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Oceans of opportunity or rough seas? What does the future hold for developments in European marine policy?

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The management of European seas is undergoing a process of major reform. In the past, oceans and coastal policy has traditionally evolved in a fragmented and uncoordinated manner, developed by different sector-based agencies and arms of government with competing aims and objectives. Recently, the call for integrated and ecosystem-based approaches has driven the conceptualization of a new approach. At the scale of Europe through the Integrated Maritime Policy and Marine Strategy Framework Directive and in national jurisdictions such as the Marine and Coastal Access Act in the United Kingdom, ecosystem-based planning is becoming the norm. There are major challenges to this process and this paper explores, in particular, the opportunities inherent in building truly integrated approaches that cross different sectors of activity, integrate across scales, incorporate public involvement and build a sense of oceans citizenship.

Keywords: marine policy; policy integration; regional seas

1. Introduction

On 1 November 1967, Arvid Pardoe made a ground-breaking speech to the United Nations where the oceans were envisioned as a means to achieve international peace and cooperation. The concept of *Pacem in Maribus* or 'Peace in the Oceans' was born. Central to this vision was the conservation of marine environments for the benefit of future generations [1]. The vision of the oceans as the 'common heritage of mankind' [2] was influential on the negotiations of the 3rd United Nations Conference on the Law of the Sea from 1973 to 1982. With the actions of Pardoe and contemporaries such as Borgese [1] the conference shifted towards an emphasis on cooperation that enabled all nations a seat at the table in determining the future of the sea. The result was the 1982 United Nations Convention on the Law of the Sea (UNCLOS), ratified by 161 states and one of the world's most successful treaties.

Central to the discussion on the governance of the oceans was the concept that ocean issues are interconnected [3]. The Law of the Sea sets the vision for cooperative management of ocean space. UNCLOS sets in place a framework

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for cooperation and a number of legal principles that guide states such as the Territorial Sea or the Exclusive Economic Zone. UNCLOS left the technical management specifics of stewardship to individual nations. The gaps were elaborated in global conventions and agreements such as the Rio Earth Summit in 1992 (and the Johannesburg summit in 2002), the Convention of Biological Diversity, the UN Fish Stocks Agreement and support from technical agencies such as the FAO, UNEP and UNESCO. As a result, over the past 20 years nations have been on a trajectory of developing the scientific and technical expertise to implement integrated oceans management.

If ocean issues are interrelated and the global community has the objective of cooperation, is the next step the development of the scientific, technical and policy capacity for integrated ocean management? In 2012, the 'integration experiment' continues with several reforms attempting to integrate across sectors and scales. The first question, naturally, is why should we integrate? The second is what are we attempting to integrate? While integration implies 'coordination' or the 'act of combining into an integral whole' in practice, in the real world of maritime development and marine conservation, it raises a host of complexities. This paper explores the complexities that underlie integrated oceans management in the European and UK context and highlights the implicit difficulties and opportunities inherent in delivering an ecosystem approach (EA).

2. Integration and marine governance

Integration has a place among the principles of good governance. As elaborated by Pierre & Peters [4], the concept of governance contains four elements that exist within an iterative cycle:

— articulating a common set of priorities and defining goals;
— coherence and coordination;
— steering, application of policy instruments, implementation; and
— accountability and evaluation.

Environmental governance over the past 20 years has been, on the whole, more fractured than integrated. This is not by any means limited to the marine realm, as policy across many environmental jurisdictions is split across institutions with often competing policy objectives. However, in recent years more attention has been given to integration and the articulation of common goals.

At the local scale, integrated coastal zone management (ICZM) has promoted integrated activity between users for decades. Coastal zones are highly integrated systems with interacting biophysical and social components at different scales [5]. Authors such as Olsen [6] argue that the challenge for coastal zone management is one of governance and long-term learning is the key to success as opposed to improved technical capability. The success of ICZM has been in raising profile and building cooperation in the coastal zone, but it has been arguably hampered by a lack of universal coverage, a reliance on voluntary participation and a minimal legislative backing. When moving up to higher scales, a feature of governance is the often competing views on policy between governments, for example, the variety of objectives and processes surrounding the management of different

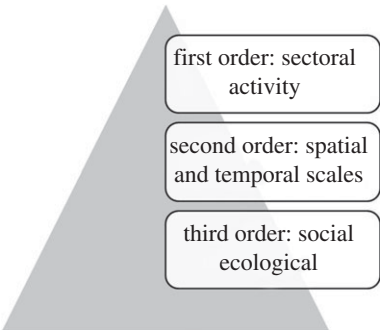

Figure 1. Levels of integration to consider in marine governance.

sectors and issues within regional seas such as the North Sea. In his enlightened paper, Boesch [7] noted that while science and governance were more integrated at the regional scale, environmental governance in the North Sea was traditionally dominated by politics and the self-interest of states. At a global scale, the deadlock in climate policy that is driven by dissenting opinions of policy solutions continues to undermine meaningful action on climate change by the international community. In the case of oceans, policy has generally evolved in a fragmented manner, developed by different institutions and agencies with different interests, competing objectives, out of sync timetables and a low political profile.

