An Examination of the Viability and Appropriateness

of a

Marine Planning Exchange for UK Waters

Final Report to the Planning Exchange Foundation

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1. Summary

The stewardship of the marine resource is increasingly identified as a global and national priority. The provision of appropriate information is considered a key pre-requisite for enabling effective decision making in these complex circumstances. Yet, there are a wide variety of views as to the type and use of relevant and available information and how data and understanding may be exchanged. The purpose of this research project was to test the viability and appropriateness of a facility that could enable the efficient and effective sharing of marine information, knowledge and ideas, and thereby to potentially empower all participants in the new UK marine governance to make better decisions.

Four clear findings emerge from an examination of the marine management arrangements in the UK:

1. Planning of the uses of the marine environment of the UK is becoming more complex as new uses emerge (and potentially compete for space) and marine governance evolves;

2. The relative pace of change in marine governance in recent years;

3. The diversity of approach in implementation of marine planning by the four home nations;

4. The role of The Crown Estate has changed with the introduction of the new marine governance regime and in particular the emergence of government regulators.

At the same time as the need for marine planning is growing to respond to increasing and potentially competing uses, marine planning is developing in different ways and indeed at different speeds in England and the devolved nations. This leads to the conclusion that there is the need for a network to share practice between UK regulators.

Interviews with a sample cross section of regulators and developers/users indicate that there is definite support for a marine information vehicle. The need for shared databases; the dissemination of good practice and the need for networking are highlighted as particular needs. Any new vehicle, however, has to provide some clear added value; it has to build on existing facilities and practice and it has to make the process of marine planning easier. Having established that doing nothing is not an option, the project steering group agreed that:

- The vehicle or mechanism would have an important role in identification of key questions [i.e. setting the agenda and scope for research rather than doing the research].
- Any additional mechanism should increase the CONSISTENCY and EFFICIENCY of the sharing of information/data.
- There was a requirement for a 'picture of activity' across the UK, as to who was doing what (a "Yellow Pages" for marine planning and licensing).

In relation to the structure and delivery of such a mechanism it was agreed that:

- The mechanism should start small and grow, if appropriate.
- Once the personal contacts have been established, question forming etc. could continue electronically.
- The role of face to face communication was recognised
- There may be a role for an able communicator or champion to provide connections, bring people together and build the network.

A *three* stage process is proposed for the development of this new vehicle for the exchange of data and information about marine planning.

In the **first** instance this will involve the sharing of information through the creation of a network of practitioners, building on the work undertaken by the steering group for this research project. It is expected that this will include a more structured access to The Crown Estate's marine planning tools.

The **second** stage will focus on identifying and prioritising information and research needs. Experience has shown that there is a valuable role for a focused group to define these research needs and, importantly, to play an active role in developing the scope of work for research and to play an active role in its management. Experience from elsewhere implies that learning is also enhanced if practitioners are directly involved in research in this way.

The **final** stage will be an operating exchange of information, the specific format of this exchange will be defined by its constituent members.

The key **short-term** action is to initiate this process of structured access to marine planning tools (e.g. MaRS).

It is recommended that The Crown Estate explores options for achieving this, in a way that clearly makes the tool arms-length, from its existing operation.

It is also recommended that the steering group, established for this research project, continues to meet on a 6 monthly basis.

2. Introduction

2.1 Background

The stewardship of the marine resource is increasingly identified as a global and national priority. Of particular concern is the increasing competition of users and uses; the potential over-exploitation of its ecosystem services and its vulnerability to pollution. The provision of appropriate information is considered a key pre-requisite for enabling effective decision making in these complex circumstances. Yet, there are a wide variety of views as to the type and use of relevant and available information and how data and understanding may be exchanged. The purpose of this research project was to test the viability and appropriateness of a facility that could enable the efficient and effective sharing of marine information, knowledge and ideas and thereby to potentially empower all participants in the new UK marine governance to make better decisions.

The need for appropriate marine and coastal data and information is uncontested in the policy literature (Center for Ocean Solutions, 2010; Graf, 2009). The scientific literature has also raised questions about the availability of sufficient and appropriate data in marine systems to underpin decision making (Reiss *et al.*, 2010, Atkins *et al.,* 2011, Heymans *et al.,* 2011). This need for data has prompted an interest in designing appropriate information platforms to promote commonality across national spatial data infrastructures and to build relationships in order to encourage the sharing of data and information in compatible formats (Office of Science and Technology, 1997; European Commission, 1999, 2008a, b; UNESCO, 2009).

In tracing experience in Canada of developing a marine spatial information infrastructure, Canessa *et al*., (2007) assert that although it is 'now well accepted that access to current, comprehensive, and reliable spatial information is necessary for informed decision making and multiple stakeholder participation in integrated coastal and ocean management' and, whilst the data and information may exist, 'they may be difficult to find, in incompatible formats to integrate, and/ or of unknown quality to be useful'. They further differentiate between 'data, information, knowledge, and wisdom within a marine spatial information infrastructure [... and assert the need for] transformation of operational data to wisdom ... [to enable]... decision making capacity' (p.107). This means that a major challenge exists in mediating the data, supporting knowledge exchange, and facilitating understanding of the marine and coastal environments. In short, there are different modes and levels of information required, depending on whether the objective is to share data or to facilitate understanding and informed decision taking through the development of wisdom.

Related work undertaken by the Maritime Safety Committee in putting forward a *Framework for Knowledge Exchange and Development of Innovative Marine Services* (Graf, 2009) addressed issues of data and information harmonisation and cross-community information exchange.

The above literature highlights the importance of creating appropriate common marine information / data structures to support analysis and decision taking; fostering effective and robust communications and system integrity; and responding to user needs through an

appropriate information system interface. It follows that the provision of an information exchange will involve further consideration of how different organisations would likely engage and interact in order to support effective decision taking in the marine context.

The research recognised that, in implementing the new marine management governance, data, information and knowledge will originate from a range of sources, and that better planning outcomes will be achieved if marine managers are able to access these resources.

The project was therefore predicated on a number of underlying propositions:

- the inherent complexity and dynamism of the marine and coastal environments requires a robust inter-disciplinary and qualitative understanding of the issues involved and motivations for action;

- the diversity and increasing variety of interests and users of the marine and coastal environments necessitates an appreciation of different value systems;

- the increase in the regulation, planning and management of the marine resource as part of a multi-level governance network demands an understanding of the role of institutional frameworks and fostering joint working in relation to information;

- an expansion of disciplinary, professional and community interest in the use, development, management and protection of the marine ecosystem and associated eco-services requires an understanding of the conditions, barriers, and incentives for collective action around data and research collaboration and exchange;

- competing interpretations of marine 'problems' and the role of the state in mediating conflicting uses and objectives invokes a need to understand how issues are socially constructed;

- insights from the education and training literature suggest the need to understand both the technical and organisational aspects of information management and decision making;

- the perceived need to provide information – and in a way that is useful for public, private and civil interests to deliberate issues in an informed way – requires an understanding of information-seeking behaviours and knowledge construction; and

- the need to foster and facilitate information sharing and knowledge exchange can be enlightened by reference to broader social learning and social network theories.

2.2 Research Project Aims, Objectives and Questions

Taken together, this suggests that the idea of an exchange would likely involve supporting information and knowledge collation, dissemination and exchange, sharing of best practice, and training and capacity building.

The aims of this project, therefore, were defined as follows:

a) To consider how information and data on the marine environment can be circulated and made more widely available, both to those who are creating the new marine plans and those who could or should contribute to them.

b) To examine how ideas can be explored amongst all those concerned with the marine environment.

c) To identify the key characteristics of a marine information and ideas exchange.

The research objectives were then to:

1. develop a theoretical framework to consider the form of an appropriate marine and coastal information and ideas exchange.

2. undertake a literature review of marine governance, data collection and sharing to identify and analyse the legal and policy requirements for marine interests in the UK.

3. understand marine development interests in the UK and how information can be shared amongst relevant parties.

4. identify and examine examples of good practice in information sharing and ideas generation for case studies.

5. apply and test the findings from the literature reviews, case studies and the interviews to the theoretical framework.

6. finalise the research with conclusions and recommendations about dissemination of existing data and 'bringing information to life', to generate ideas, inform new processes and enable stewardship of the marine environment.

These aims and objectives generated four related specific research questions:

i. What type and forms of data need to be considered? (**data**)
ii. What are the information needs of those working and concerned with the marine environment? (**user**)
iii. What type of knowledge exchange vehicle is appropriate for information sharing today and in the future? (**system**)
iv. How could information and data be 'brought to life' to inform decision making? (**relational**)

2.3 Research Method

The project was conducted on the basis of researching four key areas to inform the exploration of objectives for a marine information vehicle. These have been categorized as: **data, user, system** and **relational**, as explained above. These key elements were utilized in both the identification of the information collected through the interviews and case

studies and to test the research findings, in order to provide justification for the proposed objectives for a marine information exchange. These findings were then further examined using both Hannigan's social construction theory, of how to implement change (Hannigan, 2006); and Webber's criteria for effective planning through appropriate use of information (Webber, 1983) (Hannigan and Webber's theories are summarised in the theoretical framework section 2.4). The next section of the report describes and summarises the interview and case study work.

