

Chapter 9

Managing Land Sea Interactions: Case Studies of Coastal Governance in Four EU Member States



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Abstract Under the Marine Strategy Framework Directive, EU member states are committed to delivering Good Environmental Status in EU marine and coastal areas but the risk of damage from land based pollutants is rising, along with increased economic uses and activities in marine and coastal areas. While it is accepted that land sea interactions need to be managed, and uses and activities in our marine and coastal areas must be regulated, the complexity and dynamic nature of land sea connections create challenges for governance systems. This chapter reviews the marine and coastal management systems in operation in Ireland, Romania, Spain and France. Using relevant case studies at national, sub national and local level, we assess their capacity to manage complex and dynamic land sea interactions. We further examine their ability to achieve integrated, multiscalar and cross sectoral governance of their marine and coastal areas. Recommendations to assist EU member states who are developing marine and coastal governance systems are also provided.

Keywords Evolutionary Governance Theory (EGT) · Land Sea Interactions (LSI) · Marine Strategy Framework Directive (MSFD) · Good Environmental Status (GES) · Intergrated Coastal Zone Management (ICZM) · Features and Mechanisms of the Ocean and Coastal Governance

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9.1 Introduction

Occupying the interface between marine and terrestrial areas, coastal zones are highly diverse and truly unique multifunctional natural areas that are critical habitats for endangered species which accommodate more than 60% of the world's population (O'Connor et al. 2009, p. 923) and provide significant ecosystem services (Ramesh et al. 2015, pp. 85–86). Despite widespread recognition of their environmental sensitivity and crucial ecological role, pressures on coastlines are increasing due to growing human populations and economic activities on the landward side in addition to climate induced changes such as sea level rise, higher sea temperatures and more frequent and intense weather events on the seaward side (ibid, 2015, pp. 85–86). These complex and interconnected land sea interactions (LSI hereafter) have the potential to undermine the ecological health of coastal areas and their ability to fulfil their many important roles. Yet managing LSI is a challenging task and there is concern that existing governance frameworks, instruments and mechanisms that are in place in coastal areas are insufficient to ensure the sustainable use of coastal and marine resources (Van Assche et al. 2020, p. 2). The intense pressures that coastal areas face and their ineffective management systems has led commentators to conclude that coastal zones are *'arguably the most transformed and imperilled social ecological system on earth (which) are characterised by pervasive unsustainable practices'* (Ramesh et al. 2015, p. 86). Thus, in order to ensure sustainable ocean governance, better management of the land sea interface is required.

The need to manage LSI and address the unsustainable use of our coastal and marine resources is recognised in the requirements of the 1982 United Nations Convention of the Law of the Sea (UNCLOS) and by the adoption of EU Member States of the Marine Strategy Framework Directive (MSFD hereafter), which commits them to achieving Good Environmental Status (GES hereafter) in marine and coastal environments. There is an appreciation that effective governance systems are needed to manage the complex interrelated factors that influence the environmental quality of marine and coastal areas (Schlüter et al. 2020, p. 1) but the historical regulation of land and sea as separate entities and the governance of coastal areas in accordance with terrestrial models pose challenges (Partelow et al. 2020, p. 2) to the delivery of the required systems. The need for *'fit for purpose'* coastal and marine governance systems has led to much debate among scientists and environmental managers on *'effective policy mixes and regulatory instruments to facilitate integrated forms of multiscale and cross sectoral governance across ecologically diverse marine spaces'* (Van Assche et al. 2020, p. 2). The continuing implementation of the MSFD has brought this issue into sharp focus and noting the diversity of terrestrial and marine planning systems throughout the EU, an examination of how LSI are handled in marine and coastal management regimes in European countries is both timely and necessary.