In many instances, decisions in one sector can have an impact on another through 'spillovers'. Policy inertia can evolve as multiple small decisions are made but the big decisions on sweeping reform are avoided due to the fractured and contested nature of the system. Haward & Vince [8] note that the 'tyranny of small decisions' can negatively impact marine systems where a myriad of cumulative impacts such as coastal infrastructure development, diffuse pollution, marine litter, destructive fisheries techniques and poor conservation outcomes can reduce the health of a system. This piecemeal approach has resulted in increasing calls for, and exploration of, different types of integration as a response to improve marine system governance. Whether the concept is called integrated oceans management, oceans governance, ICZM, holistic marine policy, marine planning or a number of other derivatives, the common factor is that, at least on paper, integration is a desired objective that seeks to improve policy and management effectiveness across different scales. Figure 1 highlights a typology of integration based on sector activity, spatial and temporal scales, and the integration of environmental, economic and social dimensions under the EA.

(*a*) *Sectoral integration* (*first order*)

In many European coastal waters, there is increasing use of marine space for economic development and conservation. This is the operational end of integration activity—getting maritime industries and users working together, building collaborations and identifying means of reducing conflict particularly in terms of spatial access. It implies building on the existing sector approach rather than replacing it and focusing on the articulation of common goals and policy coordination mechanisms. This may include identification of competing and

complementary users of marine space, exploration of cohabitation of industries (e.g. wind turbines and marine protected areas), and spatial and temporal management of maritime activity. While there is a clear shift occurring from the isolated management of traditional sectors such as fishing or oil and gas to more collaborative approaches under the umbrella of marine spatial planning, this is not without political challenge from traditional quarters as explicit or implicit property rights (to the sea) are spread across different actors. While it is early days for marine spatial planning, one of the tests for success will be the extent to which conflict can be reduced and multi-sector use of marine resources and spaces is harmonized within ecological carrying capacity.

(*b*) *Spatial and temporal integration* (*second order*)

Agardy [9] notes that most regional and global marine management effort has not been coordinated—it has occurred in a haphazard fashion between institutions across different geographical contexts. Two broad patterns emerge. The first is that large regional seas are often lacking in appropriate management instruments or membership of existing institutions may be 'patchy' or selective. An example is the Black Sea where membership and effectiveness of institutions are heterogeneous across differing regional political contexts (i.e. a mix of EU member countries such as Romania and Bulgaria and states including Turkey and Russia). The other pattern occurs when a number of instruments exist but are uncoordinated. In the northeast Atlantic, a range of institutions has evolved over time to manage different uses of the sea, e.g. the North East Fisheries Commission and OSPAR (Convention for the Protection of the Marine Environment of the Northeast Atlantic). While these regimes do not comprehensively integrate their objectives, there is emerging international effort to coordinate via the development of Memorandums of Understanding and sharing of expertise [10].

Scaling has long been recognized as a problem in marine governance. Often the nature of the problems and their solutions occur at different scales; for example, local fisheries impacts may occur as a result of larger global patterns of consumption and market preference (e.g. shark fins) or diffuse pollution (e.g. litter) from individuals, regions and countries can have an impact on a receiving coastal system, while management is spread across several jurisdictions. Often the drivers affecting marine space are large scale, e.g. climate change or social preferences, while the responses are limited to multiple small scales out of step with the driver (climate change being a case in point). Temporal scales also affect governance with different processes occurring at different speeds within and between institutions, often because of the nature of the political process and short-term decision making or internal pressures to pursue different agendas. Often new areas of policy such as marine spatial planning or protected areas can take decades to mature.

Spatial and temporal integration requires understanding the 'cogs and levers' that drive action on marine policy issues at different scales and across issues and institutions. Costanza *et al.* [11] identify in the Lisbon Principles (Principle 2) that scale matching is a key element of oceans governance. The appropriate scale will be found when relevant information and management actions can be deployed quickly and effectively across jurisdictional boundaries. In terms of vertical relationships between governments, e.g. from EU institutions to national

governments to devolved authorities and to local authorities, the relationships are well established concerning the flow of information, legal responsibility and policy implementation—particularly around single issues. However, it is the relationships *within* government bodies, or horizontal fragmentation, that raise challenges for integration. Haward & Vince [8, p. 24] refer to the concept of 'rods of iron' and 'threads of gossamer' when referring to vertical and horizontal relationships, with the weaker set of relationships between agencies of the same government. The authors note that gaining agreement within government agencies with competing and sector-driven views on the marine domain may be more difficult than finding agreements between governments at different scales on single issues such as marine protection. This is because in horizontal governance, the absence of a clear policy leadership can be undermined by agency competition and a focus on narrow and 'safe' agendas.

(*c*) *Social–ecological integration* (*third order*)

The third tier of integration deals with a more conceptual consideration of social–ecological systems. Marine social–ecological systems contain both human and natural sub-systems, with constant interactions and feedbacks creating a dynamic system in its complexity and linkages. Management systems and processes have developed along a linear and fragmented path with a focus on short termism, which has in turn contributed in part to a decline of marine systems. The language of integration, coordination and cooperation comes under the banner of the EA. The EA increasingly attempts to drive integrated approaches between sectors, between institutions and at a conceptual level of social and ecological systems.

During the period 2001–2005, a Millennium Ecosystem Assessment was undertaken at a global scale to assess the consequences of changing ecosystems on human well-being. The study found that 60 per cent of the ecosystem services needed to support life including fresh water, fisheries and climate regulation are being degraded or used unsustainably [12]. Since this assessment emphasis has been placed on developing the EA as a management technique both within sectors such as fisheries [13] and also as an approach to environmental governance. The EA is a resource planning and management approach that integrates the connections between land, air and water and all living things, including people, their activities and institutions [14,15]. Integration is at the heart of the concept, and while there is no universally accepted definition of an EA, certain characteristics of this approach are established including a multi-sectoral focus and recognition that human and ecological systems are coupled [16]. It sees people as a component of the ecosystem—not only as a driver of impacts but also as a source of solutions. The approach stemmed from the UN Convention on Biological Diversity (CBD) and is the main tool to help meet and balance its objectives—conservation, sustainable use and equitable sharing of the benefits arising from the use of common resources. The CBD sets out the EA using 12 principles commonly known as the Malawi Principles (table 1).

