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Governance as a framework to theorise and evaluate marine planning.

Tim Stojanovic[1], Kira Gee[2]

Abstract:

Marine Planning seems to offer promise to integrate oceans governance with a prospective approach to sustainability, most distinctively through the process of creating a spatial strategy contained in a marine plan, hence 'marine spatial planning'. This paper will show that in order to understand whether marine planning really is leading towards sustainability, recourse to governance theory will be required. Governance theory can provide principles or a theoretical framework for marine planning systems. It can also inform practicable planning, particularly in the phase of setting evaluatory criteria— a phase that many policy analysts consider should logically proceed the implementation of marine plans themselves- but also in broader questions of institutional design. Yet researchers and practitioners are faced with a situation in which there a multiple, competing approaches to governance from which to choose, some of which were developed in terrestrial contexts, raising questions about their applicability to the marine environment. This paper outlines five key major theoretical approaches for governance and reviews analytical debates and empirical findings about marine planning using those approaches. The core question of this study is which theoretical approaches offer the most traction for evaluating MSP and why?

Keywords: oceans, good governance, ecosystem approach, multi-level governance, modes, marine spatial planning

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[1] School of Geography and Sustainable Development (Marine and Coastal Environment team) and Scottish Oceans Institute, University of St Andrews, KY16 9AL, Scotland, UK. Email: tas21@st-andrews.ac.uk
[2] Human Dimensions of Coastal Areas, Helmholtz Zentrum Geesthacht, Max-Planck-Str. 1, D-21502 Geesthacht, Germany.

1 INTRODUCTION: GOVERNANCE, INSTITUTIONS AND PLANNING FOR OCEANS

Governing the oceans involves a great array of organisations and issues. Simply describing them is an encyclopaedic task [1] [2] [3] [4] [5]. Beyond describing, scholars seek to 'theorise' how governance works in order to 'abstract' individual examples and compare them; analyse to explain why governance leads to certain patterns or outcomes; and evaluate whether forms of governance are leading to a better world. Multiple approaches have been developed to achieve this, and scholars argue about which are most effective. This paper presents a comparative perspective on governance and planning. Any given approach might be developed by an analyst into a theoretical framework which structures their inquiry into marine spatial planning. This works like a conceptual schema which "identifies the relevant elements and general relationships needed for analysis" [6] p.9. .

Marine spatial planning as an idea first developed in the 1970s and has seen widespread applications only since the 2000s [7], and is therefore relatively recent compared to terrestrial urban and regional planning, with the earliest national Town Planning legislation dating to 1909 in the UK. There are questions about Marine Planning's theoretical foundations, unresolved differences in how it is interpreted; and difficulties in evaluating its contribution to sustainability. Evaluating the contribution to sustainability involves reviewing the grand aspirations of MSP to deliver "thriving maritime economies, fewer conflicts and improved status of marine ecosystems" [8] p.417. Before considering how different perspectives on governance can support evaluation in marine planning, it will be necessary to 'clear a path' by being explicit about the debates in the literature concerning the use of some key terms. Planning, Institutions and Governance are core concepts which are contested or often used imprecisely, yet commonly feature in the context of MSP. This introductory section will present a variety of positions available- without setting precise definitions- and show how these assumptions frame research on the sustainability of the oceans.

1.1 PLANNING AND MARINE (SPATIAL) PLANNING

Planning Theory and History

The idea of planning evokes a notion of deliberate action, oriented towards the future, to solve problems or create better places. Today many types of planning exist concurrently, such as land use planning, regional development planning, urban planning or spatial planning. Terms are not always sharply delineated, and certain terms preferred in different jurisdictions or national cultures. Land-use planning developed from a tradition of thought dating back to the ideas about civic design for urban spaces. The fields of Planning Theory and Planning History trace the development of ideas about planning practice and the role of the planner. They characterise several of phases of thought[3] in different traditions, with an increasing diversity of approaches from the 1950s to the present day [9] [10]. A significant development is the emergence of rational, systematic planning (1960s-) which aims to conduct planning for control of development and provide technical analysis to support land use planning, based mainly on expert input. However, a range of critiques have highlighted limitations of 'expert knowledge' [11] [12] and argued for more democratic and participatory approaches both on ethical grounds and for reasons of effectiveness. Nevertheless, contemporary planning practice still engages with technical tasks such as infrastructure development and development of comprehensive regional strategies, and many contemporary instances of marine planning might be categorised in the

[3] Space does not permit detailed consideration of planning theories- readers may consider other key terms such as 'Incremental', 'Reflexive', 'Transactive', 'Phronetic', 'Advocacy' planning, and 'planning as design'

rational systematic mode [13]. Environmental planning (1980s-) [14] reflects how the goal of sustainable development became (legally) mandated within many planning systems. In many planning systems, planners concurrently developed processes to engage communities and interest groups to identify goals and practices for sustainability. Collaborative (or communicative) planning (1990s-) takes this one step further by casting the planning professional as the facilitator of co-ordination [15] with an aspiration to inculcate positive change. In response to the critiques of top-down, expert led planning, this argues for processes of interaction between planners and other stakeholders, but one which carefully attends to the quality of these interactions and the ability to genuinely collaborate [16]. In Fuzzy planning (2000s-), the role of the planner is to help deal with differences in motivations and perceptions between participants [17], an emphasis which seems to be a response to increasingly pluralistic western societies and the complexity of contemporary sustainability problems.

Some planning theorists see the development of these ideas as shifts in dominant paradigms - they certainly present contrasting visions about what a planner should do and what planning might achieve. Other planning theorists argue that certain insights to be gained from each theory.

Spatial Planning, Zoning and Co-location

The 'S' in MSP can be related to the paradigm of 'Spatial planning' which developed in 1980s [18] [19]. This represents a shift in emphasis towards strategic planning, based on the need to integrate planning with other kinds of strategies in order to pursue sustainability. The vision of spatial planning includes ecological and economic objectives, as well as creating improved living conditions [19] [20]. During that time, spatial planning was seen in contrast to the perceived inflexibility of planning systems which were deemed to be fixated on designating spaces for different kinds of urban uses- for example housing, retail or commerce. Instead, spatial planning considers networks of interactions at a broader scale between different city regions and their hinterlands [21]. This kind of notion of a spatial vision for the land is understood rather differently in contemporary MSP which aims to minimise spatial conflicts whilst maximising the benefits from defined sea areas. Achieving these aims relies on the characterisation of the biophysical environment and subsequent analysis of human uses in a marine area, and is usually coupled with a regulatory approach that guides spatial development. Understood like this, MSP represents a rational-administrative approach to spatial planning driven by a functional perspective of the sea [22] [23]. It also has a particular perspective on the sea as a physical space which can be structured according to different demands and apportioned to different uses in the pursuit of socio-economic goals such as 'blue growth' and ecological objectives for marine ecosystems.

The idea of allocating marine space to achieve 'optimised' patterns of use is linked to zoning, or the use of area designations to guide activities or uses. This is a major contemporary debate within the MSP literature. Marine Zoning has proponents from conservation and development perspectives [24] [25] [26] [27] as it has been argued to align with a strong sustainability approach where marine planning includes the development of a zoned network of marine protected areas. Zoning has also been argued to provide clarity for developers in busy seas. In contrast, others argue that a reliance on zoning could generate new pressures via displacement of effort [28]; that zoning does not well account for maritime sectors, such as recreation, pelagic fishing or shipping which have locations which are relative to the water column rather than the seabed [29]; and that it can lead to compartmentalisation of activities that is neither desirable or sustainable given potential for co-location, multi-use and the nature of environmental gradients in the sea [30] [31]. Indeed a multi-use approach recognises the heterogeneity of options in mixing activities space and time to maximise synergies, though this is often dependent on careful prior planning and design to accommodate other uses [32].

