface water to achieve good water status (art. 4.1(a)(ii)).		Marine spatial planning shall support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses (art. 5.1).
	Member states shall protect and enhance all artificial and heavily		Through their marine spatial plans, member states shall aim to contribute to the sustainable development of energy sectors at sea, of maritime transport, and of

(cont.)

Substance	WFD	MSFD	MSPD
<p>modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status (art. 4.1(a)(iii)).</p> <p>Member states shall implement the necessary measures with the aim of progressively reducing pollution from priority substances and ceasing or phasing out emissions, discharges and losses of priority hazardous substances (art. 4.1(a)(iv)).</p>	<p>Member states shall implement the necessary measures with the aim of progressively reducing pollution from priority substances and ceasing or phasing out emissions, discharges and losses of priority hazardous substances (art. 4.1(a)(iv)).</p>	<p>Mainly sectoral: Ecological goals prioritised, but coupled with sustainable use (secondary).</p>	<p>the fisheries and aquaculture sectors, and to the preservation, protection and improvement of the environment, including resilience to climate change impacts. In addition, member states may pursue other objectives such as the promotion of sustainable tourism and the sustainable extraction of raw materials (art. 5.2).</p>
<p>Sectoral or diverse goals</p>	<p>Mainly sectoral: Ecological goals prioritised but coupled with sustainable use (secondary).</p>	<p>Mainly sectoral: Ecological goals prioritised, but coupled with sustainable use (secondary).</p>	<p>Diverse: Economic and social goals coupled with ecological goals. All present on a seemingly equal standing but the directive places a heavy emphasis on blue economic growth.</p>

(cont.)

Substance	WFD	MSFD	MSPD
Clarity of the goals	Overall goals ambiguous (art. 1), but clarified by a set of environmental objectives set in art. 4.1 (good status of waters) and Annexes II, III, IV and V. Art. 4.1(a)(i-iv) and 4.1(b)(i-iii) include two general obligations: improvement of surface waters in less than good status; and an obligation of non-deterioration of current water status.	Goals ambiguous but clarified by criteria for measuring GES in art. 3.5 and Annex I.	Goals ambiguous, and the directive sets only very general substantive goals for MSPs (art. 5).
<i>Exemptions from the goals</i>	Yes, on several grounds: extending the deadlines in which the goals are to be met (art. 4.4); by aiming for less stringent goals than established in art. 4.1 (art. 4.5); by claiming a temporary failure to achieve the goals due to <i>force majeure</i> (art. 4.6); or justifying new development activities based on an overriding public interest (art. 4.7).	Yes, for the following reasons: action or inaction outside the powers of a member state preventing the achievement of GES; natural causes; force majeure; projects of overriding public interest; or natural conditions that do not allow for the GES to be met (art. 1.4.1).	No (not needed because substantive goals are ambiguous).

(cont.)

Substance	WFD	MSFD	MSPD
<i>Discretion to adjust management considering new science</i>	The classification of waters is based on the best scientific knowledge available at the time of classification. New scientific knowledge does not, however, have a direct link to planning and management. It requires changing of the criteria according to which the water status is measured and/or re-classification of waters, or utilization of exemptions provided in art. 4.4–4.7.	The classification of marine waters is based on the best scientific knowledge available at the time of classification. New scientific knowledge does not, however, have a direct link to planning and management. It requires changing the GES criteria, and/or re-classification of marine waters. GES (art. 1.1) is tied to the socio-ecological criteria established in art. 3.5 and Annex I.	Yes, but must be in line with obligations under other EU-law, such as the WFD and the MSFD. MSPD objectives are not directly linked to the development of science.
Procedure	Establish a framework for achieving or maintaining good status of inland surface waters, coastal waters, transitional waters and groundwater (art. 1).	Establish a framework (<i>marine strategy</i>) for achieving or maintaining the GES of marine waters (art. 1.1).	Establish a framework and the necessary procedural steps for MSP (art. 1.1; 6.1).

(cont.)

Procedure	WFD	MSFD	MSPD
Preciseness of the goals	Procedural goals in art. 1 are vague but they are clarified throughout the directive. The WFD sets obligations to the member states to identify river basins in their area (art. 3.1); to ensure appropriate administrative arrangements, including the identification of competent authorities responsible for implementing the WFD (art. 3.2); to ensure an analysis of each river basin's characteristics, to review the impact of human activity on the status of surface waters, and to conduct an economic analysis of water use according to the technical specifications set out in Annexes II and III (art. 5.1).	Procedural goals in art. 1 are vague but they are clarified throughout the directive. The MSFD sets obligations for the member states to name competent authorities responsible for planning in each member state with coastline (art. 7); assess the condition and pressures of marine areas (art. 8); determine the criteria for GES (art. 9); establish environmental targets (art. 10); set up monitoring programmes (art. 11); and set up programmes of measures to achieve the GES (art. 13).	Procedural goals (art. 1.1) are vague but specified in art. 6. The MSPD sets obligations for the member states to (a) take into account land-sea interactions; (b) take into account environmental, economic and social aspects, as well as safety aspects; (c) aim to promote coherence between marine spatial planning and the resulting plan or plans and other processes, such as integrated coastal management or equivalent formal or informal practices; (d) ensure the involvement of stakeholders in accordance with article 9; (e) organise the use of the best available data in accordance with article 10; (f) ensure

(cont.)

Procedure	WFD	MSFD	MSPD
<p>In addition, MSs shall establish a register(s) of all areas lying within each river basin district which have been designated as requiring special protection under specific Community legislation (art. 6.1); ensure the establishment of <i>programmes for the monitoring of water status</i> (art. 8.1); ensure the establishment for each river basin district, of a <i>programme of measures</i>, in order to achieve the objectives established under article 4 (art. 1.1.1).</p>	<p>trans-boundary cooperation between member states in accordance with article 11; (g) promote cooperation with third countries in accordance with article 12. The procedural requirements are not precise.</p>	<p>Member states shall designate the authority competent to implement the directive (art. 13).</p>	<p>Member states shall report to the Commission (art. 14).</p>
<p>Where monitoring or other data indicate that the objectives set under article 4 for the body of water are unlikely to be achieved, the member state shall ensure that the causes of the possible</p>			

(cont.)

Procedure	WFD	MSFD	MSPD
<p>failure are investigated; relevant permits and authorisations are examined and reviewed as appropriate; the monitoring programmes are reviewed and adjusted as appropriate (art. 11.5).</p>			
<p>Member States shall ensure that a <i>river basin management plan</i> is produced for each river basin district lying entirely within their territory (art. 13.1).</p>			
<p>Goals for increasing knowledge</p>	<p>Implicit in the socio-ecological definition of good ecological status of waters (art. 2 and Annex v), and iterative planning process.</p>	<p>Implicit in the socio-ecological definition of the GES (art. 3.5 and Annex I), and iterative planning process.</p>	<p>To a certain extent as the member states shall organise the use of the best available data, and decide how to organise the sharing of information necessary for MSP (art. 10.1).</p>

(cont.)

Procedure	WFD	MSFD	MSPD
<i>Increasing knowledge</i>			
Obligation to monitor the condition of aquatic environments and/or their pressures	Yes. Obligation to set up a monitoring programme (art. 8.1). For surface waters, such programmes shall cover: (i) the volume and level or rate of flow to the extent relevant for ecological and chemical status and ecological potential, and (ii) the ecological and chemical status and ecological potential; for protected areas, the above programmes shall be supplemented by those specifications contained in Community legislation under which the individual protected areas have been established (art. 8.1). In addition, member states shall monitor, in accordance with Annex v, those bodies of water which according to Annex v, provide more than 100 m ³ a day as an average (art. 7.1).	Yes (art. 8 and 11; Annex v). Under Annex v, monitoring programmes need to, <i>inter alia</i> , provide information for an assessment of the environmental status and for an estimate of the distance from, and progress towards, good environmental status; include activities to identify the cause of the change and hence the possible corrective measures that would need to be taken to restore the good environmental status, provide information on chemical contaminants in species for human consumption from commercial fishing areas.	Not directly, but MSPs must be based on the best available data (art. 10.1). In addition, the monitoring of marine areas is closely linked to the MSFD system.

(cont.)

Procedure	WFD	MSPD	MSPD
	Under art. 5.1, the member states must study the human impacts affecting the water status in each river basin.		
Type of scientific information to be included in planning	Technical specifications and standardized methods for analysis and monitoring of water status shall be laid down in accordance with the procedure laid down in article 21 (art. 8.3).	Mainly natural sciences, but social and economic factors must be taken into consideration in establishing marine strategies (Annex I, III and IV).	Natural sciences, economics, and social sciences (art. 8.1; 8.2; 10.2). Member states shall use the best available data. This data may include, inter alia, environmental, social and economic data, and physical data of the marine waters.
	Natural sciences dominate the identification of water bodies (Annex II) and setting of criteria for the good status of waters (Annex V). Economic analysis is required to implement the principle of recovery of costs established in art. 9 (Annex III).		

(cont.)

Procedure	WFD	MSFD	MSPD
<i>Iteration of the process</i>	Yes. The analysis of characteristics of waters; review of human impacts and economic analysis of water use shall be reviewed, and if necessary updated at the latest 22 December 2013, and every six years thereafter (art. 5.2).	Yes, marine strategies must be reviewed at a 6-year interval (art. 17.2).	Yes, marine spatial plans to be reviewed every 10 years at minimum (art. 7.7).
Designation as artificial or heavily modified water must be reviewed every six years (art. 4.3(b)).	Member states shall send copies of the marine spatial plans, including relevant existing explanatory material on the implementation of the MSPD, and all subsequent updates to the Commission and to any other member states concerned within three months of their publication (art. 14.1).		
Reasons for granting an exemption from the goals of the WFD under art. 4.7 must be reviewed every six years (art. 4.7(b)).			The Commission shall submit a report on the implementation of the

(cont.)

Procedure	WFD	MSFD	MSPD
<p>The programmes of measures shall be reviewed, and if necessary updated at the latest 22 December 2015, and every six years thereafter (art. 11.8).</p>	<p>MSPD one year after the deadline for the establishment of marine spatial plans, and every four years thereafter (art. 14.2).</p>		
<p>River basin management plans shall be reviewed and updated at the latest 22 December 2015, and every six years thereafter (art. 13.7).</p>			
<p>The Commission shall publish a report on the implementation of the WFD at the latest 22 December 2012, and every six years thereafter (art. 18.1).</p>			

(cont.)

Procedure	WFD	MSPD	MSPD
<i>Crossing sectoral, public/private and jurisdictional boundaries in planning</i>			
Who runs the planning process?	Single authority or multiple authorities (art. 3.2; 3.3; Annex 1).	Single authority or multiple authorities (art. 7.1).	Single authority or multiple authorities (art. 13.1).
Inclusion of other domestic sectoral authorities in the planning process	Yes, member states shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans (art. 14.1).	In establishing the programmes of measures, member states are obliged to include competent authorities in the field of water and nature conservation policy in the planning. (art. 13.2; 13.4).	In the member states' discretion: MSPs shall be developed and produced in accordance with the institutional and governance levels determined by the member states (art. 4.3). Despite this, member states must ensure the involvement of relevant stakeholders in accordance with article 9 (art. 6.2(d)).
		Other policy areas are discretionary. Member states may identify or establish administrative frameworks in order to reach the GES in an integrated manner (art. 13.3).	Obligation to consult authorities concerned at an early stage (art. 9.1).

(cont.)

Procedure	WFD	MSFD	MSPD
Inclusion of industries and the public in the planning process	Yes, member states shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans (art. 14.1).	Yes, member states shall ensure that all the interested parties are given early and effective opportunities to participate in the implementation of the directive, involving, where possible, existing management bodies or structures, including Regional Sea Conventions, Scientific Advisory Bodies and Regional Advisory Councils (art. 19.1).	Yes, public participation by informing interested parties and the public concerned at an early stage (art. 9.1).
Inclusion of authorities from other countries in the planning process	Yes, for international river basins districts the member states concerned shall together ensure coordination and may, for this purpose, use existing structures stemming from international agreements (art. 3-4).	Yes, member states shall, where practical and appropriate, use existing regional institutional cooperation structures, including those under the Regional Sea Conventions, covering that marine region or subregion (art. 6.1).	As part of the planning and management process, member states bordering marine waters shall cooperate with the aim of ensuring that marine spatial plans are coherent and coordinated across the marine region concerned (art. 1.1.1 and 6.2(f)).

(cont.)

Procedure	WFD	MSFD	MSPD
<p>Where a river basin district extends beyond the territory of the Community, the member state(s) concerned shall endeavour to establish appropriate coordination with the relevant non-member states, with the aim of achieving the objectives of WFD throughout the river basin district (art. 3.5).</p>	<p>In addition, Member States shall make every effort, using relevant international forums, including mechanisms and structures of the Regional Sea Conventions, to coordinate their actions with third countries in establishing and implementing their marine strategies (art. 6.2).</p>	<p>Member States shall endeavour, where possible, to cooperate with third countries on their actions with regard to marine spatial planning in the relevant marine regions and in accordance with international law and conventions (art. 12; 6.2(g)).</p>	
<p>In the case of an international river basin district falling entirely within the Community, member states shall ensure coordination with the aim of producing a single international river basin management plan (art. 13.2).</p>			

(cont.)

Procedure	WFD	MSFD	MSPD
Inclusion of EU institutions in the planning process	Yes, on several accounts. At the request of the member states involved, the Commission shall act to facilitate the assigning to such international river basin districts (art. 3.3).	Yes, on several accounts. Commission shall be notified of the determination of GES and setting of environmental targets (art. 9.2; 10.2).	EU institutions are not included in the planning process but the Commission has an observatory role as follows: Commission shall be provided with a list of designated competent authorities (art. 13.2). Commission shall be informed of any changes related to this list (art. 13.3). Commission shall receive copies of MSPs within three months of their publication (art. 14.1).
At the request of the member states involved, the Commission shall also act to facilitate the establishment of the programmes of measures in river basins crossing national boundaries (art. 3.4).	Commission shall be notified of monitoring programmes (art. 11.3).	Commission shall be notified of programmes of measures (art. 13.9).	Member states shall bring into force the laws, regulations and administrative provisions necessary to comply with the MSPD, and inform the Commission of fulfilment of obligations (art. 15.1).
In addition, member states have many reporting obligations. Member states shall provide the Commission with a list of their competent authorities and of the competent authorities of all the international bodies in which they participate (art. 3.8).	Finally, and in accordance with Directive 2007/2/EC, Member States shall provide the Commission, for the performance of its tasks in relation to this Directive (art. 19.3).	The Commission shall submit to the European Parliament and to the Council, at the latest one year after	

(cont.)

Procedure	WFD	MSFD	MSPD
<p>Member states shall inform the Commission of any changes to the information provided (art. 3.9).</p> <p>Where a member state identifies an issue which has an impact on the management of its waters but cannot be resolved by that member state, it may report the issue to the Commission and any other member state concerned and may make recommendations for the resolution of it (art. 1.2.1).</p> <p>Member States shall send copies of the river basin management plans and all subsequent updates to the Commission (art. 15).</p>	<p>the deadline for establishment of the marine spatial plans, and every four years thereafter, a report outlining the progress made in implementing MSFD (art. 14.2).</p>		

(cont.)

Procedure	WFD	MSFD	MSPD
<p>Member states must inform the Commission of laws, regulations and administrative provisions implementing WFD (art. 24.1).</p>	<p>Yes, in all stages of river basin management planning. Member States shall ensure that, for each river basin district, they publish and make available for comments to the public, including (a) a timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers; (b) an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers;</p>	<p>Yes, in all stages of the marine strategy. Member States shall publish, and make available to the public for comment, summaries of the following elements of their marine strategies, or the related updates, as follows: (a) the initial assessment and the determination of good environmental status;</p>	<p>Public participation by informing interested parties and the public concerned at an early stage (art. 9.1).</p>
<p><i>Access to information</i></p>	<p>including (a) a timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers; (b) an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers;</p>	<p>(b) the environmental targets; (c) monitoring programmes; (d) programmes of measures (art. 19.2).</p>	<p>Relevant stakeholders, authorities and the public concerned shall have access to MSPs once finalised (art. 9.2).</p>

(cont.)

Procedure	WFD	MSFD	MSPD
(c) draft copies of the river basin management plan, at least one year before the beginning of the period to which the plan refers (art. 14.1).			
On request, access shall be given to background documents and information used for the development of the draft river basin management plan (art. 14.1).			
<i>Access to justice</i>	On procedural and substantive grounds.	On procedural grounds if member states do not establish marine strategies. Access to justice on substantive grounds uncertain.	On procedural grounds if member states do not establish MSPs.
Instrument choice			
<i>Direct regulation as the main policy instrument?</i>	Yes.	Yes.	Yes.

(cont.)

Instrument choice	WFD	MSFD	MSPD
<i>Does direct regulation embrace complementary policy instruments?</i>	<p>Yes. Member states must conduct an economic analysis of water uses in river basin districts falling within their jurisdiction (art. 5.1).</p> <p>Member states shall take account of the principle of recovery of the costs of water services, and in accordance in particular with the polluter pays principle. Member states shall ensure that water-pricing policies provide adequate incentives for users to use water resources efficiently. Member states shall also ensure an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services (art. 9.1).</p>	<p>Yes. Member states shall make an initial assessment of their marine waters including an economic and social analysis of the use of those waters and of the cost of degradation of the marine environment (art. 8.1(c)).</p>	<p>Not directly, but the MSPD leaves discretion to the member states to develop best practices regarding MSP. This emphasizes information as a policy instrument.</p>

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Enforcement	WFD	MSFD	MSPD
<i>Legal bindingness of goals</i>			
Procedural	<p>Legally binding. Member states shall establish river basin districts (art. 3), make an initial assessment of inland surface waters, coastal waters, transitional waters and groundwater (art. 5), set up a register of protected areas (art. 6), identify all bodies of water used for significant abstraction for human consumption (art. 7), set up monitoring programmes (art. 8), set up programmes of measures (art. 11) and produce a river basin management plan (art. 13).</p>	<p>Legally binding. Member states must make an initial assessment of marine waters, determine the criteria for GES in those waters, establish environmental targets, set up monitoring programmes and set up programmes of measures (art. 8; 9; 10; 11 and 13).</p>	<p>Legally binding. Member states shall establish marine spatial plans. (art. 4.1).</p>

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Enforcement	WFD	MSFD	MSPD
Substantive	Legally binding, sets obligations of result.	At minimum, the directive sets an obligation of best effort but may also require the substantive achievement of GES (obligation of result).	The directive sets an obligation of best effort, but to what substantive end, is uncertain. Substantive goals are very ambiguous aiming at sustainable growth, sustainable development of marine areas and sustainable use of marine resources (art. 1.1).
<i>Specific obligations to meet the goals</i>			
Procedural	Specific criteria for establishing river basin districts (art. 3), making an initial assessment of inland surface waters, coastal waters, transitional waters and groundwater (art. 5), setting up a register of protected areas (art. 6), identifying all bodies of water used for significant abstraction for human consumption (art. 7), setting up monitoring programmes	Specific criteria for the initial assessment of environmental status (art. 8); criteria for good environmental status (art. 9); establishing environmental targets (art. 10); monitoring programmes (art. 11); programmes of measures (art. 13).	Some specific criteria that must be considered when setting up MSPs (art. 6). MSP-processes shall (a) take into account land-sea interactions; (b) take into account environmental, economic and social aspects, as well as safety aspects; (c) aim to promote coherence between marine spatial planning and the resulting plan or plans and other processes, such as

(cont.)

Enforcement	WFD	MSFD	MSPD
(art. 8), setting up programmes of measures (art. 11) and producing a river basin management plan (art. 13).	integrated coastal management or equivalent formal or informal practices; (d) ensure the involvement of stakeholders in accordance with article 9; (e) organise the use of the best available data in accordance with article 10; (f) ensure trans-boundary cooperation between Member States in accordance with article 11; (g) promote cooperation with third countries in accordance with article 12.	Member states shall take necessary steps to reach GES in their marine waters (art. 1.1).	Member states must establish a framework for marine spatial planning ((art. 4). The substantive obligations are however very ambiguous (art. 5). The directive does not state how interests should be prioritised in MSPs.
Substantive	Member states must reach good status of waters if exemptions are not used (art. 1; 4).	Member states shall take necessary steps to reach GES in their marine waters (art. 1.1).	Member states must establish a framework for marine spatial planning ((art. 4). The substantive obligations are however very ambiguous (art. 5). The directive does not state how interests should be prioritised in MSPs.

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Enforcement	WFD	MSPD	MSPD
<i>Time frames</i>			
Procedural	Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with WFD at the latest 22 December 2003 (art. 24.1). Analysis of characteristics of river basins; review of human activity impacting the waters and economic analysis of water use by 22 December 2004 (art. 5.1). Monitoring programmes shall be operational by 22 December 2006 (art. 8.2). Programmes of measures shall be established by 22 December 2009, and be made operational by 22 December 2021 (art. 11.7).	Competent authorities must be named by 15 July 2010 (art. 7.1). In determining GES, criteria and methodological standards to be used by the member states shall be laid down, on the basis of Annexes I and III, in accordance with the regulatory procedure with scrutiny referred to in article 25(3) by 15 July 2010 (art. 9.3). An initial assessment of the current environmental status of the waters concerned and the environmental impact of human activities thereon to be completed by 15 July 2012 (art. 5.2(a)(i)).	Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with MSPD by 18 September 2016 (art. 15.1). Authorities responsible for MSPD must be designated by 18 September 2016 (art. 15.2). Marine spatial plans must be established by 31 March 2021 (art. 15.3).

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Enforcement	WFD	MSFD	MSPD
<p>Member states shall ensure by 2010 the implementation of the principle of recovery of the costs of water services (art. 9.1).</p>	<p>A determination of GES for the waters concerned to be completed by 15 July 2012 (art. 5.2(a)(ii)).</p>	<p>Environmental targets and associated factors to be established by 15 July 2012 (art. 5.2(a)(iii)).</p>	
		<p>Establishment of a monitoring programme for ongoing assessment and regular updating of targets to be completed by 15 July 2014 (art. 5.2(a)(iv)).</p>	
			<p>Development of programmes of measures by 2015 at the latest. The programme must enter into operation by 2016 the latest (art. 5.2(b)).</p>

(cont.)

Enforcement	WFD	MSFD	MSPD
Substantive	By 2015 (art. 4.1(ii)). If the deadline is extended, alternatively by 2021, or 2027 the latest (art. 4.4; 4.5; 4.7; 4.8).	By 2020 (art. 1.1).	N/A.
<i>Sanctioning of non-compliance</i>	Yes (art.258 TFEU).	Yes (art. 258 TFEU).	Yes (art. 258 TFEU).

The Ecosystem Approach as a Basis for Managerial Compliance: An Example from the Regulatory Development in the Baltic Sea Region

Brita Bohman

1 Introduction

Managerial compliance is a concept that was introduced in international law in the 1990s as an alternative view on how and why states comply with international agreements.¹ The basic idea in this view on compliance is that states want to comply with international agreements, and do so, if given the right prerequisites and support rather than if they are sanctioned for non-compliance, i.e. if being given ‘carrots’ instead of ‘sticks’. In short, this perspective on compliance and state behaviour includes the theory that encouragement and factors such as technical and financial resources, and administrative support in developing regulatory approaches or implementation measures, are more rewarding in terms of compliance than different forms of sanctions or hard rules.² This perspective on compliance can be especially useful in environmental law since complex environmental problems often entail difficulties in defining effective measures and assessing results, implying that it is difficult to determine the exact meaning of compliance from a strict objective point of view.³

Eutrophication in the Baltic Sea has, since the 1970s, primarily been regulated by *the Convention on the Protection of the Marine Environment of the Baltic Sea Area*⁴ (the Helsinki Convention) and *the Baltic Marine Environment Protection Commission* (HELCOM). This regulatory regime has often been seen as weak and with a rather high level of alleged non-compliance by the Parties. In

1 A Chayes and AH Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Harvard University Press 1995).

2 See e.g. D Bodansky, *The Art and Craft of International Environmental Law* (Harvard University Press 2010) 235–45.

3 B Bohman, *Transboundary Law for Social-Ecological Resilience? – A Study on Eutrophication in the Baltic Sea Area* (Stockholm University US-AB 2017) 316–21. See also Bodansky (n 2) 250–51.

4 1507 UNTS 167.

the early 2000s the *ecosystem approach* was introduced along with a general change in the regulatory structure for the Baltic Sea environment and in the approach to reducing eutrophication. Beside the generally acknowledged difficulties of creating a regulatory system which is based on ecological indicators, it is also widely debated what an ecosystem approach entails in a regulatory system in terms of legal measures and mechanisms, as this book shows. It is even debated whether an ecosystem approach can be implemented with any real success.⁵

This chapter aims to describe the regulatory structure for abating eutrophication that has developed in the Baltic Sea region with the implementation of the ecosystem approach and how it reflects characteristics typical for managerial compliance review. The main purpose is to show, based on a previous study, how the implementation of an ecosystem approach has not only established a more ecosystem-focused legal system for the Baltic Sea, it has also strengthened enforcement and the general compliance with the given regulatory instruments.⁶

2 The Regulatory Structure

In the Baltic Sea region the introduction of the ecosystem approach occurred with and in parallel to the European Union's (EU) adoption of *the Marine Strategy Framework Directive*⁷ (the MSFD). This regulatory change was also connected to the 2007 HELCOM Baltic Sea Action Plan (BSAP), which is a regional reflection of the MSFD. The MSFD also introduced the goal of *good environmental status* to the marine regulatory governance in the Baltic Sea region. Pursuit of this goal has resulted in the initiation of a process whereby the coastal states cooperate to identify ecological indicators and continuously assess the ecosystem status. The process also includes adaptive reassessment of measures and other dynamic regulatory developments. This regulatory change and the operationalization of this adaptive process has encountered challenges, such as institutional coordination, flexible requirements that are

5 E.g. V De Lucia, 'Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law' (2015) 27 J Env L 91.

6 The discussion in this chapter is to a large extent based on a wider study made by the author in her PhD dissertation: Bohman (n 3). Some of the reasoning will thus only be referring to more far-reaching analysis and argumentation made in the original study and will not be repeated here.

7 Directive 2008/56/EC of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (the Marine Strategy Framework Directive) OJ L164/19.

hard to enforce, and, not least, the complexity of ecosystem factors. Many of these challenges remain to be resolved. However, it has also led to an important shift in the regulatory focus and institutional structure.

Through the ecosystem approach and the goal of good environmental status the applicable regulatory instruments have integrated a regulatory approach that is directly related to the status of the ecosystem. The most significant result of this is the acknowledgment of reduction targets in the BSAP, which correspond to the goal of good environmental status. Although the reduction targets are not binding, as such, they concretize the goal and have raised the bar for state implementation. This has also been important in bringing transboundary cooperation and an adaptive process forward, and thus in creating a structure that seems to be able to foster a more steady basis for transboundary cooperation with continuous focus on both compliance and ecosystem-based measures. This new structure integrates features that could be seen as representing an ecosystem approach in a more general perspective, this includes features that reflect the kind of adaptive measures that are typically connected with an ecosystem approach, but also other features that may bridge and compensate for some of the inherent gaps and challenges related to applying the concept in a legal context and in integrating it in the legal system, as referred to above. The assumption that these latter features will bring a positive effect to the general structure and bridge the institutional challenges is based in the research on theories for so-called *social-ecological resilience*. This research emphasizes certain functions or mechanisms that support effective environmental governance, mechanisms which can also be identified in this regulatory structure.⁸ It is also evident from the example of regulating eutrophication in the Baltic Sea that this combination of features bring important functions to a regulatory structure that has previously shown significant weakness and lack of authority in controlling compliance. Such weaknesses could also have become even worse when implementing an ecosystem approach if it would have only entailed more flexibility and adaptive approaches.

In this chapter, different features of ecosystem approach in the legal context will be presented and discussed. These features are based on, and reflect, important components for governance emphasized in the theories on social-ecological resilience, which is an important theoretical view point for

⁸ R Biggs, M Schlüter and ML Schoon (eds), *Principles for Building Resilience – Sustaining Ecosystem Services in Social-Ecological Systems* (Cambridge University Press 2015); FS Chapin III, GP Kofinas and C Folke (eds), *Principles of Ecosystem Stewardship – Resilience-Based Natural Resource Management in a Changing World* (Springer 2009). See also Bohman (n 3) 36–55.

the understanding of the ecosystem approach. These features are – with support in the underlying theories – more concrete than the general principles of ecosystem approach, but share the same aim of governance. Therefore the features of governance for social-ecological resilience are taken as an example to show how an ecosystem approach can be understood in relation to law and legal mechanisms. They will moreover show how different pieces of a structure for ecosystem governance also within a legal system can balance each other and thus create a more complete and effective structure, establishing processes with important elements for effective implementation and compliance in relation to such a complex problem as eutrophication.

3 The Ecosystem Approach

3.1 *Introduction*

In order to identify and analyze the role and impact of the ecosystem approach in a regulatory setting, it is useful to begin with an attempt to explain the origin of this concept and how it is understood in this particular context.

The overall purpose of the ecosystem approach in regulation can be seen as originating from environmental adaptive management and governance.⁹ The concept of ecosystem approach refers to a comprehensive science-based approach to the conservation and management of natural resources.¹⁰ Initiatives aimed at creating flexible and dynamic legal instruments have become increasingly common as a response to the development of theories of environmental governance and management.¹¹ However, its origins in environmental management may also be the cause of difficulties encountered when trying to transfer the concept into a legal context.

The ecosystem approach has become the basis for a gradual and perceptible evolution of new normative tools to shape the way the law is interpreted and applied. It has successively become a legal concept and, as such, a tool for legal governance, which focuses specifically on ecological prerequisites and environmental governance features. It aims to take into account the multi-level

9 E.g. H Wang, 'Ecosystem Management and Its Application to Large Marine Ecosystems: Science, Law, and Politics' (2004) 35 *OceanDev&IntlL* 41.

10 *Ibid.*, 42off.

11 *Ibid.*, (n 9); EA Kirk, 'The Ecosystem Approach and the Search for An Objective and Content for the Concept of Holistic Ocean Governance' (2015) 46:1 *OceanDev&IntlL* 33. See also Bohman (n 3) 74–79.

dynamics and scale typical of modern regulatory and institutional structures.¹² While an ecosystem approach has long been a central perspective in environmental management and policy, this approach is still new to the legal setting. The holistic approach connected to the concept challenges the legal structures. The dynamic and adaptive measures entailed are not always seen as compatible with general principles and structures of law.¹³

In integrating the ecosystem approach, generally much focus has been on adaptive management and flexibility in order to match the ecosystem dynamics of both continuous change and multi-level interaction. Such legal approaches have received much critique.¹⁴ There are some important obstacles and issues to resolve in order to implement adaptive management and ecosystem governance in law, as well as in clarifying how to ensure that this kind of regulation is compatible with fundamental principles of law, especially those connected to the rule of law. Problems connected with ecosystem approach, as identified above, are inter alia related to institutional coordination, flexible requirements that are hard to enforce, and, not least, the complexity of ecosystem factors. Despite critique and potential obstacles, the legal structure or measures, through which the ecosystem approach is implemented can, however, help the overcome some of the mentioned obstacles and problems. This is the case, if the concept of ecosystem approach is understood as a concept building on more features than just adaptive management and flexibility. The governance perspective added by the theoretical framework of social-ecological resilience is important in this regard. By including features that also creates inter alia stability, redundancy, transparency, and control as part of the system, the ecosystem approach becomes an important part for the achievement of holistic, dynamic perspectives in environmental regulation. The Baltic Sea regulatory regime serves as an important example in this regard.

12 R Long, 'Legal Aspects of Ecosystem-Based Marine Management in Europe' in A Chircop, ML McConnell and S Coffen-Smout (eds), 26 *Ocean YB* (Brill Nijhoff 2012). See also Bohman (n 3) generally.

13 AK Nilsson and B Bohman, 'Legal prerequisites for ecosystem-based management in the Baltic Sea area: The example of eutrophication' (2015) 44:3 *Ambio* 370; Bohman (n 3) 74–88 and generally, the issue is discussed with support in the environmental governance theories of social-ecological resilience.

14 See e.g. MJ Angelo, 'Harnessing the Power of Science in Environmental law: Why We Should, Why We Don't, and How We Can' (2008) 86 *TexLRv* 1527, 1548; TH Profeta, 'Managing without a Balance: Environmental Regulation in Light of Ecological Advances' (1996) 7 *DukeEnvtl L&Pol'y F* 71, 86ff. For a general discussion see also Bohman (n 3) 74–81.

3.2 *Background and Application*

The concept of ecosystem approach was formally accepted in 1995¹⁵ when it was adopted by *the Conference of the Parties (COP) to the 1992 Convention of Biological Diversity*¹⁶ (the CBD). Since then, its interpretation and application have primarily been developed in guidelines and principles adopted by the COP-CBD.¹⁷ To date these guidelines and principles are the only formal explanations of how to interpret and understand the ecosystem approach.

According to the CBD, the ecosystem approach ‘(...) is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (...)’.¹⁸ In addition, it is stated in the CBD description that the ecosystem approach ‘(...) requires adaptive management to deal with the complex and dynamic nature of ecosystems and the absence of complete knowledge or understanding of their functioning. Ecosystem processes are often non-linear, and the outcome of such processes often shows time-lags.’¹⁹ Despite the fact that these guidelines and principles are developed as part of the CBD regime, they are still authoritative for the interpretation and application of the concept of ecosystem approach also in other regulatory contexts since they are the only formal statements to date. Hence, these guidelines and principles also provide a basis for understanding the concept within HELCOM.²⁰ Such interpretation is supported by *the 1969 Vienna Convention on the law of treaties*²¹ (the Vienna Convention), which states that recourse may be had to supplementary means of interpretation if the general rule of interpretation in Article 31 of the Vienna Convention is not sufficient to determine

15 CBD, The Second Meeting of the Conference of the Parties of the Convention on Biological Diversity, held in Jakarta, Indonesia (CBD COP 2), Decision 8, UNEP/CBD/COP/2/19, 12.

16 1760 UNTS 79.

17 See F Platjouw, *Environmental Law and the Ecosystem Approach: Maintaining Ecological Integrity Through Consistency In Law* ([E-book] Routledge 2016), ch 2, for an overview of the legal development of the concept.

18 CBD, Description of the ecosystem approach, COP Convention on Biological Diversity, May 2000, in Nairobi, Kenya (CBD, COP 5) Decision V/6, para. 4–5, part A, 1.

19 *Ibid.*, 4.

20 Description and principles of the Ecosystem Approach were presented at: CBD, COP 5 as SBSTTA 5 Recommendation V/10, January/February 2000. Further development of the concept has also been made, e.g. in 2004: CBD, ‘The Ecosystem Approach – Operational and Implementation Guidelines’, Seventh Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity, February 2004 in Kuala Lumpur, Malaysia (CBD COP 7), Decision VII/11, UNEP/CBD/COP/DEC/VII/11. See also The CBD Malawi Principles, CBD COP Convention on Biological Diversity, May 2000, in Nairobi, Kenya (CBD, COP 5), Decision V/6, para. 4–5, part B.

21 1155 UNTS 331.

the meaning of a requirement.²² HELCOM has also directly referred to the CBD in its own implementation and integration of the concept.²³

As is evident from the CBD definition and description of the concept of ecosystem approach, it manifests a need for both adaptive and precautionary approaches in regulation and thus indirectly introduces a new way of applying these environmental law principles which is more adjusted to complex environmental problems. The ecosystem approach, for example, takes account of uncertainty and change in referring to the absence of complete knowledge and its promotion of adaptive management, sustainable use and integrated management. This can be seen as an expression of the precautionary principle, since the ecosystem approach requires the creation of sustainable structures for management despite lack of full knowledge, and that the design of these structures shall have ecosystem dynamics as a foundation.²⁴

The most specific definitions and management principles for the application of the concept of ecosystem approach as developed by the CBD are found in *the Malawi principles*, adopted by the CBD in 1998 in order to further elaborate and define what the ecosystem approach is.²⁵ These principles set out focus points for how management is to be pursued in combination with guidance on how to operationalize an ecosystem approach.²⁶ The management principles contain statements that are relevant to how the ecosystem approach is to be applied and focus to a large extent on continuous monitoring in multi-level institutional structures. The principles also clarify the objectives and aims of the ecosystem approach, while introducing a number of basic points of departure for management.²⁷ Among these principles is the focus on adaptive management to foresee and cater for ecosystem changes. Another basic point is that the ecosystem approach entails management that should take into account the uncertainties and potential changes that are inherent

22 The Vienna Convention, Article 32. See also U Linderfalk, *On The Interpretation of Treaties: The Modern International Law as Expressed in the 1969 Vienna Convention on the Law of Treaties* ([E-book] Law and Philosophy Library, vol 83, Springer 2007) 239.

23 HELCOM, 'Statement on the Ecosystem Approach to the Management of Human Activities Towards and Ecosystem Approach to the Management of Human Activities' Adopted at the First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions (JMM) Bremen, 25–26 June 2003, Agenda item 6, Annex 5 (Ref. §6.1).

24 See the perspective on this by: A Trouwborst, 'The Precautionary Principle and the Ecosystem Approach in International Law: Differences, Similarities and Linkages' (2009) 18:1 *RECIEL* 26. See also Bohman (n 3) 83–85.

25 The CBD Malawi Principles (CBD, COP 5) Decision V/6, para. 4–5, part B (n 20).

26 CBD 'The Ecosystem Approach – Operational and Implementation Guidelines' (CBD COP 7), Decision VII/11, UNEP/CBD/COP/DEC/VII/11 (n 20).

27 The CBD Malawi Principles (n 20).

in so-called social-ecological systems.²⁸ A significant statement is, moreover, the requirement that the conservation of ecosystem structure and functioning should be a priority target of the ecosystem approach in order to maintain ecosystem services.²⁹ The principles also emphasize that measures should be implemented at appropriate spatial and temporal scales.³⁰ Management should be decentralized to the lowest appropriate level and involve all so-called stakeholders.³¹ The varying scales and lag effects that characterize ecosystem processes suggest that objectives for ecosystem management should be set for the long term.³²

The manner in which these various features and principles of the ecosystem approach should be implemented or operationalized in practice in a legal setting is not specified. Since implementation of an ecosystem approach should be dynamic and based on the specific conditions in the particular ecosystem concerned, there can be no universal method for its application. However, some specifics in the different functions, features and principles, such as those described in the Malawi Principles, can be identified in other guidelines on operationalization.³³ These principles or features show similarities and can be compared to principles of environmental management theories generally, and especially to theories of social-ecological resilience, as mentioned above.³⁴ Based on the governance theories that builds on the theoretical framework of social-ecological resilience, they can provide further information on how to make an ecosystem approach more concrete in terms of features that will be necessary in a system aiming to adopt an ecosystem approach. Features that, against this background, can be seen as characteristic of an ecosystem approach in a legal setting, include: flexible and adaptive measures with cyclical review mechanisms; multi-leveled or even polycentric regulatory structures; public participation; and strong connections to ecosystem indicators or variables in the choice of regulatory measures.³⁵ What such features mean in terms of legal regulation, and what value they bring, will be further discussed below in relation to the situation in the Baltic Sea region.

28 Ibid. Principles 9 and 10.

29 Ibid. Principle 6.

30 Ibid. Principle 7.

31 Ibid. Principle 2.

32 Ibid. Principle 8. On the operationalization of the ecosystem approach see also: Nilsson and Bohman (n 13).

33 CBD 'The Ecosystem Approach – Operational and Implementation Guidelines' (n 20).

34 See e.g. Nilsson and Bohman (n 13)374–75; Bohman (n 3) 29–62, 81–82. See also: C Folke, 'Resilience: The emergence of a perspective for social-ecological systems analysis' (2006) 16:3 *Global Environ Change*, 253.

35 See (n 8).

4 The Baltic Sea Institutional Framework

4.1 *Institutional Development*

The Helsinki Convention³⁶ in its present version was revised in 1992 and entered into force in 2000. The agreement is formulated with a certain ambiguity in its provisions, and in a manner that gives states a wide margin for interpretation. The main obligation on states under the Helsinki Convention is to: ‘(...) *take all appropriate legislative, administrative or other relevant measures to prevent and eliminate pollution in order to promote the ecological restoration of the Baltic Sea Area and the preservation of its ecological balance*’.³⁷ This is a rather typical formulation for an international agreement, but could still be regarded as a feature that includes the flexibility that is one of the identified characteristics of an ecosystem approach. In addition, the Helsinki Convention has a well-developed system for amending its contents when necessary through the adoption of Annexes and so-called Recommendations; another typically adaptive feature. Although these features are not intentionally implemented to match the concept of ecosystem approach, they can certainly contribute to its implementation.³⁸

Another important change in the revised convention is the inclusion of general *environmental law principles*, such as the precautionary principle, the principle of best available technique and best environmental practice, and the requirement to apply environmental impact assessments.³⁹ The environmental law principles are also important mechanisms for implementing the ecosystem approach in different ways. In particular, the ecosystem approach essentially includes the precautionary principle, in the sense that the ecosystem approach can be seen as indirectly introducing a new and more adjusted way of applying the precautionary principle to complex environmental problems such as eutrophication. Furthermore, many of the environmental law principles specifically represent and are intentionally adopted to establish adaptive and flexible mechanisms in a legal system, mechanisms that are also characteristically connected to the concept of the ecosystem approach in a legal context.

In addition to the coastal states, the EU also became a Party to the Helsinki Convention when it was revised in 1992. At that time some of the parties to

36 2099 UNTS 195.

37 The Helsinki Convention, Article 3(1).

38 See further in Bohman (n 3) 107–17.

39 For an overview of changes of the revised Helsinki Convention, see e.g. J Ebbesson, ‘A Critical Assessment of the 1992 Baltic Sea Convention’ (2000) 43 *German YB of Intl L* 38, 38ff.

HELCOM were already EU member states, while others joined the EU later. At present, eight out of the nine HELCOM state parties are member states of the EU, the exception being the Russian Federation. This means that the EU has significant legislative impact in the region. The EU is also party to a number of regional seas conventions with aims that are similar to those of the Helsinki Convention.⁴⁰ To further implementation of these agreements, in general, the EU has adopted a legal act with significance for the marine environment, the MSFD. Additionally there are several other directives with varying objectives that contribute to the protection of the marine environment in addition to a number of directives that more indirectly contribute to the environmental protection of coastal areas and marine waters.

In 2000 the EU adopted *the Water Framework Directive*⁴¹ (the WFD). The WFD is goal-oriented in its structure with an ecosystem-focus in a way that is generally considered to represent an ecosystem approach. The main focus of the WFD is to protect the quality of waters on the landward side of the baseline, more specifically inland surface waters, transitional waters, coastal waters and groundwater.⁴² The goal-oriented structure means that the member states are primarily obliged to adopt River Basin Management Plans and programs with measures being suggested as those that are necessary to achieve the environmental objectives.⁴³ The WFD also integrates a number of more area specific directives that regulate different land-based activities that may also affect marine waters and which are to be accounted for in the River Basin Management Plans.⁴⁴ The WFD is thus not primarily aimed at protecting marine waters. Nevertheless, given the physical inter-connections between river

40 E.g. B Bohman and D Langlet, 'Float or Sink for Europe's Seas? – The Role of Law in Marine Governance', in M Gilek and K Kern (eds), *Governing Europe's Marine Environment. Europeanization of Regional Seas or Regionalization of EU Policies?* (Ashgate Publishing 2015).

41 Directive 2000/60/EC of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive) OJ L327/1.

42 The different types of waters are more specifically defined and categorized in the Directive for the purpose of differentiated water governance: WFD, Articles 1 and 2 (and Article 4).

43 WFD, Articles 13, 11 and 4.

44 Directive 91/271/EEC of 21 May 1991 concerning wastewater and discharges from certain industrial sectors (the Urban Waste Water Treatment) OJ L135/40; Directive 91/676/EEC of 12 December 1991 that aims to prevent nitrates from agricultural sources from polluting ground and surface waters (the Nitrates Directive) OJ L375/1; Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (IPPC) OJ L257/26, now replaced by Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (the Industrial Emissions Directive) (IED) OJ L334/17, regarding limitations and prevention of industrial emissions.

basins, coastal waters, and marine waters, the pollution control and other measures that the WFD prescribes do have effect in marine waters. Hence, although the main focus and aim of the WFD is not marine waters it still regulates land-based sources that can have important effects in and on marine areas.

More relevantly, in 2008, the EU adopted a directive with direct focus on marine waters, the MSFD. The MSFD is also a goal-oriented instrument which is geographically complementary to the WFD as it regulates waters on the seaward side of the baseline.⁴⁵ The main obligation for the member states according to the MSFD is to provide a marine strategy, according to a strict timetable, and to eventually adopt a program of measures that they deem necessary for achieving the goal. This program shall also include activities that are required or accounted for within the WFD and River Basin Management Plans. The ambition in adopting the MSFD was to create a more forceful regulatory regime for the protection of the marine environment in all of the EU, and to further coordinate different EU legal acts with the aim of reducing pollution and protecting marine waters.⁴⁶

This diversity of legal instruments, involved states, and over-arching organizations in the Baltic Sea region illustrate a feature of diversity and plurality that could be seen as inherent in an ecosystem approach. From an ecosystem governance point of view the idea with diverse requirements and plural institutions is, in theory, to create a better base for effective measures and thus increase the likelihood of success. This is based on the assumption that if a number of measures are taken in parallel they may be complementary, or even more importantly, supplementary to each other. If one measure taken does not reach the goal set, then perhaps another measure taken with the same aim will be successful. However, in a legal structure, parallel measures do not work quite in this manner. Rather, parallel legal requirements are generally implemented by only one regulatory solution, especially if the margin of discretion is wide, although they may provide increased incentives for taking measures, as well as for making sure that the goal is achieved.⁴⁷ Moreover, parallel instruments and institutions may also have deviating forms of mechanisms for control and self-reporting, which may be complementary in a way that increase effectiveness in monitoring and control.⁴⁸ Hence, even if the legal system

45 MSFD, Article 2(1).

46 A general presentation of the background, purpose and application of the MSFD is found in: R Long, 'The Marine Strategy Framework Directive: A New European Approach to the Regulation of the Marine Environment, Marine Natural Resources and Marine Ecological Services' (2011) 29:1 JERL 1.

47 Bohman (n 3) 231–40.

48 *Ibid.*, 231–51.

reflects these features somewhat differently than how they are seen as part of more general governance, they could still also contribute to a more effective regulatory system.

These diverse, pluralistic, adaptive, flexible and multi-level approaches associated with the ecosystem approach have been criticized for containing inherent obstacles to proper implementation.⁴⁹ However, as the case of the regulatory approach to eutrophication in the Baltic Sea demonstrates, there are also examples of how the ecosystem approach really does create initiatives or a basis for more science-based and ecosystem-centered regulation. Although this may also involve complicated regulatory connections and make the possibilities for reviewing legal compliance and enforcement more complex, it also makes way for flexibility and adaptability in the regulatory structures as intended by the ecosystem approach. One mechanism, or feature, connected with the ecosystem approach that may also compensate for environmental complexity and diversity in the legal structure is formalized pathways for participation at different levels in the legal system to compensate for both the regulatory complexity and flexibility.⁵⁰

Both the WFD and the MSFD are significant environmental legal acts not only because of their contribution to the regulatory governance of water and marine areas, but also because of how they are designed. Both directives represent a holistic regulatory approach to environmental governance. They are both goal-oriented framework directives, containing very little detailed regulation. This regulatory design allows space for both flexibility and adaptive approaches to be taken by the member states in their implementation. The directives moreover exhibit an adaptive design arising from their connectedness to the ecosystem and environmental status. Although directives are always binding as to the result to be achieved, these directives are flexible in the way that they leave much to be defined by the different member states when it comes to the specific measures needed to achieve their goal. This may not necessarily differ very much from how the main obligation of the Helsinki Convention is formulated, which also leaves a large margin of discretion to the state parties, but in the case of the WFD and the MSFD there is

49 The EU WFD has in particular been discussed in these terms. See for example: M Lee, 'Law and Governance of Water Protection Policy' in J Scott (ed), *Environmental Protection – European Law and Governance* (Oxford University Press 2009) 36ff; H Josefsson and L Baaner, 'The Water Framework Directive – A Directive for the Twenty-First Century?' (2011) 23:3 JEL 463; N Voulvoulis, KD Arpon and T Giakoumis, 'The EU Water Framework Directive: From great expectations to problems with implementation' (2017) 575 *Sci Total Environ* 358.

50 Bohman (n 3) 271–76.

one important difference in how requirements are formed and evaluated. The obligations of the WFD and the MSFD are based on a rather advanced system of different forms of involvement of experts and other actors (referred to as stakeholder participation),⁵¹ this system also depends on cooperation with scientific experts in a manner that captures much of the intention and features connected to the concept of ecosystem approach. These features, which constitute an important part of the design of these instruments, also establish a system for adaptive review with direct connection to scientific knowledge and environmental data. This new approach is, itself, close to what could be understood to be an ecosystem approach, especially as reflected in the more concrete examples found in theories of social-ecological resilience. This objective is also confirmed by the fact that the MSFD also states that it should be implemented through an ecosystem-based approach, although it does not further specify specifically what this means.⁵²

4.2 *Spatial Scale and Institutional Coordination*

From the perspective of international law and governance, one aspect of the ecosystem approach is particularly interesting. The ultimate aim of an ecosystem approach is to take into account the ecosystem integrity and spatial scales associated with the natural components of the system. As a result, management measures will not primarily take into account administrative or jurisdictional boundaries. Basically, the spatial scale of management must extend across different biological units and legal jurisdictions to encompass an entire ecosystem. In this way, the concept of ecosystem approach also becomes a tool for transboundary law, institutional coordination and cooperation across state borders where the ecosystem does not align with jurisdictional boundaries. This is particularly true in the case of international common-pool resources.⁵³ Therefore, it has also been argued that in addition to being a scientific and legal issue, implementation of the ecosystem approach in transboundary common-pool resources – such as the Baltic Sea – is also a political choice. The bridging of jurisdictional conflicts is mainly a political issue which represents one main challenge for the ecosystem approach in shared areas, where its effective application relies on collective political will and the mutual cooperation of the states concerned.⁵⁴ In the Baltic Sea this kind of trans-jurisdictional

51 The term stakeholder is a wide concept that does not always match the more narrow definition of actor involvement and public participation aimed at in a legal context, however it is the term generally applied in relation to ecosystem approach, EU law and in the context of the BSAP, and thus will be the chosen term also in this text.

52 Bohman (n 3) 149–59.

53 H Wang (n 9) 44.

54 *Ibid.*, 61.

coordination and cooperation is rather successfully organized by HELCOM and the EU, but it would not have been possible without a political push in this direction through adoption of the legal instruments creating a platform for coordination.

The MSFD is a rather unique instrument in this regard because it requires regional implementation with a specific recommendation to use existing international structures.⁵⁵ In this way it can, at least partly, be seen as reflecting the political choices that are needed to bridge the administrative and judicial boundaries that may constitute borders for framing a relevant ecosystem. In order to achieve such coordination the MSFD calls on the member states to use: ‘(...) *existing regional institutional cooperation structures, including those under Regional Sea Conventions, covering that marine region or sub-region.*’⁵⁶ Direct reference is made to, inter alia, the Baltic Sea as one of the marine regions that is relevant for the application and implementation of the directive.⁵⁷ One of the reasons for this requirement is that the international institutions involve non-member states and geographic areas extending beyond EU waters. The regional seas conventions, or the combination of international and EU law, thus have better potential to match the relevant scale of the ecosystem. It is therefore not possible to achieve the aims of the MSFD and to regulate EU marine waters without the transboundary and trans-jurisdictional cooperation of these non-member states. In comparison to other marine areas in the EU the Baltic Sea coastal states are to a large extent also bound by EU law, since it is only Russia that is not an EU member state.⁵⁸ Still, this requirement in the MSFD has initiated important changes and new efforts in the work pursued by HELCOM. Most significantly, in 2007 the HELCOM parties adopted the BSAP as a platform for regional implementation and support for the implementation of the MSFD in the Baltic Sea area.⁵⁹ Through these institutional structures and combinations of legal regimes and instruments, a significant

55 MSFD, Article 6. Also Directive 2014/89/EU of the Council of 23 July 2014 establishing a framework for maritime spatial planning (the MSPD) OJ L257/135 follows the structure of the MSFD and also includes a similar request of integrating international pre-existing structures, such as regional conventions, see Article 11(2)a.

56 MSFD, Article 6(1).

57 MSFD, Article 4(1)a.

58 See e.g. J van Leeuwen, L van Hoof and J van Tatenhove, ‘Institutional ambiguity in implementing the European Union Marine Strategy Framework Directive’ (2012) 36 Mar Policy 636.

59 This is apparent in the statements made in the Joint HELCOM-OSPAR Ministerial Meeting, held in Bremen 2003, HELCOM, ‘Declaration of the Joint Ministerial Meeting (JMM) of the Helsinki and OSPAR Commissions’, JMM 2003/3(final version)-E, agenda item 6; The aim to coordinate the work of the BSAP with the EU MSFD is also made clear in the preamble of the BSAP.

dynamic multi-level legal structure is also taking form, including regulation on global, regional/EU, and sub-regional levels, connected through implementation down to national and sub-national/local regulation. Thus, also in this way do the Baltic Sea regulations represent important features of the ecosystem approach as part of structure also reflecting resilience governance.

A significant element in the effectiveness of this approach is institutional coordination and participation from different kinds of stakeholders aimed at eliminating obstacles or incoherent connections between the different regulatory layers and their requirements. Additionally, stakeholder participation contributes to both safeguarding implementation and compliance and to important transfer of knowledge and other information, important for the regulatory process.⁶⁰ Both the MSFD and the BSAP were, themselves, adopted through processes involving wide stakeholder participation, including a range of actors and experts and they also in their design provide structures for continued such participation in the pursuit of their goals and aims.⁶¹

The inter-connectedness of the EU and HELCOM through the MSFD and the BSAP is an important factor in institutional coordination; it also creates a unique situation with respect to interpretation and implementation of the requirements of these instruments. Admittedly, the BSAP has somewhat uncertain legal status. It is only an action plan and thus not a directly legally binding instrument in its own right, a fact which further complicates the regulatory situation. Nevertheless, as discussed below, the BSAP has, despite its legally uncertain status, become a valuable contribution to the implementation of an ecosystem approach in the Baltic Sea region. With a design similar to that of the MSFD, the BSAP is thus an adaptive and flexible instrument with an inherent structure for participation by different actors, experts and other interest groups. It can also be seen as an extension of the aim of the Helsinki Convention, and as a tool for transferring the Convention requirements into an ecosystem approach. The combination of the MSFD and the BSAP has thus created a basis for an entirely new regulatory structure in the Baltic Sea region, different from that previously established solely by the Helsinki Convention.

4.3 *Regulatory Instruments with Ecosystem Focus*

Despite the inherent differences between the numerous instruments applicable to the Baltic Sea environment, the Helsinki Convention, the BSAP, the MSFD, and the WFD all have similar aims and, although in different ways,

60 Bohman (n 3) 271–305.

61 See e.g. BSAP Segment on Awareness raising and capacity building, 30. See also: <www.helcom.fi/baltic-sea-action-plan/partners-in-action/> accessed 2 January 2018.

their aims are focused on the ecosystem. This is, in part, a result of the political choice to create prerequisites for institutional coordination. The Helsinki Convention aims to promote '(...) *ecological restoration of the Baltic Sea and the preservation of its ecological balance*.'⁶² The BSAP, which rests on the so-called HELCOM vision, states its aim as being the achievement of *good environmental status*.⁶³ HELCOM adopted the common vision as part of a strategy for implementing and integrating an *ecosystem approach* into its own convention structures.⁶⁴ This vision is meant to be the platform on which to construct a system to assess *ecosystem quality*.⁶⁵ The BSAP is partly intended as an instrument to operationalize the vision of good environmental status and an ecosystem approach within the HELCOM regime. The purpose and structure of the MSFD are similar to the BSAP and its aim is also the achievement of *good environmental status*.⁶⁶ The overall goal of the WFD is similarly *good ecological and chemical status*, but the structure and design of the WFD is somewhat different.⁶⁷ While the WFD is often referred to as a legal structure integrating an ecosystem approach, it does not directly state this as an aim, while both the MSFD and the BSAP expressly articulate the aims of ecosystem approach or applying an ecosystem-based approach.⁶⁸

The general goals of ecological and environmental status in the WFD, the MSFD and the BSAP are also elaborated in more specific goals, and they are furthermore defined as targets and indicators by which the ecosystem can be

62 The Helsinki Convention, Article 3(1).

63 The aim is to reach HELCOM's vision for good environmental status in the Baltic Sea: BSAP Eutrophication segment, 7.

64 HELCOM declares the connections between EU legislation, the CBD, the HELCOM Vision, its Ecological Objectives and the BSAP and furthermore states that the BSAP is the tool of implementation of an ecosystem approach in: HELCOM, 'HELCOM Ecological Objectives for an Ecosystem Approach', document for HELCOM Stakeholder Conference on the Baltic Sea Action Plan, Helsinki, Finland, 7 March 2006, *if*. See also the preamble of BSAP recalling the HELCOM vision.

65 *Ibid.* See also HELCOM, 'Future role of HELCOM and its organizational structure', Minutes of the 25th Meeting Helsinki, Finland 2–3 March 2004, HELCOM 25/2004, Agenda Item 7.1, Annex 14.

66 MSFD, Article 1(3).

67 According to its Article 1, the WFD defines as its purpose the protection of inland surface waters, transitional waters, coastal waters and groundwater. In order to achieve this, ecological objectives are set out in Article 4. A general requirement for ecological protection, and a general minimum chemical standard, was introduced to cover all surface waters in relation to the ecological objectives. Two elements of 'good ecological status' and 'good chemical status' were then defined. These are elaborated in Annex V of the Water Framework Proposal, in terms of the quality of the biological community, hydrological characteristics and chemical characteristics.

68 MSFD, Article 1(3) and the BSAP Preamble.

assessed. All of the instruments have wide applicability and include several issue areas. The definition of good environmental and ecological quality in the BSAP and the MSFD with regard to the specific goal on eutrophication is to have '*minimized human-induced eutrophication*' and '*(...) a sea unaffected by eutrophication (...)*'.⁶⁹ These goals are further translated into ecological objectives that are meant to characterize a marine ecological status which is unaffected by human-induced eutrophication. The chosen objectives are: concentrations of nutrients close to natural levels; clear water; natural level of algal blooms; natural distribution and occurrence of plants and animals; and natural oxygen levels.⁷⁰ In addition, these ecological objectives are also further defined into indicators by which the ecosystem status can be specifically assessed in relation to eutrophication. These assessments are to be made both by each state but also in cooperation and coordination with other state parties and/or member states.⁷¹ In part, this process is supported by the EU MSFD Common Implementation Strategy but this is also one of the main tasks for the coordinating organization – in this case HELCOM – to handle.⁷²

In this way, it is also possible to identify a further step towards a more integrated ecosystem approach within the BSAP and the MSFD in comparison to the Helsinki Convention. The Helsinki Convention also takes ecosystem status – or ecological balance – as its ultimate aim, but this is not further defined. The objectives related to the MSFD and the BSAP are instead intended to create a foundation for more precise indicators and assessments, in order to more precisely assess related and relevant measures. As stated above, the main obligation for states is to take measures that they deem necessary to achieve the

69 BSAP Eutrophication segment, 'Ecological Objectives'; MSFD, Article 3(5) and Quality descriptor in Annex I, Qualitative descriptors for determining good environmental status, p (5): '*Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.*' Furthermore, the WFD is formulated and structured differently than the BSAP or the MSFD, but is still related and not differing much in interpretation. Annex V of the WFD, sets out the criteria for *good ecological (and chemical) status* in accordance with the directive. In its general definitions of the water status it states that high status equals: '*(...) no, or only very minor, anthropogenic alterations to the values of the physico-chemical and hydromorphological quality elements (...)*' see WFD, Annex V, 1.2, Normative definitions for ecological status, Table 1.2.

70 BSAP Eutrophication segment.

71 MSFD, Articles 5(1) and 5(2).

72 EU MSFD CIS, The Common Implementation Strategy for the Marine Strategy Framework Directive, 'Learning the lessons and launching a re-enforced phase of implementation', Strategic document including a work programme for 2014 and beyond, Final version agreed by Marine Directors on 5/12/2013. See also Bohman (n 3) 154–59, 231–49.

regulatory goal of the instrument.⁷³ The basis for these measures within the MSFD is a common method for making assessments and the ecosystem indicators.⁷⁴ However, while this might be beneficial from an ecosystem point of view, and paves the ground for both flexibility and adaptability in regards to current problems and levels of knowledge, the effectiveness of this process has also been questioned. However, it is in fact a rather effective process in the way that it has brought the state parties into a common process of implementation based on close cooperation and political focus. In short, this system can be seen as institutionalizing adaptive features and ecosystem focus within the regulatory system, as a result of – and with an important basis in – the steady process of negotiating and evaluating environmental status and ecological indicators. Even if making environmental assessments and defining suitable indicators is a thorough process, this is also one of the more vulnerable aspects of institutional coordination. This is because different factors may be taken into account and thus it is not certain that states have based their assessments on the same indicators. This aspect is also related to differences in structure between the WFD and the MSFD.

Even if the process of adopting and coordinating indicators and making assessments is successful it does not guarantee that states will, in fact, take the necessary measures. This is both related to the difficulties for the EU Commission and HELCOM in scrutinizing what each state has taken into account when deciding on measures, and to the difficulties caused by the lack of any linear and direct relationship between indicators, measures and environmental or ecological change. Thus, the effectiveness of such ecosystem indicator-based regulatory approach and the general aim to achieve good environmental status is questioned because of the leeway that this system gives the states.⁷⁵ In relation to the issues of effectiveness, it is noteworthy that there is a difference between indicators for status assessment of good environmental status on the one hand, and targets or indicators to track progress towards good environmental status and evaluate effectiveness of measures on the other. Since eutrophication is signified by non-linear causal connections between the input of discharges and the change in the ecosystem, a reduction in pollution cannot be connected to a direct change in the environmental status. There is thus no straightforward connection between indicators for assessing environmental status and measures taken. Instead, effectiveness is more likely to be achieved if focus is also directed towards measures taken.

73 BSAP Eutrophication segment, 6; MSFD, Article 5(2)b.

74 MSFD, Articles 5(1) and 5(2)a.

75 See further in Bohman (n 3) 236–49.

The BSAP does, however, include an even more precise goal in relation to the ecosystem and eutrophication than the MSFD: it has translated the ecological objectives into reduction targets for nutrients. The reduction targets are based on calculations of how large reductions in nutrient pollution would be necessary to achieve the goal of good environmental status for eutrophication, i.e. to have a Baltic Sea which is unaffected by eutrophication. The targets are set in relation to each of the Baltic Sea basins⁷⁶ and in relation to each of the states in the catchment area, so that each state has their own target in relation to their previously monitored discharge levels. Although the legal status of the BSAP is ambiguous and the reduction targets are stated only in principle, the targets do provide a very concrete view of what level of ambition the states must aspire to in taking measures. Since the BSAP is a regional reflection of the MSFD this could be seen as a concretization of the general goal and obligations to take measures also within the MSFD. In this way the BSAP reduction targets are significant in creating more direct application of the ecosystem approach in relation to requirements and measures taken, despite its flexible and uncertain legal status, and despite the actual reduction targets being non-binding.

5 Operationalization and Assessment of Regulatory Measures

5.1 *Assessing Compliance*

One drawback of the Helsinki Convention and the flexible HELCOM structure is that it does not include any mechanism for strict compliance control concerning the Convention and its related instruments or recommendations. An agreement with high flexibility and a lack of effective compliance control could be regarded as a weak agreement, lowering the level of the trust between the parties. However, it is not only flexibility and the legal status of the Baltic Sea instruments that create uncertainties in relation to enforcement and compliance when it comes to eutrophication and other similar environmental problems. Flexible structure and legal uncertainty are important factors to take into account when reviewing the prerequisites for compliance and how to assess what is actually required by an instrument. In other words – if requirements

76 The Baltic Sea is divided in a series of sub-basins separated by sills. The main sub-basins are the Bothnian Bay, the Bothnia Sea, the Archipelago Sea, the Gulf of Finland, the Gulf of Riga, the Baltic Proper, the Belt Sea, Kattegat, and the Danish Straits. See R Elmgren, 'Understanding Human Impact on the Baltic Ecosystem: Changing Views in Recent Decades' (2001) 30:4/5 *Ambio*, Man and the Baltic Sea, 222.

are wide and undefined in precise terms it is difficult to judge what to require compliance with.

This relationship between requirements and compliance becomes even more diffuse if the requirements – as in the case of Baltic Sea eutrophication – are connected to ecosystem indicators that are hard to trace. It is questionable whether it is sufficient to have a legal structure that is so directly connected to ecosystem assessments, particularly when it is an undisputed fact that it is not possible to trace environmental change and environmental progress as a linear outcome of any measures taken. If the object of regulation is also difficult to monitor – like diffuse nutrient pollution – there are opportunities to free-ride.⁷⁷ This means that state parties may choose a low ambition of implementation and compliance and rely on other states to take measures to ensure a better environmental status in the Baltic Sea – or at least not get caught – since it is not possible to hold such state accountable for non-compliance. Another reason for slow development of traceable results and a significant risk of non-compliance may be found in the fact that vagueness of the obligations makes compliance difficult to determine.⁷⁸ Thus while the new legal instruments and structures are designed to apply an ecosystem approach and be more directly connected to ecosystem status, there is also a risk that they create a system in which it is not possible to assess legal compliance and enforcement. These aspects will be addressed in the following sections.

5.2 *Monitoring Environmental Data and Scientific Information*

The flexibility and loose structure described could lead to uncertainties in regard to compliance. However, as noted above, connecting regulatory efforts to ecosystem indicators and scientific knowledge are important features of an ecosystem approach. It is clear that ecosystem management through implementation of an ecosystem approach should be based on the contemporary scientific understanding of the relevant ecosystem. Such scientific understandings can be gained through international cooperation, including through joint scientific research, exchange of information, knowledge and experience, transfer of technology, etc.⁷⁹ One reason these aspects are important, in addition to the increased ecosystem focus and scientific basis they create, is that the actual system itself creates a platform for closer cooperation between states

77 K Raustiala, 'Form and Substance in International Agreements' (2005) 99:3 AJIL 581, 592–93.

78 See further in: EA Kirk, 'Noncompliance and the Development of Regimes Addressing Marine Pollution from Land-based Activities' (2008) 39:3 OceanDev&IntL 235, 239ff.

79 H Wang (n 9) 44.

to find mutual solutions and thus also puts focus on issues that are difficult to solve, such as diffuse pollution and regulatory measures in the agricultural sector. In short, it creates a platform for a process of some kind of managerial compliance. In this way the collaboration connected to ecosystem indicators and the actual ecosystem approach also bears the potential to bridge some of the uncertainty connected to adaptive management approaches within the regulatory structure and flexible mechanisms.

The Helsinki Convention has developed requirements in this regard, and calls on the parties to, inter alia, cooperate in the fields of science, technology and research, and to exchange data and scientific information.⁸⁰ The Convention also provides for the adoption of monitoring programs, and HELCOM thus monitors both the pollution load in the whole marine area, including open waters, as well as the sources of this pollution in the Baltic Sea area. In the 1980s HELCOM introduced regular data collection to document the ecological status of the Baltic Sea in so-called Pollution Load Compilations (PLC).⁸¹ In 1990, an important step was taken when the Joint Comprehensive Environmental Action Programme (JCP) was adopted at a ministerial meeting. The program identified a list of hot spots and actions to be taken in relation to these hot spot problems.⁸² These initiatives by HELCOM have been important for the development of the regulatory structure in the Baltic Sea area, even if they have not been directly connected to an assessment of compliance or measures taken by the parties. Indeed, on the contrary, HELCOM has built its compliance review on self-reporting, although this has not proven to be a very effective mechanism. The reports that HELCOM has received from states parties regarding measures and implementation of amendments and recommendation have been varying in detail and quality. As a result of these varying and sometimes incomplete reports it appears that HELCOM has not had a complete picture of the level of compliance with its suggested measures. Hence it has also not been possible to review whether measures taken and their proper implementation can be connected to certain environmental improvements or not.⁸³

80 The Helsinki Convention, Article 24(1).

81 These are the so-called HELCOM Pollution Load Compilations (PLCs). The first PLC: HELCOM (1987) 'First Pollution Load Compilation', Baltic Sea Environmental Proceedings (BSEP) No. 20, 1987. See also the Fifth Baltic Sea Pollution Load Compilation: HELCOM, 'The Fifth Baltic Sea Pollution Load Compilation (PLC-5) – An Executive Summary', Baltic Sea Environmental Proceedings, No. 128A, 2012. See also Bohman (n 3) 128–31.

82 Inter alia: M Valman, *Three Faces of HELCOM – institution, organization, policy producer* (159 Stockholm Studies in Politics, Stockholm University 2014) 16.

83 Bohman (n 3) 192–196, 339–47.

Another reason for why implementation, compliance and the reporting on measures taken have been at a low level could be that many of the problem areas and the suggested measures have been controversial for the states to enforce on a national level. This seems also to be a reason why it has been difficult in the first place to agree on hard requirements. One problematic area, in particular, is diffuse pollution from agriculture and the measures recommended to reduce this pollution through reductions and adjustments in agricultural practices.⁸⁴

The engagement and initiatives to strengthen marine governance within the EU have also had a significant impact on the development of further regulatory action among the Baltic Sea coastal states and on the integration of the ecosystem approach. This action has, however, to a large extent built on the previously gathered data and scientific experience of HELCOM which has assisted in providing necessary information relating to the determination of environmental status. HELCOM has thus had a significant role in the development and application of the EU directives in the Baltic Sea setting. It has also been crucial in elaborating the reduction targets in the eutrophication segment of the BSAP.⁸⁵

Nevertheless, although HELCOM has been continuously monitoring the environmental status of the Baltic Sea and has issued recommendations to its parties based on its findings, these assessments have not been as directly connected to ecosystem change in the way that the MSFD and BSAP propose. One significant result of adopting the MSFD and the BSAP has been the focus on environmental indicators, and the much important work of making environmental assessments and reassessments that has followed. These assessments have been made both in order to identify or define what good environmental status is, i.e. what is to be accomplished, and to determine the current environmental status in relation to this goal. This also includes the identification of indicators which may be used to track environmental change and can possibly therefore be used as connecting points with the measures that have been or should be taken.

84 E.g. HELCOM Terms of Reference for HELCOM Group on Sustainable Agricultural Practices (adopted by HELCOM HOD 46–2014). See also HELCOM, Updated Fifth Baltic Sea Pollution Load Compilation (PLC-5.5), Baltic Sea Environmental Proceedings No 145, 2015, for a description of the distribution of pollution sources.

85 BSAP, Eutrophication segment, 8–9; also *ibid.*, 145.

5.3 *Pathways for Participation*

In legal regimes and structures generally, participation or involvement of actors representing the public, NGOs, experts, and interest groups (here referred to as stakeholders)⁸⁶ occurs in many different ways through both formal and informal channels. In recent decades, international law, national legal regimes and the EU have increasingly supported and included mechanisms and structures for different kinds of stakeholder involvement.⁸⁷ Participation is acknowledged as a means to, inter alia, balance international, multilateral, and multi-levelled norms with local action, in a democratic spirit.⁸⁸ This corresponds to what has been stated in elaborations of the concept of ecosystem approach in the CBD. The guiding principles developed for the implementation of the ecosystem approach emphasize stakeholder participation and the exchange of knowledge and information.⁸⁹

The provisions of the Helsinki Convention do not directly address the issue of stakeholder participation. Article 17 of the Convention states that the parties shall ensure that information on the condition of the Baltic Sea and the waters in its catchment area is made available to the public, as well as information on measures taken or planned. However, development of the BSAP involved a process of stakeholder involvement, and the structures established by the MSFD and the BSAP envisage participation by different actors, not least scientific experts. As a result HELCOM has also updated its guidelines on granting

86 'Stakeholder' is generally seen as broad term for defining interest groups, and does not match the more strictly defined group of actors usually targeted by formal requirements for participation in legal regimes.

87 See for example: S Charnovitz, 'Two Centuries of Participation: NGOs and International Governance' (1997) 18 *MichJIntlL* 183; M Ambrus, K Arts, E Hey and H Raulus, 'The role of experts in international and European decision-making processes: setting the scene' in M Ambrus, K Arts, E Hey and H Raulus (eds), *The role of "experts" in international and European decision-making processes: advisors, decision makers or irrelevant actors?* (Cambridge University Press 2014); J Ebbesson, 'Public Participation' in D Bodansky, J Brunnée and E Hey (eds), *The Oxford Handbook of International Environmental Law* (Oxford University Press 2007) 681–702.

88 Ebbesson (n 87) 686ff; L Schrefler, 'Reflections on the different roles of expertise in regulatory policy making' in M Ambrus, K Arts, E Hey and H Raulus (eds), *The role of "experts" in international and European decision-making processes: advisors, decision makers or irrelevant actors?* (Cambridge University Press 2014). See also for example the conclusions of: S Andresen, 'The role of scientific expertise in multilateral environmental agreements: influence and effectiveness' in M Ambrus, K Arts, E Hey and H Raulus (eds), *The role of "experts" in international and European decision-making processes: advisors, decision makers or irrelevant actors?* (Cambridge University Press 2014).

89 The CBD Malawi Principles (n 20), Principles, 1, 2, 7 and 11.

observer status to its meetings.⁹⁰ The guidelines now state, inter alia, that: *‘The organization must be able to contribute substantially to the aims and objectives of the organization and must be able to contribute substantially to the aims and objectives of the Commission. It must have technical, scientific, economic, social or other expertise relevant to the objectives of the Convention on the Protection of the Marine Environment of the Baltic Sea Area.’*⁹¹

The process of decision-making in the Baltic Sea legal frameworks, and not least the process of adopting ecological indicators and targets as well as all the work associated with development and implementation of these instruments, demands and involves a large variety of actors who bring different types of knowledge, including scientific knowledge, to the process. Some changes and developments regarding stakeholders and participation have been seen with regard to the BSAP. The process leading towards the adoption of the BSAP stressed the importance of stakeholder participation, as an important factor in the concept of ecosystem approach.⁹² This is thus also reflected in the implementation or operationalization of the ecosystem approach and the BSAP, where a more direct approach towards stakeholder participation is integrated. In contrast to the Helsinki Convention, the BSAP deals with this subject in more detail.⁹³ It is also clear that the foundations of the BSAP – the ecological assessments and indicators – have been developed through rather advanced collaboration with, inter alia, scientists in a stakeholder process.⁹⁴ For the purpose of implementing the BSAP and the MSFD, HELCOM has established working groups and strategies in order to steer its work in the direction of further involvement of scientific experts and other stakeholders. Some examples will be reviewed in the following section.

5.4 *Adaptive and Managerial Approaches to Implementation*

An important change that has been brought by the new structure of thorough assessments, reassessments and definition of indicators, is that it necessitates greater cooperation between science and state parties. Another feature

90 HELCOM Guidelines on Granting Observer Status to Intergovernmental Organizations and International Non-Governmental Organizations to the Helsinki Commission, 36–2015, Annex 14.

91 *Ibid.*, criteria 1.3.

92 HELCOM ‘Statement on the Ecosystem Approach to the Management of Human Activities Towards and Ecosystem Approach to the Management of Human Activities’ (n 23), para 15 a.

93 BSAP Segment on Awareness raising and capacity building, 30.

94 See for example: SD Van Deveer, ‘Networked Baltic Environmental Cooperation’ (2011) 42:1 *Journal of Baltic Studies* 37, 42.

in these instruments, including the WFD, is that they are objects of cyclic adaptive evaluation and assessment. The plans and programmes of measures adopted must be kept up to date and be re-evaluated within a certain interval (every 6 years).⁹⁵ This leads to further and continuous state cooperation and also to recurring meetings within both the framework of the MSFD and the BSAP. Thus the new regulatory structure has already led to more intensified collaborations between the parties and with a new range of stakeholders. These meetings and evaluations of measures might also lead to further assessments, further recommendations adopted by HELCOM and hopefully further measures (or other measures) adopted by the states.⁹⁶

HELCOM has also updated its work on monitoring and assessment based on a Strategy that was adopted by the HELCOM Ministerial Meeting in 2013.⁹⁷ The Strategy is a common plan to monitor and assess the health of the Baltic Sea in a coordinated and cost-efficient way involving all HELCOM contracting parties. Some of the objectives of the monitoring and assessment strategy include laying out a system which enables showing how visions, goals and objectives set for the Baltic Sea marine environment are being met; providing a system that enables linking the quality of the environment to its management – even if this is not possible in relation to eutrophication – and; facilitating the implementation of the ecosystem approach covering the whole Baltic Sea, including coastal and open waters.

The Strategy furthermore sets out the structure and time frame for the production of region-specific assessments such as comprehensive thematic and holistic assessments and more concise and more timely indicator reports and other assessment products. Moreover, the Strategy aims to create a system to enable the raising of general public awareness of the Baltic Sea and HELCOM actions. The general principles of the monitoring strategy that relate to coordinated monitoring have been translated into concrete specifications and requirements through the HELCOM Monitoring Manual.⁹⁸

HELCOM has also established a special working group to implement the ecosystem approach, the Group for the Implementation of the Ecosystem Approach (HELCOM GEAR). GEAR is meant to work towards region-wide cooperation on all elements of national marine strategies, building both on national

95 MSFD, Article 17(2).

96 See also Bohman (n 3) 277–310, 356–65.

97 HELCOM Monitoring and Assessment Strategy, part of the 2013 HELCOM Ministerial Declaration and was adopted by the 2013 HELCOM Ministerial Meeting, Attachment 4 of the document was updated in 8.9.2017 following decisions made in STATE & CONSERVATION 6–2017 meeting.

98 Ibid.

activities based on a legal framework and on HELCOM's work, including HELCOM's coordinated monitoring programmes, core indicators with good environmental status boundaries, and thematic and integrated assessment reports. The group also reviews strategies and environmental indicators with the view to facilitating adaptive management to improve the status of the Baltic Sea.⁹⁹

HELCOM GEAR not only implements the BSAP but also serves as a regional instrument for the national work of the HELCOM EU contracting states in implementing the EU MSFD. It acts as a managerial level coordinator and includes coordination with activities under the Maritime Doctrine¹⁰⁰ of the Russian Federation, the Russian instrument that compares to the MSFD and the BSAP.¹⁰¹ In practice GEAR is intended to plan activities that support regional coordination and activities on the ecosystem approach. GEAR also serves as an initiator of processes and reviews the relevant deliverables to guarantee that these have an optimal timing and content and respond to management and policy needs. GEAR facilitates the work and decision-making of the Heads of Delegation (HOD), allowing the HOD to focus on more strategic and policy relevant issues.¹⁰²

Another step taken when building new regulatory structures and implementing both the ecosystem approach and, more specifically, the MSFD and the BSAP, is the establishment of The HELCOM Group on Sustainable Agricultural Practices (Agri Group). HELCOM has always worked with issues relating to pollution from agriculture but with the adoption of the BSAP more force was put into this issue area. The Agri Group was established to deal specifically with agriculture in relation to the implementation of the ecosystem approach. The group is charged with finding solutions to how the agricultural sector can further contribute to reaching good environmental status. The group thus involves representatives from agriculture and environment authorities of the Baltic Sea states, the EU, and the HELCOM Observers (or Stakeholders) in a joint discussion on the Baltic agriculture and provides a platform for the creation of policy measures and instruments aimed at reducing the environmental impact

99 HELCOM, Terms of Reference for HELCOM Group on the Implementation of the Ecosystem Approach, As agreed by the HELCOM Heads of Delegation on 17 September 2014.

100 Maritime Doctrine of Russian Federation 2020, in English (unofficial translation): <https://dnnlgwick.blob.core.windows.net/portals/o/NWCDepartments/Russia%20Maritime%20Studies%20Institute/Maritime%20Doctrine%20TransENGrus_FINAL.pdf?sr=b&si=DNNFileManagerPolicy&sig=fqZgUUVRVrRkmSFNMOj%2FNarNawUoRdhdpFJj7%2FpAkM%3D> accessed 2 September 2018. See also <<http://en.kremlin.ru/events/president/news/50060>>.

101 HELCOM, Terms of Reference for HELCOM Group on the Implementation of the Ecosystem Approach (n 99).

102 Ibid.

of agriculture, to the eutrophication, in the Baltic Sea.¹⁰³ HELCOM thus has increasing cross-sectorial collaboration on agricultural issues, ensuring multi-voiced discussions aimed at furthering prosperity from agriculture across the region, but still with the objective of minimizing harm to the Baltic Sea. One explicit aim of the Agri Group is to facilitate implementation of Part II of Annex III of the Helsinki Convention on 'Prevention of Pollution from Agriculture'. The group meets at least once a year, in order to support and follow-up the implementation and progress of the BSAP, including the so-called 'Palette of measures for reducing phosphorus and nitrogen losses from agriculture' that was adopted together with the 2013 Copenhagen Ministerial Declaration.¹⁰⁴ In addition, HELCOM has also pursued projects with the more specific goal of establishing better environmental practices in agriculture in certain targeted states.¹⁰⁵ Some projects have been directly bilateral with Russia in regards to their implementation of the BSAP, since Russia is not an EU member state. Some projects have also been collaborating with non-party states (being neither parties to the Helsinki Convention, nor members to the EU) but that are part of the catchment area, primarily Belarus.¹⁰⁶ Such projects could also be included in the work of the Agri Group.

These aspects of the new regulatory structures, with reviews, wider participation and collaboration as presented above, are interesting because they require deeper involvement by the state parties both in taking a more proactive role in the process of developing and implementing measures, and in the development of new law. While self-reporting has been the main mechanism for compliance review within HELCOM, the new system of adaptive review and reporting of measures taken both to HELCOM and to the European Commission constitutes a more thorough process. The states are required to report on their measures and on evaluations of these measures as a part of the implementation process. In addition, the results are continuously assessed and discussed in the cyclic review process where progress is to be tracked and elaborated. Importantly, there is a double incentive structure since the state parties

103 Terms of Reference for HELCOM Group on Sustainable Agricultural Practices (n 84) 1.

104 *Ibid.*, 1.

105 See e.g. Baltic Compass Project, <www.helcom.fi/helcom-at-work/projects/completed-projects/baltic-compass/> accessed 2 January 2018 and <www.balticcompass.org/index.html> accessed 2 January 2018.

106 E.g. HELCOM BALTHAZAR (2009–2012), <www.helcom.fi/helcom-at-work/projects/completed-projects/balthazar/> accessed 2 January 2018 and HELCOM BASE (2012–2014), <www.helcom.fi/helcom-at-work/projects/completed-projects/base/> accessed 2 January 2018.

are obligated both by the Helsinki Convention and the BSAP, as well as by the EU Directives.

The establishment of new working groups and routines resulting from the adoption of the BSAP does not in itself explain any developments in regulation and/or measures. However, one may assume that having a group of experts that focuses specifically on developing alternative measures and practices, and which, moreover, works actively to include stakeholders and authorities within the entire region, will have at least some effect, resulting in further suggested measures and potential solutions, as well as in increased pressure on the state parties to implement such measures and solutions. In this way GEAR, in particular, can be seen as fostering managerial compliance, since its mandate is clearly to foster coordination on a managerial level among the states.¹⁰⁷

Through the work of both GEAR and the Agri Group important bridges that balance politically sensitive issues are being built. Even though there are requirements of pollution reductions from agricultural practices in Annex III to the Helsinki Convention, the state parties have been reluctant to implement such requirements strictly. The development of reductions from agriculture has been slow.¹⁰⁸ Nevertheless, it was repeated in the BSAP that pollution from agriculture must be reduced since it is one of the main sources of nutrients, and new Recommendations were adopted.¹⁰⁹ No hard laws have, however, been agreed upon. This is undoubtedly partly because it is difficult to define in any precise way what each state must do in order to reduce pollution from agriculture, but it is also likely to be because of the economic interests that are tied to effective agricultural production as well as strong lobbying groups. It is arguably more useful to apply adaptive approaches in the manner now being done and to work through these groups in a coordinated fashion to bridge some of the politically sensitive issues that arise. At the very least this method of operation can involve both state representatives and general stakeholders in a process that focuses more on solutions rather than on obstacles. Through this collaborative process of review and control the risks entailed with the flexibility of the regulatory instruments, which could provide

107 A Chayes and AH Chayes (n 1) (generally) and 10–11. See also Kirk, EA, 2008 (n 78), 236, where the author argues that a regime's strength in part can be derived from the manner in which it responds to noncompliance if noncompliance is embraced as part of an iterative process of developing understanding, knowledge, capacity, etc.

108 See e.g. HELCOM 2015, Updated Fifth Baltic Sea Pollution Load Compilation (PLC-5.5) Baltic Sea Environment Proceedings, No. 145, 2015.

109 HELCOM Copenhagen Ministerial Declaration: Taking Further Action to Implement the Baltic Sea Action Plan – Reaching Good Environmental Status for a healthy Baltic Sea, 3 October 2013, Copenhagen, Denmark; BSAP Eutrophication Segment.

a leeway for freeriding or choosing less ambitious levels of implementation, are also to some extent being compensated without setting the legal principles aside, and while still enabling the kind of adaptive and flexible approaches that are required by an ecosystem approach.¹¹⁰ Moreover, this combination of control, focus on mechanisms for a governance system with prerequisites to allow for adjustments to the ecosystem dynamics, multi-level processes, as well as involvement of relevant actors might provide regulatory governance structures for the achievement social-ecological resilience as presented by the current theoretical framework.¹¹¹

As noted above, these institutional developments have essentially resulted in a review structure that resembles a managerial compliance process.¹¹² Many of the stakeholders involved are those who will be directly affected by new regulatory measures. This can be criticized since it is likely that these actors might create obstacles to stricter measures. However, it also means that the level of acceptance of any measures that are adopted becomes higher, and acceptance is often a good basis for implementation and compliance.¹¹³

This process of developing 'managerial compliance' has allowed the further development of solutions to issues that have resisted regulation through the more traditional law-making processes. Thus, in this way, the ecosystem approach, and the features or functions it entails, have had an important impact on the overall regulatory structure and legal development. Although the ecological indicators cannot always be directly connected or used as a tool for evaluating measures, the process of developing both measures and ecological indicators has led to a regulatory process that is directly connected to the ecosystem. This structure and process are also clearly both based on and dependent on features such as participatory pathways and adaptive review which leads to flexibility, science-based measures, and a more active review of enforcement and implementation.

6 Concluding Remarks

The aim of this chapter has been to review and present some aspects of the impact of the ecosystem approach in the regulation of eutrophication in

110 Bodansky (n 2) 250–51. See also PM Haas, 'Do regimes matter? Epistemic communities and Mediterranean pollution control' (1989) 43(3) *Int Organ* 377, where similar development in the governance of the Mediterranean is described.

111 See Bohman (n 3), ch 8.

112 As defined in A Chayes and AH Chayes (n 1); Bohman (n 3) 323–26, 356–72.

113 See for example: C Abbot and M Lee, 'Economic Actors in EU Environmental Law' (2015) 34:1 *YEL* 26. See also Bohman (n 3) 303–06.

the Baltic Sea. The purpose has been to show how features of environmental governance, reflecting an ecosystem approach, may be identified within a legal framework. The purpose has also been to demonstrate how the implementation of such features not only leads to a genuinely more ecosystem-focused regulatory system, but may also create provisions for a more effective implementation of regulatory requirements – even where there is a general lack of traditional compliance review mechanisms. Indeed, in fields of environmental law involving complex, non-linear problems, this might even be considered a more effective structure since it also provides for a review system where focus is on measures taken rather than on only trying to identify results.

Many of the features that typically represent an ecosystem approach are reflected in the current regulatory setting in the Baltic Sea. However, the vagueness and flexibility of the obligations expressed leaves considerable leeway to states in deciding on specific measures to be adopted to implement their obligations. This is equally true in the case of the Helsinki Convention as in the case of the EU Directives, opening the possibility of a lowering of ambition when it comes to the measures to be adopted. However, some features of the regulatory framework, including pathways for participation and more ecosystem-centered regulatory approaches, seem to strengthen the overall regulatory structure and, thus, the integration of an ecosystem approach. Nevertheless, it must be acknowledged that not all states in the Baltic Sea catchment area are parties to HELCOM or member states of the EU. They are thus not bound by HELCOM or EU requirements, although they may still be included in the principal reduction targets, which are themselves problematic as they are established on a state by state basis rather than collectively. More effective collaborative solutions are needed to address these shortcomings, and it is possible that these new structures can pave the way for such bilateral cooperation.

Legal frameworks for regulating the discharge of eutrophic substances in the Baltic Sea area can be seen to provide a good basis for adopting new and stronger legal measures adjusted to the complexity of eutrophication. The legal instruments contain requirements for the Baltic Sea coastal states to take further measures and they also aim at promoting further cooperation and coordination in the region.¹¹⁴ HELCOM and the Helsinki Convention have produced a large number of Recommendations as a complement to the Convention provisions, with more specific demands for measures required and emphasis on other types of actions to reduce the nutrient input to the Baltic Sea.¹¹⁵ In

114 MSFD, Article 6, preamble (13) and (16); the BSAP Eutrophication segment.

115 HELCOM Recommendations: 28E/4, Revised Annex III 'Criteria and Measures Concerning the Prevention of Pollution from Land-Based Sources', of the 1992 Helsinki Convention

addition, the reduction targets in the BSAP have contributed to the whole legal structure by concretizing what good environmental status actually means and, additionally, what level of measures must be taken into account to eliminate pollution consistently with the obligations of the Helsinki Convention.

The most important change that can be connected to the ecosystem approach, however, seems to be the development of a process for making ecosystem assessments at different levels; a process that includes suggesting measures and identifying what kind of regulatory actions might lead to the desired result. This has created a basis for what can only be described as a managerial compliance process that seems to bridge many of the uncertainties arising from the regulatory structure and the complex environmental factors it seeks to address. This platform for assessments and discussions has provided advancements in areas where solutions are complex and where agreement on legally binding measures has been difficult, or impossible, to obtain. Nevertheless, the issues of time-lags between measures taken and visible results, and of adoption of effective operational targets, offer real challenges even with a managerial system in place. When all is accounted for, however, it seems likely that both the level of ambition for state implementation and the level of requirements will rise.

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Delimiting Marine Areas: Ecosystem Approach(es?) in EU Marine Management

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1 Background

Marine management is a question of delimitations. The sea is a large ecosystem, which, for functional governance, needs to be broken down into smaller, more manageable, units. A central issue for such governance is: what are the appropriate geographic delimitations in terms of ecosystem functionality? A related and equally important question is: what management level within the administrative system is best suited for such governance? These issues are important to discuss as they relate to how a legal regime for the sustainable management of marine ecosystems can be designed. This chapter utilises a theoretical framework grounded in legal geography to examine the way in which choices of management levels and geographical scales affect the functional application of the ecosystem approach. This examination is based on an analysis of management levels and geographic delimitations applied in the Swedish transposition of three different EU directives, which are themselves examined in order to ascertain whether it is possible to claim that there is a coherent definition of an ecosystem approach¹ within EU marine legislation.