The research was undertaken by an interdisciplinary team (Appendix I), primarily as a desk based exercise, together with a number of case studies and interviews. The work was informed by a Steering Group representing the four UK national marine planning regimes plus the Crown Estate and the Planning Exchange Foundation (Appendix II). The initial literature review informed the nature of the interview questions and identification of case studies. Working papers and oral updates were reported to the first Steering Group meeting. The outcome of this was both a sharpening of the focus of the work and the requirement to broaden the context. Options for a marine planning information vehicle were then formulated. The second Steering Group meeting resulted in the development of a set of agreed principles for a marine planning information vehicle.

This report sets out the rationale for the research; what was done, in particular how the research developed through the project; includes findings from literature review, interviews, case studies and input from the Steering Group meetings. It includes analysis through the testing of the findings against both a theoretical framework and the Steering Group agreed principles. This leads to conclusions including identifying objectives for a marine planning information vehicle; exploring how it might be implemented and identifying areas for future research.

2.4 Theoretical Framework

One of the original aims of the research project was to provide a theoretical framework to test the findings from the literature reviews, case studies and the interviews. This was undertaken at an early stage in the project and was therefore able to inform the research as it was undertaken. The theoretical aspect of the work was also ongoing and developed along with the main body of the research. A summary of the theoretical framework is set out in the next section of the report.

The conceptual framework for the study was presented as Working Paper 1 (Peel and Lloyd, 2011) to the first meeting of the Steering Group. This paper was informed primarily by ideas drawn from information seeking and retrieval studies and from the water and marine management decision-taking literature where there is experience of data management and information-sharing in complex and dynamic environments. The integration of these different bodies of literature emphasised the importance of an appreciation of the ways in which individuals (users) interact with information (raw data and knowledge) and how decision takers use particular information management systems. Importantly, the management, use and exchange of information must be sensitive to the particular operating context if it is to support effective decision making. The key lessons drawn from the water management literature highlighted the relational aspects of information collection and exchange if this is to enhance decision taking in practice. It follows that in putting the idea of a marine information exchange into practice, consideration needs to be given to four inter-related domains:

1. **Data focus** - what types and forms of data might need to be considered?

2. **User focus** - what are the information needs of those working in / concerned about the governance and stewardship of the marine environment?

3. **System focus** - what type of knowledge exchange vehicle is appropriate to 21st century information-sharing for the marine environment?

4. **Relational focus** - how can information, knowledge and understanding be 'brought to life' so as to inform decision-taking?

Insights into information behaviour suggest that it is necessary to understand how decision makers (users) interact with, and retrieve, information. In moving to considering the design of a potential marine information exchange, a number of pertinent questions need to be asked:

- How do professionals working in the marine environment make decisions?
- What type of work information are they looking for?
- How do they search for information?
- Why do they search for information in that way?
- Why do they search in, and use information from, certain places and not others?
- Do users have particular information source preferences and, if so, why?

The holistic understanding of the hard and soft conditions for information exchange was complemented with ideas drawn from social constructionism (Hannigan, 2006). This thinking identified the importance of scientific evidence to contextualise action; the existence of a legitimate institutional sponsor to champion the action; the provision of economic incentives to create the appropriate conditions for change; the effective use of appropriate media to raise general awareness of the case for action; the need for popularisers to sustain momentum behind the idea; and the use of drama to bring the issue to life.

The study was also informed by the work of Webber, who, in his seminal paper "The Myth of rationality: development planning reconsidered," (Webber, 1983) questions the model of development planning and concludes that comprehensive development planning is blocked on all sides by insufficient knowledge. He observed that there is usually a lack of factual data on extant conditions and little explanatory (causal) theory resulting in limited instrumental knowledge. Furthermore, he goes onto the question whether that knowledge actually exists. It is clear that this is very much the case in relation to the marine environment. Webber's (1983) solution for development planning, focusing on developing countries, relates to systems theory, but has relevance for the design of an information platform or landscape for marine management which includes planning. Given the fact that comprehensive 'all singing all dancing plans' are never going to be realistic he advocates, the maintenance of a central planning agency, perhaps better named a central informing agency as a source of data, information and intelligence. That agency strives to promote planning in all agencies of government and, therefore, this body also champions belief in the instrumental power of ideas, knowledge, analysis, design and planning. It does not prepare substantive plans of its

own. It prefers to help everyone else prepare their own plans. It thus serves as an *agent provocateur*, a generator and champion of controversy. It provides an effective forum for open confrontation to generate solutions.

The theoretical framework for the research having been established, the next section considers marine planning and its information needs.

2.5 Marine Planning and its Information Needs

Marine planning itself is a relatively recent management tool, which requires the development of new spatial planning skills. Marine planners are required to utilise a diversity of information and data, including scientific information. There is also a requirement for competence with specialised GIS planning tools.

Marine Spatial Planning (MSP) has gained increasing recognition in recent years at international level as a tool that can be used to facilitate marine planning. It has been defined as "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" (Ehler and Douvere 2007). The 21st century has seen been a steady progression of the development of ideas, policies and laws in support of marine spatial planning at international, EU, UK and devolved level. This, however, is only a relatively recent development as marine policy; planning and management have been characterized by a lack of integration, such that the complexity of responsibilities acts as a barrier to agencies and organisations taking an integrated approach (Shipman and Stojanovic, 2007). Moreover, there is a lack of clear policy regarding the marine environment which leads to poor integration among countries at the coast and between regional and local scales (Tudor and Norman 2011). "Spatial planning of the sea was initially perceived in the EU as an environmental policy. However, it is now regarded as a sector neutral approach with the objective not only to protect the marine environment but also to promote economic growth of the maritime economy" (Damanaki , 2011). Marine spatial planning has, therefore, been increasingly identified as a solution to resolving tensions on the coasts and in the seas, to enable development whilst providing improved protection of the marine environment (Maes, 2008). New marine management governance, including marine spatial planning has particular needs and issues relating to information.

In terms of information-sharing and ideas-generation to inform the marine planning process, there are four points to note in relation to the project context.

These are:
1. that the new process of marine planning requires appropriate information to make decisions;
2. the process of marine planning itself is a relatively new management tool, which requires the development of new skills and the utilisation of a diversity of data;
3. the devolution arrangements create the need for a data-sharing vehicle, to disseminate information and good practice across the UK; and,
4. marine management in UK waters must also comply with an increasing level of international and European legislative requirements, which carry with it a demand for appropriate information and knowledge exchange.

In order to fully understand the information needs, the next part of the report describes the marine planning framework in the United Kingdom.

3. UK Marine Management Framework

3.1 The requirements of the Marine Planning Regime

The legal and policy regime for the regulation of the marine environment in the United Kingdom has undergone significant reforms in recent years. The introduction of the Marine and Coastal Access Act 2009 ('the 2009 Act'), in particular, can be regarded as a critical stage in the evolving development of sustainable management of maritime spaces for UK waters. Marine planning, introduced by the 2009 Act, is generating demand for data about the physical, biological and socio-economic characteristics of the marine environment. It is also exposing the need for better information and more appropriate knowledge about the constraints and opportunities for the development of coastal and marine areas. Marine management, as it is being implemented by the UK 'home nations'(England, Scotland Wales and Northern Ireland), as part of the devolution arrangements and in the context of the UK framework, is described below and is essential background and contextual material for this study of marine planning information needs in UK waters.

3.2 Devolution

The 2009 Act does not impose a uniform approach to marine management for the whole of the United Kingdom, in part because of the devolution arrangements for the 'home nations'. Devolved legislation and executive organs have been established in Scotland, Wales and Northern Ireland and in general, the devolved legislatures have jurisdiction over the internal waters and territorial sea adjacent to the land territory of the devolved region. Matters reserved to the United Kingdom, such as oil and gas extraction, cannot be legislated for by the devolved administrations, but all other areas can be dealt with by separate marine laws and policy. The fledgling domestic marine planning regimes, however, are developing in the context of the overarching framework provided by the 2009 Act. The devolution arrangements have therefore resulted in the development of four different legislative and management regimes for the delivery of marine management in UK waters. This creates questions around the availability of a 'vehicle' to share data and exchange good practice between and across the UK jurisdictions.

In order to consider the viability and appropriateness of a UK marine planning exchange or vehicle, it was necessary to determine the current 'state of play' of the development of marine governance at UK level, in England and across the devolved administrations. A brief discussion of the role of the Crown Estate, with particular reference to information sharing and management is also included. This is set out in the next section.