Marine Spatial Planning and Sea Use Management

Marine planning systems are developing with the background history of terrestrial planning. But they also have their own heritage, as the antecedents of marine planning were early 1970/80s exercises in

sea-use planning [33] [34] [35]. These initiatives reflected the newly extended jurisdictions of coastal nations over the Exclusive Economic Zone; the rise of new technologies and zoning for certain sectors such as offshore oil and gas; the environmental priorities of the age such as marine dumping and industrial pollution; and increasing potential for inter and intra sectoral conflicts between users in developed sea regions such as the North Sea and East Asia [36][4]. This did not at this time lead to dedicated programmes of marine planning, but was rather reflected in new types of integrated policy analysis, departmental collaboration and impact assessment within government. It was also the starting phase of what has now developed into broad collaborative strategies for regional seas under the United Nations Environment Programme and other initiatives [37] [38]. Although conservation focussed, Zoning of the great barrier reef marine park in the late 1970s is often cited as an early example of large scale implementation of marine planning [39]. Douvere and Ehler [40] trace the first developments of comprehensive marine plans in North West Europe and China, and highlight the importance of measures beyond marine plans for governing marine space.

Kidd and Ellis [41] argue that marine planning has largely developed in isolation from terrestrial planning theory, but that national traditions of planning have varyingly influenced marine planning according to the context. In Germany for example, marine spatial planning is enabled by an amendment of the Federal Spatial Planning Act, extending the existing regulatory approach (including categories of area designations) to the sea, while in Sweden, the developing marine plans are set to provide strategic guidance only, in line with an overall approach to planning that is less prescriptive. Despite these different traditions, most approaches to MSP have commonalities with the concerns of terrestrial planning to control development and reduce environmental impacts related to "the externalities of unregulated development" [41] (p.52). The importance of global marine scientific discourses (including global marine assessments) is cited as another reason why scientific and technical rationalities are predominant in marine planning. For these reasons, marine planning is most associated with rational-systematic paradigm of planning [42]. The systematic approach seems to offer practicable guidance for those involved in implementation [43]. Concerning the 'S' in MSP, planning analysts have shown that core ideas from spatial planning, (such as spatial visions, economic and ecological goals), have been implicit in MSP attempts to organise marine space and inclusion of wider policy objectives [44]. Belgian and Dutch approaches to MSP with their broad designs and spatial visions are exemplars of this kind of thinking- for example the Belgian plan for the North Sea drew upon a range of six spatial visions based upon 'relaxed, natural, rich, playful, mobile or sailing' seas [45]. Furthermore, a comparison of German and UK MSP, finds evidence in latter for a collaborative approach [46], arguably drawing on the tradition of environmental or collaborative planning. At the same time, planning theory has also developed critiques of the contemporary practice in MSP. A lot is to be learned from the experience of terrestrial planning about issues, such as dealing with democratic deficit, for example [47]. Drawing on the perspectives of collaborative, phronetic and advocacy planning, contemporary marine planning has been critiqued as socially regressive in failing to consider social justice implications of marine developments, and lessons from terrestrial practice to develop a more pluralistic approach with grassroots engagement [48]. Other theorists argue that greater innovation is required in planning theory to fit with context of the oceans, particularly an understanding of spatiality which reflects the porous, fluid and mobile nature of marine space [13][5] [49] [50]. A considerable grey literature is beginning to develop as marine planning professionals themselves debate these and other issues.[6]

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[4]Another early example of sea use planning was the US state of Hawaii

[6] These include e-newsletters of international networks such as Marine Ecosystems and Management https://meam.openchannels.org/, Planning Associations and Supranational bodies such as the European Union

Returning to paradigms of planning theory, this provokes profound reflection on purpose and objectives of marine planning. Yet the great variety of conceptualisations presents a flux of ideas upon which to build. Making a highly simplified summary, one can distinguish between those theories which envisage a rather humble future for planner or planning team, placing them as one activist for broader processes of cultural change [51]; or one which seeks to provide stronger justification for planners and plan making, albeit as co-producers of knowledge with others [52] [53]. In contradistinction to contemporary planning theory, the practice of marine planning is characterised by the latter discourse - possibly because it is in its early phases of development, or possibly because of the distinctive nature of humanity's interactions with the oceans [54].

1.2 Institutions and Regimes

If Governance is used as a frame of analysis, who or what is doing governing? Whereas in the framework of ocean and coastal planning and management, one might refer to a 'planner' or 'manager' and their organisation along with other stakeholders, in the framework of Governance, the referent often becomes the 'institutions' of governance, which are 'steering' the planning. Indeed, the issue of institutional design for the oceans has been discussed independently of the notion of planning, with arguments for ocean focussed ministries or commissions within government to prioritise marine issues [55] [56] [57] [58]; studies of the role of legal mandates or executive orders in influencing the integration of marine policy [59] [60]; or analysis of mechanisms to integrate different sectors and scales of jurisdiction [61] [62]. Marine Planning has been highlighted as a key tool to help achieve the latter goal [63] [64]. Using the term institutions, brings into consideration a much wider range of actors or influences which might affect the planning.

However, there are some major intellectual challenges to deploy the term 'institution'. There are many working definitions of institutions used across a range of disciplines [6] [65] [66] [67]. This is notwithstanding the fact that the term 'Institution' may be used by authors in a somewhat imprecise or general way. Sometimes, institutions are closely associated with an individual organisation and its accompanying structures (a more 'formal' definition institutions, such as is used in fields of resource management, policy studies, or international relations). At other times, institutions refer to processes and structures across a range of governing entities (a more sociological definition of institutions). A review of definitions shows that a study of institutions could variously focus upon the: Actors, Actions, Constraints, Norms, Incentives, Interactions, Organisations, Procedures, Rights, Rules, or Strategies. This is a very broad range of entities, and presents a challenge to operationalise the concept in empirical research and is potentially a confusing factor in reporting findings.

The field of International Relations presents an alternative, narrower concept of 'regimes' as a more specific term [68] [69] which reformulates many ideas implicit in focusing on institutional aspects. Regimes denote a special sub-set of circumstances where legal drivers have given rise to planning and management arrangements with certain institutional designs and regulatory procedures within a specific field. Related to this conceptualisation is the recognition that policymaking bodies are particular kinds of institution, which are explicitly committed to influencing other institutions. There is a focus on the more 'formal' aspects of institutions, as opposed to broader 'sociological' framings.

