

GLOBAL PERSPECTIVES ON HOW MARINE SPATIAL PLANNING CAN CONTRIBUTE TO THE MANAGEMENT OF IRELAND'S OCEAN RESOURCES



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Marine resources are governed by a complex set of use rights, economic demands and ecosystem requirements, but too often the development of its resources has been done through the lens of one sector – such as oil, wind and fisheries, been implemented by companies and governments without effective consultation of affected communities, and been managed without due consideration that the ecosystem pays no attention to land or marine borders. Around the world, as developed countries increasingly tap their oceans for various resources, they have come to rely on Marine Spatial Planning, a new practice that has emerged over the past decade. It builds on the field of ecosystem-based management and expands plans to include a public analysis process that leads to management strategies that achieve ecological, economic and social objectives.

This article explores the global development of marine spatial plans, both the best practices and the pitfalls of these efforts, and examines their application to the island of Ireland. Already, the UK has established marine spatial planning (MSP) legislation while the Republic of Ireland has implemented several tools that could assist a MSP process, including comprehensive mapping and the development of a marine innovation strategy. However, the marine environment does not respond

to lines drawn on maps and it is important that marine spatial planning for the ocean is developed through a cross-border process to be fully effective. An exciting aspect of cross-border work in Ireland in recent years has been the use of collaborative strategies in land-based spatial planning to coordinate the delivery of infrastructure and services, economic development opportunities, tourism and the safeguarding of environmental assets. Similar approaches through existing institutions and initiatives can support a marine spatial planning process, adopt regional and national policies, and coordinate implementation across the island.

Ecosystem Based Management is the Foundation for Marine Spatial Planning

Marine Spatial Planning (MSP) is a process and framework for making informed management decisions on the use of ocean space, marine resources and the environment. It is a tool to help achieve 'ecosystem based management' (EBM) of the oceans, the accepted global standard for the management of marine resources by countries that have well developed fisheries and environmental management policies. Ecosystem based management reflects the interrelationships of human and natural systems and processes in and on the ocean and is of fundamental importance in coastal and marine spatial planning.

Historically, governments have managed fisheries by single fish species, or groups of related species, such as ground fish or pelagic species (fish that swim in the middle of the water column, like herring), without consideration of the interrelationships and ecosystem dependency between species and habitat. The same approach has been used in locating aquaculture activities, shipping channels or the siting of oil rigs. All these activities have some degree of impact on the marine ecosystem and on the economic, social and cultural life of people. This

single sector decision-making does not recognise these interrelationships and potential impacts on the biological processes in the ocean or the use of depletable resources.

As the field of fisheries management evolved, it eventually transformed into ecosystem-based management (EBM), which allows a more spatial evaluation of policies and a greater understanding and consideration of the interrelationships at work in marine ecosystems. Now considered a global standard for marine resource management, it reflects the interrelationships of human and natural systems and processes in and on the ocean. One example is the profitable lobster and crab industries, both of which use herring as bait. This is particularly an issue in the State of Maine in the United States where there are over two million lobster pots in the water in the summer and autumn, each requiring a refill of herring bait at least twice a week. The state's coastal communities' economic dependency on the lobster catch has clear implications on the sustainability of both herring and lobster populations.

Marine Spatial Planning

According to UNESCO, marine spatial planning is 'a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that are usually specified through

a political process'¹. It is 'a practical way to create and establish a more rational organisation of the use of marine space and the interactions between its uses, to balance demand for its use with the need to protect marine ecosystems and to achieve economic and social objectives in an open and planned way'.

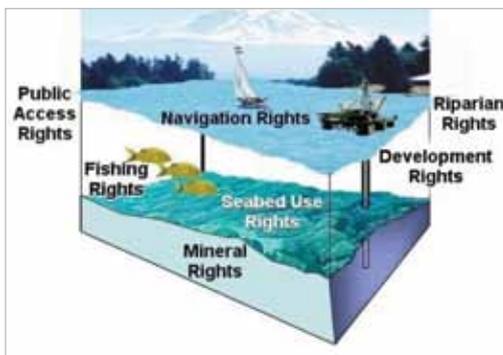
Other authors stress the systematic and spatial nature of the process as critical, providing a framework for a responsive, science-based and comprehensive process in a place-based context². At a practical level, the core components of MSP include scientific research and analysis, including social science and economics, and the collection and presentation of data connected to current and potential future uses of the ocean to inform and enable dialogue. An equal part of the process is the contribution of stakeholders in the dialogue contributing to decision-making (see Figure 1).