The principles can be considered a road map for improving governance and integrating new issues into management, including social concerns, transboundary effects, new forms of knowledge, valuation and ecosystem integrity. Despite the attractiveness of the concept there is little hard information on how the

Table 1. The 12 principles of the ecosystem approach [17].

principle	description
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: (i) reduce those market distortions that adversely affect biological diversity; (ii) align incentives to promote biodiversity conservation and sustainable use; and (iii) 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 (EA)
6	ecosystems must be managed within the limits of their functioning
7	the EA 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
10	the EA should seek the appropriate balance between, and integration of, conservation and use of biological diversity
11	the EA should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices
12	the EA should involve all relevant sectors of society and scientific disciplines

approach should be put into practice. It was recognized during its development that no single technique exists to implement the approach and that this will need to be tailored to individual circumstances. However, despite its difficulty in implementation, international consensus is building around the application of the approach, and will form a cornerstone of future marine policy. This paper explores some of the consequences within the European and the UK context.

3. The European dimension: implementing an ecosystem approach through member states and regional seas

European marine policy is undergoing a number of reforms aimed at building integrated approaches to oceans management. The institutional architecture for oceans governance is evolving through the development of Integrated Maritime Policy (IMP), the Marine Strategy Framework Directive (MSFD) and the interplay between existing and new instruments and the regional seas conventions. While these are significant reforms for member states, their success in many ways will be based on improved cooperation between member states and between member states and external states to the EU. A true EA to the management of the marine environment must set its boundaries at the appropriate scales, and the activities and industries occurring within the catchments and coasts of Europe's regional seas must also be managed to achieve agreed policy objectives.

The European IMP [18] recognizes that 'the seas are Europe's lifeblood' and the oceans play a vital role both to the economy and to the broader well-being of Europe and its citizens. The policy is an attempt to address the fact that maritime activities are interrelated and that a strategy for their integrated management is required. The first major instrument for the implementation of the IMP is the MSFD (EU 2008) with its aim of 'maintaining biodiversity and providing diverse and dynamic oceans and seas which are clean, healthy and productive'. The directive sets out a process whereby EU member states must achieve 'Good Environmental Status' by 2020 marking the end of the first cycle of an adaptive process. To achieve this status, member states must establish environmental targets for a suite of 11 diverse environmental descriptors and the directive stresses the importance of the EA.

Implementation of the IMP in general and the MSFD in particular poses a major challenge both scientifically and in terms of management. At its most radical, the EA might be seen as a shift away from dependence on economic growth to a more self-sufficient approach and the practice of 'hard sustainability'. In practice, under the MSFD, the approach will most probably reflect a gradual process towards a more integrated management of environmental problems in the marine environment. The 11 descriptors of good environmental status reflect a multi-sectoral focus covering elements such as biodiversity and non-indigenous species, food web structure, eutrophication, sea-floor integrity and fisheries as well as contaminants, litter and energy and noise. There is a sound scientific basis for target setting for some descriptors; for example, the Water Framework Directive [19] has generated considerable understanding of eutrophication in many member states. However, for other descriptors, particularly for energy and noise, considerable scientific research will be required before reliable environmental targets can be set.

A challenge for European marine policy in implementation of the MSFD may be the inclusion of ecosystem services into decision making. The initial assessment of environmental status to be completed by member states by July 2012 requires an economic and social analysis as well as an assessment of the current status of the environmental descriptors mentioned above. Promising work is being explored in terms of deploying a range of new and traditional assessment methodologies to support MSFD [20] but these are yet to be tried in practice and wholesale across all member states. Capacity for implementation and supporting data [21] may be real obstacles for progress but studies are emerging that reveal the broad social views of the public towards the oceans and the social acceptability of management measures such as marine protected areas and spatial planning [22]. Optimistically, new expertise is emerging through a range of large-scale research programmes on ecosystem service valuation. For example, in the UK, the Valuing Nature Network is advancing a number of assessment methods across coastal and marine ecosystems (see http://www.valuing-nature.net). Assessments must not only cover a static snapshot of potential costs and benefits but also must account for the nonlinear feedbacks of the social ecological system and make explicit any trade-offs.