Many working definitions of institutions may be valid. However, a certain formulation may serve a particular purpose, but may also obscure other aspects. Probably the strength of the term institutions is to provide an analytical lens which can include a very broad range of influences, causes or reasons

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Marine Spatial Planning Platform https://www.msp-platform.eu/ , Consultancies, and Government Agencies position papers e.g. http://www.abpmer.co.uk/services/marine-planning.

about how governing is done. This is well illustrated when considering how marine planning is evaluated. Taking a 'planning' perspective may focus evaluation on plan-making, plan contents, outputs and outcomes - for example whether a plan policy 'achieved its goals' (such as increase in Megawatts output of renewable energy from offshore windfarms; or targets to reduce the noise pollution impacts of development on wildlife); was consistent with the principles of the framing law; or whether stakeholders 'approve' of the plan, or how many attended consultation events. Whilst these assessments are not unimportant, they do not really get at why planning is or is not effective. When planning is theorised in the context of governance and institutions, it provides an opportunity to undertake different kinds of evaluation [70]. These allow assessment of the institutional arrangements: what was it about the planning approach or planning culture, that affected the outputs and outcomes of the planning process?

1.3 GOVERNANCE

Up to the 1990s, the dominant trend was to refer to the 'planning' and 'management' of the oceans [71]. 'Governance' is a broader term which can be understood as 'how power is directed to enable or constrain human action'. The Oxford English Dictionary traces the development of the term from the thirteenth century French word *Governaunce* referring to exercise of political power or rule, from comes the which definition "Controlling, directing, or regulating influence". Bevir [72] defines governance as "all processes of governing whether undertaken by a government, market or network, over…formal or informal organisation or territory, whether through laws, norms, power or language" (p.1) whilst Evans [73] offers the definition "the purposeful effort to manage, steer or control sectors or facets of society in certain directions" (p.3). Governance as a framework better accounts for contemporary realities such as: the evolution of government and changing role of the state in developed western bureaucracies and other nations; the variety of sectors and interests in the marine environment; and the contributions made by different groups and organisations- particularly the increased participation of the role of private and voluntary sectors [74] [75] [76]. For example, in MSP, and more widely, there has been a rise in government administrations' use of soft policy instruments and management by consultation [77]. Olsen *et al.* [78] review considerable formal and information consultation in Belgium, Norway and US MSP, to varying degrees. Also non-state actors, such as NGOs have been highly influential in lobbying for particular forms of marine planning [79]. Another way to summarise this argument is to say that governance is a term which offers the best explanatory power to understand what is going on when marine planning is being done. It also highlights that marine planning often operates in parallel with other systems of management, regulation and assessment, although these can be understood as part of a broader marine planning 'system'.

Whilst governance is a more abstract term than planning and management, it does not supplant consideration of planning, management, policy or regulation. Rather it offers a different analytical perspective. For example, Osterblom and Folke [80] analyse governance of fisheries in the Southern Ocean, considering management, regulation and licensing. This is coupled with analysis of actors, networks, organisations and institutions, spanning local to international levels of decision-making, to explain a reduction in illegal fishing by 90% between 1997-2008 and how this fishery became more effectively regulated.

Despite governance being such a seemingly adroit term, there are quandaries and challenges in its deployment. Firstly, there are differences in the way core analytical terms are used such institutions, planning and policy. Secondly, there are multiple dimensions of governance, drawing on its use by multiple disciplines. The earth systems governance project strategy [81] outlines five dimensions, amongst which are: architecture, which relates to the structure of systems; agency, which relates to

the roles undertaken by actors; and allocation, which considers what or who benefits. Thirdly, there are a variety of theoretical approaches with different underlying assumptions, as this paper outlines in section 2. This variety has developed due to the diversity of approaches used in the social sciences to explore social reality.

Having reviewed concepts of planning, institutions and governance, the paper now turns to consider what opportunities theories and approaches to governance bring to understanding MSP as a form of spatial governance.

2 GOVERNANCE APPROACHES FOR MARINE PLANNING

A range of contrasting approaches are used by different disciplines to analyse governance. Different theories seem to influence the kinds of solutions proffered by researchers- this is what is meant when research is termed 'theory-laden'. The variables and concepts which we choose to measure will affect how we evaluate MSP. Yet, theory itself can evolve based on the evidence gained from empirical research, to provide a better approximation to reality. Furthermore, reflexivity allows researchers to distinguish between theoretical approaches according to criteria such as their practical adequacy, explanatory power, productivity or efficacy for answering research questions[7]. Our aim is that the following review will support researchers and practitioners to understand or choose between approaches, by considering their logics of evaluation.

To support this task for studies of oceans governance and MSP, the following sections review 5 key approaches. These approaches may share certain concepts in common. They might be used in combination or combined to evaluate planning practice. We recognise that these approaches need not be mutually exclusive, but we argue that there is value in comparing their distinctiveness analytically. Each section introduces the history of ideas, critically examines key arguments and reviews how they shape evaluation of 'successful' marine planning. Some approaches such as 'Ecosystem-based management' are widely referenced in the marine planning and management literature, whilst others such as the 'good governance' principles have to date only been sparsely applied in empirical research on the oceans.

2.1 ECOSYSTEM APPROACH, ECOSYSTEM-BASED MANAGEMENT

Ecosystem-based management is currently the dominant paradigm for marine planning [82]. It is referenced in 15 out of 44 marine plans extant in 2017, and is also central to international guidelines on MSP[8].

A constellation of terms with related meanings has evolved [83]. The Ecosystem Approach and Ecosystem Based-Management [EBM] can be considered broadly similar or interchangeable set of principles for managing the environment, with different terms enjoying dominance in different cultural groups. In some texts, these terms are viewed as highly complementary [84]- Ecosystem based management might be considered as a way of implementing an ecosystems approach. In other cases, the ecosystem approach is viewed as part of a continuum of concepts [85]. At one end of the

[7] Other criteria for theories: level of empirical support; verifiable/falsifiable, systematic and comprehensive.

[8] For example, UNESCO-IOC (2009) within the title and p18, 22, 24; The Nature Conservancy (2009), p.1; NOAA (2011); US National Ocean Council (2012) p.12; Convention on Biodiversity (2012), p.16; TPEA (2014) p.29, 32; ICES (2015) p13-16.

spectrum, EBM might be considered an holistic approach to ecosystem assessment and management in contrast to conventional reductionistic or sectoral approaches to management [86]. At the other end of the spectrum it is argued that true ecosystem approach must promote ecological values and include cumulative impact assessment, the precautionary principle, resilience and ecosystem services as core components [87].

These sets of ideas developed from insights about the dynamic nature of natural systems within ecology [88] [89], and theories in environmental/resource management which critiqued the shortfalls of sectoral administration, based around administrative boundaries [90]. The wide acceptance of this set of principles stems from the fact that 12 principles for EA were codified by the Convention on Biodiversity (2000)[9] (See Table 1) The insights codified within the Ecosystem approach were developed through a series of international meetings (particularly Conventions of the Parties of the CBD between 1995 and 2004) drawing upon the experience of scientific and technical experts [91]. The EA was taken up by other international agreements which set the context for marine planning [92] at the international level by the UN and FAO, and supranational and national levels [e.g. UN General Assembly 2006, FAO ecosystem approach 2003, COMPASS statement in US and roadmap for MSP in EU]. It is significant that EA is codified as principle within EU law because of the way in which law guides implementation and regulation [93].

A considerable body of research has explored the interpretation of EBM principles in practice, and whether marine planning utilizes these principles. Rodriguez *et al.* [94] in a comparative study involving Norway, US, Australia, Canada and the EU finds that there is a wide variety of implementation of EBM, with emphasis of certain characteristics of EBM in certain traditions, such as the use of bioregional area definition and zoning in Canadian and US planning, and risk assessment and cumulative impact assessment in EU MSP. Douvere (2008) provides a positive assessment of the ability of Chinese and NW European MSP to implement EBM by attending to specific ecosystems and range of activities within an area [95]. Jones *et al.* [96] in their comparative study of 12 MSP initiatives in Europe find that an adaptive approach is largely absent in the implementation of MSP. They give a less positive evaluation of the state of governance overall, and contrast the ecosystem-based approach which prioritises good environmental status, against current approaches which have top down and short-term planning cycles. Hoel and Olsen [97] provide a generally positive assessment for Norwegian MSP (cf Table 1).

