

ESaTDOR

European Seas and Territorial Development, Opportunities and Risks

Applied Research 2013/1/5

Final Report | Version 15/4/2013

Executive Summary



This report presents the final results of an Applied Research Project conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

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This basic report exists only in an electronic version.

ISBN 978-2919777-09-9

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Executive Summary

Context Setting

As Europe seeks to emerge from the consequences of the economic crisis, the importance of territorial cohesion in supporting 'smart sustainable and inclusive growth' is becoming ever more apparent. However the rhetoric has for many years equated territorial cohesion with a terrestrial or land based agenda.

Recently there has been a growing realisation that **the seas are also a context** which can help governments realise their development aspirations. As Maria Damanaki, EU Commissioner for Maritime Affairs and Fisheries, in a speech to the European Parliament in December 2011, said:

“Governments are waking up to the fact that we have just about reached the limit of what can be squeezed from the 29% of the planet that is land. Therefore, it becomes clear that we need to look even more to the sea”.

However, increasing opportunities for human use of the sea are set alongside growing realisation of the **complexity of land-sea interactions** and an **awareness of the risks** that the new focus on marine areas pose to both ecological and human wellbeing. As a consequence, calls for more integrated forms of planning and governance that have long been a feature of terrestrial planning have begun to emerge for the sea. These perspectives emphasise the importance of good governance arrangements that facilitate **integration of sectors and administrative arrangements, both horizontally and vertically, particularly in cross border and transnational contexts, and cross the land-sea divide.**

Within the marine environment, initial calls for action stemmed from growing concern that human activities were adversely affecting the maritime environment, and in turn threatening the ability of marine areas to support land based economic activity (e.g. OSPAR, HELCOM, Barcelona Convention etc.). The EU has in recent years added to these efforts through its promotion of Integrated Coastal Zone Management (ICZM) and developments such as the Marine Strategy Framework Directive, which seeks to ensure “good environmental status” of European seas. In addition, the EU's Integrated Maritime Policy and encouragement of maritime spatial planning have been influential in generating the search for more joined up approaches. However much still needs to be done to facilitate more integrated approaches to the territorial development of Europe's maritime regions.

Indeed, European policy is making increasing reference to the **marine environment as integral to the territorial agenda.** The Territorial Agenda of the European Union 2020 agreed in Gödöllő, Hungary in May 2011 states:

“Maritime activities are essential for territorial cohesion in Europe... Such planning should be integrated into the existing planning systems to enable harmonious and sustainable development of a land-sea continuum”.

(Informal Ministerial Meeting of Ministers responsible for Spatial Planning and Territorial Development, 2011, paragraph 55).

Also, the Draft Common Strategic Framework which seeks to develop place-based integrated funding packages for 2014-2020 emphasises **regional seas as functional areas** within which strategic investments can be made. In addition, DG Mare, through its Blue Growth Strategy, is drawing attention to the growth potential offered by the seas and oceans. Regional seas activities in the Baltic, Atlantic, North Sea and Adriatic and elsewhere are also developing. **Maritime considerations are therefore increasingly being linked to territorial cohesion agendas.**

This project, as part of the ESPON 2013 programme, sits within these broader maritime and territorial policy contexts. This is the first time that ESPON has explicitly looked to the seas as part of European space and not simply as an adjunct to the land or as a barrier to territorial development. ESaTDOR seeks to understand land and sea interactions as an integrated whole and hence to explore territorial (broadly defined) development opportunities and risks for Europe's maritime regions. As a project, it has been wide ranging, aiming to:

- **Map** different types of sea use across Europe with the objective of creating a typology (or typologies) of different types of coastal/sea regions, drawing upon existing ESPON terrestrial typologies as appropriate;
- **Identify** various development opportunities and risks for different types of sea/coastal region;
- **Explore best practice** examples of terrestrial-marine and maritime governance to provide advice and guidance on how these critical assets can be efficiently, effectively and democratically managed; and
- **Make policy recommendations** and identify further areas for applied policy research designed to maximize the opportunities of and minimize the human impacts on the critical marine assets of Europe.