Over the last decade, the ecosystem approach has become a common tool in environmental governance. Various definitions and interpretations are used and there is probably no single, functional, understanding of the concept across different legal systems. However, the 'Malawi principles', adopted by the Parties to the Convention on Biological Diversity (CBD), articulate 12 principles for a coherent application of the ecosystem approach that have been internationally agreed upon.² Two of these principles are of importance for the purposes of this chapter: Principle No 2, which stipulates that '[M]anagement should be decentralised to the lowest appropriate level'; and, Principle

1 Within the directives this approach is labeled 'ecosystem-based approach'. However, for the sake of consistency in this chapter I will use the term 'ecosystem approach' also when referencing the directives.

2 UNEP/CBD/COP/5/23, *Decision V/6 Ecosystem Approach*, (2000).

No 7, which stipulates that '[T]he ecosystem approach should be undertaken at the appropriate spatial and temporal scales'. These principles both have geographical implications: Principle No 7 as it relates to the spatial delimitations of ecosystems; and Principle No 2 as the competence, or jurisdiction, of each management level is restricted administratively, as well as geographically, in relation to other management levels.

Although concisely formulated, these two principles give rise to a crucial question: What constitutes 'appropriate' in the context of spatial and temporal scales of ecosystems? The answer to this question may be illusive given that ecosystems are complex and intertwined, land-based activities have great effects on marine ecosystems, and administrative boundaries are unlikely ever to correspond precisely to those of a natural ecosystem. Nevertheless, choices of scale and management level need to be made.

From an EU perspective, directives aimed at governing marine ecosystems through the application of an ecosystem approach, need to be specific as to what and where that ecosystem is. Ideally, the appropriate level and scale will be the same throughout union legal acts, as long as those acts use the same explicit approach and cover the same geographic area. This, in itself, would provide some substance to the term 'appropriate'. However, when looking at the three main legislative acts pertaining to the marine environment, it is clear that there is no *coherent* definition of what constitutes the 'appropriate' scale or management level.

For the purposes of this chapter, coherence is understood as being 'about the substantive harmony of law. It is a quality of legal principles rather than rules'.³⁴ This broad understanding makes it a useful concept with which to explore the ecosystem approach, as it can relate to the application of the approach, rather than to how the approach is expressed in the legal acts. While there are many levels to coherence, for example coherence within an entire legal system or within smaller fragments of it. In the analysis section of this chapter I use the concept as referring to coherence within a certain field of EU law, to wit, the field of marine governance.

In examining the question of coherence, I use the emerging concept of legal geography. This will help to provide an analytical framework for an examination of the implications that choices of management level and ecosystem

3 Kaarlo Tuori, *Ratio and voluntas: the tension between reason and will in law* (Ashgate 2011) 153.

4 This concept has been debated, see e.g.: Aulis Aarnio, *On coherence theory of law* (Lund: Juristförl.: Akademibokh. distributör 1998). Tuori speaks of a type of local coherence, where it is only within specific fields of law that it can be possible to reach any kind of coherence. Tuori (n 3) 172.

scale may have for the functional application of the ecosystem approach. In the next section, legal geography is presented as the theoretical framework through which the relevant directives are analysed. The following sections discuss how multiple management levels and ecosystem scales exist at the same time within the EU legal system, creating a legal plurality of sorts within EU management of marine areas.⁵

2 Legal Geography

Much has been written about the ecosystem approach. However, little attention has been paid to how the legal system, when paired with the geographic context in which the approach is applied, administratively creates ecosystems. In essence, little attention has been paid to the issue of the 'legal geography' of the ecosystem approach. Here, 'legal geography' is used as a relatively broad theoretical approach to analysing the law. A basic concern of this approach is to explore and explain how law and space are intertwined and how they constitute and re-constitute each other. Law is located in space, just as law also renders legal significance to physical and social spaces.⁶ In other words, law both defines and is defined by space. This concept of space is somewhat elusive.⁷ Here, however, it is referred to in a more specific term, 'legal space', which is understood as referring to a geographic area delimited through law. Thus, for present purposes, the primary focus of this chapter is directed to the consequences that different regulatory choices of spatiality may have for the application of an ecosystem approach. The spaces studied here are policy-based

5 Legal plurality in a spatial context is discussed inter alia by Franz von Benda-Beckmann and Keebet von Benda-Beckmann, 'Places That Come and Go: A Legal Anthropological Perspective on the Temporalities of Space in Plural Legal Orders' in Irus Braverman and others (eds), *The expanding spaces of law: a timely legal geography* (Stanford, California: Stanford Law Books 2014) 30–53. The use in this text is somewhat altered from their definition since this chapter is concerned with spatial legal plurality within a particular legal system, not between systems.

6 See e.g. Irus Braverman and others, 'Expanding the Spaces of Law' in Irus Braverman and others (eds), *The expanding spaces of law: a timely legal geography* (Stanford, California: Stanford Law Books 2014) 1.

7 See e.g. Henri Lefebvre, *The production of space* (Oxford: Basil Blackwell 1991); Doreen B. Massey, *For space* (London: SAGE 2005). For more legal discussions on the concept see Mariana Valverde, "'Time Thickens, Takes on Flesh": Spatiotemporal Dynamics in Law' in Irus Braverman and others (eds), *The expanding spaces of law: a timely legal geography* (Stanford, California: Stanford Law Books 2014) and David Delaney, *The spatial, the legal and the pragmatics of world-making: nomospheric investigations* (Routledge 2010).

delimitations of nature, and questions are asked as to how these differ within a legal system and create overlapping legal spaces with different management structures.

However, space is not the only relevant aspect. As Osofsky notes, geographic understandings of scale can assist when evaluating whether, and if so in what manner, the jurisdictional scope of a legal entity should be co-extensive with that of the natural phenomenon (in this case a marine ecosystem) it aims to sustain.⁸ Thus, while not as widely discussed in the literature as space, the social and natural significance of choices of scale should not be underestimated. Neither should scale be seen as something fixed; differentiation of scales is a social practice and, when seen as such, it is possible to highlight, and problematize, different choices of scale.⁹ This requires discussions of scale, of whether there is such a thing as *appropriate* scale, and of how different choices of scale affect implementation.¹⁰ This is particularly relevant because, as De Sousa Santos notes, choices of scale and perspective are normative. Thus, choosing an appropriate geographical scale of governance, or an appropriate level of management will ultimately affect how the legislation is used.¹¹

The choice of scale, the 'what'¹² to be governed, entails sacrifices, either in detail, or in how much of the entity to be governed is captured. A local scale will be high in resolution and detail. A national, or international scale, on the other hand, will represent lower resolution,¹³ providing a general overview, but entailing a loss in detail. This choice of scale issue is not merely a legal one; it is equally true in ecological sciences, where ecosystems need to be broken down into smaller units to be studied. Research has shown that patterns that can be found on one spatial scale, may be invisible at another.¹⁴ The choice of scale is

8 Hari Osofsky, *Scales of law: Rethinking climate change governance* (ProQuest Dissertations Publishing 2013) 31.

9 See e.g. Neil Smith, 'Geography, Difference and Politics of Scale' in Joe Doherty, Elspeth Graham and Mo Malek (eds), *Postmodernism and the social sciences* (Basingstoke: Macmillan 1992), 57–79.

10 Not much focus has been directed at scale within the field of legal geography. For a discussion on this see Osofsky (n 8).

11 Boaventura De Sousa Santos, *Law: A Map of Misreading – Toward a Postmodern Conception of Law* (1987).

12 This 'what', is of course ecosystems, but it also encompasses the questions of where these ecosystems are situated and how they are delimited.

13 De Sousa Santos uses the terms large/small scale. I have chosen to call this high/low resolution as I believe these are clearer terms.

14 Nathan Sayre, 'Ecological and geographical scale: parallels and potential for integration' 29 *Progress in human geography* 276, 279.

thus important in the social, as well as in the natural, sciences. Its importance is accentuated in the inter-disciplinary work of environmental management.

The choice of management level, i.e. 'who' does the governing, will entail choices of projection revealing what the limits of operations are. This projection will in turn affect how neighbouring areas are treated. An example of this would be choosing a national government agency as the appropriate management level. In De Sousa Santos' terms this would be a medium scale, and the projection would be national. The marine environment in neighbouring states would receive less attention than the national environment, but at the same time, local details may be lost due to prioritisation of national interests.¹⁵ I refer to these choices of scale and level as choices of jurisdiction.

These choices of jurisdiction lead to a third, more tacit choice, namely that of 'how' management will be performed. This 'how' has previously been discussed in terms of choices between different applicable laws in particular cases.¹⁶ However, it is equally valid to discuss this 'how' question in terms of which administrative body is performing the management. Local governments, such as municipalities, are not likely to take the same approaches to resource management as regional, national or international authorities. Similarly, a ministry of finance will not have the same perspective as a ministry responsible for environmental protection. Based on this assumption, or hypothesis, of the importance of 'who' and 'what', I will discuss issues of fragmentation within EU marine policy in the concluding sections of this chapter.

The need for these choices flows from a number of circumstances. As a general matter, there may be pre-existing administrative structures and bodies that can be tasked with new assignments. For example, when transposing EU directives into national legislation, choices in ministries responsible for the implementation can be guided by the purposes of the directives. Such purposes are reflected in the legal basis for the directive. The Marine Strategy Framework Directive (MSFD),¹⁷ for example, has a clear environmental purpose and is thus adopted on the legal basis of environmental policy. However, for framework directives with less distinct purposes, and multiple legal bases, such as the Maritime Spatial Planning Directive (MSPD),¹⁸ in which extensive

15 De Sousa Santos (n 11), 278.

16 For a discussion relating to this, see Mariana Valverde, *Jurisdiction and Scale: Legal 'Technicalities' as Resources for Theory* (2009).

17 Directive 2008/56/EC of the European Parliament and of the Council of the 17 June 2008 establishing a framework for the community action in the field of marine environmental policy (Marine Strategy Framework Directive) [2008] OJ L 164/19.

18 Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2016 establishing a framework for maritime spatial planning [2014] OJ L 257/135.

discretion is given to the individual member states, the constitutional infrastructure of a national administrative system will usually set the limits for the possible choices in management. In Sweden, for example, the municipalities traditionally have the exclusive competence for, inter alia, land and water-use planning within their boundaries, the so-called 'planning monopoly'.¹⁹ This has important implications for the design of Sweden's marine spatial planning (MSP) legislation.

At the EU level, the differences in perspectives can be demonstrated by reference to the different Directorate Generals (DG). While DG environment²⁰ has a clear mission to protect the environment, DG MARE²¹ has a more economic focus. This has been described as leading to institutional tensions within the EU arising from the fact that although the DGs are responsible for implementing different directives, these directives sometimes cover the same substantive area.²² Moreover, these tensions are not only due to differences in mission, but also to differences in how the DGs are organised internally; DG MARE is divided into geographic directorates, while DG environment is divided thematically. This leads to further challenges in coordination.²³

The following section analyses the three EU directives pertaining to the management of the marine environment in order to examine the manner in which different choices of geographical scale and administrative management levels may affect the functional application of the ecosystem approach to marine environmental management in the EU. The Swedish transposition of the directives is used to highlight how the differences between directives lead to inconsistent ecosystem delimitations on the national level.

3 Legal Delimitations of Marine Areas in the EU

Any attempt to delimit ecosystems geographically highlights the difficulty of interpreting nature in a human context. We need to make sense of nature, but to manage it we also need to divide it into smaller, more manageable, units.

19 See Planning and Building Act (2010:900), ch. 1 art. 2.

20 Directorate General for the Environment.

21 Directorate General for Maritime Affairs and Fisheries.

22 Elizabeth De Santo, 'The Marine Strategy Framework Directive as a Catalyst for Maritime Spatial Planning: Internal Dimensions and Institutional Tensions' in Michael Gilek and Kristine Kern (eds), *Governing Europe's marine environment: Europeanization of regional seas or regionalization of EU policies?* (Farnham, Surrey: Ashgate 2015).

23 *Ibid.*, 99.

The geographical space is transformed into a legal space, or multiple legal spaces, with all the implications that follow.

To illustrate how ecosystems can be legally defined, I will use three directives that cover EU marine waters: The Water Framework Directive (WFD);²⁴ the MSFD; and the MSPD. The latter two both make explicit reference to the ecosystem approach.²⁵ While the WFD does not include such a reference, it has been claimed in subsequent official documents from the EU that the ecosystem approach is consistent with that directive.²⁶ Indeed, out of the three, the WFD is the directive with the most elaborate system for defining ecosystems.

The implementation of the WFD and the MSFD has been widely discussed by both natural and social scientists. This chapter, however, applies a hitherto unused perspective, choosing to explore their implementation in terms of choices of scale and level. Discussion of the more recent and understudied MSPD is added to the analysis. The Swedish marine management system(s) is used to exemplify how the different definitions of ecosystems contained in the directives can affect the subsequent national implementation. It also highlights issues of coherence in the understandings of appropriate scales and levels of management between the three directives.

3.1 *The Water Framework Directive (WFD)*

The aim of the WFD is to reach and maintain a good ecological status for surface and groundwater in the EU.²⁷ This directive is mainly concerned with fresh water management. Although the territorial waters up to 12 nautical miles (nm) from the baseline are included,²⁸ the area landward of one nm from the baseline, defined as 'coastal waters', is the most interesting part of the directive for the purpose of this analysis.²⁹

In annex XI to the directive, European waters are divided into fresh water ecoregions and marine ecoregions. Each member state has the responsibility to manage their waters through so-called river basin-management. In practice,

24 Directive 2000/60/EC of the European Parliament and of the Council of the 23 October 2000 establishing a framework for Community action in the field of water policy [2000] OJ L 327/1.

25 *Ibid.*, Art 1.3, and 2014/89/EU, art. 5.1.

26 European Commission, *EU Marine Strategy. The story behind the strategy* (2006) 24.

27 2000/60/EC, art. 1.

28 Territorial waters are included only in regard to the achievement of good surface water chemical status and are not central to the directive, focus is on the coastal waters, see *ibid.*, art. 2.1.

29 2000/60/EC, art. 2.7.

this entails identifying river basins within national jurisdiction. These are then to be divided into river basin districts with competent management authorities assigned to them.³⁰ Within each river-basin district, the waters are characterised as either river, lake, transitional water, or coastal water. These sub-categories are further divided into types of water based on (for coastal waters), *inter alia*, ecoregion, salinity and mean depth. Through characterisation and typing, the river-basin districts are divided into smaller fragments, so-called 'water bodies'.³¹ In terms of the ecosystem approach principles discussed above, the appropriate management level chosen here is the river-basin authority, and the appropriate scale is that of water bodies.

According to the directive, the characterisation and typing of water bodies should not be arbitrary. Rather, water bodies are to be 'discrete and significant elements'.³² Each water body should be identified on the basis of its discreteness and significance in the context of the directive's purposes, objectives and provisions.³³ Water bodies are thus determined by biological factors. In addition, there are human considerations in play that affect this determination. One water body cannot be split between categories of surface water, nor can it be split into different types. In short, a water body needs to be assigned one specific water type. These water bodies must, however, also be meaningful. Here anthropogenic factors, such as pressures, protected areas, or other uses can be considered in the refinement of the water body identification. No minimum scale of identification is stipulated, but the implementation strategy mentions that there is a need to avoid unmanageable fragmentation.³⁴

Coastal waters are supposed to be assigned to the river basin district that is most likely to influence their quality, particularly taking into account long-term influences of any contaminants. The boundaries between two adjacent types should be decided so as to avoid unnecessary splitting of the coastline. As the final step in defining water bodies, the common implementation strategy suggests using administrative boundaries.³⁵ This indicates that the ecological factors alone are not sufficient to adjust the natural environment to human management conditions.

30 Ibid., art. 3.

31 Ibid. Annex II.

32 Ibid., art. 2.10.

33 Common Implementation Strategy for the Water Framework Directive (2000/60/EC) Guidance Document No 2, 5.

34 Ibid., 9.

35 Common Implementation Strategy for the Water Framework Directive (2000/60/EC) Guidance Document No 5, 23–24.



MAP 4.1 Catchment areas in Sweden as divided through the transpositioning of the WFD
ILLUSTRATION CREATED BY HILLEVI DUUS

The clear characterising and typology guidelines are intended to achieve coherent implementation throughout the EU. However, studies have shown that each member state develops its own typology.³⁶ There are even inconsistencies within individual member states' typologies. When implementing the WFD in Sweden, for example, there have been differences in interpretation between different river basin authorities.³⁷ In addition, while these typologies might be pedagogically suitable for public consumption, they still represent relatively crude delimitations of 'naturally continuous gradients across a wide range of ecosystem characteristics'.³⁸

In Sweden, the implementation of the WFD has led to the creation of five water authorities, each in charge of one of the identified river basin districts. These water authorities are responsible for characterising and defining water bodies. Although they are in some sense new administrative bodies, the water authorities are organizationally connected to pre-existing County Administrative Boards (CAB).³⁹ Thus, the geographical scale chosen for the implementation of the WFD is regional, as is the management level. The CABs are representatives of the central government, however, their mandate is on a regional (within Sweden) level. To visualise the above, Map 4.1 shows how the coastal waters of Sweden have been divided into five regions, or areas, within the frame of the WFD.

3.2 *The Marine Strategy Framework Directive (MSFD)*

The second directive considered is the MSFD. In the MSFD there is an explicit reference to the ecosystem approach and a requirement that it should be applied.⁴⁰

When defining terminology in the MSFD, 'marine waters' are divided into waters seaward of the baseline and 'coastal waters' which are defined as in the WFD. The latter should only be covered under the MSFD insofar as their environmental status is not sufficiently addressed by the WFD.⁴¹ Within the frame of the directive, the marine waters of the EU are divided into four 'marine

36 Brian Moss, 'The Water Framework Directive: Total environment or political compromise?' 400 *Science of The Total Environment* 32, 35.

37 Gabriel Michanek, *EU:s adaptiva vattenplanering och svenska miljörättsliga traditioner* (2016) 356.

38 Daniel Hering and others, 'The European Water Framework Directive at the age of 10: A critical review of the achievements with recommendations for the future' 408 *Science of the Total Environment* 4007, 4012.

39 County Administrative Boards are regional governmental agencies, whose main responsibilities are to coordinate state activities on a regional county level.

40 2008/56/EC, art. 1.3.

41 2008/56/EC, art. 3.1.

regions' and eight 'sub-regions'. How these regions were identified is not entirely clear. The International Council for the Exploration of the Sea (ICES) produced a report defining the marine regions of Europe based on biological criteria.⁴² This was used as the basis for the MSFD division, although the end result was not entirely consistent with the proposal by ICES. It has been claimed that the introduction of marine regions in the MSFD was something new in EU marine law.⁴³ Such claims fail to recognize that the WFD had already introduced marine eco-regions in 2000, although these were geographically somewhat different to those introduced by the MSFD. What was new in the MSFD, however, was an emphasis on regional cooperation.

To implement the directive, cooperation within the frame of Regional Seas Conventions⁴⁴ is envisioned. How such cooperation is to be organized is not specified, and the directive itself does not provide any legal guidance to that end.⁴⁵ The linkage to the Regional Seas Conventions has been explained as a mode of mending the inherent mismatch of scale between the ecosystem and institutional scales.⁴⁶ However, this may be an overly optimistic interpretation given that the regional scales, in many cases, do not match those of ecosystems any more than the pan-European scale does. Moreover, the Regional Seas Conventions do not cover all sectors, as envisaged in the MSFD. For example, the Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) covers the marine environment but issues regarding fisheries and shipping are exempted from its purview.⁴⁷ From a Swedish perspective, coordination through the Regional Seas Conventions also means that implementation of the MSFD is coordinated through both the

42 ICES, 'Eco-regions advice to EC'.

43 Ronán Long, 'The Marine Strategy Framework Directive: A New European Approach to the Regulation of the Marine Environment, Marine Natural Resources and Marine Ecological Services' 29 *Journal of Energy & Natural Resources Law* 1; Jan PM van Tatenhove, 'How to turn the tide: Developing legitimate marine governance arrangements at the level of the regional seas' 71 *Ocean and Coastal Management* 296.

44 It is not specified in the directive, however, the relevant conventions are: The OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR), The Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM), The Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (the Barcelona Convention), and The Bucharest Convention on the Protection of the Black Sea against Pollution (the Bucharest Convention).

45 Judith van Leeuwen and others, 'Implementing the Marine Strategy Framework Directive: A policy perspective on regulatory, institutional and stakeholder impediments to effective implementation' 50 *Marine Policy* 325, 327.

46 *Ibid.*, 328.

47 *Ibid.*, 328.



MAP 4.2 Swedish marine management areas as divided through the transpositioning of the MSFD
ILLUSTRATION CREATED BY HILLEVI DUUS

OSPAR Convention and the Convention on the Protection of the Marine Environment of the Baltic Sea (Helsinki Convention) with the Swedish Agency for Marine and Water Management (SwAM) in charge of implementation. Thus, two different levels of management have been identified as appropriate, i.e. regional and national, and the regional level is divided between two Regional Seas Conventions that geographically overlap in the Kattegat.

At the national level, each member state has the opportunity to make further subdivisions of their marine waters at appropriate levels.⁴⁸ Here it is up to the member state to decide, albeit with less guidance than in the WFD, what spatial delimitations seem appropriate. In the Swedish case, there have been no such further subdivisions. Swedish management is simply divided into two regions based on the sub-regions stipulated in the MSFD: The Baltic Sea and the North Sea.

The identification of ecosystems is not as elaborate in the MSFD as it is in the WFD. Yet, both seem to evidence the same basic idea as to how such identification is performed. In both cases this is to be based on biological criteria. The appropriate scale here is the marine region/sub-region, which entails a more centralised management level than that provided for in the WFD. Nevertheless, the two directives are apparently somewhat coordinated in that the assessment areas in the MSFD coastal waters coincide with the coastal water types identified through the WFD.

In a Swedish context, SwAM, a national government agency, is the competent authority responsible for the implementation of the MSFD. The scale of the ecosystems being governed here is the entire Swedish part of the Baltic Sea and the entire Swedish part of Kattegat/Skagerrak (see Map 4.2).

3.3 *The MSP Directive (MSPD)*

Out of the three directives, the MSPD is the one that has the least developed system for identifying ecosystems. It references the MSFD by stating that it shall use the same definitions of marine regions and the same division between marine waters and coastal waters. It further states that the definition of coastal waters in the WFD is to be applied.⁴⁹ However, the MSPD is not applicable to coastal waters or parts thereof falling under a member state's town and country planning.⁵⁰ It is a framework directive, and in many senses less specific than the MSFD. This has led to different interpretations among member states when transposing the directive into national law. In Lithuania, for example,

48 2008/56/EC, art. 4.2.

49 2014/89/EU, arts 3.3 and 3.4.

50 *Ibid.*, art. 2.1.

the government has extended centralized land planning to include all of the marine waters.⁵¹ In Germany, the regional coastal states (Länder) have retained the competence of planning the territorial sea⁵² while the national planning only covers the exclusive economic zone (EEZ). In Sweden, the municipalities have exclusive planning competence over coastal waters out to 1 nm beyond the baseline, while the planning in the remaining 11 nm of the territorial sea is shared between the national government and municipalities, and the former has exclusive competence regarding the EEZ.

Cooperation on a regional level is envisaged in the MSPD as well as in the MSFD, and there are Regional Seas Conventions in place that could facilitate this. However, the administrative differences presented above could complicate such cooperation.⁵³ This is particularly so given that closer scrutiny of the different MSP regulations around the Baltic Sea reveals that no country has transposed the directive in the same way as another.⁵⁴

As with the MSFD, the MSPD is to be implemented through the application of an ecosystem approach.⁵⁵ Although the basic idea is to balance the three pillars of sustainable development, it has been pointed out that the directive prioritizes economic activities over the other two pillars, environment and human security.⁵⁶ In regard to management level and ecosystem scale, the MSPD places responsibility on the individual member states. These shall designate the competent authorities for the implementation of the directive.⁵⁷ The same is true for the ecosystem scale, although the directive provides no direct guidance on this and the member states have chosen different scales as being the most appropriate. In Sweden, this has resulted in three plan areas, two for the Baltic Sea and one for Skagerrak/Kattegat, all of which are coordinated by SwAM. In addition, there are approximately 80 coastal municipalities, each responsible for planning in its own coastal waters. As of now, the plans have not been adopted, thus the plan areas are yet to be definitively decided. The plans are expected to be adopted in 2020/21 (See Map 4.3).

51 European MSP Platform, 'Maritime Spatial Planning Information, Lithuania' (2016) <www.msp-platform.eu/countries/lithuania> accessed 2017-03-22.

52 European MSP Platform, 'Maritime Spatial Planning Information, Germany' (2016) <www.msp-platform.eu/countries/germany> accessed 2017-03-22.

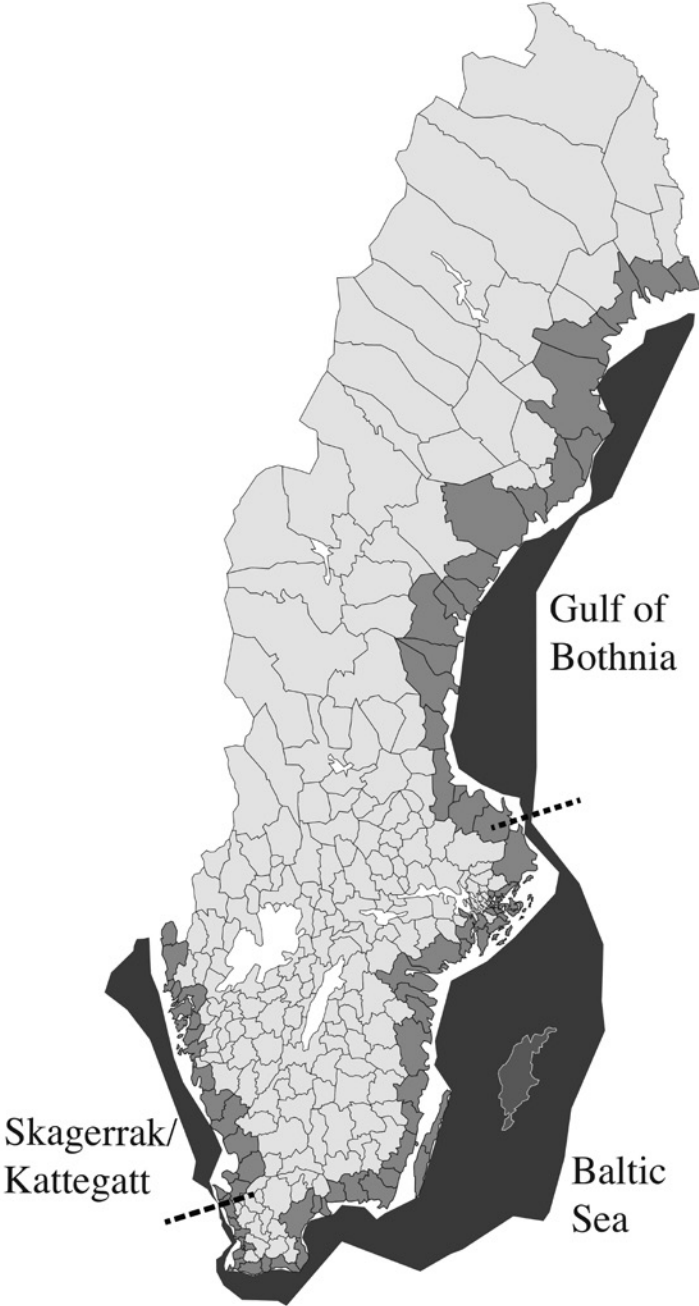
53 Stephen Jay and others, 'Transboundary dimensions of marine spatial planning: Fostering inter-jurisdictional relations and governance' 65 *Marine Policy* 85, 93.

54 See the "European MSP Platform", European MSP Platform, <www.msp-platform.eu/> accessed 2017-04-11.

55 2014/89/EU, art. 5.1.

56 Antonia Zervaki, 'The legalization of maritime spatial planning in the European Union and its implications for maritime governance' 30 *Ocean Yearbook* 52, 42.

57 2014/89/EU, art. 13.1.



MAP 4.3 Map of the Swedish proposed national MSP areas and coastal municipalities
ILLUSTRATION CREATED BY HILLEVI DUUS

4 Discussion

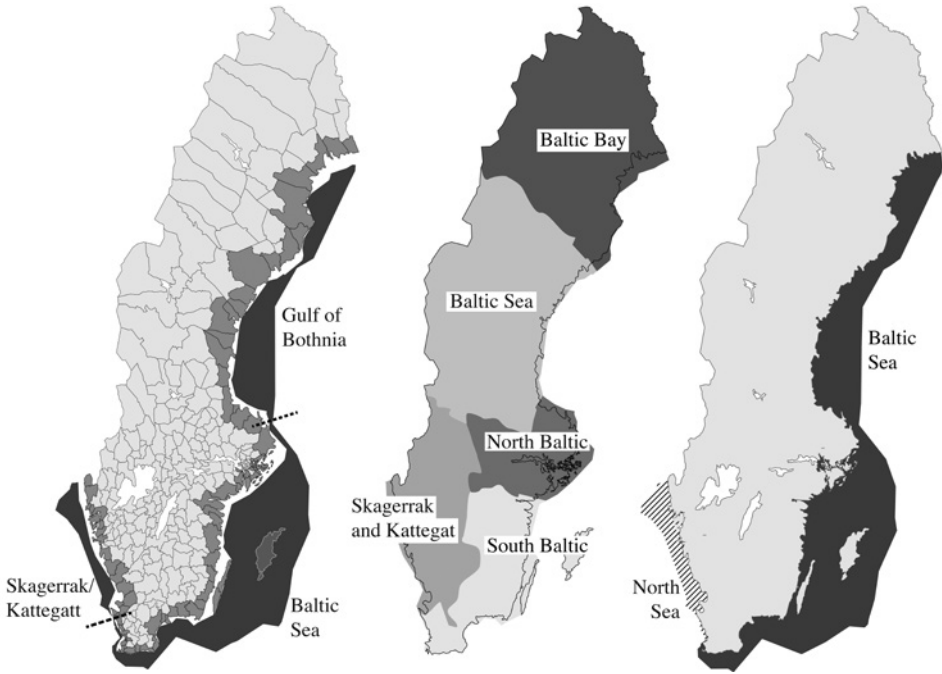
Looking at how the three directives have been transposed in different member states, a picture emerges of great administrative challenges. There are obvious inconsistencies in what, from an EU perspective, should be regarded as the appropriate level/scale of ecosystem management. Some of the differences between the WFD and the MSFD have been investigated by Borja et al who make the point that the WFD has a 'deconstructing structural approach', while the MSFD has a more 'holistic, functional approach'.⁵⁸ The idea behind the WFD, which was the creation of a new management structure, freed from administrative boundaries and instead focused on natural catchment areas, seems to have been deserted to some extent in the MSFD and completely abandoned in the MSPD.

The Swedish regimes for water and marine management serve as examples to highlight the discrepancies between the three directives. As shown above, the transposition of the directives has led to three different geographical and management divisions of the Swedish marine areas (see Map 4.4). As an extra layer to this division, there are the two Regional Seas Conventions, OSPAR and the Helsinki Convention, each with a different division of the areas. OSPAR also has functional differences compared to the EU directive, as both fisheries and shipping are beyond its scope. Furthermore, the EU Common Fisheries Policy sets the boundaries for action taken in regard to fisheries, which limits the competence of member states.⁵⁹ Needless to say, it seems quite an administrative challenge to coordinate these different management levels and ecosystem scales.

The analysis of these three directives raises the question of what is actually meant by the ecosystem approach in an EU context. Since this chapter is concerned with ecosystem scale and management level, it is through that lens that the EU ecosystem approach is analysed. In the process leading up to the MSFD, ICES produced a document concerning the ecosystem approach to human activities in the European marine environment. One of the principles highlighted in that report states that 'the geographic span of management should reflect ecological characteristics and should enable management of the natural resources of both the marine and terrestrial components of the

58 Ángel Borja and others, 'Marine management – Towards an integrated implementation of the European Marine Strategy Framework and the Water Framework Directives' 60 *Marine Pollution Bulletin* 2175, 2176.

59 For a discussion on the relation between CFP and MSFD implementation in a Swedish context, see Anna Christiernsson, 'God miljöstatus och fiske – Hur effektiva är miljö kvalitetsnormer?' 2015:2 *Nordic Environmental Law Journal* 93 (in Swedish).



MAP 4.4 The Swedish marine areas as divided through the three directives
ILLUSTRATION CREATED BY HILLEVI DUUS

coastal zone'.⁶⁰ This is the closest the document comes to discussing appropriate scale, even though it also references the Malawi principles. It is clear that in the WFD the ecosystem scale is based on scientific criteria (whether these criteria represent an unflawed mirror of those ecosystems is a discussion for another paper). The MSFD and the MSPD both take their starting point in the marine regions, which are based on a scientific division of the marine areas of Europe. But the MSPD is subsequently stripped of this scientific understanding, through the exclusion of coastal waters, an exclusion that has no scientific rationale, but is a construction based in politics.⁶¹

60 Jake Rice and others, 'ICES. Guidance in the Application of the Ecosystem Approach to Management of Human Activities in the European Marine Environment, ICES Cooperative Research Report, No. 273. 22', 2.

61 In an early version of the directive, as well as the impact assessment concerning the directive, the importance of including the coastal waters was stressed, however during the referral round it was clear such a construction was not favoured by the member states. See e.g. the referral statement from the Committee of the Regions: Committee of the Regions NAT-V-030, *Opinion on proposed directive for maritime spatial planning and integrated coastal management* (2013).

Within these discrepancies lay two central problems. One problem is that the scientific delimitations of ecosystems are inconsistent between the directives. The Swedish example shows this with ample clarity. The second problem is that, as a result of, *inter alia*, the ecosystem delimitations, the competent authority responsible for implementation differs between the directives, an issue that runs a risk of leading to different rationales in management.

It would seem reasonable to assume an ambition for the three EU directives to be coherent as between and amongst each other. They originate from the same legislator and, at least in part, apply to the same geographic areas and interests; the coastal and marine environment. Although the directives use different scales and management levels, it could be expected that the understanding and application of the ecosystem approach would be coherent. This would be regarded as a type of local coherence, relating not to a field of law in general but to a certain branch within a field of law, i.e. marine governance. However, coherence may be affected by factors within the management levels as well, which brings us back to the concept of legal geography. How do these directives create legal spaces, and what implications do such legal spaces have for the coherent application of an ecosystem approach?

At first glance, it may seem as if the crucial issue for coherence between directives is the geographical scale chosen for ecosystem governance, i.e. 'the what' to be governed. Ecologists have argued for decades that if human responsibility does not match the scale of a natural phenomenon, unsustainable use is likely to occur.⁶² However, upon further reflection 'the who', i.e. at what administrative level the management takes place, emerges as an issue of equal significance. This is because 'the who' might come with different sets of logics or perspectives on management. As Valverde puts it when referring to the national level of governance: '[F]ocusing on sovereignty (who governs where) prevents us from asking interesting, novel questions about how we might govern and be governed.'⁶³ This adds the third dimension discussed at the beginning of this chapter, the 'how', which refers to the tacit choice of rationale, or logic, that the choice of management level entails.

Referring to the Swedish setting, when the appropriate level of management for the coastal waters is identified as being the municipal level this leads to different management priorities than if the choice had fallen on the CABS or SwAM.⁶⁴ In other words, when the municipal management level is chosen, a

62 Kai N. Lee, 'Greed, Scale Mismatch, and Learning' [Ecological Society of America] 3 *Ecological Applications* 560, 561.

63 Valverde (n 16), 145.

64 *Ibid.*, 147.

relatively high-resolution scale is applied, and the perspective of the management will be that of the municipality. Such a perspective may well entail different priorities in the management of marine resources than that of government agencies. The mission of a municipality is to take care of municipal matters. One might even argue that for a municipality to apply some kind of overall perspective on environmental issues would be against its mission if this would in some way be contrary to the interests of the municipality. This argument is based on the legal limitations of municipal action. In Sweden, a central principle for municipal operations is the so-called 'location principle', which (put in a simplified way) states that all municipal action must be of public interest and have a connection to the municipality and its inhabitants.⁶⁵ Policies aimed at capturing complex environmental issues, where the municipal action can only affect a small part, may very well be seen as falling outside of such limitations.

This logic applies at all levels of management, as each level will have its own mission and perspectives, be they local, regional or national. Thus, choosing a management level, or jurisdiction, entails choosing a bundle of perspectives and logics that might not be immediately clear.⁶⁶ In this respect it is important to bear in mind that choices in management level also follow from pre-existing administrative arrangements in member states (see section 2).

Returning to the issue of coherence it would seem there is a need for coherence within the regulations pertaining to the marine environment as well as on a more substantive, principled level. Usually, the argument for coherence is foreseeability in adjudication. However, in the case at hand, the argument for coherence would not be foreseeability, but rather that the overall goal of reaching a sustainable use of the marine environment needs a coordinated and coherent management framework. When studying how the MSPD has been transposed into the national legal systems of EU member states, it seems clear that, if there is a coherent understanding of the ecosystem approach (which is not itself entirely clear), it is not communicated to the member states. The 'who' and the 'what' differs between the member states. In accordance with the theoretical assumptions made in the beginning of this paper, I argue that these factors will lead to differences in how the management is performed. Some states have placed responsibility for the planning efforts on national environmental agencies, others on the ministry of finance, while again others have placed it on regional or local authorities, each with their own management

65 Local Government Act (1991:900), ch. 2 art. 1.

66 Richard T. Ford, 'Law's Territory (A History of Jurisdiction)' 97.4 *Michigan Law Review* 843.

rationale.⁶⁷ All of this highlights incoherence in the management of the marine environment both at the EU and national levels. Furthermore, based on this analysis it is possible to seriously question whether there is *one* ecosystem approach in EU marine law, and if not, how should we make use of, and understand, the concept as it stands today.

5 Conclusion

This chapter has sought to examine whether it is possible to claim that there is a coherent definition of an ecosystem approach within EU marine legislation. As will be clear from the above, the answer to the central question posed appears to be 'no'. The three directives discussed in this chapter are all framework directives that set minimum requirements for member states in their management of the marine environment. There is no doubt that legal regimes that establish only minimum requirements in reality simply lead to setting a standard which few member states exceed.⁶⁸ However, this chapter has further argued that there is an additional challenge with the system of framework directives. In short, when the different frameworks do not provide clear or consistent instructions as to the 'who' and 'what' of management, this leads to discrepancies in 'how' that management is performed. These discrepancies further create institutional challenges in the coordination of efforts, both between member states and internally, within individual member states. Such challenges and discrepancies are particularly unfortunate when governing complex and interconnected ecosystems, where coordinated efforts are essential.

67 For example, Finland has a system where the Ministry of Environment is the responsible ministry, but regional authorities have the responsibility to develop plans for both the territorial sea and the EEZ. Denmark on the other hand, will adopt one plan for their entire marine area, and the responsible ministry is the Ministry of Business and Growth. For more information see European MSP Platform.

68 JH Jans and others, "Gold plating" of European Environmental Measures? 6 *Journal for European Environmental & Planning Law* 417.

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Land-Sea Interactions and the Ecosystem Approach in Ocean Planning and Governance

Sue Kidd

1 Introduction

When contemplating planning and governance of human development it is perhaps typical to focus attention on the land. However, as this volume demonstrates it is also important to remember that the sea covers more than two thirds of our planet's surface and provides a wide range of essential goods and services upon which humans, and ultimately all life on Earth, depend. Indeed, land-sea interactions (LSI) have been significant in shaping patterns of human activity on both land and sea since ancient times. For example, humans have always looked to the sea for food, transport and trade, waste disposal and cultural and spiritual fulfilment, and coastal areas have been favoured places for human settlement. Today 16 of the world's 23 mega cities (with populations exceeding 10 million) are in coastal locations¹ and with the prospect of the global population rising from 7.6 billion in 2017 to over 11 billion by 2100² ongoing urbanisation of coastal areas can be anticipated. Beyond general trends of globalisation and the importance of international connectivity, one of the factors driving contemporary coastal and marine development is that the sea is increasingly being seen as a source of new 'Blue Growth' opportunities. Established maritime sectors, such as shipping and offshore oil and gas production, are now frequently accompanied by a range of other offshore uses, such as aquaculture and wind power developments. Technological advances are also opening new business possibilities in sectors such as blue biotechnology, ocean renewable energy and marine mineral extraction³. Alongside these very tangible human interactions with the marine environment, modern science is revealing the reality of less tangible, but in many ways more profound

1 M Pelling and S Blackburn, *Megacities and the coast: risk, resilience and transformation* (Routledge 2014).

2 United Nations World, *Population Prospects: The 2017 Revision* (United Nations 2017).

3 Ecorys, *Blue Growth: Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts: Final Report* (European Commission, Directorate General for Maritime Affairs and Fisheries 2012).

dependencies on the sea, including the vital role it plays in climate regulation and carbon capture. Equally, it is enhancing our understanding of the intricate web of connections between human activity – both land and sea based – and the health of the marine environment.

It is within this context that a new era of ocean planning and governance is emerging. This is reflected most notably in the creation of new systems of Marine Spatial Planning (MSP) across the world. By 2017 it was estimated that over 60 countries had some form of MSP process in place,⁴ each addressing issues related to land-sea interactions in different ways reflecting variations in physical and human geography, administrative and legislative histories, and cultural norms and practices. However, there is also a shared context at play linked to international conventions including the Convention of Biological Diversity (CBD), the United Nations Convention on the Law of the Sea (Law of the Sea Convention or LOSC), and a range of regional seas conventions. Prominent here is a requirement for the new systems of ocean planning and governance, including those related to MSP, to adopt the Ecosystem Approach (EA).⁵ What the EA means for evolving ocean planning and governance arrangements is a subject of much interest and debate as illustrated by the contributions gathered together in this volume. The subject of this chapter is an important strand within the debate. It relates to the connection between LSI and the evolving EA-informed ocean planning and governance arrangements, and what this connection might mean for landward communities and governance of the land.

This chapter starts by outlining a general framework for considering land-sea interactions (LSI) in ocean governance. It then revisits the EA principles and teases out their natural and social science dimensions before exploring some of the LSI issues raised in their application in ocean planning and governance from these different perspectives. In these discussions particular reference is made to experience in Europe, where the 2014 EU Maritime Spatial Planning Directive is prompting the rapid development of ocean governance arrangements informed by specific consideration of both EA and land sea interactions.⁶

4 Charles Ehler, *Final Report of 2nd International Conference on Marine/Maritime Spatial Planning* (Intergovernmental Oceanographic Commission—United Nations Educational, Social and Cultural Organisation—UNESCO, European Commission—Directorate General for Maritime Affairs and Fisheries 2018).

5 Sue Kidd, Andy Plater and Chris Frid, *The Ecosystem Approach to Marine Planning and Management* (Routledge 2011).

6 European MSP Platform, *Maritime Spatial Planning: Addressing Land-Sea Interaction St. Julian's Malta, 15–16 June 2017 Conference Report* (European Commission, Directorate General for Maritime Affairs and Fisheries 2017).

The chapter concludes with some reflections on the implications of the analysis for the future of ocean governance and argues that efforts to develop a Blue Society should be supported, and that a new era of territorial planning and governance covering both the land and the ocean is in prospect and to be welcomed.

2 A General Framework for Considering Land-Sea Interactions in Ocean Governance

LSI is a complex phenomenon, involving both natural processes across the land-sea interface and the interrelationships between human activities in this zone. Many of the issues of concern for ocean governance are closely related to LSI. Figure 5.1 presents a general framework for considering LSI that has been developed to inform the emerging MSP arrangements in the European Union. This framework is also felt to be helpful in exploring LSI issues in ocean governance more generally.

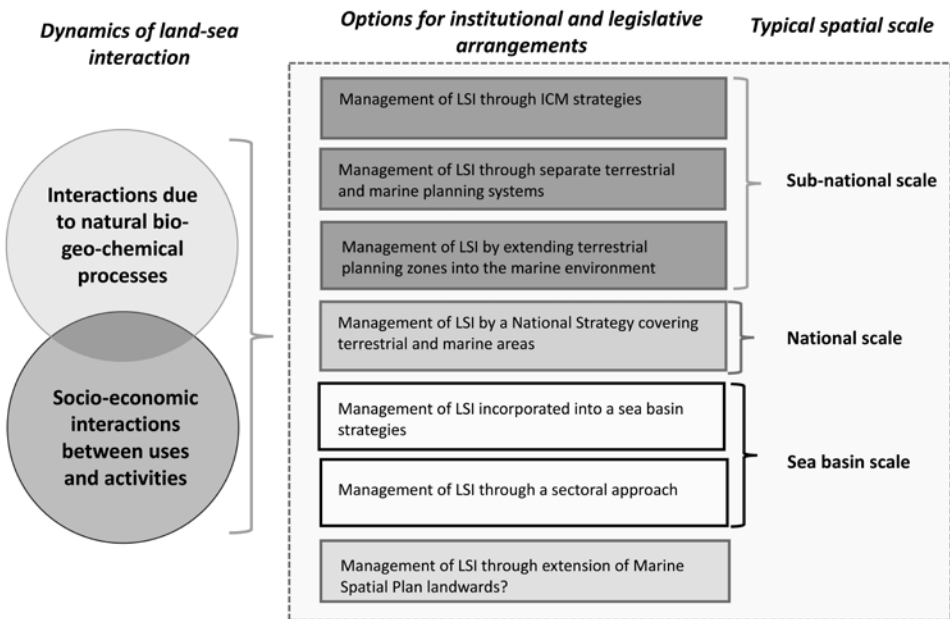


FIGURE 5.1 A General Framework for Addressing Land-Sea Interaction
 Note: European MSP Platform (n 6)

The framework illustrates that interactions between the land and sea include those driven by natural bio-geo-chemical processes, such as agricultural run-off resulting in eutrophication of coastal waters.⁷ Although developments close to the coast are likely to have the most direct natural process interactions, it should be recognised that development even very distant from the coast can impact ocean ecology, for example by polluting rivers which discharge into the sea or by being the source of atmospheric pollution including that associated with climate change which ultimately finds its way into the ocean. Indeed, human induced climate change arising most significantly from landward activity poses some of the greatest threats to the good environmental status of the marine environment through ocean warming and ocean acidification. These processes impact marine life and have the potential to affect the ocean's critical role in carbon capture and global climate amelioration.

A number of European Union funded projects and national studies have sought to investigate natural process related LSI interactions and their impact on the marine environment and to examine and develop best practices and guidelines which can be used by those involved in ocean governance to manage LSI. Examples include work undertaken for the Danish National Environmental Research Institute⁸ and as part of the Celtic Seas Partnership project.⁹

Figure 5.1 illustrates that there are also important LSI between socio-economic activities. For example, many maritime uses need support installations on land, while some uses existing mostly on land (e.g., tourism, recreation, and ports) expand their activities into the sea as well. These interactions need to be understood as part of ocean governance activities, in order to assess and address their individual and cumulative impacts and potential conflicts and synergies.

Such interactions have also been studied on national and regional scales by national governments and by European Union funded projects. European Seas Territorial Development Opportunities and Risks (ESTaDOR) was one such project which formed part of the European Spatial Observation Network (ESPON) 2013 programme. ESTaDOR sought to explore both the development opportunities and risks for Europe's maritime regions by understanding land-sea interactions as an integrated whole. The project created a typology map of European Seas and associated inland areas demonstrating (through analysis

7 A Monaco and P Prouzet, *The Land Sea Interactions* (Wiley and Sons Incorporated 2016).

8 G Ærtebjerg, JH Andersen and OS Hansen (eds), *Nutrients and Eutrophication in Danish Marine Waters. A Challenge for Science and Management* (Danish National Environmental Research Institute 2003).

9 University of Liverpool, *Marine Proofing for Good Environmental Status of the Sea: Good Practice Guidelines for Terrestrial Planning* (Celtic Seas Partnership 2016).

of data related to transport flows, the socio-economic significance of the maritime economy and environmental pressures) where land-sea interactions are at their most intense.¹⁰ The study revealed that the English Channel and southern North Sea was the core region in Europe from an LSI perspective due to the concentration of population and economic activity on the London, Paris, Amsterdam axis, the presence of mega-ports such as Rotterdam, and channels such as the Nord-Ostsee-Kanal, one of the main trade routes between Europe and the rest of the world. Regional hubs, for example in the UK, Ireland and northern France, were equally evident in showing strong land-sea interactions and playing host to important maritime industry clusters. The study was also important in highlighting more rural and wilderness areas where LSI were much less intense.

Alongside bio-geo-chemical processes and socio-economic interrelationships associated with the dynamics of LSI, the framework set out in Figure 5.1 outlines a range of options for institutional and legislative arrangements to address LSI. The examples provided are drawn from reflections on the European ocean governance experience.¹¹ This reveals that LSI interactions may be managed through Integrated Coastal Management (ICM) initiatives. For example, Croatia is developing a Joint Management Strategy for Marine Environmental and Coastal Zone Areas and a related action programme. Alternatively, some European countries have chosen to maintain separate terrestrial and marine planning systems whilst still ensuring land-sea interactions are taken into consideration. Examples of this can be seen in Finland and in the UK. There are also countries which have extended the remit of local and regional scale territorial plans into the marine environment with a view to addressing land-sea interactions. For example, spatial planning in the Mecklenburg-Vorpommern länder in Germany covers land and sea areas out to 12nm. Another approach is to manage LSI through the creation of a single national strategy which encompasses both the terrestrial and the marine environment. This approach has been taken by the Netherlands and Malta. Management of LSI can also be undertaken on a larger, sea basin scale. For example, in the Baltic Sea Region, Vision and Strategies around the Baltic Sea (VASAB) was established as an intergovernmental multilateral co-operation to develop long-term strategies and visions for the region, including spatial planning and

10 University of Liverpool, *ESTaDOR European Seas Territorial Development Opportunities and Risks: Executive Summary* (European Spatial Planning Observation Network 2013).

11 European MSP Platform, *Maritime Spatial Planning: Addressing Land-Sea Interaction St. Julian's Malta, 15–16 June 2017 Conference Report* (European Commission, Directorate General for Maritime Affairs and Fisheries 2017).

development of both land and sea areas. In the Mediterranean, the United Nations Environment Programme's Mediterranean Action Programme is taking LSI on board. Examples of LSI being managed within sectors themselves are also evident. These include the European Union funded CO-EVOLVE project which is analysing and promoting the co-evolution of human activities and natural systems in coastal tourism areas in the Mediterranean, allowing for the sustainable development of tourist activities based on the principles of ICM and MSP. Figure 5.1 finally indicates that it is technically possible that LSI could be addressed by extending the remit of MSP inland. However, this is not an approach that appears to have been adopted in Europe or elsewhere so far.

What is evident from the above examples is that LSI can be addressed in a variety of ways and at a variety of scales of governance. These include:

- Local areas, such as ICM partnerships and economically-driven initiatives, involving municipalities and other local interests;
- Sub-national planning territories, such as maritime plan areas, involving MSP authorities working in collaboration with coastal authorities and maritime stakeholders;
- National territories, where a national strategy or plan, covering the whole of the nation's waters, and possibly its land area as well, may guide LSI efforts;
- Sea-basins / transnational regions, where transnational cooperation may produce a strategy or protocol for guiding national LSI efforts and ensuring ongoing cross-border cooperation.

These scales are not mutually exclusive. For example, there are cases where sea-basin strategies are being implemented or supplemented at a sub-national or local level through other instruments for addressing LSI.

3 The EA Revisited

The previous section outlined a framework to consider the dynamics of LSI and different options for institutional and legislative arrangements that are emerging to address LSI in ocean governance practice in Europe. It is important to note that in line with CBD and LOSC commitments this European practice is developing with the EA very much in mind. In the following sections the connections between the EA, LSI and ocean governance arrangements are considered further. In order to set the scene for this discussion it is helpful to go back to the definition of the EA and subsequent development of EA principles by the Conference of the Parties (COP) to the CBD.

Through Decision 2000 v/6, the COP defined the EA as:

A Strategy for the integrated management of land, water, and living resources which promotes conservation and sustainable use in an equitable way.

This decision also emphasised the integrated management practices that follow the EA should be focussed upon:

levels of biological organisation, which encompass essential structure, processes, functions and interactions among organisms and their environment (...) recogniz(ing) that humans, with their cultural diversity are an integral component of many ecosystems.

Underpinning this definition, the COP has developed a series of 12 complementary and interlinked EA principles to provide additional guidance to those involved in applying EA to their activities (see Table 5.1).

TABLE 5.1 Convention on Biological Diversity: Ecosystem Approach Principles^a

-
1. The objectives of management of land, water and living resources are a matter of societal choice.
 2. Management should be decentralized to the lowest appropriate level.
 3. Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
 4. Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:
 - (a) Reduce those market distortions that adversely affect biological diversity;
 - (b) Align incentives to promote biodiversity conservation and sustainable use;
 - (c) Internalize costs and benefits in the given ecosystem to the extent feasible.
 5. Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
 6. Ecosystems must be managed within the limits of their functioning.
 7. The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
 8. Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
 9. Management must recognize that change is inevitable.

TABLE 5.1 Convention on Biological Diversity: Ecosystem Approach Principles (cont.)

-
10. The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
 11. The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
 12. The ecosystem approach should involve all relevant sectors of society and scientific disciplines.
-

a CBD Conference of the Parties, 2000 V/6

The overarching concern of the EA is the development of *integrated* institutional and legislative arrangements for land, water, and living resources which, by following EA principles, promote conservation and sustainable use in an equitable way. As Figure 5.2 illustrates, the EA principles interweave natural science understanding related to natural bio-geo-chemical process with social science understanding related to socio-economic processes. Figure 5.2 also illustrates the convergence of core messages from these differing knowledge bases including a common recognition of system complexity and associated uncertainty and the consequent merits of democratic debate and adaptive management practices accepting that change is inherent and inevitable. Interestingly, consideration of LSI seems to present a particularly relevant lens through which to explore the implications of the EA principles in ocean as well as terrestrial governance contexts.

4 Natural Science Perspectives within the EA and Land-Sea Interactions

EA Principle 3 – requiring managers to consider the effects (actual or potential) of their activities on adjacent and other ecosystems, EA Principle 5 – emphasising the need to conserve ecosystem structure and functioning in order to maintain ecosystem services, and EA Principle 7 – requiring planning and management to operate at appropriate spatial and temporal scales, are a good place to start when considering LSI from a natural science perspective.

In relation to EA Principle 3 it must be acknowledged that terrestrial and marine ecosystems are not just adjacent to each other but are closely inter-linked. Indeed many (if not most) pressures on the marine environment of concern for ocean governance are landward in origin and are connected to

The Ecosystem Approach & Ocean Governance Land-Sea Interactions

	Natural Science		Social Science
Uncertainty	EA Principle 3: Consider the extended impacts, or externalities.	Complexity	EA Principle 1: Recognise objectives as society's choice.
	EA Principle 5: Prioritise ecosystem services		EA Principle 2: Aim for decentralised management (i.e. subsidiarity).
	EA Principle 6: Recognise and respect ecosystem limits.		EA Principle 4: Understand the economic context and aim to reduce market distortion.
	EA Principle 7: Operate at an appropriate scale, spatially and temporally		EA Principle 10: Balance use and preservation.
	EA Principle 8: Manage for the long term, considering lagged effects.		EA Principle 11: Bring all knowledge to bear.
			EA Principle 12: Involve all relevant stakeholders
	Principle 9: Accept change as inherent and inevitable.		
Adaptive Management		Democratic Debate	

FIGURE 5.2 Overview of Natural and Social Science Perspectives and the Ecosystem Approach

Note: Developed by the author

wider human development trends and aspirations. In terms of EA Principle 5 it is also evident that landward development has the potential to impact in a negative way on the structure and functioning of the marine environment and in so doing to put at risk the important supporting, regulating, provisioning and cultural services that humans as well as other life forms derived from the sea.¹² In the context of EA Principle 7, the mainly landward origins and significant marine impacts of climate change are perhaps the most persuasive examples of where planning and management of human activities on land are critical to addressing what might be regarded as the key ocean governance issue of the present time. Principle 7 also highlights that concerted and sustained action at multiple scales is needed if climate change is to be addressed in an appropriate manner.

¹² Swedish Environmental Protection Agency, *What's in the sea for me? – Ecosystem Services Provided by the Baltic Sea and Skagerrak* (Swedish Environmental Protection Agency 2009).

The challenges associated with this situation are quite daunting as they indicate the need not only for improved natural science understanding of LSI but also of related ocean literacy among key sea and land decision makers if EA principle 6 – advocating that (ocean) ecosystems must be managed within the limits of their functioning, and EA Principle 8 – recognizing the varying temporal scales and lag-effects that characterise ecosystem processes require objectives for ecosystem management to be set for the long term, are to be addressed.

5 Social Science Perspectives within the EA and Land-Sea Interactions

There are clearly immense societal challenges inherent in LSI and the EA that need to be addressed by those engaged in ocean, and also terrestrial, governance. It is therefore not surprising that, as Figure 5.2 indicates, many of the EA principles developed by the COP are social science in their orientation. These include EA Principle 1 – the objectives of management of land, water and living resources are a matter for societal choice; EA Principle 2 – advocating decentralising management to the lowest possible level; EA Principle 11 – relating to consideration of all forms of relevant information, including scientific and indigenous and local knowledge; and EA principle 12 – requiring the involvement of all relevant sectors of society and scientific disciplines.

The call for wide and meaningful stakeholder engagement is a common thread running through these EA principles. From an ocean governance perspective this raises again the need for widespread ocean literacy but also suggests something arguably deeper, perhaps reflected in the developing notion of a Blue Society, which is discussed further below. For example, to apply EA Principle 1 in relation to ocean governance, it seems essential that there are basic levels of societal knowledge about the sea and LSI issues. However, it also suggests there should be meaningful opportunities for public/democratic debate about decisions that might impinge upon the future wellbeing of the oceans, whether they are taken by land orientated organisations or those with a specific ocean focus. EA Principle 2 arguably goes further in advocating decentralised approaches to management and active engagement of communities in local maritime stewardship. It is therefore important to note that, to date, ocean governance arrangements have tended to be mainly national or international in scale, although as we have seen in places LSI issues have spawned local ICM initiatives. Interestingly, these often demonstrate a commitment to involving all parties concerned, including economic and social partners, local residents,

business organisations and NGOs, in local management activities,¹³ and are successful in attracting strong community support and input. In this sense ICM initiatives might provide exemplars for wider ocean governance practice not only in relation to EA Principle 2 but also for EA Principles 11 and 12.

6 LSI and EA Principle 9 – Change is Inevitable

In reflecting upon the EA principles from an LSI perspective, Principle 9 – management must recognize that change is inevitable – stands out as being of particular significance. Even from the most simplistic viewpoint, it is obvious that management of change is of central concern to ocean governance as the sea is a highly dynamic and changing environment. Not only is this reflected in bio-geo-chemical processes but also in human activities associated with the sea, which often follow daily, monthly, and seasonal fluctuations and respond to natural processes that are constantly reshaping the land-sea interface. Moreover, Principle 9 is useful in drawing attention to the pace of change in the marine environment. This was brought into sharp focus by the United Nations' Millennium Ecosystem Assessment, which concluded that marine and coastal ecosystems are being degraded and used unsustainably and are deteriorating faster than other ecosystems.¹⁴ Notably in the context of this chapter, it found that the major drivers of change, degradation, or loss of marine and coastal ecosystems and services are mainly anthropogenic. These include key LSI related issues including: population growth; land use change and habitat loss; climate change; eutrophication; pollution; technology change; globalization; increased demand for food; and a shift in food preferences. A key message to emerge from the Millennium Ecosystem Assessment was that the highly threatened nature of marine and coastal ecosystems demands a local, regional, and global response. Reflecting on the analysis presented in this chapter, it is evident that this response must not simply look to the ocean but must also look to the land and bring in a new era of governance connectivity across the land-sea divide. An interesting interpretation of EA Principle 9 is that change in our governance structures is in itself perhaps inevitable and some thoughts

13 B Cicin-Sain and others, *Integrated coastal and ocean management: concepts and practices* (Island Press 1998); Ruprecht Consult and The International Ocean Institute, *Evaluation of Integrated Coastal Zone Management in Europe: Final Report* (European Commission 2006).

14 United Nations Environment Programme, *Marine and coastal ecosystems and human wellbeing: A synthesis report based on the findings of the Millennium Ecosystem Assessment* (UNEP 2006).

about what these changes might entail from an EA and LSI informed perspective are outlined below.

7 Improving Governance through Ocean Literacy

Before setting out some thoughts for the future a brief recap of key messages from the preceding discussions is provided. First, it is evident that we are entering a period of considerable innovation and development in ocean governance, not least in the emergence of new systems of MSP in coastal countries all over the world. Although a diversity of approaches is apparent reflecting different country contexts, in line with international agreements such as the CBD and LOSC the EA is providing a common reference point in these developments. The EA promotes the integrated management of land, water and living resources and, as we have seen, application of EA principles to LSI related issues raises some intriguing questions not only for future patterns of ocean governance but for governance more generally. Examination of the dynamics of land-sea interactions reveals the complex interweaving of bio-geo-chemical processes and social economic activities across the land-sea interface and highlights the landward origin of many issues that are of central concern for ocean governance. As a consequence, how to address LSI in an effective way has been an important issue influencing the recent evolution of ocean governance arrangements. A number of different approaches can be identified ranging from localised ICM initiatives to integrated sea-basin strategies, all of which connect in some way to EA ambitions regarding integrated management. Indeed, it is encouraging to see, certainly in Europe, the level of attention that is being given to EA and LSI in evolving institutional and legislative arrangements related to planning for marine areas. However, while there is much useful experience to reflect upon and to guide others in their efforts, close examination of EA principles highlights significant ocean governance related challenges. In particular, it is evident that a transformation is needed in society's relationship with the ocean and in wider patterns of governance if EA ambitions are to be addressed. With this in mind, some thoughts on the development of a Blue Society and an associated new era of 'territorial' (land/sea) governance are set out.

7.1 *Land Sea Interactions and Ocean Literacy for a Blue Society*

As we have seen, wide and meaningful engagement is a central idea within the EA (reflected in particular in EA principles 1, 2, 11 and 12). Its significance in relation to ocean governance is brought into focus in considering LSI issues

where it is apparent that landward as well as seaward action is required to minimise adverse effects of human development on the marine environment and realise opportunities and beneficial synergies related to maritime activities. However, basic levels of understanding are needed for wide and meaningful engagement to take place and for society to exercise informed choices regarding activities that impinge on the health of the marine environment. It is therefore not surprising that the need for wider ocean literacy is reflected in the Call for Action that emerged from the United Nations' Oceans Conference, held in New York in June 2017, to support the implementation of United Nations' Sustainable Development Goal 14: 'Conserve and sustainably use the oceans, seas and marine resources for sustainable development'.¹⁵ The Call for Action encourages the development of ocean-related education in order to promote ocean literacy and a culture of conservation, restoration and sustainable use of the ocean.

Ocean literacy has been the subject of much discussion in the USA and elsewhere since the mid-1990s as a result of growing collaboration between natural scientists and educators.¹⁶ Activities associated with the USA based Ocean Literacy Campaign for example have led to the identification of seven natural science informed principles of ocean literacy (See Table 5.2) which, it is suggested, everyone should understand about the ocean. These principles capture core ideas about the nature of ocean ecosystems and their connections to the wider Earth System and provide a strong foundation for ocean literacy activity. However, clearly more is needed to enable society to engage with and respond to the ocean issues discussed above, including those related to LSI.

A second area of understanding that seems to be critical to ocean literacy relates to managing human interaction with the sea. This includes knowledge of: the anthropogenic drivers of change in the marine environment and associated pressures they cause; their impacts on ocean ecosystem functioning and consequent implications for the state of the health of the sea and wider Earth System; and the types of planning and management responses that can be put in place to reduce or mitigate adverse interactions and promote sustainable development. The widely used Driver-Pressure-State-Impact-Response (DPSIR) problem structuring framework (and refinements of this which are being developed particularly with marine environmental management

15 Intergovernmental Oceanographic Commission (of UNESCO), *Outcomes of the UN SDG 14 conference (5–9 June 2017): Information Document*, (Intergovernmental Oceanographic Commission, Paris, 2017).

16 S Schoedinger, LU Tran and L Whitley, 'From the Principles to the Scope and Sequence: A brief history of the ocean literacy campaign' (2010) Special Report 3 *The Journal of Marine Education* 3.

TABLE 5.2 Ocean Literacy Principles^a

Ocean Literacy Principle 1: The Earth has one big ocean with many features.
Ocean Literacy Principle 2: The ocean and life in the ocean shape the features of Earth.
Ocean Literacy Principle 3: The ocean is a major influence on weather and climate.
Ocean Literacy Principle 4: The ocean made the Earth habitable.
Ocean Literacy Principle 5: The ocean supports a great diversity of life and ecosystems.
Ocean Literacy Principle 6: The ocean and humans are inextricably interconnected.
Ocean Literacy Principle 7: The ocean is largely unexplored.

- a Ocean Literacy Campaign, *Ocean Literacy: The Essential Principles and Fundamental Concepts of Ocean Sciences for Learners of All Ages Version 2*, a brochure resulting from the 2-week On-Line Workshop on Ocean Literacy through Science Standards (National Oceanic and Atmospheric Administration, USA, 2013).

in mind) could be useful in guiding this second element of ocean literacy understanding.¹⁷

From an EA and governance perspective, it can be argued that a third component of ocean literacy is also important. This relates to ocean citizenship and the legal framework for the ocean which, in significant ways, is quite distinct from that of the land. The reason for this is that together with the atmosphere, Antarctica and outer space, parts of the ocean, in particular the High Seas, are recognised as the world's global commons where the legal framework is founded on the principle of *mare liberum* (freedom of access and use for everyone).¹⁸ While today, the LOSC grants to coastal states sovereignty over their territorial sea out to 12 nautical miles and sovereign rights relating to the exploration and exploitation of natural resources within the water column of their Exclusive Economic Zone and on their Continental Shelf, the Convention also imposes responsibilities related to their conservation and management. Nevertheless, it is crucial to note that the role of the state is that of a trustee acting on behalf of its citizens (including future generations) who are the common property owners.¹⁹ In this sense, common ownership interests

17 N Schrijver, 'Managing the global commons: common good or common sink?' (2016) 37:7 *Third World Quarterly* 1252.

18 G Osherenko, 'New Discourses on Ocean Governance: Understanding Property Rights and the Public Trust' (2006) 21 *Journal of Environmental Law and Litigation* 317.

19 *Ibid.*

apply in some way in all ocean areas and, as a consequence, a key aspect of ocean literacy should be to disseminate an understanding of the legal framework to landward communities and foster their role in ensuring good ocean governance through careful application of the rule of law, participation, transparency, consensus-based decision making, accountability, equitability and inclusiveness, responsiveness, and coherency.²⁰

There is growing appreciation of the merits of a broad-based approach to ocean literacy and again EU funded projects provide examples of innovation in taking this forward. For example, the Sea Change project aims to establish a fundamental 'Sea Change' in the way European citizens view their relationship with the sea, by empowering them, as ocean literate citizens, to take direct and sustainable action towards a healthy ocean, healthy communities, and ultimately a healthy planet. The project defines an Ocean Literate person as someone who: understands the importance of the ocean to humankind; can communicate about the ocean in a meaningful way; and is able to make informed and responsible decisions regarding the ocean and its resources.²¹ The Sea for Society project considered similar themes but took a broader view in seeking to develop and enrich the concept of a 'Blue Society'. With a focus beyond the individual, Blue Society involves a vision in which people benefit from the Ocean's vast potential while preserving its environmental integrity. Central to this vision is the development of systems of governance in which the Ocean is recognised as a global common which must be collectively managed across sectors and borders.²² The project concluded that ocean related education had a key role to play in developing a Blue Society. It also emphasised the need for innovations to promote more integrated forms of governance, a theme returned to below.

7.2 *Land Sea Interactions and Innovations in 'Territorial' Governance*

As the Blue Society concept indicates, ocean literacy is concerned with promoting behavioural change not only at an individual level but also at a societal level. Here, it is apparent that in particular innovation in approaches to governance is needed to address the LSI issues outlined earlier and respond to EA ambitions for the integrated management of land, water, and living resources. It is therefore interesting to note that the introduction of new systems of MSP

20 YT Chang, *Ocean Governance a Way Forward* (Springer, 2012).

21 European Marine Board and CoExploration Limited, *Sea Change Ocean Literacy Fact Sheet* (European Marine Board and CoExploration, Limited, no date).

22 Societe d'exploitation Du Centre National de la Mer, *Sea For Society: Final Report Summary* (European Commission, Community Research and Information Development Service, 2013).

is heralding an era of governance experimentation that is not simply ocean focussed but is also prompting change in established patterns of governance of the land. In Europe, various approaches have been identified which may point useful ways forward. Although it is as yet too early to undertake a detailed analysis of their relative merits in addressing LSI and/or delivering EA integrated management ambitions, some insight may be derived from the outputs of the European MSP Conference on Addressing Land Sea Interactions that took place in 2017. This included expert discussion on the relative strengths and challenges of different approaches from an LSI perspective and some of the key findings are presented below.²³

In relation to LSI and ICM based governance approaches these were felt to have a number of important strengths including: having a strong foundation in well-founded ICM principles that reflect EA understanding; an established network of respected ICM initiatives upon which to build; a wide view of integration issues and (due to their mainly non statutory format and local focus) flexibility to integrate many different interests and address issues of particular importance in each local context. On the other hand, it was recognised that the voluntary or project-based format of most ICM initiatives to date made delivering concrete results difficult and that there was a wide variation in the experience of ICM with many gaps in geographical coverage. Perhaps most significantly though in the context of this chapter, it was noted that the local/coastal focus of most ICM initiatives was not strategic enough to address many LSI issues such as those related to human induced climate change.

In terms of management of LSI through coordination of separate terrestrial and maritime spatial plans, it was felt that a strength of this approach lay in its recognition of the important differences between terrestrial and maritime spatial planning and that the approach allows more specialised plans to be prepared reflecting their distinctive economic, social, environmental, legal and political contexts. In addition, unlike ICM, it was noted that both MSP and terrestrial plans tend to be legally enforceable and therefore have greater potential to provide a clear legislative framework to address many LSI concerns if appropriate mechanisms for coordination between plans for the land and the sea can be found. However, it was acknowledged that such approaches by definition are not holistic and risks remain of the legislative fragmentation/complexity, difficulties in communication, coordination and joined up implementation that lie at the heart of many ocean management problems today.

23 European MSP Platform, *Maritime Spatial Planning: Addressing Land-Sea Interaction St. Julian's Malta, 15–16 June 2017 Conference Report* (European Commission, Directorate General for Maritime Affairs and Fisheries 2017).

More enthusiastic support was given to approaches which sought to manage LSI by extending terrestrial planning into marine areas. These were considered to be more holistic and potentially more coherent as overall control of planning lay under the authority of one body, meaning conflicts could be reduced and implementation is likely to be easier. Some went as far as suggesting that such arrangements were 'ideal' from an LSI planning point of view, not least in their potential ability to more readily engage with landward communities. However, others felt that there could be a danger of terrestrial dominance in such approaches and a risk of simply copying mistakes / approaches from the land and not developing new tools appropriate to the marine context. The dominance of economic agendas in determining planning priorities was an underlying concern here. It was also feared that many terrestrial planning authorities may not have sufficient data, experience or understanding to take aspects of the marine agenda reasonably into account. Again, the issue of scale both landward and seaward was raised with a concern that such arrangements may not be strategic enough to address key LSI concerns.

The conference discussions also considered the experience of various existing transnational coordination arrangements from an LSI management perspective and this again revealed a mixed picture. Interestingly, in all European sea basins, it was evident that transnational institutional and legislative arrangements are already established that can help member states with managing LSI. These range from institutions associated with international conventions to regional development programmes and projects, as well as mechanisms associated with the coordinated delivery of European Directives including the Marine Strategy Framework Directive, the Water Framework Directive and the Marine Spatial Planning Directive. In addition, in Europe it was evident that various other transnational fora also exist, ranging from the formal to the informal, that could play a role in helping to address LSI. However, it was noted that many of the transnational coordination arrangements were only partial in the coverage of LSI issues and/or land/sea responsibilities and that the scope for improved synergy and joined up action to better address LSI at a regional sea scale was great.

8 Conclusions

It is important to note that European experience discussed above is not necessarily representative of the wider global scene. However, it can perhaps provide a useful basis for considering future patterns of governance from an LSI and EA perspective and with this in mind a number of key messages are distilled which maybe of wider relevance.

Firstly, as human pressures on the sea intensify and the need for sustainable management of marine resources is increasingly recognised, the ocean is becoming the focus of governance innovation informed to a significant degree by EA perspectives. The establishment of new systems of MSP is proving to be a particular source of this innovation as a result of efforts to integrate MSP into established governance structures and also address the challenges raised by LSI. In this way ocean planning and management are emerging as important drivers of change in 'territorial' governance more generally, creating new opportunities to move towards the overarching EA ambition of integrated management of land, water, and living resources. In so doing MSP related developments are not only challenging traditional divisions between governance of the land and sea, they are arguably also bringing environmental perspectives more to the fore as these are more central in legal frameworks related to the sea, than they are on the land. In this way ocean governance developments may provide the impetus to begin to embed Earth Systems understanding into global governance structures at all scales and in so doing help to promote conservation and sustainable use of ecosystem resources both in the sea and on the land.²⁴

Secondly, European experience indicates that there is no 'one size fits all' solution to establishing governance arrangements that address LSI. It is clear that context matters and what is appropriate and deliverable in any situation will be influenced by variations in physical and human geography and will need to respond to different administrative and legislative histories and cultural norms and practices. Equally, it is evident that different governance approaches will have their own strengths and challenges from an LSI and an EA perspective and a combination of approaches is likely to be beneficial. The development of a nested or mixed governance architecture along these lines would of course be entirely consistent with EA understanding as reflected in EA principles 2 and 7.²⁵

Finally, consideration of LSI and EA in the context of ocean governance highlights the value of an adaptive governance outlook which encourages: governance experimentation; opportunities for collaborative discussion and reflection; and ongoing governance adjustment in light of experience and changing understanding. With this in mind, it seems that public fora constructed to support 'territorial'/LSI and adaptive governance perspectives should be an important feature of future EA informed governance architecture

24 K Nash and others, 'Planetary boundaries for a blue planet' (2017) 1 *Nature Ecology and Evolution* 1625.

25 M Mellett and others, 'Attainment of ecosystem based governance in European waters – A State property rights regime approach for Ireland' (2011) 35 *Marine Policy* 559.

and a key mechanism to extend ocean literacy and focus the development of a Blue Society. It is interesting therefore, given the global orientation of much ocean governance and EA debate so far, to recognise that local level ICM initiatives might provide valuable sources of inspiration about the form that such fora might take, how the concept might be applied at different scales, and also of the challenges inherent in their development, operation and sustainability over time.

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The Ecosystem Approach and Sustainable Development in Baltic Sea Marine Spatial Planning: The Social Pillar, a ‘Slow Train Coming’

Michael Gilek, Fred Saunders and Ignė Stalmokaitė

1 Introduction

While rooted in ambitions to protect the natural environment, marine spatial planning (MSP) has been heralded by a wide range of actors in policy and science alike as a policy process that could enable a balancing of various interests and policy objectives to promote sustainable marine governance and, hence, sustainable development (SD) in marine and coastal areas.¹ Spurred by these aspirations, MSP is a growing global phenomenon that is increasingly being applied as a means of sustainable marine governance.² Integral to this optimism of MSP processes as a way to achieve a more sustainable use of marine resources and territory without transcending environmental thresholds, is the notion that this is best achieved by basing MSP practices on the principles of the so-called Ecosystem(-based) Approach (EA).³

However, given this optimistic and often rather uncritical discourse on MSP and EA as a guiding principle to achieve SD, it comes as no surprise that there

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- 1 E.g. F Douvere, ‘The Importance of Marine Spatial Planning in Advancing Ecosystem-Based Sea Use Management’ (2008) 32 Mar Policy 762; European Commission, ‘An integrated maritime policy for the European union’ (Communication) COM (2007) 575 final 16; HELCOM-VASAB MSP Working Group, Baltic Sea broad-scale marine spatial planning principles (2010) <www.helcom.fi/action-areas/maritime-spatial-planning/msp-guidelines/> accessed 24 Nov 2017.
 - 2 S Jay and others, ‘International Progress in Marine Spatial Planning’ in A Chircop and others (eds), *Ocean Yearbook: Coastal and Marine Spatial Planning*, vol 27 (Martinus Nijhoff Publishers 2013); HL Thomas, S Olsen and O Vestergaard (eds), *Marine Spatial Planning in Practice – Transitioning from Planning* (UNEP GEF-STAP 2014).
 - 3 E.g. L Crowder and E Norse, ‘Essential Ecological Insights for Marine Ecosystem-Based Management and Marine Spatial Planning’ (2008) 32 Marine Policy 772; C Ehler and F Douvere, ‘Marine Spatial Planning: A Step-by-Step Approach Toward Ecosystem-Based Management’ (UNESCO, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme, IOC Manual and Guides 53, ICAM Dossier 6 2009); S Katsanevakis and others, ‘Ecosystem-Based Marine Spatial Management: Review of Concepts, Policies, Tools, and Critical Issues’ (2011) 54 Ocean Coast Manag 80.

is an emerging academic literature that calls for more nuanced, empirically-based and critical analyses of SD-related aspirations, including the key role given to EA principles and practices in MSP.⁴

Although, in this study we do not aim to review and cover the full breadth of this emerging MSP and marine governance literature, we assert that key aspects of the debate linked to MSP policy and practice relate to: i) how to analyse the complex links and compatibilities between EA and various SD dimensions/discourses in MSP and other forms of marine governance; and ii) how conceptualisations of EA and SD in MSP are inherently contingent, so their application in practice is likely to vary widely depending on contextual factors. The second point underlines the importance of going beyond researching formal statements of MSP intent to examining how MSP is being realised in practice in various settings. The wide diversity of MSP practice creates challenges for deriving lessons learned, but nonetheless there may be commonalities across settings that provide key insights into the problems and solutions of realising different dimensions of sustainability in practice.

In terms of analysing links and compatibilities, both EA and SD are complex and multidimensional concepts influenced by norms and context. Jones, in discussing MSP and sustainability, argues that the environment can either be depicted as a competing sectoral interest ('soft sustainability') or as a special concern with recognition of ecological limits that frame development possibilities ('hard sustainability').⁵ Jay et al, when talking about EA in MSP, make a similar observation but use the terms deterministic (hard) and relativistic (soft).⁶ Sticking with the terminology of Qui and Jones, the hard demarcation separating the two sides of the debate focuses on the degree of permissible substitutability between the economy and the environment or between 'natural capital' and 'manufactured capital', which has for a long time been a feature

4 W Qiu and P Jones, 'The Emerging Policy Landscape for Marine Spatial Planning in Europe' (2013) 39 *Mar Policy* 182; W Flannery and others, 'Exploring the Winners and Losers of Marine Environmental Governance/Marine spatial planning: Cui Bono? Etc.' (2016) 17(1) *Planning Theory & Practice* 121; P Jones, LM Lieberknecht and W Qiu, 'Marine Spatial Planning in Reality: Introduction to Case Studies and Discussion of Findings' (2016) 71 *Mar Policy* 256; RV Tafon, 'Taking power to sea: Towards a Post-Structuralist Discourse Theoretical Critique of Marine Spatial Planning' (2018) 36(2) *Environment and Planning C: Politics and Space* 258.

5 P Jones, *Governing Marine Protected Area: Resilience Through Diversity* (Earthscan, Routledge 2014).

6 S Jay, T Klenke and H Janßen, 'Consensus and Variance in the Ecosystem Approach to Marine Spatial Planning: German Perspectives and Multi-Actor Implications' (2016b) 54 *Land Use Policy* 129.

of the broader sustainable development discussion⁷ (particularly in the environmental economics literature⁸). Both Qiu and Jones and Santos et al note that these two different conceptions of MSP are discernible in the EU's MSP institutional architecture. According to them, the EU's Integrated Maritime Policy primarily frames MSP in win-win terms (or 'soft sustainability') whereas the EU's Marine Strategy Framework Directive (MSFD) more squarely emphasises environmental protection (or 'hard sustainability').⁹ How these different conceptions of SD and EA translate to different MSP settings is an empirical question that is central to this paper. The 'hard versus soft' debate is part of a larger discursive contest over sustainable development, where there are a diverse range of views about both what should properly constitute it, and the appropriate and prudent pathways towards it.

Arguably, environmental and natural resource challenges, such as those confronting MSP, can be seen as social issues in that they closely relate to institutionalised human behaviour that determine difficult choices, such as those between environmental protection or economic development. The focus here on aspects of social sustainability fills a gap that has so far been dominated by earlier work centred on the roles of environmental protection and/or economic development in MSP. We argue here that the way that these dimensions of MSP are realised in practice are related to aspects of integration in MSP (e.g. across policy objectives and jurisdictional borders, over sectorial and stakeholder interests and knowledges).¹⁰ Hence, we hypothesize that an analytical focus on integration can provide insights into aspects of social sustainability, including participation, procedural justice, social inclusion, knowledge pluralism – all these are key processual aspects which are likely to affect distributive outcomes. However, there is a need to develop the details of such an integration-based analytical framework, as well as to explore the empirical insights for social sustainability related issues in EA and MSP processes.

In response to these ongoing discussions and calls for a contextual empirical analysis of MSP ambitions and practice we aim in this chapter to: 1) examine whether an analytical framework based on multiple MSP integration challenges provides a basis for developing a nuanced analysis of how EA relates to

7 W Qiu and P Jones 'The Emerging Policy Landscape for Marine Spatial Planning in Europe' (2013) 39 *Mar Policy* 182.

8 R Costanza and others, 'The Value of the World's Ecosystem Services and Natural Capital' (1997) 387 *Nature* 253.

9 W Qiu and P Jones. 'The Emerging Policy Landscape for Marine Spatial Planning in Europe' (2013) 39 *Mar Policy* 182; C Santos and others, 'How Sustainable is Sustainable Marine Spatial Planning? Part I – Linking the Concepts' (2014) 49 *Mar Policy* 59.

10 S Kidd, 'Rising to the Integration Ambitions of Marine Spatial Planning: Reflections from the Irish Sea' (2013) 39 *Mar Policy* 273.

SD in MSP; 2) explore the utility of the framework for analysing social sustainability related issues in EA and MSP processes by performing case studies in some strategically chosen MSP contexts in the Baltic Sea region; 3) identify potential incompatibilities and other challenges in the interaction between EA and SD in need of further study.

The chapter is organised in the following way. First, we review the literature on integration, SD and EA in MSP to develop the integration-based analytical framework. Second, we apply the framework to analyse some strategically identified case studies of MSP in the Baltic Sea region. Finally, results are discussed with a focus on the applicability of the developed analytical framework, empirical insights on EA's challenges in MSP, and possibilities to strengthen social sustainability related issues in EA and MSP processes.

2 Analytical Framework

2.1 *Integration Challenges and Sustainable Development in Marine Spatial Planning (MSP)*

To achieve an analysis that moves beyond the binary soft-hard distinction of how EA and SD are conceived and practiced in MSP, we argue that it could be fruitful to base the analysis on how MSP integration challenges are addressed. It is highly likely that actors in MSP will adopt a wide variety of positions in relation to what sustainability means and how it should be implemented. How these various identities, values and interests are handled in MSP ultimately hinges on the workings of power related to how different aspects of integration are handled in specific processes, including among others, stakeholder engagement, transparency of decision-making, inclusion of different types of knowledge (attached to stakeholder engagement and influence), adoption of a cross-sectoral approach and coordination across different scales. We argue here that various aspects of integration provide analytical leverage points to interrogate key aspects of MSP planning practice, which can provide a nuanced socio-political understanding of EA and SD in different empirical settings as a complement to the soft-hard analytical distinction.

Within the MSP literature more effective Integration has been recognised as a means of addressing a variety of challenges closely related to MSP's sustainable development ambitions, such as supporting inter-sectoral decision-making, stakeholder engagement and cross-border interaction.¹¹ Integration

11 ME Portman, 'Marine Spatial Planning: Achieving and Evaluating Integration' (2011) 68(10) ICES Journal of Marine Science: Journal du Conseil 2191; S Kidd and G Ellis, 'From the Land to Sea and Back Again? Using Terrestrial Planning to Understand the Process

as a policy and analytical problem has also been discussed elsewhere – most saliently in the fields of sustainable development,¹² ICZM,¹³ environmental policy integration,¹⁴ planning theory,¹⁵ and socio-ecological systems,¹⁶ among others.

While there are transnational directives and guidelines, MSP as a site of governance is primarily a national issue, as institutional MSP arrangements are legislated and enacted in national settings that reflect different processes, institutional setups and historic contexts that affect integration possibilities. The transnational dimension of MSP adds a further layer of complication. The need to integrate MSP over borders within transnational marine environments appears exceedingly clear, especially given the recent surge in plans to develop new types of maritime industries, such as the European Union's ambitious *Blue Growth Strategy*.¹⁷ This will be a challenging task in a complex transboundary context like the Baltic Sea, with its differing politico-administrative traditions, languages, marine conditions, economic interests and levels of institutionalised MSP engagement.¹⁸

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- of Marine Spatial Planning' (2012) 14(1) *Journal of Environmental Policy and Planning* 49; S Kidd, 'Rising to the Integration Ambitions of Marine Spatial Planning: Reflections from the Irish Sea' (2013) 39 *Mar Policy* 273; A Schultz-Zehden and K Gee, *BaltSeaPlan Findings – Experience and Lessons* (2013) <<http://www.baltseaplan.eu/index.php/Reports-and-Publications;809/1>> accessed 24 Nov 2017; P Jones, *Governing Marine Protected Area: Resilience Through Diversity* (Earthscan, Routledge 2014); J Zaucha, 'Sea Basin Maritime Spatial Planning: A Case Study of the Baltic Sea Region and Poland' (2014) 50 *Mar Policy* 34.
- 12 WN Adger and A Jordan, 'Sustainability: Exploring the Processes and Outcomes of Governance' in WN Adger and A Jordan (eds), *Governing Sustainability* (Cambridge, Cambridge University Press 2009).
 - 13 S Bremer and B Glavovic, 'Mobilizing Knowledge for Coastal Governance: Re-Framing the Science – Policy Interface for Integrated Coastal Management' (2013) 41(1) *Coastal Management* 39.
 - 14 A Jordan and A Lenschow, 'Policy Paper. Environmental Policy Integration: A State of the Art Review' (2010) 20(1) *Environmental Policy and Governance* 147.
 - 15 G Vigar, 'Towards an Integrated Spatial Planning?' (2009) 17 (11) *European Planning Studies* 1571.
 - 16 E Ostrom, 'A General Framework for Analyzing Sustainability of Social-Ecological Systems' (2009) 325(5939) *Science* 419.
 - 17 S Jay, T Klenke and H Janßen, 'Consensus and Variance in the Ecosystem Approach to Marine Spatial Planning: German Perspectives and Multi-Actor Implications' (2016b) 54 *Land Use Policy* 129.
 - 18 N Tynkkynen and others, 'The Governance of the Mitigation of the Baltic Sea Eutrophication: Exploring the Challenges of the Formal Governing System' (2014) 43(1) *Ambio* 105.

This imperative for transnational MSP integration is evident from both environmental and economic (arguably a sub-set of the social) perspectives. The three pillars of sustainable development are deeply interwoven, hence the incessant call for joined up approaches in MSP and other forms of environmental governance. Marine ecosystem values and processes as well as human development activities transcend national boundaries, so connectivity (which implies a form of integration) for conservation, shipping and fishing, among others needs to be considered at a localised as well as regional sea basin levels.¹⁹ Furthermore, inadequate integration in MSP has been implicated in conflicts over resources and other marine values and uses both within domestic and transnational marine space.²⁰

Variably handling knowledge input from a range of natural and social science disciplines and stakeholders is likely to result in different constructions of what constitutes 'balance' in different marine governance settings such as MSP.²¹ This is likely to be a difficult process, particularly if opposing knowledge types and related claims are linked to deep conflicts over marine resource rights. Also implicated in the knowledge integration challenge is how to ensure the transmission and sharing of knowledge among organisations involved in MSP. This may be a problem in private sector proprietary knowledge situations, where there may be commercial incentives for private sector stakeholders to closely guard knowledge/information.

Stakeholder integration relates to an overarching challenge of how to formulate and define marine environmental and use problems in such a way that all stakeholders can meaningfully contribute to formulating and resolving MSP problems. This relates to the inclusion and active involvement of stakeholders in MSP processes, their role(s), and the degree of their influence on outcomes in concrete terms (so that there are incentives for them to participate).²² Still, it has been acknowledged that there is a lack of understanding about how different strategies for stakeholder integration may work in different MSP

19 S Jay and others, 'Transboundary Dimensions of Marine Spatial Planning: Fostering Inter-Jurisdictional Relations and Governance' (2016a) 65 *Mar Policy* 85.

20 H Ritchie and G Ellis, 'A System That Works for the Sea? Exploring Stakeholder Engagement in Marine Spatial Planning' (2010) 53(6) *Journal of Environmental Planning and Management* 701.

21 B Coffey and K O'Toole, 'Towards an Improved Understanding of Knowledge Dynamics in Integrated Coastal Zone Management: A Knowledge Systems Framework' (2012) 10(4) *Conservation and Society* 318.

22 P Jones, LM Lieberknecht and W Qiu, 'Approaches for addressing conflicts in the MESMA case studies' (2013) Deliverable 6.2 of MESMA Work Package 6 (Governance). <www.homepages.ucl.ac.uk/~ucfwpej/pdf/MESMAD6-2.pdf> accessed 24 Nov 2017.

settings.²³ Additionally, a key challenge is how to develop processes to support participation among a range of stakeholders and put measures in place to manage conflicting interests in a timely manner to inform high quality policy/planning outcomes.

A key role of MSP is to provide a basis for marine use that takes account of current uses, while being future oriented. This ambition, to balance between consideration of current imperatives and desirable future states, is similar to the intergenerational aims and orientation of sustainable development. This aspect of integration (consolidating the now and the future) is thus critical to the role of MSP. Aside from preventing future conflicts, MSP sets a pathway to the future that will be central to the configuring of the relationship between environment and development concerns in marine contexts. Furthermore, in MSP adaptation (or adaptive capacity/management) is a key concept seen as a way of enabling the refinement of spatial management arrangements as knowledge accumulates over time within particular contexts. In the scholarly literature adaptation is heavily associated with a resilience/socio-ecological system (SES) approach. Ostrom's 2008 paper is a key contributor to the SES approach, where she argues that in complex transboundary governance contexts, such as MSP in the Baltic Sea, the key challenge is how to vertically link institutions at various levels whilst enabling enough flexibility to support adaptive management approaches (suited to local conditions) that are not overly constrained by hierarchical order.²⁴ In this sense, the primary goal for policymakers and managers in MSP would be not to manage change, but to manage the capacity of social-ecological systems to cope with and respond to change, given highly uncertain future conditions.