Global Experiences in Creating a Policy Framework for Marine Spatial Planning

Europe's MSP based policies have increasingly included mitigation and adaptation policies to meet climate change challenges. The EU Marine Strategy Framework Directive 2008 (MSFD), Water Framework Directive (WFD) and *Natura 2000* have been fundamental in moving MSP forward, and on 17 December 2010 the European Commission adopted the report '*Maritime Spatial Planning in the EU - Achievements and Future Development*'³ as the basis for the implementation of a comprehensive policy. While there is a common understanding of what MSP is and why it is needed, its implementation varies greatly from country to country.

Norway is one of the first countries to begin using marine spatial planning as a policy framework and planning process. In 2001, Norway developed its first MSP for the West Coast, followed by the Barents Sea in 2006 (revised in 2010/2011), the Norwegian Sea in 2009 and the North Sea due in 2013. Marine spatial plans are also fully operational in Germany, the Netherlands and Australia, and are underway in a number of other countries, including the United

Figure 1: The MSP Process and Division of Marine Use Rights



Source: Kate Burns 2011

Kingdom. The emergence of MSP has been driven by increasing and sometimes conflicting demand for ocean space. In Norway, it was a response to pressures for environmental protection given continued development of the off-shore oil and gas industries and shipping, while in the United Kingdom and United States it includes the siting of wind turbines. In crowded marine areas like the Baltic Sea, there has been a strong imperative for MSP while, in other areas, it reflects the desire for a broader and more comprehensive approach for the future management of the ocean.

In most countries, MSP has required the enactment of legislation as existing planning and decision-making legislation were not designed to address the cross-sectoral requirements of MSP. New legislation has required governments to work across departments and, in many cases, the process has been painstaking and slow. As a result, a top-down framework for MSP often occurs. In Germany, the MSP process and responsibility became an extension of land based planning, with the same departments leading and managing the process. In Norway, however, experts and technicians at a government department level drove the MSP process, with considerable stakeholder engagement from the outset. This may reflect the small population and relative wealth of the country, but probably also says something about the culture of Norwegian administration. In the United States, some progress has been made on MSP at the state level (within three miles of the coast) in Massachusetts (the Massachusetts Ocean Plan⁴) and Rhode Island (Ocean Special Area Management Plan⁵), and in Oregon (Territorial Sea Plan).

The UK government has now enacted legislation to enable the implementation of MSP in England and Wales through the *Marine and Coastal Access Act of 2009*. This is considered by UNESCO experts to be an insightful and comprehensive approach to MSP that reflects both the diversity of the coast and constituent nations as well as the protection of the marine environment, and an opportunity to foster and enable marine innovation⁶. It includes

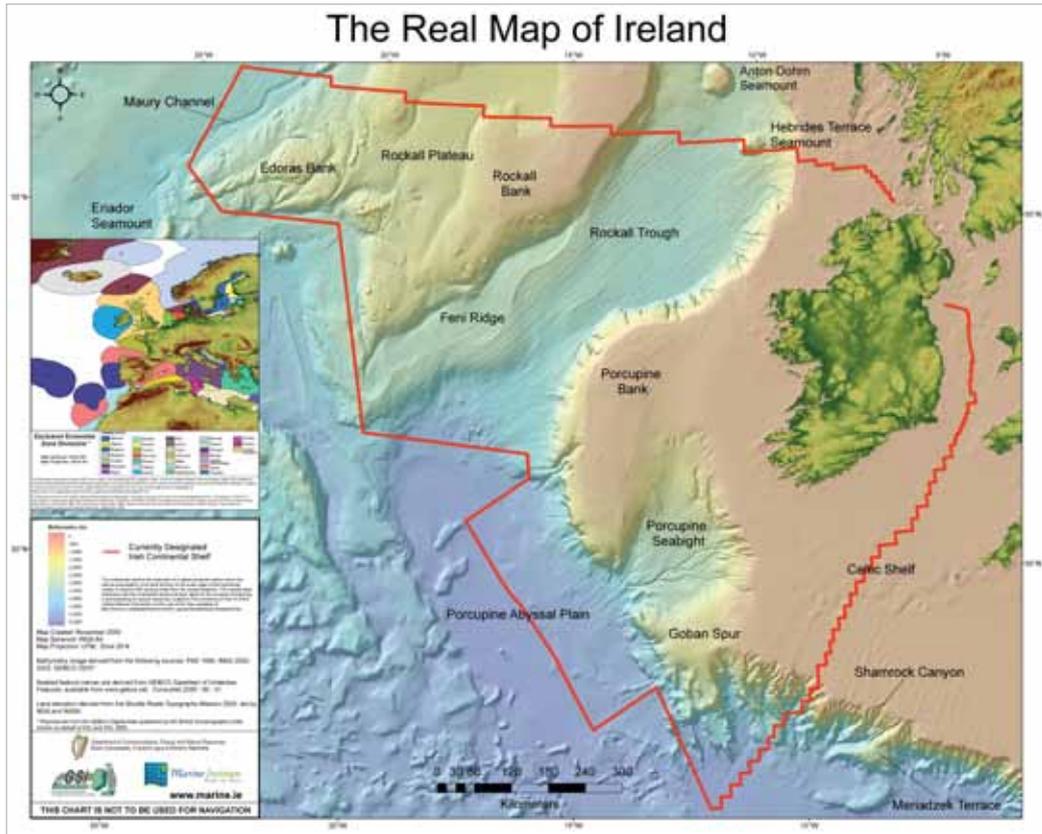
coastal fisheries, although fisheries management outside the three-mile limit comes under the EU Common Fisheries Policy. The Act did not include Northern Ireland and Scotland, but the process has been implemented in Scotland, although not yet in Northern Ireland where efforts are still concentrated on Integrated Coastal Zone Management through a 'Coastal Forum'⁷. Meanwhile a 'Marine Task Force'⁸, a coalition of eight non-governmental organisations, is lobbying for its implementation in Northern Ireland.