Our starting **research hypothesis** therefore was:

That the marine environment is a critical yet undervalued component of the EU's, national, regional and local territorial space. Its associated risks and opportunities need to be better understood and more effectively managed, in an integrated manner, to ensure that these significant marine assets and resources can better contribute to broader European strategic goals.

ESaTDOR has had to deal with a number of complex issues, including determining sea boundary definitions, data access and compatibility issues, disaggregation of data between territorial and marine space and the difficulty of developing meaningful units of analysis for European marine space. The approach has therefore been exploratory, experimental, incremental and iterative, and has broken new ground for ESPON in a number of ways. It is the **first ESPON project**:

- To have focused on the **European seas**. It has sought to consider the marine environment not as a separate entity, but **as a space which is inextricably linked to the land from the perspective of broader territorial cohesion**. Land sea interactions have been considered as a two-way and dynamic process, with the fortunes of marine and landward areas closely interwoven. Although linkages may be most apparent in coastal regions and inshore waters, it has also been recognised that interdependencies stretch far inland as well as across the oceans.

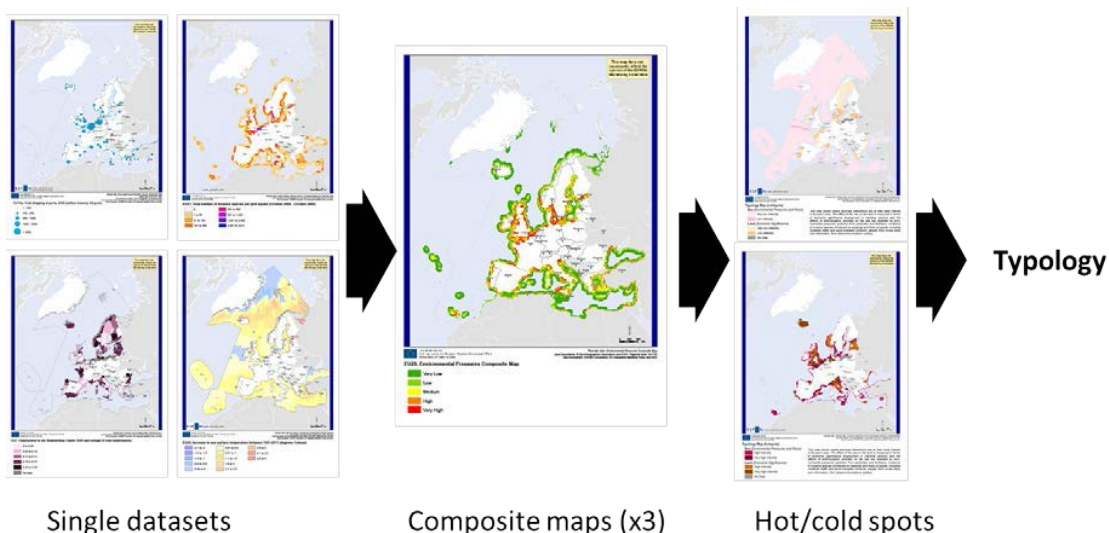
- **To map the thematic priorities** (economic activity, energy and pipelines and cables, transport and environment) across all the European seas, **using a consistent and comparable approach, both within and between variables.**
- That sought **to identify the intensity of land-sea interactions, focusing on both opportunities and risks, in terms of economic activity on the land, environmental pressures on the sea and flows of goods, people and services through the seas,** within the constraints of data availability.
- To develop a tentative typology of land sea interactions based upon intensity of activity on the land and sea.
- **To consider the diverse, complex, often embryonic multi-level governance arrangements** seeking to address competition in the use of maritime space.