Considering the advantages of such an approach to evaluate marine planning, EA is currently the most widely accepted international set of principles. There is a remarkable political consensus around the term, if not grammatical agreement on the notion, which means that many MSP systems explicitly invoke this approach. The approach forms a comprehensive ethical compass for how marine planning should be done drawing on interdisciplinary understanding of both the natural and social sciences-encompassing principles such as participation and understanding of the structure and function of the dynamic ocean systems being governed. There is also clear alignment with other bodies of evidence related to marine space, for example with many common principles with integrated coastal and ocean management [98]. Although the approach was not specifically constructed with oceans in mind, research in the fields of marine and coastal biodiversity influenced the thinking behind EBM.

Considering critiques of such an approach to evaluate marine planning, although EBM is the closest to a comprehensive theory of oceans governance, as a theory it is an inconsistent set of propositions

[9] CBD 2000 Decision V/6 Ecosystem Approach.

with very diverse referents. Perhaps this is one reason why it has proven challenging for marine planners to operationalise these concepts at the implementation phase. Indeed, the expressions of the Malawi principles, although grounded in extensive experience, read more like normative approach for governing the environment than a knowledge base developed through science and research, and would not qualify as a mid-range theory in the social sciences. Arguably EA is more commonly utilised as an approach for auditing or designing marine planning systems, whereas there is little empirical research has been done to explore whether the implementation of these ideas in the marine context leads, on balance, to the hoped for outcomes [99], notwithstanding the challenges of attributing success in sustainability.

Table 1 Ecosystem based management/ Ecosystem Approach as a approach for MSP

Step	Malawi Principle #	Summary of Principle	Application in MSP (Example: Norway)
Step A1 Key stakeholders	Principle 1	Objectives…a matter of social choice	Marine plan approved by National Assembly
	Principle 12	Involve all relevant sectors of society and scientific disciplines.	No formal public input to white papers but stakeholder inputs to assessments.
Step A2 Area analysis	Principle 7	At appropriate spatial scale	Delineation of management areas from baseline based on regional seas
	Principle 11	Consider all forms of relevant information	Interdisciplinary scientific and sectoral assessments to support pressure and impact report.
Step B Ecosystem structure, function and management	Principle 5	Conservation of ecosystem structure and function to maintain ecosystem services	MPA network developed separately from marine plan
	Principle 6	Within the limits of ecosystem functioning	Specific measures to map seabed ecosystems and safeguard biodiversity
	Principle 10	Appropriate balance and integration of conservation and use	Unclear compromise between ocean use and conservation
	Principle 2	Decentralized to the lowest appropriate level	Cross-sectoral management fora for regional seas
Step C Economic Issues	Principle 4	Manage the ecosystem in an economic context: reduce market distortions, align incentives, internalise costs and benefits.	New cost-benefit analysis framework for oil and gas sector.
Step D Adaptive management over space	Principle 3	Consider effects of activities on adjacent and other ecosystems	Sequential development of sea management plans 2006, 2009, 2013
Step E Adaptive Management over time	Principles 7	At the appropriate temporal scale	Most of 179 measures in Barents Sea plan implemented.
	Principle 8	Recognizing varying temporal scales and lag effects…for the long term	Plan review 12 years. Plan Measures to address information gaps
	Principle 9	Recognise that change is inevitable	Provision for plan updates every 4 years.

Sources: After [100] Table 1.3, and Malawi Principles. Norway MSP: [94, 101, 102]

2.2 GOOD GOVERNANCE

Good governance principles grew from the from development studies literature, based on reflections about the disjunct between aid and sustainable development and concerns relating to issues such as corruption. In response to the criticism of double standards, these criteria are now also being deployed at a global scale. There is also some commonality with legal principles of international ocean governance [103]. The core argument is a universal one- that successful governance is dependent upon good institutions. International institutions such as UNDP and World Bank, have been significant in defining sets of good governance principles [104]. These are formed of sets of ethical ideals including ideas around legitimacy, accountability, performance, and fairness (See Table 2). These themes may then be translated into principles and practices in marine planning or other contexts [105], for example the principle of transparency being reflected in freedom of information regulations or stakeholder communication tools of MSP.

Applications of this research approach specifically to MSP are rare in the literature. Some attempts at synthesis for environmental governance have been made [106]. In a broader maritime context, Turner *et al.* [107] consider governance of coral reef fisheries and MPAs, and show that where stakeholder perceptions of good governance are positive, this influences acceptance and engagement with management strategies. Soma *et al.* [108] review principles of accountability, legitimacy, responsibility, representation and transparency and posit that many of these are strongly related to the quality of participatory processes in marine governance. Objectives, timescales, skills and resources have also been found to effect the quality of participation [109] [110], with a proviso that participation itself does not prevent capture of the policy agenda by interest groups through small scale politics [111]. In a similar framing, Henocque and Kalaora [112] outline a range of facilitation, management, participation, adaptation and cross-cultural skills, and show how developing this kind of capacity in marine administrations would constitute a new form of governance which would help achieve integrated planning and poverty reduction goals.

Considering the advantages of such an approach to evaluate marine planning, good governance principles are relevant across legislative, administrative and operational domains, providing an evaluatory approach which goes beyond the planning process to the totality of the marine planning system. The resultant evaluation can be clearly linked to institutional reform. They have a relatively good fit with the principles of ecosystem-based management, on themes such as participation, decentralisation and accountability. The principles have been operationalised for a wide spread of programmes and institutions. Certain principles, such as the 'rule of law' have been operationalised within Ocean Governance Indicators (see below), but altogether empirical measurement has proven complex and has often relied on expert evaluation.

Considering critiques of such an approach to evaluate marine planning, in contrast to EBM there is a lack of an agreed, definitive list of principles. Since the major assumptions behind good governance are based on theories of democracy and ethical norms, it seems less likely that global agreement will be achieved soon. There also seems to be a lack of consideration how the principles relate to one another or sustainability. There is an emphasis on process-based principles such as participation, but less consideration of how these interact with outcome-based principles such as efficiency or performance. This suggests that good governance principles are quite removed from sustainability outcomes, rather at best they focus on pre-conditions for effective marine planning or emphasise the social dimension of sustainability.