As summarised in Table 6.1, we thus identify a set of seven integration challenges that correspond to how MSP objectives and processes are differently conceived and implemented. The identified integration challenges also link to specific sustainable development discourses and EA Malawi Principles (discussed further below and referred to in Table 6.1).

23 J McCann and others, *Identifying Marine Spatial Planning Gaps, Opportunities, and Partners: An Assessment*. (Coastal Resources Center and Rhode Island Sea Grant College Program 2014).

24 E Ostrom, *Polycentric Systems as One Approach for Solving Collective-Action Problems* (Indiana University 2008).

TABLE 6.1 Summary of the analytical framework showing links between integration, sustainable development (SD) and ecosystem approach (EA). The indicated Marine Spatial Planning (MSP) implementation emphasis should be seen as representing a continuum between two notional endpoints. MSP practices in specific contexts can, hence, be situated anywhere between these endpoints.

Integration Dimension, institutional ambition	MSP implementation emphasis	Links to Sustainable Development discourse	Links to Ecosystem Approach principles (# of Malawi principle)
Balance	Ecological boundary conditions/limits – win-win	Whether environmental protection ('hard' SD) or maritime development ('soft' SD) is privileged	Societal choice (1); Sustainable use (4); Ecosystem structure and function (5); Ecosystem limits (6); Balance (10)
Vertical (territorial)	Top down – bottom up	Strategic decision-making and possibilities for more 'localised' influence	Decentralised (2); Appropriate scale (7)
Cross-border (territorial)	Disjointed – coherent	Possibilities for a harmonised approach across scales, between adjoining areas or areas of shared interest	Adjacent and other ecosystems (3)
Horizontal – policy/sector	Ad hoc – strategic	Likelihood of effective consideration (trade-off/ synergies) of multiple sustainable development goals	All relevant sectors of society (12), Sustainable use (4)
Stakeholder	Tool for legitimacy and fairness – implementation efficiency	Possibility for participation and deliberation and to affect distributive outcomes	Societal choice (1); Decentralised (2); All relevant sectors of society (12)
Knowledge	Scientific knowledge – stakeholder knowledge evidence – precaution	The scope of the evidence-base and opportunities for a broad range of stakeholders' knowledge to be valued	All forms of relevant information (11); All relevant sectors and scientific disciplines (12)
Temporal	Static – adaptive	Capacity of the MSP process to adopt a reflexive approach over time	Temporal scales and lag effects (8); Change is inevitable (9)

2.2 *Ecosystem Approach and Integration in MSP*

The Ecosystem(-based) Approach (EA) is commonly espoused as the key set of guiding principles for MSP to achieve sustainable use of marine ecosystems.²⁵ This is reflected for instance in the EU's development of its 2014 MSP Directive. However, what this specifically means in theory and practice is not straightforward since EA, like SD, is a complex and variously conceived concept in terms of its guiding principles and how it can (or should) be implemented in marine governance processes such as MSP.²⁶

On a general level, there is a rather consensual understanding of EA as a place-based approach to manage human activities and their cumulative risks for ecosystem services in a way that promotes sustainable use and good environmental status.²⁷ However, this consensus quickly falls apart when it comes to what EA principles should be prioritised, especially if there is deemed to be contradictions or tensions in practice between them relating, for example, to consideration and balancing of environmental, economic and social objectives.²⁸

In response to this complexity and vagueness of the EA concept there have been a number of efforts to define and operationalise EA. A key document here, that is often referred to as the main foundational source, is the EA guideline of the CBD (Convention on Biological Diversity) which builds on the 12 so-called Malawi principles endorsed by the Parties to the Convention (Table 6.2).²⁹ Similarly, EA guidelines have been developed for MSP in general, as well as for

25 Cf S Katsanevakis and others, 'Ecosystem-Based Marine Spatial Management: Review of Concepts, Policies, Tools, and Critical Issues' (2011) 54 *Ocean Coast Manag* 80; C Santos and others, 'How Sustainable is Sustainable Marine Spatial Planning? Part I – Linking the Concepts' (2014) 49 *Mar Policy* 59.

26 RD Long, A Charles and RL Stephenson, 'Key Principles of Marine Ecosystem-Based Management' (2015) 57 *Mar Policy* 53; E Domínguez-Tejo and others, 'Marine Spatial Planning Advancing the Ecosystem-Based Approach to Coastal Zone Management: A Review' (2016) 72 *Mar Policy* 115; S Jay, T Klenke and H Janßen, 'Consensus and Variance in the Ecosystem Approach to Marine Spatial Planning: German Perspectives and Multi-Actor Implications' (2016b) 54 *Land Use Policy* 129.

27 E.g. K McLeod and H Leslie (eds), *Ecosystem-Based Management for the Oceans* (Island Press 2009).

28 E.g. KK Arkem, SC Abramson and BM Dewsbury, 'Marine Ecosystem-Based Management: From Characterization to Implementation' (2006) 4 *Front Ecol Environ* 525; C Santos and others, 'How Sustainable is Sustainable Marine Spatial Planning? Part I – Linking the Concepts' (2014) 49 *Mar Policy* 59; RD Long, A Charles and RL Stephenson, 'Key Principles of Marine Ecosystem-Based Management' (2015) 57 *Mar Policy* 53; NJI Rodriguez, 'A Comparative Analysis of Holistic Marine Management Regimes and Ecosystem Approach in Marine Spatial Planning in Developed Countries' (2017) 137 *Ocean Coast Manag* 185.

29 Report of the Workshop on the Ecosystem Approach (Convention on Biodiversity (CBD) 26–28 January 1998); The Ecosystem Approach (CBD Guidelines) (Secretariat of the Convention on Biodiversity, Convention on Biodiversity (CBD) 2004).

MSP implementation in specific regional seas such as the Baltic Sea.³⁰ There have also been attempts to distil out key EA principles by reviewing published scholarly texts.³¹ Still, despite these efforts, the emerging literature analysing EA in MSP processes around the world reveals a large heterogeneity in how EA is conceptually understood and operationalised in specific MSP processes at national and sub-national levels.³²

In our analysis of this literature we observe that the described contentions and variability in how EA is conceptually understood and practiced can be refracted through the lens of MSP integration challenges to provide insights into key aspects of social sustainability (as summarised in Table 6.1). For example, as for MSP in general, a key contention relates to EA's role in 'balancing' environmental protection and maritime development which thus clearly links to the hard vs soft sustainability debate. However, looking beyond the dominating focus on environmental protection and/or economic development in MSP, we observe that several aspects commonly linked to notions of social sustainability are reflected in the Malawi principles (Table 6.2). In an overarching sense the most important link to social sustainability is that following the Malawi principles is expected to result in *equitable sharing of benefits* arising from the utilisation of resources. In pursuit of this, most importantly our analysis reveals that the set of Malawi principles relates directly to processual concerns that are likely to have a bearing on distributive outcomes, such as stakeholder and knowledge integration and associated challenges to facilitate participation, deliberation, wide knowledge exchange and learning in MSP processes (Table 6.1).

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- 30 C Ehler and F Douvere, *Marine Spatial Planning: A Step-by-Step Approach Toward Ecosystem-Based Management* (UNESCO, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme, IOC Manual and Guides 53, ICAM Dossier 6 2009); HELCOM-VASAB MSP Working Group, *Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea* (2016) <<http://www.helcom.fi/action-areas/maritime-spatial-planning/mssp-guidelines/>> accessed 24 Nov 2017.
- 31 E.g. RD Long, A Charles and RL Stephenson RL, 'Key Principles of Marine Ecosystem-Based Management' (2015) 57 *Mar Policy* 53.
- 32 E.g. H Leslie and others, 'Learning from Ecosystem-Based Management in Practice' (2015) 43 *Coast. Manag.* 471; E Domínguez-Tejo and others, 'Marine Spatial Planning Advancing the Ecosystem-Based Approach to Coastal Zone Management: A Review' (2016) 72 *Mar Policy* 115; NJI Rodriguez, 'A Comparative Analysis of Holistic Marine Management Regimes and Ecosystem Approach in Marine Spatial Planning in Developed Countries' (2017) 137 *Ocean Coast Manag* 185.

TABLE 6.2 The Malawi principles for the ecosystem approach in the UN Convention on biodiversity^a

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1. Management objectives are a matter of **societal choice**.
 2. Management should be **decentralised** to the lowest appropriate level.
 3. Ecosystem managers should consider the effects of their activities on **adjacent and other ecosystems**.
 4. Recognising potential gains from management there is a need to understand the ecosystem in an economic context, considering e.g. mitigating market distortions, aligning incentives to **promote sustainable use**, and internalising costs and benefits.
 5. A key feature of the ecosystem approach includes **conservation of ecosystem structure and functioning**.
 6. Ecosystems must be managed within the **limits** to their functioning.
 7. The ecosystem approach should be undertaken at the **appropriate scale**.
 8. Recognising the varying **temporal scales and lag effects** which characterise ecosystem processes, objectives for ecosystem management should be set for the long term.
 9. Management must recognize that **change is inevitable**.
 10. The ecosystem approach should seek the appropriate **balance** between conservation and use of biodiversity.
 11. The ecosystem approach should consider **all forms of relevant information**, including scientific and indigenous and local knowledge, innovations and practices.
 12. The ecosystem approach should involve **all relevant sectors of society and scientific disciplines**.
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a Report of the Workshop on the Ecosystem Approach (Convention on Biodiversity (CBD) 26–28 January 1998); The Ecosystem Approach (CBD Guidelines) (Secretariat of the Convention on Biodiversity, Convention on Biodiversity (CBD) 2004).

Hence, to summarise, we undertook a review of the academic literature on MSP and its links to SD and EA. Using this material, we developed a set of seven integration challenges and elaborated how they can be conceptually understood and operationalised in MSP processes (Table 6.1). The analytical framework clearly shows that EA, as defined in the Malawi principles, can be conceptually understood as a multidimensional concept that covers all identified integration challenges as well as all dimensions of SD (i.e. environmental, economic and social). The analytical framework can therefore provide a basis and structure for a multidimensional analysis of how EA is understood and

implemented in MSP. In this respect, our analytical focus on integration could reveal important aspects of social sustainability that up until now have largely been ignored.

In the next section, we explore the utility of the framework and generate some empirical insights on how EA is variously conceived and practiced in Baltic Sea MSP processes. This is done in three distinct case studies illustrating different MSP contexts in the Baltic Sea region: i) the development of regional EA guidelines at the pan-Baltic level by the HELCOM-VASAB MSP Working Group; ii) MSP processes in Lithuania and Latvia; iii) engaging fisheries in Polish MSP. The case studies were performed during 2015–2016 as part of the BONUS BALTSAPACE project and were based on an extensive set of primary data, consisting of written documentation (regulations, strategy documents, work plans, roadmaps, minutes from meetings and other relevant sources) and interviews with experts in the fields, stakeholders, policy-makers and public administrators, sector and NGO representatives and users in the different sectors.³³ Moreover, data from stakeholder forums arranged by BONUS BALTSAPACE, including direct observations from these meetings, have fed into how the case studies have been formulated and interpreted. The methodology and material are more extensively described elsewhere.³⁴ The focus of the case study analysis presented here is on observations relating to stakeholder and knowledge integration – both important aspects of social sustainability.

3 Insights on EA and SD from some Baltic Sea MSP Contexts

3.1 *Developing EA Principles and Guidelines at the Pan-Baltic Level*

The most important institutions at the pan-Baltic level in relation to marine spatial planning are the Helsinki Commission (HELCOM), Visions and Strategies Around the Baltic Sea (VASAB) and the HELCOM-VASAB MSP Working Group (HV WG), where HELCOM targets mainly environmental protection,

33 BALTSPACE – Towards Sustainable Governance of Baltic Marine Space is an international research project on Baltic Sea Marine Spatial Planning that is being carried out 2015–2018 <www.baltspace.eu>.

34 B Hassler and others, 'BONUS BALTSAPACE Deliverable 2.2: Ambitions and Realities in Baltic Sea Marine Spatial Planning and the Ecosystem Approach: Policy and Sector Coordination in Promotion of Regional Integration' (2017) <www.baltspace.eu> accessed 24 Sept 2018; F Saunders and others, 'BONUS BALTSAPACE Deliverable D2.4: MSP as a governance approach? Knowledge integration challenges in MSP in the Baltic Sea' (2017) <www.baltspace.eu> accessed 24 Sept 2018.

VASAB planning, and the HV WG has been established to bridge the border between the two in relation to MSP in the Baltic Sea region.³⁵

MSP was identified as a key policy instrument in HELCOM's Baltic Sea Action Plan from 2007, as well as a key topic for regional coordination at the 7th VASAB ministerial conference in Vilnius, 2009. In response to this common aim to promote MSP, the joint HELCOM-VASAB MSP Working Group (HV WG) was set up in 2009 with the objective of bringing the efforts for improved regional coordination in the two organisations closer together. In late 2010, the document *Baltic Sea Broad-Scale Maritime Spatial Planning Principles* was confirmed by both HELCOM and VASAB. It delineates 10 principles that are supposed to improve coordination of national MSP strategies. Notably, sustainable balancing of environmental, economic and social interests in spatial contexts provides an overarching objective, while EA is put forward as a key policy tool to reach this goal, explicitly connecting MSP with the good environmental status objectives of the EU Marine Strategy Directive.

The HV WG is made up of representatives from national ministries and agencies, invited experts, representatives from the EU administration and the VASAB and HELCOM secretariats. It was clearly established from the on-set that HV WG had no mandate to make binding decisions, but was rather intended as a transnational and trans-sector forum on MSP, with the primary aim to share experiences and increase mutual understandings. However, in addition to providing input into the discussions, it was also stated that the delegates were supposed to bring home experiences from HV WG deliberations to support implementation at national and sub-national levels.

Not long after the HV WG was set up, it became clear among the participants that it was imperative to establish a regional understanding of and norms on implementing EA in MSP. Almost all relevant EU Directives, treaties, action plans and strategies emphasise the importance of further elaborating the EA to a point where it can be forwarded in practice, which created considerable institution-based pressure on the Baltic Sea states to speed up domestic implementation, and on HV WG to provide support from a regional perspective.

After a process spanning several years and numerous meetings of the HV WG, the EA guideline that emerged was adopted by HELCOM and VASAB in 2016.³⁶ This document outlines how EA can be used as a foundation for MSP

35 B Hassler and others, 'BONUS BALTSAPACE Deliverable 2.2: Ambitions and Realities in Baltic Sea Marine Spatial Planning and the Ecosystem Approach: Policy and Sector Coordination in Promotion of Regional Integration' (2017) <www.baltspace.eu> accessed 24 Sept 2018.

36 HELCOM-VASAB MSP Working Group, *Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea* (2016) <<http://www.helcom.fi/action-areas/maritime-spatial-planning/msp-guidelines/>> accessed 24 Nov

in the Baltic Sea region. However, its development proved to be a substantial challenge. Interviewed HV WG contributors to the guidelines, for example, reflected on the difficulties that they experienced during the formulation process in terms of ‘the biggest challenge for the whole group’ and ‘perhaps one of the most difficult things the group has been dealing with so far’. In relation to the MSP integration challenges identified in Table 6.1, we observe that, although several challenges such as vertical, cross-border, knowledge and so on, were discernible in the development process, the overarching difficulties mostly related to *balance*.

Hence, substantial effort was invested in reconciling different perceptions on how balancing between environmental protection and maritime development should be conceived, articulated and ultimately transmitted as regional guidelines. Clearly, at the onset of the process it was apparent that there were clear tensions and lack of trust between HV WG participants forwarding either ‘hard’ or ‘soft’ sustainability ambitions for MSP. Although, these fundamentally different perspectives still may lead to ‘some difficulties behind the scenes’ as explained by one respondent linked to HV WG, we observe that collectively at the HV WG level these differences softened over time. One aspect thought to be a key factor in building a more consensual view among by HV WG membership was HELCOM’s shift in its conception of how to realise EA. According to our respondents, HELCOM changed its stance from a rather strict conservation approach to focussing more on the functioning of the ecosystem. This shift, which more directly linked environmental values with socio-economic concerns, gained wide support among the HV WG and at the end the final guideline text was seen as a satisfactory compromise by those involved. Still, behind the scenes, there were different opinions on whether or not the final document provided a sufficient level of detailed practical guidance. A member of the HV WG that we talked to held the view that the consensus style decision-making of the HV WG ultimately led to compromises and inconsistencies. We see that this would have affected the substantive content of the EA guidelines and therefore likely reduced its value as a provider of strong regional directional guidance on EA in MSP. There were also expressions of disappointment on the HELCOM side about the guideline being ‘really basic’ and ‘not very detailed and practical’. On the other hand, the perspective of VASAB and planners working with MSP was that this lack of prescriptiveness and therefore flexibility in interpretation was an advantage, since it would allow for more context-specific adjustments in, for example, different national MSP processes.

2017. Adopted by the 72nd meeting of VASAB CSPD/BSR on 8 June 2016 and approved by HELCOM HOD 50–2016 on 15–16 June 2016.

It is also interesting to note that although the organisation of the working group allows for *participation of stakeholders* as observers, such involvement ultimately depends largely on the interested party's own incentive and initiative. On top of this, we observe that scepticism towards a broad stakeholder involvement prevailed in the group. Hence, although there was a common conception that stakeholder involvement might facilitate later implementation of the guidelines in national MSP, several obstacles and problems were also mentioned, in particular in terms of problems and delays linked to requirements of the group to make consensus decisions. As one respondent associated with HV WG put it 'If we involve more [stakeholders], we have more comments and more confusion'.

In summary, these observations on the process leading up to the adoption of the HELCOM-VASAB EA guideline provide insights on the main aspects of contention (i.e. linked to *balance*). There are also indications that a consensus-driven process such as this (i.e. the HV WG only makes decisions on the basis of consensus) might paper-over differences, which may screen conflict and power imbalances among stakeholders (remembering that the few participating NGOs are observers without full membership). This can have the effect of allowing a relatively efficient passage of the EA guidelines through the regional processes, while at the same time displacing conflicts in time and space to the ongoing national MSP processes. Perhaps a process that is more inclusive, less eager on consensus and prepared to deal with more conflict situations might offer more substantive guidance, particularly in relation to the importance of processual aspects of social sustainability.

A more detailed analysis of the final guideline text, also reveals some additional insights on how EA is conceived in Baltic Sea MSP and how this links to MSP integration challenges. Looking, first, at the stated definitions and key elements of EA, the document starts off by explicitly referring to the 12 Malawi principles, as well as the EA definitions of the CBD (COP 5/Decision V/6, 2000) and HELCOM/OSPAR.³⁷ Thus, in line with the CBD, EA is seen as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.' Furthermore, in section 5 of the guidelines, a range of key elements of MSP relating to the Malawi principles, for example, best available knowledge (Malawi principle #11), adaptation (# 8 and 9) and subsidiarity (#2), are mentioned. The document also

37 Statement on the Ecosystem Approach to the Management of Human Activities (First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions 25-26/6/2003) <www.ospar.org/about/principles/ecosystem-approach> accessed 24 Nov 2017.

expresses a need to apply the Malawi principles in planning in an integrated way by taking into account environmental, social, cultural, economic, legal and technical perspectives. Still, the actual implementation guidance text of the document focusses mainly on environmental objectives, values, impacts, stakeholders and established procedures such as SEA, which for instance only has provision for stakeholder consultation. Thus, there is rather limited specific guidance on what parts of society should be included in stakeholder engagement, the terms of their inclusion (consultative vs. deliberative) or how to assess and to deal with epistemic or interest-based conflicts that would inevitably be encountered in MSP implementation. The document is also silent on how it will contribute to delivering greater accountability, equity or societal welfare, aside from the implicit assumption that adhering to it would deliver greater sustainability. This greater sustainability is referred to throughout the guidelines as 'sustainable use' thereby further indicating an emphasis on the ecological and economic aspects of sustainability.

Linked to *knowledge integration* we observe that, despite the acknowledgement of the Malawi principle #11 on the need to base EA on all forms of relevant information, the implementation guidance text primarily focusses on scientific knowledge and neither local nor practice-based knowledge is explicitly mentioned. Furthermore, even though assessment of ecosystem services is mentioned as a new and useful approach, explicit specifications of knowledge requirements through the planning cycle relate mainly to the assessment of environmental status, values and impacts. Apart from generating information on planned or proposed uses and activities (and any impacts on ecosystem services), the implementation does not include any specific mention of the need to include socio-cultural knowledge, how to assess socio-cultural concerns and impacts or related distributional problems.

Relating to *stakeholder integration*, the document (section 5) states that 'All relevant authorities and stakeholders as well as a wider public shall be involved in the planning process at an early stage' (p. 6). In the implementation guidance, the question of what constitutes a relevant authority is only vaguely defined as 'authorities responsible for nature protection and ecosystems, and relevant authorities, NGOs and other stakeholders' (p. 13) or similar. Hence, reinforcing the impression of a primary concern in the operationalisation of stakeholder integration relating to environmental interests. When mentioned, other stakeholders and the wider public are not defined in any detail and challenges of representation or the terms of inclusion are not addressed. In guidance text explicitly giving direction on EA implementation, the role of the wider public is only mentioned once and rather meekly in relation to the need to formally consult the public (to provide information).

3.2 *Integration, EA and SD in Lithuanian and Latvian MSP*

Despite the seemingly large similarities between Lithuania and Latvia as two rather small, neighbouring Baltic Sea countries with a shared recent history of being occupied by the Soviet Union, they have adopted quite different national MSP strategies, as well as interpretations of Ecosystem Approach (EA) and Sustainable Development (SD) (as summarised in Table 6.3).

In Lithuania, the Ministry of Environment (Division of Spatial Planning) was given the main responsibility for developing a national framework for MSP. The practical work was, however, performed by a consortium led by the Coastal Research and Planning Institute at Klaipeda University. On top of this, to allow some sector integration, an inter-ministerial group headed by the Ministry of Environment was formed in line with existing spatial planning procedures. Vertically, the MSP process was rather top-down with participation of local municipalities only occurring on an ad hoc basis.³⁸ In 2015, the parliament accepted the extension of the existing Comprehensive Terrestrial Plan to include marine areas. As in the terrestrial planning, functional zoning was adopted as the main planning instrument and seven types of functional zones with dedicated primary and secondary priorities were specified.

In Latvia, the MSP strategy rolled out in a rather different way. Since MSP had been established as a policy concept in the legislation (the Spatial Development Planning Law; 2011), it could directly be used for targeted MSP purposes. In contrast to Lithuania, a broad MSP coordination group was formed in 2014 to include not only central political and administrative authorities, but also representatives from regional and local levels as well as sector stakeholders. The more active engagement of local municipalities in the centralised Latvian MSP process could partly be explained by the fact that local municipalities have been given the right to plan and manage the 2 km zone seawards from the coastline. Like in Lithuania, a consortium was entrusted with the actual drafting of the MSP framework, but rather than a natural science dominated research institute as in Lithuania, an environmental NGO (BEF; Baltic Environmental Forum Latvia) led the Latvian consortium. Currently, the Latvian MSP is in the process of the final round of clarifications and amendments following inputs from public and cross-sectoral consultations. The plan is anticipated to be approved by the Latvian Government by the end of 2018.

38 N Blažauskas and others, 'Lithuanian model case: case study report. PartSEApate.' (2014) <www.partiseapate.eu/wp-content/uploads/2014/09/Lithuanian-case-report.pdf> accessed 24 Nov 2017.

TABLE 6.3 Basic information on the timing and setup of the Marine Spatial Planning (MSP) processes in Lithuania and Latvia. Observations linked to MSP integration challenges (cf. Table 6.2) are also summarised and explained further in the text

	Lithuania	Latvia
Time frame of 1st MSP cycle	2012–2015	2014 – adoption of plan expected in 2018
Legal base of MSP and EA	Revised Law on Territorial Planning (2013); Indirect reference to EA via HELCOM-VASAB MSP principles in the adopted MSP document (2015)	Spatial Development Planning Law (2011); Direct mention of EA in the Marine Environmental Protection and Management Law (2010)
General aims of MSP	Environmental protection and sustainable development (albeit with different emphasis)	
'Balance'	Win-Win: Pragmatic national needs (e.g. OWE, MPA research)	Sustainable use within ecological limits; Environmental protection
Vertical integration	National responsibility; Municipalities obliged to follow plan	National responsibility apart from municipal planning of coastal zone; Cooperation with local governments
Cross-border integration	Basic information/consultation linked to Espoo Conv. and SEA Directive; Low level of awareness among Lithuanian NGOs	Integrated in MSP; 2 rounds of consultations; High interest among Latvian NGOs
Stakeholder integration	Strategic sector engagement as ad hoc consultations linked e.g. to SEA; Additional unofficial activities linked to the PartiSeaPate project	3 rounds of extensive regional consultations with local authorities and NGOs (stocktaking, scenarios, SEA)
Knowledge integration	Technical and expert-driven; natural science	Process-driven knowledge inclusion; focus on ecosystem status and services from environmental and economic perspectives

The Ecosystem Approach is defined in the Lithuanian Baltic Sea Environmental Protection Strategy (2010).³⁹ The strategy sets a goal to apply an ecosystem-based approach to management of the Baltic Sea for environmental protection. The concept is defined as 'a comprehensive and integrated method to management of human activities, based on the latest available knowledge on ecosystems and their change, aiming to identify adverse impacts on the marine ecosystem and perform efficient measures for reduction of such impacts preserving integrity and sustainability of the ecosystems'.⁴⁰ Despite the explicitly set goal to integrate an ecosystem-based approach to manage the Baltic Sea for environmental protection, the Ecosystem Approach is only indirectly mentioned in the Lithuanian MSP document in reference to the HELCOM-VASAB broad-scale MSP principles (2010). The document states that during a development phase of Lithuanian MSP, the principles set in the above-mentioned regional guidelines were considered (the Parliament of the Republic of Lithuania 2015). In addition, a following reference is given: 'the planning process shall take into account environmental, economic and social interests in a wider Baltic Sea regional framework and shall be in line within the limits of the Baltic Sea ecosystem services'.⁴¹ Despite an implicit mentioning of ecosystem services in a wider Baltic Sea regional context, it is not entirely clear to what extent, if any at all, the principles of an ecosystem approach were integrated in the actual MSP planning activities in Lithuania.

In contrast, EA is explicitly defined in the Latvian Marine Environmental Protection and Management Law (2010 and came into force from 1 Jan 2011) as: 'comprehensive, scientifically substantiated and integrated approach to management of human activity to identify adverse impacts on the marine ecosystem and perform efficient measures for reduction of such impacts preserving integrity and sustainability of the ecosystem'.⁴² This definition has been used

39 The Resolution of the Government of the Republic of Lithuania on the Approval of the Baltic Sea Environmental Protection Strategy, August 25, 2010, No. 1264.

40 *Ibid.*, 6.

41 *Ibid.*, 4.

42 Marine Environmental Protection and Management Law (Parliament of the Republic of Latvia 2010) (English version, the document consolidated by State Language Center). The Spatial Development Law (2011), however, does not explicitly mention EA. Instead the overlapping planning principle of 'sustainability' is referred to as 'spatial development is planned in order to preserve and form a good environmental quality, balanced economic development, rational use of natural, human and material resources, development of the natural and cultural heritage for the present and next generations', Spatial Development Planning Law 2011 (Parliament of the Republic of Latvia 2011).

and applied both in the Latvian MSP process and when developing the MSP Strategic Environmental Assessment (SEA) methodology.⁴³

Concerning the MSP integration challenge of '*Balance*', the Lithuanian MSP process sets as a goal 'to maintain balance between economic development and good ecological status'.⁴⁴ In addition, sustainable development is emphasised as one of the key MSP planning principles to ensure 'a balance between regional economic development, social well-being and healthy or (and) resilient ecosystem of the Baltic Sea'.⁴⁵ The wording in these ambitions implies that the marine environment is a sectoral interest to be considered alongside other maritime sectors. In other words, the Lithuanian MSP appears to be adopting a 'soft' sustainability approach that looks to 'balance' the needs of different marine sectors without any 'hard' preferential treatment of environmental concerns. Comments made by several interviewed respondents in the case study also quite directly inferred a 'soft' sustainability approach in Lithuania.

On the contrary, a number of actors involved in the Latvian MSP emphasised that environmental protection is a top priority on the national MSP agenda. In line with this, MSP was elaborated by explicitly developing and applying an ecosystem-based methodology, which involved mapping provisioning, regulating and cultural services to assess the impacts of various sea use scenarios and proposed permitted uses of Latvian marine areas. In developing this EA, the descriptors for Good Environmental Status from the EU MSFD were explicitly drawn on in order to 'assess the significance of human pressure'. This indicates an approach where perceived ecological limits informed MSP, presumably with the aim to make sure that ecosystem services and values are not subjected to threshold level pressures from proposed use of marine areas and resources. This 'hard' sustainability approach also underpins the argument presented by a respondent from the regional governmental authority, Kurzeme planning region, that 'Latvia has a strong tradition on nature protection. Meanwhile, the concept of Blue Growth is relatively new and people are not aware of it'.

The process of *stakeholder* involvement in Lithuania was twofold. On the one hand, the planning process followed official procedures of stakeholder involvement (e.g. public announcement of the beginning of the planning

43 Ministry of the Environmental Protection and Regional Development, Maritime Spatial Plan for territorial sea and exclusive economic zone of the Republic of Latvia (2015) Environmental report, 1st draft; Ministry of the Environmental Protection and Regional Development, Maritime spatial plan for the internal marine waters, territorial waters and exclusive economic zone of the Republic of Latvia (2016).

44 Comprehensive Plan of the Territory of the Republic of Lithuania Complemented by Marine Spatial Solutions (Parliament of the Republic of Lithuania 2015 No. 12-1781) 2.

45 *Ibid.*, 4.

process, official meetings with the inter-ministerial group (comprised of vice ministers of the respective key ministries) and MSP working group (comprised of the developers of the plan and the respective people from the Ministry of Environment). Broader stakeholder involvement was not seen as necessary. Instead, the public hearing processes of the prepared strategic environmental assessment (SEA) was considered to be a very good opportunity for other actors (NGOs, local authorities) to get involved in the process. In addition, Lithuanian planners organised one transboundary consultation with Latvia as part of the Lithuania MSP SEA. Some face-to-face meetings, roundtables and other workshops were also organised in a strategic way through direct contact with targeted sectors (Port of Klaipeda, Navy, Maritime Safety Administration) in order to find solutions to certain problems/potential conflict situations identified by the planners. The majority of face-to-face meetings and workshops on national and international level were, however, performed as part of the EU-funded project PartiSeaPate.⁴⁶ While these project-based activities, according to a MSP planner, were not part of the so-called official MSP process, the organised sectoral and transboundary discussions were seen to facilitate the MSP planning process in general.

In Latvia, a Public Participation Strategy was prepared in order to ensure that all relevant actors are brought in at an early stage of the planning process.⁴⁷ During the first phase of the MSP process in Latvia, three open regional meetings were organised in different coastal areas in March 2015. During these meetings, the discussion centred on the MSP process, the current situation, preliminary results from the stocktaking and Baltic Sea targets related to environmental processes and values. During the second stage of the planning process alternative MSP scenarios were developed which were presented in a second round of regional workshops, which were open to all stakeholders and public. The planners also organised several individual sectoral consultations in the spring and autumn of 2015 to identify and clarify sectoral need and to get input on a draft MSP. Key sectors such as shipping, energy, tourism and recreation, fisheries, underwater cultural heritage, nature conservation and others sectors relevant for sea uses were consulted. Some of the sectoral meetings were multisector rather than just between the MSP planners and the target sector. For example, during the meetings with the port authorities and the offshore wind energy (OWE) sector representatives from

46 <www.partiseapate.eu> accessed 24 Nov 2017.

47 K Veidemane, A Ruskule and S Sprukta, Development of a Maritime Spatial Plan. The Latvian Recipe 56 pp. (2017) <www.balticscope.eu/events/final-reports/> accessed 24 Nov 2017.

the environmental sector were also invited to introduce the concept of 'good environmental status'. The environmental sector did not meet any major objections from other sectors during these meetings.

Hence, looking at *knowledge* integration in the Latvian MSP process, broad non-expert and expert involvement and input was sought in using the EA to systematically support decisions by working through relationships between existing marine values and processes spatially linked to actual and proposed uses. While participation of broader publics was framed in less ambitious terms than stakeholder participation (i.e. as receivers of information and opportunities for consultation), the Latvian MSP process seems to have provided opportunities from an early stage and onward for significant 'place-based knowledge' input by coastal municipalities and government, as well as non-government sectoral interests. This contrasted with the Lithuanian approach to the development of its national MSP, where there was very little scope given for wider engagement and knowledge integration, and when it did occur it was primarily as information/consultation at the final stage of plan development.

The outcomes of the respective MSP processes in Lithuania and Latvia are far from clear since Lithuania is still preparing the implementation program of the adopted MSP and Latvia is still in the process of the adoption of its MSP. However, the way that the MSP priorities were set and organised suggests that there are clear differences to interpreting EA and SD in terms of *balance*, *stakeholder* inclusion and *knowledge* integration.

3.3 *Knowledge and Stakeholder Integration in Polish MSP: The Case of Fisheries*

As described above, at a Baltic-wide level much emphasis has been put on the role of natural science as the dominant evidence-base underpinning MSP while much less effort has been invested in how to integrate different forms of knowledge into MSP. Incorporating different forms of socio-cultural knowledge within an EA framework more broadly has posed particular problems for MSP, both in the Baltic and elsewhere. Here, we explore this issue in the Polish case, with a particular focus on fisheries.

The legal basis for MSP in Poland has been in place since 2003. Coordination is undertaken by the Maritime Administration with operational responsibility shared between several sectoral-based ministries.⁴⁸ During 2008 to 2011, Poland prepared three maritime pilot plans covering some of its maritime space. Also across Polish sea space, extensive stocktaking has been undertaken

48 J Zaucha and others, 'BONUS BALTSAPCE Deliverable 2.1: Baseline-Mapping and Refined Case Study Design' (2016) <www.baltspace.eu> accessed 24 Nov 2017.

as well as detailed studies on current uses, possible future uses and potential conflicts.⁴⁹ The Ecosystem Approach has been explicitly applied throughout the development of these preparatory materials which will be drawn on to inform the work of developing the national maritime spatial plan, which began in mid-2016.⁵⁰

Poland has experienced significant problems in trying to engage with fishers in MSP during the national MSP preparatory work described above. At the core of the problem has been a concern by fishers that their knowledge is not valued or respected and therefore they can have little influence in MSP processes as indicated in the following quote:

[Decision-makers] do not value the opinion of [fishers] who use the sea since tens of years because we are not well-organized and do not have unlimited funds. And, unfortunately, we lose due to lack of money and they [the offshore energy sector] win. [Polish fisher]

Polish fishers also accused scientists involved in stock-taking work (i.e., mapping of conditions, values and uses (users) in Polish marine space) in preparation for developing the national Polish MSP of using scientific jargon with stakeholders in a way that restricts their capacity to engage in meaningful dialogue, as indicated in the following quotes from fishers:

[Scientific results] were presented, some numbers were shown but it was all difficult to understand. It was like a professor is giving a lecture to students who are not listening to him. [Polish fisher]

Scientists are careless how to communicate their knowledge. They cannot present it in a way that fishers expect. They show charts, drawing and bars, but what is the conclusion? [Polish fisher]

The fishers in part were responding to their previous experience in interacting with scientists over marine governance issues.

The natural scientists involved in MSP in Poland who were interviewed were not fully aware of how their work is being perceived by the fishers, however,

49 Ibid.

50 J Zaucha, 'Sea Basin Maritime Spatial Planning: A Case Study of the Baltic Sea Region and Poland' (2014) 50 *Mar Policy* 34; J Zaucha and others, 'BONUS BALTSPEACE Deliverable 2.1: Baseline-Mapping and Refined Case Study Design' (2016) <www.baltspace.eu> accessed 24 Nov 2017.

they saw their role as a provider of *objective facts* to underpin MSP decision-making, while recognizing that there are likely to be divergent views on this:

I am aware that sometimes fishers say that they can see on the echosounder that [the] sea is full of fish but they cannot fish [because of conservation measures]. The fact that there is plenty of fish in one place does not imply that there are many of them in the whole Polish marine areas, and that it is possible to increase quotas. And here I trust scientific knowledge coming from different disciplines. This knowledge is extremely important as planners can have their subjective opinions and fishers might also have different expectations. And all these [conflicting expectations] need to be considered. [Polish scientist]

Among fishers and scientists and other stakeholders, different views on causal relationships, responsible agents and solutions to these problems go to the heart of the current knowledge schism affecting MSP in Poland, which has clear links to EA applications more widely. For example, well before the advent of MSP, near-shore fishers held strong views that conservation of seals and cormorants negatively affected their livelihoods.⁵¹ While it has been shown that there are areas where such an effect is discernible, there is little scientific evidence backing the broader spatial validity of this claim. When fishers demand additional research (because they do not accept the current scientific understanding), it is not always abundantly clear how such research should be conducted or what it should be targeted at finding out. Perhaps this is not a MSP stakeholder concern that can be addressed with more scientific knowledge, but rather reflects deeper reservations about feelings of vulnerability about fishers' rights in the face of newcomers and what they may see as the strengthening of some actors' positions in marine governance, e.g., conservation and energy sector. Putting aside the sustainability concerns of socio-economic exclusion, the example of the Polish fisheries in MSP shows that EA, in adopting an evidence-based approach, ought to more fully recognise the challenges raised by scientific uncertainty/disagreement and the importance of developing approaches to help reduce and address such challenges. Such an approach would establish transparent ground rules for interpretation and application of the precautionary principle and how to value different forms of knowledge in decision-making under conditions of uncertainty. As Johnsen and Hersoug suggest,

51 M Michałek and L Kruk-Dowgiałło, 'Konsultacje społeczne jako element planowania ochrony obszarów natura 2000 na przykładzie zatoki puckiej, Inżynieria Ekologiczna' (2015) 42 *Ecological Engineering* 95.

fishers are likely to possess more knowledge about conditions at a localised scale than scientific knowledge.⁵² Griffin makes a similar point that knowledge conflicts (or difficulties in integrating knowledge systems) are often attributable to questions of scale, particularly where it is claimed that scientific knowledge has not adequately considered local knowledge and experience often due to concerns over knowledge credibility or the blurring of the fact/value distinction.⁵³ The considered inclusion of such localised knowledge may also work in instances of overt and deeply entrenched conflict to moderate negative attitudes towards participating in MSP. Knowledge integration involves engaging in bridging between all forms of knowledge. This may not necessarily mean neutralising power-related imbalances between different forms of knowledge such as those discussed above in the Polish MSP, but rather seeing differences as an inevitable part of bridging processes where deliberation is required to assess their relevance, meanings and interpretations.

This analysis has shown that an important aspect of the *knowledge integration* challenge in MSP and the EA more broadly centres on how to mix scientific knowledge with the knowledge politics of stakeholder participation in a way that both supports social inclusion and improves the evidence-base underpinning decisions.

4 Concluding Remarks on Applying an Integration-based Analytical Framework

In this chapter, we have argued for the need to develop an approach to analyse the complex links between an Ecosystem Approach (EA) and sustainable development (SD) in marine spatial planning (MSP). We, furthermore, hypothesized that a focus on MSP integration challenges such as stakeholder and knowledge integration could provide a basis for generating nuanced insights into the complex interrelationships between EA and SD in general, and on social sustainability related issues in particular.

In this final section, we reflect on the utility and applicability of the developed integration-based analytical framework in the performed case studies, what key empirical insights were attained, and answer the question, whether

52 JP Johnsen and B Hersoug, 'Local Empowerment Through the Creation of Coastal Space?' (2014) 19(2) *Ecology and Society* 60.

53 The claim that actors are conflating how the world is (fact) versus how it ought to be (values). L Griffin, 'Scales of Knowledge: North Sea Fisheries Governance, the Local Fisherman and the European Scientist' (2009) 18(4) *Environmental Politics* 557.

identified challenges linked to social sustainability can be addressed as part of EA or through development of a complementary Socio-cultural Approach?

First, in relation to the utility of the integration-based analytical approach and key empirical insights, it is obviously premature to draw any definitive or overarching conclusions on the merits of the developed framework, especially given the complex contextual nature of the issues being analysed and the few cases included in this study. Still, in reflecting on the case study outcomes, we find that the integration-based approach provided key insights on EA and SD in MSP that were more detailed and processual in nature than what the more static soft-hard sustainability distinction would have provided. That is, even though our case studies of some Baltic Sea MSP contexts revealed that diverging opinions on how to balance or give different preference to environmental conservation and economic development (i.e. the soft-hard debate) were a key issue of contention in all case studies, it was only by looking at MSP integration challenges that we were able to gain insights into how the hard-soft debate also included social dimensions outside of crude economic or environmental preferencing. This can, for example, be observed in the Polish case, where fishers' lack of trust in the science-based MSP process and their feelings of vulnerability in relation to new forms of sea-space use (e.g. offshore wind energy) exposes a more fine-grained picture consisting of conflicting knowledge claims and visions for what type of development and social inclusion should be strived for. The Lithuanian/Latvian case showed deeply contrasting approaches to placing boundaries around sectoral involvement in MSP and indeed in stakeholder engagement in general. Drawing on the analytical framework enabled us to compare both countries to get greater insights and understandings of how institutional processes affected or were influential in the formation of MSP outcomes. More specifically, in Lithuania the involvement of key sectoral actors resulted in a MSP that tends towards strategic blue growth strategies whereas Latvia, through its more extensive stakeholder involvement, more explicitly addresses environmental protection concerns.

We also find that an analysis of MSP integration challenges and, in particular, social sustainability related issues, may provide better insights into the legitimacy of MSP processes, but also potentially into how these processes affect socio-ecological outcomes. For example, in the HV WG case, the consensus-driven process to develop EA guidelines was characterised by a quite instrumental framing of stakeholder integration. Furthermore, despite acknowledging the Malawi principle #11 of the need for all relevant forms of information in EA, the guideline document does not explicitly mention local or practice-based knowledge integration. Instead, evidence requirements are mostly linked to scientific knowledge on environmental status, values and

impacts. Similar challenges for knowledge integration were observed relating to the inclusion of fishers' and other stakeholders' knowledge in the Polish and Lithuanian MSP processes. Although such instrumental and science-based framings of stakeholder and knowledge integration could allow a relatively efficient development of guidelines and plans, it might paper-over differences, and thereby merely shift conflicts in time and space to, for example, the implementation of national plans or the management of transboundary activities such as offshore fisheries or maritime transports.

To summarise this part of the conclusions, we argue that analysis of MSP integration challenges provides a means for illuminating how EA and SD are variously conceived and practiced in MSP. Obviously, additional studies are needed to further develop and validate the approach by, for example, considering a more comprehensive set of integration challenges and MSP contexts than presented here. Still, the insights gained here highlight the potential of the integration approach to disclose aspects of social sustainability (e.g. participation, social inclusion, knowledge pluralism) and to add important processual understandings of how MSP (as well as associated EA and SD discourses) unfold in particular MSP contexts. This involves, for example, possibilities to analyse how *balance* between policy objectives for environmental conservation, sustainable use and benefit sharing is arrived at. In concrete situations, these goals cannot be given equal priority, so to understand how these are weighted in MSP we need to generate insights into institutional arrangements and how policy goals are forwarded and negotiated. Here, a focus on integration as a multidimensional analytical concept is explicitly able to show how trade-offs, preferences, exclusions, inclusions, and synergies play out in MSP practice. This then also offers opportunities for better understanding, reflexivity and evaluation, thereby enhancing MSP capacity to effectively undertake long-term adaptation. Furthermore, revealing how choices are made between conservation, sustainable use and benefit sharing has broader democratic benefits in terms of transparency, accountability etc. In a general sense, a renewed emphasis on the social in EA may also support a shift from focussing on ecological or economics concerns (sometimes in isolation) to adopting a more comprehensive approach to SD, which better encapsulates notions of human well-being.

Second, with respect to possibilities to develop the social pillar in EA and MSP, the case study results from the Baltic Sea clearly show discrepancies between stated EA principles relating to social sustainability and MSP in practice. Thus, while EA is commonly defined as a comprehensive sustainable development approach with reference to CBD and the Malawi principles (e.g. in the HV WG guidelines), it is primarily concerned with ecological and economic values and

trade-offs between these in the specific HV WG guidelines and in the observed national MSP processes in Lithuania, Poland and Latvia. We acknowledge that social and cultural aspects are mentioned and included to some extent in the Latvian MSP process, but the assessment and consideration of such concerns are substantially addressed by linking them to the importance of specified ecosystem services for particular stakeholder groups such as the marine tourism sector. Hence, although the Latvian MSP process can be seen as a step in the right direction, the sector-based ecosystem services approach chosen does not yet come close to considering the full social pillar as discussed in the academic debate (i.e. comprehensive social inclusion and deliberation and knowledge pluralism).⁵⁴ We also argue that the ecosystem services approach, although providing a promising way to consider interactions between environmental and economic interests, is fundamentally problematic in its application of social and cultural issues because of the inherently contingent and diverging evaluation and prioritisation of socio-cultural value by various stakeholders and among the general public.⁵⁵

In summary, the above findings show, to borrow Bob Dylan's famous lyrics, that the social pillar in the Baltic Sea EA and MSP implementation is, at best a 'slow train coming'. However, the timetable of this development of a social pillar, as well as actual possibilities of reaching close to a final destination of a comprehensive SD approach in Baltic Sea MSP is presently unclear. Key questions are thus, whether something can be done to speed up the present development or whether there is a possibility for a more fundamental re-routing to an alternative and faster track?

While probably difficult and time consuming to achieve, we do see several possibilities for enhancing social inclusion and knowledge pluralism in EA and MSP processes by developing more detailed guidance and requirements at EU, pan-Baltic and national levels. One key issue is a need to better assess and address social/cultural concerns, values and impacts linked to various scenarios. The need for, as well as the current under-emphasis on, social assessment is commonly pinpointed in the wider academic literature on environmental governance as a means to improve the evidence-base underpinning decisions and to promote social inclusion.⁵⁶ Social mapping, including intensive participatory processes, linked to environmental planning and development initiatives

54 M Boström, 'A Missing Pillar? Challenges in Theorizing and Practicing Social Sustainability' (2012) 8(1) *Sustainability: Science, Practice, and Policy* 3.

55 N Small, M Munday and I Durance, 'The Challenge of Valuing Ecosystem Services That Have No Material Benefits' (2017) 44 *Global Environmental Change* 57.

56 O Renn, *Risk Governance: Coping with Uncertainty in A Complex World* (Earthscan 2008).

is also a more common approach in the global south than in the global north.⁵⁷ Hence, we argue that such strengthened focus on social mapping of sea space in MSP can improve the possibilities of the ecosystem services approach to connect particular ecosystem values/services to communities – not just in broad sectoral stakeholder terms, but in a way that acknowledges and recognises the place-based interests and knowledge of different heterogeneous communities. Such mapping could also reveal insights into social interests/concerns, socio-cultural/local values and knowledge, enhance understanding of important connections between land and sea and increase the resolution and precision of MSP processes. We believe that this can be a particularly important approach when confronting entrenched conflicts or intensively used sea spaces as found, for example, between fishers and planning authorities in the Polish case and elsewhere. A social mapping approach may also, in a general sustainable development sense, be beneficial as a way of connecting particular ecosystem attributes with human wellbeing.

In addition, relating to knowledge pluralism and social inclusion, we believe that there are lessons to be learned from European fisheries management on how the role of science and knowledge integration has taken a 'democratic turn' in the last decades.⁵⁸ Fisheries management is, like MSP, a complex and conflictual societal issue associated with significant scientific uncertainty that has a strong focus on science support in policy development and management. In the fisheries sector it can, thus, be observed that science support via the international scientific organisation The International Council for the Exploration of the Sea (ICES) successively has opened up from a system built on natural sciences and a clear separation of science and policy, to a more interdisciplinary and inclusive approach acknowledging and managing also lack of knowledge and other forms of uncertainty. This development follows arguments made by proponents of the so-called 'post-normal science' concept and was catalysed by a long history of problems in reaching policy objectives to keep fishing pressures at sustainable levels and infected disagreements between e.g. fishers and scientist on how to interpret the knowledge and uncertainties at hand.⁵⁹ Although this shift in fisheries management was

57 SJ Breslow and others, 'Conceptualizing and operationalizing human wellbeing for ecosystem assessment and management' (2016) 66 *Environmental Science & Policy* 250.

58 F Saunders, M Gilek and S Linke, 'Knowledge for Environmental Governance: Probing Science-Policy Theory in the Cases of Eutrophication and Fisheries in the Baltic Sea' (2017) 6 *Journal of Environmental Planning and Management* 769.

59 SO Funtowicz and JR Ravetz, 'Science for the Post-Normal Age' (1993) 25(7) *Futures* 739; P Spruijt and others, 'Roles of Scientists as Policy Advisers on Complex Issues: A Literature Review' (2014) 40 *Environmental Science & Policy* 16; F Saunders, M Gilek and S Linke, 'Knowledge for Environmental Governance: Probing Science-Policy Theory in the Cases

neither unproblematic nor devoid of conflict,⁶⁰ recent studies indicate that both management of knowledge conflicts and goal achievement have improved in several respects in the new more 'democratic' system.⁶¹ Hence, we argue that there are good possibilities to reach similar positive outcomes in MSP processes by building on post-normal science thinking and lessons learned from fisheries management. This could possibly promote a more inclusive and grounded stakeholder participation and knowledge integration, while still filling the explicit EA and MSP objective of basing the planning on the best available scientific knowledge.⁶²

Returning a final time to the train analogy, there is, however, a significant risk that the above discussed ideas for incremental change linked to the development of EA practices will not get the 'social pillar train' to its final destination (i.e. to a comprehensive sustainable development approach in MSP). There is, for example, a risk that track-dependencies and institutional inertia will hinder a further development of the social pillar as part of the EA. After all, at least in terms of marine governance in the Baltic Sea and elsewhere, the Ecosystem Approach was first picked up and promoted as an environmental approach by, for example, HELCOM, and other environmentally-focussed actors.⁶³ Hence, although EA's application in MSP processes in theory can be widened to become a comprehensive SD approach in line with its definition in CBD and the Malawi principles, we speculate that this will be hard to achieve in the short term. As an alternative, we therefore forward the possibility of developing a parallel and complementary 'Socio-cultural Approach' (SA) that would focus primarily on how issues such as participation, procedural justice, social inclusion and knowledge pluralism could be focussed and promoted in MSP. It is beyond the scope of this chapter to develop specific ideas for how such a SA could be defined and practiced in MSP. However, we believe that SA similar to EA should be a science-based approach that in line with ideas on post-normal science builds on stakeholder involvement, wider knowledge inclusion and acknowledgement of fundamental uncertainties.

of Eutrophication and Fisheries in the Baltic Sea' (2017) 6 *Journal of Environmental Planning and Management* 769.

60 DC Wilson, *The Paradoxes of Transparency: Science and the Ecosystem Approach to Fisheries Management in Europe* (Amsterdam University Press 2009).

61 F Saunders, M Gilek and S Linke, 'Knowledge for Environmental Governance: Probing Science-Policy Theory in the Cases of Eutrophication and Fisheries in the Baltic Sea (2017) 6 *Journal of Environmental Planning and Management* 769.

62 Statement on the Ecosystem Approach to the Management of Human Activities (First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions 25–26/6/2003) <www.ospar.org/about/principles/ecosystem-approach> accessed 24 Nov 2017.

63 Ibid.

Rounding out this chapter, our concluding reflection is that in order to realise the EA Malawi principles in MSP practice, a concerted and systematic approach will need to be adopted that is true to the principles, but sensitive to local contextual settings. This effort can be supported by paying greater attention to how to fairly and effectively consider socio-cultural knowledge and interests in MSP, through social mapping exercises that link human welfare with marine space beyond blunt sector-based interest perspectives and conducting meaningful deliberative engagement with a wider array of stakeholders that does not avoid conflict, but enables differences to be openly expressed and taken into consideration in MSP processes.

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The Ecosystem Approach for the Marine Environment and the Position of Humans: Lessons from the EU Natura 2000 Regime

Kees Bastmeijer

1 Introduction: Ecosystem Approach and Sustainability

The ecosystem approach has gained much popularity in legal systems and the literature relating to the management of marine natural resources. It is generally presented as an integrated approach (in contrast to approaches that focus on single species or resources) to protect and restore healthy marine ecosystems and the services that these ecosystems provide.¹ The approach is embedded in international legal systems as well as in legal systems at the regional, domestic or even local level. An example of a regional system that is based on the ecosystem approach is the EU Marine Strategy Framework Directive (MSFD).² This directive requires the EU member states to ‘take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest’ (Art. 1(1)). To achieve this objective ‘[a]daptive management on the basis of the ecosystem approach shall be applied’ (Art. 3 (5)).

As this book and many other publications illustrate, the ecosystem approach is a source of rich academic and political debate.³ A substantial part of this debate relates to the question of what the ecosystem approach means in terms of the level of ambition in protecting marine ecosystems. Of particular relevance in this context is the relationship between humans and marine ecosystems. The ecosystem-based approach is ‘generally seen not as a strategy that manages the ecosystems themselves, but rather one that manages the human activities that have an impact on ecosystems, and takes these effects

1 See Ch. 1.

2 Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy (2008) OJ L 164/19, 17 June 2008 (hereinafter: Marine Strategy Framework Directive or MSFD).

3 See, among many other publications, Vito de Lucia, ‘Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law’ (2015) 27 *Journal of Environmental Law* 91.

into account when making management decisions.⁴ However, it is also often emphasised that the ecosystem approach includes human use, as humans are also part of the ecosystem. For example, the guidelines on the ecosystem approach adopted under the Convention of Biological Diversity (CBD)⁵ state that the ecosystem approach ‘recognizes that humans, with their cultural diversity, are an integral component of many ecosystems’.⁶ This notion is also reflected in other definitions of the approach: ‘Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans’.⁷ These perspectives explain why the ecosystem approach is often connected to the concept of sustainability, or more specifically, the sustainable use of natural resources.⁸

Against this backdrop, this chapter aims to contribute to the broader discussion of what the consideration that humans are considered part of the ecosystem should mean for implementing the ecosystem approach. For the purpose of discussing this theme, this chapter focuses on the area protection regime of the EU Birds Directive⁹ and the Habitats Directive¹⁰ – the Natura 2000 regime – and its implementation. Due to this focus, and because most experiences with Natura 2000 relate to the terrestrial environment, the discussion in this chapter

4 Rachel D Long, Anthony Charles and Robert L Stephenson, ‘Key principles of marine ecosystem-based management’ (2015) 57 *Marine Policy* 53.

5 Convention of Biological Diversity of the United Nations Conference on the Environment and Development, Rio de Janeiro, 5 June 1992, UN Doc DPI/307, reprinted in 31 *ILM* 818.

6 See, among many other documents, Secretariat of the Convention on Biological Diversity, ‘The Ecosystem Approach, CBD Guidelines’ (Montreal: Secretariat of the Convention on Biological Diversity 2004) <<https://www.cbd.int/doc/publications/ea-text-en.pdf>> accessed 15 January 2018, 6.

7 Consensus statement ‘Scientific consensus statement on marine ecosystem-based management’, 21 March 2005, <<http://marineplanning.org/wp-content/uploads/2015/07/Consensusstatement.pdf>> accessed 15 January 2018, 1. See also 2: ‘Humans are an integral part of ecosystems, marine and terrestrial.’

8 For instance, the CBD Guidelines on Ecosystem Approach state that the target of achieving by 2010 a significant reduction of the current rate of biodiversity loss cannot be reached ‘without fully embracing the ecosystem approach in all activities aimed at the conservation and sustainable use of biological diversity.’ See the CBD Guidelines (n 6) 4.

9 Directive 79/409/EEC on the conservation of wild birds, 1979, OJ L 103/1; consolidated version: Directive 2009/147/EC, OJ L 20, 26 January 2010, 7 (hereinafter: Birds Directive).

10 Directive 92/43 on the Conservation of natural habitats and wild fauna and flora, 1992, OJ L 206/7, 22 July 1992 (hereinafter: Habitats Directive).

will pay less attention to the marine environment, compared to other chapters; however, for two reasons the chapter is relevant for implementing the ecosystem approach for the marine environment. First, the Natura 2000 regime also applies to marine ecosystems and, as the European Commission explains, '[t]he Habitats and Birds Directives, along with the Marine Strategy Framework Directive, are the environmental pillar of the wider Integrated Maritime Policy'.¹¹ Second, and more importantly, compared to the MSFD much experience has been gained in implementing the Natura 2000 regime and a very substantial part of the legal debates focuses on the relationship between human ambitions and effective protection of nature in the EU. Thus, the experiences with the Natura 2000 regime may provide important lessons for understanding the concrete meaning of the consideration that humans are considered part of the ecosystem for implementing the ecosystem approach.

First, the relevance of the Natura 2000 regime for the marine environment will briefly be introduced (Section 2 (2.1)). In this section the question of whether the Natura 2000 regime is based on the ecosystem approach also receives attention (Section 2 (2.2)). Next, attention focuses on the question of what the challenges are in applying an ecosystem approach to natural resources at a moment in time where the ecosystem has already been substantially affected (Section 3). Based on this understanding, the Natura 2000 regime is related to the ecosystem approach more specifically, with special attention to the importance of ecological restoration (Section 4). Then it is time to strengthen the focus on the place of humans in the ecosystem by discussing some Natura 2000 implementation practices. Various approaches that have been developed by politicians and other stakeholders in order to weaken the legal protection of Natura 2000 for the benefit of 'space for human activities' will be discussed (Section 5). Attention will focus on the implementation practice in The Netherlands, although much of the discussion is relevant for other member states as well. The final section (Section 6) contains the main conclusions and some lessons learned that may be useful when implementing the ecosystem approach under other legal regimes that are relevant for the marine environment, such as the MSFD.

11 European Commission, 'Natura 2000 in the marine environment', <http://ec.europa.eu/environment/nature/natura2000/marine/index_en.htm> accessed 15 January 2018.

2 The Natura 2000 Regime and the Ecosystem Approach

2.1 *The Natura 2000 Regime and the Marine Environment*¹²

The Natura 2000 regime represents – alongside species protection obligations in both directives – a core legal mechanism for implementing the ‘EU Biodiversity Strategy to 2020’.¹³ It has been established under the EU’s Birds Directive (1979) and Habitats Directive (1992). The Birds Directive prescribes the designation of natural sites for the protection of bird species listed in its Annex I along with the designation of sites designated for ‘regularly occurring migratory species not included in Annex I’.¹⁴ The Habitats Directive requires member states to select and designate ‘sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II’.¹⁵ Together, these categories of protected areas constitute the Natura 2000 network, which is described as a ‘coherent European ecological network of special areas of conservation’.¹⁶ To ensure that the network contributes to the objective of maintaining or restoring natural habitats and species of Community interest at favourable conservation status,¹⁷ Natura 2000 sites enjoy the protection of Article 6 of the Habitats Directive, which regime will be discussed in more detail below.

Both the Birds Directive and the Habitats Directive also apply to the maritime zones where member states have legislative and enforcement jurisdiction.¹⁸ Consequently, in 2007 the European Commission stated in its Guidelines for the establishment of the Natura 2000 network in the marine environment:

12 This subparagraph builds on Kees Bastmeijer, ‘Natura 2000 and the Protection of Wilderness in Europe’ in Kees Bastmeijer (ed), *Wilderness Protection in Europe: The Role of International, European and National Law* (Cambridge University Press 2016) 177.

13 European Commission, *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, COM(2011) 244 final, (Brussels: European Commission, 2011).

14 See Art. 3(2) Habitats Directive.

15 Art. 3(1) of the Habitats Directive. For the procedure of selection and designation see Art. 4(1) Habitats Directive.

16 Art. 3(1) Habitats Directive. See Art. 4(1) Birds Directive and Art. 3(1), last sentence, Habitats Directive: ‘The Natura 2000 network shall include the special protection areas classified by the Member States pursuant to Directive 79/409/EEC’.

17 Art. 2(2) Habitats Directive. See also the preamble and Art. 3(1).

18 For a brief discussion on this issue, see European Commission, ‘Guidelines for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives’ (May 2007) <http://ec.europa.eu/environment/nature/naturaz000/marine/docs/marine_guidelines.pdf> accessed 15 January 2018, 18. The Commission refers to Case C-6/04 *Com v United Kingdom* [2005] ECR I-09017.

it is expected that Member States propose in the coming years the necessary sites to complete the marine component of Natura 2000 by application of the Birds and the Habitats Directives in their internal waters, Territorial Sea, as well as in their EEZ or other similar declared zones and in their Continental Shelf area.¹⁹

Today, more than 3000 marine Natura 2000 sites have been designated,²⁰ a number that is much smaller than the number of terrestrial Natura 2000 sites (> 20,000 sites). This smaller number of marine sites may partly be explained by the later start of the implementation process in respect to the marine environment, but may also be the consequence of the relatively limited number of marine habitat types and marine species for which sites must be designated: 9 marine habitat types and 16 species under the Habitats Directive, and 60 bird species under the Birds Directive.²¹ As stated by the European Environment Agency (EEA) in 2015 in respect of the Habitats Directive:

[a]lthough marine ecosystems cover approximately half of the EU's area, there are very few Annex I habitats and a relatively small number of species listed in the annexes of the Habitats Directive. In addition, many of these species are considered 'occasional' or are reported as unknown (up to 83% in the open ocean ecosystem).²²

The implementation of certain provisions of the EU nature directives may require different approaches for the marine environment, compared to the terrestrial environment. For instance, in selecting sites and setting site boundaries, the provision relating to 'animal species ranging over wide areas' will apply more often in respect of the marine environment: for such species 'sites of Community importance shall correspond to the places within the natural range of such species which present the physical or biological factors essential to their life and reproduction'.²³ Approaches in relation to ecological restoration may also be different as active restoration measures may be more feasible for certain terrestrial ecosystems than for marine ecosystems. Nonetheless, in

19 Ibid., 19.

20 European Commission, 'Natura 2000 in the Marine Environment', <http://ec.europa.eu/environment/nature/natura2000/marine/index_en.htm> accessed 15 January 2018.

21 Ibid.

22 European Environment Agency, 'State of nature in the EU. Results from reporting under the nature directives 2007–2012' (Copenhagen 2015) <<https://www.eea.europa.eu/publications/state-of-nature-in-the-eu>> accessed 15 January 2018, 8.

23 Art. 1(k) Habitats Directive.

principle the discussion below applies equally to the terrestrial and the marine environments that fall under the jurisdiction of EU member states.

2.2 *The Natura 2000 Regime: Not Explicitly Based on the Ecosystem Approach*

Although in the literature the implementation of Natura 2000 is sometimes connected to the ecosystem approach,²⁴ the Birds and Habitats Directives, and more specifically the Natura 2000-regime, have not been based on this concept. Indeed, the concept of ecosystem approach is not mentioned in either the Birds or the Habitats directives. In fact, the term 'ecosystem', as such, is not mentioned at all in the Birds Directive and only once in the Habitats Directive (in Annex III, in relation to the criteria for the European Commission's assessment of the Community importance of the sites selected by the member states). In addition, the general Guidance document on Article 6 does not refer to the concept of an ecosystem approach.²⁵

Various policy documents of the European Commission confirm that it was not the explicit intention of the EU legislator to base the Natura 2000 system on the ecosystem approach. For instance, in a document on the relationship between the MSFD and Natura 2000, available on the website of the European Commission, it is emphasised that the ecosystem approach distinguishes the MSFD from the Natura 2000 regime.²⁶ The more recent EU Starter's Guide relating to the main nature conservation and water directives also states that

24 See e.g., Javier Cabello, 'Science-Policy Interfaces and ecosystem services: tools for the implementation of the ecosystem approach in the Natura 2000 sites' (presentation, Prespa: 29–30 May 2015) <http://ec.europa.eu/environment/nature/natura2000/platform/documents/med_grassland_workshop_prespa_158/cabello_prespa_2015_en.pdf> accessed 15 January 2018.

25 European Commission, 'Managing Natura 2000 Sites. The provisions of Article 6 of the 'Habitats', Directive 92/43/CEE' (Luxembourg 2000) <http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf> accessed 15 January 2018.

26 Links between the Marine Strategy Framework Directive (MSFD 2008/56/EC) and the Nature Directives (Birds Directive 2009/147/EEC (BD) and Habitats Directive 92/43/EEC (HD)). Interactions, overlaps and potential areas for closer coordination, 27 July 2012, <http://ec.europa.eu/environment/nature/natura2000/marine/docs/FAQ%20of%20final%202012-07-27.pdf> accessed 15 January 2018, para 16. See also para 41: 'The starting point for the MSFD is a broad ecosystem-based approach to management of human activities with protected areas recognised as one spatial management mechanism. HBD take a two-strand, but complementary, approach with protected areas, supported by wider measures to achieve the conservation of specific habitats and species'.

'[t]he MSFD is the first piece of EU legislation to adopt an ecosystems based approach aiming at the protection of the full range of marine biodiversity'.²⁷

2.3 *The Natura 2000 Regime: Well Equipped for Implementing an Ecosystem Approach*

While the Birds and Habitats Directives are not explicitly based on the ecosystem approach, the European Commission considers the Natura 2000-regime as one of the legal components of the implementation of this approach for the marine environment:

The Commission proposes to implement progressively an ecosystem-based approach for the management of human activities affecting the marine [environment, sic], including goals and targets, to ensure biodiversity conservation and sustainable use of marine resources. This approach takes into account the concepts of favourable conservation status and good ecological status as required by the Habitats and Birds Directives and the Water Framework Directive.²⁸

Applying Natura 2000 as one of the components of the ecosystem approach for the marine environment appears not to be problematic, as the characteristics of the ecosystem approach connect well with the main characteristics and requirements of the Natura 2000-regime. Examples include the importance of scientific knowledge in implementing the Directives. For instance, the selection and designation of Natura 2000 sites may only be based on scientific ecological criteria²⁹ and social and economic interests may not play a role.³⁰ The ECJ has also emphasized that the process of designating sites must take into account the natural boundaries of the ecosystem. In relation to the designation of a site under the Birds Directive, the ECJ has explained in its judgement

27 European Union, 'A Starter's Guide. Overview on the main provisions of the Water Framework Directive, the Marine Strategy Framework Directive, the Birds and Habitats Directives, and the Floods Directive: similarities and differences' (2016) <http://ec.europa.eu/environment/nature/natura2000/management/docs/starter_guide.pdf> accessed 15 January 2018.

28 European Commission, 'Guidelines for the establishment of the Natura 2000 network in the marine environment' (n 18), 11.

29 Art. 4(1) and 4(2) Birds Directive; Case C-44/95 *Regina v United Kingdom* [1996] ECR I-03805, para 26. See also Case C-3/96 *Com v The Netherlands* [1998] ECR I-03031, para 60 and Case C-418/04 *Com v Ireland* [2007] ECR I-10947, para 39.

30 For Special Protection Areas (SPAs) under the Birds Directive sites, see Case C-44/95 (n 29), para 27 and para 39. For Special Areas of Conservation (SACs) under the Habitats Directive sites, see Case C-371/98 *Com v United Kingdom* [2000] ECR I-09235, paras 22–25.

in case C-418/04 (*Commission v Ireland*) ‘that SPA [Special Protection Areas] classification cannot be the result of an isolated study of the ornithological value of each of the areas in question but must be carried out in the light of the natural boundaries of the wetland ecosystem (...)’.³¹ On this basis, the ECJ concluded that an area, which was used as a feeding ground by bird species for which a nearby located SPA was designated, should have been part of the SPA: ‘it is an integral part of the entire wetland ecosystem and for that reason ought also to have been classified as an SPA’.³²

The integrated approach, based on explicit attention to cumulative impacts, may also be recognized in the Natura 2000 regime. For instance, Article 6(2) of the Habitats Directive obliges the government to prevent deterioration, including when such deterioration would result from multiple sources. The assessment of plans and projects under Article 6(3) must also take into account possible cumulative effects on the relevant Natura 2000 site.

A contra-argument for the view that the Natura 2000 regime is well fitted for implementing the ecosystem approach might relate to the strong focus of the regime on specific species and habitat types. To a certain extent this is true. For instance, a site must be selected and designated for the specific species and habitat types that appear in the site (above the insignificant threshold) at the moment of selection and designation. The protection of the site must also relate to these specific values. However, as discussed in more detail elsewhere,³³ a closer look at the Natura 2000 regime shows that it leaves considerable space for adaptive management if this is desirable from the perspective of ecological developments. For instance, certain shifts in the abundance of species due to ecological dynamics or conflicting management requirements for different Natura 2000 species may be incorporated and anticipated in the conservation objectives of a site.³⁴ Furthermore, conservation objectives for sites are not

31 Case C-418/04 (n 29) para 142. See RJ Bijlsma and others, *Samenvoeging Natura 2000-gebieden: Juridische, bestuurlijke en ecologische (on)mogelijkheden, kansen en risico's* (Wageningen/Tilburg: Alterra and Tilburg University 2012) <<https://zoek.officielebekendmakingen.nl/blg-210188.pdf>> accessed 15 January 2018; Hendrik Schoukens and Hans Erik Woldendorp, ‘Site selection and designation under the Habitats and Birds Directives: a Sisyphean task?’, in Charles-Hubert Born and others (eds), *The Habitats Directive in its EU Environmental Law Context: European Nature's Best Hope?* (Routledge 2015), 36.

32 Case C-418/04 (n 29) para 145.

33 Mirjam Broekmeyer, Kees Bastmeijer and Dana Kamphorst, ‘Towards an Improved Implementation of the Birds – and Habitats Directives. An inventory of experiences in Austria, England, Flanders and the Netherlands in relation to two dilemma's’, research report (Wageningen: Alterra 2017).

34 Opinion AG Kokott in Case C-241/08 *Com vs France*, 25 June 2009, para 43: ‘If certain conservation objectives conflict with one another in the sense that the conservation

set in stone and may be revised if this is necessary for achieving the favourable conservation status of species and habitat types at the national level. Even the selection and designation of sites may require updates, for instance when new sites qualify as Natura 2000 sites due to successful ecological restoration efforts. Delisting of sites is in theory possible as well but only under strict conditions (e.g., the decrease of the importance of the size may not result from non-compliance with the strict provisions of the directives).

Finally, within certain legal boundaries, the Natura 2000 regime also leaves space for the above discussed view that the ecosystem approach is based on the acknowledgement that humans are part of the ecosystem and may therefore benefit from ecosystem services. For instance, with regard to the position of humans in relation to Natura 2000, the European Commission explains:

Natura 2000 is not a system of strict nature reserves from which all human activities would be excluded. (...) The approach to conservation and sustainable use of the Natura 2000 areas is much wider, largely centered on people working with nature rather than against it. However, Member States must ensure that the sites are managed in a sustainable manner, both ecologically and economically.³⁵

Thus, while from a legal perspective the Natura 2000 regime should be applied on its own merits without an obligation to interpret the relevant provisions in line with the ecosystem approach, the regime may constitute an important component of an ecosystem approach in relation to the marine environment. This constitutes a good basis for studying in more detail the position of humans in the Natura 2000 regime in order to identify possible lessons for the broader implementation of the ecosystem approach for the marine environment.

3 An Unfortunate Start for the Ecosystem Approach

In an ideal situation, the ecosystem approach would commence at a moment in time where ecosystems are complete and healthy and habitat types and species have a favourable conservation status. Figure 7.1 aims to illustrate this

measures required for one objective adversely affect the achievement of another objective, then this conflict must be resolved in the context of defining these objectives.'

35 European Commission, 'Natura 2000' <http://ec.europa.eu/environment/nature/natura2000/index_en.htm> accessed 15 January 2018, 6.

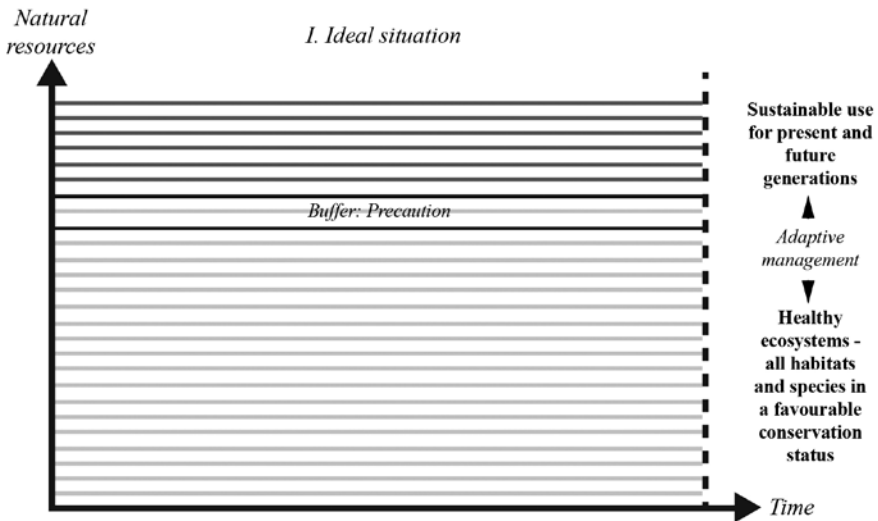


FIGURE 7.1 The ecosystem-based approach in the 'ideal situation'

situation: there is space for human activities with some negative impacts and/or for sustainable use of resources, because these impacts and/or use is limited to a size that ensures the continuing favourable conservation status of the total ecosystem. Sustainable practice and/or the applicable legal regime should then – based on best available scientific knowledge and the precautionary principle – ensure that the negative impacts from human activities or exploitation will not exceed a certain level in order to prevent deterioration of the natural characteristics and to maintain the favourable conservation status of habitat types and species. In this ideal situation, humans may be part of this ecosystem³⁶ subject to the condition of regular monitoring and adaptation to changes and new knowledge when necessary.

Unfortunately, this ideal situation has seldom been the starting point for implementing the ecosystem approach under international legal regimes relating to nature protection or the governance of natural resources. Generally, such regimes are responses to over-exploitation. Even the 1980 Convention on the Conservation of Antarctic Marine Living Resources (CAMLR Convention),³⁷ applicable south of the Antarctic convergence and a relatively early example of a convention that is based on the ecosystem approach, was a response to

36 Figure 7.1 is a simplification of reality as in practice the situation is often more complex. For instance, due to ecological dynamics the space for human use will change constantly.

37 Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980 (entered into force on 7 April 1982) <<https://www.ccamlr.org/en/organisation/camlr-convention-text>> accessed 15 January 2018.

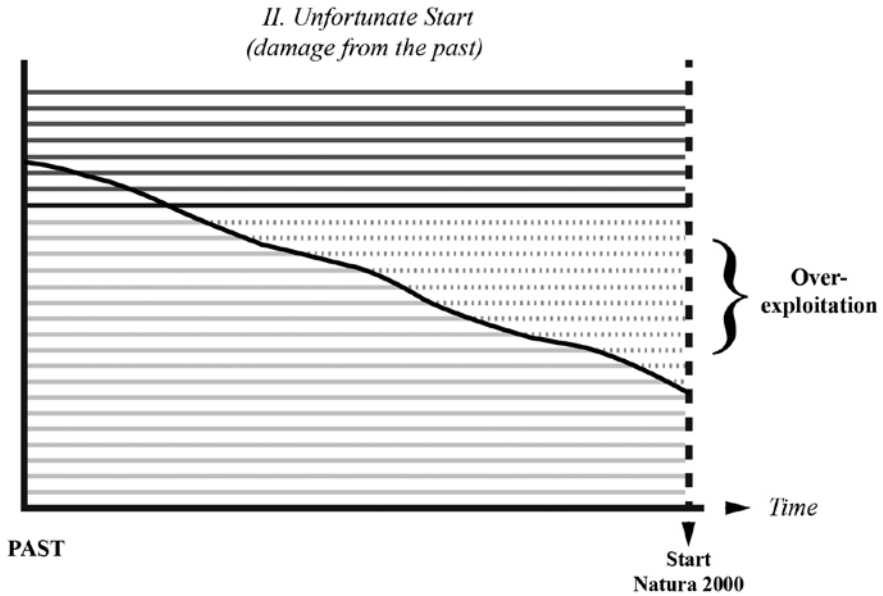


FIGURE 7.2 The ecosystem-based approach with an unfortunate start

over-exploitation of Antarctic cod.³⁸ For instance, in 1976 the science community had observed in relation to fishing (without specifying the species) that ‘large scale harvesting, principally by USSR vessels’ had taken place during the previous decade, with peak catches of 400,000 tonnes in 1970, and that ‘the subsequent decline in catches suggests that the stocks have been affected by the fishery’.³⁹ Possibly one of the very rare examples of a regime that has been developed before over-exploitation takes place is the regime on deep seabed mining, although even the deep sea ecosystems may not be considered pristine.⁴⁰

38 Personal communication with Rosemary Rayfuse, 27 November 2017.

39 SCOR/SCAR Group on the Living Resources of the Southern Ocean (SCOR Working Group 54), ‘Report of the meeting held at Woods Hole’ (USA, 23–24 August 1976, report published in (1977) 55 SCAR bulletin, 175) <http://www.scar.org/scar_media/documents/publications/bulletins/Bulletin55.pdf> accessed 15 January 2018, 179–180. See also the Convention’s website: ‘Extensive harvesting of fish in the sub-Antarctic during the late 1960s and mid-1970s, along with the emergence of interest in the large-scale exploitation of Antarctic krill, raised concerns about the sustainability of such fisheries’ <<https://www.ccamlr.org/en/organisation/history-convention>> accessed 15 January 2018.

40 Personal communication with Rosemary Rayfuse, 27 November 2017. See also R Danovaro and others, ‘An Ecosystem-Based Deep-Ocean Strategy’ (2017) *Science* 452; Y Henocque, ‘The Crafting of Seabed Mining Ecosystem-Based Management’, in R Sharma (ed), *Deep-Sea Mining* (Springer 2017).

In Europe, there is no doubt that the Natura 2000 system did not have the ideal start as illustrated in Figure 7.1. Almost everywhere in the EU, human pressures on nature had already been too intensive before the Birds Directive and Habitats Directive entered into force. This was the reason for adopting more stringent legislation at the EU level with specific attention for those habitat types and species that were considered most threatened (those listed in the Annexes to the directives). As illustrated by Figure 7.2, one could state that, at the moment the directives entered into force, humans had already been part of the ecosystem without respecting the ecosystem boundaries, resulting in over-exploitation of nature.

Consequently, Natura 2000 had to deal with damage from the past, which explains the explicit attention on ecological restoration in the directives. Recent monitoring of the conservation status of habitats and species of community importance has made clear that this situation has not changed. In 2015, based on the reporting under the Birds and Habitats Directives for the period 2007–2012, the European Environment Agency (EEA) concluded that only 21% of the habitat assessments and 23% of the non-bird species assessments are favourable and 52% of the bird species are assessed secure.⁴¹ Possibly even more concerning is that most of the trends are not positive; compared to the previous assessment over the period 2000–2006, the percentages of habitats and species that had improved were very small (4% habitats, 5% non-bird species and under 9% bird species), while a much larger percentage of habitats and species with unfavourable assessments had deteriorated further (30% of the habitats, 22% of the non-bird species).⁴²

4 Prevention of Further Deterioration and Restoration of the Ecosystem

The above discussion shows that an ecosystem approach in relation to Natura 2000 is problematic as long as the ecosystems are in such a damaged shape. For an ecosystem approach, characterized by a good balance between human use and healthy ecosystems as illustrated by Figure 7.1, the implementation of Natura 2000 should first ensure that ecosystems are restored. For this, two conditions are essential: further deterioration of the natural values of the site due to new plans, projects or any other causes must be prevented and – in parallel to this prevention – ecological restoration must be ensured. In theory, Article 6

⁴¹ European Environment Agency, 'State of nature in the EU' (n 22) 9.

⁴² *Ibid.*, 9.

of the Habitats Directive may well address both conditions of preventing further deterioration and ensuring ecosystem restoration.

As indicated by the dotted line in Figure 7.3, further deterioration must be avoided, which is the main subject of Article 6(2) of the Habitats Directive. This provision obliges member states to avoid 'the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive'. Judgments of the ECJ specify that this means that obstacles for reaching the conservation objectives must be addressed, regardless of whether they are caused, for instance, by authorised human activities or natural causes.⁴³ This may not only require the prevention of adverse impacts, but also 'positive measures to preserve or improve the state of the area',⁴⁴ such as, for example, the removal of alien species that constitute a threat to a bird species to which the site pertains.⁴⁵

Furthermore, in terms of the ecosystem approach, the (potential) negative impacts of plans and projects (e.g., in terms of emissions or the extraction of natural resources) must not exceed the requirements of sustainable use, as indicated in Figure 7.3. In theory this is what Article 6(3) of the Habitats Directive aims to achieve with its requirement that: '[a]ny plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives'.⁴⁶ This subsection further mandates that 'the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned (...)'. Relevant case law underlines that the precautionary principle has been imbedded in this provision; a plan or project may not be authorised if there is 'reasonable scientific doubt' regarding the question of whether it 'is likely to undermine the conservation objectives of the site concerned'.⁴⁷ Admittedly, the procedure described in Article 6(4)

43 Case C-6/04 (n 18) para 34: '(...) it is clear that, in implementing Article 6(2) of the Habitats Directive, it may be necessary to adopt both measures intended to avoid external man-caused impairment and disturbance and measures to prevent natural developments that may cause the conservation status of species and habitats in SACs to deteriorate'.

44 Case C-418/04 (n 29) para 154.

45 *Ibid.*, para 87. This case related to Art. 4(4) Birds Directive, but Art. 6(2) Habitats Directive may also require positive measures. See Case C-535/07 *Com v Austria* [2010] ECR I-09483, paras 58–59.

46 Art. 6(3) Habitats Directive.

47 See Case C-127/02 *Waddensea* [2004] ECR I-07405, paras 48 and 59. See also Case C-404/09 *Com v Spain* [2011] ECR I-11853, para 99; Case C-182/10 *Solvay and Others* [2012]

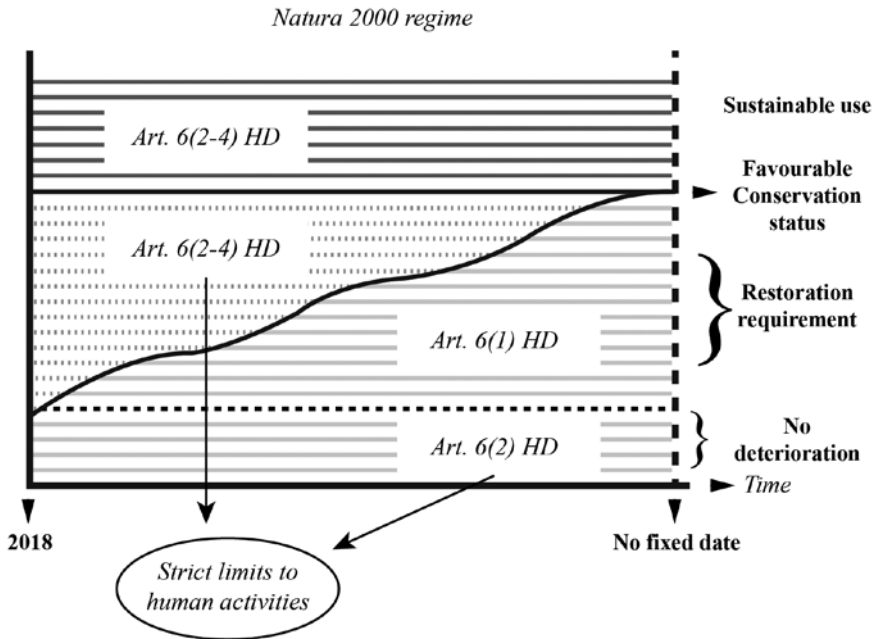


FIGURE 7.3 Natura 2000 regime: achieving the conservation objectives and restoring the ideal situation for implementing the ecosystem approach

of the Habitats Directive provides for an exception to this rule, but only under strict conditions and after taking 'compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected'.

In parallel with preventing deterioration and significant negative effects by plans and projects, Figure 7.3 also illustrates (through the ascending line towards reaching favourable conservation status of habitat types and species) that ecological restoration must be ensured.⁴⁸ This is the main objective of

ECLI:EU:C:2012:82, para 67, and Case C-258/11 *Sweetman* [2013] ECLI:EU:C:2013:220, para 40.

48 For comprehensive discussions of the concept of ecological restoration in nature conservation law with particular attention for the EU Birds Directive and Habitats Directive, see Anastasia Telesetsky, An Cliquet and Afshin Akhtar-Khavari, *Ecological Restoration in International Environmental Law* (Routledge 2016); Kees Bastmeijer, 'Ecological Restoration in International Biodiversity Law: A Promising Strategy to Address Our Failure to Prevent?', in MJS Bowman, P Davies and EJ Goodwin (eds), *Research Handbook on Biodiversity and Law* (Edgar Elgar 2016); and Hendrik Schoukens, 'Ecological Restoration as New Environmental Paradigm. A Legal Review of Opportunities and Challenges Within the Context of EU Environmental Law, With a Particular Focus on the EU Nature Directives' (dissertation, Ghent University 2017), 52.

Article 6(1) of the Habitats Directive, which obliges member states to ‘establish the necessary conservation measures’ to achieve the site’s conservation objectives. The objective is to return to the ‘ideal situation’ for implementing the ecosystem approach (Figure 7.1), although this does not necessarily imply a return of nature to an untouched wilderness state. Human activities have influenced ecology for millennia and ecosystems themselves are dynamic as well. The aim of the EU nature directives is to restore and maintain habitat types and species to a favourable status of conservation, which in fact also include species that are typical for semi-natural ecosystems. As noted by Hendrik Schoukens:

Interestingly, using a pre-human reference state as a stringent baseline may at some points even stand at odds with the content of some of the applicable EU environmental directives, for they do not all explicitly require a return to an undisturbed situation in all contexts. For instance, the definition of ‘natural habitat’ in the Habitats Directive includes both ‘entirely natural’ and ‘semi-natural’.⁴⁹

The importance of ecological restoration for the achievement of the objectives of the directives and the EU 2020 biodiversity targets has been broadly acknowledged. As the EEA concludes: ‘[t]he relatively high proportion of ‘deteriorating’ assessments indicate that substantial conservation efforts need to be implemented to revert current trends (...)’.⁵⁰ More recently, the European Commission has studied the restoration that will be needed for achieving the objectives of the directives.⁵¹ This attention on ecological restoration is not, however, unique to the Natura 2000 regime; the importance of ecological restoration for achieving conservation objectives is emphasized in many international nature protection conventions.⁵²

49 Schoukens, ‘Ecological Restoration as New Environmental Paradigm’ (n 48) 52.

50 European Environment Agency, ‘State of nature in the EU’ (n 22) 9.

51 Constance von Briskorn and others, ‘Restoration efforts required for achieving the objectives of the Birds and Habitats Directives’, prepared for the European Commission (December 2015) <http://ec.europa.eu/environment/nature/knowledge/restoration_and_natura2000_en.htm> accessed 15 January 2018.

52 Kees Bastmeijer, ‘Ecological Restoration in International Biodiversity Law’ (n 48).

5 The Place of Humans in the Ecosystem: Attempts to Weaken Natura 2000

The discussion above shows that the Natura 2000 regime is – in theory – well equipped to prevent further deterioration of the ecosystem and to ensure the recovery of the ecosystem in order to return to a situation where ecosystem approaches may be applied. From an ecosystem perspective, it could be stated that the regime is characterised by a number of legal tools to ensure that humans do not take too dominant a position in the ecosystem. These tools include the strict prohibition of further deterioration, the obligation to refuse authorisations if there is reasonable scientific doubt that a plan or project will cause significant impacts on the Natura 2000 site, strict requirements for allowing exceptions to this rule (e.g. effective compensation) and tools to ensure ecological restoration. However, project developers as well as politicians who want to promote economic activities may feel hindered from achieving their aims because of Natura 2000. Over the last decades, this has resulted in many different attempts to weaken the Natura 2000 regime and to create more space for economic development.

One illustrative example of such attempts is the 2009 letter from the former Dutch Prime Minister Jan Peter Balkenende to Julio Barroso, the former President of the European Commission, in which Balkenende tried to convince Barroso that the Natura 2000 regime should be amended by deleting the precautionary principle from Article 6(3) in order to leave more space for balancing of interests. According to Balkenende:

Natura 2000 fails to strike a balance between ecological value, economic interests and other uses. This is due mainly to the wording of the precautionary principle. The Netherlands believes the Directives that form the basis of Natura 2000 need to be brought up to date in order to strike this balance. The aim should always be sustainable use.⁵³

The response from Barroso emphasised the space for human activities in Natura 2000 sites, in fact emphasising that humans are part of the ecosystem: ‘The EU Natura Directives explicitly acknowledge that human activities are part of the environment and the landscape’.⁵⁴ However, it went on to underline

53 Letter of the Dutch Prime Minister Jan Peter Balkenende to José Manuel Barroso, President of the European Commission, nr 3080107, 13 July 2009.

54 Letter of José Manuel Barroso to Dutch Prime Minister Jan Peter Balkenende, D/2375, 26 October 2009, <<http://www.benegera.nl/images/Overdeschreef/2009BriefBarroso.pdf>> accessed 15 January 2018.

the importance of the legal restrictions designed to ensure that human use does not result in over-exploitation. As Barroso put it:

They [the Directives] establish safeguards to ensure that economic activities take due account of nature conservation objectives and that an acceptable balance between economic interests and nature protection is achieved.⁵⁵

Balkenende's letter has been only one of the many attempts at various governance levels to try to weaken the legal regime for the benefit of economic ambitions. Based on the implementation practice in The Netherlands, Figure 7.4 (below) illustrates a number of such approaches and shows that all these approaches are slowing down or possibly even frustrating the process (as illustrated by Figure 7.3) of returning to a healthy ecosystem.

One set of approaches attempts to enlarge the space for economic interests by avoiding refusals, at the level of concrete plans and projects, of authorisations under Article 6(3). For example, the Dutch government has sought to limit the scope of the terms 'plan and project', and thereby the applicability of Article 6(3), by excluding the injection of lands with livestock manure from the definition of a 'project'. Initiators of projects have also attempted to restrict the application of Article 6(3) by claiming positive ecological restoration measures to neutralise negative impacts of a project as a justification for the conclusion in an appropriate assessment that the project will not have significant effects on the integrity of the relevant site. In itself this approach could be beneficial for reaching the nature conservation objectives while keeping space for economic activities, but in practice the negative impacts on nature often preceded the positive effects.