The Republic of Ireland has the third largest sea area and the largest sea to land mass ratio in the EU but derives only one percent of its GDP from the maritime economy. It has a growing marine innovation micro-enterprise sector, larger than that in New England, but EU Fisheries Commissioner Maria Damanaki notes that the country is underperforming in aquaculture⁹ and, given the low allocation of fisheries quota from the Irish Box¹⁰, the fishing industry can be described as below potential. In 2009, the Republic of Ireland tasked the Marine Institute with implementing a two-stage approach for scoping and preparing an MSP process. 'Sea Change' included the

'Preparation of a System of Marine Spatial Planning and Integrated Coastal Zone Management (Phase I), to develop planning tools, appropriate to the Irish situation, that will be required for the preparation of integrated and comprehensive marine spatial plans consistent with current and evolving economic, social and environmental (including energy and climate change) policies at national, regional seas, EU and global levels, including management of activities in the areas of marine transport, aquaculture, fishing, seaweed, offshore energy (oil, gas and renewables), tourism and leisure as well as conservation and the effects climate change'¹¹.

This process has now stalled and reference to MSP cannot be found on government or the Marine Institute websites. This may reflect government changes and the challenge of dealing with the current economic situation. Nevertheless, the Marine Institute is implementing some of the tools needed to

Figure 2: Real Map of Ireland



Source: Produced and published by the Marine Institute 2010

advance MSP. Their data and seabed mapping work is considered as amongst the best in the world by experts in the United States (see Figure 2). Also, the 'Coastal Concerned Alliance', an Irish NGO, similar to the Marine Task Force in Northern Ireland, is currently lobbying for implementation of the MSP¹².

Marine Spatial Planning as a Response to Contested Ocean Resource Development

Two contested projects on the island of Ireland illustrate the importance of an MSP process for integrated land and marine use planning. The 'Shell to Sea'¹³ campaign in the Republic of Ireland is a painful reminder of what can happen when decision-making on ocean use is not integrated with planning and decision-making on the shore. In this instance, a

license was awarded to Shell in 2005 to carry out oil and gas exploration, and pipe natural gas from the ocean off the west coast of Ireland through protected bogland. This is an area of County Mayo where the local community has a deeply held passion and concern for the environment. There was no process of engaging the community and stakeholders in the decision to award Shell the relevant permits and, six years later, there is still daily conflict that is having a tragic impact on this remote and vulnerable rural community (see Figure 3).