Table 2 Good Governance Principles as an approach for MSP

Good Governance Principle (UNDP)	Sub-principles	Application in MSP
Legitimacy	Participation Consensus orientation	Dialogue, Trust, Shared and owned rules
Accountability	Accountability Transparency	Stakeholder knowledge Freedom of information
Performance	Responsiveness Effectiveness and Efficiency	Competent administration Institutional capacity
Fairness	Equity Rule of Law	Distribution of costs and benefits Conflict management
Direction	Strategic Vision	Leadership Collaborative Learning

Source: After [112]

2.3 GOVERNANCE INDICES AND STANDARDS

Indicators have a long tradition of use within disciplines such as ecology and economics and for environmental regulation, but indicator sets for governance are a more recent development. From the 1990s International conferences on sustainable development made commitments to use both 'state' and 'performance' indicators [113]. At the same time, donor agencies and international organisations developed indicators of governance from programme evaluation, some of which were used to evaluate marine and coastal initiatives. Institutions such as the UNDP, World Bank and Freedom House developed these indicator sets in relation to the good governance criteria discussed above. The indicator sets have been taken-up in comparative political science to quantify governance 'performance' [114]. In this context, an indicator shows the presence or absence of a governance quality or condition. For governance purposes this is often expressed in a binary form or semi-quantitatively allowing evaluators to distinguish between partial or full compliance (see Table 3). The indicator itself may also direct attention at a broader category- for example the absence of a particular policy or type of strategy might be taken to indicate a likely poor institutional capacity. Indicators can be aggregated together into an index, which utilises a formula to express an overall property (cf 'governance performance'). Where repeated measures are taken over time, this can be used to show improvement or variation from a given baseline. Other indicator sets focus less on establishing international trends and draw more on the tradition of auditing and environmental management systems to assist organisations or collectives to monitor their progress and diagnose opportunities for improved performance. The distinctiveness of this framing of governance lies in its auditing and ranking of key components of governance. At first impressions it might seem like this approach is less distinct from any of the other approaches considered here. Although an indicators approach might draw upon other approaches to define its variables, the key distinction is the way it measures variables semi-quantitatively, or by expressing presence/absence, and claims to provide an holistic evaluation of key elements (of MSP), including a rationale used for ranking or summarising results.

The Coastal Governance Index (cf Table 3) has been produced by Economist Intelligence Unit and launched at the world ocean summit, Portugal, 2015[10]. This followed an expert led approach to making the assessment and agreeing on the index construction, drawing upon history of indicator-based approaches to marine and coastal governance [115]. It is a composite indicator set, with 43 sub-indicators in six categories used to construct overall rankings of national level governance performance. A second type of index draws upon ideas such as benchmarking in field of environmental standards. The ICES MSP quality management system [116] draws on ISO9000 standards and a range of marine quality objectives [117] to establish a series of procedures and activities for MSP within 8 major phases, from 'establishing the MSP external context' to 'monitoring & review'. The Governance Baseline Tool [118] can be distinguished from other approaches to evaluation by its emphasis on 'adaptive learning' for a wide group of stakeholders involved in implementation. This goes beyond indicators to consider the dynamics of institutions and capacity building. It is also one of the governance approaches to explicitly consider second order 'sustainability' outcomes arising from the planning process. An application of this indicator set to the MSP in UK and Norway identifies the achievement of first order and some second order outcomes [119]; whilst evaluation at the regional scale for the state of Rhode Island, US [120] identified the significance of existing institutional capacity and investment in developing an evidence base as two key success

[10] https://events.economist.com/events-conferences/americas/world-ocean-summit/

factors. Both ICES and Governance baseline indicators have explicit links to other governance approaches, especially EBM.

Table 3 Governance Indicators as an approach for MSP

Governance Indicator	US Score 2015 (%)	Rank /28 countries
1) POLICY AND INSTITUTIONAL CAPACITY	**85**	**3**
1.1) Coastal management policy and strategy	100	=1
1.2) Presence of established institution(s)	100	=1
1.3) National strategy to adapt to climate change	100	=1
1.4) Maritime Spatial Planning	75	6
1.5) Stakeholder engagement	100	=1
1.6) Extractive industries transparency	67	=8
1.7) Adoption of the United Nations Convention on the Law of the Sea (UNCLOS)	50	19
2) BUSINESS ENVIRONMENT FOR COASTAL ACTIVITIES	**86**	**4**
2.1) Ease of doing business	80	2
2.2) Corruption perception	85	7
2.3) Effectiveness of dispute resolution mechanisms	100	=1
2.4) Quality of coastal infrastructure	79	5
3) WATER QUALITY	**80**	**5**
3.1) Agency	100	=1
3.2) Regulatory standards for water pollution	65	9
3.3) Monitoring and enforcement	75	=1
4) MINERALS AND ENERGY	**86**	**=3**
4.1) Permitting and licensing	100	=1
4.2) Monitoring and enforcement	75	=1
4.3) Risk mitigation	83	=4
5) LAND	**79**	**4**
5.1) Prevalence of coastal protected areas	50	=7
5.2) Environmental impact of coastal development	100	=1
5.3) Government commitment to sustainability in coastal tourism development	67	=3
5.4) Natural disaster risk mitigation	100	=1
6) LIVING RESOURCES	**97**	**1**
6.1) Fisheries governance and management effectiveness	91	1
6.2) Protection for marine/coastal species	100	=1
6.3) Ballast water treatment	100	=1

Source: [121]

Whilst these indices remain somewhat a-theoretical, several studies draw on these or other indices to evaluate planning processes. Scott [122] explores the links between the Global Ocean Health Index[11] and New Zealand MSP, arguing performance has been affected by failure to extend area-based management beyond the territorial sea and lack of adaptive management, but positively reinforced by public engagement and legal enshrinement of precautionary principle. Collie et al. [123] conduct an evaluation based on UNESCO MSP guidelines and 3 other MSP standards to review 16 case study MSP processes. They argued that outcome evaluations were not realistic at this early stage, but that there were real challenges in moving from tokenistic to genuine participation, and that legal, financial and human resources are key preconditions for successful marine planning. Day [124] cites the importance of combined status and performance indicators in making the case for re-zoning of the Great Barrier reef.

Considering the advantages of such an approach to evaluate marine planning, the development of an index allows quantification and thereby easier tracking of progress in governance. Quantification holds out the promise of being able to statistically analyse and identify patterns which are not apparent to human intuition. Where the metrics can be agreed and there is an appropriate outcome indicator this can support comparative analysis of MSP, especially where diagnostics enables tracking relationships with relevant output and outcome indicators in environmental, social and economic domains. Indices also provide a certain level of transparency, by making it simpler to track performance. In this sense they are a communication tools for transparency as well as an analytical device.

Considering critiques of such an approach to evaluate marine planning, whilst these indicator sets identify key components and their logical precedence, they do not establish the relative (theoretical) importance of factors, nor how the quality of implementation effects outcomes[12]. Indicators are usually developed through a parsimonious approach which seeks to capture broad goals by using representative indicators. This reduces complexity but does not always lead to deepening of understanding about the context, thus being better suited to comparison rather than supporting contextual evaluation, and at worst hides poorly supported causal assumptions. Where indices do evaluate performance, there is often a lack of a specific learning mechanism- with evaluations being divorced from those conducting MSP. Thus, on their own without complementary approach such as scenario planning, there is insufficient feedback to management and planning. More problematically, indices can become a political tool which uses perverse incentives or abstract performance standards to berate practitioners, whereas the actual causes behind the success or failure of MSP may be much broader or remain unknown.

2.4 Modes of Governance (Collaborative, Networked, Adaptive, Transformative)

The Modes of governance approach has arisen to explain the characteristics of governance and ways in which governing is being done. Government, private and third sector organisations can be given, or take on, different roles and competencies as actors within designed institutional arrangements

[11] http://www.oceanhealthindex.org/

[12] Instead they rely on the assumption that conjunction between inputs and outputs shows a causal relation, or the assume that input variables are a proxy for outcomes.