Using the perspective of Evolutionary Governance Theory (EGT), this research attempts to inform the previously mentioned debate among scientists and environmental managers on what are the most effective *'policy mixes and regulatory*

instruments' for managing LSI in the EU and facilitating the *integrated forms of multiscalar and cross sectoral governance across ecologically diverse marine spaces* that are urgently required. EGT is considered to be a suitable lens for this approach as it presents an understanding of governance as a radically evolutionary and constantly changing process that is influenced by the interplay of actors, institutions, knowledges and systems of sense-making (natural, technological, infrastructural), materialities and interest formations in any community, in any location and at any point in time (Van Assche et al. 2020, p. 3). The chapter begins with a brief review of how the issue of LSI has been dealt with at EU level and it continues with an examination of the institutional mechanisms and measures that are currently being used to manage LSI in the marine and coastal governance regimes in 4 EU member states (Ireland, Romania, Spain and France). The effectiveness of these institutional mechanisms and measures for delivering improved environmental outcomes is considered and the findings of the research are used to draw lessons for the future implementation of MSFD in achieving GES in the coastal and marine areas of the EU.

9.2 Background to EU Level Regulatory Frameworks for Managing Land Sea Interactions

Concerns arising from the pollution of coastal and marine waters from land based sources are well established. The 1982 United Nations Convention of the Law of the Sea (UNCLOS) includes a specific requirement for States (under Article 194) to put measures in place to deal with pollution of the marine environment including pollutants arising from land-based sources (Kidd et al. 2019, p. 247). It is likely that the inclusion of LSI in UNCLOS was influenced by the emergence of ICZM – (also known as ICM or Integrated Coastal Management) which focuses on the need for integrated planning and management of human relationships with the coastal and marine environment. The ICZM approach is considered to have been particularly influential in focussing attention on LSI in Europe and elsewhere in the mid 1990s where it was recognised as a *'mechanism to reduce the deterioration of coastal areas, and progress the sustainable use of coastal resources in Europe'* (Falaleeva et al. 2011, p. 787). A range of European countries participated in an ICZM Demonstration Programme in 1996 which examined the approach and its suitability for national level implementation in Member States. The findings from this Programme later informed the Communication to the Council and the European Parliament entitled "Integrated Coastal Zone Management: A Strategy for Europe" (COM (2000) 547 final) which identified the 8 principles of ICZM (Table 9.1). According to Kidd et al. 4 of these principles refer specifically to core areas of LSI consideration – Principles 1 & 5 (which focus on interactions within and between natural systems and human activities) and Principles 7 & 8 (which relate to governance arrangements) (Kidd et al. 2019, p. 249).

Table 9.1 The 8 principles of Integrated Coastal Zone Management (ICZM)

ICZM principles	
1	A broad overall perspective (thematic & geographic) to take into account the interdependence and disparity of natural systems and human activities with an impact on coastal areas
2	A long-term perspective which will take into account the precautionary principle and the needs of present and future generations
3	Adaptive management during a gradual process which will facilitate adjustment as problems and knowledge develop. This implies the need for a sound scientific basis concerning the evolution of the coastal zone
4	Local specificity and the great diversity of European coastal zones, which will make it possible to respond to their practical needs with specific solutions and flexible measures
5	Working with natural processes and respecting the carrying capacity of ecosystems, which will make human activities more environmentally friendly, socially responsible and economically sound in the long run
6	Involving all the parties concerned (economic and social partners, the organisations representing coastal zone residents, non-governmental organisations and the business sector) in the management process, for example by means of agreements and based on shared responsibility
7	Support and involvement of relevant administrative bodies at national, regional and local level between which appropriate links should be established or maintained with the aim of improved coordination of the various existing policies. Partnership with and between regional and local authorities should apply when appropriate
8	Use of a combination of instruments designed to facilitate coherence between sectoral policy objectives and coherence between planning and management

Source EC (2002a, b)

The ICZM Communication was influential as it led to a 2002 recommendation by the European Commission (EC hereafter) EC (2002a, b) which encouraged Member States to prepare ICZM strategies (Falaleeva et al. 2011, pp. 787–788). However, the recommendation was not binding and as a result, its impact on governance was limited as only a small number of larger EU Member States (France, Spain and Germany) adopted it (Shipman and Stojanovic 2007, p. 378).