Another proposal off the Causeway Coast of Northern Ireland in 2003 was the development of a large wind farm with sixty, 40-metre high turbines on 'Tunes Bank' (pronounced tons). In the absence

of a comprehensive MSP approach to inform the proposal, the top-down decision-making process at government level led to conflict with the affected community. A major community campaign against the initiative argued that it was unsuitable as it was so close to the Giants Causeway, a UNESCO world heritage site and 'Area of Outstanding Natural Beauty (see Figure 4)¹⁴'. The UK Crown Estates approved the proposal with no engagement at a local level, including the tourism authorities. A further twist emerged when it became apparent that Crown Estates had given permission for some of the turbines to be sited in what was Republic of Ireland territory¹⁵. The decision was suspended while an analysis of the process was carried out by a team from Queens University, Belfast in 2006. It concluded that *'it is also recognised that there has been a failure in the models of environmental governance that have suggested that competency to deal with energy and environmental issues was the preserve of "experts".'* The Crown Estates has since dropped the project.

In the New England coastal states of the United States, MSP is being driven by the need to decide on the siting of wind turbines in the ocean, an issue that illustrates the tension between the management of ocean resources at U.S. state and federal government

Figure 3: Continuing Protest over 'Shell to Sea'



Source: Shell to Sea Campaign

levels, the litigious nature of decision-making, and the often contentious nature of gaining the acceptance of multiple stakeholders with differing interests. The 'Cape Wind' development off the coast of Cape Cod has taken seven years to obtain necessary local, state and federal permitting due to opposition by some environmental groups, residents, and the local fishing community, although installation of the turbines has yet to take place. Marine spatial planning was introduced three years after the initial decision to pursue the project, by which time it was too late to avoid the confrontational nature of the process.

Figure 4: Tunes Plateau in Northern Ireland



Source: Linda Shi 2011

Experiences like Cape Wind contributed to two dichotomous policy responses. In July 2010, President Obama signed an Executive Order for a National Ocean Policy¹⁶ referred to as Coastal and Marine Spatial Planning or CMSP, a strategy that thoughtfully folds coastal planning into the MSP process given that it is not possible to separate activities on the water from the impact and relationship to the coast. Less than a year later, he gave the federal Bureau of Ocean Energy Management Regulation and Enforcement¹⁷ a mandate to designate ocean energy zones for which there could be a fast track permitting process. These two policies clearly demonstrate the ambivalent nature of the government wanting to involve stakeholders in integrated decision-making through the MSP process on the one hand, and avoiding lengthy processes that ignore the economic and business imperatives for more streamlined decision-making if the United States is to meet its renewable energy targets.

By and large, planning and environmental issues transcend party political divisions in Europe, unlike the United States and Canada where politics 'to the right' often tend to side against implementing further planning or environmental control measures. However, the danger of not implementing MSP, as the examples from the island of Ireland demonstrate, is that government can be viewed with suspicion in terms of its relationships with big corporations and this can reduce confidence in the technical and scientific efficacy of the planning and government decision-making process. In fairness, MSP had not yet fully emerged as a model anywhere in the world at that time, although Norway was starting the process. Elsewhere the only tools available were early stages in development of the Integrated Coastal Zone Management (ICZM)¹⁸ planning tool for coastal issues.

This raises important questions of how best to integrate MSP with older marine management systems. While ICZM is still relevant and tends to be effective in instances of on-shore planning issues with only limited offshore aspects, MSP represents a

broader, deeper and more substantive range of ocean use issues. There are few models that demonstrate how the two have been integrated or merged to date. Another hot issue in the United States and Canada is the relationship between fisheries management and MSP. While Norway is the only country to have fully integrated fisheries management within its MSP process, the *UK Coastal Access Act* also includes provisions on fisheries. In most other instances, such as in the United States, fisheries are not included as a category for inclusion in the process. In the United States, policy-makers argue that they do not have the regulatory powers to make decisions on fisheries management and do not intend the MSP process to include fisheries management or regulation, as it is already managed under Federal law by Regional Fishery Management Councils. However, environmental analysis, impact assessment processes and, ultimately, decisions on issues such as siting wind turbines, may impact on access to fishing areas. As such, there is often mistrust and conflict between those engaged in the MSP process and the fishing communities. In New England, it is likely that the Regional Planning Body, currently being set up under the National Ocean Policy to implement MSP, is likely to find ways to include fisheries, although not at a management or regulatory level. Fisheries are such a politically contentious issue in New England that it should be included in the process to reduce the risk of conflict on marine planning issues.