In addition to the wicked problems [23] of setting a vision for the balance between European environmental and economic concerns, management of Europe's regional seas is beset by practical challenges concerning cooperation. Integrated management of the marine environment and maritime sectors requires

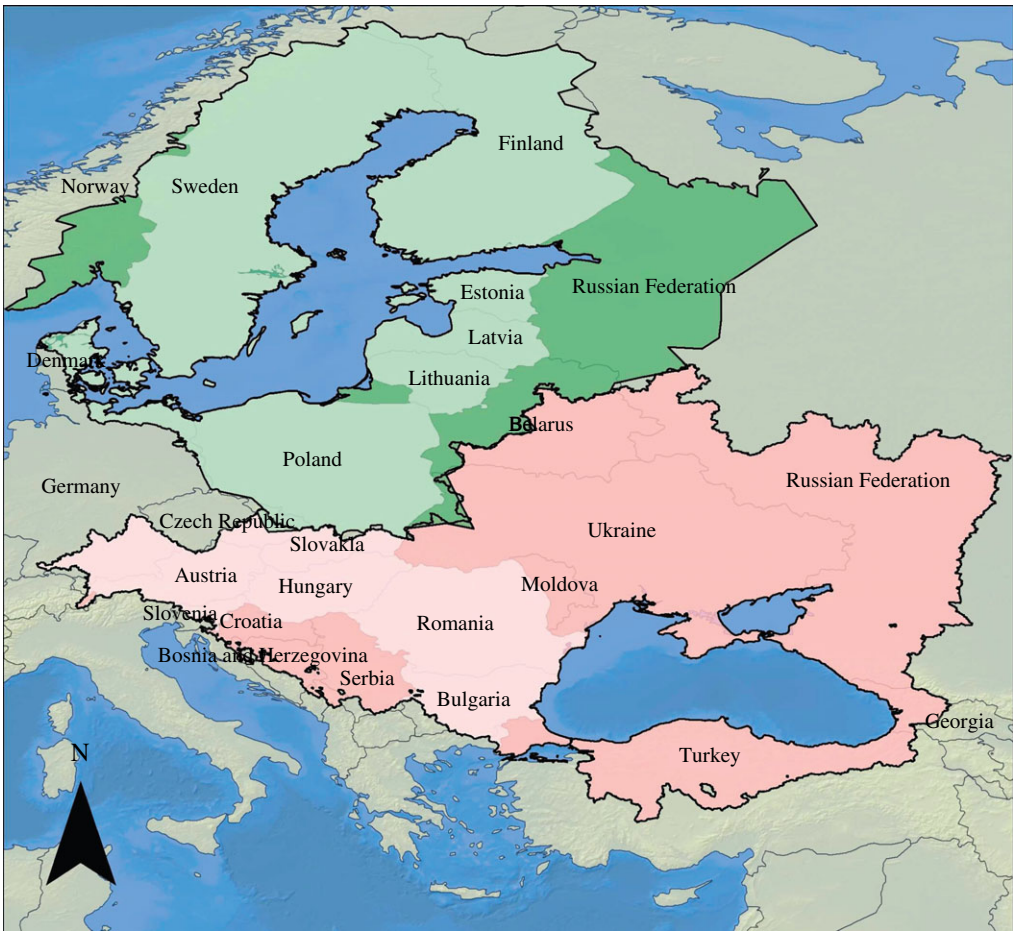

Figure 2. Catchments of the Baltic Sea (green) and Black Sea (red). The paler shades indicate the areas under EU jurisdiction. Produced by T. O'Higgins, FP7 KNOWSEAS project. (Online version in colour.)

regional sea-wide cooperation as well as cooperation with non-EU nations. While the MSFD mandates the use of existing regional seas conventions to ensure coordination (e.g. OSPAR) the regional agreements governing each of Europe's seas vary in their remit, their history and their effectiveness and to some degree reflect regional economic conditions as well as cultural heterogeneity. Below, we contrast the regional seas agreements in the Baltic Sea and Black Sea to illustrate the unique regional complexities faced in implementing the IMP and the MSFD.

Figure 2 illustrates the Baltic Sea and Black Sea catchments and nation states. In the Baltic, the major part of the catchment is under the jurisdiction of the EU, with the Russian Federation being the single major non-EU entity. All coastal states in the Baltic are signatories of the Helsinki convention (HELCOM), perhaps the most effective of the regional seas agreements. Signed in 1974 and entering into force in 1980 with the aim of reducing eutrophication in the Baltic Sea, HELCOM

works to reduce pollution through regional cooperation between the Baltic states including setting of the policy agenda and environmental recommendations as well as coordinating the regional response to environmental threats. The current environmental programme of HELCOM, the Baltic Sea Action Plan (BSAP), is aligned with the goals of the MSFD and has expanded the expertise of HELCOM beyond its traditional focus on eutrophication towards a more holistic approach including an increased component of fisheries and biodiversity [24]. While HELCOM has managed to attain environmental targets, it is not an executive body with the power to carry out or enforce actions. In order to expedite the environmental goals of HELCOM, the Baltic Sea Action Group (BSAG) was founded in 2008 with the aim of delivering actions to improve environmental quality in the Baltic and achieve the regionally agreed goals of HELCOM and its BSAP. The BSAG distributes, facilitates and coordinates financing for actions to improve the environmental status of the Baltic Sea. BSAG organized the first Baltic Sea Action Summit in Helsinki in 2010 gathering national leaders, companies and interest groups and soliciting commitments for actions to help achieve the goals of the BSAP.

By contrast with the Baltic Sea, EU jurisdiction in the Black Sea covers only a minor part (confined largely to the Danube river basin). Unlike in the Baltic, there are several major non-EU Black Sea states with little political unity. Political tensions still exist between the Russian Federation and the former Soviet states of Georgia and Ukraine and there is little history of international cooperation for environmental management of the Black Sea. A number of sector arrangements for environmental management are currently in existence. Black Sea fisheries are managed at regional level under the General Fisheries Council of the Mediterranean (GFCM), a cooperative agreement established by the UN FAO in 1949. The role of the GFCM is to promote the development, conservation, rational management and best utilization of living marine resources. This is to be achieved through soft law approaches including recommendations. Though the GFCM is considered the major fisheries management body responsible for the Black Sea [25], of the six Black Sea states only Turkey, Bulgaria and Romania are members. A subsequent UN convention on fishing in the Black Sea (adopted in Sofia in 1959) was ratified by the USSR in cooperation with the centralized economies of Romania and Bulgaria. This convention is now defunct due to the collapse of the USSR and resulting political changes of the last 20 years.