[125] [126]. Based on the combinations of these, as identified from research or as postulated in principle, ideal type theories have been posited such as collaborative governance or adaptive governance (See Table 4). These ideas can be traced to earlier theories in environmental management, natural resource management, environmental geography and conservation [127] [128] [129]) which explored the effectiveness of government programmes for managing the environment. Fields such as policy studies, marine affairs and political science have undertaken research about the effectiveness of types of regulatory tools, role of the state and broader issues of democracy, globalisation and government failure [130] [131]. As in the case of all other approaches, participatory approaches are key, inasmuch as the associated literature explores the relationship between state and non-state actors in marine planning [132].

Collaborative or networked governance, emphasises working in partnership across public, private and voluntary organisations, and building consensus around issues [133] [134]. The network concept emphasises groups and roles beyond the state, whereas the collaborative concept tends to denote partnership between state and other actors (Table 4). Market-based governance [135] can be considered another kind of mode, emphasising the efficiency of financial instruments or tools such as property rights with rents, to incentivise best practice or deter unsustainable behaviour (Table 4). Such an approach implicitly recognises that marine planning is seeking to influence economic activity and investment behaviour.

Adaptive governance highlights the learning element required for effective governance in contexts of uncertainty and the need for flexible institutional arrangements to adapt to shocks whilst maintaining identity [136] [137] (Table 4). Transformative governance stresses the role of norms and wider societal change in bringing about more sustainable approaches [138]. For example, issues related to sustainable fishing or renewable energy consumption might require changes in societal norms and private finance that equate to a cultural transformation. In many ways, the idea of a strategic (single) marine plan driving transformation is inimical to this mode, as it stresses that current policy failures are likely due to the incumbent regime [139]. But planning process could be designed more or less in ways which are multi-dimensional, multi actor, or multi-level to produce significant change (Table 4). For example, informal and decentralised and formal and centralised governance approaches could prove effective at different stages of a transformative processes [140].

In effect, most marine planning systems are hybrid forms of governance [141]. Jones [142] proposes a distinctive mode of 'co-evolutionary hierarchical governance' for marine planning, balancing the role of the state and other actors. This argument is based upon the unique interconnectedness of oceanic systems, and the ability of the state to provide strategic governance and regulatory steer in maritime jurisdictions. Scarff *et al.* [143] argue that UK MSP can still interpreted as an holistic but hierarchical, state-led approach, with an emphasis on regulatory efficiency and achieving development goals. Valman *et al.* [144] review the ability of the regime for the Baltic Sea to practice adaptive governance, and find that Baltic Sea plans provide a greater opportunity to adapt and revise goals across organisations, but the regime is still hampered by weak vertical integration. Tynkkynen maps the evolution of governance from hierarchical to networked forms in the Baltic and considers the challenges of uncertainty and complexity, and importance of dynamics of trust and identity [145]. In making such characterisations, the scholars commonly make assertions about the strengths and weakness of such modes. Other more theoretical papers critique assumptions behind these modes. [146] [147].

Considering the advantages of such an approach to evaluate marine planning, modes of governance can provide a theoretical grounding or ethos for particular formulations of marine planning. The modes present a way of summarising and testing the relationship between the design of governance and its outcomes, across diverse contexts. They encourage learning about the mix of tools and can

also be used to interrogate elements of Good Governance or EBM, such as the collaborative ambition or adaptive learning within the MSP process.

Considering critiques of such an approach to evaluate marine planning, it has been argued that the modes of governance are not mutually exclusive, and that marine planning might implement aspects of many different modes in practice. There are also challenges about how such modes might be implemented in marine planning, and what scope there is for deliberate design of such systems. The level of abstraction draws attention away from the administrative and political capacities required to implement the modes, and allows the modes to remain somewhat idealistic.

Table 4 Modes of Governance as an approach for MSP

Mode	(Selected) Principles	Example Application in MSP	Example Outcomes for MSP
COLLABORATIVE/ NETWORKED	Government oversight and service delivery	High level marine policy	Policy coherence and strategic direction
	Multi-stakeholder partnerships	Marine Planning Partnerships	Legal mandate, business investment and civil society innovation
	Co-operation of state/non-state actors in implementation	New networks for policy delivery	More effective implementation of policy
	Dense forms of organisational relationships	Advocacy networks to influence MSP	Stronger collective action
MARKET	Price incentives to change behaviour	• Subsidies • Payment for ecosystem services	• Expanded sustainable technologies (renewables) • New revenue streams
	Formal rules to enforce investment	• Environmental liability • Environmental controls- habitat banking	• Management of hazards and pollution risks. • No net loss of habitats.
	Voluntary agreements and informal cooperation	• Partnership financing	• Public-private-voluntary collaboration
	Reliable information to support investor and consumer behaviour	• Ecosystem services valuation • Certification schemes	• Information on ecosystem service trade-offs • Certified sustainable fisheries
ADAPTIVE	Polycentric, cross-scale governance, integration and power sharing	Regional or local marine planning partnerships	Devolved decision-making
	Deliberation, Participation and Collaboration.	Data sharing in plan making process	Increased mutual understanding
	Learning, Innovation and Adaptability	Formal plan review process in iterative plan cycle	Greater reflexivity amongst planning practitioners
	Self organisation and emergent behaviour	Informal networks	Shadow networks enable collaboration
TRANSFORMATIVE	Enabling radical systemic shifts in values, behaviour or regimes	Novel problem framing	New narratives for ocean sustainability
	Leadership, intermediaries and capacity for experimentation	Initiation of transition experiments	Staged transitions to decarbonise the economy through marine renewables
	Interaction of formal institutions and bottom up change	Investment in participatory planning process	MSP as basis for legitimate shift in status quo
	Encouraging innovation and creative capacity	Scenario planning and visioning	Envisioning alternative futures

Sources: Collaborative-Networked [133, 148]; Adaptive [149]Transformative [138], and original

2.5 MULTI-LEVEL GOVERNANCE

Multi-level governance approaches have been inspired by thinking from contemporary social theory. Social theory is an umbrella term for traditions in social science which seek to understand how society operates, a broad set of ideas which form a paradigm for understanding the world. More specifically, MLG draws upon insights in political science and international relations. Scholarship in these fields commonly considers how states act to deal with common pool resource management issues, and how territorial governance is extended in the international sphere, of which the oceans, often divided between different jurisdictions, are a prime example. A recent trend in the governance of these common spaces is the proliferation of international regimes, such as those for the regional seas. As international regimes have developed, states and other kinds of actors have developed networks which act across scales. It can be argued that MLG governance approaches reflect a unique phase we have reached in the world history of globalisation.

A core insight of MLG is that politics and power play key a role in governing the oceans, which is otherwise neglected in other forms of analysis. In order to understand what happens and what will happen, there is a need to examine the internal logic of the governing system [150] [151] [152]. Such analyses draw on polycentric models to extend thinking about scales of governance, hence 'multi-level' [153] (Table 5). Often scale is conceived in terms of fixed territorial units, with power cascading hierarchically down from the international scale. In practice, it is possible that processes of regional marine planning might influence national or international planning, or that networks of actors have horizontal influence across multiple scales and sites. Consequently, the power that a spatial plan has to take effect and be implemented, cannot be separated from the mutual power relations between the organisations and actors that are its subject (in other words, it is assumed a plan does not have power of its own that extends in time and across space).