In the UK, the 2009 Act introduced, *inter alia,* provision for a marine planning framework (Part 5); high level UK wide objectives are provided by an overarching planning policy, a Marine Policy Statement (MPS) (HM Government, 2011). The first MPS was produced in March 2011 and has been jointly adopted by the Secretary of State, Scottish Ministers, Welsh Ministers and the Department of the Environment, Northern Irelend. The MPS is a framework for preparing marine plans and taking decisions affecting the marine environment. It will also contribute to the achievement of sustainable development in the UK marine area (s 44(1) of the 2009 Act). This is the first finalised policy document to emerge following the passing of the 2009 Act. There is no spatial dimension to this document,

although it will provide the context for more detailed and in some cases spatial plans. These policy objectives contribute to marine licensing decisions in the marine environment and will be developed as the various marine planning regimes progress. Before looking, in overview, at the development of marine planning regimes in England, Scotland, Northern Ireland and Wales, the role of the Crown Estate is considered, with particular reference to the provision and sharing of information.

3.3 Role of The Crown Estate

The Crown Estate is owner of the seabed out to 12 nautical miles; it has rights over the area of the continental shelf and is also the majority owner of the intertidal area. It is custodian of a marine environment of more than 850 000km $_2$; having responsibility for understanding marine and coastal environments and considering how to ensure long term sustainable development and being responsible for leasing many commercial activities in the UK (Tudor and Norman, 2011). The integration of the Crown Estate's decision making with that of the government and its agencies is therefore considered essential, "The focus of our activity is to help us plan our commercial activities in a way that is consistent with our stewardship objectives and, in due course, compatible with statutory marine plans when adopted."(Tudor and Norman, p 183). To help their marine spatial planning team identify constraints and opportunities for future development, The Crown Estate has developed a GIS based Decision Support System (DSS) referred to as the Marine Resource System (MaRS). MaRS integrates information from a data base of more than 450 GIS layers, including data and information about:

- physical characteristics of the seabed, such as bathymetry and sediment type;
- environmental data, such as nature conservation designations;
- economic uses, such as value of fisheries, locations of existing lease areas, aggregates extraction areas; and
- natural resources such as wind and current speed.

MaRS can be used to simply map existing conditions or the location of existing marine assets. It can also be used to identify the relative suitability of the seabed for different types of activity, including for example, renewable energy developments, marine aggregates (sand and gravel) extraction or aquaculture.

"The Crown Estate is using MaRS to formulate an understanding of current and likely uses of the marine estate. A key application has been the planning of future leasing rounds for renewable energy. It is also emerging as a place where marine policies can be explored and developed."(Tudor and Norman (2011) p.183). The use of MaRS has identified some key benefits of the integration of planning and policy including:

- the creation of a more certain environment for the planning of marine development;

- mitigation of potential conflicts in the use of the seabed at the planning stage;

- flagging priorities for further development;

- a more structured and transparent approach to consultation with key stakeholders.

The Crown Estates' experience has also highlighted the importance of planning across jurisdictional boundaries.

The role of the Crown Estate has changed with the advent of the new marine governance system. Its traditional role and ongoing responsibilities for the UK marine area, however, has resulted in it having in-depth knowledge and expertise on the marine environment. This is characterised by the creation of the MaRS, originally as an internal decision making and policy testing tool. The Crown Estate is aware of the valuable contribution to marine information sharing that wider availability of MaRS would make.

3.4 England

In England, the Marine Management Organisation (MMO) is responsible for developing, monitoring and reviewing marine plans. The MMO, set up by Part 1 of the 2009 Act, has responsibility for marine planning, licensing, nature conservation, fisheries management and enforcement.

The key points about marine planning in England are:

- The Marine Policy Statement is the overarching policy statement from which English marine regional plans are being developed.
- The East inshore and offshore plans (areas 3 and 4) are the first plans to be created and are expected by 2014.
- Inshore and offshore areas are planned together but separate plans created for each, apart from a single plan for North West inshore and offshore regions.
- There will be a 20 year lifespan for regional plans.
- To encourage public engagement, there is a Statement of Public Participation for each individual plan area and the MMO is devising methods of stakeholder participation (including involvement of Local Coastal Partnerships)
- The Marine Planning Portal: http://planningportal.marinemanagement.org.uk allows members of the public to register and view online the development of regional plans. Users can comment on or suggest additional datasets, as the process continues and can view and comment on additional information such as plan options and the final draft.

The process of marine planning in England is beginning to take shape and is being implemented to timetable. The focus is at regional level and there is an emphasis on stakeholder and public engagement. Steve Brooker, MMO, Head of Marine Planning, was interviewed as part of the research and is a member of the Steering Group.

3.5 Scotland

The Marine (Scotland) Act 2010 ('the 2010 Act') creates a new legislative and management framework for the marine environment, which aims to manage the many and various demands for use of the seas, but at the same time, enhancing protection for the marine environment. It is being implemented by Marine Scotland, a Directorate of the Scottish Government.

Key points about marine planning in Scotland:

- The marine plan element consists of appropriate marine plans, defined as the national marine plan and any regional marine plan which is in effect for the region (Part 3 of the 2010 Act).

- Both types of plan must conform to the 2010 Act and any public authority authorization or enforcement decision must be in accordance with the appropriate marine plans, unless relevant considerations indicate otherwise (s 15(1) of the 2010 Act).

- A pre-consultation draft of Scotland's National Marine Plan was published in 2011.

- There has also been a consultation on Scottish Marine Regions (SMRs) and Scottish Ministers intend to delegate regional planning functions to Marine Planning Partnerships (MPPs), which will develop regional marine plans which will be more spatially detailed than the National Marine Plan.

- MPPs will comprise representatives from a wide range of stakeholder interests and will be required to create regional marine plans, appropriate for that area.

The Scottish system of marine planning has now been established and although the timetable for publication of the Draft Marine Plan has slipped, the process is ongoing. David Palmer, Marine Scotland is a member of the Steering Group.

3.6 Wales

The Welsh Assembly Government is responsible for marine planning for inshore and offshore regions under the 2009 Act. The Department of Environment and Sustainability is the lead government department for Marine Planning.

Key points about marine planning in Wales:

- There has been a consultation, "Sustainable Development for Welsh Seas: Our approach to marine planning in Wales" (February 2011). Stakeholders were in broad agreement with the need for a national plan with spatial priorities.

- Post the May 2011 election to the Welsh Assembly Government, the Minister affirmed the previous approach, but with a review of time scale and an acknowledgement of the cross cutting nature of marine planning.

The Welsh system of marine planning has yet to be established. There is already some effective cross border collaboration with the MMO and much of the background work is in process. Julia Williams and Alan Storer from the Welsh Assembly Government were members of the Steering Group.

3.7 Northern Ireland

Under the 2009 Act the Department of Environment (DoE) is the responsible marine plan authority for Northern Ireland's (NI) offshore region, with a statutory obligation to consult other relevant Departments. A Marine Bill is anticipated in 2012 and it is expected that the

DOE will be established as the authority for Inshore planning (up to 12 nautical miles) under the new legislation.

Key points about marine planning in Northern Ireland:

- The DoE has prepared for public consultation a 'Draft Marine Position Paper' to supplement the UK MPS and inform the development of a NI marine plan.
- Responsibility for marine policy and regulation is currently dispersed across NI departments.
- It is expected that a team within the Strategic Planning Operations Division of the DOE's Planning Service will be responsible for development and implementation of NI's marine plan
- Post May 2011 elections to the Northern Ireland Assembly, the Minister for the Environment is seeking to introduce changes, including the establishment of a Marine Management Organisation to provide for MSP, streamlined marine licensing procedures and Marine Conservation Zones
- It is envisaged that a single Marine Plan will be developed for offshore and inshore areas (with more localised plans, if considered necessary)

The NI system of marine planning is awaiting new legislation, but much of the background work has already been undertaken. Thomas Matthews from the DOE NI was a member of the Steering Group.

This completes the overview of the UK marine management framework. It is important to recognise, however, that much marine planning law and policy derives from a European and international obligations, some specifically tailored to the development of marine spatial planning. The final part of this section therefore provides a brief overview of the wider legal and policy requirements in international and European law.

3.8 International and European requirements

The policy and regulatory landscape for marine spatial planning for UK waters is being superimposed upon an existing patchwork of related international commercial maritime law and policy (Slater, 2012). At the same time, the ecosystem approach is being utilised to achieve environmental, sustainable development and climate change initiatives, including in the marine environment. A practical realisation of this is the Marine Strategy Framework Directive, (MSFD) which requires national strategies to manage seas to achieve or maintain Good Environmental Status by 2020 (EU Council Directive, 2008)/56/EC). The fledgling marine planning systems in the UK are being used to implement this. A process of Integrated Maritime Policy does, however, have growing recognition at international and European Union level. The passing of the 2009 Act means that the process of integrated marine management (Integrated Maritime Policy) is being implemented through and in conjunction with, the new marine management regime in UK waters (2007). Marine planning is therefore being utilised to comply with an increasing level of international and European legislative requirements. This again adds a complexity to the information requirements for marine planning in UK waters.