Methodological Overview

Given the broad scope of this research, the methodological approach has been structured along two complementary dimensions. First there was a thematic dimension which included analysis of key sectoral or thematic perspectives and work included the identification of Europe-wide data sets which could provide a comparative picture of current conditions across maritime space. The second dimension focused on the six regional seas in question (the European parts of the **Arctic and Atlantic Oceans and the Baltic, North, Mediterranean and Black Seas**), by examining the current conditions in relation to the themes of the study, distilling the special attributes of each sea, evaluating the approaches to transnational marine related governance arrangements and investigating current and future orientated territorial development opportunities and risks..

A third activity was mapping the data in an integrated and comparable manner to explore land-sea interactions. For this purpose a 10x10km grid square system was used. Maps were based around three considerations: economic activity (on land), environment (largely marine and coastal) and flows (through the sea, of goods people and services). By combining these data sets a maritime region typology was established, measuring the intensity of maritime activities by reference to hot and cold spots of high or low intensity. Figure 1 illustrates the process of typology development and further details are available in both the Main and Scientific Reports. This typology provides the framework for developing future orientated scenarios and evaluating policy options.

Figure 1: Summary of methodology for mapping and typology development



Main Findings

The key findings of ESaTDOR relating to a variety of themes and scales are:

A New Maritime Region Typology

Previous ESPON typologies are all land-based and do not adequately capture uses of maritime space or land-sea interactions. To this end, a new maritime region typology was developed by combining a limited number of land and sea-based data sets based around **economic activity, environment and flows**.

The final typology map produced (Map 1, see page 6) indicates the intensity of land-sea interactions expressed by types of maritime regions – these are the **European Core**, where land-sea interactions are at their most intense, through **Regional Hubs, Transition, Rural and Wilderness regions** where land-sea interactions are at their least intense. Table 1 explains the different characteristics of each maritime region. The typology creates a visual representation of the land-sea interactions. It suggests that it is difficult to prescribe a particular characteristic or label to individual seas. There is considerable variation within the regional seas as well as between them. The traditional European core or pentagon is predominant in this imagining, with the English Channel and southern North Sea being characterised by the most intense maritime activity and forming the European Core Maritime Region. The Arctic represents the only true wilderness region of Europe; however future developments such as the opening up of new shipping routes and increased hydrocarbon exploitation could have direct effects on the characteristics of this region.

Table 1: Characteristics of the types of Maritime Regions identified by ESaTDOR.

	EUROPEAN CORE	REGIONAL HUB	TRANSITION	RURAL	WILDERNESS
Economic Significance	Greatest concentration of maritime employment/ high strategic economic importance.	High maritime employment, significant economic importance.	More localised concentrations of maritime employment/ more dependent upon a limited number of strategic industries.	Low levels of maritime related employment, economy dominated by primary production and tourist sectors.	Very low and intermittent levels of maritime employment, limited direct economic importance.
Flows	Great international connectivity, global hinterland.	Nationally significant and some international connections, European scale hinterland.	Nationally and regionally significant connections and hinterland.	Limited connectivity, local/ regional hinterland with some more significant sectors/ seasonal extensions.	Remote areas, limited connectivity. Very small local hinterland, some extensions.
Environmental Pressures	High environmental pressure associated with human uses.	Significant environmental pressures.	Medium environmental pressures.	Low environmental pressure.	Limited environmental pressure.
Land-Sea Interactions	Very high	High	Medium	Low	Very low

From the typology and consideration of the opportunities and risks that might be faced by each maritime region, it is clear that **land-sea interactions are dynamic and careful consideration needs to be given in thinking about the policy implications of different developmental scenarios which explicitly consider these dynamics.**

Maritime Scenarios underpin the significance of integrated thinking

In the same way that a new typology was required to help understand land-sea interactions, the ESaTDOR project has developed two new spatial scenarios that may be used to consider how the European territory may be structured in the future. Building on the work of the ESPON “Territorial Scenarios and Visions for Europe (ET2050)” project and the outcomes of a stakeholder workshop, the two new scenarios are a ***Europe of maritime flows*** and a ***Europe of self-sufficient maritime regions***.