The Marine Strategy Framework Directive in 2008 (MSFD) (Directive 2008/56/EC) also addresses LSI as it requires member states to maintain GES (Bellas 2014, p. 16) by protecting and preserving the marine environment, restoring altered ecosystems, and preventing and reducing inputs into the marine environment by phasing out pollution. A subsequent review of the first implementation phase of MSFD acknowledged the work of member states in completing initial assessments of the environmental status of their marine and coastal areas. However, it stated that greater co-ordination of monitoring programmes and measures was needed along with full implementation of the EU's legislative framework for dealing with land based sources of pollution. The review also called for more systemic efforts to achieve ICZM (EC 2014a, b). The adoption of the 2014 MSP Directive is seen as significant to LSI management as it not only requires LSI to be taken into account (under article 6) but it also provides member states with the choice of using the MSP process or the ICZM approach to manage LSI in their coastal areas (Kidd et al. 2019, p. 248). According to O'Hagan, the key issue for member states following

their adoption of the MSP Directive became the management of LSI as they had to ensure that the implementation of the MSP Directive in their coastal and marine areas was coherent with other relevant processes related to LSI at member state level (such as spatial planning) (O’Hagan et al. 2020, p. 4).

Therefore, there is a clear understanding at EU and member state level that LSI must be effectively managed to achieve good marine and coastal environmental quality. It is also understood that the complexity of LSI and their dynamic nature is creating major problems for management approaches. In response to these concerns, the MSP Expert Group (who advise the European Commission) developed a framework that recognises LSI as the synergies created from land-sea natural processes (Fig. 9.1) and land sea economic activities (SUPREME 2015). The framework also includes guidance for the management of these synergies by recommending that MSP Authorities (as well as other stakeholders) should address LSI in a two

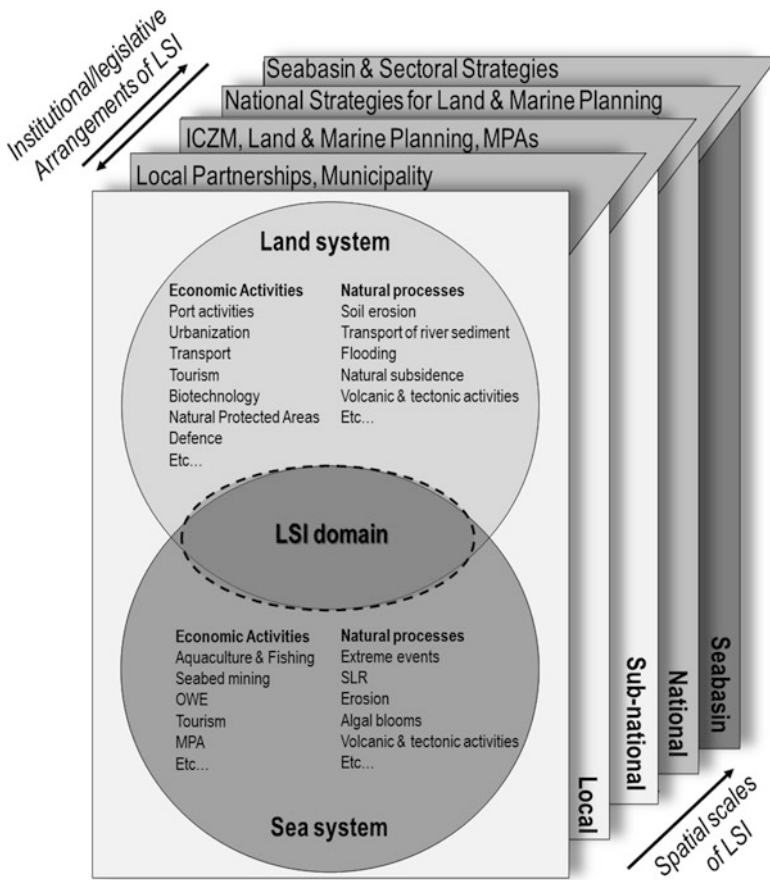


Fig. 9.1 LSI framework presenting land and sea systems and the relevant legislative/institutional arrangements relevant across spatial scales. (Adapted from EC 2017; SUPREME 2015)

phase process that involves understanding the dynamics involved and by identifying institutional arrangements/mechanisms that are most suited to managing them. While the framework acknowledges that different institutional mechanisms and measures are available for this purpose, no advice is offered on which of these mechanisms and measures should be used. Instead, it states that member states should choose institutional mechanisms and measures that are most suitable to the government context that they will be implemented in. ICZM is also included in the Framework as a management option (although it is referred to as ICM (Integrated Coastal Management)). In addition, it is made clear that LSI processes can be managed at various spatial scales such as local scale (e.g., local partnerships of municipalities and interest groups), sub-national scale (e.g., regional territorial planning), national scale (e.g., national and sectoral strategies) and seabasin scale (e.g., European seabasin strategies, cross-border cooperation protocols). Once again, no reference is made to the governance scales that are most appropriate for managing LSI as it is left to individual Member States to devise appropriate spatial scales for LSI planning and management.