A second approach has been to attempt to limit the effectiveness of compensation under Article 6(4). While experience regarding compensation under Article 6(4) is limited, as this procedure is seldom followed, experience in the Netherlands with nature compensation requirements more generally is not very positive. Compensation is often not implemented and supervision is limited.⁵⁶ Furthermore, if compensation is carried out, the newly established natural areas do not always receive legally protected status.⁵⁷ These practices slow down the process of ecological restoration of Natura 2000 species and habitat types.

55 Ibid.

56 Algemene Rekenkamer, 'Compensatie van schade aan natuurgebieden' (The Hague, 2014) 16 and 20.

57 Ibid., 15.

A third approach to enlarge the space for economic activities within the Natura 2000 regime relates to the level of ambition as reflected by the conservation objectives and management plans for Natura 2000 sites. In the Netherlands, during the first Natura 2000 management plan period of 6 years,⁵⁸ the national government specifically defined the limited ambition of merely preventing further deterioration, a policy decision which was said to be based on what was considered reasonable and financially affordable.⁵⁹ This policy decision enlarged the space for economic activities during this first plan period: had the ambitions also been related to restoration, there would have been a larger chance that effects of plans and projects are assessed to be above the significance threshold. In terms of Figure 7.4: the ascending line towards restoring favourable conservation status would have been steeper, leaving less space for human impacts.

Finally, other approaches to restricting the efficacy of the Natura 2000 regime have included postponement of the deadline for meeting conservation objectives or – even more fundamentally – lowering the level of ambition of these objectives by adjusting the definitions of ‘favourable conservation status’ for species and habitat types. As illustrated by Figure 7.4, these approaches have also increased the space for economic activities and have slowed down or frustrated the process of returning ecosystems to a healthy status.

Although not all these approaches are obviously in violation of the specific provisions of the directives, they do illustrate the attempts of governments and other stakeholders to ensure maximum space for economic activities within the Natura 2000 regime. This observation is important to a better understanding of the position of humans in the ecosystem; even in a system that – within clearly defined limits – allows for human use of nature and for exonerations of prohibitions, humans aim for a larger portion of the cake than they would receive if the ecosystem approach were implemented in good faith. As the literature makes clear, this is not unique to the implementation of Natura 2000.

58 In principle, management plans relate to a period of 6 years, starting from the date the plan was formally adopted. This moment of adoption is different for each management plan, but generally the first plan period for Dutch Natura 2000 sites falls within the time period of 2008 to 2020.

59 State Secretary of Economic Affairs, Agriculture and Innovation, letter to the Second Chamber of the Parliament, 23 February 2011, Tweede Kamer, vergaderjaar 2010–2011, 32 670, nr 1, 4–5: ‘Ik vind het verantwoord om het ambitieniveau in de eerste beheerplanperiode af te stemmen op wat redelijkerwijs haalbaar en betaalbaar is. De ondergrens vanuit de richtlijnen is, zonder de uiteindelijke doelen uit het oog te verliezen, het zoveel als redelijkerwijs mogelijk is behouden van de huidige kwaliteit.’

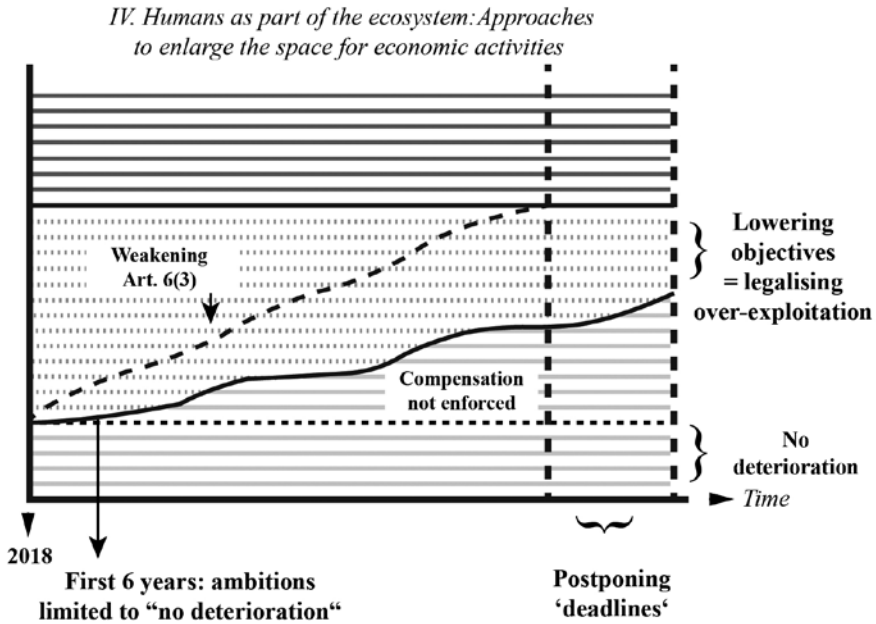


FIGURE 7.4 Humans as part of the ecosystem

Similar practices have been implemented to circumvent the species protection provisions of the Birds and Habitats Directives,⁶⁰ as well as other nature conservation legislation. Chapron and others discuss ‘the staggering number and diversity of tactics used to weaken biodiversity legislation across the globe’⁶¹ and conclude that ‘[w]hereas the predicament of the planet’s wild fauna and flora would have been even worse without the legal protection they have received so far, the onslaught against biodiversity laws has prevented these from fully performing their assigned function’.⁶²

Nevertheless, although this conclusion certainly applies to the Natura 2000 regime, the good news for nature protection in the EU is that the Natura 2000 regime is fairly robust. In particular, thanks to its strict legal requirements and obligations, the active watchdog-role of the European Commission, and the role of the ECJ, the regime has proven to be quite able to respond to many

60 See Hendrik Schoukens and Kees Bastmeijer, ‘Species Protection in the European Union: How Strict is Strict?’ in Charles-Hubert Born and others (eds), *The Habitats Directive in its EU Environmental Law Context* (n 31) 121–146, <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2390383> accessed 15 January 2018.

61 Guillaume Chapron and others, ‘Bolster legal boundaries to stay within planetary boundaries’ (2017) 1(3) *Nature Ecology & Evolution* 86.

62 *Ibid.*

of these challenges fairly effectively. For example, the obligation to achieve favourable conservation status of species and habitat types is an obligation of result. Through monitoring and reporting, complaint procedures, and – if necessary – infringement procedures in the ECJ, the European Commission requires the member states to achieve this objective. Moreover, the ECJ has interpreted the provisions of the directives strictly, often explicitly based on the stated objectives of the directives.⁶³ For example, the ECJ has rejected practice of project developers and governments taking positive ecological restoration measures to neutralise negative impacts of a project as a basis for justifying the conclusion that the project will not have significant effects on the integrity of the site in the meaning of Article 6(3). In the *Briels* and *Orleans* judgments,⁶⁴ the Court explained that this practice is not in line with the precautionary principle on which Article 6(3) is based and would also result in a circumvention of the requirements of Article 6(4). Many other such examples may be provided which, when taken together, indicate that the regime design is strong enough to ensure a solid basis for long-term ecological restoration and biodiversity protection in Europe. It is clear that the European Commission is positive about this role of the Birds and Habitats Directives, as evidenced by its recent conclusion, on the basis of a comprehensive ‘fitness check’, that the Birds – and Habitats Directives are ‘fit for purpose’.⁶⁵

6 Conclusions: Natura 2000 Lessons for Implementing the Ecosystem Approach for the Marine Environment

The Natura 2000 regime is not explicitly based on the ecosystem approach. Consequently, from a legal perspective the implementation of the regime does not necessarily have to be based on the requirements and typical characteristics of the ecosystem approach. However, as discussed in this chapter, the Natura 2000 regime leaves considerable space for this approach and the characteristics of the ecosystem approach connect well with the requirements of

63 See e.g., Schoukens and Bastmeijer, ‘Species Protection in the European Union: How Strict is Strict?’ (n 60) and Broekmeyer and others, ‘Towards an Improved Implementation of the Birds – and Habitats Directives’ (n 33).

64 Case C-521/12 *Briels* [2014] ECLI:EU:C:2014:330 and Case C-387/15 *Orleans* [2016] ECLI:EU:C:2016:583.

65 European Commission, ‘Fitness Check of the EU Natura Legislation (Birds and Habitats Directives)’ SWD(2016) 472 final <http://ec.europa.eu/environment/nature/legislation/fitness_check/docs/nature_fitness_check.pdf> accessed 15 January 2018.

the Natura 2000 regime. Moreover, since the Natura 2000 regime also applies to ecologically important sites in the marine environment, the regime may play an important role in implementing ecosystem management in the marine environment. In view of the many years of experiences with the implementation of the Natura 2000 regime, this chapter focused on the question of what we can learn from the Natura 2000 regime for our understanding of the consideration that humans are 'part of the ecosystem', when implementing the ecosystem approach. Such lessons learned may be of great value when implementing the ecosystem approach for the marine environment.

When taking a closer look at the implementation of Natura 2000 from the perspective of the ecosystem approach, a first observation is that it had quite an 'unfortunate start'. When the Birds and Habitats directives entered into force, a very large part of Europe's biodiversity had already been severely degraded. The causes of this degradation – such as habitat loss, invasive alien species and over-exploitation (e.g., hunting and fishing) – make clear that humans have taken a too dominant position in the ecosystem. This has resulted in a situation in which the implementation of Natura 2000 has also required – and still requires – substantial ecological restoration efforts to ensure the recovery of many species and habitat types. This requirement to restore damage from the past has resulted in a stricter functioning of the Natura 2000 regime than otherwise would have been necessary (e.g. stricter interpretation of prohibitions, lower 'significance' threshold when assessing plans and projects under Article 6(3), etc.). Consequently, **the first obvious lesson** from the Natura 2000 regime and its implementation is that an ecosystem approach should start when the ecosystem is still robust, intact and healthy. Unfortunately, for many parts of the marine environment and its resources this lesson comes too late, however, it may be of relevance for the deep seabed and for parts of the Polar Regions, particular for areas that are currently ice-covered but which are expected to become ice-free due to climate change.⁶⁶ Furthermore, the lesson may also still be relevant for relatively intact sites within larger impacted natural areas.

In light of this 'unfortunate start', the good news is that Article 6 of the Habitats Directive provides strict legal requirements for fulfilling important conditions to return the ecosystem to a situation in which the ecosystem approach can genuinely be implemented. These include the requirements to ensure ecological restoration through conservation measures (art. 6(1) Habitats Directive), prevent further deterioration by human activities and

66 Personal communication with Rosemary Rayfuse, 27 November 2017.

other causes (art. 6(2) Habitats Directive), prevent significant effects from plans and projects (art. 6(3) Habitats Directive), and – in case of necessary exonerations – to require effective compensation (6(4) Habitats Directive). However, practice shows that full implementation of these requirements has met much resistance, not only among project developers but also among politicians. The implementation practice in The Netherlands reveals many different approaches taken by companies and governments, aimed at weakening the system or circumventing limitations deriving from the system for economic purposes. These approaches appear not to be based on misunderstandings regarding the aims or requirements of the system, but rather to stem from the deliberate prioritization of social and economic interests over environmental ones. Therefore, **the second lesson** is that, if the aim is to ensure inclusion of humans as part of an ecosystem in a manner that ensures the ecosystem is either in or will be restored to intact and healthy conditions, then strict legal requirements to prevent over-use are essential. This also implies that, in order to avoid the risk of prioritising short-term (often economic) interests in decision-making, only limited discretion can be afforded to the balancing of interests by governments.

This second lesson appears particularly relevant for implementing the ecosystem approach in relation to Europe's marine environment. As distinct from the Natura 2000 regime, the EU legislation relating to the protection of the marine environment appears to place more explicit emphasis on the balancing of interests. For example, Article 13(3) of the MSFD states: '[w]hen drawing up the programme of measures pursuant to paragraph 2, Member States shall give due consideration to sustainable development and, in particular, to the social and economic impacts of the measures envisaged'. Reasonable as this may appear, it runs the risk of giving 'humans', through governments, too dominant a position in the ecosystem, thereby severely limiting the potential effectiveness of the ecosystem approach. Paragraph 8 of the preamble of the MSFD recognises this risk⁶⁷ and prioritises the objective of achieving or maintaining good environmental status in the Community's marine environment, stating:

67 For a recognition of weak aspects of the ecosystem approach due to market forces, see <<https://www.cbd.int/doc/external/iucn/iucn-ecosystem-approach-en.pdf>> accessed 15 January 2018.

By applying an ecosystem-based approach to the management of human activities while enabling a sustainable use of marine goods and services, priority should be given to achieving or maintaining good environmental status in the Community's marine environment, to continuing its protection and preservation, and to preventing subsequent deterioration.⁶⁸

However, the experiences with the Natura 2000 regime show that, if this priority setting will result in tensions with ambitions relating to economic activities, such as fisheries, mining activities or energy production, it may be expected that economic stakeholders and politicians will apply approaches to weaken the legal system. Some such approaches may be similar to those applied regarding the Natura 2000 regime. For instance, social and economic interests might compromise a science-based definition of a 'good environmental status'. The question of whether such approaches are already being applied falls outside the scope of this chapter, but further research on this topic appears important. Such approaches would indicate that the notion that – in implementing an ecosystem approach – humans should be considered to be part of the ecosystem, is nothing more than an excuse for its over-exploitation.

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68 MSFD, preamble, para 8.

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PART 2

Participation and Collaboration



The Ecosystem Approach and Public Engagement in Ocean Governance: The Case of Maritime Spatial Planning

*Antonia Zervaki**

1 Introduction

The concept of ocean governance entails complex multilevel relations and processes through which ‘individuals and institutions, public and private’, attempt to manage maritime affairs, accommodate diverse interests and cooperate through formal or informal arrangements.¹ The spectrum of issues falling under the general rubric of ‘ocean governance’ is extremely broad. It encompasses different sectoral policies, ranging from maritime transport, fisheries and the exploitation of marine resources to marine environmental protection, blue energy or underwater cultural heritage. Additionally, ocean governance implicates different levels of decision-making (international, regional, national and sub-national) and involves various actors that either take part in decision-making processes or are affected by them, including national and local authorities, international organizations, private companies, NGOs, local communities and individuals.

The ecosystem approach to ocean governance has brought to the fore these complex interrelations since it emphasizes the need for comprehensive management schemes in ocean affairs; it constitutes a holistic approach to ocean affairs management that attempts to accommodate environmental with societal objectives, including the participation of stakeholders and local communities in the design, implementation and adaptive processes of such plans.

* The author would like to cordially thank the editors of this volume for their kind invitation and their comments.

1 Based on the definition of global governance provided by Commission on Global Governance, *Our Global Neighborhood*, <<http://www.gdrc.org/u-gov/global-neighborhood/>> accessed on 5 November 2016.

Maritime Spatial Planning (MSP) constitutes an integrated management process that has gained significant momentum during the last decade.² Initially introduced in the domain of environmental protection, it has gradually evolved into a multipurpose and multilevel organizational framework, and thus a useful ocean micro-governance model,³ founded on the ecosystem-based approach. MSP is aimed at the comprehensive management of different – often conflicting – uses and the preservation of the natural processes of marine space. What is interesting in the case of MSP is that it entails a significant degree of societal engagement in its different phases of development and implementation. This societal engagement is made increasingly challenging with the gradual shift of focus from national to regional MSP ventures,⁴ and to its implementation in areas beyond national jurisdiction.⁵

2 This is reflected in the UN Secretary General's Reports on Oceans and the Law of the Sea since 2007. See <http://www.un.org/depts/los/general_assembly/general_assembly_reports.htm> accessed on 6 November 2016, as well as in the contribution of international or regional organizations, such as UNESCO or the EU and state practice, see S Jay and others, 'International Progress in Marine Spatial Planning' (2013) 27 *Ocean Yearbook* 171.

3 In political science literature the concept of micro-governance reflects the division of labor among the institutional arrangements and norms at the international, regional and national levels (considered to be the macro-structure of governance), policy implementation and adjustment (meso-level of governance analysis) and the decision-making and management activities taking place within a specific locality associated with a given community, groups or individuals. See F Fischer and others (eds), *Handbook of Public Policy Analysis. Theory, Politics and Methods* (CRC Press Taylor & Francis Group 2007). In terms of environmental management, this approach follows the motto 'think globally, act locally' introduced by the environmental movement of the 60s and 70s, while it also epitomizes significant parameters of the ecosystem based approach (n 18), since apart from the localization of (inter)national policies, the regulation of specific policy areas is conducted through the exercise of individual or community agency and the use of local knowledge. See M Aynul Islam, 'Micro-governance: A Prospective Tool of Good Governance in Bangladesh' (2007) 28 *BISS Journal* 1. The debate on different micro-governance dimensions of maritime affairs is currently in progress, see Emilie Lindkvist and others, 'Micro level explanations for emergent patterns of self-governance arrangements in small-scale fisheries. A modelling approach' (2017) 12 *PLOS* 4: e0175532.

4 Apart from the adoption of a Directive on MSP in 2014, see European Parliament and Council Directive 2014/89/EU of 23 July 2014 establishing a framework for maritime spatial planning [2014] OJ L 257/135 (MSP Directive), the projects financed by the European Union constitute illustrative examples of this tendency: Plan Bothnia – Preparatory action on maritime spatial planning in the Baltic Sea (2010–12), BaltSeaPlan – Baltic Sea region programme 'Introducing Maritime Spatial Planning in the Baltic Sea' (2009–12), TPEA – Transboundary Planning in the European Atlantic – Project on maritime spatial planning in the Atlantic, including the Celtic Sea and Bay of Biscay (2012–14), ADRIPLAN – Adriatic Ionian maritime spatial Planning (2013–15), SIMCELT – promoting practical cross-border cooperation between EU countries on the implementation of the maritime spatial planning directive in the Celtic Seas (2015–17), Baltic SCOPE – Cross-border solutions in Baltic maritime spatial plans (2015–17),

Public participation, or societal engagement, has been identified as a core principle of the ecosystem approach in ocean governance. This chapter examines the issue of public participation in the context of MSP drawing on the progress achieved at the international, EU and sub-regional levels (including EU basins, macro-regions and state practice) in order to assess the emerging discourse on the normative evolution of the principles of public participation in this domain and its impact on ocean governance.

2 The Concept of Public Involvement and the Ecosystem Based Approach

The interplay between societal interests and the state apparatus in given policy domains has long been discussed, especially in terms of citizens' participation in decision-making within a given society. Arnstein's 1969 analysis of the eight levels of participation in decision-making processes including manipulation, therapy, information, consultation, placation, partnership, delegated power, and citizen control is considered to be a classic contribution in this context.⁶ Since then, a shift of focus from citizens to interest groups, from democratic and social legitimacy to policy efficiency, and from the national sphere of politics to the international level, has taken place. Indeed, establishing the linkage between public planning and democratic decision-making in an era of highly specialized policies and the role of technocrats and experts was one of the main theoretical preoccupations in the domain of policy analysis during the 1980s.⁷ This shift was also mirrored in the inclusion of the concept

MARSPLAN – MSP in the Black Sea (2015–17), SIMNORAT – Atlantic Sea (2017–18), SIMWEST-MED – Western Mediterranean (2017–18), SUPREME – Eastern Mediterranean (2017–18). See Commission, 'Funding MSP cross-border projects' <https://ec.europa.eu/maritimeaffairs/policy/maritime_spatial_planning_en> accessed on 27 September 2017.

5 UN Environment Programme (Mediterranean Action Plan), 'Marine Spatial Planning and the protection of biodiversity beyond national jurisdiction (BBNJ) in the Mediterranean Sea' (17 February 2017) UNEP(DEPI)/MED WG.431/Inf.8. The European Commission in its vision for international ocean governance states its intention to promote MSP at a global level and work toward this end through the elaboration of a proposal 'for internationally accepted guidelines'. See Commission, 'International ocean governance: an agenda for the future of our oceans' JOIN (2016) 49 final, 13–14.

6 See SR Arnstein, 'A Ladder of Citizen Participation' (1969) 35 *Journal of the American Planning Association* 216 <<http://lithgow-schmidt.dk/sherry-arnstein/ladder-of-citizen-participation.html#doe70>> accessed on 22 April 2017.

7 J DeSario and S Langton, 'Citizen Participation and Technocracy' (1984) 3 *Public Policy Review* 2, 223; M Grisez Kweit and RW Kweit, 'The Politics of Policy Analysis: The Role of Citizen Participation in Analytic Decisionmaking' (1984) 3 *Public Policy Review* 2, 234. More

of public involvement or stakeholders' involvement in the domain of strategic management,⁸ as well as in the agenda of international institutions that implemented policy reforms. The World Bank, for example, developed a concrete methodology for stakeholder analysis to ensure the efficiency of its projects.⁹ In the decades that followed, research on the non-hierarchical coexistence of state and non-state actors in the formulation and effective implementation of decisions as well as in policy change, gained ground. More precisely, the idea of policy networks and the concept of hybrid governance were introduced into political science academic discourse.

The concept of policy networks, comprising the 'actors involved in the formulation and implementation of a policy' in a given policy domain, focused on the 'informal interactions between public and private actors with distinctive, but interdependent interests, who strive to solve problems of collective action on a central, non-hierarchical level'.¹⁰ Building on this approach, hybrid governance moved one step further and attempted to create a theoretical premise for the coexistence of formal and informal institutions and processes (the term 'informal' corresponds to non-governmental agents) where the latter take over functions that are traditionally performed by states. Hybrid governance schemes may result from states' failure to provide basic services and goods to their population. Nevertheless, they are also related to Western-type governmental structures and international institutions. In Western liberal democracies, the intermingling of formal and informal processes is institutionalized, and the existence of non-governmental agents is not dependent on the lack of efficiency of the state apparatus. Regional and international institutions also follow this practice. Although traditionally restricted to interstate cooperation, a model that still persists in contemporary international relations, the pursuit of supranational structures of governance in certain policy domains (especially at the regional level), the need for social legitimization (as in the case of the consultation processes in the European Union political environment), the demand for expertise (in domains such as environmental protection and

specialized dimensions of this issue have gained ground in the more recent academic debate, e.g. the role of the epistemic community in EU decision-making, see M Lee, 'The Legal Institutionalization of public participation in the EU governance of technology' (June 2014) ECPR Regulatory Governance Conference <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2461145> accessed on 2 October 2018.

8 R Edward Freeman, *Strategic Management: A Stakeholder Approach* (1984, reprinted by Cambridge University Press 2010).

9 World Bank, 'Stakeholder Analysis', <http://www1.worldbank.org/publicsector/anti_corrupt/PoliticalEconomy/stakeholderanalysis.htm> accessed on 6 November 2016.

10 See TA Börzel, 'Organizing Babylon – On the different conceptions of policy networks' (1998) 76 *Public Administration* 253, 260.

climate change), and the need to outsource certain functions due to lack of human and financial resources, have enhanced the role of informal agents in the decision-making processes as well as in the implementation of international policies.¹¹

Despite these developments, stakeholder involvement in governance and its linkage to good (ocean) governance as a fundamental element of sustainable development¹² has been systematically promoted in the domain of environmental protection, an issue area that transcends the limits of national decision-making processes.¹³ Initially introduced as a principle of environmental management in international declarations and action plans,¹⁴ public participation was soon incorporated into international treaties such as the 1992 Convention on Biological Diversity,¹⁵ regional instruments such as the 1998 Aarhus Convention,¹⁶ as well as in EU environmental legislation.¹⁷ These texts constitute illustrative examples of the adoption of legally binding commitments on behalf of their contracting parties or of the EU member states

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- 11 See V Boege and others, 'On Hybrid Political Orders and Emerging States: State Formation in the Context of 'Fragility' (October 2008) Berghof Research Center for Constructive Conflict Management, <http://edoc.vifapol.de/opus/volltexte/2011/2595/pdf/boege_etal_handbook.pdf> accessed on 31 May 2017; L Sauvée, 'Hybrid governance: sketching discrete alternatives' (2013) 13 *Journal on Chain and Network Science* 1. See also, TA Brozel and T Risse, 'Dysfunctional State Institutions, Trust and Governance in Areas of Limited Statehood' (2016) 10 *Regulation & Governance* 149.
- 12 Y-C Chang, *Ocean Governance* (Springer Briefs in Geography 2012) 32.
- 13 See N Perkins Spyke, 'Public Participation in Environmental Decisionmaking at the New Millennium: Structuring New Spheres of Public Influence' (1999) 26 *Boston College Environmental Affairs Law Review* 263. For a literature review in stakeholder participation in the environmental protection regime, see MS Reed, 'Stakeholder Participation for Environmental Management: A Literature Review' (2008) 141 *Biological Conservation* 2417 and National Research Council, *Public Participation in Environmental Assessment and Decision Making* (The National Academies Press 2008).
- 14 From the 1992 Rio Declaration on Environment and Development to the recent adoption of the Sustainable Development Goals in 2015. See General Assembly, 'Report on the United Nations Conference on Environment and Development' [1992] A/CONF.151/26 (Vol. 1), Annex 1 – Rio Declaration on Environment and Development and General Assembly, 'Transforming our world: the 2030 Agenda for Sustainable Development' UNGA Res 70/1 (25 September 2015) UN Doc. A/RES/70/1.
- 15 Convention on Biological Diversity [1992] 1760 UNTS 79.
- 16 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) [1998] 2161 UNTS 447.
- 17 E.g. European Parliament and Council Directive (EC) 2003/35/EC providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment [2003] OJ L 156/17.

concerning certain dimensions of public participation in environmental decision-making.

The crystallization of the ecosystem approach has widened the spectrum of pure environmental management principles. Although it lacks a ‘... universally agreed definition’,¹⁸ there is general agreement that implementation of the ecosystem approach should, *inter alia*, be ‘inclusive’ in terms of ‘stakeholder and local communities’ participation in planning, implementation and management’ and in balancing diverse societal objectives with environmental protection.¹⁹ In this way, the ecosystem approach combines conservation and sustainable development with social equitability.

In this context, public participation can be broadly defined as the ‘[involvement of] members of the public in the agenda-setting, decision-making and policy-forming activities of organizations/institutions responsible for policy development’.²⁰ It encompasses various types of public involvement, namely: (a) public communication in which competent authorities inform the public about their intentions although the public is not expected to provide any feedback to the sponsors of the proposed policy; (b) public consultation in which the public is invited by the sponsors of the proposed policy to express its opinion which is conveyed to the competent authorities; and, (c) public participation in which an official dialogue between the sponsors of the new policy and the public is conveyed, the objectives and the working methods towards their achievement are negotiated and there is a degree of ‘formal’ stakeholder participation in decision-making.²¹

In terms of the different phases of public participation these can be classified based on temporal criteria, namely: *ex ante* public engagement; involvement in the consultation process; and *ex post* participation.²² *Ex ante* public engagement takes place before the actual policy formulation phase, usually following competent authorities’ initiatives. However, political parties, most often not those in power, as well as academic or thematic advocacy groups such as those espousing environmental or economic concerns, may also trigger public engagement processes. At this stage, the focus is mainly on

18 United Nations, ‘Report on the Work of the United Nations Open-Ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting’ (July 2006) A/61/156 17, 2 par. 6.

19 Ibid.

20 G Rowe and L Frewer, ‘A Typology of Public Engagement Mechanisms’ (2005) 30 *Science, Technology & Human Values* 251, 253.

21 Ibid., 254–256.

22 P André and others, ‘Public Participation. Best Practice Principles’ (August 2006) IAIA Special Publication Series 4.

information – sensitization activities. Involvement in consultation processes refers to involvement in actual decision-making, and depends on the institutional framework and the political culture²³ of a given constituency. Finally, *ex post* participation refers to participation in the assessment process and contribution to adaptive management processes, which is a crucial component of the ecosystem-based approach.

Departing from the discussion on the theoretical and normative dimensions of public participation within the framework of the ecosystem approach, its practical dimensions in MSP ventures will be examined. Before moving to the examination of the practice of different actors involved in MSP processes, however, the role of MSP within the broader context of ocean governance as well as the institutional landscape for MSP public participation will be analyzed.

3 MSP: A New Philosophy in Ocean Governance?

MSP is a relatively new practice introduced initially to meet the needs of marine environmental protection at the national level as, for example, in the case of the Great Barrier Reef in Australia.²⁴ During the 1990s and 2000s the use of MSP proliferated around the globe.²⁵ At the same time, a gradual shift occurred from conducting MSP strictly for environmental management to a more comprehensive perception of the spatial allocation of human activities and natural processes in the marine space. The adoption of the first trans-boundary MSP venture, the Trilateral Wadden Sea Plan,²⁶ revealed the growing significance of MSP for comprehensive management of marine space both in terms of the different sectoral policies and spatially, particularly in relation

23 Almond and Verba have defined political culture ‘as the particular distribution of patterns of orientation toward political objects among the members of the nation’. GA Almond and S Verba, *The Civic Culture. Political Attitudes and Democracy in Five Nations* (Sage 1963), 13. The authors have also introduced a typology of orientations, ‘(1) *cognitive orientation*, that is knowledge of and belief of the political system, its roles and the incumbents of these roles, its inputs, and its outputs; (2) *affective orientation*, or feelings about the political system, its roles, personnel, and performance, and (3) *evaluational orientation*, the judgments and opinions about political objects that typically involve the combination of value standards and criteria with information and feelings’, *ibid.*, 14.

24 Jon Day, ‘The need and practice of Monitoring, Evaluating and Adapting Marine Planning and Management – Lessons from the Great Barrier Reef’ (2008) 32 *Mar Policy* 823.

25 S Jay and others (n 2).

26 Adopted by Germany, the Netherlands and Denmark for the protection of the Wadden Sea (n 94).

to the coordination of national policies and uses in a marine area falling within the jurisdiction of different states.

Despite this progress, however, MSP implementation lacked a common conceptual and normative framework, since it consisted of tailor-made initiatives developed in specific spatial and institutional contexts. UNESCO was the first organization to address these issues systematically. In 2006 it organized the first international workshop on MSP. The outcomes of the workshop included a Guide for MSP,²⁷ a technical report,²⁸ as well as a special issue of the international journal, *Marine Policy* with contributions discussing the different dimensions of MSP, which appeared in September 2008.²⁹ According to UNESCO's workshop outcomes, MSP was defined as 'a [public]³⁰ process of analyzing and allocating parts of three-dimensional marine spaces to specific uses, to achieve ecological, economic and social objectives that are usually specified through the political process; the MSP process usually results in a comprehensive plan or vision for a marine region. MSP is an element of [ecosystem-based]³¹ sea use management'.³²

Shortly thereafter, the European Union (EU) provided general guidance on the meaning and application of MSP. In its Roadmap for MSP, published in 2008, the European Commission defined MSP as 'a tool for improved decision-making' that would function as 'a framework for arbitrating between competing human activities and managing their impact on the marine environment' with the 'objective (...) to balance sectoral interests and achieve sustainable use of marine resources'.³³ While in the 2008 Roadmap environmental primacy is still preserved, two conceptual elements prevail: first, MSP is presented as purely managerial in character since it is perceived as a governance tool to be used in order to support existing sectoral policies, and not a process as defined

27 C Ehler and F Douvère, *Marine Spatial Planning: A step-by-step approach toward ecosystem-based management*, Intergovernmental Oceanographic Commission (IOC) and Man and the Biosphere Programme, IOC Manual and Guides 53, ICAM Dossier, 6 (UNESCO 2009).

28 C Ehler and F Douvère, *Visions for a Sea Change. Report of the First International Workshop on Marine Spatial Planning*. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme, IOC Manual and Guides 46, ICAM Dossier, 3 (UNESCO 2007).

29 <<http://www.sciencedirect.com/science/journal/0308597X/32/5?sdc=1>> accessed on 17 May 2017.

30 C Ehler and F Douvère (n 27), 18.

31 *Ibid.*, 7, 10.

32 C Ehler and F Douvère (n 28), 13.

33 Commission, 'Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU' COM (2008) 791 final, 2.

by UNESCO; second, the MSP concept transcends its environmental functional character by being associated with the ‘competitiveness of the EU’s maritime economy’. It is perceived as a ‘framework providing legal certainty and predictability’ and promoting ‘investment in such sectors, which include offshore energy development, shipping and maritime transport, ports development, oil and gas exploitation and aquaculture, boosting Europe’s capacity to attract foreign investment’.³⁴

In 2014 the EU adopted the MSP Directive, which provided a broader definition of MSP in line with that adopted within the framework of UNESCO’s 2006 initiative. According to the Directive, MSP is a ‘process by which the relevant member state’s authorities analyze and organize human activities in marine areas to achieve ecological, economic and social objectives’.³⁵ The Directive’s provisions are related to the obligations of member states and their position vis à vis the international ocean governance system. MSP is perceived as ‘the logical advancement and structuring of obligations and of the use of rights granted under UNCLOS and a practical tool in assisting member states to comply with their obligations’.³⁶ In this context, member states are obliged to prepare spatial plans according to their national priorities and institutional mechanisms. The role of regional institutions’ *acquis* and structures are also mentioned in the Directive’s text as the most suitable mechanisms for the cooperation among neighbouring member states and, wherever possible with third countries, taking into account the ecological unity of marine space.

In 2017, a second international workshop was organized by UNESCO jointly with the European Commission (EC).³⁷ The objectives of the workshop included the dissemination and consolidation of MSP good practices worldwide, and the linkage of MSP to global ocean governance challenges, including the implementation of Sustainable Development Goals within the framework of the UN 2030 Agenda,³⁸ climate change mitigation and adaptation, and management of areas beyond national jurisdiction.³⁹ This initiative reflects efforts aimed at promoting inter-institutional coordination, on the one hand, and

34 Ibid. at 3.

35 MSP Directive (n 4), article 3 para 2.

36 Ibid., preambular para 7.

37 UNESCO, ‘2nd International Conference on Marine Spatial Planning’ <<https://en.unesco.org/events/2nd-international-conference-marine-spatial-planning>> accessed on 10 December 2017.

38 General Assembly, ‘Transforming our World: The 2030 Agenda for Sustainable Development’ (n 14).

39 Intergovernmental Oceanographic Commission, European Commission – DG MARE, *The 2nd International Conference on Marine/Maritime Spatial Planning, 15–17 March 2017*, IOC Workshop Series 279 (UNESCO 2017).

the mainstreaming or incorporation into the MSP agenda of new challenges related to ocean governance, on the other.

The main conclusion to be drawn from this short discussion of the evolution of MSP, whether at the national level or regionally, is that its basic conceptual premises are consistent with international law allocating states' rights and obligations at sea.⁴⁰ In this context, MSP is founded on the comprehensive approach of UNCLOS towards the 'problems of the ocean space' which 'are closely interrelated and need to be considered as a whole', and on its provisions for 'bilateral, regional and international cooperation'. However, MSP processes seem to 'modernize' the traditional governance logic of UNCLOS which is filtered through the lens of the ecosystem approach, by integrating environmental with concrete economic and societal objectives on the one hand and promoting transboundary cooperation under common management plans on the other. In practice this is depicted in the gradual abandonment of the zoning practice in MSP (which is common in environmental management for example) in favor of the establishment of 'multiple use' marine areas.⁴¹

Additionally, MSP constitutes one of the few, if not the only, governance tools, whose effective conduct, due to its multifunctional and multilevel character and the different interests it attempts to balance, depends on the degree of public trust in MSP ventures.⁴² The development of societal confidence in MSP is linked to public participation in relevant decision-making processes.⁴³ The type of public involvement, as well as the degree of institutionalisation of the relevant MSP processes are determined mainly by the constitutional framework and administrative system of different countries. However, as will be seen below, public engagement in MSP is a complex process, particularly considering the proliferation of relevant projects at the national level, the lack of MSP regulation at the international level and the evolution of spatial planning on an *ad hoc* basis in different regional marine areas.

40 For a comprehensive analysis of the international legal regime on maritime spatial planning see Frank Maes, 'The International Legal Framework for Marine Spatial Planning' (2008) 32 *Mar Policy* 797, MRAG, 'Legal Aspects of Maritime Spatial Planning', Final Report to DG Maritime Affairs and Fisheries, Framework Service Contract, No. FISH/2006/09-LOT-2, October 2008 and HELCOM, 'Joint HELCOM-VASAB Maritime Spatial Planning Working Group Report 2010–2013' (2013).

41 S Jay and others (n 2), Sarah Carr, 'What Role does Ocean Zoning Play in Marine Spatial Planning? Viewpoints from the EU, US and China' (2011) <<https://meam.openchannels.org/news/meam/what-role-does-ocean-zoning-play-marine-spatial-planning-viewpoints-eu-us-and-china>> accessed on 22 February 2018.

42 C Ehler and F Douvère (n 27), 40.

43 *Ibid.*

4 Public Engagement in MSP: The Emerging International Institutional Landscape

The evolution and the institutionalization of MSP practice discussed above have brought to the fore a broad consensus concerning public participation as a *sine qua non* for successful MSP projects. This is reflected in the progressive incorporation of participation provisions into soft law documents and other instruments adopted by international organizations and in the recently adopted MSP legislation at the EU level.

4.1 *From Soft Law ...*

Public trust, as mentioned above, is recognized as the basis for successful MSP by every international, regional or sub-regional institution or initiative involved in such processes. Within these contexts, during the last decades we have witnessed the elaboration of standards, criteria and guidelines addressing the different dimensions of public participation as a means for ensuring the viability of MSP projects in an attempt to address the following issues: who will be involved (related to stakeholders' mapping); when (during the preparation, the decision-making, the assessment phases); in what form (at the (sub) national or regional levels); and in what degree (participation will be restricted to information of the public or the participation of the latter in actual decision-making shall be ensured)?⁴⁴

Stakeholder mapping, or the identification of 'groups, individuals, organizations [and institutions], involved or affected, positively or negatively',⁴⁵ by MSP, constitutes one of the most significant challenges in this process since representation gaps may undermine social legitimization, create frictions among societal partners and mistrust vis à vis the competent authorities.⁴⁶ Broad participation of key stakeholders is considered significant in MSP decision-making since it contributes to wider 'acceptance, ownership and support'⁴⁷ for MSP ventures and to confidence building among competent authorities

44 Ibid., 46–48.

45 The definition of R Pomeroy and R Rivera-Guieb, *Fishery co-management. A practical handbook* (CABI Publishing and International Development Research Centre 2006), mentioned by R Pomeroy and F Douvere, 'The Engagement of Stakeholders in the Marine Spatial Planning Process' (2008) 32 *Marine Policy* 816, 818.

46 Intergovernmental Oceanographic Commission, European Commission – DG MARE (n 39), 20.

47 Commission, 'Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU' (n 33), 9.

and stakeholders. 'Broad' may refer to stakeholders that represent different interests,⁴⁸ or that originate from different countries.⁴⁹ However, broad does not mean without a focus. The relationship of stakeholders to the MSP project in question remains the first criterion to be met for their involvement in the relevant consultation processes.

According to the guidelines produced by the 2006 UNESCO workshop on MSP, several parameters are to be taken into account in defining the correct target groups.⁵⁰ The relationship of stakeholders to the resources (economic, social or cultural) of the specific marine area is prioritized. Another parameter to be considered is the continuity of this relationship (whether it is linked to permanent or temporal activities) as well as the gains or losses of different interest groups that accompany the change or the multiplication of uses of the marine space envisaged in MSP. Stakeholders may also be assessed in terms of their capabilities to support management processes in line with the ecosystem based approach, including the provision of scientific and/or traditional knowledge that 'can significantly raise the quality of MSP'.⁵¹ Last, but not least, the credibility of stakeholders in relation to their motives to be involved in public participation processes should also be taken into account through the examination of the consistency of their activity vis à vis their interests.⁵²

Considering the above-mentioned criteria, the safest categorization of MSP stakeholders encompasses public institutions (other than the competent authorities for MSP and relevant authorities from neighboring states), the environmental advocacy community (including both academia and activists), the ocean users community (shipping, fishermen, the tourist industry, off-shore energy industry, and so on), local communities (groups with historical and cultural ties with tangible and intangible elements of the marine space), political parties (especially via Members of Parliament that have strong ties with their constituency) and individuals (ranging from experts to individual participation in communication or consultation processes).⁵³

48 Ibid.

49 Baltic Marine Environment Protection Commission, 'Guidelines on transboundary consultations, public participation and co-operation, Laulasmaa, Estonia, 15–16 June 2016', HOD 50–2016.

50 C Ehler and F Douvere (n 27), 44 (box 17).

51 Commission, 'Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU' (n 33), 9.

52 C Ehler and F Douvere (n 27), 44 (box 17).

53 See Intergovernmental Oceanographic Commission, European Commission – DG MARE (n 39).

Once key stakeholders are identified, competent authorities should deal with the timing of their involvement. Sustained participation, that is involvement in all stages of the MSP venture, information/communication activities, as well as decision-making processes concerning planning, implementation and monitoring of MSP, is considered a good practice.⁵⁴ In this context, early engagement of stakeholders is significant not only at the national level but also through the establishment of formal processes of transboundary information exchange and consultation as the basis for policy coordination and the avoidance of friction among neighboring countries.⁵⁵

Moving to the issue of the extent of public involvement, the first condition to be fulfilled to create and sustain societal confidence in spatial planning is that of transparency. This requires that official decisions regarding MSP should be open to public scrutiny. Information activities involving the general public constitute the basis for the development of public trust. Thus, once wide transparency is ensured, and the key stakeholders are identified, competent authorities must decide on the actual role of stakeholders in MSP decision making. The factors that determine variations in the degree of public participation are not always of an institutional nature. According to Douvere '[t]he scope and extent of stakeholder involvement differs greatly from country to country' since it 'largely depend[s] on the political or legal requirements for participation that already exist in a particular country (...) and is often culturally influenced'.⁵⁶

Standard-setting processes in this domain are still being developed as MSP implementation is pursued around the globe.⁵⁷ However, as discussed below, certain of these general principles of normative value have been incorporated in the EU MSP Directive.

54 C Ehler and F Douvere (n 27), 43–48. The principles on participation set out in the White Paper on European Governance call for 'ensuring wide participation throughout the policy chain – from conception to implementation', Commission, 'European Governance: A White Paper' COM (2001) 428, 8.

55 As mentioned in Intergovernmental Oceanographic Commission, European Commission – DG MARE (n 39), the VASAB-HELCOM Guidelines (n 40) and the 2010 European Commission Communication, Commission, 'Maritime Spatial Planning in the EU – Achievements and Future Development' COM (2010) 771.

56 F Douvere, *Marine spatial planning: Concepts, current practice and linkages to other management approaches* (Ghent University Belgium 2010), 65 <<https://biblio.ugent.be/publication/8509486/file/8509487.pdf>> accessed on 18 May 2017.

57 Intergovernmental Oceanographic Commission, European Commission – DG MARE (n 39).

4.2 ... to Regulation at the Regional Level

In the regional context, in 2014, the EU MSP Directive became the first legally binding act at the regional level,⁵⁸ providing for public participation in MSP decision making processes. According to article 9 of the Directive 'member states shall establish means of public participation by informing all interested parties and by consulting the relevant stakeholders and authorities, and the public concerned, at an early stage in the development of maritime spatial plans, in accordance with relevant provisions established in Union legislation. Member states shall also ensure that the relevant stakeholders and authorities, and the public concerned, have access to the plans once they are finalized'.

Public participation is conceived in modest terms since article 9 only provides for informative and consultative processes, leaving to the discretion of states the option of a more enhanced public involvement. The same goes for the obligation on the competent authorities to provide access to relevant stakeholders, authorities and the public concerned, which is limited to access to the plans 'once they are finalized' and not at an earlier stage of elaboration.

Additionally, the Directive stipulates that member states bordering marine waters are obliged to cooperate (article 11) while, in the case of member states bordering third states, there is a more tempered reference to cooperation since member states 'shall endeavour, where possible, to cooperate with third countries' (article 12). Although not explicitly stated or defined in terms of process, public involvement is implied in these articles, especially if one considers that the reference in article 9 to 'interested parties', 'relevant stakeholders and authorities' and the 'public concerned' is not restricted to the national level.

Despite the ample space left for the competent authorities of member states to decide on the means and the degree of public involvement, reference to 'relevant provisions established in Union legislation', should also not be ignored. The relevant legislative framework comprises, *inter alia*, the implementation of the provisions of the Aarhus Convention through Regulation 1367/2006,⁵⁹ Directive 2003/35 concerning the drawing up of certain plans and programs

58 For a discussion on the evolution of the legalization process of the EU in the domain of MSP, see A Zervaki, 'The Legalization of Maritime Spatial Planning in the European Union and its Implications for Maritime Governance' (2016) 30 *Ocean Yearbook* 32.

59 European Parliament and Council Regulation (EC) 1367/2006 of 6 September 2006 on the application of the provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community institutions and bodies [2006] OJ L 264/13.

relating to the environment,⁶⁰ as well as Directive 2003/4 on public access to environmental information.⁶¹

EU legislation concerning environmental assessment is also relevant; competent authorities' marine plans should comply with the provisions of the Strategic Environmental Assessment Directive⁶² concerning consultations with relevant authorities and the public (Article 6),⁶³ transboundary consultations (Article 7) and information on the adopted plan (Article 9) among EU member states,⁶⁴ when the conditions set by the Directive are met. The provisions of the Environmental Impact Assessment Directive concerning public participation should also be considered at a later stage of the MSP Directive's implementation in relation to the realization of the specialized components of the spatial plans. According to Article 7, consultation among member states is foreseen where a project is likely to have significant effects in another member state. The procedure encompasses all stages of public involvement, from public communication involving the provision of information to the competent authorities of the member state to be affected as well as the general public on its territory, to public consultation aimed at ensuring that the authorities and the public of the member state to be affected are given an opportunity to forward their opinion to the competent authority of the member state-sponsor, and to public participation in decision making through the initiation of consultations among member states, which may be conducted 'through an appropriate joint body'.⁶⁵

60 Directive 2003/35/EC (n 17).

61 European Parliament and Council Directive (EC) 2003/4 of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC [2003] OJ L 41/26.

62 European Parliament and Council Directive (EC) 2001/42 of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment [2001] OJ L 197/30 (SEA Directive).

63 In Portugal for example, during the preparation phase of the Plano de Ordenamento do Espaço Marítimo (POEM), a public consultation was organized between 29 November 2010 and 22 February 2011, implementing the relevant provisions of Decree-Law No. 232/2007 (amended by Decree-Law No. 58/2011), that transposed Directive 2001/42/EC. European MSP Platform, 'Maritime Spatial Planning Country Information, Portugal (November 2017)' <https://www.msp-platform.eu/sites/default/files/download/portugal_02.11.2017.pdf> accessed 25 September 2018.

64 As in the case of German MSP in the North Sea and in the Baltic Sea (n 92 and n 93).

65 European Parliament and Council Directive (EU) 2014/52/EU of 16 April 2014 amending Directive 2001/42/EU on the assessment of the effects of certain public and private projects on the environment [2014] OJ L 124/1.

5 Public Involvement in MSP in Practice

Following the presentation of the evolving MSP patterns and norms at the international and the European level, this section discusses the actual practice of MSP public participation, focusing on the experience of EU member states and MSP cooperation among national authorities and/or stakeholders at the sub-regional level. The focus on the EU is intentional since its member states participate in or constitute the recipients of both international and EU standard setting processes in this domain.

5.1 *Stakeholders' Mapping and Participation: Identity, Roles and Objectives*

Consistent with the ecosystem approach, MSP should be founded on best available data and knowledge. The MSP Directive also mentions that '(...) it is essential that member states make use of the best available data and information by encouraging the relevant stakeholders to share information'.⁶⁶ Thus, the scientific community is an important partner in the design and implementation of MSP. However, cooperation between scientists and policymakers is not easy since they do not share a common working methodology or objectives. Considering this relationship from the experience of environmental protection, the objective character of scientific research may often contradict the political orientations of policy decisions that are shaped by a plurality of factors such as societal expectations or economic interests.⁶⁷ In MSP these differences may be further accentuated due to the integration of different policies in a single project. In EU member states the degree of participation of the scientific community depends on the legal personality of the institution concerned and its linkage to governmental authorities (if it constitutes a governmental agency or not), or on the powers vested in different epistemic institutions by the competent MSP authorities. In the case of Germany, the Federal Maritime and Hydrographic Agency (BSH), an agency under the supervision of the Federal Ministry of Transport, Building and Urban Affairs, is in charge of MSP for the German exclusive economic zones in the North Sea and the Baltic Sea.⁶⁸ In Greece, the Hellenic Centre for Marine Research as well as relevant

66 '(...) and by making use of existing instruments and tools for data collection, such as those developed in the context of the Marine Knowledge 2020 initiative and Directive 2007/2/EC of the European Parliament and of the Council' (preambular para 24).

67 See S Fletcher, 'Converting science to policy through stakeholders' involvement: an analysis of the European Marine Strategy Directive' (2007) 54 Marine Pollution Bulletin 1881.

68 Federal Maritime and Hydrographic Agency, 'Federal Government's provider of maritime services' <<http://www.deutsche-flagge.de/en/german-flag/flag-state/bsh-federal-martime-and-hydrographic-agency-1>> accessed on 25 September 2018.

university departments, which are public institutions but not governmental agents, have been only partially involved in providing the necessary data as well as participating in the public debate on the priorities for MSP in Greece.⁶⁹

Public participation also involves ocean advocacy groups and ocean users. The contribution of NGOs, for example, ranges from provision of expertise, conduct of field work, and participation in monitoring and assessment activities, to public participation facilitation through the conduct of campaigns or even undertaking a more activist stance through demonstrations (e.g. in cases environmental degradation is considered to be linked with the change in uses of marine space etc.).⁷⁰ The approach of NGOs, especially in the domain of environmental or human rights protection, is mainly guided by the public goods approach⁷¹ and focuses on the promotion of both monetized and non-monetized values and benefits in MSP projects.⁷²

Professional associations on the other hand, advocate the interests of the individuals engaged in the respective professions. The consent of these associations is significant to MSP design and implementation since they have a significant political leverage in governmental decision-making processes and policy implementation, and they also contribute to MSP assessment activities. The added value of these associations is that they may also have a positive impact on MSP (once their support is granted) through the evolution of professional attitudes and perceptions towards the uses of the marine space.⁷³

69 Mainly through participation in EU projects such as ADRIPLAN (n 4) or the collaboration of Greece and Cyprus under the INTERREG programme involving the development of common MSP methodology and pilot projects to be implemented in the two countries. See Cross-border Cooperation Programme 'Greece – Cyprus 2007–2013' <<http://www.mspsygr.info/>> accessed 17 September 2017. See also V Vassilopoulou and others, *Declaration on the Development of Maritime Spatial Planning in Greece, adopted within the framework of the nth Panhellenic Symposium on Oceanography and Fisheries*, organized by the Hellenic Centre for Marine Research and the University of the Aegean, Lesvos, May 2015, <http://www.symposia.gr/wp-content/uploads/2015/06/MSP_declaration_web.pdf> accessed on 2 September 2017.

70 For the multidimensional role of NGOs in MSP, see H Calado and others, 'NGO involvement in marine spatial planning: a way forward?' (2012) 36 *Marine Policy* 382.

71 Considering the environment as a non-excludable and non-rivalrous good, most environmental NGOs perceive the marine space 'as part of the public domain, not owned exclusively or to be benefited by any one group or private interest'. Ehler and Douvère (n 27) 40.

72 See Anne D Guerry and others, 'Modeling benefits from nature: using ecosystem services to inform coastal and marine spatial planning' (2012) 8 *International Journal of Biodiversity Science, Ecosystem Services & Management* 1–2, 107.

73 The role of fisheries professionals in decision-making processes is significant. See S Mackinson and others, 'Engaging stakeholders in fisheries and marine research' (2011) 35 *Marine Policy* 18.

Last, but not least, the market sector, comprised mainly of companies,⁷⁴ represents private interests translated into monetary value and their principal aim is to safeguard their existing and potential economic prospects in MSP.

All the above-mentioned entities participate in the different phases of MSP via formal and informal channels (by lobbying or through the exertion of political pressure, e.g. in the domain of investments). In the case of formal public participation, the establishment in France in 2009 of the *Grenelle de la Mer* bringing together government representatives, politicians, scientists, unions and NGOs in order to define a common framework to integrate maritime and coastal activities, was, at the time of its launching, one of the most advanced examples of public participation in maritime policy formulation.⁷⁵ In other countries MSP has been incorporated into the agenda of consultative bodies with a broader vision, as in the case of the Federal Council for Sustainable Development⁷⁶ in Belgium; an advisory body, with the participation of representatives of environmental organizations, the development sector, employers and employees in the maritime sector and academia. In other cases, advisory bodies on terrestrial spatial planning have extended their activity to include MSP, as in the case of the National Spatial Planning Council⁷⁷ in Greece, the main consultation body for spatial planning, which includes the participation of scientists, environmental NGOs, regional authorities and professional associations. Such bodies can only influence, but not participate in, actual decision-making; however, their role is important since interested parties are not only informed, but their opinion is conveyed to the competent authorities, a process which usually triggers public debate, particularly in the regions concerned.

MSP public participation processes are also open to individuals, but only in the two first stages: communication and consultation. In Latvia for example, development of the national MSP included the involvement of individuals who had an interest in the decision-making or were affected by it. Individuals received information on the MSP authorities' intentions via the same channels

74 The shipping industry constitutes an illustrative example in this case. See D Patraiko and P Holthus, *The Shipping Industry and Marine Spatial Planning. A Professional Approach* (The Nautical Institute/World Ocean Council 2013).

75 République Française-Ministère de l'Écologie, de l'Energie, du Développement durable et de la Mer, 'Grenelle de la mer: vers un renouveau de la politique maritime?' <<http://www.vie-publique.fr/actualite/dossier/grenelle-mer/grenelle-mer-vers-renouveau-politique-maritime.html>> accessed on 15 June 2017.

76 Federal Council for Sustainable Development <<http://www.frd0-cfdd.be/en>> accessed on 18 September 2017.

77 Established under 'Special Planning, Sustainable Development and other provisions', Law 4447 [2016] A/241 <http://www.elinyae.gr/el/lib_file_upload/241A_2016.1484831674306.pdf> accessed on 20 September 2017.

as other stakeholders (press, media, etc) and were able to participate in public hearings and written comments.⁷⁸ In Greece, during the consultation for the transposition of the MSP Directive in 2016, individuals submitted their comments via the platform managed by the Ministry of Environment. Individual participation was considered high, given that 68 out of a total of 92 comments were submitted by individuals.⁷⁹ In some cases, a special invitation is extended to individual experts, as in the case of the *Grenelle de la Mer* in France or the Greek National Spatial Planning Council where experts are appointed by the Minister of the Environment.⁸⁰

5.2 *Levels of Public Participation in the EU*

5.2.1 Public Participation at the National Level

MSP competent authorities are usually the sponsors of public participation processes. However, due to the multifunctional character of MSP, before they proceed to the official launching of such processes they usually resort to 'first-level' consultations with other ministries and/or administrative divisions at the national level. In most cases these consultations are realized within inter-ministerial committees. Membership in these bodies varies depending on the distribution of competences related to the maritime space, as well as national (MSP or other) priorities.

In Portugal, for example, the Plano de Ordenamento do Espaço Marítimo (POEM) was designed by the inter-ministerial committee for maritime affairs⁸¹ along with representatives from the autonomous regions of Madeira and Azores,⁸² while in Cyprus, the MSP ministerial committee comprises of representatives from the Ministries of Transport, Communications and Works,

78 Kristīna Veidemane, 'Stakeholder involvement in development of the Maritime Spatial Plan of Latvian waters' (2015), <https://www.bonusportal.org/files/4063/Kristina_Veidemane_Baltic_Environmental_Forum_Latvia.pdf> accessed on 18 December 2017.

79 Ministry of Environment and Energy, 'Consultation site' <<http://www.opengov.gr/minenv/?p=8366>> accessed on 18 December 2017.

80 See Ministry of Environment and Climate Change, 'Establishment of the National Council on Spatial Planning and Sustainable Development', Ministerial Decree of 2nd July 2010, <<http://www.ypeka.gr/LinkClick.aspx?fileticket=QDw%2B2kQwQUI%3D&tabid=508>> accessed 19 September 2017.

81 For the establishment of the Portuguese inter-ministerial committee for maritime affairs see Portuguese Republic, 'National Ocean Strategy' (2007), <<http://www.ioc-unesco.org/images/stories/LawoftheSea/Documents/NationalOceanPolicy/nop.portugal.pdf>> accessed on 2 October 2018.

82 With the support from the Portuguese Water Institute, external consultants, the Institute for Nature Conservation and Biodiversity, the Structure on the Mission for Maritime Affairs, the Portuguese Environmental Agency and the Structure on the Mission for the Extension of the Continental Shelf, as mentioned in H Calado and others, 'Marine Spatial Planning: Lessons Learned from the Portuguese Debate (2010) 34 Marine Policy 1341, 1346.

Foreign Affairs and Defense,⁸³ reflecting not only the functional but also the political character of the decisions to be taken in this domain (considering the occupation of the northern part of the country by Turkey). In these countries, the competent authority, usually a ministry, presides over meetings.

France has opted for centrally located inter-ministerial structures on maritime affairs, an inter-ministerial committee and a Secrétariat Général de la Mer, both under the Prime Minister.⁸⁴ In Belgium, where MSP competences are shared between the central government and the Flemish authorities, the practice of consultations among ministries as well as respective administrations was popular during the first attempts to conduct MSP.⁸⁵ In 2012, however, this process was formalized by the establishment of an advisory committee on MSP composed of representatives from all federal authorities with maritime competence and in which the Flemish authorities were also granted consultative status.⁸⁶ In Greece, an inter-ministerial committee on maritime policy with broad participation from other ministries and with the possibility of inviting members of public and private bodies was created under the Ministry of Mercantile Marine and Island Policy in 2013.⁸⁷ However, it has never been convened to discuss the prospects of MSP in Greece, since MSP competence passed to the Ministry of Environment and Energy (following the adoption of

83 Republic of Cyprus, 'Strategy for a National Integrated Maritime Policy', <<http://www.cpa.gov.cy/CPA/userfiles/documents/strategy.pdf>> accessed on 18 May 2017. In Cyprus a ministerial committee on MSP, with the participation of the Ministries of Transport, Communications and Works, Foreign Affairs and Defense, is also foreseen in the law for the transposition of the MSP Directive, Republic of Cyprus, 'Law on Maritime Spatial Planning and other relevant issues', Law 144(I)/2017 <http://www.cylaw.org/nomoi/arith/2017_1_144.pdf> accessed on 4 April 2018.

84 Décret n°95-1232 du 22 novembre 1995 relatif au comité interministériel de la mer et au secrétariat général de la mer, Version consolidée au 16 septembre 2014, <https://www.legifrance.gouv.fr/affichTexte.do?jsessionid=3A42EF00CD3D4ED34EF98D7F398C0213.tpdj015v_1?cidTexte=LEGITEXT000005619885&dateTexte=20140916> accessed on 19 September 2017.

85 E Olsen and others, 'Integration at the Round Table: Marine Spatial Planning in Multi-Stakeholders Settings' (October 2014) 9 (10) *PLOS ONE* 2, <www.plosone.org> accessed on 10 November 2016.

86 See article 1 of the 2012 Royal Decree, Royaume de Belgique, Arrêté royal du 12 novembre 2012 relatif à l'institution d'une commission consultative et à la procédure d'adoption d'un plan d'aménagement des espaces marins dans les espaces marins belges, <http://www.etaamb.be/fr/arrete-royal-du-13-novembre-2012_n2012024371.html> accessed on 10 November 2016. For certain issues (e.g. fisheries which is a Flemish competence) consultations among federal and Flemish authorities were conducted at ministerial level. E Olsen and others (n 85) 3.

87 See Law 4150 [2013] J A/102, <<http://www.nee.gr/downloads/261N4150-2013.pdf>> accessed on 18 May 2017.

the MSP Directive) which was already in charge of the terrestrial spatial planning. The Ministry of Environment and Energy cooperates with other ministries, primarily through consultations among relevant directorates.⁸⁸

The second step for national MSP authorities is the initiation of open public participation processes, in order to convey information to interested parties (one-way information flow) and to receive feedback from the public via public hearings, submission of written comments or questionnaires (see discussion above).

5.2.2 Transboundary Intergovernmental Consultations

Transboundary consultations of an intergovernmental character are primarily used for the development of national MSPs. In Belgium, legislation introduced in 2012, provides for MSP information and consultation processes involving the Netherlands, France, the United Kingdom and any other countries, if considered necessary.⁸⁹

In Sweden, transboundary consultations were used as a tool for preliminary talks on MSP. The Swedish Agency for Marine and Water Management (SwAM) convened an intergovernmental consultation on Marine Spatial Planning in 2013 with the participation of all Baltic Sea countries in order to identify 'counterparts for discussing transboundary MSP issues'.⁹⁰ In May 2017, after the Swedish draft spatial plans for the Gulf of Bothnia, the Baltic Sea and the Skagerrak and Kattegat region were released, SwAM consulted neighboring countries.⁹¹

In Germany, public participation also took place during the preparation phase of the spatial plans for the German EEZ in the North Sea and the Baltic Sea in 2008. It consisted of the publication of the draft spatial plans and environmental reports, and the organization of oral hearings, the first round of which were conducted with bordering states and the second round which were conducted with the German authorities and the public. The initial draft of the Spatial Plans for the German EEZ in the North Sea underwent modest

88 See European MSP Platform, 'Maritime Spatial Planning Country Information, Greece (August 2018)' <https://www.msp-platform.eu/sites/default/files/download/greece_31.08.2018.pdf> accessed on 2 October 2018.

89 In the Royal Decree of November 2012 (n 86) article 5.

90 See M Matczak and others, *Handbook on Multilevel Consultations in MSP* (PartiSEApate 2014), 36 <http://www.partiseapate.eu/wp-content/uploads/2014/09/PartiSEApate_handbook-on-multilevel-consultations-in-MSP.pdf> accessed on 20 September 2017.

91 Swedish Agency for Marine and Water Management, 'Sweden and Marine Spatial Planning' <<https://www.havochvatten.se/en/swam/eu--international/marine-spatial-planning.html>> accessed 15 December 2017.

changes after the conclusion of this process.⁹² Consultations with bordering states concerning the draft German spatial plan for the Baltic Sea have resulted in the inclusion of two new priority areas for navigation in the Baltic Sea (south of Adlergrund shipping route between Swinemünde (Swinoujscie) and Ystad).⁹³

Transboundary consultation is also used for the development of regional MSPs, as in the case of the Trilateral Wadden Sea Plan. The tripartite cooperation developed jointly by Germany, the Netherlands and Denmark, launched in the late 70s, is aimed at the protection of the ecological unity of the Wadden Sea. It was inaugurated with the adoption of the Joint Declaration on the Protection of the Wadden Sea in 1982. This was used as the basis for the coordinated development of MSP activities in relation to ecosystem and biodiversity protection through the prioritization of ‘the protection of the Wadden sea region as a whole ...’. The Declaration was updated in 2010 making explicit reference to Integrated Coastal Zone Management and MSP activities which had been incorporated into the Wadden Sea Plan adopted in 1997. Political leadership and decision-making authority is vested in the Trilateral Sea Governmental Council (TSGC), which consists of the competent Ministers of the respective states and the Wadden Sea Board (WSB), with the participation of senior officials of the competent ministries or representatives of the decentralized governments from the participating states). The TSGC is convened every three years and, since the Wadden Sea tripartite cooperation is based on a political agreement, the decisions adopted appear in the form of political documents and declarations.⁹⁴

92 See European MSP Platform, Federal Maritime and Hydrographic Agency, ‘Spatial Plan for the German Economic Exclusive Zone in the North Sea, attachment to Ordinance on Spatial Planning in the German Exclusive Economic Zone in the North Sea (AWZ Nordsee-ROV) of September 21st 2009’, <<https://www.msp-platform.eu/practices/maritime-spatial-plan-german-eez-north-sea>> accessed on 2 October 2018.

93 See European MSP Platform, Federal Maritime and Hydrographic Agency, ‘Spatial Plan for the German Economic Exclusive Zone in the Baltic Sea, attachment to Ordinance on Spatial Planning in the German Exclusive Economic Zone in the Baltic Sea (AWZ Baltic Sea-ROV) of December 10th 2009’, <<https://www.msp-platform.eu/practices/strategic-environment-assessment-german-eez-baltic-sea>> accessed on 2 October 2018.

94 See Trilateral Wadden Sea Cooperation, *Joint Declaration on the Protection of the Wadden Sea*, 9th December 1982 and *Sylt Declaration and 2010 Joint Declaration, 11th Trilateral Governmental Conference on the Protection of the Wadden Sea*, Westerland/Sylt 18 March 2010 <<http://www.waddensea-secretariat.org/trilateral-cooperation/organisational-structure>> accessed on 14 February 2017. In 2012 a Communication Strategy was adopted in order to ‘ensure a precise (as regards content), topical, transparent, and successful internal and external communication’ and enhance in this way public support for the protection of the Wadden Sea. Trilateral Wadden Sea Cooperation, *Trilateral Wadden Sea Cooperation Strategy. Communication Guidelines* (May 2013) <<http://www.waddensea-secretariat>

Another example is the work carried out by the working group for MSP in the Baltic established in 2010 by HELCOM and the Vision and Strategies around the Baltic Sea (VASAB) Committee on Spatial Planning and Development of the Baltic Sea Region (CSPD/BSR). Membership in this working group comprises representatives from respective ministries of the HELCOM and VASAB contracting/member states or experts delegated by the latter. The working group is expected, *inter alia*, to prepare proposals on transboundary MSP, to be discussed in the Ministerial Meetings of the two institutions.⁹⁵ The guidelines adopted in 2016, provide for ‘cooperation between MSP authorities at pan-Baltic scale.... as well as ... effective stakeholder engagement at a more strategic level’.⁹⁶ Public participation is defined, in the guidelines, as ‘the process by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision [... It is considered as] a two-way communication and collaborative problem solving with the goal of achieving better and more acceptable solutions’.⁹⁷

Finally, bilateral transboundary consultation on an ad hoc basis may also provide for MSP cooperation prospects as in the case of the Memorandum of Understanding signed between Portugal and the Republic of Cabo Verde.⁹⁸

5.2.3 Transnational Consultations

Resort to transnational consultations is not a rare phenomenon in the MSP domain. Transnational consultations transcend the intergovernmental model of deliberations, where, apart from government representatives or administration officials, NGOs, companies and experts from different countries participate. There are two types of transnational consultations. The first are those that combine the participation of state and non-state agents, such as the EU consultation processes on relevant legislation and policy documents. The second type is restricted to non-governmental participants focusing on a specific

.org/sites/default/files/downloads/twsc_com_guidelines_single_pages_2013_may.pdf> accessed on 12 September 2017.

95 HELCOM-VASAB, ‘Mandate for the Joint Helcom-Vasab Maritime Spatial Planning Working Group’, HELCOM HOD 50-2016/72nd VASAB CSPD/BSR Meeting.

96 Baltic Marine Environment Protection Commission (n 49) 2.

97 Ibid.

98 Memorando de Entendimento entre es Governos da República Portuguesa e da República de Cabo Verde Relativo ao Programa Estratégico de Cooperação para o quinquénio 2016–2020 <http://www.instituto-camoes.pt/images/cooperacao/me_ptcv_jan2016.pdf> accessed on 17 September 2017.

ecoregion.⁹⁹ The Nordic Marine Think Tank, a network strictly reserved to the participation of experts in marine and fisheries issues and international cooperation, constitutes an example of the second type of transnational consultations on MSP.¹⁰⁰ Another example is the Wadden Sea Forum (WSF) established under the Wadden Sea tripartite cooperation. WSF is open to the participation of all key stakeholders 'so that scientists, policy-makers, resource-users and conservationists can contribute to the Strategy and Programme of the Cooperation'.¹⁰¹ In both cases, the systematic engagement in deliberations concerning specific issues and policies affecting an ecoregion contributes to the construction of (eco) regional transnational identities founded on the perception of maritime space as an item of the common (in terms of locality) public sphere.¹⁰²

6 Conclusion

MSP public participation is founded on the normative legacy of the environmental domain. Due to its comprehensive character, however, MSP contributes to the spill-over of the fundamental conceptual premises of transparency, public trust and social ownership to other maritime policy domains, especially those of an economic nature. In practice, this means broadening the spectrum of stakeholders already involved in environmental public participation processes as well as the agenda of the issues on which consensus should be pursued in order to ensure the social legitimization and sense of ownership needed for the successful conduct of MSP.

The plurality of issues dealt with in MSP ventures, as well as the increase of interested parties, has an impact on the way (good) ocean governance is perceived. The role of the state remains central, but its decision-making power

99 See Andreas Klinke, 'Democratizing Regional Governance: Public Deliberation and Participation in Transboundary Ecoregions' (2012) 12 *Global Environmental Politics* 3, 79.

100 The Nordic Marine Think Tank published proposals on an international process in decision-making in potential MSP ventures in the Nordic area. See The Nordic Marine Think-Tank, 'Proposal for improving Decision-making management procedures in environment and fisheries Cost – efficiency – democracy in selected procedures in Maritime Spatial Planning (25 January 2015)' <<http://www.nmtt.org/images/documents/topics/2014%20msp/proposal%2020150123.pdf>> accessed 17 September 2017.

101 Common Wadden Sea Secretariat, 'Wadden Sea Forum' <<http://www.waddensea-secretariat.org/management/the-wadden-sea-forum>> accessed 19 December 2017.

102 Thomas Risse, *A Community of Europeans? Transnational Identities and Public Spheres* (Cornell University Press, 2010).

seems to be eroded since the primacy of consultations among competent authorities at the national level or interstate negotiations at the international level is tempered by the logic of continuous and multilevel societal dialogue introduced by MSP. Thus, public involvement in MSP, in line with the ecosystem approach, contributes to the shift from the (inter)governmental logic of maritime governance or the realist perception of power-sharing among governmental actors, where states act as the main protagonists, to a more participatory perception of management of ocean affairs, including, apart from states, other actors such as international organizations, advocacy groups, ocean users and individuals.

This is accentuated by a number of factors. First, the high degree of specialization of international maritime relations and its reliance on scientific or technocratic expertise constrains the political rhetoric of governmental agencies. Second, the transboundary nature of maritime affairs, as well as the discussion on the prospects of MSP in areas beyond national jurisdiction, brings to the fore the role of international institutions which already serve as an MSP agora,¹⁰³ providing the political environment for deliberations among governmental but also non-state actors. Third, the prioritization of growth-oriented uses of the marine space vis à vis environmental protection as depicted in the EU approach, as well as the impact of the recent global financial crisis, seem to further enhance the role of market stakeholders in public (often informal) MSP consultations.

Additionally, the linkage of MSP to the fulfillment of the Sustainable Development Goals set by the UN Agenda 2030 during the 2017 UNESCO-EU workshop may further enhance the logic of public participation moving from consensus-seeking to the creation of multi-stakeholder partnerships in line with Sustainable Development Goal 17.¹⁰⁴ Such partnerships could further

103 According to Klabbbers, international organizations functions as a classical public agora, 'a public realm in which international issues can be debated and, perhaps, decided', J Klabbbers, 'Two concepts of international organization' (2005) 2 *International Organization Law Review* 277, 282.

104 Sustainable Development Goal 17 'Revitalize the global partnership for sustainable development' is intended to promote 'inclusive' partnerships between governments, the private sector and civil society which 'built upon principles and values, a shared vision, and shared goals that place people and the planet at the centre, are needed at the global, regional, national and local level'. The aim of the specific target on Multi-stakeholder partnerships is to '[e]ncourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships'. United Nations, 'Sustainable Development Goals' <<http://www.un.org/sustainable-development/globalpartnerships/>> accessed on 19 September 2017.

enhance the decentralization or even the delegation of certain management processes, thereby enhancing public participation in actual decision-making. However, it seems that we are still far from a post-political condition in MSP where rational consensus-building and/or hybrid partnerships among governmental and non-state agents will guide decision-making.¹⁰⁵

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¹⁰⁵ See RV Tafon, 'Taking Power to Sea: Towards Post-structuralist Theoretical Critique of Marine Spatial Planning' (2017) 36(2) *Environment and Planning C: Politics and Space* 258.

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and the University of the Aegean, Lesvos, May 2015, <http://www.symposia.gr/wp-content/uploads/2015/06/MSP_declaration_web.pdf> accessed on 2 September 2017.

Veidemane K, 'Stakeholder involvement in development of the Maritime Spatial Plan of Latvian waters' (2015), <https://www.bonusportal.org/files/4063/Kristina_Veidemane_Baltic_Environmental_Forum_Latvia.pdf> accessed on 18 December 2017.

Embedding Law in Participatory Processes Enables an Ecosystem Approach to Marine Decision Making: Analysis of a North Sea Example

Anne-Michelle Slater and Alison MacDonald

1 Introduction

In Scotland, marine spatial planning (MSP) is still both a new idea and a new legal process. The legislation and policy enacted and developed to implement MSP has been subject to a long gestation period followed by extensive consultation.¹ The recent development of laws in the UK and Scotland reflects a particular UK and Scottish perspective on MSP but also the emerging EU law and policy on maritime spatial planning.² Integral to the new MSP regime is the requirement to adopt and enshrine in law an ecosystem approach to marine decision-making.³ Implementing the ecosystem approach is a novel and challenging idea, in terms of both process and outcomes. There is also no generally accepted method for its implementation in marine planning.

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- 1 SP Bill 25 Marine (Scotland) Bill [as introduced] Policy Memorandum Session 3 (2009) <[www.parliament.scot/S3_Bills/Marine%20\(Scotland\)%20Bill/b25s3-introd-pm.pdf](http://www.parliament.scot/S3_Bills/Marine%20(Scotland)%20Bill/b25s3-introd-pm.pdf)> accessed 30 November 2017; Marine Scotland, Scotland's National Marine Plan Sustainability Appraisal Post Adoption Statement (March 2016) <www.gov.scot/Resource/0049/00498327.pdf> accessed 14 November 2017.
 - 2 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) [2008] OJ L164/19. It is noted that Directive 2008/56/EU has subsequently been amended by Commission Directive (EU) 2017/845 [2017] OJ L125/27. Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for marine spatial planning [2014] OJ L257/135.
 - 3 Article 5 (1) of MSP Directive requires an ecosystem approach 'When establishing and implementing maritime spatial planning, Member States shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses.' Article 3 (5) of the MSFD which provides the definition of GES states 'Adaptive management on the basis of the ecosystem approach shall be applied with the aim of attaining good environmental status.'

The Cooperative Participatory Evaluation of Renewable Technologies on Ecosystem Services (CORPORATES) Project, which provides the foundation for this chapter, was based on the documented demand for a decision making framework that could balance socio-economic and ecological issues.⁴ The interdisciplinary research group assembled for CORPORATES proposed to build on earlier research that concluded that such a framework would enable implementation of the ecosystem approach and in particular could facilitate policy development.⁵ It was clear that across disciplines, and emerging relatively rapidly, there was a growing body of academic thought, working practices, and policy contexts around the implementation of the ecosystem approach in general terms. The CORPORATES project therefore, proposed that this expertise could be combined with that of those who had direct experience and knowledge of the marine environment in Scotland, to work together to develop a clear process that implemented the ecosystem approach in marine planning decisions.

The project sought to address three questions. First, could a process be developed that linked ecosystem services with MSP? Second, could the role of the law be maximised to enable and enhance the development and implementation of the process? Third, could a process be developed which increased acceptance and understanding by all stakeholders in decisions to locate large scale Marine Renewable Energy installations (MRE)? The project worked over an 18-month period to develop such a process, which, after testing, was considered to have answered these questions in the affirmative. The overall conclusions were threefold: first, that the process built a greater and shared understanding of the ecological and policy linkages and interactions; second, that the deliberative techniques developed in the context of environmental services and ecological trade-offs can reduce conflicts and facilitate planning; third, that the decision support system that was developed should be employed early in the planning process for maximum impact.⁶ A unique feature of the CORPORATES project was the use of real-life cases, in the form of four large offshore wind farms proposed in the North Sea,⁷ where varied traditional uses

4 Christina P Wong and others, 'Linking ecosystem characteristics to final ecosystem services for public policy' (2015) 18:1 Ecology Letters 108.

5 Ibid.

6 BE Scott and others, 'The Cooperative Participatory Evaluation of Renewable Technologies on Ecosystem Services (CORPORATES)' 2016 Scottish Marine and Freshwater Science Vol 7 No 1.

7 Inch Cape; Neart na Gaoithe and SeaGreen Alpha and Bravo.

and interests coincide in space and time, including proposed offshore wind-farms and recently designated Marine Protected Areas (MPAs).⁸

This chapter, which is in four parts, is a detailed examination of the legal and policy position to support the development of this decision support process and in particular the ecosystem approach to marine planning in Scotland. The next part sets out the legal and policy context for the research project. It addresses the question as to what law and policy is required to implement MSP in Scotland and considers in detail how the law and policy are used to enshrine the use of the ecosystem approach in MSP. It also describes the real life MRE applications upon which this project was based. The chapter then moves on to discuss the wider CORPORATES project, explaining how the participatory tool was developed by the interdisciplinary team and then tested through stakeholder workshops. The final part discusses in detail the role of law in the project. Analysis reveals that the existing regulatory framework in Scotland, although complex, is appropriate and can be effective in implementing the ecosystem approach in MSP. However, the research showed that in order to be effective, the law and policy had to be fully embedded within the participatory processes to enable an ecosystem approach in MSP to be implemented. The research also provided methods and ways of doing this. It has been shown that this active use of law and policy can be pivotal to the implementation of the ecosystem approach in Scotland. It is considered that these conclusions and lessons can be used elsewhere to implement the ecosystem approach as part of MSP both at regional and international scales.

2 Legislative and Regulatory Framework

As it happens, Scotland can be regarded as being globally at the forefront of the development of a marine spatial planning regime. This is evidenced by the production in recent years of a significant number of legal and policy instruments,

8 Inch Cape, 15–22 kilometres east of the Angus coastline on the east coast of Scotland, UK comprising of up to 110 wind turbine generators with a gross electrical output capacity of 784 MW. Neart na Gaoithe 15.5 kilometres to the east of Fife Ness in the Firth of Forth on the east coast of Scotland comprising of up to 75 wind turbine generators of not more than 6 MW each with a gross electrical output capacity 450 MW. SeaGreen Alpha 27 kilometres east of the Angus coastline and comprising of not more than 75 three-bladed horizontal axis wind turbine generators and a permitted generating capacity not exceeding 525 MW. SeaGreen Bravo 38 kilometres east of the Angus coastline comprising of not more than 75 three-bladed horizontal axis wind turbine generators and a permitted generating capacity not exceeding 525 MW. The first MPAs of the Scottish MPA Network were designated on 24th July 2014 in the North Sea.

most particularly the Scottish National Marine Plan of 2015.⁹ The development of a legislative and regulatory framework to introduce new concepts, such as MSP and complex processes like the ecosystem approach, requires detailed explanation. This was the starting point for the lawyers in the project and also for the discussion in this chapter. This review of the relevant law looked at the source of the legal authority, as well as what the law actually required. It was also noted that there is an intricate interrelationship between MSP legislation and policy, which together underpin the requirement for an ecosystem approach in MSP in Scotland. This section starts, therefore, by setting out the wider constitutional and legislative issues. It then considers the law and the policy that implemented marine planning, before discussing the legal framework for implementing the ecosystem approach.

2.1 *The Development of MSP and Wider Constitutional and Legislative Issues in Scotland*

In Scotland, the development of the legal and policy framework for MSP and the ecosystem approach is evolving within the context of complex devolved arrangements from the UK government.¹⁰ In terms of law, the geographical extent/scope of Scotland 'includes so much of the internal waters and territorial sea of the United Kingdom as are adjacent to Scotland'.¹¹ In terms of transfer of power from the UK to the Scottish government the basic premise of Scottish devolution is that only matters reserved to the UK government are set out in the legislation. If a matter is not reserved then it is devolved.¹² This means that the sea from 12 nautical miles (nm) to the edge of the exclusive economic zone (EEZ) and the seabed of the continental shelf is part of the UK. The development and implementation of MSP presents challenges within this complex regulatory framework, as in the years since devolution, an intricate web of powers and legislation governing activities within the marine environment has developed in Scotland. Under the devolution arrangements some powers have been executively devolved, which enables the Scottish Ministers to exercise statutory functions within their devolved competence. These statutory functions are specified in legislation governing different activities. For example, the Marine and Coastal Access Act 2009 governs the process of

9 Marine Scotland, *Scotland's National Marine Plan: A Single Framework for Managing Our Seas*, The Scottish Government (March 2015).

10 The Scotland Act 1998 c.46 substantially amended by *inter alia* the Scotland Act 2012 c.11 and the Scotland Act 2016 c.11. The European Union (Withdrawal) Bill 2017–18 (HL Bill 79) is expected to change these devolution arrangements further.

11 Scotland Act 1998 c.46 s.126 (1).

12 Scotland Act 1998 c.46 Schedule 5 Part I General Reservations, Part II Specific Reservations.

marine planning in the Scottish offshore area (i.e. 12 nm – the edge of the continental shelf).¹³ This is a prime example of executive devolution. The Scottish Parliament, however, has no authority to change the legislation. In regard to marine spatial planning, in Scottish waters, this means that there are two pieces of relevant legislation: the Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010. The former enables the Scottish Ministers to create a marine plan for the offshore area adjacent to Scotland,¹⁴ while the latter obliges them to create a marine plan for the territorial sea adjacent to Scotland.¹⁵ Notwithstanding the complexity of the constitutional and legislative arrangements the legislation enables a workable solution in terms of creating a legislative and regulatory framework for MSP. This has facilitated the adoption of Scotland's National Marine Plan which extends to the EEZ.

2.1.1 Implementing Marine Planning in the UK and Scotland

MSP in UK waters, including Scotland, is characterised by the creation of marine spatial plans within an overarching policy framework of the 2011 Marine Policy Statement (see below).¹⁶ It should be noted that there is no separate MSP 'planning permission' regime, but decisions by public authorities must be taken in accordance with the appropriate marine spatial plans, unless relevant considerations indicate otherwise.¹⁷ Marine planning in Scotland is, therefore, a process of making decisions for the marine environment in the context of marine policies and plans. Planning is implemented through marine licencing decisions, which must have regard to the appropriate marine plans.

Decisions under the Scottish MSP regime require consideration of certain criteria set down by the legislation, including that decisions should be taken in the context of sustainable development and the ecosystem approach.¹⁸ If the decision is not in conformity with the plan, the authorities must state their reasons for this.¹⁹ When considering marine license applications, the Scottish Ministers must 'have regard to the need to (i) protect the environment, (ii) protect human health, [and] (iii) prevent interference with legitimate uses of

13 Marine and Coastal Access Act 2009 c.23 Part 3 ss.49–54 read with schedule 6 and s. 322.

14 Marine and Coastal Access Act 2009 c.23 s.51.

15 Marine (Scotland) Act 2010 asp 5 s.5 (1).

16 Marine and Coastal Access Act 2009 c.23 ss 44–48 and schedule 5.

17 Marine (Scotland) Act 2010 asp 5 s.15(1) and Marine and Coastal Access Act 2009 c.23 s.58 (1).

18 Marine (Scotland) Act 2010 asp 5 s.3; and Marine and Coastal Access Act 2009 c.23 s.58 (1).

19 Marine (Scotland) Act 2010 asp 5 s.15 (2) and Marine and Coastal Access Act 2009 c.23 s.58 (2).

the sea'.²⁰ Decisions must also be made in accordance with the Marine Policy Statement (MPS) which provides the policy framework for the marine planning systems, including the system being developed in Scotland.²¹

2.1.2 Marine Policy Statement (MPS)

The Marine Policy Statement (MPS) produced in 2011 was jointly adopted by the relevant 'home nations' Ministers for all parts of the United Kingdom.²² It is not a spatial document but provides the foundation on which spatial documents (plans) are being developed. The MPS states that marine planning in the United Kingdom will:

- achieve integration between different objectives;
- recognize the demand for use of our seas and the resulting pressures on them will continue to increase;
- manage competing demands on the marine area, taking an ecosystem approach;
- enable the co-existence of compatible activities wherever possible; and
- integrate with terrestrial planning.²³

It is divided into five parts: an introductory context, three chapters, and a conclusion. Chapter one 'sets out the role of the Marine Policy Statement (MPS) within the wider marine planning system and its interaction with existing planning regimes'.²⁴ Chapter two identifies the 'high level approach to marine planning' adopted within the UK and sets out the 'general principles for decision making that will contribute to achieving' the vision.²⁵ It does this by identifying 'the framework for environmental, social and economic considerations that need to be taken into account in marine planning'.²⁶ Chapter three is a collation of policy objectives for key marine activities within the UK. It also provides guidance for planners and decision makers 'on the pressures and impacts associated with these activities, which will need to be considered when planning for and permitting development in the UK marine area'.²⁷

20 Marine (Scotland) Act 2010 asp 5 s.27(1)(a); and Marine and Coastal Access Act 2009 c.23 s.69(1).

21 Marine and Coastal Access Act 2009 c.23 s.58 (5) and (6).

22 HM Government, Northern Ireland Executive, Scottish Government, Welsh Assembly Government, *Marine Policy Statement* (The Stationary Office 2011).

23 *Ibid.*, 4.

24 HM Government (2011) (n 22) 7.

25 HM Government (2011) (n 22) 10.

26 *Ibid.*

27 HM Government (2011) (n 22) 26.

2.1.3 Scotland's National Marine Plan

Scotland's National Marine Plan (SNMP) was published in March 2015²⁸ after an extensive period of consultation.²⁹ It follows the general guidance established by the MPS, but goes further in that it sets out Scotland-wide high level policy objectives, including spatial guidance for all aspects of the seas and the marine environment. Covering both the inshore (0–12 nm) and offshore (12–200 nm) marine environment, the plan aims to provide a comprehensive overarching framework for all marine activity. It is intended to enable sustainable development and use of the marine area in a way that will protect and enhance the marine environment, whilst promoting both existing and emerging industries.³⁰

The plan has 16 chapters and 3 appendices. The appendices pinpoint:

1. ecosystem goods and services;
2. strategic objectives, which include the descriptors for good environmental status (GES) and the High Level Marine objectives contained in the MPS;
3. a summary of assessment information from Scotland's Marine Atlas, which informed development of the plan.

Chapters 1 to 3 provide the context for the development of the marine plan and identify the vision, objectives and approach to the policies. Chapter 4 sets out twenty-one general planning policies to guide decision makers which 'apply to all development and use'.³¹ Key general policies are illustrated below and are 'supplemented' by the sectoral chapters which are set out in chapters 6 to 16 of the plan. Chapter 5 offers an overview for the sectoral chapters.

The general planning policies include

1. A presumption in favour of sustainable development consistent with the plan.
2. Sustainable development to provide economic benefits for Scotland consistent with the plan.
3. Sustainable development to provide social benefits for Scotland consistent with the plan.
4. Co-existence of activities consistent with the plan.

²⁸ Marine Scotland (2015) (n 9).

²⁹ Rural Affairs, Climate Change and Environment Committee, Scottish Parliament, 2nd Report 2015 (Session 4) *Report on Scotland's Marine Plan* (Scottish Parliament, 30 January 2015).

³⁰ Marine Scotland (2015) (n 9) 15–16.

³¹ Marine Scotland (2015) (n 9) 15.

5. Marine planners and decision makers required to act in the way best calculated to mitigate, and adapt to, climate change.³²
6. Historic environments should be protected in proportion to their significance.³³

Having set out in overview the relevant law and policy to implement MSP in Scotland, this part now considers in detail what the law requires in relation to the ecosystem approach and how this relates to the policy.

2.2 *The Legal Framework for Implementing the Ecosystem Approach*

There are three requirements in the Marine and Coastal Access Act 2009 (the 2009 Act) which directly relate to the implementation of the ecosystem approach to MSP in Scotland. First, the 2009 Act requires that a Marine Policy Statement (MPS) be prepared and adopted.³⁴ As noted above, the MPS is a framework for marine planning in UK waters. It is this policy document which requires an ecosystem approach to marine planning. The 2009 Act also requires that all marine plans must be in conformity with the MPS, unless relevant considerations indicate otherwise.³⁵ Together the MPS and Marine plans are defined as marine policy documents.³⁶ Finally, the 2009 Act requires that, in taking decisions in relation to UK marine waters, public authorities must do so in accordance with the appropriate marine policy documents, unless relevant considerations indicate otherwise.³⁷

The UK legislation, therefore, requires that an overarching framework policy be created for all UK waters. A guiding principle of this policy is that an ecosystem approach must be adopted for all UK marine planning. This is achieved by the legislation requiring that the MPS, which promotes the ecosystem approach, must be followed in all other marine plans and policy documents. The ecosystem approach is therefore cascaded down from the MPS to other marine plans. The legislation has enshrined a plan-led approach which expects that the marine plans and the MPS will be followed in making decisions. This gives primacy to the plans and therefore to the ecosystem approach.

There are also three requirements in the Marine (Scotland) Act 2010 which directly relate to the implementation of the ecosystem approach to MSP in Scotland. First, Scottish Ministers and public authorities must act in a 'way best calculated to further the achievement of sustainable development,

32 Marine Scotland (2015) (n 9) 18.

33 Marine Scotland (2015) (n 9) 19.

34 Marine and Coastal Access Act 2009 c.23 ss.44–48 read with schedule 5.

35 Marine and Coastal Access Act 2009 c.23 s.51 (6).

36 Marine and Coastal Access Act 2009 c.23 s.59.

37 Marine and Coastal Access Act 2009 c.23 s.58 (1).

including the protection and, where appropriate, enhancement of the health of that area, so far as is consistent with the proper exercise of that function'.³⁸ Second, the process of preparing and adopting a Marine Plan includes an assessment of the current condition of the marine area and a summary of pressures and impacts. Moreover, it requires the Scottish Ministers to set economic, social and marine ecosystem objectives.³⁹ Finally, decisions by Scottish Ministers and public authorities must be taken in accordance with the marine plans, unless relevant considerations indicate otherwise.⁴⁰

The Scottish legislation, therefore, also requires a plan-led approach to marine planning. Marine Plans in Scotland must follow the MPS and therefore promote an ecosystem approach to marine planning. These plans must also be followed in decision making unless relevant considerations indicate otherwise, thereby ensuring the primacy of the plan and the primacy of the ecosystem approach. In Scotland there is also a specific duty to further the achievements of sustainable development, including the protection and, where appropriate, enhancement of the health of a particular area, so far as it is consistent with the proper exercise of that function.⁴¹ There is no definition of sustainable development within the Scottish marine planning legislation. The concept, however, is widely recognised as having 3 equal pillars: economic, environmental, and social. The ecosystem approach enables the environmental pillar to be actualised in policy development and decision making. In Scotland, therefore, an ecosystem approach is not only required by law, in terms of requirements relating to the MPS, but also by the duty to further the achievement of sustainable development, when exercising any function within the Scottish marine area and by the requirement to set economic, social, and marine ecosystem objectives during the marine planning process.