Questions of power lead to consideration of politics. Sometimes this is achieved in research through a political ecology framework which considers the inter-relationships between environmental and socio-political processes. Such a approach is able to theorise and evaluate marine planning, for example to highlight: the scalar politics and tensions between community scale management and broader spatial planning approaches [154]; whether planning processes embed stakeholders operating at different scales through cross-scale interlinkages [155]; the invisibility of certain stakeholders or sectors in the planning process, because of the nature of what counts as evidence in the planning process [156]; the challenge for planning systems to deal with trade-offs between marine conservation and development, especially where the institutional arrangements do not account for the politics of uneven access to resources [157] (cf Table 5). A key consideration of such analyses is which social groups stand to benefit or lose out in particular formulations of marine planning.

Another stream of research draws on political economy and political science to take a more technical approach to analyse decision-making through the lens of multi-level governance [158]. The EU has been a focus for this kind of analysis because of its role as a supranational institution spanning scales with a framework to promote MSP. Such analyses consider mutual adjustments between different scales within marine planning system, for example: ways in which regionalisation has enabled better cooperation and integration for MSP [159]; opportunities for institution building and greater reflexivity across different jurisdictions [160]; competing interpretations as to what scale MSP should be conducted within sea area [161]; or how geopolitical factors (such as desire to extend control further offshore, or competition between different levels of administration) impinge on the design of planning systems [162] (cf Table 5).

Questions of power also lead to consideration of values, and the role dominant value sets which shape the governance system. Ritchie provides an analysis of how the design of the UK marine planning system was influenced by a new labour government rhetoric of state intervention for regional

sustainability and smarter regulation [163]. A rapidly growing body of literature has explored the logic of 'blue growth' and the centrality of this discourse to marine planning regimes [164] [165]. Questions of power also lead to consideration of agency, inasmuch as innovation in marine planning maybe achieved through individual leadership or through the active formation of informal networks [166]. Whilst not all of these approaches invoke multi-level governance nor particular social theories, the notion of multiple actors at different scales is implicit in the consideration of why certain configurations of planning to come exist, and how planning works out.

Considering the advantages of such an approach to evaluate marine planning, MLG takes account of the reality of 'big P' politics (the contested processes of formal government and administration) and 'small P' politics (micropolitics of everyday decision-making), and how interest groups and coalitions seek to steer the marine planning process. In contrast to some other approaches, which focus on linear processes and rational behaviour, MLG reveals the iterative nature of the policy process, and has high explanatory power, especially in western contexts which are characterised by MLG. The framing of MLG is also relevant for increasing transnational contexts, where organisations are seeking to implement cross-border planning.

Considering critiques of such an approach to evaluate marine planning, MLG seems to be productive in explaining why marine planning is taking various forms, but it seems to offer less practical or substantive guidance on how to implement marine planning. It could be argued that the social justice problems identified by these analyses do have some implications for design principles, but MLG assumptions about the politicisation of planning mean that this is rarely considered as a practical matter. The level of abstraction taken by MLG can be considered both an advantage and disadvantage, since it is concerned with general patterns of institutional arrangements it can explore the design of the planning system as a whole, but it provides little guidance for the detailed process plan-making compared with the approach of governance indicators and standards, or systematic planning which suggests practical steps.

Table 5 Multi-level Governance approach for MSP

Level	Example Actors	Example Processes	MLG Analytic
Global	United Nations	Creation of political structures Political mobilisation Policy making processes Processes which shape capacity, political struggles and political will	• Interactions between scales • Power relations between actors • Agency of key actors • Key discourses • Politics of access to resources and influence on decisions • (Geo)political influences/values
International (Multilateral)	International Council on the Exploration of the Seas		
Supranational	European Union		
Regional	OSPAR Convention for North East Atlantic		
National	State government		
Sub-national Regional	Regional Planning Body		
Local/municipal	Local government		

Source: original.

2.6 OTHER APPROACHES-

The above traditions of research are evolving, and new approaches are emerging. A parallel debate has been conducted on frameworks for evaluating Integrated Coastal Management [115, 167-172].

Other governance approaches may be relevant to the evaluation of marine planning which are not included in the categorisation above. In this final section of the body of the paper, we briefly consider a range of approaches emerging in the marine planning literature. Policy implementation frameworks trace the ways in which plan policies have been taken forward, and analyse the importance of factors such as political leadership in the different phases of design and implementation [101, 102]. Implementation may be considered as distinct from design of institutions, and sometimes failures in implementation arise from the lack of sensitivity in applying frameworks to a given context. Notions of institutional fit and interplay [68] [173] frame assessment on the level of match between ecosystem dynamics and planning regimes, as well as fit in interactions between institutional players. A post-structuralist approach allows deconstruction of political claims and how they have come to be dominant in marine planning [174]. This has been described this as a change in analytical perspective from governance to governmentality. A 'Relational' approach planning seeks to enable consideration of how space is socially constructed and open to the complex interactions of human and non-human actors within the unique marine environment [175]. A 'performative' approach engages with how planning narratives and political inscription assemble people, places and technologies for the oceans, and whether these 'restrict' or 'expand' the capacities of actors [176]. Radical planning is been put forward as an approach to consider power relations. Some argue that this idea can move MSP from a technocratic approach which serves elites towards consideration of distributional justice or social outcomes [177]. Others question assumptions of how marine planning has been framed, considering notions of 'participation', 'integration' and 'balancing' as fundamentally obscuring the political nature of planning as a site for conflict and contest [178]. In many post-structuralist framings it is unclear how discourses can be judged as better or worse, rather we are left with the analysis that some are 'dominant' and certain groups stand to lose from this.

3 COMPARATIVE ANALYSIS

In this section we seek to summarise some of the distinctive aspects of each approach and compare their strengths and weaknesses.

Although the five approaches have been presented as distinct, elements can and do overlap in 'real world' practice. Practical guidelines on MSP such as the ICES MSP quality management system [116] and UNESCO Guidelines for evaluating MSP [179] draw on more than one of these approaches. Other combinations might be imagined. Good governance for example could be viewed from a perspective of multi-level governance, or modes of governance might employ governance indicators. The point of this analysis, however, is to review each approach as an analytical lens, or way of looking at MSP as a specific form of spatial governance. Each approach seems to have distinctive focus: EBM focuses on the principles of governance, Good governance on character of institutions, Governance Indices on core components of governance, Modes on the characteristics of governance, Multi-level Governance on interactions between entities of governance. Other approaches focus on the plan making process, controlling discourses, power dynamics, fit and interplay.

For the Ecosystem approach, evidence from the literature arguably shows an emerging consensus on this approach. This is confirmed by MSP practice, where there is broad reference to the ecosystem approach in existing and emerging plans or national and international MSP frameworks. As a approach, EBM can be said to focus on principles of governance. The principles are well grounded in over two decades of experience and practice. But these principles have been generated inductively, rather than tested abductively in the oceans. There are many examples of studies which test whether programmes have implemented EBM, but too few studies which evaluate whether the implementation of EBM principles led, on balance, to the achievement of sustainability outcomes. Conceptually, this approach is therefore some way from being a theory with propositions. Ecosystem based management seems to offer the broadest rationale for the design of components of a marine planning system, because its principles are predicated on the social character of governance and the character of (marine) environmental space- therefore to design marine planning with these principles is to design it to fit with its context. The EA paradigm is also most clearly focused on sustainability outcomes, compared for instance with Modes of governance which offer a choice between for example, hierarchical, adaptative or other modes governance, and the possibility of considering the advantages and disadvantages associated with each. Taking the 12 Malawi Principles as a proxy of the ecosystem approach, and the number of it's principles which refer to ecosystem functioning, there is a strong emphasis on sustainability. In contrast, the single principle on 'objectives being a matter of social choice' offers little guidance on how institutions might be designed, compared to the complexity of theories like the adaptive mode of governance.