Noting the guidance in the MSP Framework, this research seeks to evaluate the extent to which 4 member states (Ireland, Romania, Spain and France) have followed the guidance on investigating the dynamics of LSI in their jurisdictions. In addition, the institutional mechanisms and measures that each of these member states have chosen to manage LSI within their marine and coastal governance systems are considered along with their overall effectiveness and suitability to their respective government contexts. Given that the deadline for achieving GES under MSFD was 2020, it is anticipated that the responses of the different member states to the EU guidance on managing LSI are of significant interest to all MSP authorities, practitioners and other stakeholders.

9.3 Methods & Case Study Profiles

This research seeks to draw lessons from how LSI are being managed in a range of different marine and coastal governance systems from diverse European geographic areas, all of which are striving to achieve GES to comply with the MSFD. A total of 4 case studies were purposefully selected from Ireland, Romania, Spain and France in order to investigate the policy mixes and regulatory instruments that are in place for managing LSI in the EU and to explore how marine and coastal areas are governed at national, sub-national and local levels. Data was collected by reviewing earlier research that had been undertaken into LSI in each of the case study areas and by carrying out one interview with a principal researcher from each of the four selected case study areas between January and May 2020. A total of 7 questions were put to each principal researcher and examples of the questions are as follows:

- What are the features of coastal governance in the case study area
- Describe the barriers to coastal governance in the case study area

- What are the enablers for coastal governance in the case study area
- Describe the mechanism (or mechanisms) that are used to manage land sea interactions in the case study area

The responses given to the interviews were transcribed manually by the researcher during and immediately after the interviews and a manual qualitative assessment of the information given by each respondent was carried out. A thematic analysis of the data was then undertaken to see if common themes could be identified in each of the case studies based on the interview responses. The approach enabled a comparative analysis to be completed of the experiences of Member States in managing LSI and marine resources at all governance levels. The results of the comparative analysis were subsequently used to examine the link between governance and environment quality and to draw lessons for future marine and coastal governance. The selected case studies (Fig. 9.2) are as follows.

Case Study 1: Ireland (Atlantic Ocean and Irish Sea). The first case study considers the coastal and marine governance system for the extensive maritime area and 5800 km coastline in the Republic of Ireland (O’Hagan and Cooper 2002, p. 547). The governance system which is concentrated at national level is described as highly centralised and sectoral in its approach with at least 34 different government departments, agencies, and bodies with responsibilities for estuarine, coastal, and marine management across different territorial scales. Regional and Local Authorities tend to have a limited role in coastal and marine governance due to doubts about their own legal jurisdiction (O’Hagan et al. 2020, p. 10). However, changes have taken place since 2016 with the launch of the national marine planning framework (in July 2021) and the establishment of a national coastal change management strategy group to consider the development of an integrated coastal change strategy. Nonetheless, a strong land-sea divide remains in the Irish marine and coastal governance structure with very little integrative national legislation (O’Hagan et al. 2020, p. 10). In addition, there is no formal role for coastal communities and other non statutory stakeholder groups.

Case Study 2: Romania (Black Sea). In the second case study, the Romanian approach to coastal and marine governance on the semi-enclosed Black Sea is examined. Like Ireland, coastal and marine governance in Romania is centralised at the national level in the Ministry of the Environment. No regional or local authorities in Romania have marine or coastal management responsibilities and coastal communities are not involved in marine and coastal governance. The Black sea is classified as a vulnerable marine ecosystem and its governance is complicated as it is bordered by two EU Member States (Romania and Bulgaria) and four non EU Countries (Russia, Ukraine, Georgia and Turkey) – two of whom (Russia and Ukraine) are engaged in an interstate conflict (Vaidanu et al. 2020, p. 1). Despite these challenges, there have been Black Sea cooperation initiatives between bordering countries to improve its management and they include the preparation of a Strategic Action Plan in 2009 (Vaidanu et al. 2020, p. 3).