Having set out the requirements in law, the role of policy in implementing the ecosystem approach will be considered in detail. First, however, it is appropriate to consider the relationship between law and policy. It has been pointed out that one of the keys to understanding the (terrestrial planning) system is recognising the differences between law, which must be observed at all times, and policy, which is not binding with departures permitted in individual cases.⁴² In the marine environment, the law provides the basis for

38 Marine (Scotland) Act 2010 asp 5 s.3.

39 Marine (Scotland) Act 2010 asp 5 s.5.

40 Marine (Scotland) Act 2010 asp 5 s.15.

41 Marine (Scotland) Act 2010 asp 5 s.3.

42 Neil Collar, *Planning* (4th ed. W. Green 2016).

decision making as part of the marine spatial planning regime and this enables the incorporation of policy into decisions made in the marine environment. The law requires policies to be developed (e.g. publication of the National Marine Plan is a duty of the Scottish Ministers). Such plans and policies provide numerous benefits. First, they provide certainty for developers. Second, they facilitate implementing conservation obligations. Third, they provide opportunities for public involvement and participation. Fourth, they promote consistent decision making. Conversely, it is essential to note that what the law seeks to discourage is the blind unthinking application of policy. It does this by providing the decision maker with wide discretionary powers to depart from the plan, when relevant considerations indicate that this is required.⁴³ This facilitates an adaptive approach to decision making within the marine environment. The weight attached to the policies is for the decision maker to determine, however, interpretation of these policies is a matter of law.⁴⁴

The Marine Policy Statement (MPS), as discussed above, is a comprehensive policy framework for implementing marine planning. It provides the high-level policy context within which national and subnational marine plans will be developed. In so doing it also sets the direction for marine licensing and other relevant authorisation systems. It specifically states that the process of marine planning will manage competing demands in the marine area, taking an ecosystem approach.⁴⁵ It provides a practical interpretation of the ecosystem approach by reference to Regulation 5 of the Marine Strategy Regulations 2010.⁴⁶ These Regulations transpose the requirements of the EU Marine Strategy Framework Directive into UK law. The definition in the MPS is as follows: '[a]n ecosystem based approach to the management of human activities means an approach which ensures that the collective pressure of human activities is kept within the levels compatible with the achievement of good environmental status; that does not compromise the capacity of marine ecosystems to respond to human induced changes; and that enables the sustainable use of marine goods and services'.⁴⁷ The MPS, therefore, requires that an ecosystem approach be adopted for marine planning – both plan making and decision making. Although the MPS is a policy document, the process of decision making, which requires that the MPS (and therefore the ecosystem

43 Marine (Scotland) Act 2010 asp 5 s.15 (1) and Marine and Coastal Access Act 2009 c.23 s.58 (1).

44 *Millar Homes Ltd v Scottish Ministers* [2015] CS1H 20.

45 HM Government (2011) (n 22) 4.

46 The Marine Strategy Regulations 2010 S.I. 2010/1627.

47 HM Government (2011) (n 22) 4.

approach) is taken into account, is set down in the legislation and therefore must be followed.

Scotland's Marine Plan sets out the vision, objective and approach to policies. Referencing the definition of the ecosystem approach identified in the MPS, Scotland's Marine Plan states that the plan 'promotes an ecosystem approach by putting the marine environment at the heart of the planning process to promote ecosystem health, resilience to human induced change and the ability to support sustainable development and use'.⁴⁸ Scotland's Marine Plan, like the MPS connects 'an ecosystem based approach to the management of human activities'.⁴⁹

For example, it states that:

The ecosystem approach is reflected in the adoption as strategic objectives of the 11 Descriptors of Good Environmental Status (Annex B), set out in the Marine Strategy Framework Directive. These 11 Descriptors represent an attempt to identify the key aspects of ecosystem structure and function, with relevant targets and indicators being set in conjunction with neighbouring states at the broad scale of the Celtic Seas and the Greater North Sea.⁵⁰

2.2.1 Regional Marine Plans

Regional planning was always considered to be an essential part of the overall marine planning vision for Scotland.⁵¹ In May 2015 (as the research project was concluding) the boundaries for 11 marine regions were finalised.⁵² A regional marine plan will be created to guide and assist all decision making in these marine areas. At the time of writing, two Regional Marine Planning Partnerships have been established.⁵³ The overall framework for implementing the ecosystem approach (set out above) applies to the development of the plans made by marine planning partnerships,⁵⁴ and to the decisions that are made within the areas where regional marine plans have been created.⁵⁵

48 Marine Scotland (2015) (n 9) 11 paragraph 3.4.

49 HM Government (2011) (n 22) 16–21; Marine Scotland (2015) (n 9) 12.

50 Marine Scotland (2015) (n 9) 12 paragraph 3.6.

51 SP Bill 25 Marine (Scotland) Bill [as introduced] Policy Memorandum Session 3 (2009) para 22.

52 Scottish Marine Regions Order 2015 SS1 2015/193.

53 The Delegation of Functions (Regional Marine Plan for the Scottish Marine Region for the Clyde) Direction 2017, The Delegation of Functions (Regional Marine Plan for the Scottish Marine Region for Shetland) Direction 2016.

54 Marine (Scotland) Act 2010 asp 5 s.5 read with schedule 1 and s.6.

55 Marine (Scotland) Act 2010 asp 5 s.15 (4) (b) (ii).

2.2.2 Terrestrial Planning

The existing legislative and regulatory framework in Scotland acknowledges the need for integration of the marine and terrestrial planning regimes.⁵⁶ To date this has been achieved by statutory consultation, aligning plans and by an overlap of plans within the intertidal areas.⁵⁷ The terrestrial planning legislation in Scotland requires its plans to contribute to sustainable development, but it falls short of requiring an ecosystem approach for town and country planning.⁵⁸

2.2.3 MRE: the Real Life Scenarios

The CORPORATES project used real-life cases, in the form of 4 large offshore wind farms proposed for the Firth of Forth and the Firth of Tay, in the North Sea, Scotland, UK⁵⁹ (See Figure 9.1). Each of these projects was subject to a number of pre- and post-application consultations, authorisations, and licensing processes.⁶⁰ The main consent for each proposal was a section 36 application under the Electricity Act.⁶¹ This determination being made in the context of the Marine Acts, therefore requiring implementation of the ecosystem approach.⁶² The principal issues material to the merits of the application included the adequacy of the environmental information and the consultation undertaken to assess the impact of the development.⁶³ After a lengthy process the decision to grant all the section 36 applications, subject to conditions, was made by the Scottish Ministers on the 10th October 2014.

56 Scottish Government, *The Relationship between the Statutory Land Use Planning System and Marine Planning and Licensing* (Planning Circular 1/2015, June 2015).

57 Marine Scotland (2015) (n 9) 31. General policy 15 Good governance Marine and terrestrial plans should align to support marine and land-based components required by development and seek to facilitate appropriate access to the shore and sea. GEN 15.

58 Town and Country Planning (Scotland) Act 1997 c.8, s. 3D and s.3E.

59 Ibid. (N8).

60 Consent under s. 36 of the Electricity Act 1989 c.29; marine licences under the Marine (Scotland) Act 2010 asp 5 and the Marine and Coastal Access Act 2009 c.23. Submission of Environmental Assessments under the Electricity (Applications for Consent) Regulations 1990, S.I.1990/455; The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000, S.S.I. 2000/320 (as amended) and the (as amended). Submission of Habitats Regulation Appraisal under Conservation Natural Habitats, & c.) Regulations 1994, S.I. 1994/2716 (as amended) and the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007, S.I. 2007/1842.

61 Electricity Act 1989 c.29.

62 The Marine Acts consist of the Marine and Coastal Access Act 2009 c.23 and the Marine (Scotland) Act 2010 asp 5.

63 The other principal issues were: decommissioning, economic development, renewable energy policies, consultation responses and the integrity of the European protected sites.

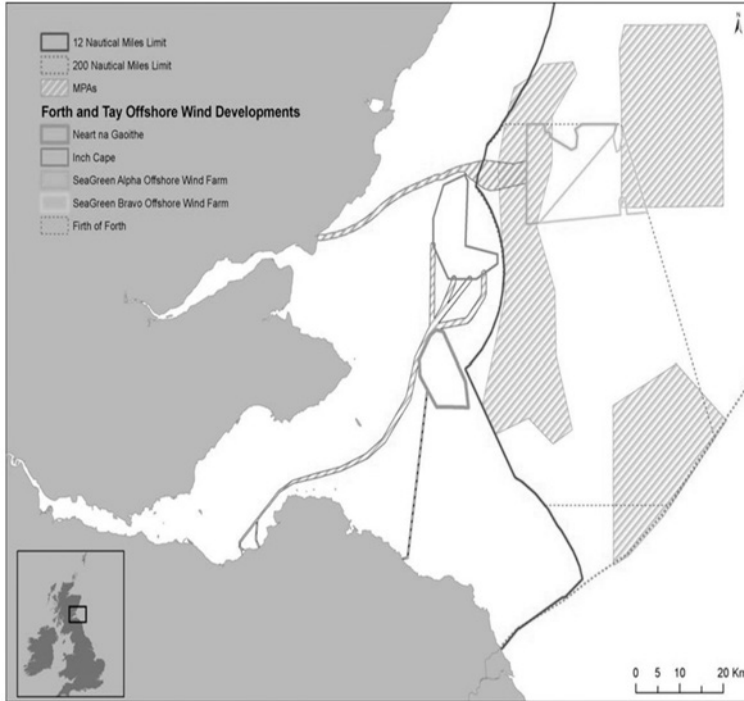


FIGURE 9.1 Windfarm proposals

SOURCE: ANDRONIKOS KAFAS

The licenses incorporate numerous conditions relating to environmental issues, including the provision of additional actions and information for further approval before commencement of work.⁶⁴ These decisions were subject to a series of ultimately unsuccessful judicial review challenges.⁶⁵

64 For example, submission of an Environmental Management Plan for approval from Scottish Ministers. To mitigate the impacts on environmental interests during construction and operation.

65 *Royal Society for Protection of Birds, Scotland (the RSPB) v The Scottish Ministers and Seagreen Energy Limited P30/15 (Seagreen Bravo)* [2016] CSOH 105; *Royal Society for Protection of Birds, Scotland (the RSPB) v The Scottish Ministers and Seagreen Energy Limited P31/15 (Seagreen Alpha)* [2016] CSOH 106; *Royal Society for Protection of Birds, Scotland (the RSPB) v The Scottish Ministers and Neart na Gaoithe Offshore Wind Limited P29/15* [2016] CSOH 104; *Royal Society for Protection of Birds, Scotland (the RSPB) v The Scottish Ministers and Inch Cape Offshore Limited P28/15* [2016] CSOH 103; *Royal Society for Protection of Birds, Scotland (the RSPB) v The Scottish Ministers and first Inch Cape Offshore Limited and second Neart na Gaoithe Offshore Wind Limited and third Seagreen Energy Limited P28/15* [2017] CSIH 31. Following the Inner House of the Court of Sessions decision of May 2017 to overturn the

Having provided the context in the form of the legal and regulatory framework for MSP and the ecosystem approach, as well as key details about the real-life applications for offshore windfarms in Scotland, the next part of this chapter considers the CORPORATES project in detail.

3 The CORPORATES Project

3.1 *Context and Use of the 'Live' Case Studies*

The CORPORATES interdisciplinary project sought to develop a process for knowledge exchange around marine ecosystem services within the context of marine spatial planning decisions.⁶⁶ An important novel aspect of the project was its use of real-life cases of proposed offshore wind farms as described above. It is important to note that although the research project process centred on 'live' decision making cases, they were chosen as a wide range of stakeholders could be identified, who could then focus attention on engaging with the participatory process during the research project workshops. It was extremely helpful to use examples that had already been through the consultation and public participation process as part of the decision making regime. The aim was not to influence the decision making in the actual cases.

decision of the Outer House which had revoked the consents granted to the developers, the RSPB applied for leave to appeal to the Supreme Court. This application was refused by the Inner House of the Court of Session on 19th July 2017. On the 17 August 2017, the RSPB applied directly to the Supreme Court for permission to appeal against the Inner House decision. See: RSPB, Casework, Forth and Tay Windfarms <www.rspb.org.uk/about-the-rspb/about-us/media-centre/press-releases/rspb-scotland-plans-to-appeal-offshore-wind-farm-judicial-review/> accessed 28 September 2018. The Supreme Court refused this application on 7th November 2017 stating that 'the application does not raise an arguable point of law of general public importance which ought to be considered at this time, bearing in mind that the case has already been the subject of judicial decision and reviewed on appeal'. See: The Supreme Court, Permission to appeal decisions, The Royal Society for the Protection of Birds (RSPB) (Appellant) v The Scottish Ministers and others (Respondents) (Scotland) – UKSC 2017/0143 <www.supremecourt.uk/news/permission-to-appeal-decisions-07-november-2017.html> accessed 9 November 2017.

66 Partners included Aberdeen University (project lead) (Biological Sciences, Geography and Law), the Scottish Association for Marine Studies, Marine Scotland Science and the James Hutton Institute. The project design and delivery was highly trans-disciplinary, involving experts with backgrounds in ecology, oceanography, marine management, policy, law, environmental psychology, anthropology and ecological economics as well as public and private sector stakeholders.

These specific decisions and the precise process that was followed during the application procedure were part of the *CORPORATES* project, only insofar as they provided the location and examples for the case study areas in the Firths of Forth and Tay. The details of the individual applications were not interrogated, although the process and procedure by which the licensing applications had been made was an important context for the project. The fact that the development of the participatory process used 'live' existing applications, but only as case studies, was emphasised during both of the workshops discussed below.

3.2 *CORPORATES: Workshop 1*

The first main project task for the research team was to identify and secure an appropriate range of stakeholders who could commit to two days (some months apart) to attend the project workshops. This was successfully achieved, with participation by representatives from the marine renewable energy industry, marine regulators and advisers being brought together with representatives of fishing organisations, non-governmental organisations (NGOs), tourism operators, recreationalists and local government. The *CORPORATES* research team then devised appropriate activities to identify existing knowledge and quickly develop shared understandings within and across the stakeholders participating in the workshop. In the first workshop the sectoral representatives (fisheries, conservation and recreation) physically drew on hard copy maps of the project area to identify specific areas and activities of importance to their sector. These were then displayed and discussed by all participants. The sector groups then created lists of benefits derived from the mapped activities, which were compared in order to identify commonalities and differences. The main objective of the first workshop was to introduce stakeholders to the concept of Environmental Services (ES). The workshop activities facilitated stakeholders to link ES to the benefits derived by all in the case study area.

3.3 *CORPORATES: Workshop 2*

In the period between the two workshops, the research team grouped the benefits identified by the stakeholders into broader categories and linked them to three key ES for the project: fish and shellfish; climate regulation; and seascape.⁶⁷ In the second workshop participants from different sectors now

67 U.K. National Ecosystem Assessment (UK NEA) Progress and Steps Towards Delivery, Cambridge: UNEP-WCMC (February 2010) <<http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=LdV3vMdXFeY%3D&tabid=105>> accessed 30 November 2017.

worked together, still in small groups, to link the different categories and benefits back into the three key ES. Each mixed sector group then created their own conceptual system model (CSM) in order to explore interactions and feedback between ecological processes and associated features, benefits, and activities / actions. The development of the CSM started from ecological processes that constitute the base of the food chain, up through species and habitat diversity, to ES benefits and activities such as current fishing, future windfarm development, and MPAs, showing the links between all these aspects. Each group was facilitated by members of the CORPORATES project team in their development of the CSM. Consensus was required by the mixed sector group of stakeholders. Participants could return to reprise areas of concern and dispute within their group, but ultimately it was the ability to balance trade-offs that encouraged agreement. Once the CSM was finalised the mixed groups discussed the potential impacts of relevant law and policy developments concerning key areas, including fisheries, climate change and conservation. Finally, individual participants were invited to write out their personal opinions on possible future priorities for ES benefits and activities that would enhance the ability of a mixed group to reach consensus. The project aim was to develop a 'hands on' way of generating a shared understanding of the interlinkages among different aspects of the marine ecosystem and the benefits derived from it. Specifically, the workshop activities and shared learning objectives were to develop a tool that would enable trade-offs to be agreed through the process, which would facilitate both the approval of MRES and the development of holistic policy for the marine environment.⁶⁸

3.4 *Knowledge Exchange, Shared and Institutional Learning*

The workshops were designed to draw out individual participants' information and knowledge, which then collectively enabled a group to work together to enhance awareness and to reach consensus. Initially through discussion around mutual benefits derived from ES and then by building the CSM. The shared knowledge gained through the activities within the workshops was augmented by seminars which provided learning about pertinent aspects of the project.⁶⁹

68 The CORPORATES approach was tested on current and future Scottish Marine Regions planners through a workshop sponsored by the Marine Alliance for Science and technology for Scotland (MASTS) and Marine Collaboration Research Forum (MarCRF) June 2015.

69 The seminars were referred to as interludes during the workshops and in the Report the topics were: marine ecosystem function, intermediate and final ecosystem services, and law and policy. BE Scott and others (n 6) 4 and 51.

The seminar topics were ones where it was understood that explanation by experts would enhance the overall learning experience and contribute to the ability of the group to reach consensus. The importance of understanding the role of law and its relationship to policy was one of these key areas. A seminar on the legislative and regulatory framework was included in workshop 2.

The whole process of developing the decision making framework was an active and iterative one. In relation to the legal side of the project, there were a number of actions and activities that arose as part of the development process. The benefit of a knowledge exchange project is the opportunity to share knowledge and expertise with those from a related area, but with different skills and baseline information. The questions and early conclusions by the CORPORATES project group challenged assumptions and required each speciality to present their knowledge in a way that was suitable for an interdisciplinary group and also to most effectively contribute to the project. The CORPORATES project group as a whole (researchers and stakeholders) had research experience in marine matters and/or in participatory processes and/or ES. In relation to law, there was a variety of awareness of the relevant MSP and ecosystem approach law and policy, with some participants possessing intricate knowledge of policy development or specialist knowledge in certain areas (e.g. fisheries or public participation). This enabled elucidation of the way decisions are made, which in turn contributed to the development of the decision making tool. Challenges encountered included comprehension of the relationship between Scottish law, EU law, and international law. In particular, explanation of the legal duties of applicants, decision makers and others relating to public participation, particularly the wider legal context for public engagement beyond the MSP legislation, was necessary to enable development of the participatory tool. The key finding from this part of the research project was that there is real value in experts explaining the law. The MSP statutory provisions are complex and multi-layered due to both the wider international and EU context and the UK/Scotland devolution arrangements. They also relate to a process of decision making which is intricately linked to policy.

During the research project, the identification of activities and benefits by the stakeholders broadened the scope of laws that were reviewed. It became clear that relevant laws extended far beyond the legislative and regulatory framework for MSP and the ecosystem approach. For example, to enable activities such as bird watching or recreational fishing, parking facilities are

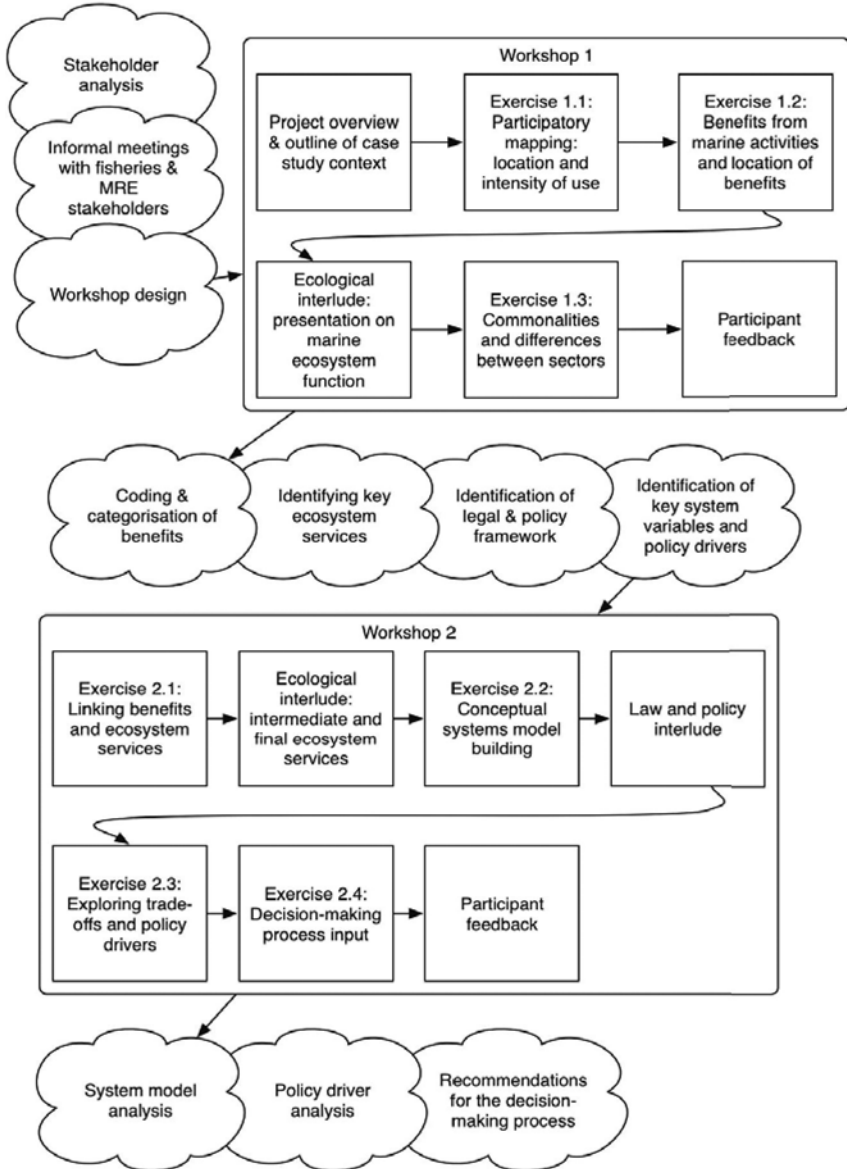


FIGURE 9.2 CORPORATES methodology
SOURCE: ANDRONIKOS KAFAS

required, and access to land is needed.⁷⁰ Furthermore, these activities must be carried out with regard to the species concerned.⁷¹

After the first workshop, three main areas of law were identified that would tie in the learning around ES and assist in the creation of an appropriate and effective CSM: fishing; offshore wind; and the recreational use of the coastal area through access to land/sea. The laws governing these activities were, therefore, researched and connected with MSP and the ecosystem approach. A briefing report was prepared for the CORPORATES project group with large scale mind maps used to provide a visual representation of the extent and range of primary and secondary legislation in these areas.⁷² The wider legal context was then considered in detail by the project team in the preparatory workshop meetings, and as can be seen in Figure 9.2. The provision of this legal research enhanced the overall knowledge exchange and enabled an informed discussion about the effects of the implementation of MSP and the ecosystem approach on other activities during workshop 2.

3.5 *Feedback and Outcomes from the Workshops*

Feedback from the stakeholders who attended workshops and tested the participatory process completed the research. This feedback highlighted the benefits of cooperative learning and discussion, particularly across sectors, within a marine ecosystem services approach in marine planning processes. Overall, the feedback concluded that the method developed was effective for a number of reasons. First, it enabled the co-production of information between researchers from many disciplines and researchers from a wide variety of sectors. Second, the method effectively embedded the use of law and policy in the

70 For example, under s.32 of the Road Traffic Regulation Act 1984 c.27 local authorities may provide parking facilities. Local authorities are defined under the Road Traffic Regulation Act 1984 by reference to the Local Government etc. (Scotland) Act 1994 c.39. The Local Government etc (Scotland) Act 1994 constituted local authorities in Scotland and defines their powers and duties. In Scotland, the Land Reform (Scotland) Act 2003 asp 2 provides individuals with a statutory right of responsible access to land for various purposes including recreational and educational uses.

71 For example, all wild birds are protected under the Wildlife and Countryside Act 1981 c.69 [1981 Act] as amended by the Nature Conservation (Scotland) Act 2004 asp 6 and the Wildlife and Natural Environment (Scotland) Act 2011 asp 6. Under s.1 of the 1981 Act it is an offence to intentionally or recklessly disturb or harass specific species of birds, especially when nesting or close to a nest, as set out in schedule 1 and 1A of the Act. However, licenses granted by Scottish Natural Heritage may be issued upon receipt of an application for specific purposes including for birdwatchers who wish to take photographs close to nesting, breeding or nursing birds.

72 BE Scott and others (n 6) 32–35.

process. Third, it helped achieve positive early engagement between sectors by identifying shared benefits. Fourth, the process was effective in going beyond economic importance by incorporating non-monetary values in MSP, thereby making trade-offs between policy options more transparent when linking benefits to cultural wellbeing services. Finally, the process was effective because it succeeded in providing two way active engagement; activities enabled stakeholders to engage and contribute local knowledge, as well as to identify evidence gaps in areas for policy development. Having outlined the questions the project sought to address in the creation of a tool to enhance decision making as a participatory process with a focus on ES,⁷³ and the legal framework in which the project was carried out, the next part of the chapter analyses the role of law in the development and implementation of this participatory tool. This will enable conclusions to be drawn about the effectiveness of the existing regulatory framework for MSP and the need to embed law within the participatory processes to fully develop an ecosystem approach to MSP in Scotland and elsewhere.

4 Reflection on the Implementation of the Ecosystem Approach

4.1 Discussion

The work of the CORPORATES project adopted two methodological approaches. The first involved an examination of how the law functions in relation to MSP and the implementation of the ecosystem approach in Scotland. As this chapter has shown, there are complex layers of relevant laws which were discussed in detail during the conduct of the project. This examination of the law facilitated the second methodological approach: the role of 'institutional learning'.⁷⁴ Both the CORPORATES team and the stakeholder participants learned about the role of law in the participatory process. This institutional learning influenced both the design of the process (activities within the workshops) and the conclusions (outcomes) from the workshops.

The underpinning fundamental issue was the need for a clear understanding of why and how MSP was implemented in law and policy, as well as how it was supported through the legislative and regulatory framework. There was a real challenge in ensuring that the complexity of the legislative and regulatory framework was appropriately understood, but this was essential in order to

73 BE Scott and others (n 6) discussed the project as a whole.

74 Olivia Woolley, *Ecological Governance Reappraising law's Role in protecting Ecosystem Functionality* (Cambridge University Press, 2014) 219–220.

move on to the institutional learning element of the project. Developing this understanding involved a two way process of knowledge exchange which, *inter alia*, clarified for the lawyers, as well as the other participants, issues around use of terminology; the complexity of the relationship between law and policy and the much wider legal framework within which the MSP and ecosystem approach regime operated. A number of specific issues arose out of the institutional learning approach, relating to law and policy and these are discussed next.

The first aspect, the institutional learning addressed, was an early assumption by some in the CORPORATES project group that new laws were required to enable the effective implementation of the ecosystem approach in marine decision making in Scotland. It was assumed that once the participatory tool, which focused on ES, was created and tested, an outcome from the project would be a recommendation about legislative changes. It was a strongly held belief that the existing legal framework was insufficient for the process developed through the workshops to be employed appropriately as a means of focusing on environmental issues. Institutional learning by the project partners about the existing decision making process, and the requirements in relation to sustainable development and the ecosystem approach, resulted in a shift in thinking by members of the CORPORATES project group. It was recognised that the existing legislative and regulatory framework provided appropriate support for the decision making process. The anticipated outcome of a recommendation for legislative change was, therefore, not a conclusion of the research. Instead, a key conclusion was that the existing law and policy supported implementation of the ecosystem approach. In order to really be effective, however, the law needed to be fully embedded into the participatory process.

The second element of institutional learning relating to law and policy was the amount and level of detailed explanation that was required for this project to operate effectively. This is perhaps not a surprise given, as noted above, that the legal and policy framework that emerged from the research was highly complex. Nevertheless, the general awareness that most members of the CORPORATES group had of the MSP laws was almost a barrier to full understanding, as assumptions were made about the process of MSP and concerns were raised about the effectiveness of the existing laws. It was the very complexity of the laws that required them to be unpicked and explained. The conclusion to this aspect of institutional learning, is that it is incumbent on lawyers and others with legal expertise, to explain effectively the legislative and regulatory processes for MSP and the ecosystem approach. This requires there to be a close working relationship between lawyers, scientists and

policy makers as part of an institutional learning process to deliver MSP. In Scotland this should be an ongoing process as the Marine Planning Partnerships prepare and implement Regional Marine plans for all the seas and coasts of Scotland.

The third element of institutional learning was underestimating the complexity related to the vast range and extent of law and policy relevant to the creation of the legal framework for MSP. This expanding of the range of law reviewed as part of the project was a direct result of the activities and benefits identified by stakeholder participants. After workshop 1 it was recognised that a more extensive legal landscape was required. Relevant law had to be identified and examined and its relationship to the project process analysed. It was clear that an understanding of a range of laws was important to achieve effective development of the project. In particular it was required to ensure 'buy in' from participants and to create a credible and effective CSM. The laws relevant to fishing, offshore wind and the recreational use of the coastal area through access to land/sea were, therefore, discussed in detail. It was demonstrated that the law governing these activities was connected with the MSP law and policy framework.⁷⁵ This provided the participants with a solid understanding of the interconnectedness of multiple laws and policies beyond the strict interpretation of MSP and enhanced the ability of the group as a whole to implement the ES balancing tool. In particular, it emphasised that the legal framework for balancing ecosystem services in the decision making process in the marine environment is complex, spanning multiple sectors informed and regulated by a wide variety of policies and laws.

Evolving from this wider legal and policy framework was a developing awareness throughout the project that the interconnectedness of land and sea was also integral to ensuring that the decision making tool was viable. Making the connection in law and policy across the land-sea divide, greatly expanded the relevant legal and policy framework. It was clearly not possible to research and explain all the relevant law and policy documents, but the process of developing mind maps which included a range of relevant topics, greatly contributed to understanding the environmental issues and assisted in working through how the trade-offs might operate in practice. It was, therefore, concluded that although MSP itself is often regarded as a holistic process, really effective planning and decision making in the marine environment requires a comprehensive context beyond MSP legislation and policy in which to make effective decisions.

75 BE Scott and others (n 6) 32–35.

The final aspect that the institutional learning addressed was the use of the words of 'law' and 'policy' interchangeably by CORPORATES participants. The need both to disentangle this and to explain the relationship between law and policy in marine decision making and the ecosystem approach was recognised as extremely important. It is undoubtedly a tricky relationship to grasp and one that in terms of the understanding and awareness of the CORPORATES project group as a whole had been underestimated by the lawyers and authors of this chapter. The final conclusion relating to institutional learning is that it is essential that the role of law and policy in MSP and the ecosystem approach is fully explained and understood by all involved.

4.2 *Lessons for the Implementation of MSP and the Ecosystem Approach*

The CORPORATES project and the analysis in this chapter reveal that the existing regulatory framework in Scotland, although complex can support the ecosystem approach in MSP. The research revealed, however, that in order to be effective, the law and policy had to be fully embedded within the participatory processes. The CORPORATES project research provided methods and ways of achieving this. It is considered that these lessons can be used elsewhere to implement the ecosystem approach; both as part of MSP plan making and the decision making processes. The following discussion applies these lessons to contexts beyond Scotland.

Legislative and regulatory changes are being developed to support MSP in many jurisdictions. The role of the lawyer is particularly important not only in creating that law, but also in enabling its effective implementation. It is essential that lawyers work with interdisciplinary teams to develop these new MSP plans and decision making processes and to ensure that they are appropriate for the areas in which they are located taking full account of the areas' particular challenges, conflicts, and opportunities. Any new MSP law will be grafted into a spectrum of other laws relevant for either or both oceans and terrestrial areas. It is important that a path be found through these laws so that MSP and the implementation of the ecosystem approach can be executed in a way that is reflective of the wider regulatory landscape. Integral to most MSP systems is an understanding of the relationship between the legal process and the role of policy within that. MSP is often not 'black letter' law; rather it provides a pivotal role for policy in the form of marine plans. These plans are integral to MSP and to its application to marine areas worldwide. It is essential, however, that the roles of law and policy in the process is fully understood in new MSP procedures. In particular, in many regimes the law will allow an element of discretion, and, therefore, the plan does not have to be automatically or blindly

followed. Globally, marine policy and marine plans will be increasingly important, but decision making processes must take into account the most relevant and up-to-date information to support the implementation of an ecosystem approach. This may mean departing from plans in appropriate circumstances. Utilising the participatory tool created for the CORPORATES project can assist with this complex form of decision making, by enabling consensus through a detailed process. The conclusion summarises the decision making support tool. This highlights conclusions on its value in MSP decision making and the ecosystem approach.

5 Conclusion

The CORPORATES project exercise was to create a participatory decision making process around ES. As part of that, a detailed MSP legal and policy framework was created, including a wide range of marine and land laws and policies. Once developed it was revealed that this was highly complex and the focus was thus on showing the interconnectedness of the legislative and regulatory regime. Unpacking this framework to draw connections and links as well as highlighting how MSP and the ecosystem approach enabled consensus to be built, meant that although the laws and policies were perceived as complex, when taken together, they were in fact well suited to promoting MSP. The CORPORATES project relied on full engagement by a cross-section of stakeholders, who brought a range of knowledge and experience to the process. Their expertise was utilised in the workshop activities, which built on each other, to develop shared and institutional learning aimed at enhancing the understanding of the group as a whole and at encouraging informed discussion. The CORPORATES project team developed the outcomes of workshop 1 with a view to creating a structured framework for the interdisciplinary groups to develop the CSM on the basis of consensus. The decision making tool as devised by the CORPORATES process requires active participation by the stakeholders which was essential for the implementation of the ecosystem approach. Feedback from the workshop participants indicated that the process would be most effective at an early stage in regulatory decision making. It also concluded that the CORPORATES process could be developed as an integral part of the creation of marine plans and that it could be expanded to wider groups of stakeholders and local communities, resulting in extended engagement and learning processes. This would develop shared knowledge and understanding capable of making truly well informed and effective contributions to

the development of detailed marine plans for Scotland and elsewhere. The ecosystem approach would be integral to such marine plans and it would enhance the implementation of MSP through adaptive management for all marine environments.

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PART 3

*Thematic and National
Perspectives and Experiences*



The Ecosystem Approach and the Common Fisheries Policy

Jill Wakefield

1 Introduction

The current regulation implementing the EU Common Fisheries Policy (the Fisheries Regulation) observes that an ecosystem-based approach to fisheries management needs to be implemented and environmental impacts of fishing activities should be limited.¹ Accordingly, the objectives of the Common Fisheries Policy (CFP) require the implementation of an ecosystem-based approach to management to ‘minimise’ the negative impacts of fisheries on the marine environment, but its application is to do no more than ‘endeavour’ to avoid the degradation of the marine environment.² Action under the CFP according to the ecosystem-based approach requires an ‘integrated approach’ to fisheries management, to maintain fisheries ‘within ecologically meaningful boundaries’.³ Ideally, ‘the CFP should contribute to the protection of the marine environment ... in particular to the achievement of good environmental status by 2020’, and it is required to be ‘coherent with the Union environmental legislation’ with regard to good environmental status.⁴

In adopting the latest action plan for environmental protection, the European Parliament and Council express concern at the loss of natural capital in

1 Regulation (EU) No 1380/2013 of the European Parliament and of the Council on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC, [2013] OJ L354/22, Recital 13.

2 Regulation 1380/2013, Article 2(3).

3 Regulation 1380/2013, Article 4(1)(9).

4 Regulation 1380/2013, Article 2(5)(j). Environmental legislation explains good environmental status as: ‘the 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’. 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), [2008] OJ L164, Article 3(5).

European biodiversity, including marine ecosystems, despite the wide panoply of measures adopted to protect the environment.⁵ So serious has been the degradation of EU waters, principally as a result of overfishing, that their ability to continue to supply essential goods and services is in doubt. The challenge is to ensure that the exploitation of resources ‘is compatible with the conservation and sustainable management of marine and coastal ecosystems.’⁶ However, devising and embedding a system that would be capable of redressing the situation is hampered by the disjuncture between two crucial areas of EU policy: fisheries and the environment. A holistic ecosystem-based approach to the management of marine areas as prescribed in the latest Fisheries Regulation has not been deployed to conserve and protect ecosystems and biodiversity. Instead, the precautionary approach to fisheries management has been retained and the sustainability of living marine resources remains precarious.

The route to ecologically sustainable fisheries in the EU lacks a cogent plan and is impeded by inappropriate economic objectives and ill-conceived regulation. Fisheries regulation, designed under the auspices of agricultural policy, is not fit for the control of an extractive industry. The ‘harvesting’ of stocks to the margin of sustainability causes continual ecological stress and leads to the degradation of EU waters. Meanwhile, the costs of maintaining the fisheries industry in an economically and environmentally untenable position falls upon EU taxpayers. Fisheries policy should integrate environmental protection but, in practice, economic imperatives trump restrictions on fishing activity other than in exceptional cases. Following the latest reform of governance of the fisheries sector, the economic interests of the fishing industry will continue to predominate over ecosystem protection. This chapter considers why the EU’s more forward-thinking ecosystem-based management has failed to find traction under the CFP and why achieving good environmental status for EU waters, as currently defined, may not render EU seas resilient and productive.

2 Good Environmental Status for EU Waters

In the EU’s seventh environmental action programme (EAP) entitled ‘Living well, within the limits of our planet’,⁷ marine ecosystems are described as

5 Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 ‘Living well, within the limits of our planet’ [2013] OJ L354/171, (7th Environmental Action Plan), Recitals 17–19.

6 Decision 1386/2013/EU, 7th Environmental Action Plan, Recital 21.

7 Decision 1386/2013/EU, 7th Environmental Action Plan.

'coming under severe pressure' from the intense exploitation of economic opportunities within EU marine waters across diverse sectors, from fishing, shipping and aquaculture to mining, offshore energy generation and marine biotechnology. A decade ago, member states adopted legislation at the EU level with the intention of achieving good environmental status for their marine waters, which status could be measured according to objective criteria.⁸ Although the environment is an area of competence shared between the EU and its member states, the efficacy of environmental decisions adopted at the EU level relies on efficacious implementation by the member states. In practice, member states have been reluctant to curb commercial activities in marine areas, a resistance that is sought to be redressed through an integrated approach to management that will take account of all human activities within the area.

In 2007, the Commission published a Communication setting out its plan for an Integrated Maritime Policy (IMP).⁹ The IMP was proposed as a means of introducing a more coherent approach to the socio-economic demands placed on marine resources while, at the same time, ensuring environmental protection.¹⁰ The Marine Strategy Framework Directive (MSFD) is the environmental arm of the IMP and was adopted with the intention of regulation taking account of all human activity in the marine environment so that these collective pressures will not overwhelm the capacity of ecosystems to support them.¹¹ The MSFD is anticipated to support the Union's position on halting biodiversity loss. It is seen as augmenting the obligation of the member states to designate Natura 2000 sites to meet the biological diversity conservation and sustainable use objectives of the Convention on Biological Diversity (CBD).¹²

The MSFD recitals envisage the protection of the environment as being at the centre of all policy determination, with the individual sectoral policies coalescing around that objective. Its aim is to achieve good environmental status for EU waters by 2020 and it envisages an ecosystem-based management

8 Directive 2008/56/EC, Marine Strategy Framework Directive.

9 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – An Integrated Maritime Policy for the European Union, COM (2007) 575 final.

10 Ibid.

11 Report from the Commission to the Council and the European Parliament, 'Contribution of the Marine Strategy Framework Directive (2008/56/EC) to the implementation of existing obligations, commitments and initiatives of the member states or the EU at EU or international level in the sphere of environmental protection in marine waters', COM (2012) 662 final, paragraph 2.1; Directive 2008/56/EC, Marine Strategy Framework Directive, Article 1(3).

12 United Nations Convention on Biological Diversity (CBD) (Rio de Janeiro, 5 June 1992, 31 ILM (1992) 818), Article 8.

approach that will apply the environmental protection principles of prevention, polluter-pays and, particularly, precaution.¹³ The ecosystem-based approach is intended to ensure that human activities are kept to a level that is compatible with the achievement of good environmental status and do not compromise the ability of marine ecosystems to withstand human-induced changes while ensuring inter-generational equity.¹⁴

The problem with determining good environmental status is that once the environment is degraded it becomes difficult to gain agreement on what will constitute a good environmental status. Sustainability in fisheries used to occur 'where fish populations were naturally protected by having a large part of their distribution outside the range of fishing operations'.¹⁵ Pitcher argues that 'three ratchet-like processes have brought about episodes of depletion'.¹⁶ The first of these, 'Odum's ratchet', is ecological, comprising depletion and local extinction, which can be seen in the depletion of accessible fish stocks in waters close to the shores of coastal regions, causing more distant waters to be targeted for exploitation.¹⁷ The second phase, features 'Ludwig's ratchet', which is economic and is seen in increasing catching power and overinvestment causing serial depletion, driven by the need to repay capital investment.¹⁸ The final phase, 'Pauly's ratchet', is 'cognitive, shifting the baseline of what each generation regards as primal abundance and diversity'.¹⁹ This shifting baseline is significant for good environmental status because what constitutes ecologically diverse, productive seas becomes diminished with each degradation occasioned by human activity. The ecologically meaningful boundary that ecosystem-based management aims for, therefore, will be defined according to each current degraded status.

13 Directive 2008/56/EC, Marine Strategy Framework Directive, Recital 44.

14 Directive 2008/56/EC, Marine Strategy Framework Directive, Article 1(3).

15 D Pauly and others, 'Towards sustainability in world fisheries' (2002) 418 *Nature* 689.

16 T Pitcher, 'Fisheries Managed to Rebuild Ecosystems? Reconstructing the Past to Salvage the Future' (2001) 11 *Ecological Applications* 601.

17 *Ibid.* citing: W Gibbons and EP Odum, *Keeping all the pieces: perspectives on natural history and the environment* (Smithsonian Institution Press; Washington, DC: 1993).

18 *Ibid.*, citing: D Ludwig, R Hilborn and C Walters, 'Uncertainty, resource exploitation and conservation: Lessons from history' (1993) 260 *Science* 36.

19 *Ibid.* citing: D Pauly, 'Anecdotes and the shifting baseline syndrome of fisheries' (1995) 10 *Trends Ecol. Evol.* 430.

3 Measuring Good Environmental Status

Many member states have been late in adopting implementing legislation and administrative provisions to comply with the MSFD, which had a deadline of July 2010.²⁰ Even where member states have adopted legislation to implement the Directive, their progress towards establishing what would constitute good environmental status has been slow. Good environmental status is understood through a series of descriptors, ranging across eutrophication, pollution, seabed integrity, and the maintenance of sustainable levels of fish stocks among others, which together will ensure the ecological integrity and health of EU waters.²¹ For fish stocks, populations must be present and maintained within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock. While the MSFD describes the elements that go towards building environmentally sustainable seas, the Directive is not an instrument that can set out the means of achieving such status as the choice of form and methods to meet the stipulated requirements is left to the member states.

Under the terms of the Directive, each member state must assess the state of the marine environment within their own waters to identify current characteristics and environmental status. To ensure a coherent strategy to redress degradation, the MSFD establishes four marine regions. Within each region, each member state must develop strategies for its own waters and then, in conjunction with other member states in the same marine region, and in cooperation with other non-EU states having an interest in the area, agree the management of the area. This is to be done through development plans which will be devised taking account of the assessments of all the member states in the region. These plans are to define good environmental status for the area and enable clear environmental targets and monitoring programmes to be established. However, the Commission found that there has been no consistency between member states in their measuring the state of their waters. In an effort to progress the aim of good environmental status for EU waters, the EU has decided to replace the incoherence arising from diverse standards

20 Case C-245/12 *Commission v Poland*, OJ 2008 L164/9. Infringement action was taken by the Commission against Poland for failure to implement and a daily penalty of over €93000 was imposed by the Court.

21 Directive 2008/56/EC, Marine Strategy Framework Directive, Annex 1.

and methods adopted by member states with new common threshold values.²² Some flexibility is provided as member states will be able to focus on the particular problems in their seas in reaching the threshold.

The new threshold values are expected to 'allow for an assessment of the quality level achieved for a particular criterion' on a uniform basis. These values are required to be consistent with Union legislation and, so that the standard translates into effective monitoring, must be set at appropriate geographic scales to reflect the different biotic and abiotic characteristics of the regions, subregions and subdivisions, where the basic regions are the Baltic, North East Atlantic, Mediterranean and Black Seas. The particular standard expected is to 'reflect natural ecosystem dynamics, including predator-prey relationships and hydrological and climatic variation, also acknowledging that the ecosystem or parts thereof may recover, if deteriorated, to a state that reflects prevailing physiographic, geographic, climatic and biological conditions, rather than return to a specific state of the past'.²³ This last is an important concession to member states reluctant to interfere with commercial activities even though it is these commercial activities that have driven the deteriorating trend. Moreover, the standard conflicts with the fundamental objectives of the MSFD which require, so far as possible, the restoration of the marine environment.²⁴ The IMP had envisaged the ecosystem-based approach delivering ecosystem resources 'for present and future generations'.²⁵ However, once a standard is accepted at a degraded level, the possibility of restoration or imposing responsibility for the damaged and diminished state of marine waters on those causing the degradation will be lost.

4 The MSFD and Fisheries Policy

According to the Treaty on the Functioning of the European Union (TFEU), the protection of the environment is to be integrated into all EU policies.²⁶

22 Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU (Text with EEA relevance), OJ 2017 L125/43.

23 Commission Decision (EU) 2017/848, Recital 13 and Article 4(1).

24 Directive 2008/56/EC, Marine Strategy Framework Directive, Recital 43, Article 1.

25 Communication from the Commission to the Council and the European Parliament – The role of the CFP in implementing an ecosystem approach to marine management [SEC(2008) 449] COM (2008) 187 final.

26 Consolidated version of the Treaty on the Functioning of the European Union, [2012] OJ C326 (TFEU) Article 11.

The MSFD requires the member states to take the measures necessary for the protection and preservation of the marine environment, including the prevention of deterioration and, 'where practicable', the restoration of marine ecosystems in areas adversely affected by human activity.²⁷ Member states are to adopt marine strategies applying the ecosystem-based approach so that the collective pressures of human activity do not compromise the achievement of good environmental status or the ability of the marine environment to respond to human-induced changes.²⁸ Fisheries policy with regard to resource exploitation is within the exclusive competence of the Union and imposes obligations on member states. The MSFD sets out objectives to be achieved but is unable to subject the CFP to its terms. Accordingly, the MSFD merely notes that the CFP should do no more than 'contribute to the protection of the marine environment' and achievement of good environmental status as set out in the MSFD.²⁹ The Directive observes that the exclusive regulation of fisheries will continue under the CFP.³⁰

Although fisheries policy is to 'be coherent with the Union environmental legislation, in particular with the objectives of achieving good environmental status by 2020', there is no requirement that the CFP either conforms to, or harmonises with, the environmental objectives of the MSFD and no specific terms to ensure coherence are set out.³¹ This means that the impact of the MSFD on fisheries policy is minimal. Some measures available for conservation under the Fisheries Regulation may be given wider application because of the MSFD. Closure of fisheries by reason of fish stock collapse provided under the CFP may be augmented so that closure may be ordered 'to enable the integrity, structure and functioning of ecosystems to be maintained or restored and, where appropriate, in order to safeguard, inter alia, spawning, nursery and feeding grounds'.³² Nevertheless, neither the MSFD nor the Fisheries Regulation specifies further action with regard to fisheries policy to achieve good environmental status for the seas. The failure to integrate environmental and fisheries policy and to subject fisheries policy to environmental protection requirements operates to prevent regeneration and sustainability of both fish stocks and wider ecosystems.

27 Directive 2008/56/EC, Marine Strategy Framework Directive, Article 1(2).

28 Directive 2008/56/EC, Marine Strategy Framework Directive, Article 1(3).

29 Regulation 1380/2013, Recital 11.

30 Directive 2008/56/EC, Marine Strategy Framework Directive, Recital 39.

31 Regulation 1380/2013, Article 2(5)j.

32 Regulation 1380/2013, Article 8; Marine Strategy Framework Directive, Recital 39.

5 The Common Fisheries Policy and the Precautionary Approach

The founding Treaty of Rome in 1957 established the European Economic Community and set out common policies. The Agricultural title of the Treaty, which includes fisheries, stipulates objectives for both sectors that have remained unchanged ever since.³³ No distinction is made between agriculture and fisheries despite agriculture being a husbandry industry while fishing is an extractive or mining activity, and there was and is no dedicated treatment for fisheries. According to the TFEU, both sectors are to increase productivity through technical progress and the optimum utilisation of labour, while ensuring a fair standard of living for those engaged in the sector, stabilising markets and securing the availability of supplies at reasonable prices for consumers.³⁴ In 1970, legislation was adopted so that within the 12 nautical mile (nm) coastal waters, member states were required to regulate in accordance with single market rules adhering to the principles of non-discrimination and proportionality.³⁵ Beyond the 12nm zone, member states had no independent decision-making powers with regard to fishing activity and member state waters were opened up giving equal access for fishing vessels registered in one member state to fish within the waters of any other member state. Externally, access to the waters of other states and agreements concerning fishing in international waters would be negotiated by the EU on behalf of the member states.

It was not until 1983 that the EU developed a fully formulated fisheries policy.³⁶ Since then, the policy has been revised and updated in approximately decadal cycles. The current 2013 Fisheries Regulation notes that the EU is a contracting party to the UN Convention on the Law of the Sea (LOSC), the UN Fish Stocks Agreement (UNFSA), and the FAO Agreement to promote compliance with international conservation and management measures by fishing vessels on the high seas.³⁷ Although the LOSC implies an ecosystem based

33 Treaty establishing the European Economic Community, March 25, 1957, 298 UNTS 11.

34 Title 111, Agriculture and Fisheries, Articles 39 TFEU.

35 Regulation (EEC) 2141/70 of the Council of 20 October 1970 laying down a common structural policy for the fishing industry, [1970] OJ Spec Ed 703, repealed.

36 Council Regulation (EEC) 170/83 of 25 January 1983 establishing a Community system for the conservation and management of fishery resources, [1983] OJ L24/1, repealed.

37 Regulation 1380/2013, Recital 5; 1982 United Nations Convention on the Law of the Sea (LOSC) (Montego Bay, 10 December 1982, 1833 UNTS 3); United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) (New York, 4 December 1995, 2167 UNTS 3);

management as a management mode, it was only in the subsequent UNFSA that the arrangements to be adopted for the regulation of straddling and highly migratory fish stocks were agreed, the terms of which signalled an ecosystem-based management. Regulation is to encompass species other than targeted, commercially-exploited stocks and the UNFSA introduces an anticipatory approach to damage prevention through the precautionary approach. In application, states are to be 'more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.'³⁸ Additionally, the interdependence of stocks is acknowledged so that stocks within the same ecosystem or associated with or dependent upon the target stocks, are to be managed and conserved to prevent any serious threat to their reproduction.³⁹ The Fisheries Regulation observes that those agreements, essentially, are concerned with the obligation to regulate to maintain and restore fish resources at maximum sustainable yield (MSY), that is, the maximum volume of catches that can be taken each year without threatening the future reproductive capacity of a fish stock, through application of the precautionary approach.⁴⁰

The precautionary approach is an international standard according to which 'the absence of adequate scientific information should not justify postponing or failing to take management measures to conserve target species, associated or dependent species and non-target species and their environment'.⁴¹ According to the Fisheries Regulation its aim is 'to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels which can produce MSY'.⁴² Although the precautionary approach is adopted from international law, under the terms of the CFP it is specifically stated to be derived from the precautionary principle as set out in the TFEU.⁴³

UN Food and Agriculture Organisation, *Code of Conduct for Responsible Fisheries (Code of Conduct)*, Rome, FAO, 1995. Article 7.5.1 and 2.

38 Article 6(2) UNFSA.

39 Article 5(e) UNFSA.

40 Regulation 1380/2013, Recital 6 and Article 4(1)(7).

41 1995 United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA) (New York, 4 December 1995, 2167 UNTS 3), Article 6(1) and (2); Regulation 1380/2013, Article 4(1)8.

42 Regulation 1380/2013, Article 2(2) and Article 4(1)(8).

43 Regulation 1380/2013, Recital 10 and Article 2(2); Article 191(2) TFEU.

Whether the precautionary approach is a principle of international law is uncertain. Principle 15 of the Rio Declaration provides that, in order to protect the environment, the precautionary approach is to be widely applied.⁴⁴ The UNFSA provides technical guidance for the approach in precautionary reference points that 'trigger pre-agreed conservation and management action'.⁴⁵ The adoption of the precautionary approach in international instruments may indicate it has become a customary rule of international law: 'General principles can become especially influential when like the precautionary approach they are adopted in a globally endorsed instrument such as the 1992 Rio Declaration on Environment and Development'.⁴⁶ As such, the precautionary approach may exert 'a general influence (...) on the interpretation, application, and development of other rules of law'.⁴⁷ However, there is little evidence of a risk situation generating the use of a precautionary approach to restrict fishing activity. Its use was widely discussed following the *Southern Bluefin Tuna* cases. In those cases, the evidence was that continuing tuna exploitation would pose a serious risk to tuna conservation, so interim measures to prevent fishing were granted pending the full hearing of the dispute. On one account, the granting of interim measures revealed 'a classic precautionary approach'.⁴⁸ Transferring the burden of proof to the defendant to show harm would not ensue if fishing were to continue could be seen as precautionary. An alternative explanation of the ruling is that the nature of provisional measures, granting temporary injunctive relief pending full investigation in the main hearing, necessitates a precautionary approach by the judicial authority.⁴⁹ On this interpretation

44 Rio Declaration on Environment and Development (Rio Declaration) (Rio de Janeiro, 14 June 1992, UN Doc. A/CONF.152/26 (vol. 1) reprinted in 31 ILM 874 (1992), Article 15: 'In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.' The Food and Agriculture Organisation of the United Nations, 1995 Code of Conduct for Responsible Fisheries adopts the precautionary approach reiterating the Rio Declaration that fisheries management organisations should apply a precautionary approach widely to the conservation, management and exploitation of living aquatic resources.

45 UNFSA Annex II, paragraph 4.

46 A Boyle, 'The Environmental Jurisprudence of the International Tribunal for the Law of the Sea' (2007) 22 Int'l J. Marine & Coastal L. 369, 374–375.

47 Ibid.

48 *Southern Bluefin Tuna Cases* (New Zealand v Japan; Australia v Japan) (Provisional Measures) (1999) 38 ILM 1624; T Stephens, *International Courts and Environmental Protection* (Cambridge University Press, Cambridge, 2009) 225.

49 P Birnie, A Boyle and C Redgwell, *International Law and the Environment* (Oxford University Press, Oxford, 2008) 160, citing: *New Zealand v Japan; Australia v Japan* (Provisional

no substantive decision was made in exercise of the precautionary approach. In the event, when the dispute came to full hearing, the ban was not upheld.⁵⁰

Under the Fisheries Regulation, the precautionary approach is to be based on the legally-binding precautionary principle.⁵¹ The precautionary principle was incorporated into EU law in the environmental chapter of the Maastricht Treaty in 1993.⁵² At the same time, the Treaty introduced an obligation requiring environmental protection to be integrated into the definition and implementation of all EU policies.⁵³ The Commission was tasked with providing explication of the principle and described its scope as being applicable where ‘there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen for the Community.’⁵⁴ The precautionary principle has been raised only once in a case concerning the CFP that was brought before the Court of Justice.⁵⁵ In that case, the Court was careful to refer to the precautionary *approach* with the implication that the precautionary principle is not applicable to fishing activity. Through its case law, the Court of Justice has restricted the application of the precautionary principle to matters concerned with human health and consumer safety across all EU activity. The Court has not extended it to the protection of the environment unless human health is directly at risk.⁵⁶

While there is no doubt that degraded fish stocks and marine environments have enormous adverse implications for human welfare, the proximate relationship the Court identifies as necessary to require the adoption of the precautionary principle is absent. As the risk posed by overfishing is not to human health, the exclusion of risk has not informed practice under the CFP. Indeed, it has been argued that risk to stocks is optimised to exclude ‘arbitrary

measures) (1999) 38 ILM 1624, Judge Tulio Treves, paragraph 9 and Judges Shearer and Laing, paragraphs 16–19.

50 *Southern Bluefin Tuna Cases* (Australia and New Zealand v Japan), Award on Jurisdiction and Admissibility (2000) 39 ILM 1359.

51 Regulation 1380/2013, Recital 10.

52 Treaty on European Union (Consolidated Version), (Treaty of Maastricht), OJ 1992 C 325/5.

53 Now, Article 11 TFEU.

54 Communication from the Commission on the precautionary principle, COM (2000) 1 final, 3.

55 Case C-453/08 *Karanikolas and Others* [2010] ECR I-7895.

56 Joined Cases T-74, 76, 83–85, 132, 137, 141/00, *Artegodan GmbH and Others v Commission* [2002] ECR II-4945, paragraph 183; Case C-453/08 *Karanikolas and Others* [2010] ECR I-7895.

safety margins'.⁵⁷ Most fish stocks have been exploited in excess of their MSY at the margin of biological sustainability. Not infrequently, permissible catch levels are set beyond MSY as advised by scientists so imperilling stock regeneration. An analysis of total allowable catches set for eleven fish stocks between 1987 and 2011 found that 68% had been set in excess of MSY scientific advice, averaging catches 33% over recommendation.⁵⁸ European states continue to press for extraction in excess of scientific advice. For example, the EU and Norway went to great lengths to persuade ICES to increase its recommendation for the maximum extraction of cod from the North Sea and revise its assessment of a precautionary quantity. When the 2014 extraction tonnages were agreed, an increase of 5% had been secured but the effort restrictions that ICES had stipulated would have to be imposed to render the quantity precautionary were not notified by participating states.⁵⁹

6 The CFP and the Ecosystem Approach

The ecosystem-based approach has a role in the CFP but it is marginal. In the context of ongoing concern about the sustainability of fish stocks and the need to put the sector onto a more viable footing, the Fisheries Regulation stipulates that 'the CFP shall implement the ecosystem-based approach' to minimise the adverse effects of marine fishing on the marine environment and avoid its degradation, and in particular should contribute to the achievement of good environmental status for marine areas by 2020.⁶⁰ The approach is defined as meaning: 'an integrated approach to managing fisheries within ecologically meaningful boundaries which seeks to manage the use of natural resources, taking account of fishing and other human activities, while preserving both the biological wealth and the biological processes necessary to safeguard the composition, structure and functioning of the habitats of the ecosystem affected, by taking into account the knowledge and uncertainties regarding biotic,

57 E Fenichel and others, 'Real Options for Precautionary Fisheries Management' (2008) *Fish and Fisheries* 121, 121–122.

58 BC O'Leary and others, 'Fisheries Mismanagement' (2011) 62 *Marine Pollution Bulletin* 2642.

59 ICES, Special Request, EU-Norway request to ICES on increasing the 2014 TAC for cod in the North Sea – Additional reply to part of the original request, Advice March 2014, 6.2.3.2: <www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/Special%20Requests/EU_Norway_2014_TAC_for_NS_cod_March.pdf> accessed 20/11/2017.

60 Regulation 1380/2013, Article 2(5)(j).

abiotic and human components of ecosystems'.⁶¹ As such, the approach is highly complex involving variables and diffuse ecological and socio-economic objectives, but how a balancing between them is to be struck is not elaborated. However, there are few circumstances in which this holistic approach is to be adopted, although it may be used to address the specific problems of mixed stock fisheries where selectivity cannot be achieved.⁶²

By reference to the MSFD, the Fisheries Regulation observes that member states are empowered to adopt conservation measures within waters under their jurisdiction in order to comply with their obligations under EU environmental law. There is a caveat, though, in that any environmental protections adopted must not affect the fishing vessels of other member states and must be compatible with CFP objectives.⁶³ Compatibility with the CFP makes it almost impossible for a member state to act unilaterally to adopt measures for environmental protection in their marine areas because of the impact on fishing operations. The only exception is in case of emergency where there is a serious threat to marine biological resources or the ecosystem. In such situations, the member state is required to consult with the Commission and member states who will be affected by the restriction as well as relevant fisheries Advisory Councils before a measure is adopted. Even where the member state adopts an emergency measure, the Commission may intervene to countermand the measure and require the member state to repeal it.⁶⁴

Although the member states have few powers to act against damaging fishing activity, the Commission may adopt restrictive measures for environmental protection that will apply to all vessels.⁶⁵ But again, the interruption of fishing activity is made exceptional so that restrictions are to be temporary and for no more than six months, renewable once.⁶⁶ The right to fish is so well entrenched under the terms of the Treaty that secondary measures to displace fishing activity will be possible only on agreement between all affected member states rendering the protection of the environment very difficult to achieve. The CFP gives priority to economic activity over environmental concerns, so to try to facilitate better protections there has been a devolution of conservation powers under the CFP as part of the governance reform.

61 Regulation 1380/2013, Article 4(9).

62 Regulation 1380/2013, Article 9(5).

63 Regulation 1380/2013, Article 11(1).

64 Regulation 1380/2013, Article 13.

65 Regulation 1380/2013, Article 11(2).

66 Regulation 1380/2013, Article 12–13.

7 Governance under the CFP

The 2013 Fisheries Regulation included an overhaul of governance to allow member states greater opportunity to act towards meeting the environmental objective of good environmental status within the context of the CFP.⁶⁷ Regions are grouped according to sea basin, and member states within a region having a direct interest in a fishery may, by consensus, submit a proposal for a conservation measure which may be adopted by the Commission in a delegated or implementing act.⁶⁸ These measures enable the Commission to amend or supplement non-essential aspects of CFP legislation, including environmental measures. The Commission may adopt a measure to give effect to the joint recommendation but only if compatible with the relevant fishery conservation measure or multiannual plan.⁶⁹ However, the Commission act may be revoked at any time by either the European Parliament or the Council. The Commission powers may be used with regard to: conservation measures within a geographical region; multiannual plans, under which all fishing is to be managed in the future; and discard plans. Discarding unwanted catch is being phased out under the Fisheries Regulation which sets out stocks that are subject to the landing obligation. The reach of the discard ban, which is seen as the major innovation for conservation under the Fisheries Regulation, may be augmented by intervention from the member states, again in a joint recommendation. Where member states in a particular region or subregion are able to reach unanimous agreement on species not specified in the Regulation, member states may recommend the institution of a landing obligation.⁷⁰

Cooperation between member states within a region to formulate joint recommendations for environmental protection to comply with environmental law obligations is mandatory.⁷¹ Although member states have powers to establish conservation measures, to date, there has been only limited action to do so. The Dogger Bank Site of Community Importance, a designation which signifies that the area is essential to the long-term survival of some of Europe's most threatened species and habitats, has been established following agreement between Germany, the Netherlands and the UK in the North Sea. Despite its designation as a part of the Natura 2000 network, the UK is developing wind farms within the area and the Dutch government resisted the prohibition on

67 Regulation 1380/2013, Title III.

68 Regulation 1380/2013, Article 46.

69 Regulation 1380/2013, Article 18.

70 Regulation 1380/2013, Article 15(3).

71 Regulation 1380/2013, Article 18.

bottom trawl gear on the ground that this would be too costly for its fishing industry.⁷²

Within these new regional structures, the ability of the fishing industry to resist environmental protections which they perceive not to be in their interests should not be underestimated. With the emphasis on participatory democracy, the fisheries Advisory Councils are categorised as stakeholder bodies whose 'appropriate involvement' is to be ensured at all stages in the passage of measures 'from conception to implementation'.⁷³ Their powers have been increased from those enjoyed by their predecessor Regional Advisory Councils and now no measures affecting fishing activity may be adopted without reference to the Advisory Councils. Although the opinions of the Advisory Councils are not binding they have been given substantial weight. Where the final measure adopted diverges from the opinions, recommendations or suggestions received from the Advisory Councils, the Commission or member state adopting the measure must give detailed reasons to explain the divergence.⁷⁴

Despite regulatory structures having long been identified as susceptible to domination by the economic interests they have been designated to control,⁷⁵ the issue of regulatory capture is not recognised within the CFP. Better governance and greater democracy have been an objective of the Commission since turn of the millennium. Democracy could be enhanced by increasing stakeholder participation, and this became one of the platforms of the 2013 CFP reform.⁷⁶ Within the Advisory Councils, 60% of the seats are to be allocated to the fishing industry, including organisations representing the fisheries, processing and marketing sectors. With a structural majority the industry is free to pursue its own agendas, and is assured a decisive voice in drawing up management recommendations. The remainder of the seats on the Advisory Council are to be shared between disparate interest groups, such as women, environmental and consumer groups.⁷⁷ Consulting on the 2013 fishery reforms, the Commission sought the views of the North Sea Regional Advisory Council (NSRAC) on its role in devising fisheries policy. NSRAC expressed

72 S Hommes and others, Report on cross-border Maritime Spatial Planning in two case studies, MASPNOSE 2012, 46 and 52, <www.wur.nl/upload_mm/7/6/2/92bfd4c-5b01-4e8e-9a82-de877fa6d515_MASPNOSE%20D1.2%20MSP%20in%20case%20studies.pdf> accessed 20/11/2017.

73 Regulation 1380/2013, Article 3(f).

74 Regulation 1380/2013, Article 44(4).

75 P Sabatier, 'Social Movements and Regulatory Agencies: Towards a More Adequate – and Less Pessimistic – Theory of Clientelle-Capture' (1975) 6 Policy Sciences 301.

76 European Commission, Green Paper on the Reform of the Common Fisheries Policy COM (2009) 163.

77 Regulation 1380/2013, Article 45(1) and Annex III(2).

satisfaction with current arrangements and reported it had ‘not felt any supervision from the Commission’ but welcomed the Commission’s contribution.⁷⁸ Although the Commission had raised concerns about the lack of representation for the small-scale fleet in NSRAC, NSRAC dismissed the issue, suggesting the Commission itself institute outreach initiatives to connect with small-scale operators.⁷⁹ Meanwhile, the European Parliament called for one half of the seats on the Advisory Councils to be reserved for interested parties outside the fishing industry, but this was not accepted by the member states in Council.⁸⁰ This stakeholder participation is a flawed democratisation already criticised for leading to insufficiently inclusive institutions.⁸¹ It is a textbook example of regulatory capture whereby a smaller group with a cohesive voice is able to triumph over the disparate views of the majority. The new governance model gives predominance to the strongest interest group, comprising the fishing and fish processing industries. There is little prospect of intervention to promote the sustainability of the resource as the largest interest group, the general public, has no effective representation.

8 Marine Protected Areas

With a view to restoration to MSY and ‘in order to contribute to the conservation of living aquatic resources and marine ecosystems’, the Fisheries Regulation provides for the establishment of fish stock recovery areas for areas of biological sensitivity.⁸² Member states will generally be required to recommend these areas to the Commission with the intention of building a coherent network of protected sites. Nevertheless, despite reference to ecosystem conservation, stock recovery areas under the Fisheries Regulation fall short of the ecosystem protection areas sought under the MSFD. The MSFD outlines specific programmes of protection that must include spatial protection measures that will contribute ‘to coherent and representative networks

78 North Sea Regional Advisory Council, *Response from the North Sea Regional Advisory Council – Consultation on Future Role and Composition of Advisory Councils*, Position Paper 3 (2012/13).

79 *Ibid.*, paragraph 3.4.

80 U Rodust, Draft Report on the proposal for a regulation of the European Parliament and of the Council on the Common Fisheries Policy, 2011/0195 (COD).

81 M Dreyer and P Sellke, ‘The Regional Advisory Councils in European Fisheries: An Appropriate Approach to Stakeholder Involvement in an EU Integrated Marine Governance?’ in M Gilek and K Kern (eds), *Governing Europe’s Marine Environment: Europeanization of Regional Seas or Regionalization of EU Policies?* (Routledge, Abingdon, 2015) 121–140.

82 Regulation 1380/2013, Recital 22 and Article 8.

of marine protected areas, adequately covering the diversity of the constituent ecosystem.⁸³ The intention was to build on measures already adopted in order to protect wildlife and habitats. The Birds Directive requires member states to establish Special Protection Areas, and the Habitats Directive requires Special Areas of Conservation for other species and habitats.⁸⁴ Neither the special areas of conservation for endangered species, flora and fauna pursuant to the Habitats Directive, nor the special protection areas established pursuant to the Birds Directive, are particularly suited to the protection of marine habitats, both being more appropriate for terrestrial protection. Nevertheless, the MSFD provides for the possible establishment of marine protected areas to complement areas protected under the Birds and Habitats directives, and such areas may acquire specific use designation as protected areas.⁸⁵ Marine protected areas (MPAs) may be agreed either by the EU or by member states in international or regional agreement in order to build the Natura 2000 network, and the MSFD makes their establishment mandatory, particularly in achieving good environmental status for marine areas.

The OSPAR Convention for the Protection of the Marine Environment of the North East Atlantic, covers all human activities in the marine area except fishing and has fifteen participating governments, including all the EU member states bordering the North East Atlantic, Luxembourg, Iceland, Norway and Switzerland.⁸⁶ The EU cooperates with the OSPAR Commission and member states coordinate their actions for marine protection as required under the MSFD through OSPAR mechanisms and structures.⁸⁷ In 2015 the EU's Environmental Agency (EEA) published a report on MPAs in EU waters showing the

83 Directive 2008/56/EC, Marine Strategy Framework Directive, Article 13(4).

84 Directive 2008/56/EC, Marine Strategy Framework Directive, Article 13(4); Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [1992] OJ L206/7 (Habitats Directive); Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [2010] OJ L20/7 (Birds Directive).

85 Directive 2008/56/EC, Marine Strategy Framework Directive, Article 13(4); Directive 2014/89/EU of the European Parliament and of the Council establishing a framework for maritime spatial planning [2014] OJ L257/135, Article 8, specifies 'nature and species conservation sites and protected areas' as possible use designations.

86 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) (Paris, 22 September 1992, 2354 UNTS 67).

87 OSPAR Commission, Finding Common Ground: Towards regional coherence in implementing the Marine Strategy Framework Directive in the North East Atlantic region through the work of the OSPAR Commission; OSPAR Commission, OSPAR Regional Implementation Framework for the EU Marine Strategy Framework Directive: MSFD Road Map, <www.ospar.org/work-areas/cross-cutting-issues/msfd/ospar-msfd> accessed 20/11/2017.

proportion of EU waters protected in MPAs. At the end of 2012 they covered 4.2% of the North East Atlantic Ocean, including the Icelandic, Norwegian and Barents seas.⁸⁸ Whilst this might suggest that progress is being made towards greater protection of marine areas, many of the MPAs overlap sites designated under the OSPAR Convention so that the impact of the MSFD may be rather minor.

Across the EU, by 2013 only six out of 22 member states had met the Natura 2000 requirements in terms of site designations for all relevant marine habitat types, and only four had met requirements for all relevant marine species.⁸⁹ Merely listing protected areas is not enough to secure their protection; such areas need to be controlled and maintained. With regard to habitats, assessments are required for each of those listed under the Habitats Directive which are then classified as favourable or unfavourable, the latter being further broken down into inadequate or bad. In the North East Atlantic for the period 2007 to 2012, 71.4% of all sites habitats were reported as being in a bad state, while the status of the remaining proportion was simply unknown.⁹⁰ The EEA attributed the failure to establish a comprehensive Natura network to the absence of a supportive legal framework. Pursuant to existing legislation, over one thousand marine habitats have been identified but only nine are covered by the Natura protection scheme and these deal, in the main, with coastal sites.⁹¹ Few species have been listed for protection, even though the EEA report notes that over 36,000, excluding bacteria, have been identified.⁹² Furthermore, protection has been sought for discrete habitats and species without any recognition that the favourable conservation status sought by the legislation can only be achieved in the context of healthy resilient seas, and these will not emerge until an ecosystem-based management is adopted. 'Gaps still exist in terms of representativeness, coherence, adequacy and management effectiveness.'⁹³ In general, Natura 2000 sites are not closed to commercial fisheries and very few sites appear to be no extraction sites.

88 J Reker and others, European Environmental Agency, 'Marine protected areas in Europe's seas: An overview and perspectives for the future' EEA Report, No 3/2015 (European Environmental Agency 2015).

89 *Ibid.*, 15.

90 *Ibid.*, 16.

91 *Ibid.*, 17, citing CE Davies and others, 'EUNIS Habitat Classification Revised 2004', (http://eunis.eea.europa.eu/upload/EUNIS_2004_report.pdf) accessed 6 March 2014.

92 *Ibid.*, 17, citing MJ Costello and SP Wilson, 'Predicting the number of known and unknown species in European seas using rates of description: Predicting species diversity', (2011) 20 *Global Ecology and Biogeography* 319.

93 *Ibid.*, 24.

In so far as the CFP is focused on restricting fish extraction to prevent overfishing, its purpose is to enable stocks to be restored to MSY while permitting extractive activity to continue. Although the CFP is expected to contribute to the environmental objective of good environmental status for the seas, the few tools available to regulators are under-utilised. A recent study of fisheries management argued for the establishment of marine protected areas as being efficacious to satisfy both fishery and biodiversity conservation objectives.⁹⁴ The authors contend such areas should be established as no-take zones because they have demonstrable benefits for conservation in their ability to foster resilient ecosystems and seed the external areas. MPAs are observed to 'preserve biological diversity at regional scale, at all levels – specific, habitat/seascape, and also genetic diversity and the structure of populations, allowing natural selection to operate'. Furthermore, 'they maintain the natural size and age structure of the populations, hence maximizing potential fecundity, allowing biomass export to occur from core to regulated areas, dampening the fluctuations derived from deviations from the theoretical optimal effort in the fishing zone'.⁹⁵

The benefits of securing areas for regeneration and the conservation of biodiversity are acknowledged to be aims worth pursuing but there is resistance to the establishment of MPAs in the North East Atlantic. This is evident from another branch of management that also seeks a more coherent and cohesive policy governing EU seas. The Integrated Maritime Spatial Planning Directive (MSP) is predicated on an evaluation of the cumulative effect of human activities in marine areas and the application of the precautionary principle has been adopted as the management mode for EU waters.⁹⁶ The intention is to avoid conflicts in use, identify the impact of human activities in marine areas and thereby facilitate multiple use. Although MSP aims for the sustainable growth of marine economies and the sustainable use of marine resources, the aspirational nature of the provisions of the directive governing the area is evident in that planning by the member states is to do no more than 'aim to contribute' to the outcomes specified. An ecosystem-based approach in planning, taking account of economic, social and environmental aspects and support sustainable growth and development is sought.⁹⁷ However, a hierarchy of immediate

94 A Pérez-Ruzafa, J Garcia-Charton and C Marcos, 'North East Atlantic vs. Mediterranean Marine Protected Areas as Fisheries Management Tool', *Frontiers of Marine Science*, 3 August 2017, <<https://doi.org/10.3389/fmars.2017.00245>> accessed 20/11/2017.

95 *Ibid.*

96 Directive 2014/89/EU of the European Parliament and of the Council establishing a framework for maritime spatial planning [2014] OJ L257/135.

97 Directive 2014/89/EU, Article 5(1).

concerns is set out in the directive. The ecosystem-based approach is to be applied: first, to the development of the energy sector; second, to maritime transport; third, to fisheries and aquaculture, and, finally, to the protection and improvement of the environment, including resilience to climate change.⁹⁸ In all this, the prioritisation of biodiversity and ecosystem protection seems to have been overlooked and, in practice, the ultimate aim appears to be to incorporate other commercial activities into already stressed fishing areas.⁹⁹

The Dogger Bank Special Area of Conservation (SAC) is currently classed as in unfavourable conservation status with Germany, which is particularly concerned to restore typical and threatened species, advocating the banning of trawling in order to meet commitments under the Habitats Directive.¹⁰⁰ This was resisted by the UK and Netherlands but, eventually, they agreed six management zones, comprising one third of the total area, in which bottom trawl and dredges are banned. Measures adopted are justified as making a key contribution to conservation objectives, 'while, as far as possible, minimizing impacts on the fishing industry'.¹⁰¹ Meanwhile, in furtherance of the MSP agenda, the UK section of the Site of Community Importance (SCI) is to be developed for green energy production, a project opposed by nature conservation groups. The harbour porpoise, a cetacean (*phocoena phocoena*), listed in the IUCN red list of threatened species and listed in the Habitats Directive as a species of Community interest requiring strict protection in their natural range, is resident in high density, year-round in the Dogger Bank area.¹⁰² Protection for the porpoise under the Habitats Directive includes a prohibition on 'the deliberate disturbance' of the species and the 'deterioration or destruction of breeding sites or resting places'.¹⁰³ Scientific evidence is that windfarm construction, including acoustic disturbance from pile driving, will affect harbour

98 Directive 2014/89/EU, Article 5(2).

99 Displace, spatial model of fisheries to help maritime spatial planning, <www.msp-platform.eu/node/85> accessed 22/11/2017.

100 Background Document to the draft Joint Recommendation for Offshore Fisheries Management on the International Dogger Bank under the revised Common Fisheries Policy, The Hague, Bonn, London, 31 May 2016, <http://lbst.dk/fileadmin/user_upload/NaturErhverv/Filer/Fiskeri/Natura_2000_hav/Fiskeriregulering_i_andre_lande/20160531_Dogger_Bank_Background_Document_final.pdf> accessed 23/11/2017.

101 Ibid., paragraph 7(4)(10).

102 Directive 92/43/EEC, Annex IV(a); The IUCN Red List of Threatened Species, <www.iucnredlist.org/details/17027/0> accessed 20/11/17; A-C Cucknell and others, 'Harbour porpoise (*Phocoena phocoena*) presence, abundance and distribution over the Dogger Bank, North Sea, in winter' (2017) 7 Journal of the Marine Biological Association of the UK, 1455.

103 Directive 92/43/EEC, Article 12 and Annex IV(a).

porpoises leading to physical damage, altered metabolisms and behavioural changes, hampering population recruitment.¹⁰⁴ In 2016, the Commission commenced action against the UK for its breach of the Habitats Directive in failing to designate sites for the protection of harbour porpoise in proportion to the species' representation within UK territory to contribute to the creation of a Natura 2000 network.¹⁰⁵ This case is yet to be heard but, even if successful, the Dogger Bank development will probably be unaffected as the Habitats Directive allows derogation in the public interest for economic or social reasons.¹⁰⁶ While sustainable development demands that the three conflicting interests of economic, social and environmental protection are to be taken into account, ecosystem-based management in marine spatial planning appears to be largely calibrated towards economic development.

9 State Aid for Exploitation

Since its inception, the CFP has been beset by problems of overinvestment resulting in overcapacity and overfishing. The total catch of the EU fishing fleet has fallen almost every year since its high in 1995, so that by 2012 it was 28% lower than in 2001 and 42% lower than in 1995.¹⁰⁷ Eurostat reports that latest production figures for 2014 'suggest' a rise in total marine fish catch, but it is not clear how this compares with earlier years.¹⁰⁸ Successive fisheries regulations have sought to address the issue of overexploitation by reducing fleet capacity. As a matter of resource conservation,¹⁰⁹ action is required to ensure member state fishing fleets are adjusted to a level consonant with the fishing opportunities available to them, resulting in 'economically viable fleets without overexploiting marine biological resources'.¹¹⁰ It is incumbent on the member states

104 C Peng, X Zhao and G Liu, 'Noise in the Sea and Its Impacts on Marine Organisms' (2015) 12 *International Journal of Environmental Research and Public Health* 12304.

105 Case C-669/16 *European Commission v UK*, not yet heard; Directive 92/43/EEC, Article 4(1) and Annexes II and III.

106 Directive 92/43/EEC, Article 16(1)(c).

107 Eurostat, *Facts and Figures on the CFP* (Luxembourg, 2008) 16; Eurostat, Fishery Statistics, Data from May 2014, <http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Fishery_statistics> accessed 20/11/2017.

108 Eurostat, *Agriculture, forestry and fishery statistics*, 2016 edition, 192, <<http://ec.europa.eu/eurostat/documents/3217494/7777899/KS-FK-16-001-EN-N.pdf/cae3c56f-53e2-404a-9e9e-fb5f57ab49e3>> accessed 20/11/2017.

109 Regulation 1380/2013, Article 7(c).

110 Regulation 1380/2013, Article 2(5)(d).

themselves to align the number of vessels in their fleet with resources available to them, however, a latitude is provided in that this is to be done ‘over time’.¹¹¹

Despite efforts to redress overcapacity, overinvestment in the marine fisheries sector is facilitated by the financial supports provided to the fishing industry and exemptions from the general rules on state aid and competition set out in the Treaty. Deviating from the general approach to anti-competitive practices, the TFEU provides that rules on competition are to apply to agriculture and fisheries only to the extent determined by the European Parliament and Council. Specifically, aid may be authorised to ‘enterprises handicapped by structural or natural conditions’ or within economic development programmes.¹¹²

Because of the protected status of agriculture and fisheries under the Treaty, aid is provided by EU law, ostensibly for purposes of increasing production, ensuring a fair standard of living for workers, stabilising markets, ensuring the availability of supplies, and keeping costs down for consumers.¹¹³ An OECD study of the obstacles to the removal of harmful subsidies noted that, despite the Lisbon Agenda for competitiveness and job creation, there was no sign of the EU undertaking fishery subsidy reforms that would contribute to those objectives ‘any more than the environmental commitments’.¹¹⁴ A subsequent investigation into the effect of EU fishery subsidies found that capacity enhancing projects that reduce the costs of the industry received five times the amount of subsidy made available for schemes that would enhance the growth of fish stocks through conservation.¹¹⁵

In 2014, a new instrument dealing with de minimis aid to the fishing industry was adopted, permitting aid up to the value of €30,000 per recipient over the course of three years.¹¹⁶ A new block exemption for fisheries and aquaculture has been adopted which applies to ‘aid granted to small and medium-sized enterprises (SMEs) active in the production, processing or marketing of fishery

111 Regulation 1380/2013, Articles 22.

112 Article 42 TFEU.

113 Title III, Agriculture and Fisheries, Articles 39–40 TFEU.

114 J Brown, ‘Fisheries’ in OECD, *Subsidy Reform and Sustainable Development* (OECD 2007) 11–19.

115 U Rashid Sumaila and others, *Global Fisheries Subsidies*, October 2013, IP/B/PECH/2013–146, 24, <[www.europarl.europa.eu/RegData/etudes/note/join/2013/513978/IPOL-PECH_NT\(2013\)513978_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513978/IPOL-PECH_NT(2013)513978_EN.pdf)> accessed 20/11/2017.

116 Commission Regulation 717/2014 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid in the fishery and aquaculture sector OJ 2014 L90/45.

and aquaculture products.¹¹⁷ Aid covered by the exemption which does not have to be notified to the Commission includes aid for: innovation, advisory services, partnerships between scientists and fishermen, job creation, health and safety, mitigation of climate change, and administrative systems.¹¹⁸ Compliance with protective measures is amenable to financial support compensating for losses of unfettered access to fishing areas or stocks. The unwanted catches that previously have been discarded but which are now subject to a progressive timetable requiring they be landed,¹¹⁹ may attract aid.¹²⁰ Most surprisingly, the terrestrial infrastructure of fishing, that is the financing of ports, landing sites, auction halls and shelters, all attract aid.¹²¹ Further aid is available to meet the environmental objectives of mitigating the damage caused by fishing activity.¹²²

As well as subsidies from the member states, the fisheries sector is entitled to aid from the Union through the EU's Structural and Investment programmes. The European Maritime and Fisheries Fund (EMFF) seeks to promote the Europe 2020 project for a smart, sustainable and inclusive economy with the emphasis on jobs and innovation.¹²³ The EMFF is to promote the objectives of fisheries policy and contribute to the implementation of the CFP so that there is a prohibition on funding that will increase capacity.¹²⁴ Funding available mirrors many of the areas covered by the block exemption permitting state aid for the sector. However, the EMFF also provides funding for the 'the enhancement of the competitiveness and viability of fisheries enterprises', which can include support for failing entities.¹²⁵

117 Commission Regulation (EU) No 1388/2014 of 16 December 2014 declaring certain categories of aid to undertakings active in the production, processing and marketing of fishery and aquaculture products compatible with the internal market in application of Articles 107 and 108 of the Treaty on the Functioning of the European Union OJ 2014 L369/37.

118 Commission Regulation (EU) No 1388/2014, Articles 13–22.

119 Regulation 1380/2013, Article 15(1).

120 Regulation 1388/2014 Article 27.

121 Commission Regulation (EU) No 1388/2014, Article 28.

122 Commission Regulation (EU) No 1388/2014, Articles 23–26.

123 Regulation (EU) No 508/2014 of the European Parliament and of the Council on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council [2014] OJ L149/1 (Maritime and Fisheries Fund Regulation).

124 Regulation (EU) No 508/2014, Article 5.

125 Regulation (EU) No 508/2014, Article 6(1)(d).

10 Blue Growth

Emerging out of the European Union's IMP, the EU developed its Blue Growth agenda, described by the Commission as intending the harnessing of 'the untapped potential of Europe's oceans, seas and coasts for jobs and growth'.¹²⁶ The 'core objective' of the agenda is described as being 'to exploit the potential of the seas and oceans in order to make a significant and sustainable contribution to economic growth, by creating new jobs while better respecting natural resources and the marine environment'.¹²⁷ Aquaculture, coastal tourism, marine biotechnology, ocean energy, and seabed mining are identified as offering growth and jobs potential, while the most basic of marine activities, marine fishing, is identified as an industry in decline along with the carbon-based energy sector and, as a consequence, has been excluded.¹²⁸ However, since this exclusion, the reforms in the CFP seem to have been highly beneficial for the fish-catching sector. In its 2016 Staff Working Document on Blue Growth Strategy, the Commission refers to 'parallel' developments with regard to the new, reformed CFP.¹²⁹ The traditional European fisheries sector is reported as having improved economic and social sustainability as a result of the reforms to the CFP, so that the EU fleet 'has moved from a loss-making position in 2008 to high profitability today'.¹³⁰ Huge profits are available to a relatively small number of operators, generating just over 110,000 full-time jobs, jobs that are seen to be low-skilled and low-paid.¹³¹

126 Communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions, Blue Growth Opportunities for Marine and Maritime Sustainable Growth, COM (2012) 494 final, 2.

127 *Ibid.*, 5.

128 Communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions, Innovation in the Blue Economy: Realising the Potential of Our Seas and Oceans for Jobs and Growth, COM (2014) 254 final/2.

129 European Commission, Report on the Blue Growth Strategy: Towards More Sustainable Growth and Jobs in the Blue Economy, SWD (2017) final.

130 *Ibid.*, 6, citing: 2016 Annual Economic Report on the European Union Fishing Fleet: 'Revenue in 2014: EUR 7.3 billion; net profit in 2014: EUR 770 million; STECF, The 2016 Annual Economic Report on the EU Fishing Fleet (STECF 16–11), <https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016_AER_2_STECF_EXECUTIVE+SUMMARY.pdf> accessed 23/11/2017.

131 Ecorys, Deltares and Oceanic Consortium, Blue Growth: Scenarios and Drivers for Sustainable Growth from the Oceans, Seas and Coasts, First Interim Report – Second Revised Version, European Commission DG MARE, 2011, 82.

There is a contradiction between the Blue Growth agenda which perceives marine fisheries as a legacy industry in terminal decline and the Blue Growth strategy which assesses the sector as in robust economic health. This contradiction is a direct consequence of a market failure in marine fisheries combined with an incoherent policy of regulation that subsidises an industry to overexploit the fish resource for which it does not pay.¹³²

11 Conclusion

The ecosystem-based management envisaged in the MSFD to protect biodiversity and ecosystems has been marginalised in fisheries management under the CFP. Environmental considerations are routinely trumped by an apparent economic imperative. The social benefits that were expected to flow from the exceptional treatment of the fisheries sector have failed to materialise; jobs are generally poorly paid, the industry is in decline and the fleet has consolidated with profits concentrated in the hands of fewer operators who are now in a position to shape regulatory policy. Fisheries regulation clings to the precautionary approach so that exploitation is permitted right to the margin of biological sustainability with catch entitlements often set in excess of scientific advice. Although ecosystem-based management is required to underpin the regulation of all activities in EU marine waters, its application is to ameliorate the multiplication of stresses on the natural environment as the area is opened up to increasing economic activities. An ecosystem-based approach will render EU seas more sustainable only if the CFP is subjected to the terms of the MSFD and the MSP planners revisit their understanding of ecosystem-based management. Whilst such changes, undoubtedly, would improve the situation, the fact that the resource is free at point of extraction will always pose a threat to its sustainability. Only when subsidies are removed and extractors fully pay for the use of the resource will the fisheries sector be economically and environmentally viable.

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The Challenges of Applying the Ecosystem Approach to Spatial Planning in the EEZ: German Experiences

Eva Schachtner

1 Introduction

The German coastline has a total length of approximately 3,402 km; the North Sea Coast is 1,155 km long and the Baltic Sea Coast is 2,247 km long.¹ Lagoons, estuaries, bays, mudflats, peninsulas, islands, cliffs and flat coastal plains form a beautiful and diverse coastal landscape. Whereas tidal movement is significant on the North Sea coast, this phenomenon is barely noticeable in the brackish Baltic Sea.² The North Sea is one of the most productive and biologically diverse seas of the world. The Wadden Sea, the world's largest ecosystem of its kind, with a total surface of 8,000 km², serves as a nursery for many fish species, as a stepping stone for migrating birds, and as a breeding and moulting area. The Baltic Sea, in contrast, is characterized by a low diversity of species, caused by its isolation from the North Sea and its low oxygen content and salinity.

Several large cities are located along the coast, including Hamburg, Kiel and Rostock. Outside the cities, the region has a relatively low population density.³ The three largest German ports are in Hamburg, Bremerhaven and Wilhelmshaven.⁴ The North Sea and the Baltic Sea are among the most heavily

1 EUCC – Die Küstenunion Deutschland e.V., 'Die Ostseeküste' <www.ikzm-d.de/inhalt.php?page=151,3494> accessed 30 September 2018.

2 Gerald Schernewski, 'Integrated Coastal Zone Management (ICZM): From European strategy to practice in Germany' (2002) European Union for Coastal Conservation (EUCC) <http://eucc-d-inline.databases.eucc-d.de/files/documents/00000680_Schernewski_ICZM_Germany.pdf>.

3 Bundeszentrale für politische Bildung, 'Siedlungsstruktur und Bevölkerungsdichte' <www.bpb.de/nachschlagen/datenreport-2016/226681/siedlungsstruktur-und-bevoelkerungs-dichte> accessed 30 September 2018.