All the Black Sea nations have signed the Bucharest Convention against Pollution (1992) and responsibility for implementation lies with the Black Sea Commission. Under the Black Sea Commission's Black Sea Strategic Action Plan (BSSAP) [26], there is a strong commitment towards an integrated approach to ecosystem management. An ecological quality objective of the BSSAP is 'sustainable use of commercial fish stocks and other marine living resources' and steps to attain this goal are further detailed in Annex I of the document. These include the need for a signed and enforced regional fisheries agreement. Another key ecological quality objective in the BSSAP is a commitment to reduce eutrophication. There is also a provision to harmonize implementation of the IMO Ballast Waters treaty. The BSSAP therefore has the scope to manage the three major problems under consideration. While the BSSAP was adopted under the Bucharest convention, similar to the situation of HELCOM in the Baltic, the

Black Sea Commission is not an executive body and has no power to conduct or enforce actions. With only three members currently in the permanent secretariat the commission has little power to achieve its environmental goals.

Notwithstanding this institutional weakness, other mechanisms have emerged to drive integrated management opportunities. The DABLAS (Danube Black Sea) task force was set up in response to the European Commission communication on environmental cooperation in the Danube–Black Sea Region [27] and seeks to further the regional implementation of water quality objectives set out in the EU Water Framework Directive. This body provides a platform for international cooperation for the protection of water and related ecosystems in the Danube–Black Sea. It facilitates coordination of activities within the Danube Basin and the Black Sea and functions at a regional scale. However, owing to the necessity for international cooperation in the implementation of DABLAS projects, environmental projects under this scheme lack the dynamism and flexibility of the BSAG in the Baltic.

Given the transboundary nature of many environmental problems in the Black Sea (eutrophication, non-indigenous species, fisheries collapses) scope for unilateral improved environmental management by the two EU member states (Romania and Bulgaria) is limited. Successful engagement with non-EU Black Sea nations presents a challenge to implementation of an IMP. Possible accession of Turkey (a candidate nation for EU membership) would expand the power of the EU to implement an IMP, yet there remain barriers to Turkish accession, and recent economic developments within the EU render such an event ever less probable. While the eastward expansion of the EU has clear geopolitical advantages [28], the consequent responsibility to expand effective integrated management into the Black Sea remains a challenge.

4. Developments in the United Kingdom: moving towards integration?

> It is by considering sectoral interests holistically that we hope to achieve sustainability [29].

This statement by the UK Government and devolved administrations indicates a policy commitment to first-order integration (figure 1). The ascension of marine planning acts throughout the UK indicates that processes to drive first- and second-order outcomes (i.e. sector and spatial integration) are gaining traction including processes to advance marine planning and environmental protection. While achieving an ecosystem-based approach remains elusive, activity in the UK is building the institutional architecture for integrated approaches across national (UK) and devolved jurisdictions (Scotland, Wales and Northern Ireland).

In 2009, the UK Marine and Coastal Access Act (hereafter the 'UK Act') gained Royal Assent. The UK Act seeks to improve management, increase protection of the marine environment and improve recreational access. Similar to the MSFD, it is enacted for the purpose of ensuring 'clean, healthy, safe, productive and biologically diverse oceans and seas, by putting in place better systems for delivering sustainable development' [30]. Specifically, it sets out how this will be achieved via a number of provisions including: the establishment of a marine management organization (MMO); the introduction of a system for marine planning; a streamlined approach for the licensing of marine developments; a

mechanism for the designation of marine conservation zones; a strengthening of the management of marine, migratory and freshwater fisheries; streamlined enforcement powers; and an extension of recreational access to the English coast via a continuous walking route [30].

The Marine and Coastal Access Act is ground-breaking within the UK. It creates a management system for UK waters in that it is the first time many elements of the marine environment and the sectors which rely upon it have been brought together in an overarching piece of legislation. The proposal for the UK Act was first instigated in 2002 via the Marine Stewardship Report [31] followed by a number of commitments by UK Government to a Marine and Coastal Access Bill, through to a consultation in 2006, the publication of the Bill in 2008, and finally the Marine and Coastal Access Act gaining Royal Assent in 2009. The Act provides the high-level policy context through which other processes in devolved jurisdictions will be developed and works to achieve integration between legislative instruments such as the Marine (Scotland) Act 2010 and the draft Northern Ireland Marine Bill. The UK Act places a duty on marine planning authorities to establish marine plans in relevant parts of the UK marine area. This includes the secretary of state for marine plans covering English inshore and offshore waters, Scottish ministers for the scottish offshore region, Welsh ministers for the Welsh inshore and offshore regions and the Department of the Environment in Northern Ireland for the Northern Ireland offshore region. Marine planning in the Scottish inshore region will progress under the Marine (Scotland) Act 2010 and Northern Ireland is currently developing draft legislation for inshore planning. Planning in Scotland and Northern Ireland while coming from different legislative bases will be integrated through national marine policy documents to ensure regions have joined up objectives.