3.9 Summary of Marine Planning Needs in the UK

Four clear findings emerge from this examination of the marine management arrangements in the UK:

1. Planning of the uses of the marine environment of the UK is becoming more complex as new uses emerge (and potentially compete for space) and marine governance evolves;

2. The relative pace of change in marine governance in recent years;

3. The diversity of approach in implementation of marine planning by the four home nations;

4. The changing role of The Crown Estate.

The conclusions that can be drawn from this, are that at the same time as the need for marine planning is growing to respond to increasing and potentially competing uses, the process of marine planning is developing in different ways, and indeed at different speeds in England and the devolved nations. This in itself leads to the clear conclusion that there is the need for a network to share practice between UK regulators. This conclusion was reinforced by practical sharing of knowledge and information at the second research project Steering Group meeting, where the marine management framework for the UK was discussed through a discussion of each individual jurisdiction.

A detailed context has now been provided for the research. The research findings are set out in the next section of the report.

4. Research Findings

4.1 Interviews

To understand the evolving process of marine planning practice in the UK and how information is currently shared amongst relevant parties, including developers, a cross section of marine planning practitioners were interviewed (Appendix III : Interviewees). The research was also required to identify and examine examples of good practice in information-sharing and ideas-generation. The literature review and the beginnings of the iterative process with the Steering Group informed the content of the semi-structured interviews Appendix IV: Questions for semi structured interviews). In practice, the interviews highlighted answers that were in fact two sides of one coin: the problems and issues with the existing system of information for marine management were identified as elements that might be usefully incorporated into marine information exchange, and questions (and answers) related to the range and type of information (data focus), the information needs of users (user focus) the type of knowledge exchange (system focus) and how the information, knowledge and understanding can be brought to life (relational focus).

The results relating to each element are set out below:

4.1.1 Data and information

The interviews firstly provided information about the **data** focus: what types and forms of data might need to be considered for a marine information exchange vehicle.

There were some contrasting general responses:

- much (too much) information is available "swamped by the level of information";
- the necessary information was scattered, but getting better;
- there was good base line information ;
- producing plans on the best available information at present (not necessarily the best information);
- hard to access information, research owned by those who undertake it, but draw on existing relationships with those in other marine bodies, to share such research.

Examples of data and information sources:

- hydrographical charts;
- sustainability appraisals;
- Environmental Statements;
- Scottish Association of Marine Science SAMS;
- Environmental reports (through the EIA process);
- Local Coastal Partnerships (policy);
- relevant agencies (technical and policy), e.g. Marine Scotland;
- special interest groups.

Respondents had the following to say about the information needs (**user focus**) of those working and concerned with marine information needs:

- Many now involved in marine planning helped to create the current system; this is now changing and more scientists are involved in the process. It should be noted that scientists are required because of the information needs.

- The merging of the planning /policy and the scientific disciplines makes the managing and optimum use of information more important.

- Marine planning is an extremely complex multidisciplinary forum aiming to deliver a holistic approach to management; "the nature and process of marine planning is different and requires different skills and knowledge".

- Marine planning is being undertaken by marine biologists; it is a hybrid planning process that requires a knowledge and understanding of the sea and planning skills.

- Marine planning is required to deliver sustainable development utilising the ecosystem approach; this is difficult and is dependent on the availability and understanding of appropriate information.

- Those involved in delivering marine planning are learning about marine planning (and the information needs) as they undertake the process of creating the marine plan.

- Streamlining of the licensing and planning process has not yet happened; there is an inherent tension caused by not yet knowing how a fully functional marine planning system will operate.

- The world of marine planning is still relatively small and many practitioners are known to each other and this has helped information flow in the past, but this is now changing as more and different roles are established and therefore require a more formalized approach.

The respondents were generally supportive of a vehicle or mechanism for information management in relation to the management of the marine environment. The most favourable response to questions about the need for a marine information vehicle came from those with less experience of marine issues. It was considered essential that the creation and administration of such an information platform must be undertaken by a body that knows and understands the information.

4.1.2 A vehicle for knowledge exchange

The discussions about what type of knowledge exchange vehicle is appropriate (**systems focus**) are summarized below in two sections: networks and other implementation criteria.

Respondents had the following to say about networks:

- Many now involved in marine planning helped create the current system and are therefore known to each other because of previous contact, e.g. Royal Town Planning Institute (RTPI) Taskforce on Marine Spatial Planning. The requirements of

marine planning, mean this is now changing and more scientists are involved in the process. The scientists have their own networks and many are also involved in other networks (e.g. RTPI Water and Marine Spatial Planning Network.); "networks are really important when working in an emerging field of planning"

- The availability of Internet groups can result in a scattergun approach. A more tailored and focused network relating to information needs was recognised as being required.

- Most interviewees commented that the MMO and other home nation marine planning agencies are required to collaborate on cross border issues.

- The growing and diverse community of marine planners (for example, the increasing number of staff employed by the MMO and recruitment of marine planners in Highland Council, not from a terrestrial planning background) mean that an appropriate network is required.

Good examples of existing marine networks identified by respondents include:

a) Humber Management Scheme;

b) Communications and Management for Sustainability (CMS) is a private training and information service provider which uses a wide variety of media to promote the delivery of sustainability and environment management in marine, coastal and water sectors. CMS disseminates short industry news bulletins and information regarding conferences, events and training opportunities to interested parties. The information and events are aimed at industry professionals from many different disciplines as well as regulators and policy-makers: "CMS: does a fantastic job";

c) RTPI Special Interest Group, Water and Marine Spatial Planning, part of the RTPI Environmental Planning and Protection Network, open to non RTPI members and includes an electronic newsletter;

d) Scottish Coastal Forum: recognised as a good forum for dialogue, but some Scottish respondents thought better use could be made of this existing vehicle and non-Scottish respondents considered that such an umbrella body would be appropriate for England or the UK as a whole.

Respondents had the following to say about **_implementation criteria_** or what type of knowledge exchange vehicle is appropriate to 21st century information sharing:

The two main concerns about a marine planning exchange can be summarized as follows:

- It must not be a decision maker: but a vehicle and facilitator;

- It should enhance what exists already, build on the existing information and information exchange processes;

- There was generally recognition that there is a lot of activity and information, but not a uniform picture in relation to either networks or information. There is no single point of reference;

- A marine knowledge exchange vehicle should create an environment which can grow in the directions required by those involved.

There were quite firm views about the immediate need as well as the beneficial potential for a marine information vehicle:

- There is a need to scale up on marine "stuff": one place to go;
- Enable UK users to gain from experience beyond UK: Canada, Europe, Nordic countries etc;
- Explore complex questions emerging from the process of marine planning.

4.1.3 Bringing information to life

There was less clarity from the interviewees as to how to <u>bring the information to life</u> (**relational** focus):

- Provide a more spirited approach, a beacon carrier for this new and complex form of marine management:
- Explain what marine planning is to others. It is a complex process with implications for the wider UK and is properly understood at all levels, from government to individuals;
- The Crown Estate could sponsor high level networking occasions.

4.1.4 Conclusions from the Interviews

There is clear support for a marine information vehicle emerging from the interviewees. The creation of a shared database; the dissemination of good practice and the need for networking are particularly highlighted. Respondents are conscious of the need for a mechanism for efficiently sharing information that will lead to better planning outcomes.

It can be concluded that there has to be some clear added value from a marine planning information exchange organisation; it has to build on existing facilities and practice. It has to make the process of marine planning easier. A marine information vehicle should add value to the process of marine planning which, although developed to streamline marine development and conservation, is nevertheless, in this early implementation phase, proving to be extremely complex, partly because of the information needs.

There were some good ideas about bringing the information to life, but it can be seen from the interviews that there were more pressing and immediate needs relating to data and information.

4.2 Case Studies

In order to enrich comprehension of the practical issues associated with the creation, management and exchange of data, marine specific cases/initiatives have been explored. The purpose of these case studies is to understand what has worked and to characterize any emerging themes in the management and exchange of relevant information. The examples chosen were: The Planning Exchange, Great Barrier Reef Marine Park Authority, COWRIE, BaltSeaPlan and MSP in the Netherlands. Lessons and best practice from these case studies have been identified and are used to inform the conclusions and recommendations of objectives for a marine planning vehicle.

4.2.1 Case Study 1: The Planning Exchange

The Planning Exchange was identified as an example of a successful information management exchange. It was recognized from the inception of this project, that The Planning Exchange could be a vehicle from which lessons could be drawn to inform the creation of a marine information platform. This project was also commissioned by The Planning Exchange Foundation in (association with The Crown Estate) as it was considered that lessons could be learned, in particular, from a review of the origins and development of The Planning Exchange.

The roots of The Planning Exchange are in the Centre for Environmental Studies (CES), set up in 1967 (Burton, 1978), which encouraged and funded environmental research and was also expected to disseminate its research findings among practitioners. The Planning Exchange was, therefore, started as a regional outpost of the Centre for Environmental Studies to translate planning research into practice. It quickly became an independent organisation to help practitioners and policy makers exchange information and experience. In the first few years (1972-6) there was a change from a more or less *ad hoc* directionless form of working, to one which developed services for local authorities, who in turn paid to become members of The Planning Exchange. It also crucially supported and championed by the newly created, Strathclyde Regional Council, which was intent upon enhancing its decision making and improving its overall governance through delivery of its statutory functions. The Planning Exchange assisted by facilitating learning from others and exploring issues around and related to planning.