4 Statista, 'Top 10 Seehäfen in Deutschland' <<https://de.statista.com/statistik/daten/studie/239221/umfrage/groesste-haefen-in-deutschland-nach-gueterumschlag/>> accessed 30 September 2018.

navigated seas of the world.⁵ Particularly in the summer, the German coast is a popular tourist destination with about 6.8 million tourists spending their holidays at the Baltic Sea coast in 2018.⁶ In addition, to implement the energy transition towards renewable energies, 1,196 offshore wind turbines have been installed in the German marine areas as of the end of 2017.⁷ Activities in the coastal and marine zone further include dredging and the extraction of gravel and sand, petroleum and natural gas exploration, laying of pipelines and cables, fisheries, aquaculture, agriculture, construction of coastal protection measures, and military activities.⁸

For a long time, no need was seen in Germany to coordinate the traditional maritime uses by means of spatial planning. This changed at the end of the 1990s due to ongoing technical and economic development and the resulting user conflicts.⁹ In particular, the planning of offshore wind farms, as well as the extension of the Federal Nature Conservation Act¹⁰ to the Exclusive Economic Zone (EEZ), and the subsequent possibility of designating protected areas in the EEZ, intensified the competition for marine space. The 'first come, first served' principle that had dominated the allocation of marine space was no longer considered adequate to balance the various interests.¹¹ Rather, it was decided that, just as in the terrestrial context, user-user conflicts as well as user-environment conflicts should be comprehensively addressed in the marine area through a process of marine spatial planning. A revision of

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- 5 Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *Nationale Strategie für ein integriertes Küstenzonenmanagement* (Cabinet Decision of 22 March 2006) 20.
- 6 Statista, 'Anzahl der Personen in Deutschland, die in den vergangenen 12 Monaten an die Ostsee in den Urlaub gefahren sind' <<https://de.statista.com/statistik/daten/studie/173279/umfrage/beliebte-reiseziele---anzahl-der-ostseerulauber/>> accessed 30 September 2018.
- 7 BWE (Bundesverband WindEnergie), 'Offshore' <www.wind-energie.de/themen/offshore> accessed 30 September 2018.
- 8 Gerald Schernewski, 'Integrated Coastal Zone Management (ICZM): From European strategy to practice in Germany' (2002) European Union for Coastal Conservation (EUCC) <http://eucc-d-inline.databases.eucc-d.de/files/documents/0000680_Schernewski_ICZM_Germany.pdf>.
- 9 Helmuth von Nicolai, 'Rechtliche Aspekte einer Raumordnung auf dem Meer', (2004) 7/8 *Informationen zur Raumentwicklung* 491, 491.
- 10 Federal Nature Conservation Act of 29 July 2009 (Federal Law Gazette, Part I, No 51/2542), last amended by the Act of 15 September 2017 (Federal Law Gazette, Part I, No 64/3434).
- 11 Peter Ehlers, 'Nutzungsregime in der Ausschließlichen Wirtschaftszone' in Peter Ehlers and Wilfried Erbguth (eds), *Nutzungs- und Schutzkonflikte in der Ausschließlichen Wirtschaftszone* (Nomos 2005) 13, 29.

the Federal Spatial Planning Act (FSPA) in 2004 facilitated the establishment of spatial plans for the EEZ. Based on the FSPA, legal ordinances concerning the spatial plans for the German EEZ in the North Sea and the Baltic Sea were prepared by the Federal Maritime and Hydrographic Agency (BSH) and adopted by the Federal Ministry of Transport, Building and Urban Development (BMVBS). They entered into force in 2009.¹²

In these spatial plans, the BMVBS, which became the Federal Ministry of Transport and Digital Infrastructure (BMVI) in December 2013, formulated guidelines for spatial development (chapter 2) and set targets and principles for functions and uses (chapter 3). The spatial plans contain provisions aimed at coordinating shipping and regulating the exploitation of resources, the laying of pipelines and submarine cables, scientific marine research, wind power generation, fisheries and mariculture, as well as the protection of the marine environment. Each provision is followed by a justification of the scientific and legal reasons for its incorporation in the plan. Chapter 4 of the plans deals with further relevant interests. Chapter 5 describes the manner in which the results of the environmental assessment of the plans, which has been carried out in parallel with the planning process, have been taken into consideration. Finally, chapter 6 contains the coordinates corresponding to the regulations and maps depicting transnational pipelines and cables.

The FSPA was amended in 2017 to implement Directive 2014/89/EU establishing a framework for maritime spatial planning (MSP-Directive).¹³ Among other amendments, the Act now requires the sustainable development of the marine area to be supported by the application of the ecosystem approach.¹⁴ By taking the full array of interactions among ecosystem components and human uses into consideration, it is anticipated that the ecosystem approach can help to better arbitrate between the increasing diversity and intensity of human activities and the protection of marine ecosystems. As a consequence of the

12 Spatial Plan for the Baltic Sea (Annex to Federal Law Gazette, Part 1, No 78 of 18 December 2009); Spatial Plan for the North Sea (Annex to Federal Law Gazette, Part 1, No 61 of 25 September 2009). An English version of the Spatial Plans for the North Sea and the Baltic Sea as well as of the respective Environmental Reports is planned to be available in the future under the following link: <www.bsh.de/EN/TOPICS/Offshore/offshore_node.html>. The numbering of sections in the text refers to the Spatial Plan for the North Sea to exemplarily illustrate the spatial planning measures taken in the EEZ, but the regulations in the Spatial Plan for the Baltic Sea are quite similar.

13 Directive 2014/89/EU of the European Parliament and of the Council establishing a framework for maritime spatial planning [2014] OJ L 257/135 (MSP-Directive).

14 Section 2 para. 2 no. 6 FSPA (in implementation of Art. 5 para. 1 MSP-Directive).

amendments to the FSPA, which entered into force on 29 November 2017,¹⁵ a review and revision of the spatial plans for the German EEZ is expected.

The present study examines the extent to which the German legal provisions for marine spatial planning in the FSPA and the spatial plans adopted for the EEZ correspond to the requirements of the ecosystem approach. Furthermore, it examines whether the regulations of the FSPA provide for the possibility of an even better protection of marine ecosystems in the second generation of plans, which seems to be the ultimate goal of the ecosystem approach. The focus of the analysis will be on whether the German spatial planning tools are flexible enough to reflect the characteristics of ecosystems, and on what components could help to improve ecosystem protection in marine spatial planning.

2 Planning Tools in Germany

The FSPA sets out the framework for spatial planning in Germany. It contains regulations concerning the distribution of competences between the federal government and the federal states, the planning process including the environmental assessment of the draft spatial plans and the preparation of the environmental reports, as well as basic content requirements. Section 1 para. 1 of the FSPA specifies the task of spatial planning. According to this section, the territory of the Federal Republic of Germany shall be developed, organized and protected through integrated general regional plans, cooperation and the harmonization of regionally significant plans and measures. Different spatial demands on an area shall be coordinated and conflicts resolved. The definition of the function of spatial planning sets a limit to the possibility of making detailed sectoral regulations at the planning level. Spatial planning is to be concerned only with the reconciliation of the various spatial demands and the prevention and resolution of conflicts emerging at that level,¹⁶ and not with replacing sectoral decisions.¹⁷ However, the transition between sectoral and comprehensive spatial planning seems to be rather fluid.¹⁸

15 Federal Spatial Planning Act of 22 December 2008 (Federal Law Gazette, Part I, No 65/2986), last amended by the Act of 23 May 2017 (Federal Law Gazette, Part I, No 30/1245).

16 Cf. Section 1 para. 1 no. 1 FSPA.

17 Martin Kment, 'Standortfestlegungen und Streckenverläufe – Neues zum Verhältnis von Raumordnung und Fachplanung' (Issue 6, 2010) 32 *Natur und Recht* 392, 392–393.

18 Bernhard Stürer and Dietmar Hönig, 'Raumordnung und Fachplanung im Widerstreit' in Jan Ziekow (ed), *Bewertung von Fluglärm – Regionalplanung – Planfeststellungsverfahren* (Duncker & Humblot 2003) 225, 225.

The main tools of spatial planning articulated in the legislation are targets and principles. Targets, within the meaning of the FSPA, are binding stipulations in textual or graphical form in a spatial plan with a clear content and a clear geographical scope of application concerning the development, organization and protection of a certain area.¹⁹ A conclusive weighing of all relevant interests constitutes a prerequisite for their binding effect. With the determination of a target, a final decision in respect of a spatial conflict has to be taken.²⁰ Principles are, in contrast, guidelines for two types of subsequent decisions, decisions requiring a balancing of interests and concerns and discretionary decisions. Often, several principles have to be balanced against each other.²¹ They can be set in a law or in a spatial plan.²² Targets have to be observed by public authorities with regard to their plans and measures of spatial relevance, but particularly with regard to their decisions concerning licensing procedures and the approval of projects. The approval authority generally has to reject development applications if the spatial plan contains targets that oppose the development. Principles only have to be taken into consideration.²³

The FSPA provides, moreover, for the possibility of establishing priority areas, reserve areas and suitability areas.²⁴ A priority area (considered a 'target') is an area intended for certain regionally significant functions or uses, in which other regionally significant uses are excluded insofar as they are incompatible with the priority functions or uses.²⁵ A reserve area (considered a 'principle') is an area where special importance is attached to certain regionally significant functions or uses when weighted against competing regionally significant uses.²⁶ In a spatial plan, suitability areas can also be indicated for the marine area. These are areas that are considered especially suited for certain uses or functions. The designation of suitability areas entails the exclusion of the respective uses or functions from other parts of the planning area.²⁷ An overlapping of different categories of areas is difficult because of the problem

19 Section 3 para. 1 no. 2 FSPA.

20 Hans-Joachim Koch and Reinhard Hendler, *Baurecht, Raumordnungs- und Landesplanungsrecht* (Boorberg, 2015) 57.

21 Dressler and others, *Weiterentwicklung der Landschaftsrahmenplanung und ihre Integration in die Regionalplanung* (Landwirtschaftsverlag 2000) 29 *Angewandte Landschaftsökologie* 132.

22 Section 3 para. 1 no. 3 FSPA.

23 Section 4 para. 1 FSPA.

24 Section 7 para. 3 FSPA.

25 Section 7 para. 3 no. 1 FSPA.

26 Section 7 para. 3 no. 2 FSPA.

27 Section 7 para. 3 no. 4 FSPA.

of conflicting priorities.²⁸ In such cases it will be necessary to ensure that, because of the purpose of the respective areas, conflicts are excluded or that conflict rules are defined in the plan.²⁹

3 The Ecosystem Approach

There is no universal definition of the ecosystem approach. Within the scope of the Convention on Biological Diversity, the ecosystem approach is defined as ‘a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way’.³⁰ According to the definition adopted by HELCOM³¹ and OSPAR,³² the ecosystem approach is ‘the comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of marine ecosystems, thereby achieving sustainable use of ecosystem goods and services and maintenance of ecosystem integrity’.³³ Recital 14 of the MSP-Directive states that the ecosystem approach shall aim at ‘ensuring that the collective pressure of all activities is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while contributing to the sustainable use of marine goods and services by present and future generations’.

28 Federal State Parliament of Mecklenburg-Western Pomerania (document: Drucksache 6/3237 of 30 September 2014) 1.

29 Example of a conflict rule: ‘When designations of priority areas for pipelines overlap with priority areas for wind energy, the requirements of the pipelines shall be given priority.’ (Target 3 in Section 3.3 on pipelines and submarine cables).

30 Convention on Biological Diversity, ‘Ecosystem Approach’ <www.cbd.int/ecosystem/> accessed 30 September 2018.

31 The Baltic Marine Environment Protection Commission (the Helsinki Commission – HELCOM). HELCOM is the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, known as the Helsinki Convention, 1507 UNTS 167; 1994 OJ (L 73) 20; 13 ILM 546 (1974).

32 The OSPAR Commission for the Protection of the Marine Environment of the North East Atlantic (OSPAR). The OSPAR Commission is the governing body of the Convention for the Protection of the Marine Environment of the North-East Atlantic, known as the OSPAR Convention, 2354 UNTS 67; 32 ILM 1069 (1993).

33 HELCOM / OSPAR Commission for the Protection of the Marine Environment of the North East Atlantic, Statement, *Towards an Ecosystem Approach to the Management of Human Activities* (First Joint Ministerial Meeting of the HELSINKI and OSPAR Commissions, 2003) Point 5.

Despite the importance given to the ecosystem approach at the international level, the precise content of the approach still appears nebulous, rendering it difficult to put into practice.³⁴ Including the ecosystem approach in the spatial planning process is considered to help make the approach operational in the marine environment.³⁵ Through the formulation of 'key elements for applying the ecosystem-based approach in MSP', described in the 2016 Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area (EBA-Guideline),³⁶ HELCOM and Vision and Strategies around the Baltic Sea (VASAB)³⁷ attempt to clarify the requirements of the concept. The key elements comprise: best available knowledge and practice; precaution; alternative development; identification of ecosystem services; mitigation; relational understanding; participation and communication; subsidiarity and coherence; as well as adaptation. Since the EBA-Guideline represents one of the most recent and most widely accepted compilations of elements of the ecosystem approach, those key elements will constitute the points of reference in the following analysis of the German progress on implementing the ecosystem approach.³⁸ This method does not imply that there is a one-size-fits-all solution for the application of an ecosystem approach to marine spatial planning. Rather, the appropriate range of tools and methods varies according to the scenarios of the respective plan area.³⁹ The specification of the requirements of the ecosystem approach tailored to the legal and administrative system in Germany as well as to the conditions in the German EEZ is therefore currently the subject of several research projects.

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- 34 Rafael Sardá and others, 'Ecosystem-Based Management for Marine Protected Areas: A Systematic Approach' in Paul Goriup (ed), *Management of Marine Protected Areas: A Network Perspective* (Wiley-Blackwell, 2017) 145, 146.
- 35 Fanny Douvere, 'The importance of marine spatial planning in advancing ecosystem-based sea use management' (2008) 32 *Marine Policy* 762, 765.
- 36 HELCOM, Heads of Delegation, *Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area (EBA-Guideline)* (HOD 50-2016).
- 37 Intergovernmental multilateral co-operation of 11 countries of the Baltic Sea Region in spatial planning and development.
- 38 The key elements in the EBA-Guideline seem to widely correspond to the key principles that have been identified to be included in most of the definitions describing marine ecosystem-based management: Cf. Rachel D Long, Anthony Charles and Robert L Stephenson, 'Key principles of marine ecosystem-based management' (2015) 57 *Marine Policy* 53-60.
- 39 Scottish Natural Heritage, 'An ecosystem approach to marine planning – a summary of selected tools, examples & guidance' (2016) <www.nature.scot/sites/default/files/2017-06/2016%2005%2018%20-%20Ecosystem%20approach%20in%20marine%20planning%20-%20FINAL%20Version%201.pdf> 1.

4 Key Elements of the Ecosystem Approach in Marine Spatial Planning and Their Implementation in the German EEZ

4.1 *Best Available Knowledge and Practice*

To implement the ecosystem approach, the allocation and development of human uses shall, pursuant to the EBA-Guideline, be based on the latest state of knowledge of the ecosystems as such and the practice of safeguarding the components of the marine ecosystem in the best possible way. The MSP-Directive also requires the use of the best available data.⁴⁰ The legal framework for the transposition of this requirement into German law is formed, according to the explanatory statement to the draft amendment to the FSPA,⁴¹ by Section 7 para. 2 of the FSPA, as well as by the respective Sections on strategic environmental assessment, the information obligation, and on participation.⁴² Section 7 para. 2 of the FSPA states that relevant public and private interests shall be duly weighed and fairly balanced in the planning process insofar as they are apparent and sufficiently important at the respective planning level. The duty to duly consider all interests implies the duty to gather information on all potentially relevant interests. The best available data must be determined in each individual case and the planning authority has some margin of discretion in that regard.⁴³ Other public authorities shall be asked to provide information on their envisaged plans and measures and other information available to them,⁴⁴ but they are not obliged to investigate additional facts.⁴⁵ Within the environmental assessment, the impacts of the plan on the marine environment then have to be comprehensively investigated. This obligation is, however, softened by stating that the depth of the examination may be limited to what can be reasonably expected with regard to the current state of knowledge.⁴⁶ Even though neither the MSP-Directive nor the EBA-Guideline require the conduct of additional research on ecosystem functioning, it seems questionable whether the reluctance to require further research

40 Directive 2014/89/EU, Art. 10 para. 1.

41 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 42.

42 Section 8 para. 1, Section 9 para. 1 and Section 9 para. 2 and 3 FSPA.

43 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 42.

44 Section 9 para. 1 FSPA.

45 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 47.

46 Section 8 para. 1 FSPA.

in the preparation of the plans does justice to the importance of a comprehensive information base for ecosystem protection.

Further details concerning the gathering of information and the use of data are specified in the spatial plans themselves. Thus, for a comprehensive and large-scale gathering of knowledge regarding ecosystem interrelationships, the results of marine scientific research should be continuously collected (Principle 3 in Section 3.4.1 on marine scientific research). According to the justification for this principle, this knowledge is to be used to monitor the effects of the implementation of the marine spatial plan. The principle is based on the recognition that a sufficient state of knowledge is a prerequisite for the sustainable development of the EEZ and the ongoing improvement of the plans.

With respect to individual uses, specific provisions are made with a view to learning more about their impacts on the marine ecosystem. For example, Target 4 in Section 3.5.1 on energy production states that a 'reference area' is to be kept free of wind energy installations in order to facilitate a comparative analysis. Another example is Principle 9 in Section 3.2.1 on the exploitation of non-living resources that requires that the effects of resource exploitation on the marine environment are examined through project-specific monitoring. The definition of the concrete requirements of this examination is delegated to the approval authority. The plans themselves thus provide for the incremental improvement of knowledge concerning ecosystem functioning that can then be used to improve the next generation of spatial plans. Such an approach can help to reconcile the necessity of generating an adequate information base crucial for ecosystem-based spatial planning with the necessity of a timely adoption of the plans.

4.2 *Precaution*

Far less is known about marine than about terrestrial ecosystems. In addition, marine ecosystems exhibit complex system behaviours and it can therefore not be safely assumed that they recover when stressors are reduced.⁴⁷ Thus, the application of precaution is particularly important to ensure a careful and responsible use of the marine area.⁴⁸ With regard to precaution, the EBA-Guideline states that far-sighted, anticipatory and preventive planning shall promote sustainable use in marine areas and shall exclude risks and hazards of human activities on the marine ecosystem. However, while requiring a specific careful survey and weighting of the risks of those activities that according to

47 Larry Crowder and Elliott Norse, 'Essential ecological insights for marine ecosystem-based management and marine spatial planning' (2008) 32 *Marine Policy* 772, 772.

48 Cf. Guideline 2.5 of the spatial plan.

current scientific knowledge may lead to significant or irreversible impacts on the marine ecosystem and whose impacts may not be in total or in parts sufficiently predictable at present, the EBA-Guideline does not require the avoidance of any risk.

According to the FSPA (Section 1 para. 1), spatial plans have to provide both for uses in and for the functions of an area, including the functions of ecosystems, but the planning authority has a certain leeway with regard to the appropriate level of precaution.⁴⁹ The same applies for the balancing of interests according to Section 7 para. 2 of the FSPA. Moreover, the principle of proportionality sets limits to the application of precaution. Implementing precaution in marine spatial planning thus involves, pursuant to the FSPA, value judgments and trade-offs between competing spatial demands. In particular, the FSPA has been criticised on the basis that no principal priority in the process of weighing up the planning options has been given to environmental concerns in the face of uncertainty. The application of the precautionary principle under the FSPA therefore often takes the form of mere hazard prevention rather than ensuring an increase in environmental quality.⁵⁰ If precaution is understood as requiring consideration and some sort of balancing of all risks,⁵¹ the provisions of the FSPA nevertheless seem to meet the respective requirements of the ecosystem approach.

The conditions for the determination of the different spatial planning instruments further influence the level of precaution that can be ensured by the spatial plans. A conclusive weighing of interests is a prerequisite for the establishment of binding spatial planning targets, including the establishment of priority areas.⁵² If such a conclusive weighing is not possible due to a knowledge deficit with respect to the detrimental impacts of a certain anthropogenic activity on the marine environment, then, in line with the precautionary principle, it is not possible to establish targets or a priority area favouring this activity.⁵³ Because of the impossibility of clearly defining areas of special importance to benthic communities, however, it has also been considered

49 Cf. Niedersächsisches OVG (higher administrative court of Lower Saxony), decision of 28 October 2004, case number 1 KN 155/03 para 68.

50 Wilfried Kühling, Christian Hildmann, 'Umweltziele koordinieren und verbindlich machen' (2003) 107 *RaumPlanung* 62, 63.

51 Rosie Cooney, 'The Precautionary Principle in Biodiversity Conservation and Natural Resource Management' IUCN Policy and Global Change Series no 2 (2004) 28.

52 Section 3 para. 1 no. 2 FSPA.

53 Johann Köppel, Wolfgang Wende and Alfred Herberg, 'Naturschutzfachliche und naturschutzrechtliche Anforderungen im Gefolge der Ausdehnung des Raumordnungsregimes auf die deutsche Ausschließliche Wirtschaftszone' (2006) *Schriften des Bundesamtes für Naturschutz* 82.

impossible to designate areas ensuring their protection at the time of the adoption of the current spatial plans.⁵⁴

Since the establishment of spatial planning targets is subject to strict conditions, the provisions of the German plans often have recourse to the 'weaker' technique of simply determining principles to deal with uncertainty regarding the marine environment. For example, with regard to the laying and operation of pipelines and submarine cables, Principle 8 in Section 3.3.1 says that any damage to or destruction of sandbanks, reefs, or other areas with valuable benthic communities shall be avoided, including in such areas that are outside Natura 2000 sites.⁵⁵ At the time the Principle was adopted it was not possible to identify the concrete locations of those structures. If they are found in the course of the procedure for the approval of pipelines and submarine cables, the Principle at least ensures that consideration is given to their protection in the decision-making process.⁵⁶ That means that the plan makes provisions for the protection of particularly sensitive habitats, by, at the same time, facilitating a case-by-case decision of the approving authority.

Of course, as long as any anthropogenic activities are permitted, the application of precaution can always be improved. However, a 'zero risk' approach does not seem feasible considering the economic importance of maritime uses. The relevant question is, therefore, whether an appropriate balance between protection and use has been achieved in the spatial plans in Germany. From a nature conservation perspective, it has to be emphasized that even the spatial demands of species and ecosystems that were substantiated in the planning contribution of the Federal Agency for Nature Protection were not adequately taken into account in the plans of 2009.⁵⁷ Nevertheless, the environmental report states that enforcing the determinations of the spatial plan will not impact the marine environment in a significant way.

The development of criteria for the application of the precautionary principle in regulating sea uses through marine spatial planning would certainly help to clarify the requirements of the precautionary principle on the evaluation of

54 Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea*, Section 9.7.1.

55 Natura 2000 sites are designated to protect core areas for species or habitat types listed in the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC).

56 Cf. justification to Principle 8.

57 Cf. the recommendations in the planning contribution of the Federal Agency for Nature Conservation, *Naturschutzfachlicher Planungsbeitrag des Bundesamtes für Naturschutz zur Aufstellung von Zielen und Grundsätzen der Raumordnung für die deutsche Ausschließliche Wirtschaftszone der Nord- und Ostsee* (2006) available online at <www.bfn.de/fileadmin/MDB/documents/themen/landschaftsplanung/Planungsbeitrag_zur_Raumordnung_AWZ_2006.pdf>.

risks.⁵⁸ In this respect, the German ‘Standard Investigation of the Impacts of Offshore Wind Turbines on the Marine Environment (StUK4)’;⁵⁹ a standard method prepared to facilitate and harmonize the environmental impact assessment for wind energy projects, could serve as an example. Respective criteria would also help to avoid the danger of the obligations imposed on the planning authority by the requirements of the precautionary principle to reasonably demonstrate that plans will not cause harm to the environment⁶⁰ becoming ‘open-ended’.⁶¹

4.3 *Alternative Development*

Not all conflicts can be ‘planned away’ through marine spatial planning.⁶² However, by examining alternative forms of spatial development, the least environmentally harmful option can be identified. For this reason, the EBA-Guideline requires that reasonable alternatives shall be developed to find solutions to avoid or reduce negative environmental and other impacts, as well as impacts on the ecosystem goods and services. Considering alternative siting, for example, helps to protect migration routes and areas of retreat for endangered species and to minimize fragmentation effects.⁶³ In the German spatial plans, care has been taken, based on ‘the available findings on the migratory behavioural patterns of various bird species, the customary flight altitudes and the daytime distribution of bird migrations’, to ensure that the majority of migratory birds

58 Baltic SCOPE, ‘Recommendations on Maritime Spatial Planning Across Borders’ (2017) Recommendation No. 5 on environment <www.balticscope.eu/content/uploads/2015/07/BalticScope_OverallRecommendations_EN_WWW.pdf>.

59 Federal Maritime and Hydrographic Agency, *Standard Investigation of the Impacts of Offshore Wind Turbines on the Marine Environment (StUK4)* (2013) <www.bsh.de/DE/PUBLIKATIONEN/_Anlagen/Downloads/Offshore/Standards-EN/Standard-Investigation-impacts-offshore-wind-turbines-marine-environment.pdf?__blob=publicationFile&v=4>.

60 Cf. John Quiggin, ‘Complexity, climate change and the precautionary principle’ (2007) 7(3) *Environmental Health* 15, 21.

61 Henk van den Belt, ‘Debating the Precautionary Principle: “Guilty until Proven Innocent” or “Innocent until Proven Guilty”?’ (2003) 132 *Plant Physiol.* 1122, 1125.

62 Wanfei Qiu and Peter JS Jones, ‘The emerging policy landscape for marine spatial planning in Europe’ (2003) 39 *Marine Policy* 182, 188.

63 Federal Agency for Nature Conservation, *Naturschutzfachlicher Planungsbeitrag des Bundesamtes für Naturschutz zur Aufstellung von Zielen und Grundsätzen der Raumordnung für die deutsche Ausschließliche Wirtschaftszone der Nord- und Ostsee* (2006) 14 available online at <www.bfn.de/fileadmin/MDB/documents/themen/landschaftsplanung/Planungsbeitrag_zur_Raumordnung_AWZ_2006.pdf>.

will not be affected by the wind energy projects in the designated priority areas for wind energy generation.⁶⁴

Since the need for protection of species may also vary over time, alternative time-frames have to be taken into consideration in the regulation of certain uses. For example, Section 3.3.1 on pipelines and submarine cables states that, to minimize possible negative impacts on the marine environment when laying pipelines and submarine cables, sensitive habitats should not be crossed during periods of high vulnerability of particular species (Principle 8). The task of determining such periods is then shifted to the approval level.⁶⁵ In addition, Principle 13 in Section 3.3.1 on pipelines and submarine cables stipulates that, to avoid and/or minimize any cumulative effects, all time schedules for the laying of submarine cables for the transport of power generated in the EEZ should be coordinated. This temporal coordination, which necessarily includes the examination of different alternatives, can help to reduce the number of disruptive interventions or, through the staggering of activities, ensure adequate periods of low use, or no use, which are crucial for the regeneration of the environment.

The plans furthermore provide specifications for the choice between alternatives, especially alternative technologies, at the approval level. Thus, according to Target 5 (Section 3.3.1) of the spatial plan, after termination of use, pipelines and submarine cables shall be dismantled. If dismantling would cause greater environmental harm than leaving them in place, the dismantling requirement may be waived wholly or in part, unless dismantling is required to ensure the safety and efficiency of navigation. Therefore, the anticipated conflicts with regard to the protection of the marine environment are conclusively regulated by making clear specifications for the choice of the right alternative at the approval level. The appropriate provisions for dismantling are then to be specified within the individual approval procedures.⁶⁶ The justification for Principle 12 (Section 3.3.1) on the selection of the burial depth of submarine cables for the transport of power generated in the EEZ enumerates the various needs that must be weighed against each other when choosing the most appropriate alternative. On the one hand, deeper cable burial reduces the risk of damage and helps to limit an increase in temperature in the sediment and to reduce the effects of electromagnetic fields. On the other hand, increased

64 Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea* 53.

65 Cf. justification to Principle 8.

66 Cf. justification to Principle 5.

burial depths lead to increased structural engineering expenditures. Instead of deciding on the optimal balance between these needs itself, here again the planning authority leaves the final choice of the right alternative to the approval authority. Even though it has to be recognized that the circumstances of each individual case cannot be fully anticipated at the planning level, by extensively delegating decisions to the approval level, the planning authority does not seem to make the fullest possible use of its possibilities to regulate uses to the benefit of the protection of the marine environment.

It is difficult to trace whether, and if so to what extent, further planning alternatives have been considered in the German planning process. According to the FSPA, the environmental report must contain information on appropriate planning alternatives having regard to the objectives and the geographical scope of the plan.⁶⁷ In the environmental reports that have been prepared during the planning process, the focus has been placed on assessing the development in the event that the plan is not implemented at all, rather than on assessing reasonable and potentially less harmful alternatives.⁶⁸ Thus, when compared to the future development of the EEZ in the absence of the implementation of the spatial plan, positive impacts on the environment can be expected simply on account of the co-ordinating and concentrating effects of the spatial planning determinations. It is therefore questionable whether the current planning stipulations actually represent the best environmental alternatives.

4.4 *Identification of Ecosystem Services*

According to the EBA-Guideline, the ecosystem services provided must be identified, in order to ensure a socio-economic evaluation of effects and potentials. The FSPA does not contain an explicit requirement to identify ecosystem services in the planning process, but maintaining ecosystem services does form part of the private and public interests that have to be considered in the planning process according to Section 7 para. 2 of the FSPA.

Ecosystem services represent ecological processes and resources expressed in terms of the goods and services they provide to society. In order for an ecosystem to provide services to humans, there needs thus to be some appreciation

67 Annex 1 no. 2 lit. d to Section 8 para. 1.

68 Cf., for example, Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea*, Sections 9.3.8.2 and 9.7.1.

of them.⁶⁹ The requirement to identify ecosystem services in the context of implementing the ecosystem approach seems to be based on the recognition that not only anthropogenic impacts shape the environment, but that environmental changes also have an impact on humans and their activities⁷⁰ and that humans are 'an integral component of ecosystems'.⁷¹

The persuasive power of revealing the benefits of ecosystem services and the respective support for the promotion of nature protection within spatial planning should not be underestimated. Nevertheless, in this regard, 'caution needs to be taken with the assumptions needed to convert natural benefits into financial currency and also because monetary assessments could be considered to compound the materialistic values of society rather than directly address the need for a deeper social shift in valuing environment and sustainability'.⁷² Even ecosystem processes that presumably provide no direct service to humans have to be maintained, both because of the intrinsic value of ecosystems and because of the still incomplete understanding of ecosystem functioning. In this spirit, Section 1 para. 1 Nature Conservation Act requires that nature and landscape are protected by virtue of their intrinsic value and importance as a basic necessity of human life, and also as a responsibility to future generations. Therefore, economic valuations should only constitute a complementary element in the process of balancing the relevant interests⁷³ and not a decisive criterion for planning decisions.

If ecosystem services are understood in a broader sense, according to which almost every known ecosystem process delivers ecosystem services to humans, their identification and preservation can certainly contribute to comprehensive ecosystem protection. For example, the indicators for ecosystem services delivered by marine ecosystems that have been developed by the Biodiversity Information Service System for Europe, include rather general indicators such

69 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure* (2012) Science for Environment Policy 13 <http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf>.

70 Elizabeth M De Santo, 'Environmental justice implications of Maritime Spatial Planning in the European Union' (2011) 35 *Marine Policy* 34, 34.

71 Convention on Biological Diversity, 'Ecosystem Approach' <www.cbd.int/ecosystem/> accessed 30 September 2018.

72 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure* (2012) Science for Environment Policy 30 <http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf>.

73 Detlef Czybulka, 'Der Ökosystemansatz als Managementprinzip des Naturschutzes', in Lothar Knopp and Heinrich Amadeus Wolff (eds), *Umwelt – Hochschule – Staat: Festschrift für Franz-Joseph Peine zum 70. Geburtstag* (Duncker & Humblot 2016) 21, 31.

as the extent of marine protected areas and the presence of iconic/endangered species representing services ranging from hydrological cycle maintenance to global climate regulation.⁷⁴ Moreover, the value of ecosystem services for humans has been considered to include non-use values that 'stem from people's knowledge that nature exists ('existence value') or because they wish it to exist for future generations ('bequest value') or for others in present generations ('altruist value').⁷⁵

4.5 *Mitigation*

The EBA-Guideline requires that measures are envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan. As in other countries, in Germany, there are several regulatory levels that collectively aim to ensure appropriate mitigation of and compensation for the adverse effects on the environment of projects, activities, plans and programmes. The comprehensive perspective of the planning level appears to be the most appropriate level at which to take all the interrelationships of ecosystem components into consideration. Since in the EEZ, in contrast to terrestrial areas, there is only one comprehensive spatial planning level, more detailed decisions on mitigation have to be taken in the overall spatial plans.

According to Principle 6 of Section 2 para. 2 FSPA, natural assets shall be used sparingly and carefully. To this end, the FSPA explicitly allows the placing of conditions and time limits on uses through stipulations made at the planning level to minimize environmental impacts.⁷⁶ Particularly, it has to be ensured that the planning stipulations will not adversely affect the integrity of a Natura 2000 site.⁷⁷ In the environmental report, the planned measures to avoid, mitigate or compensate for adverse effects on the environment must be described.⁷⁸

In the spatial plans, there are source-related targets and principles as well as general principles for the mitigation of adverse impacts on the marine environment. The spatial plans stipulate, for example, in Section 3.5 on energy

74 Biodiversity Information Service System for Europe, 'Indicators for ecosystem services' <<http://biodiversity.europa.eu/maes/mapping-ecosystems/indicators-for-ecosystem-services-marine>> accessed 30 September 2018.

75 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure* (2012) Science for Environment Policy 18–19 <http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf>.

76 Section 7 para. 1 FSPA.

77 Section 7 para. 6 FSPA in conjunction with Section 34 Nature Conservation Act.

78 Annex 1 no. 2 lit. c to Section 8 para. 1 FSPA.

production, that in planning and designing for the construction and operation of energy production facilities, negative impacts on the marine environment, in particular on its natural functions and on the marine ecosystem, shall be avoided. Best environmental practice according to the OSPAR Convention⁷⁹ and state-of-the-art technology shall be taken into account.

In addition, environmental compatibility of maritime uses is verified at the following approval level for individual projects. The approval procedures for potentially harmful projects and activities in the marine zone are complex and wide-ranging. The applicant is generally required to carry out an environmental impact assessment (EIA), for which the approval authorities set the scope. The procedure is regulated by the Environmental Impact Assessment Act.⁸⁰ If a plan or project, individually or in combination with others, is likely to have a significant effect on a Natura 2000 site, it is subject to an additional assessment of its implications for the site in view of the site's conservation objectives.⁸¹ Concrete measures to mitigate the impacts of uses on the marine environment will then be determined by the approval authority at project level taking into account specific conditions in the particular project area. Even in a priority area, the priority use can be made subject to conditions or obligations.⁸²

In conclusion, the decision as to how a use is conducted in the EEZ should not be completely delegated to the approval level. However, while the process of marine spatial planning allows for space to be allocated, conflicts reduced and synergies maximized in order to avoid or mitigate the negative effects of uses on the environment, the quality of uses and the concrete impacts of individual projects cannot be fully controlled.⁸³ For this reason, other procedures, such as EIA, must be employed alongside marine spatial planning to minimize the environmental impact of uses.

If significant adverse effects of uses are nevertheless unavoidable, they are to be offset via compensation measures or substitution measures or, where such offset is not possible, via monetary substitution, according to Section 13

79 HELCOM Convention for the Baltic Sea.

80 Environmental Impact Assessment Act of 24 February 2010 (Federal Law Gazette, Part 1, No 7/94), last amended by the Act of 15 September 2017 (Federal Law Gazette, Part. 1 No 62/3370).

81 Section 34 para. 1 Nature Conservation Act.

82 Dressler and others, *Weiterentwicklung der Landschaftsrahmenplanung und ihre Integration in die Regionalplanung* (Landwirtschaftsverlag 2000) 29 *Angewandte Landschaftsökologie* 154.

83 Angela Schultz-Zehden, Kira Gee and Katarzyna Scibior, 'Handbook on Integrated Maritime Spatial Planning' (INTERREG III B CADSES PlanCoast Project, 2008) 22 <www.plancoast.eu/files/handbook_web.pdf>.

et seq. of the Nature Conservation Act.⁸⁴ To ensure the actual protection of the marine environment, the Nature and Landscape Conservation Act of the federal state Mecklenburg-Western Pomerania, puts this obligation in more concrete terms by stating that impairments should be compensated for in the marine and not in the terrestrial area.⁸⁵

The strict compensation obligation stipulated in the Nature Conservation Act cannot be circumvented by prioritizing other interests. However, it only becomes applicable at the project level, since the adoption of a plan in and of itself does not yet constitute an intervention in the marine environment. A plan constitutes, with regard to anthropogenic uses, only an 'offer' and, at the time of its adoption, it is not yet clear if and in which way specific projects will be realized.⁸⁶ Rarely is the margin of discretion of the approval authority sufficiently 'condensed' by spatial planning stipulations to be able to predict the concrete extent of impacts that require compensation. Thus, specific compensatory measures for specific uses are imposed at the approval, not at the planning, level.⁸⁷

At the superordinate planning level, the FSPA does not provide for a comparably strict compensation regime, but generally follows the concept of the Nature Conservation Act by including among the non-binding principles in Section 2 the principle that any impairment of the ecosystem shall be compensated for.⁸⁸ The benchmark in this regard is the preservation of ecosystem functioning.⁸⁹ Compensation can, however, take place on a larger scale. Thus,

84 For the construction and the operation of wind turbines in the German EEZ, Section 56 para. 3 of the Nature Conservation Act provides for a wide exception from the strict compensation regime.

85 Cf. Section 3a para. 3 sentences 5 and 6 of the Nature and Landscape Conservation Act of the federal state Mecklenburg-Western Pomerania (LNatG M-V / GVOBl. M-V 2003/1).

86 Catrin Schmidt, 'Umweltprüfung und FFH-Verträglichkeitsprüfung von Raumordnungsplänen' in Dieter Eberle and Christian Jacoby (eds), *Umweltprüfung für Regionalpläne* (Akademie für Raumforschung und Landesplanung 2003) 56, 56–57.

87 Johann Köppel, Wolfgang Wende and Alfred Herberg, 'Naturschutzfachliche und naturschutzrechtliche Anforderungen im Gefolge der Ausdehnung des Raumordnungsregimes auf die deutsche Ausschließliche Wirtschaftszone' (Schriften des Bundesamtes für Naturschutz 2006) 82.

88 Willy Spannowsky, Peter Runkel and Konrad Goppel, *ROG – Raumordnungsgesetz* (Verlag C.H. Beck München, 2010) § 2 para 134.

89 Johann Köppel, Wolfgang Wende and Alfred Herberg, 'Naturschutzfachliche und naturschutzrechtliche Anforderungen im Gefolge der Ausdehnung des Raumordnungsregimes auf die deutsche Ausschließliche Wirtschaftszone' (Schriften des Bundesamtes für Naturschutz 2006) 68; Federal Agency for Nature Conservation, *Naturschutzfachlicher Planungsbeitrag des Bundesamtes für Naturschutz zur Aufstellung von Zielen und Grundsätzen der Raumordnung für die deutsche Ausschließliche Wirtschaftszone der Nord- und*

full compensation does not have to be achieved in each small sub-area. Rather, the objective is to achieve a sustainable and overall balanced development of the sea.⁹⁰ Accordingly, the consideration of compensation possibilities takes place within the weighing of interests stage of the planning process.⁹¹

In addition, in spatial plans, provision can already be made for compensatory measures that will presumably be required in the future pursuant to the stipulations of the Nature Conservation Act.⁹² Particularly if the spatial plan designates areas for potentially harmful projects and activities, corresponding areas for compensation should be provided for. Ideally, the limits of compensation possibilities set by a spatial plan also set a limit for impacts on the environment and thereby ensure sustainable development.⁹³ For example, in the State Spatial Development Programme of Mecklenburg-Western Pomerania, the regional planning authority is assigned the task of considering the designation of such compensation areas. Compensatory measures shall then be carried out primarily in Natura 2000 sites and areas designated as part of a biotope network (Section 6.1.1, Principle 4). In the spatial plans for the EEZ, compensation areas have not yet been designated.

Due to the complexity of ecosystem functions, it is, in any event, difficult to achieve appropriate compensation in respect of marine areas.⁹⁴ Firstly, compensation measures in the sea are more difficult to identify than those on land, where compensatory landscaping measures can be implemented.⁹⁵ Possible

Ostsee (2006) 13 available online at <www.bfn.de/fileadmin/MDB/documents/themen/landschaftsplanung/Planungsbeitrag_zur_Raumordnung_AWZ_2006.pdf>.

90 Willy Spannowsky, Peter Runkel and Konrad Goppel, *ROG – Raumordnungsgesetz* (Verlag C.H. Beck München, 2010) § 1 para 101, 102.

91 Section 7 para. 2 FSPA.

92 The realization of compensation and substitution measures before interventions in nature occur is now possible in the EEZ due to the insertion of Section 56a in the Nature Conservation Act in September 2017 (Federal Law Gazette, Part 1, No 64/3434). After realization, the compensation value of the measures is credited to an eco-account and can be used for the compensation of an intervention at a later time. This possibility of a temporal decoupling of the intervention and the corresponding compensation increases flexibility in implementing compensation measures and could find reflection in future spatial planning stipulations.

93 Akademie für Raumforschung und Landesplanung, *Nachhaltigkeitsprinzip in der Regionalplanung – Handreichung zur Operationalisierung* (2000) Forschungs- und Sitzungsberichte vol 212, 211.

94 Thomas Robers, 'Das Gebot der nachhaltigen Entwicklung als Leitvorstellung des Raumordnungs- und Bauplanungsrechts' (2003) 209 *Beiträge zur Raumplanung und zum Siedlungs- und Wohnungswesen* 63.

95 Johann Köppel, Wolfgang Wende and Alfred Herberg, 'Naturschutzfachliche und naturschutzrechtliche Anforderungen im Gefolge der Ausdehnung des Raumordnungsregimes

measures include restrictions on other, less important uses or the designation of priority areas for nature protection. Secondly, there has to be a functional relation between the compensation and the interference with an ecosystem. Only if compensation helps to preserve the respective ecosystem, compensation can be considered a suitable instrument to implement the ecosystem approach.⁹⁶ Often, only parts of the complex ecosystem functions can be compensated for.⁹⁷ Since compensation always implies that an ecosystem has been seriously damaged or even destroyed, the avoidance of negative impacts should be the primary objective of planning.

4.6 *Relational Understanding*

In order to implement the ecosystem approach, it is, according to the EBA-Guideline, necessary to consider various effects on the ecosystem caused by human activities and interactions between human activities and the ecosystem, as well as among various human activities. This includes direct/indirect, cumulative, short/long-term, permanent/temporary and positive/negative effects, as well as interrelations including sea-land interaction.

When weighing up the different spatial demands in the planning process in accordance with Section 7 para. 2 of the FSPA, all relevant effects on the ecosystem are to be taken into account. The principles in Section 2 of the FSPA further emphasise the importance of the consideration of interactions in the environment⁹⁸ and therefore also, for example, of cumulative effects.⁹⁹ Additionally, the amended FSPA now explicitly requires the consideration of land-sea interactions with regard to spatial planning measures in the territorial sea and the EEZ.¹⁰⁰

Moreover, the interactions between the listed objects of protection, including species, plants and biological diversity, must be investigated in the environmental assessment on the consequences of the implementation of the plan

auf die deutsche Ausschließliche Wirtschaftszone' (Schriften des Bundesamtes für Naturschutz 2006) 82.

96 Detlef Czybulka, 'Der Ökosystemansatz als Managementprinzip des Naturschutzes', in Lothar Knopp and Heinrich Amadeus Wolff (eds), *Umwelt – Hochschule – Staat: Festschrift für Franz-Joseph Peine zum 70. Geburtstag* (Duncker & Humblot 2016) 21, 35.

97 Thomas Robers, 'Das Gebot der nachhaltigen Entwicklung als Leitvorstellung des Raumordnungs- und Bauplanungsrechts' (2003) 209 *Beiträge zur Raumplanung und zum Siedlungs- und Wohnungswesen* 63.

98 Section 2 para. 2 no. 6 FSPA.

99 Edmund Brandt and Karsten Runge, *Kumulative und grenzüberschreitende Umweltwirkungen im Zusammenhang mit Offshore-Windparks* (Nomos 2002) 44.

100 Section 13 para. 6 and Section 17 para. 1 FSPA (in implementation of Art. 1 para. 2, Art. 4 para. 2 und 5, Art. 6 para. 2 lit. a und Art. 7 para. 1 MSP-Directive).

and described and evaluated in the environmental reports.¹⁰¹ In the environmental reports for the current spatial plans, various types of interactions have thus been described including, inter alia, interactions amongst subjects of protection and direct and indirect effects, as well as temporal and permanent, local and large-scale, marginal and severe, positive and negative and cumulative effects.¹⁰²

The consideration of all direct and indirect impacts of anthropogenic activities on the structures and the functioning of ecosystems within the planning process as intended by the EBA-Guideline is a very desirable aim. However, marine ecosystems have many interacting components that are not yet fully understood¹⁰³ and uncertainty seems to be virtually inherent in such a complex concept as the ecosystem approach. This uncertainty is aggravated by the fact that, because of the general nature of the plans, the prediction of their effects is rather difficult at the planning level.¹⁰⁴ Thus, while scientific research should strive to reduce uncertainty by investigating knowledge gaps on relational understanding, this should not prevent planning. To allow otherwise means that knowledge gaps and the corresponding requirement of further research can lead to significant delays in the adoption of spatial plans. The implementation of the ecosystem approach in that case runs the risk of becoming a hindrance to a rapid implementation of protective spatial measures. This possibility is referred to as the phenomenon of ‘analysis paralysis’.¹⁰⁵

Where current best available information indicates a serious risk to the marine environment, the better option is to take proportionate protective spatial planning measures in line with the precautionary principle rather than to wait until additional knowledge gain facilitates the development of more ecosystem-oriented measures.¹⁰⁶ In the EBA-Guideline, the requirements for a ‘relational understanding’ seem, therefore, to be ‘softened’ by the reference

101 Section 8 para. 1 FSPA.

102 Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea*, for example Sections 9.1.12, 9.3.3.1, 9.3.4.1, 9.3.7.1, 9.4.5.

103 Larry Crowder and Elliott Norse, ‘Essential ecological insights for marine ecosystem-based management and marine spatial planning’ (2008) 32 *Marine Policy* 772, 776.

104 Thomas Bunge, ‘Möglichkeiten und Grenzen der „Abschichtung“ bei der strategischen Umweltprüfung’ in Dieter Eberle and Christian Jacoby (eds), *Umweltprüfung für Regionalpläne* (Akademie für Raumforschung und Landesplanung 2003) 20, 24.

105 Oxford Living Dictionaries, ‘analysis paralysis’ <https://en.oxforddictionaries.com/definition/analysis_paralysis> accessed 30 September 2018.

106 Sachverständigenrat für Umweltfragen, ‘Meeresumweltschutz für Nord- und Ostsee’ (Sondergutachten 2004) para 497 <www.umweltrat.de/SharedDocs/Downloads/DE/02_Sondergutachten/2004_SG_Meeresumweltschutz_fuer_Nord_und_Ostsee.pdf?__blob=publicationFile>.

to the latest state of knowledge and to precaution as further key elements of the ecosystem approach. For the same reason, the necessary scope and level of detail of the assessment of the environmental impacts of a plan depends, pursuant to the FSPA, on what can be reasonably expected with regard to the current state of knowledge, generally accepted testing methods and the content and level of detail of the spatial plan.¹⁰⁷

Remaining information gaps have to be revealed in the environmental reports.¹⁰⁸ For example, the migratory patterns of bats and the possible negative impacts of maritime uses on their population development have been described as largely unknown.¹⁰⁹ In such cases research is encouraged to be integrated into projects and the impacts of the project on the marine environment are to be subsequently monitored at project level.¹¹⁰ The results can then be fed into future approval and spatial planning processes as they progress. Since this approach harbours the risk that only project-specific impacts are considered and not all relevant ecosystem interrelations,¹¹¹ overall impacts of the implementation of the spatial plan are also to be monitored. Applying such an iterative process and providing for adaptation possibilities can help to reconcile the requirements of a comprehensive relational understanding with the timely implementation of ecosystem-based spatial planning.

4.7 *Participation and Communication*

All relevant authorities and stakeholders as well as a wider public shall be involved in the planning process at an early stage according to the EBA-Guideline. The results shall be communicated. In Germany, the public as well as potentially affected public authorities are to be notified of the preparation of a spatial plan and they have to be given the opportunity to comment on the draft plan.¹¹² The result of the examination of the comments has to be made available.¹¹³ Since, pursuant to the MSP-Directive, member states shall facilitate public participation at an early stage in the development of maritime spatial plans,¹¹⁴ it is questionable whether it is necessary to ensure even

¹⁰⁷ Section 8 para. 1 FSPA.

¹⁰⁸ Annex 1 no. 3 lit. a to Section 8 para. 1 FSPA.

¹⁰⁹ Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea*, Section 9.3.9.2.

¹¹⁰ *Ibid.* Section 9.8.

¹¹¹ Akademie für Raumforschung und Landesplanung, *Maritime Raumordnung. Interessenlage, Rechtslage, Praxis, Fortentwicklung* (2013) 1 Forschungsberichte der ARL 17.

¹¹² Section 9 FSPA.

¹¹³ Section 10 para. 3 FSPA.

¹¹⁴ Directive 2014/89/EU, Art. 9 para. 1.

greater upstream participation in the planning process, i.e. public participation already from the conception stage.

The planning process for the German EEZ started in 2005 with the sending of a questionnaire to relevant agencies and NGOs asking for information on activities, licenses and interests in the EEZ. A 'scoping meeting' subsequently took place to discuss the scope of the necessary Strategic Environmental Impact Assessment. The BMVBS and the Federal Maritime and Hydrographic Agency (BSH) then drafted the marine spatial plans which, in conjunction with the environmental report, were published in 2008. Broad public participation was ensured through consultations with stakeholders from different sectors, including the marine environment and nature conservation, fisheries, energy, sand and gravel, shipping, military, tourism, leisure boating and research. A public hearing on the draft plan, attended by approximately 80 stakeholders, was held in Rostock at the end of 2008.¹¹⁵

Integrated Coastal Zone Management (ICZM), as an informal and flexible instrument, is recommended by the EBA-Guideline to support the process of participation and communication. It can be used to complement the formal participation process required by the FSPA. In Germany, following the European Parliament and Council Recommendation concerning the implementation of Integrated Coastal Zone Management in Europe of 30 May 2002 (2002/413/EC),¹¹⁶ the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, published an ICZM strategy in March 2006. According to the strategy, ICZM is planned as 'an informal approach to supporting sustainable development of coastal zones through good integration, coordination, communication and participation.'¹¹⁷

Even though the participation of the public and of potentially affected public authorities is imperative to enable consideration of all relevant interests in the planning process, such participation does not always entail better protection of the marine environment. For example, the public desire for an unimpaired view over the ocean might lead to the placement of wind energy installations further offshore, even in cases in which this is not the most

115 HELCOM / VASAB, *Country Fiche – Germany* (updated November 2016) 5, 8, 9 <www.helcom.fi/Documents/Action%20areas/Maritime%20spatial%20planning/Country%20fiche_DE_Nov2016.pdf>.

116 Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe [2002] OJ L 148/24.

117 Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *Integrated Coastal Zone Management in Germany – Assessment and steps towards a national ICZM strategy* (March 2006) 3 <www.ikzm-strategie.de/dokumente/ikzm_englisch_final.pdf>.

environmentally-friendly alternative.¹¹⁸ Moreover, broad participation rights entail the risk of ‘participatory paralysis’. For example, the amendment of the FSPA requires the next generation of plans to be established in agreement with all ministries concerned.¹¹⁹ It remains to be seen whether this provision ensures improved ecosystem protection by requiring the agreement of the Ministry for the Environment or hinders the needed change towards ecosystem protection by requiring the agreement of all ministries concerned.¹²⁰

With regard to international participation, other states must be involved in the planning process pursuant to the FSPA if there is a risk of significant impacts of the planning stipulations on their territory.¹²¹ If there is reason to fear significant impacts on the environment of a neighbouring state, its participation is regulated by the Environmental Impact Assessment Act.¹²² In addition, Section 17 para. 1 of the FSPA¹²³ requires the BMVI to consult with the neighbouring states on the plans. Before the current plans were adopted, neighbouring states were thus involved in the planning process by notifying them about the intention of Germany to set up a marine spatial plan. Several face-to-face meetings with representatives of those countries took place, as well as consultations during the environmental assessment of the draft plan, with a view to taking into consideration potential negative impacts of the plan on the marine environment in these neighbouring countries.¹²⁴ The newly adopted HELCOM-VASAB Guidelines on transboundary consultations, public participation and co-operation¹²⁵ could, in the future, provide a basis for

118 Helle Tegner Anker, presentation on ‘Ecosystem perspectives in planning for offshore wind energy projects – does participation matter?’, Conference *The Ecosystem Approach in Ocean Planning and Governance* (University of Gothenburg, 2016).

119 Section 17 para. 1 FSPA.

120 The plan to require the Ministry for the Environment to obtain the agreement of other ministries for the declaration of marine areas as protected parts of nature and landscape in Section 57 para. 2 of the Nature Conservation Act has been abandoned due to the risk that they may block effective measures for the protection of the marine environment / cf. Deutscher Bundestag, Recommended Resolution and Report of the Committee for the Environment, Nature Conservation, Building and Nuclear Safety (document: Drucksache 18/12845, 2017) 22. Of course, the focus of spatial planning is not only on environmental protection, which might justify a greater involvement of the various ministries.

121 Section 9 para. 4 FSPA.

122 Sections 60 and 61 Environmental Impact Assessment Act.

123 Section 17 para. 3 FSPA / old version.

124 HELCOM / VASAB, *Country Fiche – Germany* (updated November 2016) 9 <www.helcom.fi/Documents/Action%20areas/Maritime%20spatial%20planning/Country%20fiche_DE_Nov2016.pdf>.

125 HELCOM / VASAB, *Guidelines on transboundary consultations, public participation and co-operation*, adopted by the 72nd meeting of VASAB CSPD/BSR on 8 June 2016 and approved by HELCOM HOD 50-2016 on 15–16 June 2016.

a comprehensive, constant and long-term cooperation in the development of spatial plans.

4.8 *Subsidiarity and Coherence*

Pursuant to the EBA-Guideline, maritime spatial planning with an ecosystem-based approach as an overarching principle shall be carried out at the most appropriate level and shall seek coherence between the different levels. If marine spatial planning is designed as a multi-scalar process ranging from regional to local planning, the most appropriate level can be chosen depending on the issue to be tackled.¹²⁶ Regional planning in the German mainland and the 12 nautical mile territorial sea is the responsibility of the coastal federal states (Länder) and the regional authorities. The legal bases for planning are the FSPA and the respective spatial planning laws of the individual federal states. The German federal structure has thus resulted in a decentralized planning system with legally, organizationally, and substantively differentiated planning levels. In contrast, responsibility for overall spatial planning in the German EEZ has been exclusively assigned to the federal government by Section 17 para. 1 of the FSPA.¹²⁷ This single-level planning does not prevent the planning authority from choosing different levels of planning detail according to the ecosystems needs in the planning area.

The delimitation of planning areas in Germany reflects the German administrative structures rather than the boundaries of marine ecosystems, which could mitigate against the delivery of an ecosystem approach. Ensuring the coherence of spatial plans across all sizes of marine ecosystems is therefore particularly important and challenging. In the German mainland, the different planning levels are interlinked in a coherent planning system by the mutual feedback principle as well as by comprehensive requirements of notification, participation, coordination and compliance.¹²⁸ According to the mutual feedback principle, the various planning levels have to take the requirements and conditions of the other levels into account.¹²⁹ For the EEZ, the provisions of the FSPA also require an internal coherence of the spatial plans. The spatial plans for the EEZ should contain provisions concerning the safety and efficiency of maritime traffic, economic and scientific uses, and the protection

126 University of Thessaly, *Paving the road to Marine Spatial Planning in the Mediterranean*, Final Report MSP-Med – Greece (December 2015) 114 <<http://www.pap-thecoastcentre.org/pdfs/MSP%20Med%20Final%20Report.pdf>>.

127 Section 17 para. 3 FSPA / old version.

128 Gerd Turowski, 'Raumplanung' in Akademie für Raumforschung und Landesplanung (ed), *Handwörterbuch der Raumordnung* (2005) 893, 895.

129 Section 1 para. 3 FSPA.

and improvement of the marine environment.¹³⁰ Despite this enumeration of sectors, planning in the EEZ shall be based, within the limits set by the United Nations Convention on the Law of the Sea (LOSC),¹³¹ on a comprehensive and coherent concept.¹³²

Since conflicts between uses and the protection of ecosystems do not stop at the border between the territorial sea and the EEZ, coherence between the spatial plans for the EEZ and the plans of the adjacent federal states is crucial to ensure ecosystem protection. The problem of the distribution of competences between the territorial sea and the EEZ becomes clear with regard to the implementation of the ecosystem approach, for example, when the protection of a migration corridor or the establishment of a network of protected areas requires coherent regulations across administrative boundaries.¹³³ Section 17 para. 3 of the former version of the FSPA therefore stipulated that the BMVI must establish the plans for the EEZ in consultation with the neighbouring federal states. Before the spatial plans were adopted, coordination processes were thus carried out with all federal states which were active in the coastal waters with regard to spatial planning.¹³⁴ Now, all three federal states located on the German coast (Mecklenburg-Western Pomerania, Lower Saxony and Schleswig-Holstein) have adopted relevant programmes and plans for the territorial sea. The mere requirement of consultation, however, was not able to ensure full coherence between the spatial plans for the territorial sea and for the EEZ. Through the amendment, the BMVI is now required to cooperate with neighbouring federal states with the aim of ensuring that marine spatial plans are coherent and coordinated.¹³⁵

Potentially, the informal instrument of ICZM could complement spatial planning and further mitigate the consequences of the distribution of competences by facilitating communication and cooperation. The German ICZM strategy follows a spatially comprehensive approach and takes the interactions

130 Section 17 para. 1 FSPA.

131 United Nations Convention on the Law of the Sea, 1833 UNTS 3; 21 ILM 1261 (1982).

132 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 16/10292, 2008) 28.

133 For example, the Federal Agency for Nature Conservation recommended the establishment of a migration corridor to Mecklenburg-Western Pomerania that has not been included in the State Spatial Development Programme finally adopted (cf. position statement of 2015 available on the internet at http://awd.mv-regierung.de/lep_2016_01/anz_kuerzel.php).

134 Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea / the Baltic Sea*, Section 9.1.2 respectively.

135 Section 17 para. 1 FSPA.

between the EEZ, coastal waters and transitional waters¹³⁶ and areas adjoining estuaries and influenced by the tides, as well as rural districts on the coast, into account. ICZM is actually the only level in Germany at which this functionally cohesive area, the coastal and marine zone, is considered in its entirety.¹³⁷ The integrated coastal zone management concept has to be taken into consideration during the weighting of all relevant interests in the planning process, which is required by Section 7 para. 2 of the FSPA.¹³⁸ In any event, the interaction between informal and formal instruments still needs to be developed in Germany to exploit all possible synergies.¹³⁹

As to the minimum necessary extent of a coherent spatial planning concept, the delimitation of Large Marine Ecosystems,¹⁴⁰ whose boundaries are based on the four linked ecological criteria bathymetry, hydrography, productivity, and trophic relationships and of Marine Ecoregions,¹⁴¹ whose boundaries reflect large-scale ecological patterns can offer some guidance. Both concepts propose rather large areas, such as the North Sea and the Baltic Sea, as the spatial basis for nature conservation. In the same spirit, the MSP-Directive now requires cooperation with the aim of ensuring that maritime spatial plans are coherent and coordinated across the respective marine region. As marine regions are enumerated inter alia the Baltic Sea and the North-east Atlantic Ocean, thus also large areas.¹⁴² The FSPA does not refer to marine regions, but requires the cooperation with neighbouring countries.¹⁴³ Importantly, this cooperation is not only to concern certain formulations for a concrete plan,

136 Cf. Definition in Art. 2 of the Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (Water Framework Directive) [2000] OJ L 327/1.

137 Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, *Integrated Coastal Zone Management in Germany – Assessment and steps towards a national ICZM strategy* (March 2006) 3, 7 <www.ikzm-strategie.de/dokumente/ikzm_englisch_final.pdf>.

138 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 41, 42.

139 Federal Environment Agency, *Report on the Implementation of Integrated Coastal Zone Management in Germany* (National ICZM Report, 2011) 15–16 <www.umweltbundesamt.de/sites/default/files/medien/371/publikationen/national_report_iczm_in_germany.pdf>.

140 US National Oceanic and Atmospheric Administration (NOAA), 'Ecosystem Science' <www.st.nmfs.noaa.gov/ecosystems/lme/index> accessed 28 September 2018.

141 Cf. Mark D. Spalding and others, 'Marine Ecoregions of the World: A Bioregionalization of Coastal and Shelf Areas' (2007) 57(7) *BioScience* 573, 573–582.

142 Directive 2014/89/EU, Art. 11 para. 1 and Art. 3 para. 3 in conjunction with Directive 2008/56/EC, Art. 4 para. 1.

143 Section 17 para. 1.

but shall rather be broadly understood.¹⁴⁴ Since the outcome – in other words the necessary level of coherence and coordination – is neither specified in the MSP-Directive nor in the amendments to the FSPA, a level of coherence of spatial plans adequate for ecosystem protection across a particular marine region seems, however, not yet guaranteed.

4.9 *Adaptation*

The sustainable use of the ecosystem should, according to the EBA-Guideline, apply an iterative process including monitoring, reviewing and evaluation of both the process and the outcome. The German spatial plans were comprehensively assessed by the planning authority before their adoption in 2009. The assessment formed the foundation for the environmental report, according to which, ‘positive effects on the marine environment due to the designations of the Maritime Spatial Plan regarding the marine environment are to be anticipated for the totality of the subjects of protection’.¹⁴⁵

In 2012, an evaluation report was produced by the BSH and the BMVBS, which assessed whether and if so how the implementation of the plans had been successful in reaching its targets. The evaluation focused, however, mainly on the development of offshore wind energy and the target set by the Federal government for offshore wind energy production. The existence of ecological steering effects of the spatial plans has been derived from the fact that offshore windfarm applications have been received only for the priority areas for offshore wind energy and for areas with no general limitation on offshore wind farm development.¹⁴⁶

Until recently, no time limit was set for a comprehensive review of the spatial plans. The provisions of the plans were, as a consequence, ‘perpetuating’ the results of the balancing process and the corresponding state of knowledge.¹⁴⁷ Since the MSP-Directive requires maritime spatial plans to be reviewed by member states at least every ten years,¹⁴⁸ the FSPA has now been amended accordingly.¹⁴⁹ With regard to ecosystem protection, it seems unfortunate that

144 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 47.

145 Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea* 67.

146 HELCOM / VASAB, *Country Fiche – Germany* (updated November 2016) 9 <www.helcom.fi/Documents/Action%20areas/Maritime%20spatial%20planning/Country%20ofiche_DE_Nov2016.pdf>.

147 Guy Beaucamp, *Das Konzept der zukunftsfähigen Entwicklung im Recht* (Mohr Siebeck 2002) 418.

148 Directive 2014/89/EU, Art. 6 para. 3.

149 Section 7 para. 8 FSPA.

the opportunity was not taken to harmonize the review period under the FSPA with the review period of six years for marine strategies provided for in the Marine Strategy Framework Directive (2008/56/EC / MSFD)¹⁵⁰ and to thereby ensure a timely adaptation of spatial plans to the knowledge gain expected within the MSFD system. Moreover, the planning process itself is not under regular evaluation in Germany.

According to Section 8 para. 4 of the FSPA, significant impacts of the implementation of the spatial plans are to be continuously monitored in order to identify unexpected impacts on the environment at an early stage and to be able to take appropriate corrective measures. The intended plan-related monitoring measures include the consolidation and analysis of project-related impact monitoring efforts and the analysis of national and international monitoring programmes.¹⁵¹ However, no monitoring has to take place to examine whether the plans continuously reflect the latest state of knowledge and whether the highest practicable level of protection for marine ecosystems is achieved.

5 Ecosystem Protection: Current State in the German EEZ and Ideas for Improvement

5.1 *Ecosystem Definition*

To avoid marine spatial planning being ‘decoupled from the ecosystem despite being framed as a tool for ecosystem-based management’¹⁵² the characteristics of ecosystems have to be taken into account and ecosystem protection prioritised as the ultimate objective of the ecosystem approach. According to Art. 2 of the Convention on Biological Diversity, the term ‘ecosystem’ means a ‘dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit’. This definition does not specify any particular spatial unit or scale. Depending on the problem being addressed, an ecosystem could, for example, be a grain of soil, a pond,

¹⁵⁰ Art. 17 para. 2 Directive 2008/56/EC of the European Parliament and of the Council establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) [2008] OJ L 164/19.

¹⁵¹ Federal Maritime and Hydrographic Agency, *Non-technical summary of the Environmental Report for the North Sea* 81.

¹⁵² Andrew Merrie and Per Olsson, ‘An innovation and agency perspective on the emergence and spread of Marine Spatial Planning’ (2014) 44 *Marine Policy* 366, 366.

a forest, a biome or the entire biosphere.¹⁵³ Several key characteristics of an ecosystem have been identified.¹⁵⁴ For the purpose of spatial planning, it is interesting that an ecosystem is considered to exist in a space with boundaries, even though such geographical boundaries can never encompass all relevant ecosystem processes. What presents a major challenge for considering ecosystems in marine spatial planning is, however, that they are dynamic; thus their structure and function change with time.

Ecosystem management that tries to isolate significant system components has been recognized as being incompatible with the fundamental nature of marine ecosystems. A wider systems context thus has to be taken into consideration when developing spatial planning measures aimed at ecosystem protection.¹⁵⁵ The ecosystem must be managed 'as a whole rather than as the sum of its parts'.¹⁵⁶ This requires the recognition of living species and their physical environments as interconnected and a focus on the interaction between different sub-systems and their responses to stresses resulting from human activity.¹⁵⁷ The question arises as to whether the German spatial planning tools provide for the possibility to fully account for the characteristics of ecosystems and to what extent they have been used so far to ensure ecosystem protection.

5.2 *Respect of the Carrying Capacity of Ecosystems*

The carrying capacity of marine ecosystems may be understood as the development threshold that cannot be exceeded without irremediably going against environmental objectives.¹⁵⁸ Approaching the limits of the carrying capacity of marine ecosystems may result in the deterioration of ecosystem services, the loss of biodiversity and habitat heterogeneity and, finally, the

153 Convention on Biological Diversity, COP 5 Decision v/6, 'Ecosystem Approach' <www.cbd.int/decision/cop/?id=7148> accessed 30 September 2018.

154 Serge Michel Garcia and others, 'The ecosystem approach to fisheries' FAO Fisheries Technical Paper no 443 (2003) 7–8.

155 Parliamentary Commissioner for the Environment of New Zealand, *Setting Course for a Sustainable Future: The Management of New Zealand's Marine Environment* (1999) 56–57 <www.pce.parliament.nz/media/pdfs/Sustainable_Future_report.pdf>.

156 European Environment Agency, *State of Europe's seas EEA* (Report No 2/2015) 192.

157 Jutta Brunnée and Stephen J Toope, 'Environmental Security and Freshwater Resources: A Case for International Ecosystem Law' in Handl (ed), 5 *Yearbook of International Environmental Law* (Oxford University Press 1994) 41, 55.

158 Cf. definition for the carrying capacity of the coastal zone in: The Black Sea Countries – Contracting Parties to the Bucharest Convention, *Guideline on Integrated Coastal Zone Management in the Black Sea*, Annex Explanatory and Reference Notes to Sections of Guideline.

breakdown of ecosystem resilience.¹⁵⁹ According to recital 14 of the MSP-Directive, the ecosystem-based approach thus aims at ensuring that the capacity of marine ecosystems to respond to human-induced changes is not compromised. It is questionable whether the stipulations of the FSPA ensure the preservation of the capacity of marine ecosystems to cope with environmental stress. According to the general guideline for spatial development set out in Section 1 para. 2 of the FSPA, the social and economic demands have to be reconciled with the relevant area's ecological functions. Spatial development is thus not purely dominated by ecological considerations.¹⁶⁰ Preserving ecological functions, however, constitutes, according to the wording of Section 1, the benchmark for the consideration of social and economic interests.

To implement Art. 5 para. 1 of the MSP-Directive, Section 2 para. 2 no. 6 of the FSPA now promotes the support of sustainable development in the marine area, applying an ecosystem-based approach. The EBA-Guideline also refers to the sustainable use of ecosystems. Sustainability is often considered to require the achievement, in equal value, of its three pillars: economic, environmental and social issues.¹⁶¹ Linking the ecosystem approach with 'sustainable use' therefore seems to risk diluting its ecological direction and thrust and thus undermining the protection of ecosystems.¹⁶² Since functional ecosystems are an essential precondition for social and economic development, the balance between economic, social and environmental interests, however, can be found only within the framework of environmental compatibility.¹⁶³ The concept of sustainable development thus implies limits imposed by the ability of the biosphere to absorb the effects of human activities.¹⁶⁴

According to the FSPA (Section 7 para. 2), public and private interests are to be identified and weighted against each other in view of the preparation of the spatial plans. When balancing the different interests, the results of the

159 Chang Hui, 'Carrying Capacity of the Environment' in James D Wright (ed), *International Encyclopedia of the Social & Behavioral Sciences* (Elsevier 2015, 2nd edn) 155, 157–158.

160 Willy Spannowsky, Peter Runkel and Konrad Goppel, *ROG – Raumordnungsgesetz* (Verlag C.H. Beck München, 2010) § 1 para 94.

161 United Nations, *Johannesburg Declaration on Sustainable Development*, World Summit on Sustainable Development, A/CONF.199/20, Chapter 1, Resolution 1, Johannesburg (September 2002) point 5.

162 Sachverständigenrat für Umweltfragen, 'Meeresumweltschutz für Nord- und Ostsee' (Sondergutachten 2004) para 498.

163 Akademie für Raumforschung und Landesplanung, *Nachhaltigkeitsprinzip in der Regionalplanung – Handreichung zur Operationalisierung* (2000) Forschungs- und Sitzungsberichte vol 212, 13.

164 World Commission on Environment and Development, *Our Common Future* (Brundtland Report 1987) para 27.

environmental assessment have to be taken into account. At least if the sea could be affected by planning decisions to such an extent that its ecosystems might not recover, it is hard to imagine that sufficient weight has been given to the protection of the environment in the balancing process.¹⁶⁵ Allowing anthropogenic activities to exceed the carrying capacity of the marine environment would most likely constitute a manifest error of assessment and would therefore also exceed the discretionary power attributed to the planning authority by the FSPA. Beyond that limit, however, no principal priority has to be given to ecological considerations.

Consequently, the aforementioned stipulations of the FSPA theoretically seem to ensure at least respect for the carrying capacity of marine ecosystems within the planning process. To ensure respect for the carrying capacity of ecosystems in practice, ideally, specific limits are identified for pressures on marine ecosystems and planning stipulations designed accordingly. Yet, significant questions arise as to whether a specific threshold for an entire ecosystem can really be set due to the complexity and dynamic quality of ecosystems.¹⁶⁶ In this regard, recital 13 of Commission Decision (EU) 2017/848 is interesting, according to which the setting of threshold values should accommodate the dynamic nature of marine ecosystems and their elements. Furthermore, threshold values should reflect the fact that marine ecosystems may recover, if deteriorated, to a state that reflects prevailing physiographic, geographic, climatic and biological conditions, rather than return to a specific state of the past.¹⁶⁷ In the face of uncertainty, the application of the precautionary principle through the incorporation of appropriate safety margins can help to avoid irreversible harm to the marine environment.

5.3 *Ecosystem Protection in the FSPA and the Marine Spatial Plans*

One of the principles for nature conservation listed in Section 2 para. 2 no. 6 of the FSPA that can be equally applied in the terrestrial and the marine area is that space shall be developed, protected and, where necessary, possible and

165 Mathias Schubert, 'Meeresraumordnung und Europarecht: Die Richtlinie 2014/89/EU zur Schaffung eines Rahmens für die maritime Raumplanung', in Timo Hebel (ed), *Jahrbuch des Umwelt- und Technikrechts* (2015) 199, 210–211.

166 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure* (2012) Science for Environment Policy 20 <http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf>.

167 Commission Decision (EU) 2017/848 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU [2017] OJ L 125.

appropriate, restored to maintain the functioning of soils, the water balance, the fauna and flora as well as the climate, including respective interactions. To fully implement Art. 5 para. 1 of the MSP-Directive, support for the sustainable development of the marine area using the ecosystem approach is now required.¹⁶⁸ The FSPA, however, contains no detailed specification taking account of the special characteristics of the marine area and its exposure to special threats.

The focus of marine environmental protection in the spatial plans for the EEZ is, according to Guideline 2.5, on marine fauna and flora including their biotopes and habitats and on bird migration routes. Sea water quality, hydrography and sediment conditions are also considered part of the marine environment. Principles specifically for the protection of the marine environment can be found in Section 3.7 on the marine environment. According to those principles, the EEZ shall be permanently safeguarded and developed further as an ecosystem with its typical features, interrelationships and interactions in order to preserve its biological diversity. In accordance with the guiding concept of sustainability, the natural resources shall be used economically and with care. Negative impacts on the ecosystem shall be avoided and minimized in accordance with the precautionary principle and the ecosystem approach. In addition, in permanently unused areas, the functions of the ecosystem are required to be restored to their original condition or preserved in a condition of ecological balance (3.7.1 Principles / Marine ecosystem).

In the section that specifically deals with the protection of the marine environment, only principles have been determined, not binding targets. The predominant approach of the German marine spatial plans to marine nature protection is a source-related approach, which means that principles and targets are set for certain uses in order to mitigate their impacts on the marine environment. Since it cannot be excluded that new maritime uses may emerge or that the impacts of maritime uses may be aggravated in an unexpected way, the rather general and non-binding principles for the protection of the marine environment might not ensure a complete and comprehensive protection of ecosystems.

5.4 *Potential of German Spatial Planning Tools for the Advancement of Ecosystem Protection*

To apply the ecosystem approach, planning authorities can ideally choose from a broad suite of tools and apply and adapt them according to the circumstances

¹⁶⁸ Section 2 para. 2 no. 6 FSPA.

in the area under their responsibility.¹⁶⁹ The FSPA permits the establishment of different zones with different levels of protection. For example, core areas can be designated as priority areas and buffer zones as reserve areas. In that way, it is possible to ensure that activities occurring near a priority area protecting a particular ecosystem do not compromise its function. The designation of suitability areas furthermore allows the concentration of environmentally harmful uses in those areas. The Zoning Plan that covers the entire Great Barrier Reef Marine Park can serve as an example of a holistic and ecosystem-wide zoning approach. The plan defines what activities can occur in which locations both to protect the marine environment and to separate potentially conflicting activities. The level of protection increases from the General Use Zones up to the most restrictive, the Preservation Zone.¹⁷⁰ Although the entire system is a designated Marine Protected Area, the management approach resembles that of spatial planning. In Germany, it would be possible to establish a similar multi-layered protection system by using the possibilities offered by the FSPA.

Moreover, some ecosystem components only require protection in one of the three dimensions of the sea (water surface, water column, and sea bed). For example, benthic communities only need protection from impacts on the sea bed, such as those from bottom-trawl fisheries. A 'layering' of areas with different levels of protection is possible to adapt the density and strictness of planning determinations to the specific need for protection in each layer.¹⁷¹ In this context, the spatial plans explicitly recognize in their Guideline 2.4 that the sea surface, water column, seabed, subsoil and the airspace above may require different provisions regarding their protection and use. The explanatory statement for the draft amendment of the FSPA also clarifies that the uses and functions are to be coordinated by taking their extension to the three-dimensional space into account.¹⁷² In this regard, spatial planning could again learn from the experiences of regulation of uses in Marine Protected Areas. In Canada, for example, the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Marine Protected Area was designated in February 2017. Each

169 Cf. Scottish Natural Heritage, 'An ecosystem approach to marine planning – a summary of selected tools, examples & guidance' (2016) <www.nature.scot/sites/default/files/2017-06/2016%2005%2018%20-%20Ecosystem%20approach%20in%20marine%20planning%20-%20FINAL%20Version%201.pdf> 2.

170 Australian Government, Great Barrier Reef Marine Park Authority, 'About Zoning' <www.gbrmpa.gov.au/zoning-permits-and-plans/zoning/about-zoning> accessed 30 September 2018.

171 Akademie für Raumforschung und Landesplanung, *Maritime Raumordnung. Interessenlage, Rechtslage, Praxis, Fortentwicklung* (2013) 1 Forschungsberichte der ARL 10.

172 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 37.

glass sponge reef has a Core Protection Zone, a Vertical Adaptive Management Zone, and an Adaptive Management Zone. The Core Protection Zones consist of the seabed, the subsoil to a depth of 20m and the water column above the seabed to a depth of about 100m below the sea surface.¹⁷³

Even dynamic ecosystem components can be protected by the German spatial instruments. Examples of dynamic ocean features include eddies or fronts or the seasonal migration of species.¹⁷⁴ However, to achieve a binding effect of respective spatial planning measures, the areas to be protected must be clearly identifiable. For example, in Australia, meso-scale eddies have been identified as key ecological features of the South-west Marine Region in the marine environment report card supporting the marine bioregional plan for that region. These eddies are persistent and form regularly in predictable locations.¹⁷⁵

As noted in Section 4 lit. c above, temporal aspects can also be taken into consideration as a 'fourth dimension' of planning within the German system, taking account of the fact that the need for protection of ecosystem components can vary over time. The new Section 7 para. 1, which permits stipulations that allow uses only for a certain period of time or only under certain circumstances, clarifies that, for example, a priority area can be established only for a certain season.¹⁷⁶ The new wording also serves the implementation of Art. 8 para. 1 of the MSP-Directive which makes reference to the temporal distribution of activities.

Being derived from terrestrial spatial planning, the rather static German marine spatial planning system seems ill-prepared for a shift towards innovative approaches of near real-time management that match the highly dynamic nature of marine ecosystems.¹⁷⁷ There is, however, the possibility to constantly update planning stipulations through the incorporation by reference of the latest scientific findings, as long as the decision to do so is taken within the structured and collaborative spatial planning process. For example, the

173 Government of Canada, Fisheries and Ocean Canada, 'Hecate Strait / Queen Charlotte Sound Glass Sponge Reefs MPA' <www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-eng.html> accessed 30 September 2018.

174 Larry Crowder and Elliott Norse, 'Essential ecological insights for marine ecosystem-based management and marine spatial planning' (2008) 32 *Marine Policy* 772, 774.

175 Cf. Commonwealth of Australia, *Commonwealth marine environment report card*, supporting the marine bioregional plan for the South-west Marine Region (2012) 24–25 <www.environment.gov.au/system/files/pages/a73fb726-8572-4d64-9e33-1d320dd6109c/files/south-west-report-card-commonwealth.pdf>.

176 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 11, 41.

177 Sara M Maxwell and others, 'Dynamic ocean management: Defining and conceptualizing real-time management of the ocean' (2015) 58 *Marine Policy* 42, 43.

switch-off of wind turbines could be required in dependence on the latest data on bird migration. In that way, elements of dynamic management could be integrated into the spatial plan to keep up with the advances in data collection and sharing, particularly in remote sensing, animal tracking, and mobile technology. By increasing the speed at which scientific findings are implemented, this method can help to alleviate the disadvantages of the lengthy and complicated spatial planning process. To conclude, even though the German spatial planning tools have not been designed specifically for the purpose of applying an ecosystem approach, the FSPA largely provides for the possibility of both spatial and temporal adaptation of spatial planning measures to the needs of ecosystem protection.

Since marine ecosystems rarely have the character of an island but rather merge into each other,¹⁷⁸ the design of spatial planning measures corresponding to ecosystem boundaries remains a challenging task. For ecosystem-based zoning, an orientation on existing recommendations for the design of networks of marine protected areas could be considered. For example, the recommendations to use complex site shapes, rather than simple rectangular boundaries or to establish 'mosaic' zones,¹⁷⁹ could help to design priority or reserve areas whose boundaries relate closely to the features of an ecosystem. For spatially dynamic habitats such as sandbanks, boundaries could, where possible, encompass predicted changes in feature distribution to ensure their ongoing protection.¹⁸⁰ Another difficulty in defining ecosystem boundaries stems from the variability of some ecosystem features. For example, an area in which a gyre enhances primary production or where fish forage cannot be mapped with the same precision as a sea-grass meadow or a reef. To cope with that difficulty, stable features important for ecosystem functioning could be accurately mapped and complemented by the mapping of the distribution of habitats on the bottom and the behavioural patterns of important species.¹⁸¹

178 Rainer Holz, 'Ökologie, Naturschutz und Strategie: Der schwere Weg zur Integration' in Hermann Baier, Frithjof Erdmann, Rainer Holz and Arno Waterstraat (eds), *Freiraum und Naturschutz* (Springer-Verlag Berlin Heidelberg 2006) 283, 284.

179 Scottish Government / Scottish Natural Heritage / JNCC, *Marine Protected Areas in Scotland's Seas* (Guidelines on the selection of MPAs and development of the MPA network) 38 <www.gov.scot/Resource/Doc/295194/0114024.pdf#page=57&zoom=auto,-79,482>.

180 Joint Nature Conservation Committee / Natural England, 'Marine Conservation Zone Project' (Ecological Network Guidance, 2010) 63 <http://jncc.defra.gov.uk/PDF/100705_ENG_v10.pdf>.

181 Ferdinando Boero, 'From Marine Protected Areas to MPA Networks' in Paul Goriup (ed), *Management of Marine Protected Areas: A Network Perspective* (Wiley-Blackwell, 2017) 1, 13–14.

The generation of such maps would constitute an important step forward with regard to ecosystem protection in the German marine spatial plans.

5.5 *Protection of Areas with Particular Significance for Ecosystem Functioning*

Protection of ecologically valuable areas plays a crucial role in the protection of ecosystems. In Germany, large parts of the coastal zone have already been protected through the establishment of Natura 2000 sites. On the coast of the North Sea, for example, the unique and largely untouched Wadden Sea is protected. Natura 2000 sites often overlap with areas protected by other national protection categories such as nature conservation areas, national parks, national nature monuments, biosphere reserves, landscape protection areas, nature parks, natural monuments, protected landscape elements and legally protected biotopes.¹⁸² Each of the national categories provides for a different degree of protection and for corresponding restrictions on anthropogenic activities. For example, in nature conservation areas, all actions which may lead to the destruction of, damage to, or changes in the area, or parts thereof, or which may cause permanent disturbance thereto, are prohibited.¹⁸³ Within the territorial sea, spatial planning instruments are used as a complement to protect particularly vulnerable marine areas. In the State Spatial Development Programme of Mecklenburg-Western Pomerania, for example, Natura 2000 sites encompassing marine areas are planned to be established as reserve areas.¹⁸⁴

In the EEZ, responsibility for Natura 2000 sites lies with the federal government. Germany notified the European Commission in 2004 of its nomination of ten Natura 2000 sites in the German EEZ in the North Sea and the Baltic Sea. In September 2017, the ten sites were finally given protection at national level through six protected area regulations.¹⁸⁵ The new protected areas cover approximately 30 percent of the German EEZ,¹⁸⁶ which is in compliance with

182 Federal Agency for Nature Conservation, 'Map of protected areas in Germany' <www.geodienst.bfn.de/schutzgebiete> accessed 30 September 2018.

183 Section 23 para. 2 of the Nature Conservation Act.

184 Cf. Section 8.8 of the State Spatial Development Programme of Mecklenburg-Western Pomerania (LEP M-V 2016).

185 Federal Agency for Nature Conservation, 'Nationale Meeresschutzgebiete' <www.bfn.de/themen/meeresnaturschutz/nationale-meeresschutzgebiete.html> accessed 30 September 2018.

186 Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, 'Six new Marine Protected Areas in the North and Baltic Seas' (27.09.2017) <www.bmub.bund.de/en/pressrelease/sechs-neue-meeresnaturschutzgebiete-in-nord-und-ostsee/> accessed 30 September 2018.

a recommendation issued in 2013 by the Scientific Advisory Board of the Federal Government for global environmental changes (WBGU) to protect 20–30 percent of the marine ecosystems.¹⁸⁷ However, whereas in the spatial plans for the EEZ priority areas have been designated for shipping, pipelines and cables as well as for wind energy development and reserve areas have been designated for shipping, pipeline, and research uses, neither Natura 2000 sites nor other ecologically significant areas received any additional protection through spatial planning measures, as recommended, for example, in the planning contribution of the Federal Agency for Nature Conservation of 2006.¹⁸⁸ Natura 2000 sites have rather only been listed for information. This approach is justified in the spatial plans as follows: ‘European bird sanctuaries and areas listed under the Habitats Directive in the EEZ enjoy comprehensive protection under nature conservation law. Since these areas are of importance to overall spatial planning considerations, they have been included in the Spatial Plan for information in order to enable the spatial requirements of individual uses to be coordinated. Based on the environmental report, bird sanctuaries and the Sites of Community Importance in the EEZ have been taken into account in the provisions of the Spatial Plan.’¹⁸⁹

In some source-related spatial planning measures, i.e. measures that regulate the conditions for specific uses, explicit reference is made to protected areas. For example, the section on pipelines and submarine cables requires that consideration is given to protected area designations when routing pipelines and submarine cables.¹⁹⁰ Furthermore, the plans stipulate that offshore wind turbines outside the designated priority areas are not allowed in Natura 2000 sites. Offshore wind farms already approved and those having reached an advanced stage in the approval procedure when the spatial plan entered into force are exempted from this regulation.¹⁹¹ In this way, about 28 percent of the German EEZ in the North Sea is kept free of offshore wind farms.¹⁹²

187 WBGU, Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen, *Welt im Wandel Menschheitserbe Meer* (2013) 291.

188 Cf. the recommendations in the planning contribution of the Federal Agency for Nature Conservation, *Naturschutzfachlicher Planungsbeitrag des Bundesamtes für Naturschutz zur Aufstellung von Zielen und Grundsätzen der Raumordnung für die deutsche Ausschließliche Wirtschaftszone der Nord- und Ostsee* (2006) 14 available online at <www.bfn.de/fileadmin/MDB/documents/themen/landschaftsplanung/Planungsbeitrag_zur_Raumordnung_AWZ_2006.pdf>.

189 Spatial Plan for the German Exclusive Economic Zone in the North Sea – Text section / unofficial translation / 3.7.2 Justification.

190 3.3.1 Targets and principles, Principle 7.

191 Section 3.5 on energy production and wind energy in particular / Target 3.

192 Cf. justification to Target 3.

In conclusion, the plans do not yet make full use of the possibilities that the FSPA offers to protect areas important for ecosystem functioning. For example, the management of protected areas could be supported by complementing spatial planning measures and the focus of protection broadened to include species and habitats not addressed by the current protected area regulations.¹⁹³ Moreover, protection could be spatially expanded to include further functionally important areas such as areas important for key life cycle stages and behaviours, areas of high biodiversity and areas of high productivity. To identify additional areas that need to be protected by spatial planning measures, the scientific criteria adopted in 2008 by the ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 9) for the identification of Ecologically and Biologically Significant Areas (EBSAs) could be used. The criteria listed are: uniqueness or rarity; special importance for life history stages of species; importance for threatened, endangered or declining species and/or habitats; vulnerability, fragility, sensitivity or slow recovery; biological productivity; biological diversity; and naturalness.¹⁹⁴ The procedure to identify EBSAs in the Baltic Sea is still in progress at this time, but HELCOM has already accepted the potential use of EBSAs as a basis for ecosystem-based MSP measures.¹⁹⁵ A further possible approach is the protection of portions of marine space that are especially highly connected with each other ('Cells of Ecosystem Functioning'¹⁹⁶) by corresponding spatial planning measures. The special connection may result from common climatic, biogeographic or oceanographic conditions.¹⁹⁷ However, such 'Cells of Ecosystem Functioning' are difficult to sharply define.¹⁹⁸

193 With the same aim, the programme of measures adopted in Germany to implement the MSFD provides for a new measure considering the inclusion of species and biotopes that define the value of an ecosystem in national protected area regulations (Environment Agency for the Federal Ministry of the Environment, Nature Conservation, Construction and Nuclear Safety, *MSFD Programme of Measures for Marine Protection in the German Parts of the North Sea and the Baltic Sea*, Report pursuant to Article 45h (1) of the Federal Water Act, English Summary, Annex 3).

194 Convention on Biological Diversity, Annex 1, decision IX/20, 'Background on the EBSA Process' <www.cbd.int/ebsa/about> accessed 30 September 2018.

195 HELCOM, Heads of Delegation, *Identifying Ecologically or Biologically Significant Marine Areas (EBSAs) in the Baltic Sea* (HOD 51–2016).

196 Ferdinando Boero, 'From Marine Protected Areas to MPA Networks' in Paul Goriup (ed), *Management of Marine Protected Areas: A Network Perspective* (Wiley-Blackwell, 2017) 1, 9.

197 *Ibid.*, 8–9.

198 *Ibid.*, 13.

5.6 *Consideration of Connectivity*

The marine environment is ecologically connected through movements of species, nutrients and energy.¹⁹⁹ This connectivity in marine systems operates at scales ranging from microns to thousands of kilometres.²⁰⁰ Connectivity can be defined either structurally or functionally. Structural connectivity refers to the spatial arrangement of specific features in the sea, whereas functional connectivity refers to the behaviour of species and ecological processes.²⁰¹ The maintenance of connectivity in the marine area seems crucial for the protection of ecosystems.

With regard to connectivity, the FSPA states that the needs of the biotope network have to be considered in spatial planning.²⁰² For example, Section 6.1 of the State Spatial Development Programme of Mecklenburg-Western Pomerania on environment and nature protection stipulates that, to promote biological diversity and ecosystems typical for the region, Natura 2000 sites and areas of the biotope network are to be connected (Principle 4). In contrast, the current marine spatial plans for the EEZ state that there has not yet been sufficient research into the extent that marine ecosystems, which are more permeable than terrestrial ecosystems and largely barrier-free, may be equally dependent on biotope networks to be defined in a spatial plan, and how possible components can be delineated. Therefore, detailed designations for a biotope network have not yet been possible. However, measures are required to be taken to ensure that dispersion processes and large-scale ecological interactions of species and habitats are taken into account at the approval level (cf. justification for the spatial planning regulations on exploitation of non-living resources / Section 3,2). In addition, according to Guideline 2.5, disruptions to and pollution of the marine ecosystem and the related natural functions, systems and processes are to be avoided and biological diversity promoted and preserved.

The establishment of networks of protected areas, which facilitate an undisturbed exchange of organisms and nutrients, is considered as an essential

199 Joint Nature Conservation Committee / Natural England, 'Marine Conservation Zone Project' (Ecological Network Guidance, 2010) 46 <http://jncc.defra.gov.uk/PDF/100705_ENG_v10.pdf>.

200 Melanie Bishop and others, 'Effects of ocean sprawl on ecological connectivity: impacts and solutions' (2017) 492 *Journal of Experimental Marine Biology and Ecology* 7, 9.