Under the UK Act, the development of a UK Marine Policy Statement (MPS) has been agreed and signed by all UK and devolved authorities. The MPS provides the framework for the development of plans across the UK and aims to ensure consistency in policy goals, principles and processes. While the MPS does not prescribe guidance over every maritime activity that occurs in the UK it identifies a series of high level objectives that are guides to the planning process [32]. For example, the MPS states that marine plans that are to be developed in the UK should be consistent with the MPS and provide a clear spatial and 'locally relevant expression of policy' [32]. The process should be consistent with UK and EU legislation; deliver the agreed high-level objectives; be based on an EA; and be participative and informed by a wide range of data and stakeholders. The MPS infers a level of flexibility in plan making, acknowledging that within each administration different sectors will contribute to UK sustainable development. However, as an overarching mechanism, the MPS is an important yardstick that coordinates and guides marine planning across very different jurisdictions.

While the UK Act is a significant progression for marine management in the UK, the degree to which it will be welcomed differs greatly. There have been examples [33,34] which seek to measure the degree to which the resultant Act relates to the issues which instigated it. These are notably around the opportunities for stakeholder engagement, spatial planning and the use of the EA. For marine planning purposes, the Department for Environment, Food and Rural Affairs has identified 11 marine plan areas for England and at the time of writing the first two areas, East Inshore and East Offshore, have been selected for

the development of a marine plan, with the remaining area plans being developed at a rate of two per year. A positive step in this process is the open, informal invitation to input; the reported commitment to engagement in the marine plan area selection process; and the publication of a statement of public participation (SPP) [35]. This statement is tailored to the specific plan areas and sets out how and when people can become involved and includes principles for engagement following generally accepted best practice, which were developed with the input of stakeholders. Indicative stages in the process are set out to include engagement throughout: in the initial SPP development; scoping the content of and developing the marine plans; seeking representations on the draft plan; plan adoption; and implementation and review. The principles recognize the needs of stakeholders and that a tailored approach to engagement is crucial for participation. On paper, this appears commendable, though it is premature to comment on its effectiveness and to what extent the framework will drive integrated oceans governance. To increase its efficacy, the process could be facilitated by a third party, rather than the current approach of being led by the MMO to ensure impartiality, and perhaps more importantly to be viewed as such by stakeholders. Difficulties arise, however, with increasing numbers as consensus and ultimately decision making are harder to attain [36,37]. Participation paradox, termed by Suarez de Vivero *et al.* [38], whereby with a greater number of actors comes a diminishing role of the individual is key to this. This can be especially true for traditional sectors which can be marginalized by the increasing wider societal interest in marine management.

The Marine and Coastal Access Act 2009 is a starting point for action; it cannot be seen as an end in itself. It will guide development and shape the character of the coasts for years to come and provide a measure of geographical coherence responding to the achievement of strategic goals alongside local priorities. The UK Act provides the framework for developing plans at different scales and new opportunities for stakeholder engagement but that framework needs to be aligned with the very reasons it was called for. The UK Act, to be successful, has to balance the competing demands placed on the marine environment with the needs of that same environment, ensuring both nature conservation and opportunities for economic development.

5. The Marine (Scotland) Act 2010: a devolved approach to oceans governance

In Scotland, new uses of the oceans such as renewable energy, aquaculture, tourism and conservation are competing with traditional uses such as fisheries, shipping and resource extraction. The economic importance of the coastal zone is recognized with the value of Scotland's seas in the range of £2.2 billion [39]. Integrated oceans management is on the Scottish policy agenda, both within the context of the UK process and specifically for matters of Scottish jurisdiction.

Scotland is a devolved authority within the UK, and has substantial control over planning for the coastal and marine environment. Its approach is considerably different—at least in legislative content and institutional design—but since the planning process has not begun it is too early to tell how it will evolve. Marine planning falls under Part 3 of the Marine (Scotland) Act [40]. Activities such as inshore fisheries, aquaculture, renewable energy, historical

sites, dredging, coastal infrastructure (including ports), tourism and marine conservation fall under the Act in the Scottish inshore zone (out to 12 nautical miles). In the offshore zone (out to 200 nautical miles) the Scottish Government has delegated functions under the UK Marine and Coastal Access Act 2009 for leading on marine planning and conservation. It gained these powers after signing up to the UK MPS. Any activities that impinge on reserved UK interests (e.g. oil and gas, defence and navigation) require involvement and consent from the appropriate UK department. Since fishing is predominantly regulated by the Common Fisheries Policy (CFP), any measures set by marine planning (beyond inshore fishing) will need to comply with CFP measures which may undermine the ecosystem basis of the plan.

Although marine planning is yet to be implemented in Scottish seas, it should provide an integrated vision in accordance with the UK MPS (via the UK Act), a National (Scottish) Marine Plan and prospective regional plans (via the Marine (Scotland) Act). At the regional scale, a plan would provide the policy 'glue' that will coordinate a range of activities and manage the interaction of users with marine protected areas (Part 5 of the Act). Part 2 of the Act specifies the duty of ministers and public authorities to ensure the 'sustainable development and protection and enhancement' of the Scottish marine area, while Part 3 highlights the duty (of ministers) for the mitigation of and adaptation to climate change. Under Section 5 of the Act Scottish ministers must prepare a National Marine Plan and also prepare regional marine plans, citing that it is not binding to develop regional planning instruments that completely cover the entire Scottish coastal zone. Scottish ministers are currently preparing the national marine plan with a pre-consultation published in March 2011. A draft national plan is expected in late 2012. Regional marine planning may not initiate before 2013 and be rolled out, subject to budgetary constraints, over the next decade.