By 1977 The Planning Exchange had adopted five basic approaches to its work as follows: **Exchange**: bringing representatives together in small meetings to share experience and discuss new initiatives in practice and research. **Education**: courses, seminars or conferences with a focus on imparting information. **Information**: including the development of a comprehensive database of bibliographic information related to planning in its widest sense, regular publications and single newssheets on topical matters. **Reports:** research projects reports and **Initiation**: where appropriate to help or promote an organisation or initiative which can eventually have a life of its own.

By 1988, The Planning Exchange had a membership of over 190 local authorities and other organisations and bodies across the UK. Its focus has expanded beyond town and country planning research and information, with five main types of service: literature searches and

digests, inquiry and consultancy, case study manuals, CPD seminars and workshops, research reports. It was not just a request service, but information was identified and managed in a consistent and accessible way, through the development of the Planex database. Members asked questions and shaped both research and the type of information collated. By 1999 The Planning Exchange had been in existence for 25 years providing information and exchange activities for a wide variety of bodies and undertaking extensive planning related research. It was sold to IDOX Ltd. in 2002, which continues to provide a managed information service and training for planning and related professions.

Findings: There was one very simple idea common to all the initial Planning Exchange activities; the value of an exchange of ideas and experience on neutral ground. It provided an information platform to planning organisations, public and private, recognising that few organizations have the resources to master and access all the information they might need. It was also hoped that by putting dissemination and debate first, rather than leaving these as an afterthought to research, the new institution would discover for itself what could or could not be accomplished with its limited resources. The Planning Exchange was originally aimed at informing and educating local councillors. It soon established that the real need was for immediate access, by both public and private bodies, to examples of how others had solved problems, similar to their own across a wide variety of issues. The initial experimental period for the Planning Exchange however had raised some important questions, for example: What can improve understanding between local government, central government and universities? How often are local authorities and other agencies working on similar problems in ignorance of each other? What ways can be developed for bringing them together to study them in common? These initial questions continued to be addressed as The Planning Exchange developed its services and expanded its area of work. It should be noted that these original ideas resonate with those being postulated by Webber in 1983 and set out in the theoretical section above.

The Planning Exchange: conclusions

1. The core idea of provision and managing information in the form of digests and abstracts backed up by a comprehensive web based database was successful: it has existed since the mid 1970s and organisations (public, private, quangos universities and colleges etc.) pay for the service and the service, adapted to modern information dissemination processes, still exists.
2. Parallels can be drawn with the current development of a new marine planning system and changes to the planning system in the 1960s and 1970s, involving local government reorganisation and an awareness that planning in the widest sense could be improved with more informed decisions. There was also an increasing desire as well as a legislative requirement for more involvement from the public, appropriate and applied research and the exchange of good practice ideas.
3. The Planning Exchange needed academic /intellectual credentials, but also to fulfil a role not met by the existing legal and policy institutions.
4. The original terms of reference were left deliberately wide and although it became focused, the original questions were still relevant and informed much of the later work.
5. The Planning Exchange changed every decade or so and also embraced new ways of working, therefore, remaining consistent to the general theme of the original aims

and objectives. It was very alert to changes in technology and new ways of supplying and managing information.

6. It was supported by most local authorities, but particularly Strathclyde Regional Council, which was a champion of the service and the extra dimension that its work could bring to council services.

7. One Director, Tony Burton OBE, took the Planning Exchange from its early vision to the diverse and successful conclusion when it was sold to IDOX, but yet continued much of its services. He was a champion for the services and development of the Planning Exchange but was also in a position to ask difficult questions and provoke debate and research (*an agent provoker).*

4.2.2 Case Study 2: Great Barrier Reef Marine Park Authority

The Great Barrier Reef Marine Park Authority (GBRMPA) was established in 1976 to manage the Great Barrier Reef Marine Park and World Heritage Area. A range of planning activities is carried out by GBRMPA including Zoning (for which a number of advisory bodies were set up to facilitate knowledge sharing), Plans of Management, and Special Management Areas and permitting processes.

Key strategies in GBRMPA's marine spatial planning delivery regime include:

- Collaborative and co-operative partnerships with government agencies;

- Ecosystem-based approach;

- Multiple-use spatial planning;

- Stakeholder engagement;

- Co-ordinated science and applied research;

- Adaptive Management.

The case study considered whether these were also relevant to the investigation of a marine planning information platform. The study researched two main aspects of the management of the Marine Park: stakeholder engagement and how research is linked to management and planning.

Stakeholder engagement

There were many examples of good practice relating to marine spatial planning, including GBRMPA's engagement with stakeholders.   Active engagement with its stakeholders is clearly a priority, due to the range of stakeholders who have different views and use the marine park in a variety of ways. Potential conflicts between users of the marine park are identified through a variety of consultative mechanisms including, Local Marine Advisory Committees, Reef Advisory Committees (Tourism and Recreation, Coasts and Catchments, Indigenous Partnerships and Ecosystems). Specifically during the Zoning exercise, such issues were also identified through over 31,500 formal submissions and 360 public meetings. There is also a more informal network of connections through individual

professional networks and Regional Offices. There is a clear lesson emerging from this example about the importance of engagement with interested publics to better understand their interests so as to better inform planning and to legitimise management decisions. It was less clear that the experience at GBRMPA added much to our understanding about the ways in which information and knowledge could be shared amongst stakeholders. It does, however, reiterate that stakeholder engagement is an integral part of the *user focus* of this project – which is identifying the information needs of those working in / concerned about the governance and stewardship of the marine environment. The research element of this case study is also linked to this and it is considered next. It should be noted, however, that information generated from research projects is disseminated to stakeholders in publications, reports, conference presentations, the popular media and internet.

Linking research to planning and management

GBRMPA undertakes research focused on resolving planning issues and informing management actions. It seeks to share and learn from its experiences. A strong theme that emerges from this example is the extent to which it has sought to collaborate with Australian universities and research bodies and facilitates discussions with scientists through workshops in order to advance the understanding of the functioning, health and resilience of the GBR ecosystem. GBRMPA has been instrumental in driving a focus on applied research and has made great use of government funded initiatives to promote applied research (e.g. Co-operative Research Centres).

Examples of applied research that have focused on improving planning and management include:

- The Effects of Line Fishing (ELF) Experiment: A large-scale manipulative experiment designed to investigate how reef fish populations and other species respond to line and spear fishing on a small sub-set of reefs in the Great Barrier Reef. Controlled changes in fishing pressure were implemented in different areas of the reef and then marine organisms were surveyed to monitor the reefs' responses to the change in fishing activities (EFL, 2010).

- The AIMS Long Term Monitoring Program (LTMP) surveyed the health of 47 reefs in the Great Barrier Reef on an annual basis. This represents the longest continuous temporal record of change in reef communities over such a large scale. The survey records corals and other benthic organisms along the same sections of reef at each visit. Part of the remit of this project is to monitor the effects of the GBRMPA zoning plan (LTMP, 2005).

Scientists undertaking research of relevance to marine planning typically collaborate with GBRMPA planners and management staff on projects from their inception. Consequently GBRMPA staff is intimately involved in the direction of research and are also aware of the findings and implications of the results. By the time a piece of research is published in the peer reviewed literature, the lessons learned are already incorporated into management thinking and further knowledge management is not necessarily required. This is a good example of the *relational focus* of the research - which is considering how information, knowledge and understanding can be 'brought to life' so as to inform decision-taking.

Great Barrier Reef Marine Park Authority: conclusions

The GBRMPA case study emphasises the opportunity that exists for planners and managers to learn through direct involvement in research. The implication for this research project is that transferring relevant knowledge, particularly where it involves complex ideas or implies difficult decisions, may be achieved more effectively if the partners are very much a part of the research process. A marine planning platform could have a role, therefore, in facilitating the involvement of managers in the research process. Particularly important areas of involvement would be in defining the key questions for planning and management and also the scope of any investigations that may be undertaken to address these. A marine information exchange would therefore provide a bridge between decision-making and research and actively seek to set the agenda for applied research to inform planning and management.

4.2.3 Case Study 3: COWRIE

The Collaborative Offshore Wind Research Into the Environment (COWRIE) initiative was established to improve understanding and knowledge of the potential environmental impacts of offshore wind farm development in UK waters. Unlike the broader concept of marine spatial planning, this project focussed on a specific activity in the marine environment, namely offshore wind energy. Initiated by The Crown Estate in conjunction with Round 2 leasing round of the offshore wind farm programme, COWRIE was governed by a Board of Trustees and comprised a number of technical working groups, with members from offshore wind farm developers, The Crown Estate, UK Government regulators and nature conservation bodies and other relevant experts. These technical groups identified and implemented a programme of short to medium term generic environmental research, which led to the publication and dissemination of reports, guidance notes and best practice documents (COWRIE, 2008). Projects were based on industry specific problems but were not focussed on any one project in particular, making it applicable industry wide.