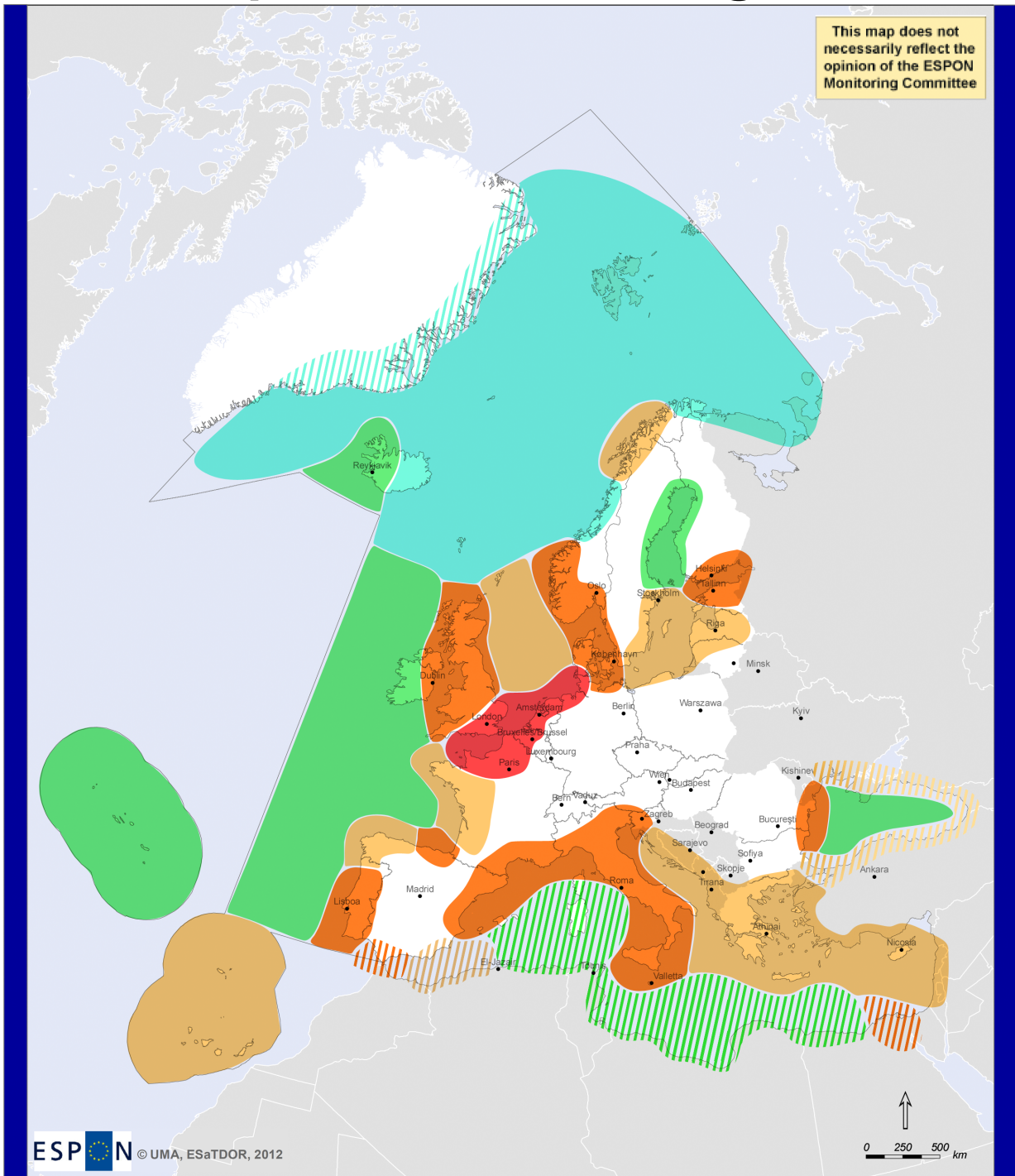
The *Europe of maritime flows* envisions a scenario in which economic globalisation continues to be the dominant force shaping territorial development, with increasing maritime connections over longer (deep sea) and shorter routes and with greater use of inland waterways. The European Core maritime region remains a central gateway for the import and export of goods.