201 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure* (2012) Science for Environment Policy 10 <http://ec.europa.eu/environment/nature/ecosystems/docs/Green_Infrastructure.pdf>.

202 Section 2 para. 2 no. 6 FSPA.

element of ecosystem-based marine spatial planning.²⁰³ The importance of such networks is recognized by the EU²⁰⁴ as well as by OSPAR and HELCOM.²⁰⁵ Nevertheless, protected areas in Germany currently constitute ‘islands of protection’ rather than linked networks. Spatial planning measures could help form a network of protected areas by protecting the migration paths of certain species to connect their sub-habitats or scattered populations, or by connecting similar habitats to reinforce the respective protection effect. The degree of protection of the connecting areas, for example migration corridors or stepping stones, would have to be at least commensurate with the function they need to fulfil.²⁰⁶

In the programme of measures adopted in Germany to implement the MSFD, a new measure ‘to protect migratory species in marine areas (UZ₃₋₀₂)’ refers explicitly to the process of spatial planning. It is planned to assess the possibility of including priority areas and reserve areas, following regional (for North and Baltic Seas) and national (between federal level and federal state level) coordination, which serve as migration corridors for migrating species between areas of ecological importance. Ideally these will form a habitat network in the sense of a coherent network of protected areas.²⁰⁷ There is therefore good reason to hope that the next generation of spatial plans will contain migration corridors and that protected areas will therefore be better connected.

203 PJS Jones, LM Lieberknecht and W Qiu, ‘Marine spatial planning in reality: Introduction to case studies and discussion of findings’ (2016) 71 *Marine Policy* 256, 262.

204 Cf. Art. 13 para. 4 of the Marine Strategy Framework Directive (2008/56/EC/MSFD), according to which the programmes of measures to achieve or maintain good environmental status shall include spatial protection measures, contributing to coherent and representative networks of marine protected areas. With regard to the qualification of marine spatial planning measures as ‘spatial protection measures’ within the meaning of the MSFD cf. Daniel Braun, ‘MPAs as Spatial Protection Measures under the MSFD’ in Paul Goriup (ed), *Management of Marine Protected Areas: A Network Perspective* (Wiley-Blackwell, 2017) 89, 97–98.

205 Cf. OSPAR Recommendation 2003/3 on a Network of Marine Protected Areas and HELCOM Recommendation 35/1 on a System of Coastal and Marine Baltic Sea Protected Areas.

206 Eva Schachtner, ‘Marine Protected Areas and Marine Spatial Planning, with Special Reference to the Black Sea’ in Paul Goriup (ed), *Management of Marine Protected Areas: A Network Perspective* (Wiley-Blackwell, 2017) 207, 211.

207 German Environment Agency for the Federal Ministry of the Environment, Nature Conservation, Construction and Nuclear Safety, *MSFD Programme of Measures for Marine Protection in the German Parts of the North Sea and the Baltic Sea*, Report pursuant to Article 45h (1) of the Federal Water Act, English Summary, Annex 3.

A more comprehensive option for taking connectivity into account in marine spatial planning is to implement the idea of building a 'green infrastructure' in the sea, as promoted, inter alia, by the EU.²⁰⁸ Green infrastructure is 'a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services.'²⁰⁹ The concept is aimed at performing four broad roles that seem to correspond to the holistic objectives of the ecosystem approach: protecting ecosystems state and biodiversity; improving ecosystem functioning and promoting ecosystem services; promoting societal wellbeing and health and supporting the development of a green economy; and sustainable land and water management.²¹⁰

Green infrastructure features include Marine Protected Areas, areas of high value for biodiversity and ecosystem health outside protected areas, ecological corridors, stepping stones corridors and ecological buffer areas.²¹¹ HELCOM has emphasized the importance of the concept for marine spatial planning by stating that, through that concept, habitats and biotopes, as well as their interconnectivity and seasonal variability could be captured into spatial presentation.²¹² To ensure a comprehensive protection of the environment, it has further been recommended that the design of green infrastructure for purposes other than biodiversity should never entail negative trade-offs. In this regard, biodiversity has been considered the 'judge' playing a key role in navigating between bad, good and better choices.²¹³ This recommendation seems also suitable to be applied within the balancing of interests in the spatial planning process in view of an efficient ecosystem protection.

The main problem with regard to the consideration of connectivity within marine spatial planning is that connectivity issues are still poorly understood and are difficult to take into account if a specific migration path of species between identified places is unknown. In the absence of detailed dispersal data, connectivity can only be approximated by ensuring protection of a well distributed space or by having recourse to general assumptions. For example,

208 European Commission, 'Green Infrastructure' <http://ec.europa.eu/environment/nature/ecosystems/index_en.htm> accessed 30 September 2018.

209 Ibid.

210 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure* (2012) Science for Environment Policy 1, 2.

211 Ibid., 6.

212 HELCOM, Heads of Delegation, *Identifying Ecologically or Biologically Significant Marine Areas (EBSAs) in the Baltic Sea* (HOD 51–2016).

213 European Commission, DG Environment, *The Multifunctionality of Green Infrastructure*, (2012) Science for Environment Policy 4.

connectivity can be assumed to more often follow similar depth, temperature and salinity values than cross them or to follow the general paths of currents, eddies, and gyres.²¹⁴ When designing spatial planning measures to ensure connectivity, care has furthermore to be taken that the different aspects of connectivity are taken into account and that the focus is not put on one element or one species to the detriment of others.²¹⁵

5.7 *Protection of Open Space*

The viability of ecosystems decisively depends upon sufficient open space and unspoiled nature.²¹⁶ If the critical parameters are left undisturbed, it is likely that a natural system will remain within its normal range of variation.²¹⁷ In the face of the knowledge deficit with regard to connectivity, protecting an appropriate amount of open space appears to be, consistent with the precautionary principle, the best option to ensure ecosystem protection. The FSPA stipulates in this regard the principle that open space should be protected, fragmentation effects reduced and additional land use limited.²¹⁸

To put this principle into more concrete terms, in the spatial plans, a guideline on long-term sustainable use of the properties and potential of the EEZ has been formulated that aims to preserve the sea as an area characterized by vastness, openness, and freedom from barriers (Guideline 2.4). The basic premise is that stationary uses must be reversible and can only be allowed for limited periods of time. Moreover, the available space should be used economically, for example, by promoting a combination of uses.

Details for the protection of open space are regulated under the individual activities. For example Section 3.2.1 on the exploitation of non-living resources provides that, to ensure an efficient use of space, the exploitation of raw material resources should be concentrated in an area and should be as small-scale as possible. Existing sand and gravel sites should be exploited to the maximum extent practicable. This only applies provided that it is compatible with marine environmental concerns and that a remaining sediment

214 OSPAR Commission, *Background document to support the assessment of whether the OSPAR Network of Marine Protected Areas is ecologically coherent* (Biodiversity Series, 2007) 30.

215 OSPAR, *Guidance on Developing an Ecologically Coherent Network of OSPAR Marine Protected Areas* (Reference number 2006-3) 20.

216 Ernst-Hasso Ritter, 'Freiraum / Freiraumschutz' in Akademie für Raumforschung und Landesplanung (ed), *Handwörterbuch der Raumordnung* (2005) 336, 336.

217 Parliamentary Commissioner for the Environment of New Zealand, *Setting Course for a Sustainable Future: The Management of New Zealand's Marine Environment* (1999) 56-57 <www.pce.parliament.nz/media/pdfs/Sustainable_Future_report.pdf>.

218 Section 2 para. 2 no. 2 and no. 6 FSPA.

layer, which is necessary for the recovery of benthic communities, is preserved (Principle 4). Furthermore, Principle 3 on the marine environment states that the seascape should be safeguarded in its natural character and its typical vast open spaces should be preserved. The large spaces of the EEZ should be permanently preserved, developed and safeguarded as an ecologically intact open space, acknowledging their importance to a functional seabed, the water budget, fauna and flora (biodiversity), and climate. Thus, the importance of the protection of open space has been recognized in the plan.

Even though those stipulations help to reduce impacts of ocean sprawl on connectivity and ecosystem functioning,²¹⁹ they do not yet ensure that a certain absolute area is kept free from human activities. Such protection could be implemented by designating areas especially for the protection of processes and thus for the undisturbed development of nature.²²⁰ Such areas must be of sufficient size to enable processes relevant for the functioning of ecosystems to unfold. For the Wadden Sea, the tidal basin has been considered the smallest spatial unit which contains all relevant ecological subsystems, biotopes and habitats.²²¹ As a further development, quantitative targets for the use of space could be set for the EEZ.²²² Through the new Section 2 para. 2 no. 6 of the FSPA, regional planning authorities are, for example, encouraged to set quantitative targets for the terrestrial area to support the goal of the federal government to reduce the new land use for human settlements and transport area to 30 hectares per day by 2020.²²³

6 Conclusion

Even though the spatial plans for the German EEZ state that they aim to promote the achievement of good environmental status in the marine environment,²²⁴ it is questionable to what extent they actually contribute to

219 Melanie Bishop and others, 'Effects of ocean sprawl on ecological connectivity: impacts and solutions' (2017) 492 *Journal of Experimental Marine Biology and Ecology* 7, 21–22.

220 Cf. for example Section 2.3 of the spatial planning contribution for biological diversity, Free State of Saxony (Agency for the Environment, Agriculture and Technology).

221 Behrends, Brigitte and others, 'Gesamtsynthese Ökosystemforschung Wattenmeer', (Umweltbundesamt, 2004) 419.

222 Klaus Einig and Margarete Spiecker, 'Die rechtliche Zulässigkeit regionalplanerischer Mengenziele zur Begrenzung des Siedlungs- und Verkehrsflächenwachstums' (Special Issue, 2002) *Zeitschrift für Umweltrecht* 150, 151.

223 Deutscher Bundestag, *Draft Act amending the Federal Spatial Planning Act* (document: Drucksache 18/10883, 2017) 9, 39.

224 Guideline 2.5.

the protection of marine ecosystems. As has been shown, the current plans do not make full use of the possibilities provided by the German regulatory framework to translate the demands of nature, and especially of ecosystem protection, into spatial planning measures. One reason for this is that, at the time the plans were adopted, it was not possible to completely assess the ecological state of the sea and the impacts of anthropogenic activities on the marine environment.²²⁵ It was therefore also considered not possible to comprehensively regulate those activities based on the needs of marine ecosystems. Completing the knowledge gaps on ecosystem functioning is a difficult and never-ending process. For the development of the next generation of plans, however, greater knowledge is already available. To cope with remaining knowledge gaps, a more courageous application of the precautionary principle can help to further put the ecosystem approach into practice.

In addition, the plans have been criticized for their predominantly descriptive character.²²⁶ The amended FSPA now explicitly encourages the adoption of planning provisions that not only protect, but also improve the marine environment.²²⁷ Compared to a mere protection, the requirement to use spatial planning provisions to improve the marine environment seems to constitute an important step towards a more proactive approach to the consideration of environmental concerns in marine spatial planning. It remains to be seen to what extent this requirement will be reflected in the future plans.

A further key challenge in Germany lies in the distribution of competences which conflicts with the holistic management required by the ecosystem approach. Firstly, there are differing competences for the conservation of the marine environment and marine spatial planning. Secondly, there are differing competences for spatial planning within the territorial sea and within the EEZ. The consequences of differing competences for nature conservation within the territorial sea and the EEZ are clearly visible with regard to the location and design of the German marine protected areas. Rather than building a coherent network, they seem to be scattered throughout the sea without previous thorough planning and coordination. As has been shown, spatial planning can help to complement and connect protected areas and to thereby multiply their effectiveness. Close cooperation with both the federal states and

225 Environmental Report for the Spatial Plan for the German EEZ of the North Sea (2009) 388.

226 Sachverständigenrat für Umweltfragen, 'Der Entwurf des deutschen Maßnahmenprogramms zum Schutz der Nord- und Ostsee' (Kommentar zur Umweltpolitik, 2015) 7 <www.umweltrat.de/SharedDocs/Downloads/DE/05_Kommentare/2012_2016/2015_08_KzU_15.pdf?__blob=publicationFile&v=3>.

227 Section 17 para 1 FSPA, Art. 5 para 2 MSP-Directive.

the neighbouring states is crucial for establishing such an effective network of marine protected areas across administrative boundaries and, beyond that, a coherent ecosystem-based management of the whole marine area.

Despite the above-described deficits, it cannot be determined that the spatial plans for the German EEZ have not followed the ecosystem approach. Already the legal requirements regarding the process of planning and the consideration of environmental concerns ensure that, at least to some extent, the plans have taken an ecosystem approach. The efficacy of an ecosystem approach can now be improved with each iteration of the plans: from basic considerations with limited benefits for the protection of marine ecosystems, to advanced approaches with extensive benefits.²²⁸ In Germany, particularly with regard to the actual ecosystem protection, there remains considerable scope for improvement. Notably, it does not appear sufficient to simply encourage other authorities to apply the ecosystem approach (cf. 3.7.1 Principles / Marine ecosystem) and to protect marine ecosystems. Important decisions rather have to be taken at the planning level to redress the balance in the sea in favour of ecosystem protection.

The MSP-Directive leaves a wide margin for the integration of environmental concerns into spatial planning. It only provides a framework for maritime spatial planning, while member states remain responsible and competent for designing and determining, within their marine waters, the format and content of such plans.²²⁹ Through their maritime spatial plans, member states shall aim to contribute to the preservation, protection and improvement of the environment, but also to the sustainable development of energy sectors at sea, of maritime transport, and of the fisheries and aquaculture sectors.²³⁰ How the different objectives are reflected and weighted in their maritime spatial plans is left to the member states. The mere obligation to establish marine spatial plans, however, does not yet guarantee the achievement of environmental objectives and should therefore not be considered as the ultimate goal. The goal should rather be to achieve real outcomes such as the conservation of marine ecosystems.²³¹ Because of the weak European regulatory framework for marine spatial planning, the degree of progress in that regard depends

228 Scottish Natural Heritage, 'An ecosystem approach to marine planning – a summary of selected tools, examples & guidance' (2016) <www.nature.scot/sites/default/files/2017-06/2016%2005%2018%20-%20Ecosystem%20approach%20in%20marine%20planning%20-%20FINAL%20Version%201.pdf> 1, 2.

229 Recital 11 of the MSP-Directive.

230 Art. 5 para 2 MSP-Directive.

231 Charles N. Ehler, 'Perspective: 13 Myths of Marine Spatial Planning' (2012) 5(5) *Marine Ecosystems and Management* 1, 1.

decisively on the political will of the member states to assign to marine spatial planning not only a coordinating role between the different interests, but a steering role towards ecosystem-based management.

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Ecosystem-Based Approaches to Ocean Management in the United States: Weaving Together Multiple Strands

David Fluharty

1 Introduction

The United States has developed a number of approaches that might be collectively characterized as ecosystem-based management for the oceans. Perhaps the most cogent quasi-official statement on what the ecosystem approach to management is comes from the Ecosystem Goal Team of the National Oceanic and Atmospheric Administration (NOAA). ‘The term ecosystem approach to management (EAM) was selected by NOAA as a preferable term to ecosystem management (EM) because it reflects the notion that the principle (sic) activity is the management of human interactions with the ecosystem rather than the complex ecosystem itself. The term EAM is also preferable over EM because the latter implies that it is possible to control and manage an entire ecosystem.’¹ Despite the quasi-official definition of EAM most of the discourse and practice in the United States uses the term ecosystem-based management (EBM) to describe the suite of approaches.

This chapter examines the historical, philosophical and scientific context out of which comes the current discourse in the United States about EBM. It examines the legal basis for EBM in the United States seeking any mandates or legislative direction to require such a policy be implemented. This is followed by description of four, what I term, approaches to implementation of EBM. We start with a review of the single sector approach which is being taken in fisheries management to evolve ecosystem-based fisheries management (EBFM). Second, the integrated ecosystem assessment (IEA) approach, which posits integrated scientific support for EBM is reviewed. It has been implemented on a patchwork basis. Third, marine spatial planning (MSP) is assessed as an approach that is being implemented as part of a Presidential Executive

1 C Barnes, L Bozzi and K McFadden in E Crum and J Mechling (eds), *Exploring an Ecosystem Approach to Management: A Review of the Pertinent Literature* (National Oceanic and Atmospheric Administration 2012).

order establishing a national ocean policy.² Finally, designation of networks of marine protected areas (MPAs) and large marine area designations has been implemented under Presidential Executive orders and Presidential Declarations in order to ensure protection of large ocean areas by placing them essentially off limits to extractive activities in favor of biodiversity preservation. These so-called other approaches are geographically targeted toward and implemented at the regional level – New England, Mid-Atlantic, South Atlantic, Caribbean, Gulf of Mexico, West Coast, Pacific Islands and Alaskan regions.

To the extent that the United States can claim to have an ecosystem approach to management, it is the product of weaving together these multiple strands of implementation. Not surprisingly, to use an analogy, the results so far resemble an abstract weaving rather than a tapestry. An examination of how each of these strands and their ensemble are able to incorporate or adapt to new uses like marine renewable energy reveals interesting insights into how a true ecosystem approach to management might function and demonstrates inherent weaknesses of this multi-strand approach.

2 Historical, Philosophical and Scientific Context for EBM

Historically the trajectory of nature conservation and management of marine resources has been somewhat divergent from and has benefitted from the European experience and vice versa.³ Explorers like James Perkins Marsh,⁴ Transcendentalist Henry David Thoreau,⁵ naturalists and scientists like Spencer Baird,⁶ James Burroughs,⁷ and Aldo Leopold,⁸ political leaders like Theodore

2 Coastal Zone Management in the United States <<https://coast.noaa.gov/czm/about/>> accessed March 24, 2018 is another strand that could be examined but it is left out of this analysis because it is not implemented on a regional scale. Similarly, the NOAA Large Marine Ecosystem program explores management in an ecosystem context but is not considered here <www.st.nmfs.noaa.gov/ecosystems/lme/index> accessed 1 October 2018.

3 Robert P McIntosh, *The Background of Ecology: Concept and Theory* (Reprint, Cambridge University Press 1988); Andrea Wulf, *The Invention of Nature: Alexander von Humboldt's New World* (Alfred A. Knopf 2015).

4 James Perkins Marsh, *Man and Nature: Or, Physical Geography as Modified by Human Action* (Third edition, David Lowenthal (ed), The Belknap Press of Harvard University Press 1974); Hans Huth, *Nature and the American: Three Centuries of Changing Attitudes* (University of Nebraska Press 1957); Roderick Nash, *Wilderness and the American Mind* (Yale University Press 1967).

5 Henry David Thoreau, *Walden* (J. Lyndon Shanley (ed), Princeton University Press 2007).

6 Aldo Leopold, *The Sand County Almanac, and Sketches from Here and There* (Oxford University Press 1949).

7 John Burroughs, *The Complete Nature Writings of John Burroughs* (WH Wise 1931).

8 Laura Dassow Walls, *Henry David Thoreau: A Life* (The University of Chicago Press 2017).

Roosevelt⁹ and Franklin D. Roosevelt¹⁰ and many others, shaped terrestrial conservation and preservation as populist movements. These ideas and practices spilled over into US ocean management. In recent decades scientific research, particularly relating to ecosystem science, has exploded although suffice it to say full documentation of those contributions is beyond the scope of this paper.¹¹ Nevertheless, by way of example of the long-term influence of ecosystem ideas, Spencer Baird, the first Commissioner of the US Fisheries Commission in 1872, initiated marine ecological studies in his first year in office. According to Baird, our understanding of fish '(...) would not be complete without a thorough knowledge of their associates in the sea, especially of such as prey upon them or constitute their food (...)'.¹² He went on to discuss the role of ocean conditions and other factors in influencing fisheries productivity and the role of fishing.

The main purpose of this mention of the historic antecedents is to demonstrate that there is a rich and complex background for thinking about and making EBM decisions. Nevertheless, in order to make ecosystem science more relevant in decision-making it is necessary to know more about what people value and how they behave with respect to the marine environment. If we can understand human values and behavior it may be feasible to construct workable incentives to link ecosystem science to policy decisions through law and regulations. However, despite the fact that all ocean activities take place in an ecosystem context, this understanding is not yet reflected in the development of a sustainable, resilient culture of ocean management in the United States. Nor is US society prepared to use EBM to assess trade-offs among competing interests and assign priorities.¹³

9 Darrin Lunde, *The Naturalist Theodore Roosevelt, A Lifetime of Exploration, and the Triumph of American Natural History* (Crown Publishers 2016).

10 Douglas Brinkley, *Rightful Heritage: Franklin D. Roosevelt and the Land of America* (HarperCollins 2016).

11 Norman L Christensen and others, 'The Report of the Ecological Society of American Committee on the Scientific Basis for Ecosystem Management' (1996) 6:3 *Ecological Applications* 665; Anna Bramwell, *Ecology in the 20th Century: A History* (Yale University Press 1989).

12 WL Hobart, *Baird's Legacy: The History and Accomplishments of NOAA's National Marine Fisheries Service, 1871-1996* (Technical Memorandum NMFS F/SPO-18 1995 United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service 1995).

13 Jeremy S Collie and others, 'Marine Spatial Planning in Practice' (2013) 177 *Estuarine, Coastal and Shelf Science* 1.

While it is tempting to try to define EAM more narrowly,¹⁴ it must be realized that ocean management is an ongoing process of negotiated uses. One can imagine a continuum bracketed on one end by a previous state where coasts and oceans received little or no use and their condition might be understood as pristine. On the other end of the continuum we increasingly see government actions restricting or prohibiting ocean use to protect and restore marine ecosystems to a more desired state, usually as a consequence of unsustainable use, e.g., wide-spread pollution, overfishing, extinction threats, etc. In between these endpoints the operating space for EAM is large in terms of extractive or other uses that modify the ecosystem yet produce ecosystem services. It is this decision space that is the target of fisheries managers, integrated assessment scientists and marine spatial planners and is where the concepts of EAM are in the process of being developed and implemented. Hereinafter, EAM and EBM are used synonymously because common usage in the United States does not distinguish between these terms.

3 Legislation for EBM

This section takes a restrictive view of what constitutes a **mandate** in legislation as opposed to instructive or permissive language. Much of what is cited as a mandate for EAM is aspirational language or declaration of intent. In order to qualify as a legal mandate for EBM in the United States a distinct federal agency is required to perform certain actions or duties; funds must be appropriated or otherwise authorized to be spent on those actions, there must be a legal basis and mechanism for enforcement, and failure to implement in accordance with regulations is actionable, i.e., citizens and organizations can use this legal mechanism to sue to challenge actions.

Is there a legal mandate for EBM in the United States? The thesis of this chapter is that there is no comprehensive integrated legal mandate for implementing EBM or any mechanism to implement it in the US.¹⁵ This is true at

14 Cecilia Engler, 'Review: Beyond Rhetoric: Navigating the Conceptual Tangle Towards Effective Implementation of the Ecosystem Approach to Oceans Management' (2015) 23 *Environmental Review* 288.

15 Patrick A Parenteau and others, 'Legal Authorities for Ecosystem-Based Management in US Coastal and Ocean Areas' in Donald C Baur, Tim Eichenberg and Michael Sutton (eds), *Ocean and Coastal Law and Policy* (American Bar Association 2007); See also Frederick R Anderson, *NEPA in the Courts: A Legal Analysis of the National Environmental Policy Act* (Johns Hopkins University Press for Resources for the Future 1973); Richard A Liroff, *A National Policy for the Environment* (Indiana University Press 1976).

the sectoral level as well as at a comprehensive, integrated national level. Others might argue that legislation suggests intent or requires use of science that provides equal results if followed.¹⁶ Attempting to resolve this difference of perspective is beyond the scope of this paper. However, the important observation is that the legal discourse encourages the use of ecosystem science in ocean management and the main intent and effect, so far, is to be permissive rather than prohibitive. The composite of all environmental and marine legislation [more than 140 laws] provides substantial basis for EBM but this legislation is implemented in a sectoral, fragmented, conflicting and uncoordinated manner.¹⁷

To illustrate the sweep and content of legislation with significant application to coastal and ocean management in the United States, six major pieces of legislation are reviewed here: The National Environmental Policy Act 1969; the Marine Mammal Protection Act 1972; the Endangered Species Act 1973; the Magnuson-Stevens Fishery Conservation and Management Act 1976; the Marine Protection, Research and Sanctuaries Act 1972 taken together with the American Antiquities Act 1906 and recent designations of Marine National Monument under the latter.¹⁸ As will become apparent over the course of this chapter, the initiative for protection and management of the oceans by the federal government has shifted from the Congress and its passage of environmental legislation in the late 1960s to mid-1970s, to the federal courts where interpretation of the regulations implementing the law took place during the late-1970s to the early 1990s.¹⁹ Since the mid-1990s, the initiative has largely come from the executive branch of government and this remains true to today.²⁰ Nevertheless, even if the recent impetus for EBM comes from the

16 Environmental Law Institute, *Ocean and Coastal Ecosystem-Based Management: Implementation Handbook* (Environmental Law Institute 2009) <https://www.eli.org/sites/default/files/eli-pubs/d19_03.pdf> accessed 1 October 2018; See also Christy M Foran and others, 'Relating Mandates in the United States for Managing the Ocean to Ecosystem Goods and Services Demonstrates Broad but Varied Coverage' (2016) 3 *Frontiers in Marine Science* 5.

17 Christy M Foran and others, 'Relating Mandates in the United States for Managing the Ocean to Ecosystem Goods and Services Demonstrates Broad but Varied Coverage' [2016] *Frontiers in Marine Science* 3:5; See also Mary Turnipseed and others, 'Legal Bedrock for Rebuilding America's Ocean Ecosystems' (2009) 324 *Science* 183; LB Crowder and others, 'Resolving Mismatches in US Ocean Governance' (2006) 313 *Science* 617.

18 The year of first passage for these laws is provided but all references to these laws include the latest versions as amended by Congress.

19 Other laws with potential wide ecosystem effect include the Coastal Zone Management Act 1972, the Outer Continental Shelf Lands Act 1953, Clean Water Act 1972, etc.

20 David Fluharty, 'Recent Developments at the Federal Level in Ocean Policymaking in the United States' (2013) 40 *Coastal Management* 209.

executive branch, the machinations of the Congress and the courts cannot be discounted completely.

3.1 *The National Environmental Policy Act 1969*

The National Environmental Policy Act 1969 (NEPA) requires that environmental impact statements be prepared for all major federal actions (permits, projects, funding and management plans). These environmental impact statements (EIS) must identify the environmental impact of the proposed action; adverse impacts that cannot be avoided if the action is implemented; alternatives to the proposed action and possible mitigation measures; relationships between long and short term productivity; any irreversible and irretrievable commitments of resources; and cumulative impacts, including social and economic impacts which also should be assessed.²¹ NEPA also requires that the best available scientific information be used in making agency actions.²² This standard, implemented through NEPA, could be considered a mandate to the extent it is actionable. Nevertheless, the term 'ecosystem' is not found in the text of the law.

Overall, NEPA applies to all federal actions but not to private or commercial actions not requiring federal involvement. Even though it has mechanisms to require that best available scientific information is made available prior to agency decision-making, the agency is not required to choose actions consistent with protecting the ecosystem. Full disclosure of environmental impacts, which arguably includes cumulative impact on the environment, does not necessarily lead to EBM decisions, especially if funding for more expensive alternative actions or mitigation is needed. In this sense NEPA is procedural in scope. In other words, its main focus is whether the EIS has been developed to an acceptable standard.²³

21 Modified from Sam Kalen, 'Ecology Comes of Age: NEPAs Lost Mandate' (2010) 21 *Duke Environmental Law and Policy Forum* 113; See also Ronald E. Bass, Albert I Herson and Kenneth M Bogdan, *The NEPA Book: A Step-by-Step Guide on How to Comply with the National Environmental Policy Act* (Selano Press Books 2001); Patrick A Parenteau, Donald C Baur and Jennifer L Schorr, 'Legal Authorities for Ecosystem-Based Management in US Coastal and Ocean Areas' in Donald C Baur, Tim Eichenberg and Michael Sutton (eds), *Ocean and Coastal Law and Policy* (American Bar Association 2007).

22 Natalie Lowell and Ryan P Kelly, 'Evaluating Agency Use of "Best Available Science" Under the United States Endangered Species Act' (2016) 196 *Biological Conservation* 53; See also Ryan P Kelly and others, 'Harnessing DNA to Improve Environmental Management: Genetic Monitoring Can Help Public Agencies Implement Environmental Laws' (2014) 344 *Science* 1455.

23 Donald C Baur, Michael L Gosliner and Nina M Young, 'The Law of Marine Mammal Conservation' in Donald C Baur, Tim Eichenberg and Michael Sutton (eds), *Ocean and Coastal Law and Policy* (American Bar Association 2007).

3.2 *The Marine Mammal Protection Act 1972*

The Marine Mammal Protection Act 1972 (MMPA) is a very strong, protection-oriented legislation that aims to rebuild or maintain marine mammal populations to optimum sustainable populations (OSP). In that sense it is a single species-oriented approach to management, much like fisheries, rather than legislation incorporating broader ecosystem considerations such as multi species management, management of conflicts among marine mammals, etc. The goal of managing all species of marine mammals for their OSP can be seen to interfere with management scenarios involving conflicts between two or more marine mammals as a result of predation or competition for prey. Two federal agencies have primary responsibility for management of marine mammals under the Act: the Fish and Wildlife Service in the Department of Interior and the National Marine Fisheries Service within the National Oceanic and Atmospheric Administration (NOAA) within the Department of Commerce, but the Act applies to all federal agency actions. It also preempts management by state and other federal agencies. With specific application to EBM, the MMPA does not provide for protection of habitats/ecosystems on which marine mammals rely. Instead the language asserts that 'all marine mammals should be brought to and maintained at the OSP level, provided that efforts to do so are consistent with maintaining the overall health and stability of the marine environment.'²⁴ In practice, measures to maintain overall health and stability have not been applied (despite the term ecosystem being used 18 times in the text of the Act) because no habitat management mechanisms are provided under the MMPA. Instead the focus has been on reducing mortalities from direct and indirect takes, including subsistence harvests by indigenous peoples. Looking forward, it appears that many marine mammals are vulnerable to increased sound in the ocean, climate induced changes in ecosystems and bioaccumulation of contaminants from sea water and prey species, because none of these issues are covered in the Act.

3.3 *The Endangered Species Act 1973*

The Endangered Species Act 1973 (ESA) is one of the strictest and most powerful tools for species protection in the United States.²⁵ It builds upon the experience gained since passage of the Endangered Species Preservation Act 1966, which permitted land to be purchased for wildlife habitat, and the Endangered Species Conservation Act of 1969, which allowed for preparation of a list of

24 Ibid., 481.

25 William Robert Irvin and Michael Bean, 'The Endangered Species Act and Marine Species' in Donald C Baur, Tim Eichenberg and Michael Sutton (eds), *Ocean and Coastal Law and Policy* (American Bar Association 2007).

animals threatened with extinction. In 1973 the US hosted the international conference to negotiate the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).²⁶ Under the ESA 1973, if a species of plant, animal, fish, turtle, or seabird meets the various criteria for threatened or endangered status – usually as a result of activities that impact their population or habitats – a recovery plan must be prepared that, foremost, prohibits further take of the species. In addition, critical habitat must be protected to ensure that the listed species has a suitable environment to allow recovery. Such designations of critical habitat can restrict entry and limit practices that may harm or slow recovery of a species and have the potential to be applied over a large area. In addition, Habitat Conservation Plans can be prepared by land owning and managing entities to indicate how management will take place so as not to harm or slow recovery of a listed species. Often these Habitat Conservation Plans serve to manage habitats for multiple species.²⁷

This species by species approach is not EBM but it can, in many cases, result in broader management of habitats and ecosystems because of its application across multiple agencies, in particular NOAA in Department of Commerce for marine species and the Fish and Wildlife Service in the Department of Interior for terrestrial species and seabirds.²⁸ Surprisingly, the term ecosystem appears only once in the preamble to this legislation and nowhere else.²⁹ While there is overlap in some aspects of species protections in the MMPA and the ESA the combination of measures requires significant ecosystem level planning as part of federal management plans for fisheries, forests, coasts and other infrastructure. One of the most prominent examples of planning that contributes to ESA listed species recovery is the Puget Sound Partnership,³⁰ where endangered

26 <www.fws.gov/endangered/esa-library/pdf/history_ESA.pdf> accessed December 3, 2017.

27 Patrick A Parenteau, Donald C Baur and Jennifer L Schorr 'Legal Authorities for Ecosystem-Based Management in US Coastal and Ocean Areas' in Donald C Baur, Tim Eichenberg and Michael Sutton (eds), *Ocean and Coastal Law and Policy* (American Bar Association 2007).

28 Environmental Law Institute, *Ocean and Coastal Ecosystem-Based Management: Implementation Handbook* (Environmental Law Institute 2009) <www.eli.org/sites/default/files/eli-pubs/d19_03.pdf> accessed 1 October 2018.

29 George Miller, 'Ecosystem Management: Improving the Endangered Species Act' (1996) 6 *Ecological Applications* 715.

30 Puget Sound Partnership, 'The 2016 Action Agenda for Puget Sound: Comprehensive Plan' <www.psp.wa.gov/action-agenda-document.php> accessed 1 October 2018; See also Puget Sound Partnership, 'The 2016 Action Agenda for Puget Sound: Implementation Plan' <www.psp.wa.gov/action-agenda-document.php> accessed 1 October 2018.

salmon recovery and endangered orca recovery are drivers and are also inextricably linked.³¹

3.4 *The Magnuson-Stevens Fishery Conservation and Management Act 1976*

The Magnuson-Stevens Fishery Conservation and Management Act 1976 (MSA as it is now known), establishes a management regime for fisheries in federal waters (3–200 nautical miles) offshore of the US aimed at preventing overfishing, rebuilding overfished stocks, ensuring conservation and realizing the full potential of national fisheries resources.³² While the core elements apply across all waters of the US, the MSA takes a unique regional approach to management of marine ecosystems. Eight regional fishery management councils are established under the Act. Their members are appointed by the Secretary of Commerce. Decisions of the Councils are advisory to the National Marine Fisheries Service. As one of the principal anthropogenic change drivers in the oceans, fisheries are highly dependent on the marine ecosystem but may also degrade the ecosystem if not managed sustainably.³³ Early results in US management of its Exclusive Economic Zone fisheries showed very mixed results. Some of these related to habitat concerns and others to overfishing. The focus of the MSA is on species harvested in the fisheries but not exclusively. Fisheries independent surveys sample the full range of biota in addition to the target species and these provide one of the most synoptic monitoring programs of marine biodiversity.

With respect to the ecosystem, the 1996 MSA reauthorization called for a report to Congress on the use of ecosystem principles in US fisheries management.³⁴ In 1996 Congress also required the designation of what was defined as Essential Fish Habitat and Habitat Areas of Particular Concern through a short 18 month process to amend each fishery management plan

31 Jameal F Samhoury and others, 'Using Existing Scientific Capacity to Set Targets for Ecosystem-Based Management: A Puget Sound Case Study' (2011) 35 *Marine Policy* 508.

32 Christy M Foran and others, 'Relating Mandates in the United States for Managing the Ocean to Ecosystem Goods and Services Demonstrates Broad but Varied Coverage' (2016) 3 *Frontiers in Marine Science* 5.

33 Alida Bundy and others, 'Strong Fisheries Management and Governance Positively Impact Ecosystem Status' (2017) 18 *Fish and Fisheries* 412.

34 National Marine Fishery Service, Ecosystem Principles Advisory Panel 'Ecosystem-Based Fisheries Management: A Report to Congress by the Ecosystem Principles Advisory Panel' (National Marine Fisheries Service, National Oceanic and Atmospheric Administration 1999).

as well as other measures to limit bycatch.³⁵ In the 2006 MSA reauthorization Congress added language to the effect to encourage fishery management councils to develop ecosystem-based management approaches, but it did not require that Councils develop Fisheries Ecosystem Plans or other measures. Current proposals (2017) for MSA reauthorization do not add ecosystem-based management language.

With or without explicit mandates or other directions to implement EBM in regional fisheries management there is significant progress being made. However, this progress is not the result of legislative mandates, but rather of initiatives undertaken at the executive level. [See below]. As will become apparent, there are multiple laws and regulations under which the National Marine Fisheries Service manages fisheries. This ensures a broad consideration of the ecosystem but does not constitute an integrated or comprehensive approach to EBM.

3.5 *The Marine Protection, Research and Sanctuaries Act 1972 and the American Antiquities Act 1906*

The Marine Protection, Research and Sanctuaries Act 1972 (MPRSA) and the American Antiquities Act 1906 (AAA) may seem an odd pairing but they each respond fundamentally to a perception that fisheries management and other approaches to managing the ocean are failing or are inadequate to the task of sustaining biologically diverse ocean ecosystems. As a result of these perceived failings, it has been accepted that there is a need to establish marine protected areas where the management objective is to limit or prohibit certain activities in order to allow the ocean to recover.³⁶ The MPRSA was originally a special management ocean designation aimed at managing multiple uses in an area for conservation purposes. The National Marine Sanctuary program in NOAA was expected to coordinate with other entities to achieve its ocean conservation purposes, given that it has no separate authority to control shipping, fishing, etc.³⁷ In recent years, the concept that National Marine Sanctuaries (NMS) are places of refuge from exploitation has taken hold in public perception, and Sanctuary Management Plans are becoming increasingly restrictive. After a lengthy hiatus (2000–2014) the process of nominating new National Marine

35 Andrew Rosenberg and others, 'Ecosystem Approaches to Fishery Management Through Essential Fish Habitat' (2000) 66 *Bulletin of Marine Science* 535.

36 Jane Lubchenco and others, 'Plugging a Hole in the Ocean: The Emerging Science of Marine Reserves' (2003) 13(1) *Ecological Applications Supplement* S3.

37 Kim Diana Connolly, Jennifer L Schorr and Darren Misenko, 'Marine Protected Areas' in Donald C Baur, Tim Eichenberg and Michael Sutton (eds), *Ocean and Coastal Law and Policy* (American Bar Association 2007).

Sanctuaries has been implemented and new areas have been proposed to be added to the program.

It should be noted that NMS designation under the MPRSA is not the only tool that federal agencies can invoke to protect nationally important areas. Other options include national parks, national wildlife refuges, wilderness designations, fishery management closures, and national recreation areas. However, National Marine Sanctuaries designated under the MPRSA are afforded certain protections from offshore oil and gas development, ocean dumping, and other measures specific to each designation. NMS must meet other planning and management requirements, thus making this form of designation far-reaching and more effective.

In recent years, as a result of Presidential declarations under the AAA,³⁸ very large areas have been designated as Marine National Monuments. The areas so proclaimed have mostly been located in unpopulated and unmanaged ocean areas in the remote Pacific Islands where few human uses occur. These declarations have been hailed as major victories for conservation by environmental non-governmental organizations, but they have been objected to by some fisheries organizations whose members rely on harvests of highly migratory species in the open Pacific Ocean. The fundamental problem from a legal and governance perspective is that the AAA 1906 allows Presidents the authority to protect areas that hold high value cultural artifacts, usually Native American artifacts. It is not completely clear that Presidents can designate marine areas under the AAA. Especially with respect to marine areas, it is not clear that Presidents have the authority to use the AAA offshore. Further, whether on land or at sea the AAA does not provide processes or resources for management direction or planning, and there are no additional funds allocated to plan for management, or to monitor status, or to enforce against threats. Protections under the AAA 2006 simply designate an area as a Marine National Monument. As there are no associated provisions for management of the areas the question arises as to why bother with such designations. Indeed, the MNM established in federal waters off New England has attracted significant criticism for ignoring public comments provided through established processes (such as the regional fishery management council) despite the designation imposing significant costs on some fishery sectors through closure of ocean areas. Further, these protections are not solely for cultural properties. Instead the focus is on marine biodiversity.

38 Mark Stephen Squillace and others, 'Presidents Lack the Authority to Abolish or Diminish National Monuments' (2017) 103 Virginia Law Review Online 55.

Management orientations for National Marine Sanctuaries and, by their very nature, Marine National Monuments, tend to fall into the end of the continuum of prohibited extractive use with the intent to maintain or restore pristine habitats.

3.6 *Summary*

As has been demonstrated, legislation with respect to EBM is scarce in the US. Aside from the responsibility to reauthorize funding for fisheries, marine mammals, endangered species and marine protected areas, Congress has been willing, on a regular basis, to endorse EBM but not to mandate that such an approach be applied in management. One can argue that this approach is prudent in that the critical wording of a statute for EBM might be difficult to craft as long as there is no agreed upon definition of EBM or a goal for management. Others might consider that requiring federal agencies to utilize EBM in fisheries or sanctuary management plans would be useful, if not too prescriptive. It is possible and optimistic to observe that, through NEPA, Congress has required that agencies use best available science and information in making management decisions and that reliance on this science is arguably EBM.³⁹ Similarly, if one asks agency personnel to evaluate whether they use EBM best practices and principles in their program implementation the results appear to be mixed but lean in favor of management programs being more ecosystem-based than not.⁴⁰

4 **Executive Branch Initiatives**

The transition from environmental legislation and judicial interpretations to action at the executive branch level occurred primarily in the 1990s. Apart from the work done by academic scientists, there was sufficient interest in Congress to request two studies concerning ecosystem management through the Congressional Research Service.⁴¹ At the same time, in response to Vice President

39 Norman L Christensen and others, 'The Report of the Ecological Society of American Committee on the Scientific Basis for Ecosystem Management' (1996) 6:3 Ecological Applications 665.

40 Andrea Dell'Apa and others, 'The Status of Marine and Coastal Ecosystem-Based Management Among the Networks of U.S. Federal Programs' (2015) 60 Marine Policy 249.

41 Eugene H Buck, 'Congressional Research Service Report for Congress: Marine Ecosystem Management' (Congressional Research Service 1993); See also Wayne Morrissey, Jeffrey Zinn and Lynne Corn, 'Ecosystem Management in the Federal Agencies' (Congressional Research Service 1994).

Gore's National Performance Review, the incoming Clinton administration convened an interagency Task Force of 15 executive agencies that issued a report on *The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies* in 1995.⁴² The focus of this effort was on federal agency coordination, partnerships with non-federal stakeholders and communication between the federal agencies and the public. This report led to a Memorandum of Understanding to Foster the Ecosystem Approach among federal agencies.⁴³ Despite this high level of engagement, however, it is not clear how this report and memorandum actually influenced agency practice⁴⁴ and not much effort was made to distinguish marine and terrestrial EBM differences.⁴⁵ Indeed, there was very strong Congressional push back to these policy declarations and any actions proposed to be taken to implement them.⁴⁶

Nevertheless, since the late 1990s Executive Branch initiatives have emerged for Ecosystem-Based Fisheries Management (EBFM), Integrated Ecosystem Assessments (IEAS), Coastal and Marine Spatial Planning (CMSP) and Large Marine Protected Areas (LMPA). The origins, key concepts and implementation of each of these initiatives are reviewed below as well as their current status.

4.1 *Ecosystem-Based Fishery Management*

With respect to fisheries, in its reauthorization of the MSA 1996 (Section 406)⁴⁷ Congress required the National Marine Fisheries Service to convene a panel

42 National Technical Information Service, 'The Ecosystem Approach: Healthy Ecosystems and Sustainable Economies, Volume 1' (NTIS 1995). Two other volumes of the report focus on implementation issues and case studies respectively.

43 Office of Environment and Planning, Executive Office of the President, 'Memorandum of Understanding to Foster the Ecosystem Approach' (The White House 1995) <<https://www.fhwa.dot.gov/legsregs/directives/policy/memoofun.htm>> accessed December 10, 2017.

44 M Boyce and A Haney, *Ecosystem Management: Applications for Sustainable Forest and Resources* (Yale University Press 1996); See also Allan K Fitzsimmons, *Federal Ecosystem Management: A 'Train Wreck' in the Making* (Cato Institute Policy Analysis No. 217, Cato Institute 1994) <www.cato.org/publications/policy-analysis/federal-ecosystem-management-train-wreck-making> accessed December 10, 2017.

45 Roger B Griffis and Katharine W Kimball, 'Ecosystem Approaches to Coastal and Ocean Stewardship' (1996) 6 *Ecological Applications* 708.

46 Wayne A Morrissey, 'Science Policy and Federal Ecosystem-Based Management' (1996) 6 *Ecological Applications* 717; See also Frederick H Wagner, 'Whatever Happened to the National Biological Survey?' (1999) 49 *BioScience* 219.

47 National Marine Fisheries Service, Ecosystem Principles Advisory Panel 'Report of the Ecosystem Principles Advisory Panel to Congress' (National Marine Fisheries Service, National Oceanic and Atmospheric Administration 1999) requires the Panel to report, 'within two years after the date of enactment of this Act, the Secretary [of Commerce]

to prepare a report on the application of ecosystem principles in US fisheries conservation and management. Based on its members' experience and review of ecosystem literature the report from the Ecosystem Principles Advisory Panel suggested that the following Principles, Goals and Policies embody a framework for ecosystem-based fisheries management (EBFM).

In order to report on the use of ecosystem principles in US fisheries management the Panel had to define what it considered to be ecosystem principles for fisheries management. The Panel defined eight principles (NMFS 1999): 1) the ability to predict ecosystem behavior is limited; 2) ecosystems have real thresholds and limits which, when exceeded, can effect major system restructuring; 3) once thresholds and limits have been exceeded, changes can be irreversible; 4) diversity is important to ecosystem function; 5) multiple scales interact within and among ecosystems; 6) components of ecosystems are linked; 7) ecosystem boundaries are open; and 8) ecosystems change with time. To be clear, this was a consensus-based definition of principle with the recognition that there were many ways that such principles could be stated for fishery management.⁴⁸

Next the Panel had to come to agreement on goals which it did by defining the goal of EBFM to be to 'maintain ecosystem health and sustainability.'⁴⁹

shall submit to the Congress a completed report of the panel established under this section, which shall include –

- (1) an analysis of the extent to which ecosystem principles are being applied in fishery conservation and management activities, including research activities;
- (2) proposed actions by the Secretary and by the Congress that should be undertaken to expand the application of ecosystem principles in fishery conservation and management; and
- (3) such other information as may be appropriate.'

48 Jason S Link, 'What Does Ecosystem-Based Fisheries Management Mean?' (2002) 27:4 Fisheries 18; See also JS Link, 'Ecological Consideration in Fisheries Management: When Does it Matter?' (2002) 27:4 Fisheries 10; K Arkema, S Abramson and B Dewsbury, 'Marine Ecosystem Management: From Characterization to Implementation' (2006) 4 Frontiers in Ecology and Management 525; Jake Rice, 'Managing Fisheries Well: Delivering the Promises of an Ecosystem Approach' (2011) 12 Fish and Fisheries 209.

49 National Marine Fisheries Service, Ecosystem Principles Advisory Panel 'Report of the Ecosystem Principles Advisory Panel to Congress' (National Marine Fisheries Service, National Oceanic and Atmospheric Administration 1999).

The kinds of policies that the Panel considered to be consistent with the principles and goals were identified as: 1) change the burden of proof; 2) apply the precautionary approach; 3) purchase ‘insurance’ against unforeseen, adverse ecosystem impacts; 4) learn from management experiences; 5) make local incentives compatible with global goals; and 6) promote participation, fairness and equity in policy and management.⁵⁰

The most important parts of the Panel report are the recommendations for how to implement an EBFM approach in existing fisheries management under the MSA. The chief recommendation was to prepare a Fisheries Ecosystem Plan (FEP) for each marine fisheries management region to serve as an umbrella document bringing an ecosystem focus to fishery management regulatory actions. The FEP would be developed regionally to take advantage of unique fisheries circumstances and regional priorities. Each FEP would be expected to: 1) delineate the geographic extent of the ecosystem(s) that occur(s) within Council authority, including characterization of the biological, chemical and physical dynamics of those ecosystems, and ‘zone’ the area for alternative uses; 2) develop a conceptual model of the food web; 3) describe the habitat needs of different life history stages for all plants and animals that represent the ‘significant food web’ and how they are considered in conservation and management measures; 4) calculate total removals – including incidental mortality – and show how they relate to standing biomass, production, optimum yields, natural mortality and trophic structure; 5) assess how uncertainty is characterized and what kind of buffers against uncertainty are included in conservation and management actions; 6) develop indices of ecosystem health as targets for management; 7) describe available long-term monitoring data and how they are used; and 8) assess the ecological, human, and institutional elements of the ecosystem which most significantly affect fisheries, and are outside Council/Department of Commerce (DOC) authority.⁵¹ Included should be a strategy to address those influences in order to achieve both Fishery Management Plan and FEP objectives.⁵²

Despite this initial flurry of activity by NMFS to develop EBFM, a change of administration and a less supportive Congress conspired to limit

50 Ibid.

51 Ibid.

52 David Fluharty and Ned Cyr, ‘Implementing Ecosystem-Based Management of Fisheries in the Context of US Regional Fisheries Management: Recommendations of the NMFS Ecosystem Principles Advisory Panel’ (2001) 42 CalCOFI Reports 66.

implementation of the Panel's recommendations.⁵³ Efforts continued to explore what EBFM might mean both within NMFS⁵⁴ and in academia.⁵⁵

In 2014 a review of implementation of EBFM performed by the Ecosystem Sciences and Management Working Group of NOAA's Science Advisory Board and drawing from the recommendations of the 1999 NMFS Ecosystem Principles Report to Congress showed significant progress toward EBFM was being made in most fishery management regions.⁵⁶ NMFS also performed a benchmarking of FEPS.⁵⁷ This led to NMFS developing two documents to guide further implementation of EBFM i.e., a statement of policy and a roadmap.⁵⁸

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- 53 D Witherell, C Pautzke and D Fluharty, 'An Ecosystem Based Approach for Alaska Groundfish Fisheries' (2000) 57 *ICES Journal of Marine Sciences* 771; National Oceanic and Atmospheric Administration, 'Chesapeake Bay Fisheries Ecosystem Plan' (NOAA Chesapeake Bay Office 2004).
- 54 SA Murawski, 'Ten Myths Concerning Ecosystem Approaches to Marine Resource Management' (2007) 31 *Marine Policy* 681; See also National Marine Fisheries Service, NOAA Fisheries, 'Requirements for an Ecosystem Approach to Management of Living Marine Resources' (DOC/NOAA/NMFS 2004); National Marine Fisheries Service, 'The State of Science to Support an Ecosystem Approach to Regional Fishery Management: Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, Section 406(f) Report to Congress' (NOAA Technical Memo, NMFS F/SPO-96 NOAA, US Department of Commerce 2009); Jason S Link, *Ecosystem-Based Fisheries Management: Confronting Tradeoffs* (Cambridge University Press 2010).
- 55 Ellen Pikitch and others, 'Ecosystem-Based Fisheries Management' (2004) 305 *Science* 346; See also Mary Ruckelshaus and others, 'Marine Ecosystem-based Management in Practice: Scientific and Governance Challenges' (2008) 581 *BioScience* 53; DJ Walters and SJD Martell, *Fisheries Ecology and Management* (Princeton University Press 2004); TJ Pitcher and others, 'An Evaluation of Progress in Implementing Ecosystem-Based Management of Fisheries in 33 Countries' (2009) 33 *Marine Policy* 223; Heather Tallis and others, 'The Many Faces of Ecosystem-Based Management: Making the Process Work Today in Real Places' (2010) 34 *Marine Policy* 340; Andrea Belgano and Charles W Fowler, *Ecosystem-Based Management for Marine Fishes: An Evolving Perspective* (Cambridge University Press 2011); Jake Rice, 'Managing Fisheries Well: Delivering the Promises of an Ecosystem Approach' (2011) 12 *Fish and Fisheries* 209.
- 56 Ecosystem Sciences and Management Working Group, NOAA Science Advisory Board 'Exploration of Ecosystem-Based Fishery Management in the United States' (National Oceanic and Atmospheric Administration, Science Advisory Board 2014) <ftp://ftp.oar.noaa.gov/SAB/sab/Reports/SAB%20EBFM%20Report%20%20toNOAA_July%202014_Final.pdf> accessed December 10, 2017; See also NOAA Response (2015) <[ftp://ftp.oar.noaa.gov/SAB/sab/Meetings/2015/August/NOAA_Resp_EBFM_2015_Final%20\(2\).pdf](ftp://ftp.oar.noaa.gov/SAB/sab/Meetings/2015/August/NOAA_Resp_EBFM_2015_Final%20(2).pdf)> accessed 1 October 2018.
- 57 Erin B Wilkinson and Karen Abrams, 'Benchmarking the 1999 EPAP Recommendations with Existing Fishery Ecosystem Plans' USDOC/NOAA/NMFS NOAA Technical Memorandum NMFS-OSF-5 (2015).
- 58 National Marine Fisheries Service, 'Ecosystem-Based Fisheries Management Policy' NMFS Policy Directive 01-120 May 23, 2016 <www.fisheries.noaa.gov/resource/document/

Interest by the Pew Foundation's Lenfest Oceans Program produced additional suggestions for contents of FEPS that updated the recommendations of the 1999 Panel.⁵⁹ Actions taken have improved stock assessments to include environmental variables, protected habitats, reduced bycatch, taken into account the role of forage fish in ecosystems, etc. Despite progress made toward implementing EBFM, critics point to the fact that the fish-centric focus does not encompass all uses and users of the sea and that a broader approach to marine management is desired.

4.2 *Ecosystem-Based Management*

Congress passed the Oceans Act of 2000 which established a US Commission on Ocean Policy (USCOP) to make high level recommendations on ocean management in a report to Congress. In 2004 the USCOP made its report calling for a doubling of funding for ocean management, more coordinated approaches to management among federal agencies, and Ecosystem-Based Management through regional ocean councils.⁶⁰ Similar recommendations were arrived at in 2003 by a high level group convened by the Pew Trusts, and an environmental non-governmental organization known as the Pew Oceans Commission (POC).⁶¹ While the USCOP recommended the formation of a National Oceans Council in the Executive Office of the President to coordinate among federal agencies to implement a National Ocean Policy Framework, the POC recommended that Congress pass a National Ocean Policy Act to include a new national oceans agency and a permanent national oceans council. President Bush rolled out a US Ocean Action Plan (2004)⁶² in response to the USCOP report and by Executive Order 13366 (December 17, 2004) established

ecosystem-based-fisheries-management-policy> accessed 1 October 2018; See also National Marine Fisheries Service, 'NOAA Fisheries Ecosystem-Based Fisheries Management Road Map' NMFS Instruction 01-120-01 November 2016 <https://www.st.nmfs.noaa.gov/Assets/ecosystems/ebfm/EBFM_Road_Map_final.pdf> accessed 1 October 2018.

59 Lenfest Ocean Program, 'Building Effective Fishery Ecosystem Plans: Report from the Lenfest Fishery Ecosystem Task Force' (2016) <<https://www.lenfestocean.org/news-and-publications/published-paper/building-effective-fishery-ecosystem-plans>> accessed 1 October 2018.

60 US Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century: Final Report* (2004) available at <https://govinfo.library.unt.edu/oceancommission/documents/full_color_rpt/000_ocean_full_report.pdf> accessed December 11, 2017.

61 Pew Oceans Commission, *America's Living Oceans: Charting a Course for Sea Change* (2003) available at <https://www.pewtrusts.org/~media/assets/2003/06/02/poc_summary.pdf> accessed 1 October 2018.

62 Office of the President, 'US Ocean Action Plan: The Bush Administration's Response to the US Commission on Ocean Policy' (2004) <www.cmts.gov/downloads/US_ocean_action_plan.pdf> accessed December 12, 2017.

a Cabinet-level National Ocean Council (NOC) and ancillary bodies, led by the Council on Environmental Quality to advise him on policies related to the oceans. While this all seems to indicate decisive action, the overall effect is aptly summarized as, '[A]lthough the Action Plan took steps towards fulfilling the USCOP's recommendations (...) it made only very limited references to ecosystem issues and did not require any concrete or specific steps toward EBM.'⁶³

4.3 *Integrated Ecosystem Assessment*

In light of the limited action by the Bush Administration to implement policy recommendations by the USCOP, the National Oceanic and Atmospheric Administration (NOAA) (a government agency with primary management responsibilities for weather and climate forecasting, marine fisheries management, coastal zone management, ocean surveys, marine scientific research and endangered species management) considered what it might do to assist in developing a more coherent ecosystem-based management support.⁶⁴ Acting through its Science Advisory Board, in 2004 NOAA established a small working group under the rubric of the External Ecosystem Task Team (EETT) to deliberate on the issue and to make recommendations on how NOAA could further engage in EBM. The EETT reported back to NOAA calling for it to coordinate its assets at the regional level to develop Integrated Ecosystem Assessments (IEA) as a support tool needed to consolidate ecosystem-level information updated on a regular interval for use by agencies in coastal and marine management.⁶⁵ The Report calls upon NOAA to work with its partners – tribes, local and state government agencies as well as other federal agencies to assemble ecosystem knowledge that would provide authoritative scientific understanding of status and trends in regional marine ecosystems in order to support planning and management.

Among the recommendations of the EETT were that NOAA should develop a plan for ecosystem science needs and use the tool of IEAs as a framework for

63 Donald C Baur, Patrick A Parenteau and Georgia Hancock Snusz, 'Legal Authorities for Ecosystem-Based Management in Coastal and Ocean Areas' in Donald C Baur and others (eds), *Ocean and Coastal Law and Policy* (second edition, American Bar Association 2015).

64 National Oceanic and Atmospheric Administration, 'New Priorities for the 21st Century – NOAA's Strategic Plan: Updated for FY 2006-FY 2011' (US Department of Commerce NOAA 2005).

65 External Ecosystem Task Team (EETT), NOAA Science Advisory Board, 'Evolving an Ecosystem Approach to Science and Management Throughout NOAA and its Partners: Final Report' (NOAA, SAB 2006) <<http://sab.noaa.gov/sites/SAB/Reports/EETT/eERRT%20-%20Final%20Report%20to%20NOAA%20Oct%2006.pdf>> accessed 1 October 2018.

coordination. Building on the existing capacities for sustained ocean observations, analysis of status and trends in ocean in terms of space and time, and integration and forecasting, the EETT asserted that additional capabilities were needed in the form of 1) new modeling and forecasting tools; 2) social science methods for linking ecosystem science with governance; 3) understanding behavior of society in response to changing ecosystem components; 4) ecosystem structure and function; 5) technical analyses for things like contaminants and toxics; 6) biodiversity and taxonomy using eDNA; 7) data archiving and integration; and 8) ecosystem impacts of specific human activities.⁶⁶

NOAA leadership responded by setting up regional teams to implement the recommendations and developing a science plan⁶⁷ and technical guidance for these teams.⁶⁸ The focus of the technical guidance was on developing an iterative process for construction and review of IEAs starting with 1) scoping of key issues and stressors; 2) assessment of state, indicators and trends of ecosystem condition relative to targets; 3) assessment of environmental, economic and social causes and consequences of trends; 4) forecast/evaluation of ecosystem conditions under a range of management actions and policies; 5) evaluation of management effectiveness for emerging ecosystem issues; and 6) identification of knowledge or data gaps.

In spite of efforts to bring attention to NOAA's efforts and to engage with a broader set of interests and agencies⁶⁹ broader events conspired to limit the full implementation of the IEA approach by NOAA. First, the downturn in the economy late in the first decade of the 2000s resulted in budget cuts in essential programs and left little funding to support regional IEA preparation in all regional ecosystems. Second, the election of a new President and change of administration took EBM efforts in a new direction. (See Coastal and Marine Spatial Planning section below).

Still, dedicated NOAA IEA regional teams persist in their efforts to develop and demonstrate IEAs under the auspices of and in partnership with the California Current Ecosystem, Gulf of Mexico, Northeast US, Alaska and

66 Ibid.

67 SA Murawski and GC Matlock (eds), 'Ecosystem Science Capabilities Required to Support NOAA's Mission in the Year 2020' (NOAA Technical Memorandum NMFS-F/SPO-74 US Department of Commerce (2006).

68 PS Levin and others, 'Integrated Ecosystem Assessments' (NOAA Technical Memorandum NMFS-NWFSC-92 U.S. Department of Commerce 2008).

69 Phillip S Levin and others, 'Integrated Ecosystem Assessments: Developing the Scientific Basis for Ecosystem-Based Management of the Ocean' (2009) 7:1 Public Library of Science Biology; See also Yvonne L deReynier, Phillip S Levin and Noriko L Shoji, 'Bringing Stakeholders, Scientists and Managers Together Through an Integrated Ecosystem Assessment Process' (2010) 34 Marine Policy 534.

the Pacific Islands.⁷⁰ For example, the NOAA IEA regional team has partnered with the West Coast Governors' Alliance since in 2006.⁷¹ Gradual progress has been made to develop six IEAs and to consolidate them into a West Coast IEA that has been used by the Pacific Fishery Management Council in its FEP development process and by the Channel Islands National Marine Sanctuary in its 5-year condition reports.⁷² Similar efforts to reach out to marine sanctuaries and fishery management councils are taking place. The most recent developments have been in the Northeast Region and the Mid-Atlantic region where NOAA IEA teams have been instrumental in providing the scientific basis for coastal and marine spatial planning.⁷³ In a certain sense, regional IEAs have served as test beds for developing many of the technical competencies for application in IEAs even if they have not succeeded in being comprehensively and systematically used as a tool in all regions.⁷⁴

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- 70 NOAA Fisheries, Office of Science and Technology, 'NOAA's Integrated Ecosystem Assessment Program (IEA): Ecosystem Science Review' (2016) <www.st.nmfs.noaa.gov/Assets/science_program/ecosystem-program-review/IEA/EcosystemScienceReviewOST_IEA_Final.pdf> accessed 1 October 2018; See also Phillip S. Levin and others, 'Guidance for Implementation of Integrated Ecosystem Assessments: A US Perspective' (2013) 71 *ICES Journal of Marine Science* 1198; Jameal F Samhouri and others, 'Lessons Learned from Developing Integrated Ecosystem Assessments to Inform Marine Ecosystem-Based Management in the USA' (2014) 71:5 *ICES Journal of Marine Science* 1205; Michael A Reiter and others, 'An Integrated Framework for Informing Coastal and Marine Ecosystem Management Decisions' (2013) 15:1 *Journal of Environmental Assessment Policy and Management*.
- 71 West Coast Governor's Agreement on Ocean Health 'Integrated Ecosystem Assessment (IEA) Action Coordination Team, Final Work Plan' (2012) <www.westcoastoceans.org/media/IEAworkplanfinal04242012.pdf> accessed 1 October 2018.
- 72 Chris Harvey and others, 'NOAA's Integrated Ecosystem Assessment Program: California Current Region 3-Year Work Plan (FY2016-FY2018)' <www.integratedecosystemassessment.noaa.gov/Assets/iea/gulf/documents/regional-work-plans/NOAA-IEA-Work-Plan-CCIEA.pdf> accessed 1 October 2018.
- 73 NOAA Fisheries, Office of Science and Technology, 'NOAA's Integrated Ecosystem Assessment Program (IEA): Ecosystem Science Review' (2016) <www.st.nmfs.noaa.gov/Assets/science_program/ecosystem-program-review/IEA/EcosystemScienceReviewOST_IEA_Final.pdf> accessed 1 October 2018.
- 74 For example in Puget Sound, Washington, USA, IEAs have been used to test development of targets for ecosystem-based management and for indicators of human well-being in restoration efforts. See Jameal F Samhouri and others, 'Using Existing Scientific Capacity to Set Targets for Ecosystem-Based Management: A Puget Sound Case Study' (2011) 35 *Marine Policy* 508; See also Kelly Biedenweg, Haley Harguth and Kari Stiles, 'The Science and Politics of Human Well-being: A Case Study in Cocreating Indicators for Puget Sound Restoration' (2017) 22:3 *Ecology and Society*.

4.4 *Coastal and Marine Spatial Planning*

The election of President Barack Obama signaled the start of a progressive era for environmental protection of the oceans. Previous administrations had experimented with legislation, EBFM and IEAS to implement recommendations of the USCOP and the POC. While progress was being made in the fisheries management context, IEAS were languishing from lack of budgetary support and general lack of awareness of their utility.⁷⁵ National level environmental non-governmental organizations were emboldened by the willingness of the new administration to consider EBM. It should be said that these organizations were disappointed by the progress they had made in developing networks of marine protected areas and sought a way to resurrect MPAs as part of a broader program where MPAs would be effected as a result of ocean planning. Strategically, it was easier to ask for a portion of the national ocean management area to be set aside for biodiversity protection as part of a larger spatial planning exercise than to achieve MPA designation independently.

For an administration eager to implement the recommendations of the USCOP with respect to EBM, and to generate a national ocean policy, the initial days of the new administration were important. First President Obama issued a policy memorandum to all heads of federal agencies calling for them to assist in the development of a national ocean policy.⁷⁶ With this memorandum, the President convened an Interagency Ocean Policy Task Force (OPTF) in 2009 to report to him in 180 days with recommendations for a Framework for a National Ocean Policy. The Task Force was charged '(...) to develop, with appropriate public input, a recommended framework for effective coastal and marine spatial planning. The framework should be a comprehensive, integrated, ecosystem-based approach that addresses conservation, economic activity, user conflict, and sustainable use of ocean, coastal and Great Lakes resources consistent with international law (...)' This OPTF temporarily suspended the Bush administration's Committee on Ocean Policy established by Executive Order 13366.

75 Environmental Law Institute, *Marine Spatial Planning in US Waters: An Assessment and Analysis of Existing Legal Mechanisms, Anticipated Barriers, and Future Opportunities* (Environmental Law Institute for Ocean Conservancy 2009).

76 The White House, Office of the Press Secretary 'Memorandum for the Heads of Executive Departments and Agencies, National Policy of the Oceans, Our Coasts, and the Great Lakes' June 12, 2009 <<https://obamawhitehouse.archives.gov/administration/eop/oceans/policy>> accessed December 16, 2017.

Following receipt of the OPTF report,⁷⁷ President Obama issued an Executive Order 13547 (Sec. 10 revoking EO 13366) entitled *Stewardship of the Oceans, Our Coasts, and the Great Lakes*, July 19, 2010. The Executive Order establishes a National Ocean Council that mirrors the composition of the earlier Bush appointed group and other ancillary bodies including a Governance Coordinating Committee (Sec. 7), and Regional Advisory Committees (Sec. 8). It defines the central recommendation for coastal and marine spatial planning (CMSP) to mean, ‘(...) a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of the ocean, coastal and Great Lakes areas.’⁷⁸ The regional coastal and marine spatial plans are to be comprehensive, regional, integrated, resilient, ecosystem-based and to make use of best available science and information. However, to one of the Executive Order provisions (Sec. 9 (d)) a sobering note is added. ‘This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.’ In other words, participation in these regional planning efforts is to be voluntary, employing existing laws and policies and in practical terms highly dependent on extraordinary willingness to cooperate and exceptional cleverness to develop CMSP using existing requirements, many of which are contradictory. Clearly the National Ocean Policy is aspirational in terms of its objectives. Finally, a tight timeline was set for developing regional ocean plans and having them approved by the National Ocean Council and no new fiscal or human resources were made available. Thus, CMSP was very much an unfunded mandate but also one with no separate legal authority other than the leadership the President could provide for under an Executive Order.

Besides the provisions for CMSP, the National Ocean Policy Priority Objectives are: 1) ecosystem based management; 2) inform decisions and improve understanding; 3) better coordination and support for federal, state, tribal, local, and regional management; 4) resiliency and adaptation to climate change and ocean acidification; 5) regional ecosystem protection and restoration;

77 White House Council on Environmental Quality, *Final Recommendations of the Inter-agency Ocean Policy Task Force* (Council on Environmental Quality 2010) <https://www.nsf.gov/geo/opp/opp_advisory/briefings/nov2010/optf_finalrecs.pdf> accessed 1 October 2018.

78 The White House, Office of the Press Secretary, Executive Order 13547 *Stewardship of the Ocean, Our Coasts, and the Great Lakes*, July 19, 2010. Section 3(b) <<https://obama.whitehouse.archives.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes>> accessed December 16, 2017.

6) water quality and sustainable practices on land; 7) changing conditions in the Arctic; and 8) ocean, coastal, and Great Lakes observations, mapping and infrastructure.

These all appear to be legitimate objectives for, or parts of, a national ocean policy. However they represent a tall order when only the convening entity, i.e., the Council on Environmental Quality is designated as the lead entity while all other departments and agencies are expected to participate without resolution of conflicting jurisdictions or laws and regulations.⁷⁹ This national ocean policy recognizes the breadth of the ocean policy realm – especially emerging issues – but it ignores existing jurisdictions and responsibilities of sectoral agencies like fisheries, shipping, oil and gas, etc. with their own legislative mandates.

Resistance to implementation of the National Ocean Policy came almost immediately from ocean industries and coastal and ocean users. These groups prevailed on Congress not to fund CMSP.⁸⁰ Enthusiastic support for the NOP came from national environmental advocacy organizations as well as some ‘good governance’ experts who saw an opportunity to reduce or avoid conflicts by making trade-offs through planning.⁸¹

As a result of these protests, and only modest support, the NOC labored to develop a National Ocean Policy Implementation Plan⁸² and a Marine Planning Handbook.⁸³ These documents are not nearly as prescriptive as the original

79 NOAA Science Advisory Board recognized the need to provide sideboards to the CMSP discussion and requested its Ecosystem Sciences and Management Working Group to review representative marine spatial processes from around the United States where ocean planning was underway, e.g., Massachusetts, New York, and Oregon as well as international experience. The report developed is reflected in Jeremy S Collie and others, ‘Marine Spatial Planning in Practice’ (2013) 117 *Estuarine, Coastal and Shelf Science* 1.

80 Committee on Natural Resources, US House of Representatives, Subcommittee on Water, Power and Oceans *Oversight Hearing Implications of President Obama’s National Ocean Policy* (Serial No. 114–43 May 17, 2016, US Government Printing Office) <<https://www.gpo.gov/fdsys/pkg/CHRG-114hhrg20220/pdf/CHRG-114hhrg20220.pdf>> accessed December 17, 2017.

81 Ashley L Erickson, Margaret R Caldwell and J Zackary Koehm, ‘Smart Ocean Planning: Drivers, Enabling Conditions, and Global Examples’ in Donald C Baur and others (eds), *Ocean and Coastal Law and Policy* (second edition American Bar Association 2015); See also Leila Sievanen and others, ‘Linking Top-Down and Bottom-Up Processes Through the New US National Ocean Policy’ (2011) 4 *Conservation Letters* 298.

82 National Ocean Council, *National Ocean Policy Implementation Plan* (National Ocean Council 2013) <obamawhitehouse.archives.gov/administration/eop/oceans/policy> accessed 1 October 2018.

83 National Ocean Council *Marine Planning Handbook* (National Ocean Council 2013) <obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/final_marine_planning_handbook.pdf> accessed 1 October 2018.

CMSP recommendations and the Executive Order for the National Ocean Policy. Instead, the Plan and Handbook tend to stress the role of the federal government in supporting regional initiatives as opposed to leading them. In the meantime, Regional Planning Bodies had been appointed and in some cases have gone to work. In the Northeast Region where there was a long history of EBM coordination and in the Mid-Atlantic Region close to Washington, DC there was early start. In contrast, the South Atlantic, Gulf of Mexico, West Coast, Pacific Islands and Alaska Regions were much slower leaving the blocks. At the time of writing, only the Northeast RPB and Mid-Atlantic RPB plans have been completed and approved by the NOC.⁸⁴ With another change of President, it is apparent that the support that existed in the White House for CMSP has evaporated. The Council on Environmental Quality has been physically removed from the White House and the NOC appears moribund. Web links to CMSP at the White House have been placed on temporary hold. However, no explicit actions have been taken to revoke the National Ocean Policy Executive Order so regional planning bodies continue to meet and the NOP remains on the books.⁸⁵

4.5 *Marine Protected Area Management*

Marine protected areas in the United States have been established over a long period of time under various jurisdictions and management approaches.⁸⁶ By far the best known in federal waters are the National Marine Sanctuaries (NMS) established under the Marine Protection, Research, National Marine Sanctuaries Act 1972. In their original formulation these areas are not to be confused with marine National Parks or marine National Wildlife Refuges which were established under different legislation. They originally were conceived of as special area management designations where the national interest in protecting resources and environments gave impetus to having a facilitator to lead state, local, tribal and federal entities into developing appropriate management plans. The Sanctuary managers rely on other management entities like the National Marine Fisheries Service to manage fisheries, marine mammals,

84 Another driver of CMSP has been the controversy over and decision-making process for siting renewable offshore wind energy. Federal agencies involved with these efforts have participated in the regional planning processes. However, the results of marine spatial planning in federal waters in guiding the offshore planning by these agencies and leasing of offshore areas for wind do not take the regional plans into account.

85 See for example, West Coast Regional Planning Body, 'Agenda December 5–6, 2017' <www.westcoastmarineplanning.org> accessed 1 October 2018.

86 National Research Council, *Marine Protected Areas: Tools for Sustaining Ocean Ecosystems* (National Academies Press 2001).

and endangered species, and the Coast Guard to manage shipping and recreational boating, smuggling and drug interdiction, etc. Gradually, the National Marine Sanctuary managers and the general public have begun to expect these areas to be managed for preservation as opposed to multiple use. In fact, the tension between conservation (meaning sustainable resource use) and preservation (strict protection mandates) has been at the core of MPA and National Marine Sanctuary management in the United States. This controversy in part led Congress in 2000 to direct NOAA to demonstrate that it has the resources to manage existing sanctuary areas before it would be permitted to designate more sites. It was not until 2014 that NOAA could reinstate the designation process by demonstrating that it had the resources and by agreeing only to consider those areas where there was significant local support for a NMS designation.⁸⁷

Given that there is a broad perception that oceans are being overused and degraded and that existing single sector management approaches appear incapable of reversing these trends, there are increasing demands for areas set aside from development to protect ecosystem functioning.⁸⁸ The argument goes that if we cannot sustainably manage the oceans then we should strongly protect large areas that are significant for marine resources from all uses.⁸⁹ This constitutes a type of ecosystem-based management. The counter argument is that it is better to apply ecosystem-based management across the whole marine environment and to use marine reserves and no-take MPAs where they are the best tool to manage for particular preservation trending results.⁹⁰ It is outside

87 Kim Diana Connolly, 'Marine Protected Areas' in Donald C Baur and others (eds), *Ocean and Coastal Law and Policy* (second edition American Bar Association 2015).

88 Peter Jones, Ruth Murray and Ole Vestergaard, 'Marine Protected Areas: Securing Benefits for Sustainable Development' in United Nations Environmental Program (ed), *Frontiers 2017: Emerging Issues of Environmental Concern* (United Nations Environment Program 2017). This chapter explores the global implementation of the Sustainable Development Goal of 30% of national waters protected in MPAs. The *Frontiers 2017* report is a most ambitious and optimistic expression of MPAs and represents an approach to EBM. To be certain that approach would provide significant amounts of protection but it leaves open the management of the other 70%. MPAs do not exist in isolation as their boundaries are porous to fish migrations, ocean currents, and activities that only transit their linear boundaries; See also Helen Kopnina and others, 'The "Future of Conservation" Debate: Defending Ecocentrism and the Nature Needs Half Movement' (2018) 217 *Biological Conservation* 140.

89 Jason Patlis and others, 'The National Marine Sanctuary System: The Once and Future Promise of Comprehensive Ocean Governance' (2014) 44 *Environmental Law Reporter* 10932; See also Linwood H Pendleton and others, 'Debating the Effectiveness of Marine Protected Areas' (2017) 75(3) *ICES Journal of Marine Science* 1156.

90 *Ibid.*

the scope of this chapter to resolve these differences in perspectives. Rather, the goal is to explore the progress being made to implement EBM using MPAs and networks of MPAs.

In order to encourage the development of MPA networks in US waters, President Clinton issued Executive Order 13158 – Marine Protected Areas. The purpose of the EO was to ‘(...) (a) strengthen the management, protection and conservation of existing marine protected areas and establish new or expanded MPAs; (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation’s natural and cultural resources; and (c) avoid causing harm to MPAs through federally conducted, approved or funded activities.’ The EO defines Marine Protected Area as ‘(...) any area of the marine environment that has been reserved by Federal, State, territorial, tribal or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.’⁹¹ Most importantly, the EO does not alter existing legislation for designating MPAs nor does it affect Indian treaty rights or US trust responsibilities and it does not ‘create any right or benefit, substantive or procedural, enforceable in law or equity by a party against the United States, its agencies, its officers, or any person.’⁹² In order to carry out this EO, the Department of Commerce is directed to establish a Marine Protected Area Federal Advisory Committee (Section 8(c)) and also to establish a Marine Protected Area Center (Section 8(e)) in cooperation with the Department of Interior.

Beyond this EO President Clinton also used EO 13178 to initiate planning for the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve as an eventual National Marine Sanctuary (added to by EO 13196 to finalize the Reserve and formalize the process for designating a NMS).⁹³ In this way he was able to circumvent the Congressional opposition to the establishment of new National Marine Sanctuaries. This was a bold move requiring careful coordination with the existing National Wildlife Refuges and the State of Hawaii for state waters to be included in the reserve. The proposed reserve would extend approximately 1,200 nm and be 100 nm in width encompassing 3.5 million acres. In addition, President Clinton designated the California Coastal National Monument using Presidential Proclamation No 7264 January 11, 2000

91 Executive Order 13158, Marine Protected Areas, May 26, 2000. Purpose Section 1 (a)–(c); MPA definition Section 2 <<http://www.presidency.ucsb.edu/ws/?pid=61650>> accessed December 12, 2017.

92 Ibid. Section 8.

93 Executive Order 13178 December 4, 2000 Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve EO 13196 Final Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, January 21, 2001.

(President Obama expanded this National Monument by Proclamation No 9089 March 11, 2014).⁹⁴

The American Antiquities Act 1906 (AAA 1906) as outlined above is another tool by which very large MPAs have been designated in recent years. Under this Act the President is authorized by Congress to designate objects of historic or scientific interest as National Monuments but recent ocean-based designations have been fraught with controversy. However, Presidential authority to make these designations has survived legal and political challenge.⁹⁵ For the most part the Antiquities Act has been used to designate terrestrial sites that hold cultural artifacts or other significance whereas cultural artifacts are much less abundant in the ocean (with the exception of some islands) and the designation has served preservation goals. President Bush, in 2006–2007 used Proclamations to designate the Papahānaumokuākea Marine National Monument (Northwest Hawaiian Islands Marine National Monument)⁹⁶ and then in 2009 at the end of his term in office, to designate the Marianas Trench, Pacific Remote Islands and Rose Atoll Marine National Monuments. Not to be outdone, President Obama expanded the size of the Pacific Remote Islands MNM in 2014.⁹⁷ In 2016 President Obama Proclaimed the Northeast Canyons and Seamounts Marine National Monument as the first MNM in the Atlantic.⁹⁸

94 Kim Diana Connolly, 'Marine Protected Areas' in Donald C Baur and others (eds), *Ocean and Coastal Law and Policy* (second edition American Bar Association 2015).

95 Carol Hardy Vincent and Kristina Alexander, 'National Monuments and the Antiquities Act' (Congressional Research Service 2010) 7–5700 <digital.library.unt.edu/ark:/67531/metadc463245/> accessed 1 October 2018.

96 John N Kittinger and others, 'Marine Protected Areas, Multiple-Agency Management and Monumental Surprise in the Northwest Hawaiian Islands' [2011] *Journal of Marine Biology* 1 Article ID 241374.

97 White House Presidential Proclamation Barack Obama, 'Pacific Remote Islands Marine National Monument Expansion' <obamawhitehouse.archives.gov/the-press-office/2014/09/25/presidential-proclamation-pacific-remote-islands-marine-national-monumen> accessed 1 October 2018; See also Enric Sala and others, *Expansion of the U.S. Pacific Remote Islands Marine National Monument: Report to the United States Government* (May 20, 2014) http://www.conservehi.org/newsitems/PRIMNM_Science_Report.pdf> accessed December 10, 2017.

98 US Department of Interior, 'Secretaries Pritzker, Jewell Applaud President's Designation of Northeast Canyons and Seamounts Marine National Monument', September 15, 2016 <www.doi.gov/pressreleases/secretaries-pritzker-jewell-applaud-presidents-designation-northeast-canyons-and> (*sic*) accessed December 13, 2017; President of the United States Barack Obama, Proclamation 9496-Northeast Canyons and Seamounts Marine National Monument, September 15, 2016 <obamawhitehouse.archives.gov/the-press-office/2016/09/15/presidential-proclamation-northeast-canyons-and-seamounts-marine> accessed 1 October 2018.

The result is that large areas of remote oceanscape were given protected status⁹⁹ but the management planning for them was in limbo.¹⁰⁰ This is because under the AAA 1906, even when the President may have designated the agency to administer the area, in this case the Department of Commerce, there is a lack of legislative direction as to how an area should be managed.¹⁰¹ The designation of large marine national monuments has contributed fuel to an already heated debate over Presidential vs. Congressional authority.¹⁰²

Returning to the question of progress in implementing a MPA network in the United States, the prime attention is given to the National Marine Sanctuaries. Considerable work is being performed using an EBM approach to development of sanctuary management plans and more recently sanctuary condition reports. However, the extent to which they contribute to a MPA network varies by location, with the California NMS offering greater connectivity than other areas.¹⁰³ According to the most recent data (January 2017) from the US MPA Center, the US has more than 1,200 MPAs covering more than 3.2 million square kilometers which is 26% of water areas in the US Exclusive Economic Zone (EEZ).¹⁰⁴ Some 23% of the US EEZ is closed to commercial fishing but only 3% of US waters is in no-take MPAs where all fishing is prohibited. Not surprisingly, 96% of the area designated as MPAs is in the Pacific Islands where very large Marine National Monuments have been proclaimed under the AAA 1906. Only 1% of MPA areas are under coastal state management with approximately 1,000 sites designated.¹⁰⁵

99 Kim Diana Connolly, 'Marine Protected Areas' in Donald C Baur and others (eds), *Ocean and Coastal Law and Policy* (second edition American Bar Association 2015).

100 Christopher Pala, 'Giant Marine Reserves Pose Vast Challenges' (2013) 339 *Science* 640.

101 Katherine R Peet, 'Documenting and Evaluating a New Approach to Establishing Large-Scale Marine Protected Areas in the U.S.' *Masters of Marine Affairs*, School of Marine and Environmental Affairs, University of Washington, Seattle, Washington, USA (2014).

102 Mark Stephen Squillace and others, 'Presidents Lack the Authority to Abolish or Diminish National Monuments' (2017) 103 *Virginia Law Review Online* 55; See also John Yoo and Todd Gaziano, 'Presidential Authority to Revoke or Reduce National Monument Designations' (American Enterprise Institute 2017).

103 James Lindholm and Robert Pavia (eds), 'Examples of Ecosystem-Based Management in National Marine Sanctuaries: Moving From Theory to Practice' (OMS-10-22 39 US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of National Marine Sanctuaries 2010).

104 Despite the fact that the United States has not agreed to the IUCN World Parks Congress goal of 30% of national waters in MPAs (or the Aichi 10% goal), the recent additions of very large areas in the Pacific and Atlantic appear to show the US is close to meeting the IUCN goal and appears to exceed the Aichi target.

105 National Marine Protected Areas Center, 'Conserving Our Oceans One Place at a Time' (2017) <<https://nmsmarineprotectedareas.blob.core.windows.net/marineprotectedareas>

Executive Order 13158 calls for federal agencies to develop a scientifically based and comprehensive national system of MPAs that preserve representative habitats in different geographic regions. Out of an analysis of 1,628 MPAs [some of which do not meet minimum criteria for inclusion in the MPA Inventory] in 19 defined ecoregions, the MPA Center states that the MPAs are 'nominally' representative of major marine ecosystems with 70% of habitat types, 82% of bird species, invertebrates and algal ecosystem features, 71% of select fish, marine mammals and sea turtle species and ESA listed species, and 87% of select ecosystem processes. Authors of the assessment report caution that these numbers represent a first rough cut to estimate comprehensiveness and representative preservation of habitats and species and the presence or absence of data sorting does not adequately account for viability/sustainability of the measure.¹⁰⁶ Note, as well, that connectivity is not assessed for the sites in the MPA Inventory.

These official results stack up favorably with the perspective that MPA networks, as inventoried by the US, can be a useful tool in promoting EBM, even if they are not fully capable of being considered as a sufficient approach to EBM. However, this somewhat contrasts with the findings of one recent study of North American MPAs that compares US performance with that of Canada and Mexico. Four criteria for assessment of protection were applied, i.e., legal designation, permanence, presence of an administrative structure, and a completed management plan.¹⁰⁷ MPAs that met all the criteria were included in the data base. In this assessment of continental US MPAs they found 91 MPAs that were considered fully protected totaling 0.03% of the US EEZ. This does not include the huge areas in the Pacific Islands region recently proclaimed. If these areas are included they account for a large part of the difference between what is reported officially and the findings of others.¹⁰⁸

As with other US approaches to EBM, it is difficult to agree on ways to systematically assess benefits and costs of implementing EBM through a national inventory program for MPAs.

-prod/media/archive/pdf/fac/mpas_of_united_states_conserving_oceans_1113.pdf> accessed December 13, 2017.

106 National Marine Protected Areas Center, 'Representativeness of Marine Protected Areas of the United States' (2015) <<http://marineprotectedareas.noaa.gov/dataanalysis/mpainventory/>> accessed December 13, 2017.

107 Sabine Jessen and others, 'Measuring MPAs in Continental North America: How Well Protected Are the Ocean Estates of Canada, Mexico and the USA' (2017) 4 *Frontiers in Marine Science* 279.

108 Kaitlin LP Shugart-Schmidt and others, 'SeaStates G20 2014: How Much of the Seas Are G20 Nations Really Protecting?' (2015) 115 *Ocean and Coastal Management* 25.

5 Concluding Observations

Weaving together the multiple strands that represent ecosystem-based management of the oceans in the US does not produce a tapestry. Rather it seems to produce an abstract weaving or collage with multiple clumps and lots of holes. Starting with the patchwork fabric of the approximately 140 laws that apply to marine management and governance, no clear mandates for EBM emerge that can be enforced by agencies or by others seeking to take agencies who ignore them to court in our litigious system. The complex of laws does inject important elements of EBM through requirements to manage fisheries sustainably, to avoid extinctions, to protect marine mammals, to set aside marine protected areas, and to identify the environmental impacts of major federal actions. The cumulative effect of these laws does promote direct and indirect consideration of precautionary management of the marine environment and together they form a fragmented foundation on which other ecosystem-based management approaches can build. Nevertheless, the appetite in Congress for comprehensive, EBM oriented legislation appears to be very small and no strong groundswell of popular support for legislative action is expected under the prevailing political climate.

Absent direction from Congress, federal agencies and the Executive Branch of government have been taking the initiative to build EBM from existing legislation. NOAA and its regional fishery management councils have been exploring how management actions under Fishery Ecosystem Plans can improve management outcomes based on utilizing the best available scientific information. The science considered is much broader than single species stock assessments and includes food web interactions, habitat feedback effects, bycatch reduction, etc. The sum of multiple actions conducive to good fishery management including ecosystem dynamics has brought ecosystem level benefits to fisheries management and reduced the ecosystem footprint. However, fisheries management lacks control over marine pollution, extractive activities, and so on. Moreover, its own determinations with respect to acceptable ecosystem tradeoffs may not match preferences held by others, e.g., biodiversity preservation or ecosystem restoration. Ecosystem-based fisheries management does not encompass all of societal values or preferences, but it does produce more resilient and sustainable fisheries.

At a national level, the discourse about application of EBM has led to policy recommendations for EBM and the quest is on for more holistic approaches to management. Three of the most promising EBM initiatives have been reviewed: Integrated Ecosystem Assessments, Coastal and Marine Spatial Planning, and Marine Protected Area Networks. IEAs are a product of NOAA as the premier

ocean science and management agency searching for a role it could play to implement EBM. The idea to consolidate what is known about the ecosystem and its dynamics into usable products and advice on the regional level in an IEA may be seen as a slightly odd approach. In any event, IEAs were neither welcomed nor resisted yet have not been widely implemented. Unfortunately the lack of budgetary resources severely limited the process of IEA development in a comprehensive regional manner. Surprisingly, it might be considered to have been sabotaged by a national shift of attention to CMSP under the National Ocean Policy. CMSP was led by the Executive Branch and a receptive President who was responding to strong support from environmental and good government advocates. President Obama seized the opportunity to implement EBM through regional marine planning as a cornerstone of a declaration of a national ocean policy. However, the enthusiasm for a national ocean policy and especially for CMSP was not shared by marine industries and coastal resource dependent communities. In part, this reluctance to join the CMSP movement arose from the concern that it was driven by environmental advocates wanting more restrictive management for ocean uses and for closing off areas in MPAs. In places where industries and coastal resource dependent communities have joined in CMSP there are compelling conflicts that drive the desire for cooperation and CMSP represents a good governance solution. In the meantime, Marine Protected Area designations also received a tremendous boost from the Executive Branch with designations of very large Marine National Monuments by several Presidents. Further, the interest in developing MPAs in coastal waters to meet specific management purposes or preservation goals was captured in the MPA inventory efforts.

At present, these initiatives have more or less stalled for a number of reasons, not the least of which is that stakeholders involved in these various initiatives have focused their energies on one but not all. Few environmental non-governmental organizations or marine industry groups have the interest or resources to engage in more than one process. As an analyst I think it is possible to suggest that there is a big picture solution to weaving these strands together. First, fishery managers must continue to develop and implement EBFM but they must also engage constructively in other broader EBM initiatives.¹⁰⁹ Next, NOAA and its partners must develop IEAs regionally on scales that match management needs – these can be nested IEAs with specific attention to

109 Elliott A Norse, 'Ecosystem-Based Spatial Planning and Management of Marine Fisheries: Why and How?' (2010) 86:2 *Bulletin of Marine Science* 179; See also Holger Janßen and others, 'Integration of Fisheries into Marine Spatial Planning: Quo Vadis?' (2016) 120 *Estuarine, Coastal and Shelf Science* 1.

small-scale demands and the opportunities to scale up to broader ecosystem levels.¹¹⁰ Third, IEAs are a core component of CMSP because they assemble best available scientific information and organize it to address ecosystem status, trends and forecasts. The consolidation of ecosystem information in IEA helps identify conflicts and opportunities on a regional scale to provide the scientific basis for marine spatial planning. After all, the usual first step in CMSP is to pull together all the same information that would be contained in an IEA. Fourth, MPA designation is a tool that can be used in CMSP to embed MPAs as appropriate into a broader matrix of EBM management measures for the whole ecosystem.¹¹¹

Conceptually, these seemingly simple ways of bringing the best attributes of the different approaches to EBM into a consolidated approach seems possible and even logical, but it proves to be an elusive goal. The large question that must be addressed is how to provide the administrative structure and to prioritize the human and fiscal resources to make EBM feasible. Absent Congressional interest and leadership to pursue comprehensive legislation that would prioritize, reorganize and designate leadership responsibilities and budgetary support across agencies and programs, this will not happen. With strong leadership at the top of the Executive Branch and cooperation among federal agencies it can happen but there does not appear any likelihood that ocean issues will attract such attention. The courts can enforce existing legislation, but they cannot dictate policy.