The development of marine plans will be important, but it is uncertain that they will drive integrated regional planning—particularly if the development of plans is voluntary and plans do not enforce objectives. There is no requirement that national or regional marine plans must have a spatial component and the language of the process to date implies that a more strategic approach may be taken over a spatial or zoning approach. Clearly, the 'devil will be in the detail' with the emergence of the planning process.

6. Trends in marine governance: integration and ocean citizenship

A lack of integration is in many ways a factor of history and geography rather than purposeful design, and policy innovations such as the EA will take time to embed into EU, national and sub-national programmes. Emerging processes such as the MSFD and UK Marine and Coastal Access Act are formulating the beginnings of integration among jurisdictions, and while a number of scientific, technical and political challenges face implementation, there is a clear shift to improving sector and political integration. Supporting this is the building of a 'marine constituency' within the public, particularly in the context of the EA. The benefits of stakeholder involvement in the marine planning process is understood as key to the success of the approach (see table 1, principles 1, 2, 4, 7, 9, 10 and 11

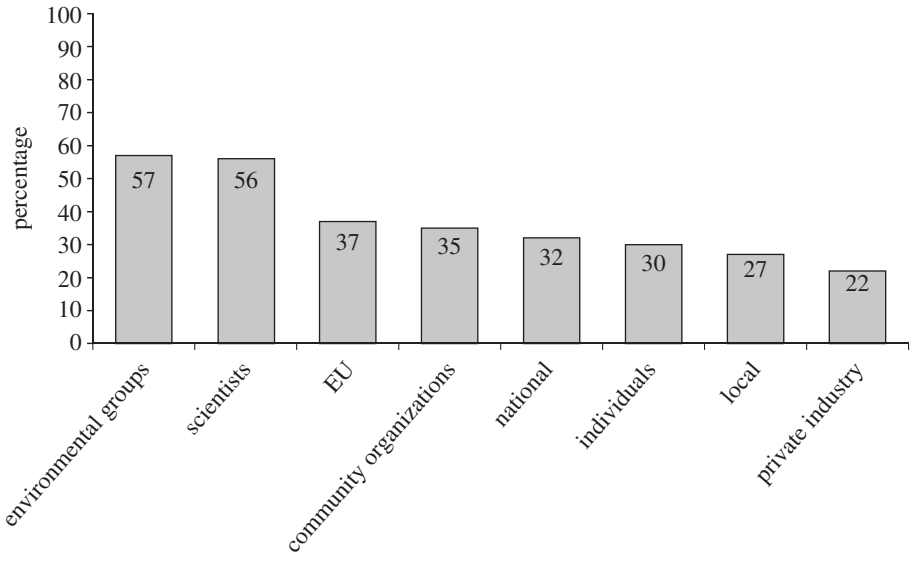

Figure 3. Perceived competence of different groups to manage the environment [22]. Scores shown as percentage of responses rating 'competent or highly competent'. Note that EU, national and local refer to governmental bodies.

which all touch upon stakeholder engagement). In particular, Principle 1 defines management as a matter of societal choice, and outcomes can include:

— an increased understanding of the complexities of marine ecosystems and the impact of society on those ecosystems;
— a better understanding of users and potential conflicts;
— informed decisions;
— lasting change and ownership over the process;
— reduced costs; and
— mutual learning opportunities [41,42].

The EU and the UK marine planning processes have highlighted that questions continue to arise over who should be involved, when, how and to what extent and how institutional structures will ultimately support or hinder participation in marine planning across scales and jurisdictions. In order to highlight the social and institutional drivers that support planning, recent research (see http://www.valuing-nature.net) into the public perceptions of Europe's seas looked at the perceived competency of different groups in managing and protecting the ocean environment (figure 3).

Results show that over half of the population sampled (the survey covered seven European countries including the UK) indicated that environmental groups and scientists are perceived by the public to be the most competent to manage the marine environment while less than 40 per cent indicated any other group. The EU was considered the most competent government authority to manage the ocean environment with 37 per cent of respondents indicating it was competent or highly competent. While this survey is not exhaustive, it does

demonstrate an emerging issue over the role and place of science and civil society in delivering ocean management. It is indicative that a 'closed shop' and centralized approach to governance is not desirable in the public mind, and that co-management and comprehensive engagement are desirable goals. When looking at the context of integrated management that spans sectors, spaces and actors, it may be a role for non-government and scientific groups to promote and push integration rather than traditional government agencies. While there is no escaping the fact that agencies and departments are the custodians of the regulatory process and responsible for its outputs, the public appear to endorse the non-government third sector and scientific experts as competent agents for management. The low ranking of industry could point to the fact that the public endorse an independent lead over potential vested commercial interests, particularly when it comes to managing planning outcomes that may potentially undermine commercial interests.

An extension of the current approach to stakeholder engagement is the emerging idea of marine citizenship, whereby individuals emerge as policy actors through increased responsibility and altered behaviour to support the delivery of policy objectives for the marine environment [43,44]. A study by Williams [45] highlighted public interest in the marine environment and the desire to take a more active role in its governance, yet it was noted that respondents reported that they did not have enough information to become engaged. As noted in figure 3, while individuals may be interested in the marine environment, in the absence of institutional structures that facilitate marine citizenship, this would probably be channelled through civil and scientific organizations that are perceived as competent in acting in a policy role.