Under the *Europe of self-sufficient regions* scenario, environmental concerns and slower economic growth are the main drivers of territorial development. Short sea connectivity is improved as there is greater emphasis on endogenous growth and the diversity of maritime regions as they seek to exploit more localised opportunities in the maritime sector, such as offshore wind and coastal tourism.

A more detailed explanation of the scenarios and their potential impacts on European seas is provided in Chapter 11 of the Scientific Report. The scenarios outlined above are a basis for discussion about future territorial development policy, considering more explicitly how land-sea interactions shape growth and development, recognising the different opportunities and risks that exist for exploitation of maritime assets in each region. The work on the scenarios highlights the **importance of integrated thinking as land and sea are inextricably linked, with decisions made for one environment having consequences for the other. Good Governance is required to reconcile different interests.**

Early governance arrangements in most of the regional seas originated from a concern about deteriorating environmental quality caused by human activity, with a desire to repair this damage. One of the key findings is that **effective governance arrangements are needed at all levels to address and reconcile differences of interest between traditional and new uses of the sea, and between environmental and development interests.** The project has shown that the existing governance arrangements dealing with cross border and transnational issues within a maritime context are generally ad hoc, incremental and tailored to meet the specific needs of particular issues or specific agendas. They are highly complex and often there is a lack of integration between institutions working in the same area, with overlapping or competing remits. The most well established institutional arrangements dealing with integrated territorial development linking land and sea are found in the Baltic, although even here there are continuing integration and implementation issues.

European Maritime Regions



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Thematic data: Typology Map, Economic Significance and Environmental Pressures Composite Maps
Land boundaries: © EuroGeographics Association and ESRI. Regional level: NUTS2.
Sea boundaries: OSPAR Convention, EU Integrated Maritime Policy and EEZ.

Regions derived from typology map

- European Core
- Regional Hub
- Transition
- Rural
- Wilderness
- Typology influenced by lack of data

This schematic typology map shows Europe's coastal and maritime regions classified based on the intensity of land-sea interactions (economic activities, flows of goods, people and information, environmental pressures). These interactions are greatest in the Core and at their lowest in the Wilderness.

Map 1. European Maritime Region Typology (schematic map) devised by ESaTDOR.

Overall, this research highlights that **the seas matter for territorial cohesion**. They are spaces that offer development opportunities and should therefore be considered as integral to territorial development. However this brings with it challenges. How these development opportunities should be managed? All activities carry risks and can lead to competition with other interests. There is a growing recognition that good governance is a key pre-requisite to managing these conflicting claims and to achieving integrated territorial development.

Options for Policy Development

The following recommendations are derived from the main findings of the ESaTDOR project. They respect the broader policy perspectives of territorial development; the emergence of Maritime Spatial Planning; and the opportunities offered by Blue Growth.

Promoting Good Governance

Recommendation 1: Maritime spatial planning needs continuing support and promotion at both EU and national level to ensure that states maximise the opportunities presented by Blue Growth in a way that is consistent with the ambitions of the Marine Strategy Framework Directive, whilst contributing to the territorial cohesion objectives of the Territorial Agenda of the European Union 2020.

The ESaTDOR project supports the hypothesis set out at the start of the project. Despite the statement in the EU's Territorial Agenda 2020 that 'maritime activities are essential for territorial cohesion in Europe' and that Maritime Spatial Planning 'should be integrated into the existing planning systems to enable harmonious and sustainable development of a land-sea continuum', this process is still at an early stage. The project has revealed extensive experimentation with transnational governance arrangements for maritime regions. But in all European seas it is evident that integrated management both across national boundaries and the land sea divide could be strengthened.

Recommendation 2: At a European scale, there should be greater recognition of the importance of marine space within EU activities and greater integration of sectoral policies with maritime dimensions. Close collaboration between DGs Environment, Mare, Move, Energy and Regio (for example) should be encouraged.