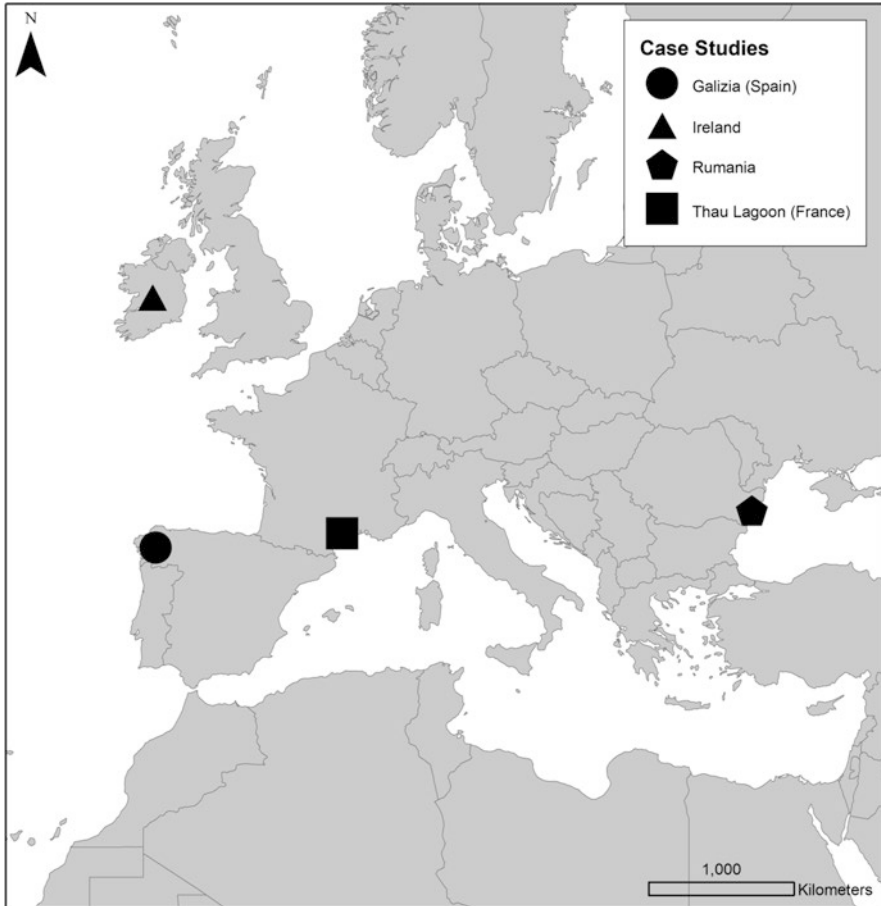


Fig. 9.2 Map of the case study areas. (Source: Authors)

Case Study 3: Galizia (Spain, Atlantic Sea). The third case study is focused on the regional (sub-national) governance of coastal and marine areas in Galicia. The area is comprised of 10 municipalities and 10% of its 136,000 population rely on coastal/marine activities such as fishing, aquaculture and seafood processing for their livelihoods. With respect to governance, central government has responsibility for marine and coastal areas at the national level while resource management (fisheries/aquaculture) and land and coastal planning are handled at the regional level by the autonomous Galician government (Pineiro-Antelo et al. 2020, p. 2) through a Coastal Management Plan (POLGA). All municipal level plans must adhere to the provisions of the POLGA. A notable feature of the region is that coastal and marine management is traditionally carried out in collaboration with Galician fishermen's guilds which are associations comprising fishermen and shellfish gatherers.