A key project objective was the management and dissemination of environmental data and information collected, analysed and interpreted throughout the whole life cycle of each wind farm project (from development through operation and decommissioning). Raising awareness of the UK offshore wind farm programme through a comprehensive education, communications and outreach strategy was also a key objective (COWRIE, 2008). All reports published are freely available from: www.offshorewind.co.uk.

COWRIE is generally regarded as successful and the factors that appear to have contributed to this include:

- The project was well funded;

- Collaborative working and funding resulted in better co-ordinated research;

- Creating a non-confrontational working relationship between regulators and developers resulted in the production of solutions;

- Identifying the real issues for the industry which resulted in research question framing resulting in research which effectively solved these issues;

- it involved taking risks.

One of the key lessons learnt from the project was that stronger governance would have helped to ensure a simpler approach to achieving consensus and decision making.

Cowrie: Conclusion

The COWRIE study showed that a knowledge exchange mechanism requires resource, both funding and management. The effort, organisation and cost were considered appropriate in order to achieve appropriate knowledge about the environmental impact of offshore wind energy projects; the collaboration was effective, particularly in relation to the research question setting. The marine information exchange could therefore provide a platform on which developers; regulators and others, including The Crown Estate could collaborate in identifying mutually beneficial research questions as well as working together to set the agenda for applied research to inform planning and management.

4.2.4 Case Study 4: BaltSeaPlan

Marine spatial planning is a fairly recent development in the Baltic Sea, being brought about by a 3.7M EUR project BaltSeaPlan. The proposal to research this as a case study came from the Steering Group, as it is clearly an example of collaborative marine spatial planning. It is an ambitious project, with 14 partners from seven Baltic countries, and although it is at early stage, the project will provide key input into the realisation of the EU Maritime Policy, The Helsinki Commission, HELCOM (an Intergovernmental organization of the nine Baltic Sea coastal countries and the EU and a regional environmental policy maker in the Baltic Sea area) Baltic Sea Action Plan and the Vision and Strategies around the Baltic Sea, VASAB (the Intergovernmental multilateral co-operation of 11 countries of the Baltic Sea Region in spatial planning and development) Gdańsk Declaration, ensuring an integrated, transnational and co-operative approach. Partners include Government agencies, environmental non-Governmental organisations and academic institutions. A coordinating body was established to ensure an effective transnational approach and to ensure planning for Baltic Sea space keeps in mind:

a) The whole ecosystem, getting away from sectoral decision to an integrated approach (regarding cumulative impacts);

b) Wider economic and social concerns (e.g. fairness, equity, territorial cohesion);

c) The imperative of finding transnational solutions, where necessary (VASAB, 2011).

A broad scale stock take of maritime uses will be carried out in seven pilot areas. Additional data will be collected and modelling carried out. All data will be harmonised according to

requirements of the EC INSPIRE directive and compiled in a joint database (BaltSeaPlan, 2011).

The BaltSeaPlan Project was only recently established and has yet to put marine spatial plans in place. Although there are plans for a database to facilitate data exchange, the project has no actual experience to date of identifying issues and utilising knowledge exchange to resolve conflicts. Although there is an intention to make use of knowledge management however, at this stage, there is no indication of how potential conflicts arising in the planning process will be managed and resolved.

BaltSeaPlan: Conclusion

The BaltSeaPlan Project does not provide any guidance, ideas or good practice that could be utilised for a marine planning vehicle in the UK. If a marine knowledge exchange is successfully created for the UK waters, however, it is considered that information from the project could be incorporated into the knowledge exchange and that the good practice emanating from the creation of such a vehicle would be useful to the BaltSeaPlan project.

4.2.5 Case Study 5: MSP in the Netherlands

In 2005, The Netherlands developed an overarching spatial planning framework for the Dutch area of the North Sea. The proposal to research this as a case study came from the Steering Group and it is clearly an early example of marine spatial planning in European waters and therefore of relevance to this study.

A set of tools was developed to provide insight into spatial developments and potential problems and facilitate managing the use of space (UNESCO, 2010). These tools include:

- Opportunity maps that show where a use is permitted in the current framework and is most likely to develop in the future;

- A spatial monitoring and permit tracking system;

- An integrated (spatial) assessment framework for issuing permits (UNESCO, 2010).

A Dutch Government report (IMPNS, 2005) highlights the Dutch experience of MSP to date and the mechanisms adopted for information exchange and knowledge management. There are differences between data exchange and knowledge management and this can be clearly seen in this example.

Data Sharing

As of 2005, sharing of data to govern and manage the North Sea tended to be done through informal networks. As a result of applications for access and usage rights being examined by a number of different government institutions, there was an amount of duplication of data

collected by each authority. To overcome this, certain institutions were designated as "owners" of certain data and others were required to update their data via them (IMPNS 2015, 2005).

The National Oceanographic Data Committee (NODC) is the Dutch platform for oceanographic data exchange and advisory services on oceanographic data management. The NODC website functions as a portal of metadata on oceanographic datasets and collecting activities and, if possible, with direct links to related institutes and data (IMPNS 2015, 2005).

Knowledge Management

The North Sea Management Network (Beheerdersnetwerk Noordzee - BNN) established for IMPNS 2015 was intended to strengthen co-operation between government organisations so that individual management tasks could be better coordinated and users better served. The North Sea Management Network's main tasks are enhancing knowledge and information management thus reducing the burden for users (http://www.noordzeeloket.nl/index.asp.).

Spatial management in the Dutch North Sea is primarily based on permitting of activities. However, it was recognised in IMPNS 2015 (2005) that when functions develop more quickly than anticipated, causing potential spatial problems (in the form of conflicts with other uses or fragmentation of space), it may be necessary to conduct a more detailed exploratory study, which could result in adjustments in the management of one or more functions.

The Dutch government also invites market parties and civil society organisations to present initiatives that combine usage functions in order to facilitate multiple use of space. Opportunity maps and an overview of permits are available to be used for such initiatives (IMPNS 2015, 2005).

There are therefore clear differences between marine data exchange and knowledge management related to marine spatial planning and these are highlighted by this case study. Both were recognised as being required for effective marine spatial planning and the case study provides some initial insights for a UK marine information platform.

MSP in The Netherlands Conclusion

The co-ordination of knowledge exchange and data sharing was recognised as important for decision making in this case study. The Dutch National Oceanographic Data Committee was therefore created to establish a national database for data and survey information. This is a clear first step in creating an information platform and one that could be adopted for the UK.

There was also a need for co-ordination between government and other organisations involved with marine spatial planning for Dutch waters. It is recognised that the new governance arrangements for marine planning in UK waters will streamline the licensing arrangements, but nevertheless there still remains a need to enhance knowledge, manage information and provide a network of both users and knowledge. The North Sea Management Network is an example of one way of achieving this and can be used as an

example of how this type of knowledge exchange vehicle can be implemented for UK waters.

4.2.6 Development of findings from the research through the steering group workshop/meeting

The findings from the interviews and case studies formed part of the discussions for the Steering Group meeting and workshop on 31 October 2011 in Newcastle. There was a detailed consideration of the UK marine management framework and assessment of the emerging findings and lessons from the interviews and case studies. Options for a marine information platform were presented and discussed (Appendix V and VI). This enabled principles for a marine planning information vehicle to be identified. These were then incorporated into a statement of principles and agreed with the research team and Steering Group members by email circulation. The statement of principles is set out below:

A Marine Planning Vehicle: Statement of Principles

a) The appropriateness of a vehicle or mechanism for information management in relation to the management of the marine environment was recognised.

b) The 'does nothing' approach as outlined in the options paper is not appropriate. The reason being that some exchange of information is already taking place and demand for information is only expected to increase, emphasising the need for mechanisms to facilitate the efficient exchange of information.

c) The vehicle or mechanism would have an important role in identification of key questions [i.e. setting the agenda and scope for research rather than doing the research].

d) A basic starting point for any additional mechanism(s) is that it/they should increase the CONSISTENCY and EFFICIENCY of the sharing of information/data.

e) There was also a requirement for a 'picture of activity' across the UK, as to who was doing what (a "Yellow Pages" for marine planning and licensing).

Other aspects highlighted (and agreed) in relation to the vehicle/mechanism were the importance of:

- information generation;
- data interpretation to produce knowledge;
- capacity building;
- communication between marine organizations.

In relation to the structure and delivery of such a mechanism the following were discussed /agreed:

- the mechanism should start small and grow if appropriate;

- once the personal contacts have been established, question forming etc. could continue electronically;
- the role of face to face communication was recognised (e.g. the importance of the Newcastle meeting);
- there may be a role for an able communicator or champion to provide connections, bring people together and build the network.

5. Research Analysis

The final analysis on the research findings divides into seven distinct areas.