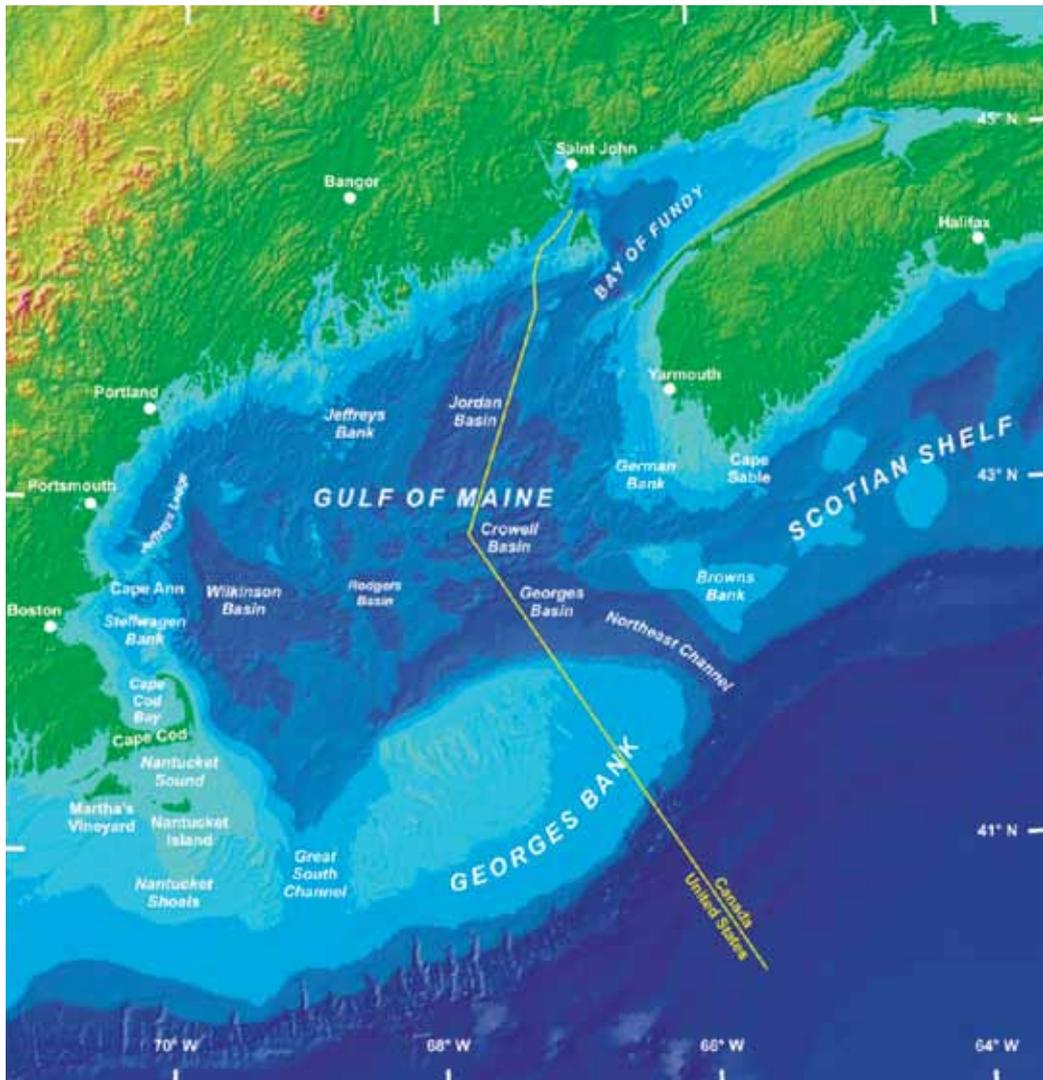
Cross-Border Coordination of Marine Spatial Plans

Given the integrated, dynamic and ecosystem foundation for the MSP process, the need for cross-border engagement is obvious. However, adding the requirement for specific MSP enabling legislation to work across boundaries adds complexity. A few examples of cross-border planning are emerging; these point to the need for cross-border efforts to build on strong domestic marine spatial plans and for countries to continually reaffirm and coordinate international efforts as they update their domestic strategies.

In 1989, the Governments of Nova Scotia, New Brunswick, Maine, New Hampshire, and Massachusetts established the Gulf of Maine Council on the Marine Environment (referred to as the Gulf of Maine Council)¹⁹. It aims *'to foster cooperative actions within the Gulf watershed. Its mission is to maintain and enhance environmental quality in the Gulf of Maine to allow for sustainable resource*

use by existing and future generations by state governments on the US side and the provincial governments of New Brunswick and Nova Scotia in Canada'. To date, the Gulf of Maine Council has largely focused on marine research, but its work also relates to planning and marine resource management (see Figure 5). Projects include a Gulf of Maine Habitat Restoration and Conservation Plan,

Figure 5: The Gulf of Maine



Source: Courtesy of the Gulf of Maine Research Institute

the Gulf of Maine Mapping Initiative (GOMMI), an Ecosystem Indicator Partnership, a Regional Habitat Monitoring Data System, a Gulf of Maine Knowledge Base database of scientific papers, technical reports and fact sheets, a Habitat Restoration Web Portal, and resources for the planning and implementation of habitat restoration projects in the Gulf of Maine and its watershed.