Case Study 4: Thau Lagoon (France, Mediterranean). The fourth case study considers local (sub-national) level coastal and marine governance in the Thau Lagoon, which is a stream-fed semi-enclosed lagoon connected to the Mediterranean Sea in the Languedoc-Roussillon region of France. Economic activities such as oyster farming and fishing take place in the lagoon while the surrounding area accommodates viticulture, horticulture and livestock farming. Tourism is also significant and urbanisation is creating further environmental pressures on the lagoon. The comprehensive governance structure in the Thau Lagoon involves the participation of stakeholders at all levels (community organisations, local municipalities, regional and state/national bodies) but these arrangements led to responsibilities for key issues (such as water quality) being spread across many organisations and stakeholders. To improve coordination and decision making between the different levels of governance, a brokering organisation (with multi disciplinary staff) called Syndicat Mixte du Bassin de Thau (SMBT) was created at the regional level (Daniell et al. 2020, p. 7).

9.4 Presentation, Analysis and Discussion of Results

A total of seven themes were identified from the interview responses; the influence of the EU, features of marine and coastal governance in Member States, opportunities for and barriers to effective governance, mechanisms of governance, the relationship between governance and environmental outcomes and the application of evolutionary governance theory. Insights across the four case studies are presented in aggregate below, with specific examples given from each case study.

9.4.1 *The Influence of the EU on Evolving Coastal Governance Structures*

The research findings reveal that overall, the EU has had a positive impact on coastal and marine governance as each of the four member states that were the subject of investigation have either devised or are in the process of developing mechanisms to deliver coastal and marine governance in response to their obligations as member states under the Marine Strategy Framework Directive. However, the research also revealed that prior to the adoption by member states of the MSFD in 2016, the level of engagement between the EU and member states in the area of marine and coastal governance has been somewhat variable as some (such as Spain and France) adopted the (non binding) EC Recommendation on ICZM in 2002 and others (Ireland and Romania) did not (Shipman and Stojanovic 2007, p. 378). This variable level of engagement has had clear implications on how the coastal governance systems of the member states have evolved – as the countries who engaged with marine and

coastal management in 2002 (Spain and France) are now much further advanced than those who did not (Ireland and Romania).

The research has illustrated that the approaches to marine and coastal governance structures and systems in the Spanish and French case studies have evolved over an extended period of time thereby enabling them to be adapted and more focussed on achieving better environmental outcomes for their marine and coastal areas. In the case of Spain, the researchers stated that the path towards integrated coastal management began in the 1990s with land use and planning laws relating to coastal areas being adopted at regional and national level in 1995, 2002 and 2007 and a coastal management plan being approved for Galicia in 2011. Despite the progress made, the researchers for the Spanish case study noted that the integration of ICZM policies on a vertical scale (between national, regional and local level) had yet to take place. With respect to France, the evolution of the governance system for coastal and marine areas (as shown in the Thau Lagoon) is demonstrated by the constant adaptation of administrative boundaries and governance arrangements that have taken place to take account of multiple changes within the lagoon and deliver specific environmental outcomes such as improved water quality.

In contrast to the Spanish and French case studies, there were no integrated marine and coastal governance structures in place in Ireland or Romania prior to their adoption of the Marine Strategy Framework in 2016. In the case of Ireland, the researchers expressed concern (at the time of the research in 2020) that the legislation, the policies and mechanisms being devised to give effect to MSP seemed to have been rushed and did not appear to have been 'road tested' or assessed for their suitability to the governance structure in which responsibilities for coastal and marine areas were fragmented (by a range of different government departments/ministries and supporting agencies). The researchers from Ireland used the example of the linear approach that has been applied in the UK to test policies to demonstrate this point. The UK linear approach involves the development of a green paper on a particular issue, which (after due consideration) progresses to a white paper and finally to legislation. This linear approach provides for a logical evolution in the development of policy which enhances understanding and promotes confidence among stakeholders. However, this logical evolution (or road testing) of policy was not evident in Ireland with respect to marine and coastal governance. Similar concerns were expressed by the researchers who undertook the case study of Romania. As a result of this lack of 'road testing' of policies and mechanisms, the researchers in Ireland and Romania were less confident that the legislation, mechanisms and policies to support marine and coastal governance would have the capacity to manage LSI and deliver the required improvements to the marine and coastal environment.