The good governance paradigm is more concerned with the character of institutions and provides core ethical arguments for the design of processes and institutions within marine planning. However, there is less agreement about the nature of these principles and it is challenging to overcome the argument that these are simply 'normative' positions based upon beliefs about how a democratic society should function, rather than 'instrumental' values which justify substantive outcomes for sustainability. Nevertheless, they potentially constitute important metagovernance principles for MSP and could strengthen elements that contribute to social sustainability in MSP, such as enhancing transparency or equal participation.

Governance indicators and standards encourage quantification and systematization of various components of governance. These may prove beneficial for MSP in terms of performance evaluation,

explicit tracking of inputs with outputs and outcomes; but quantifying governance comes with a number of challenges: simplification; problematic assumptions related to cause-effect relationships; and data-driven measurement (of individual indicators and index weighting and scoring). Nevertheless, an emphasis on indicators can provide a helpful focus on end goals and outcomes which are somewhat lacking in other approaches. Furthermore, where coupled with a reflective learning element, this can embed evaluation within the marine planning system, emphasising the cyclical and adaptive nature of marine planning.

In considering the characteristics of governance, modes of governance open up a debate about the relative success of different designs for marine planning and the relative roles of government, markets, civil society and social movements. Some modes are better represented in Marine Planning than others, and it remains to be seen whether this is because of a particular phase in the history of the development of marine planning or whether the nature of ocean space influences what is possible. Existing legal frameworks (such as rules for participation) and planning traditions may predispose a country or region towards a particular mode of governance in MSP; there is also institutional path dependency which may restrict the ability to choose between modes of governance once a course has been set. Nevertheless, modes get to the central point about effectiveness of different kinds of institutional arrangements for marine planning, and go some way beyond technocentric approaches to MSP, most frequently presented as a rational synoptic model in technical marine planning guidance.

Multi-level governance theory brings politics, values and power into the analysis. In considering the various interactions between entities of governance, it shifts the focus from planning and regulation, to the contested nature of plan making across scales and the resources and activities being governed. This seems to best describe how marine planning works in the real world, especially in Europe where regional seas have become an important arena for negotiating a multi-level approach to plan-making.

None of the above approaches truly originate within MSP, and all clearly point beyond Marine Planning. Viewing MSP from a governance perspective, reveals that it is one amongst many tools relevant to the governance of the marine environment. One critique could be that a governance framing obscures or neglects practical planning, management and regulation. Yet practical implementation will be a relevant consideration whichever governance approach is chosen for MSP. As mentioned earlier, there is a continued need for research which assesses the operational aspects of planning. A number of techniques have been designed to evaluate the plan making process [180] [179] and its impacts [181]. But questions about whether a Marine Spatial Planning process will, for example, encourage sustainable small-scale fishing, will need to attend to institutional arrangements, procedural values and political framings inherent in the planning system, which can be expounded using a governance perspective. Indeed, these issues are often fundamental points of contention and debate.

4 CONCLUSIONS

It is often claimed that marine spatial planning is a key tool for the sustainability of the oceans[13]. Yet critiques of planning argue that planning is a process seeking a substantive basis. One way to

[13] Maritime Spatial Directive 2014/89/EU preamble 14, 22, article 25; Helcom (2016) Guideline for the implementation of ecosystem-based approach in MSP in the Baltic Sea area; UNEP/MAP (2013) Roadmap for

circumvent this challenge is to theorise planning as a form of governance, where governance constrains or enables certain types of plan making and planning outcomes [70]. Yet this strategy presents a new conundrum- how should researchers distinguish between the multiple approaches which purport to provide a theory of governance?

One way of comparing the above approaches is to see them as essentially complementary. In this reading, each governance approach reveals a different kind of evidence about marine planning. For example, the good governance approach focuses on the quality of institutions- any findings would have implications for meta-governance principles for MSP, the checks and balances on how decisions are made. The answer to the question of which theoretical approach offers the most traction, in this case, would then depend on which question is being asked about MSP. The choice of approach can depend on a researcher's interest in a particular aspect of MSP.

Another way of understanding the above approaches is to see them as essentially antagonistic. This reading is supported by an understanding of the research philosophies which underlie each of the approaches, and the logical contradictions which they entail. For example, EBM, Modes of Governance, Policy implementation frameworks, and Governance Indices rely on cross-contextual lesson drawing, comparative analysis, or other forms of empirical theory building. In contrast, Good Governance, Multi-level Governance, and Relational Governance investigate realm of values through more pluralistic or interpretive approaches, including political ecology, assemblage thinking or genealogical deconstruction.

At the root of this antagonism, are questions about sound scholarship and the philosophy of social scientific research. Making a very broad categorisation, approaches which attend to politics and power arguably reveal more of why marine planning fails to achieve sustainability outcomes, or how marine planning regimes become structured (for example, the blue growth agenda). One might argue that in doing so such studies make social consensus the yardstick of what is right, and substitute coercion about 'norms', instead of knowledge arising out of experience, as the arbiter of what should happen in marine planning. Approaches which emphasise more traditional social scientific methods seek to understand the regularities of how marine planning works out, and build modest (or grand) theories to inform planning, consisting of a series of 'if-then' premises. One might argue that such approaches depend on a highly instrumental notion of rationality, risk being silent about autocratic approaches, and tend to overstate regularities, at the expense of understanding context.

At the present stage in the history of social sciences and sustainability science, final arbitration between these approaches seems far off. However, it does not follow that all approaches are equally valid or productive. This entails that researchers justify their first assumptions. The answer to which governance approach offers the most traction for evaluating MSP, in this case, would depend upon some broader philosophical positions about knowledge creation which a researcher finds most justified.

Yet another way of reading the above five approaches is to see them as potentially dialogic. In this reading the governance approaches might learn from one another's findings, and have the potential to move towards some kind of synthesis, or maybe simply refine or even refute a given approach. The answer to which governance approach offers the most traction for evaluating MSP, in this case, should

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implementing ecosystem based approach; US National Ocean Council (2013) Marine Planning Handbook. p.12-13; Secretariat of the Convention on Biodiversity (2012) Marine Spatial Planning in the context of the Convention on Biodiversity. p.16

be judged by the performance of these approaches to give a deeper understanding of what MSP achieves and how it does this. In our analysis we have offered a critique of the strengths and weaknesses of each approach. However, we have refrained from recommending a single approach or synthesis, as we believe there is a need for greater mutual dialogue and debate across the literature, and there is potential for a new synthesis to emerge. We observed that Ecosystem based management is the dominant framework in current practice. By comparing the productivity of governance approaches [182] [183] [184], theory can be mobilised to inform practicable marine planning. Doing such comparison provokes questions amongst researchers which should help relate their studies to practice: Is this framework applicable to the domain of the oceans? Why are proponents are arguing for a certain approach to marine planning? Can we provide evidence about what arrangements tend to lead to sustainability? How can we make progress in the challenge of understanding what constitutes 'success' or 'good' governance?

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