The EU has already taken a leading role in promoting maritime spatial planning. The development of macro-regional strategies for the Baltic and Atlantic are good examples of where the EU has highlighted the significance of maritime assets and has adopted integrated and collaborative working across different directorates. Opportunities to extend this mode of working to other aspects of the EU's activities and in other regional sea areas should be explored.

Recommendation 3: There is a need for continuing efforts to develop effective transnational working in support of maritime spatial planning at different spatial scales.

Many of the existing maritime governance regimes reviewed by the ESaTDOR project have developed organically over time to deal with particular issues or sectoral interests, and may be regionally or sub-regionally focused. They tend to be relatively

weak, lack formal powers and have insufficient finance to ensure that progress is maintained. The case studies also demonstrate that informal (non-binding) governance can be as effective as formal (legally binding) governance arrangements. In many areas an evolutionary process is evident and some good practice is emerging which reflects growing recognition of the need to address transboundary maritime planning issues at different spatial scales. The EU has an important role to play in encouraging and facilitating the development of effective maritime governance both in national and transnational space.

Recommendation 4: National governments should develop integrated maritime planning arrangements that ensure consistent planning across the land sea continuum in both national and transnational space that takes account of the strength of land-sea interactions.

With some exceptions, such as in Germany where the Länder have planning responsibilities that encompass land and marine areas, planning arrangements for the land and sea tend to be distinct with only a very small geographical area of overlap. Efforts will be needed to ensure more effective integration of maritime policies across the land sea divide.

Recommendation 5: The typology of maritime regions developed in this project could be used as a spatial tool for understanding land-sea interactions and informing integrated maritime policy development at a range of different scales.

ESaTDOR's Maritime Region Typology illustrates the strength of land sea interactions and spatial variations across European maritime space. The five types of maritime regions each have distinct identities that can be used to inform policy makers and consequently may benefit from different types of policy intervention.

Possible options for developing policy responses for the different maritime regions identified in the typology could include the following:

- The CORE area should be the focus of the next integrated sea basin strategy. Some of this core region is already included within the proposed Atlantic Strategy, however to maximise opportunities for integration, a North Sea basin strategy should follow swiftly.
- REGIONAL HUBS have potential capacity to benefit from many areas of economic activity identified in DG Mare's Blue Growth work. They demonstrate an established diversity of maritime activity and are well placed to take up new opportunities, release pressure on the European Core and strengthen their relative position.
- TRANSITION areas have a more narrowly defined maritime economy and need to identify their key maritime features/strengths and how they can be developed in sustainable way. In addition opportunities for new maritime activities should be explored.
- In order to protect the characteristics of the valuable but vulnerable ecosystems of RURAL and WILDERNESS areas, environmental protection policies should remain predominant, with strong precautionary principles being applied to economic development proposals.

Recommendation 6: Transnational programmes (e.g. INTERREG) should make use of the typology, maritime scenarios and regional sea reports produced by ESaTDOR in developing their future activities.

In addition to the maritime region typology, the outputs of the ESaTDOR project include the development of maritime scenarios and a series of regional sea reports covering each of the 6 European seas. Taken together this material provides a considerable source of maritime information which can be used to assist policy makers in the development of the next round of EU transnational programmes.

More Consistent Data Collection and Mapping of Maritime Resources is required

Recommendation 7: The EU should develop a common framework for the collection of maritime data to facilitate harmonisation and consistency of spatial data across maritime regions.

Valuable data collection is already taking place on a regional basis. However, consistent data specification and definition of key terms is needed to apply this information in a useful manner across Europe's maritime space. In addition to regional variations, our research has revealed inconsistencies in the language and definitions for environmental pressures and impacts used by the Marine Strategy Framework and INSPIRE Directives and the European Environment Agency. These inconsistencies should be resolved in order to facilitate interoperability between these different sources of data and provide a clear basis for future collection of maritime spatial data.

Recommendation 8: The scope of maritime data collection should be broadened thematically, spatially and beyond the current ESPON boundaries to develop a more comprehensive understanding of land- sea interactions.