9.4.2 The Features of Marine and Coastal Governance in the Case Study Areas

Two distinct types of marine and coastal governance systems were observed. In both France and Spain, the marine and coastal governance systems provide for comprehensive devolution with active participation by authorities and agencies at the national, regional and local levels. This presents a strong contrast with the centralised Irish and the Romanian systems that are confined to national level only and have no meaningful roles afforded to authorities and agencies at regional, local or community levels. The results also show that the French and the Spanish systems have been evolving since their adoption of the (non binding) EU recommendation to prepare ICZM strategies in 2002 by incorporating additional governance ‘layers’. The more recent modifications to the French and Spanish systems have included the development of partnerships with coastal communities and oyster farmers (in France) and the reorganisation of coastal governance (in Spain) to integrate Fishing Guilds and other local actors as a means of achieving community level involvement in marine and coastal governance. In contrast, there is no evidence of marine and coastal governance layers being developed below the national level in the Irish or Romanian systems.

The influence of the ICZM approach in the evolution of the coastal and marine governance systems in the case study areas were also considered. This was measured by assessing the extent to which the governance systems of each case study area adhered to the 8 principles of ICZM. It was significant to note that the governance system in the French case study seemed to adhere to all 8 principles of ICZM. In the Spanish case study, 7 out of the 8 ICZM principles were reflected in their approach to marine and coastal management. The one lacking principle was using a combination of instruments to facilitate coherence between sectoral objectives. The findings indicated that the Irish and Romanian approaches adhered to the least number of ICZM principles – with just 3 principles reflected in their marine and coastal governance systems.

The high level of adherence to the ICZM principles in both Spain and France reflects the fact that both of these countries actively engaged with the ICZM approach since the EC recommended its adoption in 2002. Similarly, the low level of adherence to ICZM principles by Ireland and Romania is also understandable as neither of these countries (like many other EU member states at that time) are considered to have engaged in ICZM in a meaningful way (Shipman and Stojanovic 2007, p. 378). The research also demonstrated that there is a positive relationship between the rate of adherence to the ICZM principles and the environmental outcomes for marine and coastal areas. In both the French and Spanish case studies, the researchers were confident that the marine and coastal governance systems had either achieved (or were achieving) improvements in marine and coastal environments. In contrast, the Irish and Romanian researchers were not confident their respective marine and coastal governance systems had the capacity to deliver an improvement in environmental outcomes.

9.4.3 Opportunities for Effective Marine and Coastal Governance

The development of coastal and marine governance systems in each of the case study areas has had a number of positive impacts that have been beneficial to managing LSI and achieving GES. All researchers reported that there are higher levels of awareness of their marine and coastal environments. Heightened awareness is also leading to positive changes. In Romania, demands for participatory management (from sectoral partnerships and NGO's) are emerging, and there has been a move away from hard engineering solutions to coastal protection. In Ireland, the adoption of a National Marine Planning Framework and the opportunities to participate in its preparation were both seen as positive developments and it was acknowledged that there has been a significant increase in the number of new data sets for the marine and coastal environment. However, the above positive impacts did not (at the time of the research in 2020) have any discernible influence on the development of the Irish and Romanian coastal and marine governance systems.

There were also higher levels of awareness in France and Spain of the need to achieve good marine and coastal environment status and this change is believed to have influenced the provision of an extra 'layer' in their governance systems for non statutory stakeholders which has led to community and non statutory stakeholder groups being assigned decision making roles in marine and coastal management. As a result of this change, actions are being undertaken by community and non statutory stakeholder groups in both countries that enable the conservation and improvement of the marine and coastal environments in their respective areas. Examples of the actions undertaken in Galicia (Spain) include the provision of better signposting, engaging in the cleaning and maintenance of coastal amenities and changing access arrangements to preserve and improve the environment. There is also evidence from the French case study that allocating tasks to the community and non statutory stakeholders in the management of the lagoon has led to innovations in comanagement that included the development of a pollution tracking project which provided citizens with a digital means to indicate geolocalised pollution points.

9.4.4 Barriers to Effective Marine and Coastal Governance

The research revealed that despite their varied backgrounds and differing legislative contexts, there are strong similarities in the barriers faced by member states when attempting to manage LSI and govern their marine and coastal areas. In all cases, there is a fragmentation of responsibilities for coastal and marine areas among a range of different government departments/ministries and supporting agencies. A recurring theme of the research is the significant number of diverse government departments (or ministries) and agencies in all member states that either had (or still have) sectoral functions and responsibilities for marine and coastal areas. The

research reveals that poor co-ordination of decision making by the government departments (or ministries) and agencies with marine and coastal responsibilities has led to fragmented approaches to governance as many pursue their own sectoral objectives (often using a range of governance mechanisms to do so) with little or no regard for holistic objectives like GES. In addition, all member states have struggled to achieve the integration of the policies that are designed to improve coastal and marine areas across all levels of governance (national, regional and local).