Such cross-border efforts, however, are subject to continued national efforts to integrate the management of shared water bodies. The 2010 U.S. National Ocean Policy makes no specific provision for cooperation with Canada and the Northeast Regional Ocean Council, a newly created entity that will implement the National Ocean Policy in New England, does not include the formal participation of the Gulf of Maine Council.

The EU Road Map for Marine Spatial Planning²⁰ makes specific recommendations for cross-border territorial planning that the UK and other government have included in their legislation²¹. The Scottish Government policy suggested that the Northern North Sea region should be divided between Scottish and English administrations for the purposes of regional MSP, with separate regional plans. In the case of Scotland, one option to be explored is a single regional MSP for Scottish waters. As an exception to either of these models, however, UK-wide collaboration should be pursued to secure a suitably integrated regional planning perspective for the Irish Sea, including Ireland.

The EU has co-financed two test projects on MSP in the Baltic Sea and in the North East Atlantic, including the North Sea and the Channel area. Each project involves bodies from different Member States and aims to gain practical experience of applying MSP in a cross-border area. These projects started late 2010 and will run for 18 months. The MASPNOSE project addresses maritime spatial planning in the North East Atlantic and includes partners from the Netherlands, Belgium, Germany

and Denmark. The Plan BOTHNIA project looks into maritime spatial planning in the Baltic Sea and involves experts from Finland, Sweden and Latvia.

Efforts to conduct cross-border MSP in Ireland have not yet started, although the University of Ulster (Coleraine) and Donegal County Council did propose an MSP Research and Education Centre on the Shores of Lough Swilly in Donegal in 2010²². The planned centre combined activities in tourism, public education and marine research to act as a catalyst for ICZM and MSP. A partnership with seventeen other partners aimed to achieve an 'expert couplet' model, based on the recognised need to adapt to the impacts of climate change while developing skills such as ICZM and MSP at local, regional and EU level. Partners included coastal managers (typically Local Authorities), academic institutions, the Marine Institute, Bord Iascaigh Mhara, and the Northern Irish Marine and Coastal Forum among others. Interestingly, the education programme in the plan included specific reference to the Gulf of Maine Research Institute's education projects. Unfortunately, an application to the INTERREG Programme for the project was not funded and the promoters have been unable to secure the necessary investment in this current tough budget era.

In the EU, only countries that are engaged in MSP at a national level are engaging in cross-border and transnational approaches. It would therefore seem that cross-border work requires progress at the national level first. The lack of progress or dialogue on MSP in Ireland, both North and South, represents a huge gap in thinking about common marine resources, and may also reflect both a lack of understanding of the issue and a missed opportunity to use marine spatial planning to support a strategy for sustainable marine resource management and economic growth from shared maritime resources. The primacy of an ecosystem based approach to marine management recognises that the sea is dynamic and that it cannot be fully managed within boundaries that mark jurisdictional sovereignty

while sectoral decisions cannot be made without consideration of all existing and potential uses and their impact on the ecosystem.

Fostering Marine Innovation

The benefits of MSP for marine innovation is that it can bring technology and research partners to the table with government, and thereby promote new thinking and planning on how to sustainably manage marine resources while fostering and enabling economic growth.

The Republic of Ireland has already established models to enable innovation through land-based spatial planning. Cross-border work has used spatial planning forums and plans to enable the development of partnerships and a triple helix approach – that brings industry, research and the public sector together – to stimulating innovation and thematic local economic development strategies. Examples include the Derry/Londonderry-Letterkenny North West innovation corridor, and the Geo-Park and growth of environmental economies in the western region. Related to MSP, the Marine Institute and Enterprise Ireland has launched an Innovation Cluster Strategy called ‘SmartOcean’ aimed at building on Ireland’s information and communications technology strengths and 220 million acres of marine resource to tap into emerging global markets²³. The initiative is focusing on newly emerging niche markets, including marine renewable energy, environmental monitoring, and water management, as well as established markets in oil and gas production, aquaculture, maritime transport, and tourism. Its purpose is to develop innovative and competitive production systems and service models to ‘target niche, high value and high growth international export markets’. Supporting this work is the creation of ten Ocean Innovation Test Platforms in rivers, bays, coasts and oceans around Ireland, for companies to test new concepts, equipment, technologies, and solutions in real-life situations. This is a classic use of how MSP can enable innovation, although it addresses only one component of ocean use planning.