Based on these observations the most optimistic future that can be imagined and hoped for would be that each of these threads will continue to develop and that a gradual recognition of the interdependence of these approaches can evolve. This kind of evolution can be observed with respect to IEAs being used in fisheries management and marine spatial planning on the West Coast of the US. Perhaps the threat of climate change as a common enemy can coalesce these efforts if it does not, in fact, defeat them all.¹¹²

110 Phillip S Levin and others, 'Integrated Ecosystem Assessments: Developing the Scientific Basis for Ecosystem-Based Management of the Ocean' (2009) 7 *Public Library of Science Biology* 23.

111 Tundi Agardy, Giuseppe Notarbartolo de Sciarra and Patrick Christie, 'Mind the Gap, Addressing the Shortcomings of Marine Protected Areas Through Large Scale Marine Spatial Planning' (2011) 35 *Marine Policy* 226.

112 M Ruckelshaus and others, 'Securing Ocean Benefits for Society in the Face of Climate Change' (2013) 40 *Marine Policy* 154.

6 Addendum

On June 18, 2018 President Trump issued Executive Order 13840 Ocean Policy To Advance the Economic, Security and Environmental Interests of the United States substituting his vision for ocean management for that of President Obama. The Executive Order reflects the decided shift of ocean policy seen so far under the Trump administration with an emphasis on ocean utilization, opening nearly the whole continental shelf to oil and gas leasing, potential roll-backs of protections in Marine National Monuments, withdrawal of the United States from the Paris Climate Agreement, etc.

Importantly, the Executive Order does not change existing federal laws. Deadlock in Congress means that Congress is unlikely to significantly amend ocean management in federal law. Numerous suits have been brought by environmental and other interests to challenge administrative changes and asking the Courts to ensure that laws and processes are being followed. Congressional control over appropriations has shown signs that Obama era policies can be blocked or defunded by riders inserted in budget legislation (e.g., Section 505 of the Energy and Water, Legislative Branch and Military Construction and Veterans Affairs Appropriations Act, 2019 states 'None of the funds made available by this Act may be used to further implementation of the coastal and marine spatial planning and ecosystem-based management components of the National Ocean Policy developed under Executive Order No. 13547 [...].')

At present it is difficult to foresee the extent to which the change in administrations will result in actual changes in ocean use. The stagnation in Congressional leadership on the oceans means that little change can be expected from that Branch. The Courts may be called upon to uphold existing laws. Administrative agencies are used to adapting to changes at the top by continuing to do the tasks that they are assigned by legislation. Science-informed ecosystem-based fisheries management has considerable support in most fishing regions where climate change is increasing the demand for prediction of harvest levels and locations. Regional and state level experience with marine spatial planning is on a steep learning curve. The limits and strengths of planning will guide future planning efforts at appropriate scales and for appropriate purposes. Marine protected areas as a tool in an ecosystem approach are likely to be maintained although the pace of designation may slow and protections may be rolled back for some of the large marine national monuments. Thus, the primary conclusion still holds: the United States will continue to weave together the web of ocean policies aided by an understanding of how an ecosystem approach can improve ocean planning and governance albeit with less leadership and support.

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Implications of the Ecosystem-Based Approach to Wetlands Management on the Kenyan Coast

Collins Odote

1 Introduction

The evolution of the concept of the ecosystem approach has heralded innovations in the thinking on, and rules for, the management of natural resources. As it is understood today, the ecosystem approach emerged from the requirements of the Convention on Biological Diversity (CBD)¹ and its implementation has been intertwined with that of the CBD. The approach requires integration in the management of the environment and natural resources and eschews an approach which is purely sectoral. Wetlands provide an important lens through which to assess the application of the ecosystem approach to the management of coastal ecosystems. Together with forests, wetlands are the most important, yet most seriously threatened, ecosystems in the world.² Indeed, the degradation and loss of wetlands is occurring more rapidly than that of forests or any other ecosystem.³ The reason could be that forests have always been viewed as a useful ecosystem, providing the source of trees and related products and serving important functions in society.⁴ In contrast, the utility of wetlands to

1 United Nations Conference on Environment and Development: Convention on Biological Diversity (1992) 31:4 ILM 818. Also available at <<https://www.cbd.int/doc/legal/cbd-en.pdf>> accessed on 17 January 2018.

2 See Ramsar Convention Bureau, *Wetlands and Biological Diversity: Cooperation between the Convention on Wetlands of International Importance and the Convention on Biological Diversity* (Paper distributed to Delegates to the Third Meeting of the Conference of the Parties to the Convention on Biological Diversity, Buenos Aires, Argentina, 4–15 November, 1996). On file with author.

3 The Millennium Ecosystem Assessment points out that wetlands are the ecosystem that is degraded at the fastest rate. See World Resources Institute, *Millennium Ecosystem Assessment: Ecosystems and Human Well-Being: Wetlands and Water*, 2005. Available from <<http://www.millenniumassessment.org/documents/document.358.aspx.pdf>> accessed 13 June 2016.

4 The comparison and differences between wetlands and forests is beyond the scope of this study. So is an exhaustive discussion of forest management and uses. For relevant literature on forest management in Kenya see, for example, Phoebe Okowa-Bennum and Albert M Mwangi, 'Land Tenure and Forest Resource Management' in Calestous Juma and JB Ojwang

society has not always been accepted or appreciated. Indeed, historically, wetlands were viewed as useless areas,⁵ the utility of which required their conversion to more productive uses such as agriculture. This resulted in wetlands being referred to in certain quarters as 'wastelands'.⁶

Part of the reason why the importance of wetlands was not appreciated, and efforts spent only in their conversion to other uses, was the failure to accurately assess and value their economic utility. Decision-makers, developers and land-use planners have long perceived little economic benefit to be gained from conserving wetlands and few economic costs have been attached to their degradation.⁷ However, over time, the utility and importance of wetlands have been understood, and the international community has responded by making efforts for their conservation.⁸ Nevertheless, despite developments in the appreciation and valuation of the importance of wetlands and the need for their conservation, they still continue to be degraded and/or lost. Whilst certain pressures on wetlands arise from natural causes (such as droughts which affect community migration patterns), it is human activities that have significantly altered the rate and nature of wetlands change.⁹ Even today, the rate

(eds), *In Land We Trust: Environment, Private Property and Constitutional Development* (Initiative Publishers and Zen Books 1996) 175–197; Francis DP Situma, 'Forestry Law and the Environment in Kenya' in CO Okidi and others (eds), *Environmental Governance in Kenya: Implementing the Framework Law* (East African Educational Publishers Ltd, Nairobi, 2008) 235–259.

- 5 See GVT Mathews, *The Ramsar Convention on Wetlands: Its History and Development* (Ramsar Convention Bureau, 1993) 6, discussing general perceptions of wetlands as waste areas, not fit for any use.
- 6 See *Wetlands are not Dangerous Swamps; They're Worth Saving*, Reuters Library Report, May 31, 1990 (BC Cycle) which reports that historically most people considered wetlands to be nothing more than swamps and wastelands, the breeding grounds for insects and diseases. See also Roy C. Gardner, 'Banking on Entrepreneurs: Wetlands Mitigation Banking and Takings' (1996) 81 *Iowa Law Review* 529 which points out that at one time wetlands were considered little more than mosquito-breeding nuisances.
- 7 L Emerton, 'The Economic Value of Africa's Wetlands' in ML Thieme (ed), *Freshwater Ecoregions of Africa and Madagascar: A Conservation Assessment* (World Wildlife Fund, 2005) 11–18, 11; BD Ratner and others, *Undervalued and Overlooked: Sustaining Rural Livelihoods Through Better Governance of Wetlands*, World Fish Centre Studies and Review No 28 (World Fish Centre, 2004), 7.
- 8 See GVT Mathews (n 5), pointing out that the international effort to demonstrate the importance of wetlands started with a campaign in North America in the 1930's. This was a result that contrary to earlier opinion, wetlands are useful ecosystems, with a wide range of benefits to the society.
- 9 C Shine and C de Klemm, *Water and the Law: Using Law to Advance Wetland Conservation and Wise Use* (IUCN and Cambridge, 1999), 13.

and scale of wetlands loss and/or degradation¹⁰ has continued to increase.¹¹ Wetlands, however, are amongst the most precious natural resources on earth¹² and the most productive and valuable ecosystems in the world.¹³ They have useful attributes and perform important functions for humanity. In terms of functions, wetlands play a key role in hydrological balance. They act as a storage of water supply and regulate the water table through the maintenance and recharge of surface and underground water, supply; discharge of groundwater, and storage of floodwaters in flood plains. Other functions include water purification, control of soil erosion and climate stability.¹⁴

Wetlands also serve as habitat for many species. They provide an important reservoir of genetic material and are also a source of rich cultural heritage. In Kenya, as elsewhere, wetlands support livelihoods both directly and indirectly through supporting necessary ecological functions, such as provision of water, waste water treatment, maintenance of hydrological cycles, and prevention of storm damage and erosion. In some places they also serve unique cultural functions. The Millennium Ecosystem Assessment carried out between 2002 and 2005 remains the most comprehensive account to date of the state of the world's ecosystems and the required strategies for their conservation and sustainable use.¹⁵ The report is famous for the linkages it demonstrated between

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- 10 Wetland loss refers to the conversion of wetland area to a non-wetland area due to human activity, while degradation is the impairment of wetlands functions due to human activity without actual and total loss of the wetland area. For a discussion of these see Clare Shine and Cyrille de Klemm (ibid.) 13–23 and Roy C. Gardner, 'Rehabilitating Nature: A Comparative Review of Legal mechanisms That encourage Wetland Restoration Efforts' (2003) 52(3) *The Catholic University Law Review* 573.
- 11 Roy C. Gardner (ibid) 573–574 reports that throughout the world more than half of the world wetlands have disappeared with two-thirds of all European wetlands having disappeared since 1900.
- 12 Ramsar Convention Bureau, 'Wetlands and Biological Diversity: Cooperation Between the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, Iran, 1971) and the Convention on Biological Diversity' (1996, UNEP/CBD/Cop/3/Inf. 21). On file with author.
- 13 See H Babcock, 'Federal Wetlands Regulatory Policy: Up to its Ears in Alligators' (1991) 8 *Pace Environmental Law Review* 307, 309.
- 14 The Ramsar Secretariat prepared a series of Fact Sheets in 2001 that summarized the key functions of wetlands as Flood control; Groundwater replenishment; Shoreline stabilisation and storm protection Sediment and nutrient retention and export; Water purification; Reservoirs of biodiversity; Wetland products; Cultural values; Recreation & tourism; Climate change mitigation and adaptation. <http://archive.ramsar.org/pdf/info/services_00_e.pdf> accessed on 11 March 2018.
- 15 See Millennium Ecosystem Assessment, *Ecosystems and Human Well-being: Synthesis* (2005), available at <<https://www.millenniumassessment.org/documents/document.356.aspx.pdf>> accessed on 24 March 2018.

ecosystems and human well-being through what it called ecosystem services, which it categorised into provisioning services, regulating services, social services and supporting services.¹⁶ Several thematic reports were also prepared in association with the Assessment, one of which focused on marine and coastal ecosystems.¹⁷ That report¹⁸ highlighted the importance of marine and coastal ecosystems, stating that the services they provide include supply of food, fuel wood, energy resources, natural products, and bioprospecting, shoreline stabilization, flood prevention, storm protection, climate regulation, hydrological services, nutrient regulation, carbon sequestration, detoxification of polluted waters, waste disposal, culture, tourism, and recreation, habitat provision, nutrient cycling, primary productivity, and soil formation.¹⁹

Governance of oceans and coasts is best understood as the process for policy making by competent institutions in a system of negotiation between nested governmental institutions at several levels (international, national, regional and local), on the one hand, and market parties and civil society organizations on the other.²⁰ Only an integrated approach can help resolve the governance challenges of the oceans and the coast which:

for the most part, have been related to the intensifying nature of human interactions with the oceans and coasts and the inability of governance institutions to adapt. Governance processes have in the past primarily focused on regulating individual sectors, ignoring interactions between sectors and ocean ecosystems. While governance effectiveness varies, based on institutional architecture, often specific to a given place, socio-political context, legal and policy regime, ignoring interactions among sectors and their combined impacts on the coastal and marine ecosystems, has placed at risk the heritage, livelihoods, and cultures of coastal communities that rely on healthy marine environments.²¹

16 Ibid.

17 Millennium Ecosystem Assessment, *Marine and Coastal Ecosystems and Human Well-being: Synthesis* (2005), available at <<https://www.millenniumassessment.org/documents/Document.799.aspx.pdf>> accessed on 1 March 2018.

18 Ibid.

19 Ibid.

20 Akunga Momanyi, 'Governance and Institutional Frameworks' in UNEP and Nairobi Regional Convention Secretariat, *Regional State of the Coast Report: Western Indian Ocean* (2015).

21 Ibid.

In 2010 Kenya adopted a new Constitutional architecture that places a premium on sustainable development as a key governance imperative and requires public participation in all processes. Based on this development, the present chapter assesses the extent to which Kenya's legal framework for management of wetlands in the coastal region adopts the ecosystem approach and whether it enhances the conservation and wise use of wetlands and thus aligns to the constitutional dictates of sustainable development. The main argument that the paper advances is that both in law and practice, the move towards ecosystem approach is slow and fledgling. The management approach is still characterised by sector specific focus, governance overlaps and legal gaps. However, the adoption of a 'green constitution'²² and the incorporation of the ecosystem approach in the National Environment Policy in 2014 provide a basis for sustainable management of wetlands in the Kenyan coast.

2 Overview of the Kenyan Coast and Coastal Wetlands

In Kenya, wetlands occupy between 3 to 4 per cent, or approximately 14,000 km², of the land surface.²³ Depending on climatic conditions that can sometimes extend to up to 6% of the land surface.²⁴ Kenyan wetlands are diverse in type and distribution, although no national inventory of type, status and location currently exists.²⁵ Importantly, some of the wetlands lie in coastal areas and it is these wetlands that are the focus of this chapter.

Kenya's coastline extends about 600 km along the seafront, from Somalia's border at Ishakani in the north (Longitude 1° 41' S), to Tanzania's border at Vanga in the south (Longitude 4° 40' S).²⁶ The Kenyan coastal environment is a site of rich biodiversity with high ecological and socio-economic value.²⁷

22 Donald W. Kaniaru, 'Environmental Courts and Tribunals: The Case of Kenya (2011–2012)' 29 *Pace Environmental Law Review* 566.

23 Kenya Land Alliance, *Wise or Unwise Use: A Survey of Some Wetlands in Kenya* (2006), unpublished report, on file with author.

24 Ibid.

25 For a discussion of wetlands in Kenya see generally, GW Howard, *Wetlands of Kenya: Proceedings of a Seminar on Wetlands of Kenya* (IUCN, 1992).

26 NEMA, *State of the Coast Report: Towards Integrated Management of Coastal and Marine Resources in Kenya* (Nairobi, 2009), available at <http://web.unep.org/nairobiconvention/sites/unep.org.nairobiconvention/files/kenya_state_of_coast_report_final.pdf> accessed on 5 February 2018.

27 Ibid.; Republic of Kenya, *Integrated Coastal Zone Management Policy* (2013), adopted by the National Assembly on 3rd December, 2015. Available at <<http://www.environment>

The main resources include land, rivers, lakes, estuaries and other wetlands, grasslands, coastal and mangrove forests, sea grass and coral reefs. These resources are useful to local communities acting as a source of livelihood. In addition, they support the coastal and national economy. They provide important goods and services, performing ecological and social functions. Kenya's Coast is also home to numerous threatened species.

The wetlands situated along the Kenyan coast are categorised as marine wetlands and include coastal lagoons, rocky shores and coral reefs. No mapping of wetlands has taken place in Kenya and there is, thus, no official information on the extent of wetlands within the coastal region. Discussions about wetlands along the Kenyan coast are normally intertwined with discussions on mangroves. Mangroves are tropical and sub-tropical woody trees or shrubs that occur naturally in brackish waters or estuarine wetlands in the intertidal zone.²⁸ Kenya's mangrove forests and coastal wetlands are concentrated on the northern coast around the Lamu archipelago and the permanent Tana/Sabaki River estuaries, with smaller wetlands occurring in the mouths of semi-perennial and seasonal coastal rivers on the South Coast, at Shimoni-Vanga, Funzi and Gazi Bays, and Port-Reitz, Tudor, Mtwapa, Kilifi and Mida Creeks.²⁹ There is no question that wetlands are one of the resources in the coastal area of Kenya.³⁰ Consequently, the management of the coastal region directly impacts on the conservation and wise use of the wetlands that are situated there. Kenya is committed to managing the coastal zone, and the resources therein, in an integrated manner. Kenya's coastal wetlands are clearly a component of the resources to be managed sustainably using an integrated approach. As will be discussed in the following sections, this requires the existence of sound rules and institutions.

.go.ke/wp-content/uploads/2014/01/Final-Draft-ICZM-Policy-revised-December-2013.pdf> accessed on 5 February 2018.

28 PB Tomlinson, *The Botany of Mangroves* (Cambridge University Press, 1986); PA Abuodha and JG Kairo 'Human Induced Stresses on Mangrove Swamps Along the Kenyan Coast' (2010) 458 *Hydrobiologia* 255–256. Available at <<http://ro.uow.edu.au/scipapers/165/>> accessed on 22 January 2018.

29 NEMA, *State of the Coast Report* (n 26) 9.

30 Ministry of Environment, Water and Natural Resources, *Sessional Paper Number 13 of 2014 on Integrated Coastal Zone Management* (2014).

3 Imperatives of the Ecosystem Approach

The Convention of Biological Diversity, adopted by the international community in 1992, forms the basis for the ecosystem approach to management of the environment and natural resources. Prior to its adoption the prevailing approach was one of single species or habitat conservation. The CBD focusses on the conservation of biological diversity, which is defined as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystem'.³¹ The two other foci of the Convention, in addition to the conservation of biological diversity, are the sustainable use of the components of biological diversity, and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources.³²

At the centre of conservation of biological diversity are conservation of species and of ecosystems. At the second meeting of the Conference of the Parties held in Jakarta, Indonesia in 1995, a decision was taken which brought to the fore the centrality of ecosystems and the ecosystem approach to the conservation of biodiversity. The decision provided a reaffirmation by the Conference of the Parties (COP):

that the conservation and sustainable use of biological diversity and its components should be addressed in a holistic manner, taking into account the three levels of biological diversity (these are genetic biodiversity, species diversity and ecosystems diversity) and fully considering socio-economic and cultural factors. However, the ecosystem approach should be the primary framework of action to be taken under the Convention.³³

Although the decision clearly stipulated that the ecosystem approach would provide the guiding framework for the implementation of the CBD, the Convention did not define the term. The only definition in the Convention is that of 'ecosystem'. An ecosystem is defined as 'a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit'.³⁴ It was not until the fifth meeting of the COP held in

31 Ibid.

32 Ibid., article 1.

33 Decision II/8 of the CBD COP 1995.

34 CBD Preamble.

Nairobi in May, 2000 that the full meaning of the term 'ecosystem approach' was articulated and a definition adopted. A call was also made for its application and adoption in national policies and legislation.³⁵

The definition adopted by the COP in 2000 defines the ecosystem approach as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way'.³⁶ It is an approach that seeks integration and coordination. Its aim is not to manipulate the ecosystem for the benefit of human beings just because human beings are part of the ecosystem. Rather, it seeks to manage human activities in the environment so as to ensure sustainability of the ecosystem. It does not ignore sectoral components or approaches to the management of the environment. Instead it seeks to harmonise them so as to encourage integration. As captured in the decision of the COP:

The ecosystem approach does not exclude other management and conservation approaches, such as biosphere reserves, protected areas, and single species conservation programmes, as well as other approaches carried out under existing national policy and legislative frameworks, but could, rather, integrate all these approaches and other methodologies to deal with complex situations. There is no single way to implement the ecosystem approach, as it depends on local, provincial, national, regional or global conditions.³⁷

In addition to defining the 'ecosystem approach', the state parties adopted twelve principles to govern its implementation. These principles are complementary and interlinked,³⁸ meaning that the achievement of the ecosystem approach to the conservation of biodiversity requires the adherence to all the twelve principles. The first principle provides that the objectives of the management of land, water and living resources are a matter of societal choices.³⁹ Consequently, in managing biodiversity and specifically land, water and the living resources, context has to be taken into account. The views of different stakeholders have to be considered so that the management approach reflects the participation and perspectives of different groups in society. In addition,

35 Decision v/6, Conference of the Parties to CBD, Nairobi, 2000.

36 Ibid.

37 Ibid.

38 Ibid.

39 Ibid. Principle 1.

both cultural and biological diversity are central components of the ecosystem approach, and management should take this into account.⁴⁰

According to the second principle, management should be decentralised to the lowest level possible.⁴¹ Decentralisation is important in natural resource management as it enhances the levels of citizen's involvement and improves equity, efficiency and effectiveness in decision-making. It has been adopted in the management of various resources across the world in response to the failures of centralised and non-participatory approaches. It is an essential component of the ecosystem approach, since 'the closer management is to the ecosystem, the greater the responsibility, ownership, accountability, participation and use of local knowledge'.⁴² This is particularly important in the context of the coastal wetlands as Kenya's Constitution introduced devolution in 2010, which is much deeper than decentralisation as it ensures that power and finances are transferred from the central government to lower level administrative authorities.

The third principle requires that managers of ecosystems consider the effect of their activities on other ecosystems, both those adjacent to the ecosystem being managed and others, even if they are not adjacent to it.⁴³ This principle is predicated on the reality that the environment is an integrated whole and activities in relation to one part of it may impact on other components. It also buttresses the focus of integration which helps to realise sustainability in management of ecosystems.

The fourth principle notes that the ecosystem approach must be alive to and incorporate the economic context. This requires that the management approach is used to reduce those management distortions that adversely affect biological diversity,⁴⁴ align incentives to promote biodiversity conservation and sustainable use,⁴⁵ and internalise costs and benefits in the given ecosystem to the extent possible.⁴⁶ The concept of externalities and internalities and its implications for land tenure and land use are best captured in the writings of Demsetz. For economists, the function of property rights is to internalize externalities.⁴⁷ Demsetz provides the linkage between property rights

40 Ibid.

41 Ibid.

42 Ibid.

43 Ibid.

44 Ibid.

45 Ibid.

46 Ibid.

47 For various perspectives on the definition of property rights from an economics perspective and the function of property rights as an internaliser of externalities see generally

and externalities by arguing that property rights give one the right to benefit or harm oneself or another.⁴⁸ It is the rules that inhere in property rights for determining how and whether one can benefit or be harmed that links property rights to externalities.⁴⁹ Demsetz defines externalities as including external costs, external benefits, and pecuniary and non-pecuniary externalities.⁵⁰ He then proceeds to point out that:

No harmful or beneficial effect is external to the world. Some person or persons always suffer or enjoy these effects. What converts a harmful or beneficial effect into an externality is that the cost of bringing the effect to bear on the decisions of one or more of the interacting persons is too high to make it worthwhile ... Internalizing such effects refers to a process, usually a change in property rights, that enables these effects to bear (in greater degree) on all interacting persons.⁵¹

For property rights to exist and be meaningful, according to the economic conception, the cost of internalization must be less than the benefit to be derived therefrom. This makes it economical for those affected by the costs and benefits to internalize them. This economic conception argues that the best property system is that of private property for it internalizes both costs and benefits making it possible to protect property rights.⁵²

Principle five holds that as part of the ecosystem approach, maintenance of ecosystem services as part of conservation of ecosystem structure and functioning must be a priority. Provision of ecosystem goods and services, as demonstrated by the Millennium Ecosystem Assessment Report, is an important aspect of functioning ecosystems. A functioning ecosystem must ensure that

Harold Demsetz, 'Toward a Theory of Property Rights' (1967) 57 *American Economic Papers and Proceedings* 347, asserting that 'an owner expects the community to prevent others from interfering with his actions, provided that these actions are not prohibited in the specifications of his rights'; Yoram Barzel, *Economic Analysis of Property Rights* 3 (2d ed. 1997) (defining property as 'the individual's ability, in expected terms, to consume the good (or the services of the asset) directly or to consume it indirectly through exchange'); Armen A. Alchian, *Economic Forces At Work* 127, 130 (1977) ('By a system of property rights I mean a method of assigning to particular the authority to select, for specific goods, any use from a non-prohibited class of uses.').

48 Demsetz (ibid).

49 Ibid.

50 Ibid., 348.

51 Ibid.

52 Harold Demsetz, 'Toward a Theory of Property Rights II: The Competition Between Private and Collective Ownership' (2002) 31 *Journal of Legal Studies* 653.

ecosystem goods and services are provided. Related to this is the sixth principle which articulates the need to manage the ecosystems within the limits of their functioning. This principle recognises that unless the limits of the ecosystem are maintained, the ecosystems will not be able to perform their functions. In considering the likelihood or ease of attaining the management objectives, attention should be given to the environmental conditions that limit natural productivity, ecosystem structure, functioning and diversity. The limits to ecosystem functioning may be affected to different degrees by temporary, unpredictable or artificially maintained conditions and, accordingly, management should be appropriately cautious.⁵³

According to the seventh principle, the ecosystem approach should be undertaken at the appropriate spatial and temporal scale.⁵⁴ Consequently the boundaries of the ecosystem for management purposes will be determined by those involved in the management process, including experts and local communities. The eighth principle requires that due to the varying temporal scales, a long-term approach should be adopted in the management of ecosystems.⁵⁵ Principle nine is based on the recognition that change is inevitable.⁵⁶ Consequently an adaptive management approach is called for in managing ecosystems.

Principle ten calls for an appropriate balance between and integration of conservation and use of biological diversity.⁵⁷ Principle eleven, for its part, requires considerations of all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.⁵⁸ This Principle recognises the place of information in the success of management of ecosystems. Such knowledge is both scientific and indigenous knowledge from local communities, a recognition that local communities, their knowledge and management practices have to be integrated in the process of managing ecosystems. It is for this reason that principle twelve calls for the involvement of all relevant sectors of society.⁵⁹

As the articulation of these principles makes clear, there are several key focus issues that must be addressed to ensure the success of the ecosystem approach. Fundamentally at the base of these requirements are the broadening of stakeholder engagement, an integrated and wider ecosystem or geographical focus,

53 Decision v/6 of COP of CBD, Nairobi, 2000.

54 Ibid.

55 Ibid.

56 Ibid.

57 Ibid.

58 Ibid.

59 Ibid.

avoiding single species or issue approaches, and continuous evaluation of the simultaneous pressures on ecosystems. These actions will all aid in adaptive and integrated management so as to guarantee the success of ecosystem approach to management. The application of this approach is critical in the effective management of wetlands in coastal zones, since wetlands are subject to tremendous pressure for conversion to other uses and coastal zones contain numerous ecosystems with complex governance challenges.

4 Managing Wetlands: Critical Concepts

The international framework for the management of wetlands is captured in the Ramsar Convention on Wetlands of International Importance especially as waterfowl habitat.⁶⁰ The Ramsar Convention establishes the objectives, approach and institutional arrangements for the management of wetlands. It belongs to the categories of international treaties which did not adopt the then current approach of focusing on single species or habitat conservation rather than on the ecosystem conservation. The Ramsar Convention essentially adopted an ecosystem wide approach, focussing on conservation of wetlands as habitat for waterfowls. According to its preamble, the Convention was adopted in recognition of: ‘the fundamental ecological functions of wetlands as regulators of water regimes and as habitats supporting a characteristic flora and fauna, especially waterfowl’;⁶¹ the ‘economic, cultural, scientific and recreational value’⁶² of the resource; and the desire to ‘stem the progressive encroachment on and loss of wetlands.’⁶³ This is underscored in the double objectives of the Convention which focus on preventing the encroachment and loss of wetlands and on promoting their conservation.

There are two important imperatives within the Ramsar Convention; conservation, on the one hand, and wise use, on the other. To ensure that these two imperatives are achieved, contracting parties to the Convention are under several obligations. First, each contracting party is required to designate at least one wetland on the List of Wetlands of International Importance (referred to simply as ‘the List’).⁶⁴ This provides the springboard for all

60 Convention on wetlands of international importance especially as waterfowl habitat (entered in force on Dec. 21 1975) 996 U.N.T.S. 245 (1976) 11 ILM 97.

61 Ibid., preamble.

62 Ibid.

63 Ibid.

64 Ibid. Article 2(1).

the other obligations that parties have as signatories to the Convention. The Convention does not provide details as to how a wetland qualifies to be considered as one of international importance and thus eligible to be placed on the List. Article 2 merely states that contracting parties are to designate 'suitable wetlands', and further, that once designated, 'the boundaries of each wetland shall be precisely described and also delimited on a map and (...) may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within wetlands, especially where these have importance as waterfowl habitat'.⁶⁵ Thus, being a waterfowl habitat is the first criteria for determining importance. In addition, to be placed on the List consideration should be made of the international significance of the wetlands based on ecology, botany, zoology, limnology and hydrology.⁶⁶ Selection criteria for designating wetlands of international importance were originally adopted at the International Conference on Conservation of Wetlands and Waterfowl in Heiligenhafen in 1974 and have been refined by meetings of the Conference of the Parties (COP) since then.⁶⁷

At the fourth meeting of the COP, detailed rules for identifying wetlands of international importance were adopted.⁶⁸ These rules provide that a wetland will be considered to be of international importance if it meets one out of the three agreed criteria, namely:

- *Representativeness of natural or near natural wetlands in the biogeographical region*: play a substantial hydrological, biological or ecological role in the natural functioning of a major river basin or coastal system, especially where it is located in a trans-border position; or is an example of a specific type of wetland, rare or unusual in the appropriate biogeographical region.
- *General criteria based on plants or animal*: if it supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species; or it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna; or it is of special value as the habitat of plants or animals at a critical stage of their biological cycle; or it is of special value for one or more endemic plant or animal species or communities.

65 Ibid.

66 Ibid. Article 2(3).

67 Mathews (n 5).

68 See <http://archive.ramsar.org/pdf/rec/key_rec_4.02e.pdf> accessed on 25 March 2018.

- *Criteria based on Waterfowl*: if it regularly supports 20,000 waterfowl; or it regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity; or where data on populations are available, it regularly supports 1% of the individuals in a population of one species or subspecies of waterfowl.⁶⁹

Two interesting provisions are contained in Article 2 relating to the designation of wetlands onto the List of International Importance. The first relates to the sovereignty of states. The Convention points out that ‘the inclusion of a wetland in the List does not prejudice the exclusive sovereign rights of the Contracting Party in whose territory the wetland is situated’.⁷⁰ The Convention thus preserves the states’ sovereign rights over their territory and over the management of the wetlands in their territory. Secondly, on designating wetlands onto the List, states are to consider their international responsibilities for the conservation, management and wise use of migratory stocks of waterfowl.⁷¹

The second obligation that parties to the Ramsar Convention have revolves around the obligation to promote conservation and wise use of wetlands. The Convention obliges contracting parties to ‘formulate and implement their planning so as to promote the conservation of the wetlands included in the List, and as far as possible the wise use of wetlands in their territory’.⁷²

The third obligation is the requirement to ‘promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands whether they are included on the List or not, and provide for their wardening’.⁷³ To enable the parties to fulfill their obligations, the Convention encourages research and the exchange of data and publications,⁷⁴ promotion of training of personnel in the area of wetland research, management and wardening.⁷⁵ The Convention recognizes the international nature and importance of wetlands and calls for co-operation between contracting parties and consultation in the implementation of obligations under the Convention.⁷⁶

The implementation of the Ramsar Convention depends on the good will of the members and their voluntary adherence to the resolutions and recommendations of the COP. There are no sanction mechanisms or financial arrangements within the text of the Convention.

69 Ibid.

70 Ramsar (n 60) Article 2(3).

71 Ibid. Article 2(6).

72 Ibid. Article 3(1).

73 Ibid. Article 4(1).

74 Ibid. Article 4(3).

75 Ibid. Article 4(5).

76 Ibid. Article 5(1).

At the center of protecting wetlands are the concepts of 'conservation' and 'wise use'. The term conservation is very central to the discourse on wetlands management. Indeed, the Ramsar Convention provides that it is one of the two tasks to be undertaken in the process of sustainable management of wetlands, the other being wise use. In everyday usage, the term conservation is used interchangeably with that of preservation. However, the two terms differ tremendously in environmental language. Preservation refers to the maintenance of environment and natural resources in their natural state without any interference whatsoever. This concept used to be the dominant approach in the early stages of environmental management. However, it is now only applied to limited types of natural resources, such as unique biological formations, endangered or threatened species, representative biomass or other natural resources and cultural sites of importance. It requires adopting a hands-off policy in the management of natural resources in order to maintain the characteristics of these resources.⁷⁷ Conservation, on the other hand, refers to the sustainable use of renewable resources and the avoidance of waste of non-renewable resources. In other words, conservation as a mode of management, refers to components of the environment such as fisheries, forestry and land, which are renewable and should be used in such a way as to protect the threshold of sustainability.⁷⁸ For non-renewable resources such as minerals, petroleum and oil, the meaning of conservation is to utilize the resources so as to avoid waste and thus protect the interests of future generations to the greatest extent possible. In other words, even diamonds might not be forever, if users are wasteful.⁷⁹ Conservation is therefore the linchpin for sustainable utilization of the environment and its component natural resources and for the promotion of sustainable development.

The second and by far the most unique concept relating to wetlands is that of 'wise use'. The Ramsar Convention requires contracting parties to 'formulate and implement their planning so as to promote the conservation of Wetlands included in the List, and as far as possible the wise use of wetlands in their territory'.⁸⁰ The term wise use was, however, not defined by the Ramsar Convention. The first attempt to define 'wise use' was made at the 3rd meeting of the COP held in Regina, Canada in 1987. At this meeting, guidelines

77 Charles O Okidi, 'Concept, Structure and Function of Environmental Law' in CO Okdi and others (eds), *Environmental Governance in Kenya: Implementing the Framework Law* (EAEP, 2008) 3–60.

78 Ibid.

79 Ibid., 5.

80 Ramsar Article 3(1).

on the Wise Use of Wetlands were adopted.⁸¹ The issue was further addressed at the 4th COP in Montreux, Switzerland in 1990. At this meeting, guidelines for the implementation of the wise use concept were adopted.⁸² Additional guidelines for the implementation of the wise use concept were adopted at the next COP in Kushiro in 1993.⁸³

The Wise Use Guidelines⁸⁴ define the term 'wise use' to mean 'sustainable use of wetlands for the benefit of mankind in a way that is compatible with maintaining the natural properties of the ecosystem'. The guidelines outline the need for national action to improve institutional and organizational arrangements; address legislative and policy needs; increase knowledge and awareness of wetlands values; inventory and monitor the status of wetlands; and identify programme priorities and develop action plans for specific sites as components of a national wetland policy. More recently the definition of the term 'wise use' has been refined to mean 'the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development'.⁸⁵ This definition links wise use to the ecosystem approach. It focusses on a determination of trade-offs in the use to which wetlands will be put so that a balance is achieved between the nature of any proposed exploitation and the benefits that will accrue to the wetland versus any impacts or disadvantages (such as degradation of ecosystem components, processes and loss of other services provided by the wetland).

To ensure wise use of wetlands, it is imperative that their diverse uses be realized and captured in planning processes. The diverse goods and services available and supplied by wetlands' ecosystems need to be captured in determining the value of wetlands. The legal framework can and should help this process, so as to eradicate the practice of converting wetlands to what is conveniently seen in most jurisdictions as more productive uses. As a result, the value of wetlands is consistently underestimated and their importance overlooked,

81 Annex to Recommendation 3.3 (Regina, Ramsar COP, 1987).

82 Annex to Recommendation 4.10 (Montreux, Ramsar, COP, 1990).

83 Annex to Resolution 5.6 (Kushiro, Ramsar, COP, 1993).

84 The Wise Use Guidelines are available at < https://www.ramsar.org/sites/default/files/documents/library/key_rec_4.10e.pdf> accessed on 6 May 2018.

85 This definition was adopted at the 9th Conference of the Parties of the Ramsar Convention as Resolution IX.1 Annex A, 2005 < http://archive.ramsar.org/cda/en/ramsar-documents-resol-resolution-ix-1-annex-a/main/ramsar/1-31-107%05E23536_4000_0_> accessed on 5 May 2007; Ramsar Convention Secretariat, *Wise use of wetlands: A Conceptual Framework for the Wise use of wetlands*, Ramsar handbooks for the wise use of wetlands, 3rd edition, vol 1 (Ramsar Convention Secretariat, Gland, Switzerland, 2007).

and ultimately it is the rural poor who lose out.⁸⁶ To ensure a movement away from the simplistic valuation methods of wetlands, the valuation process and system should appreciate the diverse values of wetlands and capture these. This way, decisions on wetlands will be based on all the goods and services that wetlands provide to the society.⁸⁷

While the Ramsar Convention's principal focus is on Wetlands which have been designated as being of international importance by being placed on the Ramsar list, its provisions are important for managing wetlands globally. Kenya became a party to the Ramsar Convention on 5th October, 2010 and has since then designated six sites to the list, with Tana River Delta, situated in the Kenyan coast being the latest site to be designated. This wetland is also the most important in the Kenyan coast and has been subjected to tremendous pressures for conversion to aquaculture and agriculture.⁸⁸

The Ramsar Convention has also informed significant action within the country on managing wetlands. Attempts have been made to align the legislative and policy framework with the provisions of the Convention which require Kenya, as part of meeting its obligation under the Convention, to develop sound policy, legislative and institutional structures so as to ensure conservation and wise use of wetlands generally, and not just the ones on the Ramsar Lists.

The Ramsar Convention's focus on an ecosystem wide approach to management of the environment and resources therein and its call for wise use of wetlands align to the principles of the ecosystem approach discussed in this chapter. As a party to both the CBD and the Ramsar Convention, Kenya is thus

86 BD Ratner and others, *Undervalued and Overlooked: Sustaining Rural Livelihoods through Better Governance of Wetlands* (WorldFish Centre Studies and Reviews No 28, 2004) 1.

87 For a discussion on the concept of valuation of wetlands goods and services, see generally L. Emerton, *Value and Rewards: Counting and Capturing Ecosystem Water Services for Sustainable Development* (IUCN Nature and Economics Technical Paper, NO 1, IUCN – The World Conservation Union, Ecosystems and Livelihood Group, Asia, Colombo, 2005); L Emerton, 'The Economic Value of Africa's Wetlands' in ML Thieme and others, *Freshwater Ecoregions of Africa and Madagascar: A Conservation Assessment* (WWF, 2005); EB Barbier, *Economic Valuation of Wetlands* (Ramsar Convention Bureau, Gland, 1997); L Emerton, *Economic Tools for Valuing Wetlands in Eastern Africa* (IUCN Eastern Africa, 1998).

88 Siri Eriksen and others, 'Land Tenure and Wildlife Management' in Calestous Juma and JB Ojwang (eds), *In Land We Trust: Environment, Private Property and Constitutional Development* (Initiative Publishers and Zen Books 1996) 199–230. See also Collins Odote, *Regulating Property Rights to Ensure Sustainable Management of Wetlands in Kenya*, unpublished PhD Thesis, University of Nairobi, 2010 (on file with author).

under an international obligation to adopt the ecosystem approach in managing its wetlands.

5 The Legal and Policy Framework for the Wise Use of Coastal Wetlands in Kenya

In discussing the ecosystem approach within the context of management of Kenyan wetlands, a review of the enabling legal and policy framework is apt. Within Kenya, there is no single piece of legislation that either deals with wetlands generally, the Kenyan coast, or wetlands within the Kenyan coast. The relevant laws and policy provisions must consequently be gleaned from those that govern both the Kenyan coast and wetlands more broadly.

The overall framework for environmental management is the Kenyan Constitution. The Kenyan Constitution has an environmental focus, recognizing in its preamble ‘the environment as (...) heritage’⁸⁹ of the people of Kenya and is determined to ‘sustain it for future generations’.⁹⁰ It then includes detailed provisions for environmental management, including the recognition and protection of the right to a clean and healthy environment⁹¹ and responsibility for protection of the environment so as to ensure the realization of that constitutional right.⁹² Although the Constitution does not mention wetlands specifically, it provides the overall context for their management. In Article 10, the Constitution provides that the principle of sustainable development is key to all governance and management processes in the country. Management of wetlands in Kenya is a governance function which falls within the purview of Article 10. Consequently, the policies, laws and practices that Kenya adopts in managing its wetlands at the coast must respect and promote sustainability.

Although the Constitution does not elaborate on the legal content of sustainable development, this task has been undertaken at the international level. The Brundtland Commission report simply but powerfully defined the concept as ‘development that meets the needs of the present generation without compromising the abilities of future generations to meet their own needs’;⁹³ while Judge Weeramantry, in acknowledging the importance of the concept, argued that ‘after the early formulations of the concept of sustainable development,

89 Constitution of Kenya, 2010, Preamble.

90 Ibid.

91 Article 42, Constitution of Kenya, 2010.

92 Article 69, Laws of Kenya.

93 The Report of the World Commission on Environment and Development (WCED), *Our Common Future* (Oxford University Press, 1987).

it has been recognized that development cannot be pursued to such a point as to result in substantial damage to the environment within which it is to occur. Therefore development can only be pursued in harmony with the reasonable demands of environmental protection'.⁹⁴ In 2015, the international community gave a full iteration of the content of sustainable development by adopting the Sustainable Development Goals, a set of 17 goals and 169 targets.⁹⁵ SDG 14 focusses on life below water, with a view to conserving and sustainably using the oceans, seas and marine resources for sustainable development.⁹⁶ Thus sustainable development provides a framework for managing land and water resources. Its inclusion in the Kenyan Constitution provides a framework for governing wetland resources. In addition, the Constitution includes marine areas both in the context of marine navigation⁹⁷ and also as part of marine lands within the definition of land.⁹⁸

The main legislation for managing wetlands remains the Environmental Management and Coordination Act (EMCA).⁹⁹ Section 42 of the EMCA provides for the protection of wetlands, by prohibiting certain activities, including draining, depositing substances, introduction of alien species, excavation or erection of structures on a wetland without prior approval of the National Environment Management Authority.¹⁰⁰ The approval to be granted, must be preceded by an environmental impact assessment,¹⁰¹ which details possible negative effects of the envisaged activity on the wetlands and the necessary mitigation measures to ensure that the activity does not compromise the status and quality of the wetland ecosystem. Further, under the Act, the Minister has issued detailed guidelines for the management of wetlands, which are currently under review.

The EMCA also focusses on the conservation of coastal zones,¹⁰² providing for the declaration by the cabinet secretary of any area as a coastal zone,¹⁰³ and preparation of an Integrated Coastal Zone Management (ICZM) Plan.¹⁰⁴ The Act defines a coastal zone as a 'geomorphologic area where the land interacts with the sea comprising terrestrial and marine areas made up of biotic and

94 GabCikovo-Nagymaros Project (Hungary/Slovakia) (Judgment) [1997] 1CJ Reports 7.

95 See <<https://sustainabledevelopment.un.org/?menu=1300>> accessed on 1 February 2018.

96 <<https://sustainabledevelopment.un.org/sdg14>> accessed on 1 February 2018.

97 4th Schedule, Constitution of Kenya, 2010.

98 Article 260, Constitution of Kenya, 2010.

99 Act Number 8 of 1999.

100 Section 42, EMCA.

101 Ibid.

102 Section 55, EMCA.

103 Section 55(1), EMCA.

104 Section 55(2), EMCA.

abiotic components or systems coexisting and interacting with each other and with socio-economic activities'.¹⁰⁵ The development of an ICZM Plan is a recognition that the coastal zone should be managed as a single unit with the rules and institutions for dealing with its various components aligned and coordinated to ensure harmony and promote sustainability.

In 2014, the Government of Kenya developed an ICZM Policy.¹⁰⁶ The Policy provides the basis for the application of the ecosystem approach in the management of the coastal zone and by implication wetlands as a resource found in the coastal zone. The objectives of the Policy demonstrate the relevance of the ecosystem concept to management of the entire coastal zone and the resources in it. The overall objective of the Policy is to guide the management and utilization of the coastal and marine environment and its resources to ensure sustainable livelihoods and development.¹⁰⁷ To achieve this, the Policy specifically focusses on: promoting integrated planning and coordination of coastal developments across the various sectors; promoting sustainable economic development to secure livelihoods of coastal communities; conserving the coastal and marine resources and environment for sustainable development; managing environmental risks associated with changes in shoreline and climate; developing capacity in research and education and enhancing stakeholder awareness and participation in sustainable resource management; and establishing effective institutional and legal frameworks for implementation of the ICZM policy.¹⁰⁸ The Policy recognizes that the ecosystem approach will guide the process of realizing these objectives, providing that the ecosystem approach 'recognizes the relationships and inter-linkages between all components of the wider ecosystem in addressing coastal zone management issues'.¹⁰⁹ Consequently, when applying the ecosystem concept to managing wetlands in the coastal zone, it has to be recognized that wetlands are just one of the ecosystems found along the Kenya coast and that they cannot be conserved in isolation from the wider coastal zone. In addition, and as required by the ecosystem approach, successful conservation of wetlands requires a focus on wetlands throughout the country and not just those located along the coast. As the ICZM Policy underscores, the ecosystem approach is 'critical in effectively addressing issues affecting ecosystems that stretch beyond the coastal zone

105 Section 2, EMCA.

106 Republic of Kenya, *Sessional Paper Number 13 of 2014 on Integrated Coastal Zone Management (ICZM) Policy*, 2014.

107 Ibid.

108 Ibid.

109 Ibid.

administrative area'.¹¹⁰ Moreover, the Policy underscores that 'the ecosystem approach will be applied in the management of the resources as some of the pressures affecting the coastal environment are external to the coastal zone such as river catchment area'.¹¹¹ This is, however, using the ecosystem as a habitat and not as a management approach.

The development of the ICZM Policy had been required by the EMCA. The first State of the Coast report developed in 2009 also reinforced the importance of an integrated approach to the management of Kenya's coastal marine resources. Importantly, the Policy recognizes as part of the guiding principles the 'use of ecosystem-based approach that recognizes the relationships and inter-linkages between all components of the wider ecosystem in addressing coastal zone management issues'.¹¹²

The greatest policy recognition for the ecosystem approach to management is, however, contained in the National Environment Policy (NEP).¹¹³ The NEP was developed so as to provide a holistic and coordinated policy framework for managing Kenya's environment and biodiversity. A key focus of the NEP is the management of ecosystems and sustainable use of natural resources. It stipulates that:

Ecosystems provide a wide range of goods and services. These include provisioning, regulating, cultural and supporting services. Despite the services they provide, ecosystems are under pressure from human activities. The most critical ecosystems in Kenya include forests, freshwaters, wetlands, coastal and marine, mountains, arid, semi-arid and spectacularly diverse wildlife populations.¹¹⁴

On marine ecosystems, the NEP identifies the key threats they face, which include pollution from land-based activities and other sources.¹¹⁵ Consequently several policy measures are proposed, including development of an integrated coastal zone management policy, coordinating the role of various agencies with management responsibility at the coast, and empowering local communities. In addition, the NEP recognizes the ecosystem approach to management as an important tool for environmental management. Indeed, one of the guiding principles underpinning the NEP is the ecosystem approach to management,

110 Ibid.

111 Ibid.

112 Ibid.

113 Sessional Paper Number 10 of 2014 on National Environment Policy.

114 Ibid.

115 Ibid.

with the policy committing that 'an integrated ecosystem approach to conserving environmental resources will be adopted and enhanced to ensure that all ecosystems are managed in an integrated manner while also providing a range of benefits to the citizenry'.¹¹⁶

Given this legal and policy framework, it is evident that Kenya recognizes the ecosystem approach and its application to the management of coastal resources, including wetlands. However, its successful application is dependent on the successful implementation of the legal regime and the practical arrangements for the conservation and wise use of wetlands in Kenya and, in particular, along the Kenyan coast.

6 Challenges to Wise Use of Wetlands in Kenyan Coast

Adhering to the requirements of the Ramsar Convention, which calls for wise use of wetlands, requires an appreciation of the multiple functions of wetlands and their linkages to other ecosystems. Wetlands that exist along the Kenyan coast must be used within the overall conservation focus for coastal zones. The ICZM Policy provides guidance and calls for an integrated approach, one that recognise that coastal zones are subject to multiple uses. However, despite this recognition in law and policy, there are numerous challenges to adhering to the requirement for wise use of wetlands. A fundamental reason for the inability to wisely use wetlands arises from the failure to apply the ecosystem approach to management.

Pressures from developmental and agricultural activities are a main obstacle to the wise use of wetlands. Due to the limited amount of land available for agricultural purposes and the prevailing view of wetlands as land not suited for any purposes, there are always pressures to convert them to development purposes without considering their environmental benefits and without regard to the importance of wise use. In the Tana Delta, for example, the wetland has suffered from pressures from coastal aquaculture aimed at shrimp farming in the delta, as well as pressures from the Mumias Sugar Company Tana and Athi River Development Authority (TARDA) promoting the undertaking of sugarcane farming. More recently, the Government has decided to grant several acres of land to the Qatar government upon which to undertake commercial farming, despite the richness of the biodiversity within the wetlands and their use as a grazing area and source of water for local communities. These decisions did not take into account the concept of wise use.

¹¹⁶ Ibid.

Other challenges facing wetlands in coastal zones relate to the extent of the coastal zone in Kenya and the inextricable relationship between marine areas below low water mark, the area between the low water mark and the high-water mark, and the zone immediately above the high-water mark. The Draft ICZM Policy provides that the coastal zone consists of a closely connected terrestrial and marine environment. In Kenya, the marine environment comprises water, beach and the highest water mark ever recorded. The question remains, however, where the highest water mark (generally referred to as the Mean High-Water Spring) lies. The Survey Act¹¹⁷ provides some guidance. Rule 110 of the Survey Act deals with this issue by providing that 'Where unalienated Government land fronting on the area of the coast is being surveyed for alienation, a strip of land not less than 60 metres in width shall normally be reserved above high-water mark for Government purposes.'¹¹⁸ This would mean that the extent of the highest water mark of the Mean High-Water Spring is 60 metres.

The above issue was the subject of legal proceedings in the case *Sea Star Malindi Ltd v. Kenya Wildlife Service*¹¹⁹ where the Kenya Wildlife Service (KWS) sought to restrain a landowner in Malindi town from constructing a hotel on the land based on the argument that they intended to extend a marine park to the disputed area. The KWS asked the landowner not to effect any construction within 100 feet from the high-water mark. The matter went to court where the High Court held that the land in question belonged to the plaintiff and that the KWS had not presented evidence to justify their claim to the 100 feet in their letter. In the words of the court:

if the respondent was of the opinion that the suit land being contiguous to marine park, activities on it such as constructing septic tank might seriously interfere with the ecosystem in the area, all it needed to do was convince the Minister concerned to have the land acquired with the consent of the owner who was the competent authority or by way of Land Acquisition Act. Having so acquired the land the Minister would declare it a marine park or national park and then proceed to have the conservation of the area.¹²⁰

This decision correctly adjudged that 100 feet was unknown to Kenyan law. However, there is a buffer zone which is 60 feet as contained in the Survey Act.

117 Chapter 299, Laws of Kenya.

118 Ibid.

119 KLR 1 (E&L) 512.

120 Ibid., 513.

Further, there are provisions specific to wetlands conservation in coastal and marine areas. Rule 114 of the Survey Regulations, for example, stipulates as follows as regards to wetlands:

- (1) Where an area fronts a swamp, a give-and-take straight line boundary shall be adopted whenever possible,
- (2) Indefinite median lines, which cannot be re-established by survey, shall be avoided,
- (3) Swamps of an average width of 150 metres or more shall be excluded from the farms, and a straight boundary along the edge of the swamp shall be surveyed and beacons.

Thus, while there is recognition of the need to protect the coastal environment, there continues to be 'uncertainty in the delimitation of what constitutes the coastal zone, including coastal wetlands or swamps'.¹²¹

Another key challenge relates to pollution. Pollution of the sea and coastal areas derives from both land-based and water-based sources. The national legal framework seeking to address these pollution sources on-land and on-sea is woefully inadequate, with most ocean-based pollution being dealt with mainly by international law. Nevertheless, a critical tool to deal with pollution relates to the regulation of land use. The Kenyan Constitution contains provisions granting the state police powers over all land in Kenya, which power is to be exercised for several reasons, including land use planning.¹²²

Land use planning is a critical tool as it provides for regulating competing land uses and ensuring that those uses are sustainably undertaken. However, in the context of wetlands in the coastal zone several challenges arise. First, there is contestation as to whether the appropriate approach to regulating the use of wetlands is through the tool of development control, hence land use planning, or through compulsory acquisition as suggested by the High Court in the *Star Malindi* case above. This contestation revolves around the concepts of prohibition on conveyance versus conveyance with prohibition.

At its heart, the debate revolves around whether the better approach is one which focuses on prohibiting the conveyance of wetlands. Under this approach, wetlands will be excluded from conveyance even if they appear on private land as they will be excluded from the property of individuals. The second option is to allow conveyance but to place prohibitions or limitations on the sale such that wetlands will be viewed as public goods with their use being

121 CO Okidi, 'Legal Aspects of Management of Coastal and Marine Environment in Kenya' in CO Okidi and others (eds), *Environmental Governance in Kenya: Implementing the Framework Law* (Oxford University Press, 2008) 440, 443.

122 Article 66, Constitution of Kenya.

regulated, rather than their transfer being prohibited. This means that conveyance will be allowed, but there will be conditions or prohibitions placed on the conveyance.

In the final analysis, it is submitted that both approaches should be adopted. For some wetlands, based on their fragility and sensitivity, no conveyance should be allowed. Rather, they should be designated as critical ecosystems and their conveyance prohibited. For the rest of the wetlands, legislation should provide that their transfer has conditions attached to it. Such conditions should be geared towards maintaining the integrity of the wetlands' ecosystems and promoting wise and sustainable use of the wetland and its component resources.

Even if the issue of their conveyance is settled, however, one limitation of relying on land use planning law arises from the non-inclusion of sea-based planning as part of Kenya's land use laws. Wetlands transcend both the land and water space, extending into the sea. The limits of the traditional doctrine of land use planning have led to the evolution of the concept of marine spatial planning (MSP) as a tool to balance competing uses within the marine ecosystem and avoid user-conflicts.¹²³ MSP is the latest innovation in the planning framework that started with the development of land use planning.¹²⁴ MSP has been gaining traction in environmental policy debates and in emerging state practice as an effective tool for adaptive and multi-scale management, providing mechanisms for the resolution of jurisdictional conflicts between actors in the marine environment.¹²⁵ It is 'a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that are usually specified through a political process'.¹²⁶ It is consequently a 'strategic, forward-looking, planning tool for regulating, managing, and protecting the environment, including through the allocation of space, that addresses the multiple, cumulative and potentially conflicting uses of the sea'.¹²⁷

123 F Maes, 'The International Legal Framework for Marine Spatial Planning' (2008) 32 *Marine Policy* 797; M George and others, 'Marine Spatial Planning: What Does it Have to Offer Malaysia?' (2016) 31 *The International Journal of Marine and Coastal Law* 242.

124 HD Smith and others, 'The Integration of Land and Marine Spatial Planning' (2011) 15 *Journal of Coastal Conservation* 291, 291.

125 M George and others (n 123).

126 UNESCO, *Marine Spatial Planning: A Step by Step Approach Towards Ecosystem Based Management* (2009) 18 available at <<http://unesdoc.unesco.org/images/0018/001865/186559e.pdf>> accessed on 20 March 2018.

127 MSSP Consortium (2006), *Marine Spatial Planning Pilot. Final Report to Department of Environment, Food and Rural Affairs, UK.*

MSP supports the application of the ecosystem approach to management due to its focus on integration. Recognition and application of this concept in Kenya will help improve the conservation and wise use of coastal wetlands by ensuring that decisions on their use recognise the multiple functions of wetlands and balance the interests of competing users. It will also ensure that wetlands are dealt with not as isolated habitats but as part of the wider ecosystem within the coastal zone, one that is integrated and extends from the land all the way into the sea.

7 Towards Ecosystem Approach to Wetlands Management in Kenya: Concluding Ideas

It is important that Kenya fully implements the ecosystem approach in the management of its coastal and marine resources. Doing so will ensure that the wise use of wetlands is undertaken within a context that appreciates that wetlands are just one of the resources within the coast and that their use affects and is affected by what happens to other ecosystems and resources. An ecosystem approach allows for a holistic view and is better suited to achieving sustainability. Measures need to be put in place to apply the twelve principles adopted by the COP of the CBD to guide the application of the ecosystem approach.

In addition, the implementation of the ecosystem approach will require adaptive governance. This will require clear, linked and collaborative structures and processes aimed at avoiding overlaps and institutional rivalries. There is currently no single institution that is responsible for management of wetlands in Kenya. To improve their management, 'adoption of a policy framework, improvement of legal rules for its management and harmonisation of institutional structures for their regulation',¹²⁸ is necessary. Such an approach will seek to map out the role of the different agencies involved in managing the coastal zone and assigning responsibility for the coastal zone to the most appropriate agency, while ensuring that the relevant agency coordinates with other agencies addressing ecosystems connected to wetlands.

It is also important that the role of local communities in environmental management and their involvement be improved. This is a prerequisite of Kenya's constitutional architecture, which recognises and requires participatory governance in all undertakings. In the final analysis, the country's

128 C Odote, 'Wise Use and Sustainable Management of Wetlands in Kenya' in CO Okidi and others (eds), *Environmental Governance in Kenya: Implementing the Framework Law* (East African Educational Publishers, 2008) 335, 354.

management approach must move away from the single species approach to one that is inclusive, integrated and adaptive. This is the essence of the ecosystem approach, the defining characteristics of which include being geographically specified, adaptive in development over time as new information becomes available or as circumstances change, taking into account ecosystem knowledge and uncertainties, recognizing that multiple simultaneous factors, including those external to the ecosystem, may influence the outcomes of management, and striving to balance diverse societal objectives that result from resource decision making and allocation. Additionally, because of its complexity and emphasis on stakeholder involvement, the process of its implementation needs to be incremental and collaborative.¹²⁹

A move towards an ecosystem approach also needs to recognise the place of human beings in the success of conservation initiatives, provide a link between environmental management and political governance, pay attention to the new devolved governance arrangement, align planning processes and structures to the land and water linkages, and adapt to the new realities including the discoveries of extractives in Kenya. In the final analysis, Kenya's efforts must also focus on regional and global collaboration in recognition of the nature of the oceans as part of the global commons. The National Environmental Management Authority and the Kenya Wildlife Service are the two institutions that have hitherto played roles relevant to wetlands management. Even between them there is continued contestation as to which has the primary responsibility over wetlands. In the devolved structure of Kenya, the County Government, too, has responsibility over environment and by extension wetlands. An ecosystem approach will require that there is clear coordination of the functions of these bodies so as to avoid conflict and enhance collaboration.

Although the legal and policy framework for management of resources within the Kenyan coast recognises the ecosystem approach, the country is yet to ensure that the approach is fully appreciated and applied by all actors. Effective application and implementation of the ecosystem approach would help to ensure that Kenya's coastal resources are conserved and wisely used as required by the Ramsar Convention to which Kenya is a party. It would also ensure that Kenya is putting into practise the commitments it has made under the CBD, to which it is also a party, that call for adoption and application of the ecosystem approach in the management of land, water and living resources, an issue that would be aptly demonstrated through wise use of wetlands in the Kenyan coast.

129 MP Sissenwine and SA Murawski, 'Moving beyond "intelligent tinkering": advancing an ecosystem approach to fisheries' (2004) Series 274 Marine Ecology Progress 291.

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PART 4

Conclusion and Outlook



Challenges in Implementing the Ecosystem Approach: Lessons Learned

David Langlet and Rosemary Rayfuse

1 Introduction

We began this book, in Chapter 1, by suggesting that the need for an ecosystem approach to the management of ocean resources seemed almost intuitive, in theory, but that in practice its effective implementation might be anything but. The reason for such difficulty was, we posited, a logical result of the many and varied complexities inherent not only in natural ecosystems, but also in the legal and institutional (eco)systems established for the management of those resources. Despite these complexities, however, the ecosystem approach is increasingly embedded in the context of marine management. Thus, a firm understanding of the legal and institutional challenges associated with its implementation is needed. The objective of this book has been to provide a range of analyses of the various manifestations of the ecosystem approach in practice, focusing primarily, though not exclusively, on the European context.

In this, concluding chapter, we draw on the various perspectives and experiences discussed in the preceding chapters, with a view to identifying common themes and challenges as well as distinctive features of the understanding and operationalization of the ecosystem approach to ocean management in the EU and beyond. We highlight important insights and identify remaining challenges to the effective operationalization of the approach, both in terms of improving its practical implementation, and in terms of further research needs.

2 The Ecosystem Approach – a Challenging Concept

The first important, albeit not original, insight is essentially a simple truism; the ‘ecosystem approach’ is a challenging concept. Indeed, its very meaning remains contested and its effective implementation is complex, confusing

and difficult.¹ Obvious challenges relate to the scientific complexity inherent in the approach, which requires the integration of different fields of scientific knowledge as well as the constant need for the acquisition of up to date and improved data on natural and social systems alike.² Beyond the scientific challenges, however, ascertaining the managerial objectives of the ecosystem approach is far from easy, particularly given the varying and different meanings ascribed to the approach by different actors and interests.³

This managerial challenge is starkly illustrated in the EU context, where reference to the ecosystem approach is often contained in legislation but no definition of the term is provided.⁴ Indeed, a lack of a clear and coherent understanding of what the approach entails in terms of management measures can be seen across all the main pieces of EU marine legislation.⁵ Not surprisingly, this lack of coherence has resulted in considerable heterogeneity in the manner in which the ecosystem approach has been understood and operationalised by the individual Member States in specific contexts such as in maritime spatial planning (MSP) processes.⁶

Adding to the confusion, there is no singular, definitive articulation of the concept. Rather, varying articulations exist, with some speaking of the 'ecosystem approach', while others refer to the concept of 'ecosystem-based management', and still others to the 'ecosystem approach to management'. These various formulations are sometimes used interchangeably, while at other times they are intentionally invoked as having distinct connotations.⁷ 'Ecosystem approach to management', in particular, is often invoked to reflect the fact that what is to be managed are human interactions with the ecosystem and

1 Vito De Lucia, 'Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law' (2015) 27 *Journal of Environmental Law* 91.

2 As noted by Fluharty, 'in order to make ecosystem science more relevant in decision-making it is necessary to know more about what people value and how they behave with respect to the marine environment.' David Fluharty in Ch 12, 373. On the need for marine science to encompass and integrate both natural and social science perspectives, see Till Markus and others, 'Disciplinary diversity in marine sciences: the urgent case for an integration of research' (2018) 75 *ICES Journal of Marine Science* 502.

3 De Lucia (n 1) 100.

4 In EU law, the ecosystem approach is only defined in the CFP regulation, and even then, there is a mix of the approach as such and the approach as the objective. Luc van Hoof, 'Fisheries management, the ecosystem approach, regionalisation and the elephants in the room' (2015) 60 *Marine Policy* 20, 21.

5 Aron Westholm in Ch 4.

6 Michael Gilek, Fred Saunders, and Igné Stalmokaitė in Ch 6.

7 KA Waylen and others, 'The Need to Disentangle Key Concepts from Ecosystem-Approach Jargon' (2014) 28 *Conservation Biology* 1215.

not the ecosystem itself.⁸ This may, of course, be a more accurate reflection of the anthropocentric nature of marine resource governance in general. That it is human interactions being managed, and not the ecosystem itself, might, however, be considered obvious. Thus, the human element is arguably already implicit in other articulations of the concept as well.

In a generic sense, the term 'ecosystem approach' generally implies a level of systems thinking and a link between management structures and ecology, including a consideration of the interaction between natural systems and human systems.⁹ In most cases the relevant question may, in fact, be which formulation of the ecosystem approach concept more accurately meets the needs of the particular context or the particular task at hand,¹⁰ rather than what the ecosystem approach means as a general concept. As noted by Kidd, a mix of governance approaches is also likely to be beneficial.¹¹ This is not to suggest that a lack of conceptual coherence or clarity may not present its own difficulties,¹² but rather to suggest that different contexts may require different conceptualisations and the application of different, individualised considerations. Thus, the diversity of contexts – natural as well as social – in which an ecosystem approach is prescribed and pursued, renders the articulation of predetermined measures both unrealistic and unhelpful.¹³ In this respect, general principles, such as the Malawi Principles for the ecosystem approach,¹⁴ are more useful in providing an overarching frame of understanding as to what the approach requires. These general principles can then be supplemented by practical experience of the problems encountered and the lessons learned (in terms of fruitful thinking and action) in implementing the ecosystem approach in specific situations. As both the chapters in this book and broader literature demonstrate,¹⁵ such experiences, or case studies, may be context specific, but

8 David Fluharty in Ch 12.

9 van Hoof (n 4) 22.

10 De Lucia (n 1) 24.

11 Sue Kidd in Ch 5.

12 For examples see Collins Odote in Ch 13. Fluharty points to the problems that follow from the absence a clear or formally defined view of what marine ecosystem-based management is to achieve. Fluharty in Ch 12.

13 In a similar vein Murawski finds it 'impossible to articulate a single set of indicators applicable in all situations' for judging the success of ecosystem based management. Steven A Murawski, 'Ten myths concerning ecosystem approaches to marine resource management' (2007) 31 *Marine Policy* 681, 686.

14 Submission by the Governments of the Netherlands and Malawi, Report of the Workshop on the Ecosystem Approach, 28 January 1998, *UNEP/CBD/COP/4/Inf.9*, 7.

15 See inter alia, David C Smith and others, 'Implementing marine ecosystem-based management: lessons from Australia' (2017) 74 *ICES Journal of Marine Science* 1990.

they may nevertheless provide guidance or inspiration for application in other situations.

Admittedly, fully accounting for and structuring management measures around a comprehensive understanding of an ecosystem and its dynamics is, in many cases, practically impossible. Ecosystems are multidimensional, dynamic and interlinked and often lack clear spatial or biological delimitations. Comprehensive understandings of social structures and processes are also difficult to achieve, given their tendencies to complexity and to change over time. When the complexities of the two systems – natural and social – are combined, the result is almost utterly incomprehensible. Thus, to effectively implement an ecosystem approach in any meaningful manner, both systems must be defined in such a way as to render them manageable. To that end, geographic areas and institutional responsibility must be carefully delineated, and the required levels of detail of analysis and of management efforts must be carefully articulated. These choices should be thoroughly considered and based on the best available understanding of both the relevant ecological and social systems. In this respect, marine ecosystems can be seen as social constructs,¹⁶ and as the result of social processes – scientific, administrative, political – through which geographic areas are defined, desired ecosystem functions are articulated, and decisions are made regarding what to conserve, manage and monitor, in what manner, to what end, and for how long.¹⁷

In the light of the inherently demanding nature of the ecosystem approach, in terms of knowledge required and the nature and functioning of administrative structures, there is, in this context, a risk of the perfect becoming the enemy of the good. Achieving the perfect conditions for the ecosystem approach is often not a viable objective, either because it will lead to ‘paralysis by analysis’, i.e. the constant delaying of measures due to insufficient scientific understanding, or because of a lack of appropriate resources and legal-managerial structures for such a challenging task. Attempting to make do with what is available may be necessary. Obviously though, and as will be further discussed below, any attempt at applying the ecosystem approach must be premised on a willingness to re-evaluate and adjust management as understanding of the ecological and social systems at issue evolve.

Slater and Macdonald demonstrate that existing laws may provide an adequate basis for the implementation of an ecosystem approach even though the

16 Robert C Francis and others, ‘Ten Commandments for Ecosystem-Based Fisheries Scientists’ (2007) 32 *Fisheries* 217.

17 David Langlet, ‘Scale, space and delimitation in marine legal governance – perspectives from the Baltic Sea’ (2018) *Marine Policy*, accepted 24 September 2018, doi: 10.1016/j.marpol.2018.09.027.

approach is not specifically mandated. What is needed is a clear analysis of the legislative landscape in order to fully understand the impacts of non-oceans focused legislation and policies on the viability of measures intended to implement the ecosystem approach.¹⁸ The US experience, described by Fluharty, similarly illustrates the possibility of achieving an ecosystem approach in practice, even in the context of a highly fragmented legal framework in which the ecosystem approach is not recognised as an overarching or cross-sectoral principle, and where the desired spatial and sectoral coordination may be missing.¹⁹ It must, however, be admitted that lack of political interest in or support for ecosystem based measures will mean that necessary managerial mandates and resources are unlikely to be forthcoming.²⁰

Within the EU, despite the lack of terminological clarity, the ecosystem approach has been embraced as a central theme in the major frameworks for marine governance: the Water Framework Directive (WFD),²¹ the Marine Strategy Framework Directive (MSFD),²² and the Maritime Spatial Planning Framework Directive (MSPD).²³ These directives are specifically intended either to ensure the application of the ecosystem approach or to be implemented in a manner consistent with its application.²⁴ When compared to the US situation, in particular, the EU model of legislating the ecosystem approach is more unequivocal and coherent, despite certain terminological confusion. Importantly, although essentially a top-down model, considerable room exists for considering regional or local conditions in certain circumstances.

3 The Ecosystem Approach and the Role of Law

In addition to the issue of terminology and what is actually meant by ecosystem approach, a recurring theme in discussions on the role of law as an instrument for the implementation of the ecosystem approach is the apparent conflict between the adaptivity required by the approach and the traditional

18 Anne-Michelle Slater and Alison MacDonald in Ch 9.

19 David Fluharty in Ch 12.

20 On the implications of lack of political support and of a general mandate for a cross-sectoral ecosystem approach, see *ibid.*

21 Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy [2000] OJ L 327/1.

22 Directive 2008/56/EC of the European Parliament and of the Council establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) [2008] OJ L 164/19.

23 Directive 2014/89/EU establishing a framework for maritime spatial planning (MSPFD) [2014] OJ L 257/135.

24 See further Niko Soinen and Froukje Maria Platjouw in Ch 2.

virtues of law, such as stability and legal certainty.²⁵ A central challenge to successful marine governance is thus the need for legal structures capable of providing both stability and a high degree of flexibility and responsiveness to changes both in natural ecosystems and in our understanding of those systems, as well as the human behaviour that affects those systems.²⁶ However, this perceived tension between stability and flexibility is not inevitable. As Soininen and Platjouw illustrate, while sometimes acting as a hindrance to adaptivity, principles such as legal certainty can, in fact, also serve as frameworks for driving environmental adaptive change. Actual outcomes of adaptive mechanisms are decided by policy choices and by scientific understandings of the relevant socio-ecological systems.²⁷ In this respect, the authors suggest that all the main EU directives in this field, i.e. the WFD, the MSFD and the MSPD, have substantive capacity to support socio-ecological resilience, although through partly different instruments.²⁸ Many of the features that typically represent an ecosystem approach have also been identified to already exist as, for example, in the international regime for the protection of the Baltic Sea.²⁹ There may thus be less reason to see law as inherently problematic for adaptive management than is often assumed.

A further concern is that legal mechanisms providing for continuous learning and adjustment of policy measures, which are often associated with adaptive legal structures, may be at risk of losing (some of their) capacity to steer human activities.³⁰ A core element of EU water and marine law is the establishment of quality standards that are to be achieved or maintained through legal measures. These include the notions of 'good surface water status' and the non-degradation rule of the WFD, and the 'good environmental status' of the MSFD. These standards, or rather the mechanisms through which they are to be achieved, i.e. primarily the adoption of programmes of measures that are regularly assessed and revised, have been criticised as being too weak to be effective. Nevertheless, in its recent case law, most notably the so called

25 de Sadeleer lists 'clarity, simplicity and certainty' as important attributes of modern law (which he subsequently contrasts with post-modern law). Nicolas de Sadeleer, *Environmental Principles. From Political Slogans to Legal Rules* (OUP 2002) 235.

26 Brita Bohman and David Langlet, 'Float or Sinker for Europe's Seas? – The Role of Law in Marine Governance', in Kristine Kern and Michael Gilek (eds), *Governing Europe's Marine Environment: Europeanization of Regional Seas or Regionalization of EU Policies?* (Ashgate 2015) 53.

27 Niko Soininen and Froukje Maria Platjouw in Ch 2.

28 Ibid.

29 Brita Bohman in Ch 3.

30 See e.g. Bohman and Langlet (n 26).

Weser case,³¹ the EU Court of Justice has shown that even legal frameworks founded largely on the programmatic approach – essentially using regularly reviewed plans and programmes of measures as the primary tools for attaining environmental goals³² – can create distinct and enforceable obligations.³³ However, since the MSFD and in particular the MSPD are less clear in setting out obligations, or do so on a much higher level of aggregation,³⁴ it is unlikely that a similar development will be seen in relation to these directives.

4 Geographical and Policy (In)consistency

Further insights relate to the difficulties in adapting social structures such as legal frameworks and public institutions to the logic and characteristics of natural ecosystems. Although ecosystems, in themselves, constitute a delineation or delimitation of sections of the marine environment executed by humans for certain purposes and based on a certain level of understanding,³⁵ making meaningful delimitations is often difficult due to the dynamic and interlinked nature of ecological and other natural processes. Nevertheless, it is often necessary to divide the large ecosystem(s) of the sea into smaller, more manageable, units. As Westholm notes, marine management is largely a question of delimitation. This delimitation necessitates numerous decisions concerning how to divide natural systems into appropriate units and how to match those units with appropriate institutions and other management structures.³⁶ Clearly, governance structures should have the geographical scope and structure that best fits the ecosystem(s) at issue (as defined). This, in turn, may require existing social structures to be reconfigured, which may be challenging not only

31 Case C-461/13 *Bund für Umwelt und Naturschutz Deutschland* ECLI:EU:C:2015:433.

32 Niko Soininen and Froukje Maria Platjouw in Ch 2.

33 In this case, the court found that an EU Member State must refuse authorisation for any project that will result in deterioration of the status of the water body concerned or even jeopardise the attainment of good surface water status, unless the project is covered by a derogation. Case C-461/13 (n 31), para 50. On this so-called *Weser case*, see e.g. David Langlet and Said Mahmoudi, *EU Environmental Law and Policy* (Oxford University Press 2016) 228.

34 On the challenges of aggregation under the MSFD, see W Nikolaus Probst and Christopher P Lynam, 'Integrated assessment results depend on aggregation method and framework structure – A case study within the European Marine Strategy Framework Directive' (2016) 61 *Ecological Indicators* 871.

35 Robert C Francis and others (n 16).

36 Aron Westholm in Ch 4.

because of path dependency but also because those existing structures may have been designed to correspond with other societal logics and needs.

Equally challenging for the effective application of the ecosystem approach is achieving the political will necessary for the bridging of jurisdictional conflicts in areas with shared ecosystems.³⁷ The politically demanding nature of such endeavours is clearly reflected in the vague or hortatory manner in which requirements for transboundary cooperation are typically phrased. This is so even with respect to cooperation within the EU where, despite the obvious logical necessity of strong coordination across boundaries in the marine spatial planning (MSP) context, most transboundary MSP initiatives are either merely voluntary in nature or take the form of pilot projects.³⁸ Political commitment to the application of the ecosystem approach must therefore be present among all concerned States, something which is not assured. While this potential weakness would appear to be ameliorated by strong elements of supranational decision-making such as exist in the EU, even within the EU much is left to the will and priorities of individual Member States. The MSPD, in particular, affords much deference to national autonomy in decision-making,³⁹ with MSP, as a site of governance, remaining primarily a national issue, reflecting different processes, institutional setups and historic contexts.⁴⁰

While coordination between States is a challenge, even within States sectoral fragmentation and a lack of agencies with mandates corresponding to the physical ecosystems and social systems and processes with which they are linked poses challenges.⁴¹ Clearly, the locus of responsibility and competence within States for implementing ecosystem approach related measures, such as MSP, can have significant implications for successful implementation. This is true both in term of levels within the public administration and as regards the general policy focus of the organs entrusted with the relevant duty.⁴²

The need for coordination is not, however, limited to intra – or even inter-EU coordination. Coordination between legal regimes at the regional and

37 Brita Bohman in Ch 3.

38 Stephen Jay and others, 'Transboundary dimensions of marine spatial planning: Fostering inter-jurisdictional relations and governance' (2016) 65 *Marine Policy* 85.

39 David Langlet, 'Planning from the Margin – The European Union's Potential Role in Spatial Planning for Managing Activities in the Marine Arctic' (2018) 33 *International Journal of Marine and Coastal Law* 361.

40 Michael Gilek, Fred Saunders, and Igné Stalmokaitė in Ch 6.

41 On the situation in Germany, see Eva Schachtner in Ch 11.

42 Aron Westholm in Ch 4. For a similar analysis, see Björn Hassler and others, 'Collective action and agency in Baltic Sea marine spatial planning: Transnational policy coordination in the promotion of regional coherence' (2018) 92 *Marine Policy* 138.

global level is also necessary due, not only to geographical factors, but also to the fact that marine regulatory regimes, even when regional in nature, tend to deal with only some of the pressing issues relevant to the application of the ecosystem approach. By way of example, the Helsinki Convention for the Baltic Sea,⁴³ the OSPAR Convention for the North Sea,⁴⁴ and the Barcelona Convention for the Mediterranean⁴⁵ all lack mandates to regulate fisheries and (for the most part) shipping. Regulation of shipping is largely dealt with within the framework of the International Maritime Organisation (IMO) while fisheries policy in the EU is, in principle, the exclusive domain of the Union in the form of the Common Fisheries Policy (CFP). Integrating shipping and fisheries into comprehensive ecosystem management therefore requires cooperation between the different regimes.⁴⁶ In the fisheries context, the CFP could be seen as an asset in relation to the ecosystem approach in that it should, in theory, guarantee the uniform application of ecosystem principles to the fishing sector. However, significant problems have been encountered with coordination efforts both between internal EU policy instruments and between the CFP and regional environmental agreements. For example, while fisheries policy is to 'be coherent with the Union environmental legislation, in particular with the objectives of achieving good environmental status by 2020',⁴⁷ no specific requirements exist to ensure coherence between the CFP and the environmental objectives of the MSFD. Wakefield considers this 'failure to integrate environmental and fisheries policy' as preventing 'regeneration and sustainability of both fish stocks and wider ecosystems'.⁴⁸

Although it is perhaps making a virtue of necessity, there may be some advantages to jurisdictional and policy diversity. Such diversity can allow for different approaches to be pursued and tested and experiences to be shared, thereby contributing to the potential for adaptive development of legal and policy frameworks. This presupposes, however, that functioning mechanisms for such exchanges are in place and that policymakers are open and responsive to the need for continued adjustments in the light of new knowledge. In the

43 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki, 9 April 1992, into force 17 January 2000) 2099 UNTS 195.

44 Convention for the Protection of the Marine Environment of the North-East Atlantic (Paris, 22 September 1992, into force 25 March 1998) 32 ILM 1075.

45 Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona, 16 February 1976, into force 12 February 1978) 1102 UNTS 27.

46 The objectives and main principles of the CFP are set out in Regulation (EU) No 1380/2013 of the European Parliament and of the Council on the Common Fisheries Policy ... [2013] OJ L 354/22.

47 Regulation 1380/2013, Article 2(5)j.

48 Jill Wakefield in Ch 10, 293.

EU context, at least, this openness can, to some extent follow from the recurring revisions prescribed by EU law for maritime spatial plans as well as for programmes of measures under the MSPD and the WFD.

5 Knowledge and Participation

A further insight revealed in the chapters is that qualitative application of the ecosystem approach requires a deep and up-to-date understanding of the ecosystem(s) in issue. The need to capture ecosystem feedback across relevant scales makes the ecosystem approach information – and thus monitoring – intensive.⁴⁹ Indeed, closing the knowledge gaps on ecosystem functioning is likely to be a never-ending process,⁵⁰ as is the need for continued understanding of the social systems with which the ecosystems interact as well as the relevant preferences and other factors that drive human behaviour in relation to the marine environment.⁵¹ In addition to monitoring and scientific research, closing the knowledge gap thus necessitates effective collaboration with a wide set of stakeholders, both as knowledge bearers and as actors whose participation and acceptance are often crucial for the successful implementation of management measures. In this respect, participation is fundamental to the ecosystem approach as both a knowledge acquisition process and as a means of ensuring the engagement of concerned actors, thereby enhancing the understanding and acceptance of policies and measures. Indeed, Zervaki identifies participation as the '*sine qua non* for successful MSP projects' since effective marine spatial planning is dependent on public trust in its ability to balance various interests.⁵² This need for inclusiveness, both in terms of who to involve and in relation to what kinds of knowledge are needed, is, in fact, reflected in the Malawi Principles, according to which the ecosystem approach 'should involve all relevant sectors of society and scientific disciplines'.⁵³

However, while participation is often key to successful, or even workable, management policies, it is not without its challenges. To begin with, there is the risk of economically stronger or more well-organized interests becoming

49 H Österblom and others, 'Making the ecosystem approach operational – Can regime shifts in ecological – and governance systems facilitate the transition?' (2010) 34 Marine Policy 1290, 1297.

50 Eva Schachtner in Ch 11.

51 Österblom and others (n 49) 1297; David Fluharty in Ch 12.

52 Antonia Zervaki in Ch 8, 233.

53 Report of the Workshop on the Ecosystem Approach (n 14), Principle 12.

overly dominant in participatory processes or structures, such as has occurred in the EU's fisheries advisory councils.⁵⁴ A further challenge relates to the way in which science is to feed into relevant policy processes. As noted by Zervaki, 'cooperation between scientists and policymakers is not an easy one since they do not share a common working methodology or objectives'.⁵⁵ Indeed, the nature of the scientific pursuit of knowledge is not easily squared with the pace and logic of policy processes. A similar situation can be discerned with regards to science and users of ecosystem resources. Gilek, Saunders and Stalmokaitė show that fishers can feel excluded from policy processes, such as those involving the development of maritime spatial plans, because the language used by scientists is not accessible to them. They may also feel that their knowledge of the resource is not properly valued compared to the results of scientific studies.⁵⁶ This brings to the fore the need to ensure that processes are truly inclusive in the sense that stakeholders can both understand the process as such, and the information provided, as well as feel that they have a genuine impact on the outcome of the process.

In reality, however, determining how and when to utilise local knowledge as a means of achieving conservation solutions is quite challenging.⁵⁷ This is particularly so in the context of MSP processes where the application of the ecosystem approach has been found to be primarily concerned with ecological and economic values and trade-offs between the two.⁵⁸ Gilek, Saunders and Stalmokaitė go so far as to identify the need for a complementary 'Socio-cultural Approach' (SA) to better address the manner in which 'issues such as participation, procedural justice, social inclusion and knowledge pluralism could be focussed and promoted in MSP'.⁵⁹ Nevertheless, as the case study presented by Slater and Macdonald demonstrates, collaborative processes that are well designed and allowed to take time can yield very positive outcomes in terms of shared understandings of ecological and policy linkages and interactions, as well as reduce conflicts.⁶⁰

54 Jill Wakefield in Ch 10.

55 Antonia Zervaki in Ch 8, 238.

56 Michael Gilek, Fred Saunders, and Ignė Stalmokaitė in Ch 6, 182.

57 Julia G Mason, Murray A Rudd and Larry B Crowder, 'Ocean Research Priorities: Similarities and Differences among Scientists, Policymakers, and Fishermen in the United States' (2017) 67 *BioScience* 418.

58 Michael Gilek, Fred Saunders, and Ignė Stalmokaitė in Ch 6.

59 *Ibid.*, 189.

60 Anne-Michelle Slater and Alison MacDonald in Ch 9.

In this context ocean literacy seems to offer an important contribution.⁶¹ Of course, enhanced knowledge of the vital and complex natural processes presented by the oceans, and their possibly even more complex interactions with social systems, will not do away with all resource conflicts and contestations regarding knowledge production. It may, however, enhance acceptance of the fact that management interventions, though often needed, are equally often imperfect, iterative processes. As Fluharty's review of the evolution of marine policy in the US reveals, considerably more is known about marine ecosystems than is generally applied when making management decisions.⁶² Increased understanding of the vital importance of the ocean and the complexities of its ecosystems may go some way towards remedying this.

Importantly, however, learning is not a one-way process. The scientific community – or communities – also have much to learn about how to use knowledge generated elsewhere, including by other scientific disciplines,⁶³ and about how to communicate scientific findings and uncertainties in a comprehensible manner.

6 Humans as Part of the Ecosystem

Our final insight relates to the critical importance of understanding the role of humans within natural ecosystems. The Malawi Principles note, rather unsurprisingly, that management objectives for natural ecosystems are a matter of societal choice.⁶⁴ The application of an ecosystem approach requires the acknowledgement of the importance of ecosystems and of the interactions between those and social systems, but it does not as such determine the outcome of management processes. Such processes may very well entail a balancing of environmental, economic and social objectives; an operation where the ecosystem approach as such may provide limited guidance.⁶⁵

The important point here is that humans are not only decision makers in relation to ecosystems; humans are also, as biological entities, part of those systems. Indeed, it has been held that 'the most significant feature of [the ecosystem approach to management] is the understanding of humans as part of the ecosystem, where human activities are seen as an integral part

61 On ocean literacy, see Sue Kidd in Ch 5.

62 David Fluharty in Ch 12. For a similar conclusion, see Murawski (n 13) 684.

63 On the need for interdisciplinary research as a basis for marine policy making, see Mason, Rudd and Crowder (n 57).

64 Report of the Workshop on the Ecosystem Approach (n 14), Principle 1.

65 Michael Gilek, Fred Saunders, and Igné Stalmokaité in Ch 6.

of ecosystem processes and thus of the management of natural resources'.⁶⁶ However, the inclusion of humans as an integral part of an ecosystem can lead to unintended and not entirely unproblematic consequences. For example, while humans may define ecosystems and 'natural' processes in a conceptual sense, we also form and transform ecosystems through both intentional and unintentional impacts. Indeed, the human ability to indelibly transform the natural world of which we are part is at the core of the much-discussed notion of the Anthropocene.⁶⁷ Moreover, as noted by Bastmeijer, application of the ecosystem approach should ideally commence at a moment in time when ecosystems are pristine and healthy.⁶⁸ While exceptions may exist, for example in the case of the deep sea-bed beyond national jurisdiction, such an opportunity is, however, rarely available in the context of marine governance efforts today. The ecosystem approach must thus be applied in such a way as to prevent further deterioration and even to engage in ecological restoration.⁶⁹

When humans are seen as (natural or inevitable) parts of ecosystems, it thus becomes essential to have strong legal mechanisms in place to prevent overuse in the pursuit of short term interests. In this regard, Bastmeijer as well as Soininen and Platjouw warn of the dangers of leaving too much discretion to individual actors, including States, when it comes to the balancing of interests,⁷⁰ because of the risk of giving "humans" too dominant a position in the ecosystem.⁷¹ The risk relates not only to short term or narrowly defined interests outweighing the longer and broader perspectives needed for sustainability, but also to the possibility of changes in human conceptions of what constitutes a 'pristine and healthy' ecosystem. Often referred to as the 'shifting baseline syndrome', the problem arises because each new generation of scientists – and indirectly also policymakers – is likely to have a different understanding of what constitutes, for example, 'primal abundance and diversity', thus prompting a gradual adjustment to ever more degraded ecosystems.⁷² Once a degraded state is accepted, the possibility of restoration or of imposing

66 Sara Söderström and Kristine Kern, 'The Ecosystem Approach to Management in Marine Environmental Governance: Institutional interplay in the Baltic Sea Region' (2017) 27 *Environmental Policy and Governance* 619, 621.

67 Paul J Crutzen, 'The "Anthropocene"' in Eckart Ehlers and Thomas Krafft (eds), *Earth System Science in the Anthropocene* (Springer 2006) 13.

68 Kees Bastmeijer in Ch 7.

69 Ibid.

70 Kees Bastmeijer in Ch 7, Niko Soininen and Froukje Maria Platjouw in Ch 2.

71 Kees Bastmeijer in Ch 7, 216.

72 Daniel Pauly, 'Anecdotes and the shifting baseline syndrome of fisheries' (1995) 10 *Trends in Ecology and Evolution* 430.

responsibility for the damage will likely be lost,⁷³ thereby providing a license to more generally degrade the ecosystem.

As illustrated in the context of the MSFD, the challenges of setting so-called 'threshold values', i.e. values that allow for an assessment of the quality level achieved for a particular assessment criterion, are great. Under the MSFD, the EU commission has recognized that the values shall reflect natural ecosystem dynamics, 'acknowledging that the ecosystem or parts thereof may recover, if deteriorated, to a state that reflects prevailing physiographic, geographic, climatic and biological conditions, rather than return to a specific state of the past'.⁷⁴ While perhaps an acknowledgment of an irrefutable fact, due both to purely natural processes and to the pervasive and continuous effects of human activities, this can also be seen as a pretext for accepting the continued degradation of ecosystems. However, the recognition of variability or relative indeterminacy, should not be allowed to justify the continued gradual degradation of the marine environment as the inevitable result of changing conditions.⁷⁵ What is needed are instruments designed to meet ecosystem approach criteria which do not entail the same level of discretion.⁷⁶

7 Concluding Thoughts

We end where we began, with an acknowledgement that the ecosystem approach is a compelling but complex concept. Its recognition as one of the widely accepted ocean governance approaches is evident from its inclusion in a long list of policy and legal documents at the national, regional and global level. Its application, however, remains contested and challenging. Analysis of its implementation in individual contexts can help shed light on both its content and on its normative effect. An important message is that good work in implementing the approach can be done even when the preconditions are far from perfect. Considering the challenges in both scientific and political terms, optimal conditions may never be forthcoming. Fortunately, the approach can be seen as a way of thinking that can be applied – although with varying rigour or impact – in most situations. Much more research and knowledge generation

73 Jill Wakefield in Ch 10.

74 Commission Decision (EU) 2017/848 [2017] OJ L 125/43, Art. 4 (1).

75 Brian Moss, 'The Water Framework Directive: Total environment or political compromise?' (2008) 400 *Science of The Total Environment* 32, 39.

76 Niko Soininen and Froukje Maria Platjouw in Ch 2.

are indeed needed, both concerning ecological and social systems as well as their interactions, and much of this will, by necessity, be at least partly place and context specific. However, a key challenge often seems to be found in putting existing knowledge to good use. There are many examples of the application of the ecosystem approach – wholly or partly – from which to draw lessons or inspiration, although adjusting such knowledge and experience to the conditions of each context will require thoughtful consideration. Here iterative processes that allow for gradual adjustments as more understanding is gained are crucial. Promoting increased recognition of the fundamental importance of marine ecosystems as well as some understanding of their basic features and processes should also facilitate political support for engaging with challenges such as effective transboundary cooperation on marine ecosystem-based management.

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