Each is set out below

1) Applying the data and user focus together to the findings from the case studies, there is clearly a case for a single, easily identifiable point for information and data. The Planning Exchange identified this need in the 1970s for town and country planning and the Dutch Government recognised it to implement marine spatial planning after 2005.

1) On the system focus, however, there is no obvious way to create or implement a marine data landscape or database. The BaltSeaPlan, for example, did not incorporate it at an early stage in its implementation of marine planning, although there are plans for a database to facilitate data exchange.

The Steering Group suggested that examples of existing good practice be identified to assist with shaping the objectives. Three examples are included here:

Coastal Wiki: an Internet encyclopaedia that aims to provide an up-to-date digest of information on the coastal and marine environment for professionals, stakeholders and the wider public. It attempts to better disseminate current knowledge and understanding across Europe through a single source and to provide an integrated source of knowledge for both specialists and generalists. The system allows users, once registered, to enter and amend the information available and provide links between information. Information is categorised to ensure that it is easily accessible and is free to view. This is primarily a digest of law, policy and information. There are no original documents or links to other sources. These data are self-governing and are not actively managed. It further illustrates that there is a need for a single entry point for information, in this case law and policy.

Scotland's Marine Atlas: information for the National Marine Plan is readily accessible through the Internet and is intended as a comprehensive assessment of the condition of Scotland's seas, based on scientific evidence from data and analysis, supported by expert judgment. It supports the delivery of marine planning for Scotland's marine areas.

A national database: Marine Scotland have recently recommended that a national database for survey data, collating data from DECC, The Crown Estate and, at an

appropriate time, developers be created, to be fully implemented by February 2013 (Scottish Government 2012).

2) Applying the user focus to the case studies, exploring the information needs of those working in and concerned with the governance and stewardship of the marine environment, revealed that to be most useful, information and data require not only to be collated but to be managed. This was a key finding from The Planning Exchange case study. Its information digest service, adapted to modern information dissemination processes still exists. COWRIE was created with very specific aims including, the management and dissemination of environmental data and information collected, analysed and interpreted throughout the whole life cycle of each wind farm project from development through operation and decommissioning. This was largely regarded as a successful project, particularly in relation to the management of information.

3) Applying the system focus to the case studies, what type of knowledge exchange vehicle is appropriate to 21st century sharing for the marine environment revealed that a network to exchange knowledge and good practice was regarded as very important. This was recognized by the Dutch Government, when implementing marine spatial planning, through The North Sea Management Network. COWRIE also created a network through its technical groups whose members included offshore wind farm developers, The Crown Estate, UK Government regulators, nature conservation bodies and other relevant experts.

The analysis identified these four areas outlined above as being the most important and immediate focus for a marine information platform. Once these aspects had been satisfactorily established, other foci were identified.

4) The data focus (what types and forms of data might need to be considered?) identified from the case studies that there is also a need for more relevant information and research. The case studies were very clear that collaboration through some form of vehicle, such as The Planning Exchange, COWRIE or the GBRMPA, allows collective agreement on relevant research questions. These can be undertaken for the benefit of the wider group and in the example of the GBRMPA, this limited the need for further dissemination, as the research and findings could be quickly incorporated into policy and decision making. The Planning Exchange, however, used its knowledge exchange mechanisms (library, digest service and training) to disseminate the research findings.

5) The relational focus (how can information, knowledge and understanding be brought to life so as to inform decision making ?) when applied to the case studies showed the need for a champion of the topic, to better inform the public stakeholders as well as develop the information platform, is also important. Tony Burton carried out this function for The Planning Exchange for 25 years. Raising awareness of the UK offshore wind farm programme through a comprehensive education, communications and outreach strategy was also a key objective for the COWRIE programme. The theoretical framework also included the need for the existence of a legitimate institutional sponsor to champion the action and popularisers to sustain momentum behind new idea, as well as *agent provocateurs* to challenge and test existing

practices to create better planning and governance. This is backed up by the findings from The Planning Exchange and the COWRIE case studies.

6) Applying the system focus to the case studies demonstrates that a marine knowledge exchange is appropriately resourced and managed. The theoretical framework also requires the provision of economic incentives to create the appropriate conditions for change. The members of the Planning Exchange paid for its services on an annual basis; this worked well and some of the facilities can still be utilised through IDOX. The governance of The Planning Exchange changed over the years, as appropriate. The COWRIE case study showed that resourcing was important, but also highlighted the need for clear governance to enable effective operation and, in particular, consensus building.

6. Conclusions

The starting point for this research exercise was that marine planning in the UK relies upon the availability of data and information about the marine environment and the communities that depend on it. Although there are some existing initiatives for the sharing of data in the UK, none of these has the scope or remit to facilitate the exchange of data and information that effective marine planning will require. The focus of this exercise has, therefore, been on establishing the principles and characteristics that will define a new vehicle / platform for the effective exchange of data, information and knowledge about marine planning.

This research has shown that to be effective it must facilitate the work of the marine managers of England and the devolved administrations. An acceptable solution would have the following characteristics:

1. transparent and open;

2. consistent and efficient;

3. cost-effective;

4. independent from government;

5. inclusive of all UK marine planning providers/regulators;

6. a network for members/users;

7. initiated, but with recognition that there is potential to grow as users/members develop.

The research has revealed that the new marine information vehicle should be an umbrella body to cover UK home nations, but not be an arm of government, The Crown Estate or an academic institution. Its governance could be directed by a Board. This Board could be formed from this research project's Steering Group: (The Crown Estate, MMO, Marine Scotland, Welsh Government, NI DoE, The Planning Exchange Foundation) and others identified as appropriate. This Board could also act as a core networking group or forum, which could also champion the potential for and development of, marine planning (an

external face of marine planning in the UK). This could be the starting point for the new marine information platform, which should be cost effective; include all UK marine planning providers/regulators and with recognition that there is potential to grow as users/members expand and develop the potential of the vehicle. If at a later stage it does expand, the marine information vehicle could take the form of a subscriber service, with subscribers joining the network.

Funding was not considered in detail in this project, but the research does suggest that there is a requirement for some seed funding to enable the establishment of the marine planning vehicle with the rationale to improve and facilitate marine planning in UK waters. It is suggested that The Crown Estate, the UK /devolved government and the EU could provide such funding, which could be augmented by subscription from members and one off fees for services from non-members. Examples of potential members and users are the MMO , Marine Scotland, Welsh Government, DoE NI, offshore energy companies, UK Government Departments (DEFRA, Ministry of Defence), JNCC, SNH, English Nature, Local Coastal Partnerships, user groups, NGOs, developers and their agents (lawyers, surveyors), universities and research institutions.

Using this framework, the next step of the work is to provide objectives for a marine information platform. The research findings and analysis have resulted in three proposed stages for a marine information vehicle.

These first set of objectives mainly relate to the information needs of those working in and concerned with the marine environment. This was recognised as the main and pressing concern highlighted by this research. They do, however, have some relevance for the type and form of knowledge exchange that might be created. There are also some ideas about how the knowledge and understanding can be 'brought to life'.

6.1 Stages towards the creation of the new marine information vehicle

1) Sharing of existing information,

2) identification and prioritisation of information needs,

3) operationalization

Stage One *Sharing of existing information*	The creation of a shared database. The first stage of a marine information network is to share and make available basic data to regulators and to other users. Marine Scotland have recently recommended that a national database of survey data, from DECC, The Crown Estate and, at an appropriate time, developers be created, to be fully implemented by February 2013.
	The formation of a network of marine planners throughout the UK to share good practice. The genesis of this network is the Steering Group created as part of this research project which could continue to meet on a six monthly basis facilitated by The Crown Estate and consisting of the planning providers in the home nation.
	In the first instance this could involve a more structured access to marine

planning GIS tools (e.g. MaRS 1420.)

This could be linked to a UK wide database of existing survey information.

Stage Two

Identification and prioritisation of information needs

The next step is to address the gaps in marine data and information; to clarify and fill these to assist and rationalize in the process of marine planning. This would be addressed by identifying and incorporating information to build a comprehensive database. Subsequent knowledge gaps could be addressed by commissioning research. This enhanced information landscape would build and develop from the original shared database.

This stage could also involve information around the marine planning tools to enhance the ability of users to make best use of the existing information.

The marine information vehicle could also be opened to a wider group, e.g. developers, NGOs.

It is expected at this stage that there would be a cost for the services; data and information, technical training on marine planning tools and an expanded marine planning network.

Stage Three

Operationalisation

Information management, tailoring and refining the information in order that users make the most effective use of the appropriate data and information.

Collaboration on research and setting questions that address wider issues and common problems. This enhances and develops the information and knowledge base and contributes to more effective outcomes and dissemination.

A champion or 'beacon carrier' is identified to promote and explain the new and complex form of marine governance. There is a role for an *agent provocateur* with oversight of marine governance as a whole to ask difficult questions, promote discussion and, in so doing, enable the creation of solutions for marine planning. This champion should also be able to promote the marine information vehicle and develop in tandem with this the needs and demands of users of the system.