Northern Ireland has an equivalent approach to SmartOcean. The Department of Trade and Investment is financially supporting the Global Maritime Alliance (GMA), an Industry-led Innovation Community that includes the two universities, further and higher education colleges, major industries, and businesses and the support agency Invest NI, among others²⁴. Their focus is on ocean energy technologies and Northern Ireland has already developed a reputation, along with Scotland, for promoting a new generation of tidal power technologies. The GMA alliance has connections with the Marine Institute in the Republic of Ireland and it will be interesting to see whether strategic collaboration will further the cause and success of both initiatives.

Scotland is emerging as a world leader in marine innovation, particularly in ocean energy. It has developed MSP plans for distinctive regions²⁵ and is engaging central and local governments, business, research, and environmental and community partners²⁶. Before MSP, Scotland already had sectoral and sub-regional Marine Action Plans, focusing on renewable energy, climate change, fisheries and environmental management. Accordingly, the concepts and practice of engaging stakeholders and planners around marine issues were well embedded by 2007.

Renewable energy is also the focus of marine innovation in the Gulf of Maine with the University of Maine receiving major national funding to develop deep water, off-shore technologies. This emerging trend for wind power requires floating platforms in deep sea areas where winds are optimum and there is less impact on the sea bed. Offshore technologies are also being developed in Norway and in Korea, among other places. The planned siting of a scaled-down test model in Maine in 2013 has led to the need for a planning process and it is still unclear how this will play out. The election of a Republican Governor in Maine may reflect a more conservative planning policy and less willingness to support MSP. However, work on the Maine project has already

contributed to data collection and the mapping of the region for planning purposes, as well as dialogue between planners, industry, research, and community stakeholders.

The Future of Marine Spatial Planning on the Island of Ireland

New marine economies provide peripheral places, like Ireland, Scotland, Maine and Maritime Canada with the opportunity to develop maritime economic specialisations while also protecting marine resources to ensure their sustainability. There may also be something in the regional and community development models in Ireland and Scotland that represents a distinctive strength for MSP, which does not exist to the same extent in New England. Models such as the County Development Strategy, the track record in the delivery of LEADER and INTERREG economic development strategies and programmes, active local government leadership and support for innovation and community economic development, are just some examples of this attitude. The emergence of Third level education and of research and business partnerships represents a great opportunity to foster dialogue, build a common vision and enable an MSP process.

The work of the International Centre for Local and Regional Development and planners, North and South from both central government and local authorities has been important in building a common framework to support dialogue and decision-making to help realise land-based cross border innovation, service delivery, environmental management and economic growth. The publication of a joint consultation draft of a collaborative framework for spatial planning, linking the *National Spatial Strategy* in the Republic of Ireland and the *Regional Development Strategy* in Northern Ireland in February 2011 illustrates a commitment to a collaborative approach to the implementation of the two spatial strategies.

Using this experience and these types of relationships, in a marine context, with the Marine Institute and Global Maritime Alliance, could provide

opportunities to service multiple demands and enable governments in Ireland, North and South, to initiate a MSP process for the island. Perhaps the more top-down models in the United States, Germany, the Netherlands or Australia are not appropriate models for Ireland where the resistance to MSP may well be due to an antipathy to the centralised legislative process in other countries. What can we learn from the non-regulatory model in Norway? How did the Scottish experience include land use planning? It may be useful for peripheral nations with extensive coastlines, marine resources, and small populations to engage in a conversation on what MSP models are most appropriate to them. Which examples best demonstrate a comprehensive ecosystem-based management process and community buy-in to MSP?

With the announcement of new exploration licenses in October of 2011 through the 'Atlantic Margin Licensing Round' in the Republic of Ireland and four licenses awarded off the coast of Antrim, including two near Rathlin Island, it is critical that the governments, North and South, look to lessons learned elsewhere to avoid mistakes of the past. International models from Europe, Australia and North America can help the island of Ireland to develop an integrated coastal and spatial planning process that ensures enduring decisions over the management of ocean resources.