There are significant thematic gaps in publicly available data (e.g. fisheries and the disaggregation of areas caught and where fish are landed; short sea shipping information below NUTS0 level; and any disaggregation between offshore/onshore energy production). There is also variation in the quality and availability of data spatially. A particular gap relates to environmental data beyond coastal waters; here data is scarce and often relies on modeling from limited samples. Gaps also exist in relation to maritime data for non EU countries that share regional seas highlighting a key area where cooperation on data collection could be beneficial. Identifying and attempting to fill these gaps should be considered as part of the Marine Knowledge 2020 programme.

Recommendation 9: Existing maritime data sources should be made more widely accessible.

Our research revealed a number of sources of privately held data and also where use of data required payment. One significant example related to data on oil and gas installations and it is recommended that efforts should be made as part of the Marine Knowledge 2020 programme to bring these into the public domain.

Recommendation 10: In order to facilitate more consistent approaches to mapping land-sea interactions, the 10x10km grid square framework used in this project should be adopted as a marine equivalent to the NUTS units used on land.

A major challenge faced by the project was the absence of an established system for defining comparable sea units in order to provide reliable multi- thematic maps.

Existing definitions such as EEZs and marine regions for the MSFD and EU Integrated Maritime Policy do not always correspond, being focused on political jurisdiction, ecosystem functions or thematic interests such as transport. In order to address this problem ESaTDOR has devised the 10x10km grid square framework for mapping marine data across comparable spatial units. Formalisation of this approach should be considered as part of the Marine Knowledge 2020 programme and future development of the INSPIRE Directive.

Directions for Further Research

The research is the first time ESPON has dipped its toes in the sea. It should therefore be seen as a scoping project rather than a definitive and final statement on a rapidly evolving, emerging and important European topic. This final section identifies areas for further research which may also assist in improving our understanding of land-sea interactions and how these may best be managed to foster territorial cohesion and development.

Governance

The maritime governance case studies considered during the ESaTDOR project revealed a spectrum of governance styles in terms of relative formality and level and extent of stakeholder engagement. The appropriateness of different governance styles in different contexts seems to merit further investigation to identify best practice and inform future development in this area

Typology/Scenarios

The maritime region typology and spatial scenarios provide useful tools for stimulating debate about future development trajectories and the policies that could be put in place to achieve desired outcomes. Scenarios should be limited in number and focus on highly contrasting visions of the future. Such an approach encourages more innovative and imaginative thinking.

- Further development of the typology by adding new datasets and extending geographical coverage to inland areas within ESPON space and to neighbour countries.
- DG Mare's Blue Growth report has identified a number of "hot spots" based on maritime clusters. These could be compared to the "hot spots" identified by ESaTDOR in order to determine additional maritime regions with the greatest potential for growth, or those maritime regions where declining environmental conditions may suggest limits to growth.
- Within this ESPON project, notwithstanding the limitations of data availability, a typology has been created which shows the current picture of land-sea interactions in Europe's seas. Further investigation could show how these patterns may change under different scenarios, providing powerful images to stimulate debates around future maritime policy.

Data and Mapping

There are a number of global and EU funded projects and initiatives for the collation and synthesis of coastal and marine data with overlapping aims (e.g. GMES, SEIS, EMODnet, WISE-water, WISE-marine, INSPIRE etc.). Can these projects be brought together under one spatial data manager? We welcome the aspirations of the Marine Knowledge 2020 Green Paper (CEC, 2012), which has also noted the challenges we have faced and seeks to develop a more co-ordinated and integrated approach.

- Data collection focuses mainly on land or sea based attributes, but there is a paucity of data or information which focuses specifically on the land-sea interactions; which are assumed but largely unproven. For example, the degree to which coastal communities are dependent on their links to adjacent seas and the potential for them to benefit from growing maritime sectors could be investigated in more depth.

Obtaining employment data at NUTS3 level could provide a more accurate picture of maritime clusters.

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The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.

ISBN 978-2919777-09-9