Potential to expand the information facility for data and information beyond UK waters.

The key short-term action required to initiate the process of more structured access to The Crown Estate's marine planning tools (e.g. MaRS). It is recommended that The Crown Estate explores options for achieving this, in a way that clearly makes the tool arms-length, from its existing operation.

It is also recommended that the Steering Group, established for this research project, continues to meet on a 6 monthly basis as a network.

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Marine and Coastal Access Act 2009

Marine (Scotland) Act 2010

9. Appendices

APPENDIX I – *Research Team*

Research Director:

Anne-Michelle Slater, University of Aberdeen

Research Team:

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Professor M. G. Lloyd, University of Ulster

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Professor Deborah Peel, University of Ulster

Research Assistance:

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APPENDIX II: *Steering Group Members*

The Crown Estate

Mr Dermot Grimson

Ms Susan Kidd

Mr Jamie Moore

Dr David Tudor

The Planning Exchange Foundation

Mr Antony Burton, OBE

Marine Management Organisation

Mr Stephen Brooker

Marine Scotland

Mr David Palmer

Welsh Assembly Government

Mr Alan Storer

Dr Julia Williams

Northern Ireland Department of Environment

Mr Thomas Matthews

APPENDIX III: *Interviewees*

Mr Stephen Brooker, Marine Management Organisation

Mr Antony Burton, former Director of The Planning Exchange

Mr Patrick Jordan, British Ports Authority

Mr Craig McLaren, Director, Royal Town Planning Institute (RTPI) in Scotland

Mr Alan Storer, Welsh Assembly Government

Mr Charles Strang, Policy Officer, RTPI in Scotland

Mr Graham U'ren , Planning Director, Dundas and Wilson, LLP and former Director of the RTPI in Scotland

Mr Colin Wishart, Highland Council

APPENDIX IV: Questions for basis of semi structured interviews

Research project: An examination of the viability and appropriateness for a marine planning exchange for UK waters

Funded by The Crown Estate and The Planning Exchange Foundation

Research team: Anne-Michelle Slater (University of Aberdeen), Professor Greg Lloyd and Professor Deborah Peel (University of Ulster) Professor Rob Duck (University of Dundee) and Dr Tim Norman (Niras Consulting Ltd)

MARINE INFORMATION

Semi structured interview questions

A. Background information

1. Name:

2. Contact telephone number:

3. Area of marine expertise:

4. Current position:

B. The Marine Environment

1. Where do you source the following for the marine environment :

    - information
    - debate
    - education

2. What are your views on the provision of information in order to enable marine plans to be created and marine planning decisions to be taken (decisions to be made in accordance with the plan, but an element of discretion to remain)?

3. Can you comment on the relationship between scientific information and policy development in the marine planning process? Please provide examples.

4. Is the information upon which you draw available and accessible to:

    - others in marine planning /science
    - members of the public
    - NGOs

Please provide examples.

5. Are you or your organisation part of a formal or informal network which provides access to marine information? Please provide examples.

6. Do you consider there is a role for a marine exchange which could:

    - collate and synthesis information particular to the marine environment
    - enable ideas and good practice exchange ?

If yes: please explain why this would be beneficial

If not: please detail how and where the information and ideas exchange is already available and consider if there is an information or ideas exchange gap

7. Any other comments about the provision of information on the marine environment?

C. Administrative information

1. Date:

2. Name of interviewer:

3. Type of interview : in person/phone/ email

4. Tape of interview Y/N

5. Written answers to be provided to the questions Y/N

6. Interview consent form signed Y/N

APPENDIX V – Options Report: Matrix

	Option 1	Option 2	Option 3	No MPX
INFORMATION				
Information Management	✓	✓	✓	✗
Provision of current knowledge	✓	✓	✓	✗
Online resource	✓	✓	✓	✗
Access to marine planning tools	✓	✓	✓	✗
Information around marine planning tools	✓	✓	✗	✗
Addressing gaps and future concerns	✓	✗	✗	✗
FORUM & ENGAGEMENT				
Network of specialists	✓	✓	✗	✗
Forum creation	✓	✓	✗	✗
Good practice sharing	✓	✓	✗	✗
Engage with interested parties	✓	✗	✗	✗
Link to related bodies within & beyond the UK	✓	✓	✗	✗
EDUCATION & TRAINING				
For professionals	✓	✗	✗	✗
For other individuals/bodies	✓	✗	✗	✗

APPENDIX VI – Option 1 (O1) (as proposed to the Steering Group)

The central role of O1 would be information provision for marine planning. It would have two other purposes: creation of a forum/network for those involved in this area and an education, training and engagement role. Each is set out in more detail below.

Information (as proposed to the Steering Group)

Great deals of data, information and information tools are available on the marine environment (e.g. Marine Scotland Atlas, MEDIN). To make the best use of this information,

it would need to be managed/focused. Furthermore, much of the information is scientific, yet is required by policy makers to make decisions. There is, therefore, an issue as to how this can be best translated for use in policy development and decision making for marine planning and licensing. Finally, some information and information tools are not in the public domain, even for use by government bodies involved in marine planning (e.g. The Crown Estate MaRS system). In order to avoid duplication of effort and to make best use of existing resources, how can the existing information and tools be most effectively utilised?

Options O1 could provide:

- Management of information and current state of knowledge access to marine planning tools and knowledge of such tools;
- Identification of gaps and priorities for information;
- Online resource information and alerts.

Analysis of the Option 1/information

The research revealed that although this comprehensive information vehicle was desirable and there was a need for it, there was an important first step, which was the provision and availability of basic existing shared data. The online resource of data and information was the first stage for a marine information vehicle. Access to marine planning tools and knowledge of such tools was not discussed by interviewees nor did it emerge an issue with the case studies. Discussion in the Steering Group meetings suggest that the access to and making the best use of the marine planning tools was linked to the provision of basic existing shared data. This is therefore also regarded as an important initial objective for a marine planning information vehicle.

Once there is availability of shared basic data and planning tools, there is a requirement for management of the information. This was regarded as important to get the most effective use of the information and to make the process of marine planning and decision making more effective, adding value and purpose over and above a basic information resource service.

Only when there is a resource which provides an overview and management of existing information, can there be an identification of gaps and the establishment of priorities for research to complete and enhance the existing information. This could take a range of forms form specialist scientific information to good practice on marine management in other jurisdictions.

This analysis of Option 1 is in line with the agreed working principles established by the Steering Group. It sets realist but essential objectives for marine planning and underlines the requirement for the urgency for the accessibility of good basic information for regulators and other users of the seas and coasts.

Forum/Network (as proposed to the Steering Group)

There may be a need for a forum for those involved in marine planning in UK waters. This could enable the identification of common problems and sharing of good practice, for

example, by the establishment of regular meetings (e.g. Workshop at the MMO on 31 October 2011). A marine planning network could also broker meetings with external experts and organisation of events, other than training, as appropriate (e.g. good practice awards).

Option 1 could provide:

- Network of UK marine planning specialists;
- Forum creation;
- Links to related bodies within the UK (RTPI Water and Marine Spatial Planning Network) and beyond the UK (EU Encora, GBRMPA).

Analysis of O1 Forum/ Network

The research revealed that there was a desire and a need for a network of marine planners. It was also considered that this should begin with a basic model, connecting those involved in regulation and creation of marine plans. The Steering Group concluded that there was merit in sharing practice across the UK and that those involved could form a network. The interviews revealed a desire for greater connectively between those involved as it is a relatively new and interdisciplinary activity.

Education, Training and Engagement (as proposed to the Steering Group)

Marine planning is a developing discipline and people from a range of disciplines are involved in the process. There are legal requirements to undertake the process of marine planning, but there is also the related issue of engagement with coastal communities and others to enable an effective marine planning process. Two types of training are required: how to undertake marine planning (technical and professional skills) and explaining to others (users of the marine environment, coastal communities, politicians, interest groups) what is involved in the process and how it affects them. Attendance at training courses enables networking opportunities and for the dissemination of good practice within home nations and the UK.

Option1 could provide:

Training courses: professional

- Targeted to members technical and professional needs;
- Delivered in-house, online or at a central/appropriate location;
- Open to non-members (at higher cost).

Analysis of Education, Training and Engagement

There was some appetite for education and training and it was felt that appropriate information could be better circulated through a network. This was not revealed as a high priority either from the interviewees or in the case studies. Training on planning tools was included in the basic shared information database (see above).

Education / Engagement (as proposed to the Steering Group)

- Forum /training designed for those who need to know about marine planning for example: coastal communities, politicians (local /national/European) and developers and their agents.

Analysis of Education / Engagement

The interviews and case studies did indicate that wider education and engagement for the public and others could be achieved through a marine information vehicle and that this was something that was required.

The analysis of the interviews, case studies, and initial options for a marine information vehicle, in the context of the working principles, the literature review, UK marine management governance and the theoretical framework, have enabled some conclusions to be drawn in the form of objectives for a marine information vehicle and these are set out in the final conclusion section.