The ethos of marine citizenship changes the focus of policy from agencies, non-governmental organizations and industry to the individual as the vehicle through which a policy and its objectives are implemented. This has been explored in a recent paper by McKinley & Fletcher [43] in a threefold manner. First, many problems faced by the marine environment stem partially or totally from individual choices, such as fish consumption, littering, recreational choices or energy efficiency. A change in such choices may be reflected in a change of the quality of the marine ecosystem. Second, policies to address issues in the marine environment rarely focus on or address the behaviour of individuals despite increasing focus on 'third party' schemes such as eco-labelling. Third, recent attempts to empower the public to deal with environmental issues could be expanded to cover the marine environment. As such, it is recognized that those best placed to design and implement a policy goal are the individuals or communities themselves, adopting active rather than passive roles in marine governance. This in turn could be considered as an engine of integration as controversial proposals to co-locate industries and change the patterns of unsustainable use may garner increasing public and political support. Increasingly with the advent of the IMP, MSFD, and the UK Marine and Coastal Access Act this is changing, but the danger is that we will stall at consultation at the expense of genuine engagement.

As highlighted in figure 4, science communication is an important element of developing marine citizenship and integrated management, and this is emphasized by McKinley & Fletcher [43], who discuss the roles of public understanding, participation and local knowledge. Figure 4 highlights that the issues that

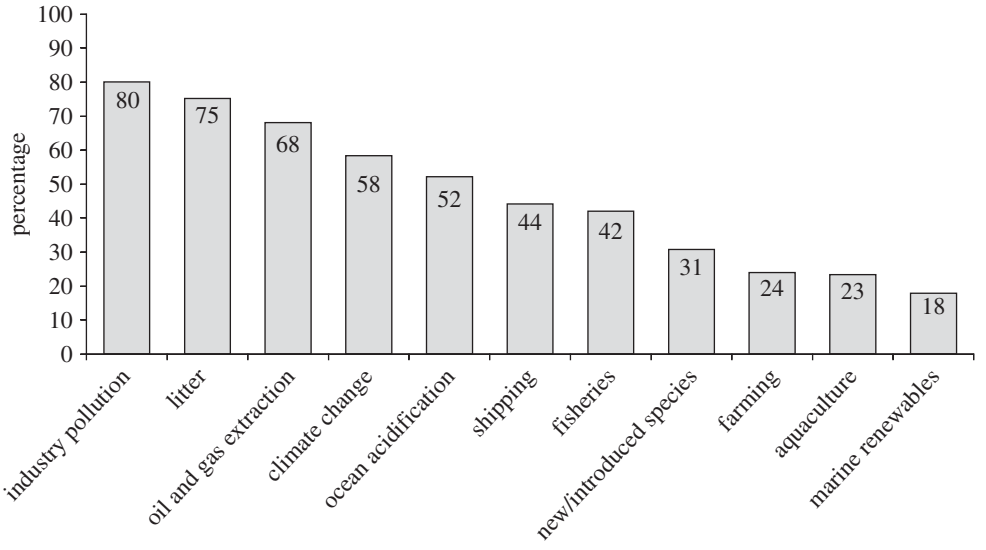

Figure 4. Public rankings of perceived threats to the marine environment [22]. Scores shown as percentage of responses rated as 'threat or severe threat' (score of 4–5).

were ranked as the most serious threats to the marine environment are issues that are highly visible and sustain an immediate impact. The data highlight a schism between the public and the scientific community over perceptions of environmental problems in the sea. In terms of scientific understanding, while pollution, litter and oil and gas are substantial issues to be managed, climate change, ocean acidification and fisheries present greater, long lasting and irreversible threats to marine habitats. This misalignment between the perceived and actual threats to the marine environment may be seen as a failure on the part of the marine science community to adequately communicate their findings to the general public. Nevertheless, the inclusion of climate change (ranked fourth at 58%) does suggest that there has been some degree of successful communication on this issue.

Why does this matter? Building integrated approaches from sectors to society takes significant investment, resources and political will. Reforms are long term and beyond short-term political cycles, and yet are very much a part of the modern political process. How the public is engaged will influence the effectiveness of the EA; for example, Mee *et al.* [46] identify that societal involvement in joint 'fact finding' is an essential ingredient in an adaptive management approach. When trade-offs are made clear about the future use of the seas, it is an informed (or poorly informed) public that will influence policy deliberations.

As we look into the future of integrated marine governance, there are a number of trends that will influence the health of the seas. Rolling out marine planning across Europe will occupy centre stage as the requirements of the MSFD are transcribed into mainstream national policy and the immense technical challenge of meeting Good Environmental Status is applied on national and regional scales. The effectiveness of cooperation among actors across the regional seas will determine the success of the MSFD and engagement must occur within EU

states and between EU states and non-EU states in connected marine systems. At the level of the UK, the institutional architecture for integration is gaining pace with several primary and secondary legislative instruments promoting integrative measures and the policy environment supporting first generation marine plans. Judgeing the effectiveness of these plans is immature, but will be watched closely by many with marine interests.

A spirit of cooperation as envisaged by the designers of the Law of the Sea will continue to advance under the new regime for marine governance in Europe and will require considerable political will to ensure that all parts of the marine system are inside the planning tent. Underpinning the reforms to marine governance is the empowerment of a marine citizenry that is active in the policy process, is literate in marine affairs, and ultimately takes responsibility for actions that have an impact on the marine environment. There is a substantial effort to articulate and implement this approach in practice, but every journey starts with steps in the right direction.

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