Kate Burns joined the Gulf of Maine Research Institute in 2010 as Director of Community Initiatives to help promote the sustainability of the Gulf of Maine's marine resources and coastal communities. Her previous experience with cross-border development include working with the Cyprus government to draft a framework to support planning in expectation of the island's reunification, and serving as the Chief Executive of the Irish Central Border Area Network (ICBAN). In addition, she has worked in consulting and with local government in Northern Ireland, as well as served in executive positions on a number of boards and associations.

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² PacMARA, Center for Ocean Solutions. (2011). *Decision Guide: Selecting Decision Support Tools for Marine Spatial Planning*. Stanford University, CA; The Woods Institute for the Environment.

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⁵ To learn about the Rhode Island Coastal Resources Management Council, see http://www.crmc.ri.gov/samp_ocean.html for further details.

⁶ Department for Environment, Food and Rural Affairs (2010). *“Consultation on a Marine Planning System for England.”* Retrieved from <http://bit.ly/tNWvod>.

⁷ The Coastal Forum is an advisory grouping consisting of government and stakeholder representatives. Stakeholder appointments are made through a nomination process. To learn more, see <http://www.coastalmarineni.com>.

⁸ The Task Force comprises the following organisations: Friends of the Earth, Northern Ireland Environment Link, National Trust, RSPB, Wildfowl and Wetlands Trust, WWF NI, Ulster Wildlife Trust, and Irish Whale and Dolphin Group.

⁹ Siggins, L. “Ireland ‘Suffered’ over Fisheries Policy.” *Irish Times*, Sep. 24, 2011.

¹⁰ The Irish Box is a large ocean area extending from the west of Scotland to the west of Cornwall. It is the most productive fishing area in the EU.

¹¹ To learn more about Sea Change, see <http://www.marine.ie/home/SeaChange>.

¹² To learn more about the Marine Policy and Planning in the Republic of Ireland, see http://coastalconcernalliance.com/marine_policy_planning/ireland.html

¹³ To learn about Shell to Sea, see <http://www.shelltosea.com>.

¹⁴ The AONB definition is one of the strongest planning tools available to the government of Northern Ireland for landscape protection and the Causeway Coast and Glens AONB was first established, in 1988, emphasising the important of landscape issues in this case.

¹⁵ Dáil Éireann Debate (Nov. 19, 2002). *"Other Questions - Alternative Energy Projects."* Dublin: Parliament, Houses of Oireachtas, 557(4). Retrieved from <http://debates.oireachtas.ie/dail/2002/11/19/00009.asp>.

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¹⁸ Barry, J., Ellis, G. and Robinson, C. (2006). *"Renewable Energy and Discoursed of Objection towards Deliberative Policy Making."* Belfast: Queen's University and Economics Research Council (ESRC).

¹⁹ To learn about the Gulf of Maine Council on the Marine Environment, see <http://www.gulfofmaine.org>.

²⁰ Marine Strategy Framework Directive (2008). The geographic area of one or more sovereign states affect in any way the functions for which another state is responsible, it is recommended that governments either side of the border should seek to co-operate with and consult each other. To this end they should notify each other about planning activities so that any possible implications can be considered at an early stage. This would not affect the competence of any state to adopt their respective plans. The Strategic Environmental Assessment (SEA) Directive requires consultation with other EU member states, and by legal agreement European Economic Area states which include Norway, where Marine Plans are likely to have a significant effect' on the environment in their territories. As well as the MSFD, SEA and WFD Directives discussed above, many other European and international laws, conventions and Directives place requirements and obligations on the management of the marine area, including the OSPAR and UNCLOS Conventions. Learn more at http://ec.europa.eu/maritimeaffairs/spatial_planning_en.html.

²¹ Marine and Coastal Access Act 2009 (2009). *Schedule 6: Marine Plans: Preparation and Adoption (Para. 1, 2h, 3-1)*. London: The National Archives.

²² To learn about Donegal Marine and Water Leisure, see <http://www.donegalmarineandwaterleisure.com/SplashPage.aspx>.

²³ To learn more about SmartOcean Ireland, see <http://www.marine.ie/home/SmartOcean.htm>.

²⁴ To learn more about Global Maritime Alliance, see <http://www.globalmaritimealliance.com>.

²⁵ AGMACS. (2006). *Recommendation of the Advisory Group on Marine and Coastal Strategy: a Follow up to Seas the Opportunity: a Strategy for the Long Term Sustainability of Scotland's Coasts and Seas*. Scottish Government, Riaghaltas na h'Alba. Retrieved from <http://www.scotland.gov.uk/Publications/2007/03/08103826/5>.

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