Given that all member states have experience of fragmented marine and coastal governance, the results of the research provide an insight into how each member state has responded to this issue. It was noted that fragmented responsibilities does not appear to have led to wholesale reform of existing governance structures for marine and coastal areas in any of the case study areas. In Ireland, Romania and France, the focus was very much on improving communication and engagement between the key authorities with marine and coastal responsibilities in order to coordinate their management efforts. However, there are notable differences in the mechanisms used to improve co-ordination. In France, a very effective brokerage organisation (Syndicat Mixte du Bassin de Thau (SMBT hereafter)) was established at the regional level to improve co-ordination and decision making of authorities with coastal and marine functions at different levels of government. With respect to Spain, it was acknowledged in the research that action is needed to address the fragmentation of responsibilities in marine and coastal functions. However, like France, there were examples of effective joint coastal and marine governance arrangements (such as the Atlantic Islands Natural Park in Galicia (Ons, Cíes, Sálvora and Cortegada)) that could provide guidance on managing LSI. In Ireland, the marine coordination group was established. This group was comprised of an interdepartmental committee in which high level departmental officials engage in matters of mutual interest in marine and coastal areas as a means of improving communications between government departments with coastal and maritime functions. However, the lack of oversight of the marine coordination group (who don't produce reports) means that its effectiveness is difficult to gauge. Romania adopted a similar approach to Ireland with the establishment of an inter ministry committee but its impact on improving co-ordination between stakeholders is unclear.

A lack of integrated data sets has also been identified as a barrier to marine and coastal governance in both Ireland and Romania, despite the acknowledgement that effective governance relies on good quality data. According to the researchers in both cases, the governance arrangements impose two strong influences on the type of data sets that are collected. Firstly, data sets are normally aggregated at national level only, as there are no regional or local authorities in either case who engage in data collection. Secondly, centralised governance systems generally lead to the collection of fragmented data sets as individual government departments/ministries focus on their own sector specific objectives, and gather sector specific data sets, that tend to be more limited in their application and use. An example (from Ireland) of a sector specific data set would include information on fisheries being collected by the Department of Agriculture, Food and the Marine. This contrasts with Spain and France where devolved governance systems have enabled the collection of

more integrated data sets with local ‘specificity’ and which are also used to devise ecologically-based performance criteria for local marine and coastal areas. The high number of administrative staff and low number of technical staff (with scientific backgrounds) in Irish government departments and Romanian ministries with coastal and marine responsibilities is also believed to amplify the difficulties with integrating data sets. This offers a sharp contrast to France where the SMBT brokering organisation has a multi disciplinary staff complement.

The Romanian researchers also drew attention to the issues arising from data being collected to different data baselines and standards by EU member states and non EU member states with borders on the Black Sea. This has created significant problems for governance as the data cannot be reliably used for comparative purposes or for devising (or for monitoring) performance standards for key criteria such as water quality. The recent departure of Britain from the EU also has the potential to create similar divisions between Ireland (a Member State) and the UK (a non EU country from January 2021). Despite the issues with respect to data collection standards, there appears to be potential to address these matters through existing transboundary bodies such as the Black Sea Commission and the British Irish Council, both of whom can be used to deliver common data collection standards and more effective transboundary governance of coastal and marine areas. The Romanian researchers also identified a lack of continuity at government level and insufficient political will to take action and address shortcomings as barriers to progress in marine and coastal governance.

9.4.5 Governance Mechanisms

Notable differences could be seen in the mechanisms used in the devolved marine and coastal governance systems of France and Spain and the more centralised systems of Ireland and Romania. The regional, local and community level authorities in the case study areas in France and Spain were using area based plans in order to manage LSI and achieve improved outcomes for their marine and coastal environments. The area based plan for the Thau Lagoon (in France) were also based on holistic objectives which are comprised of prescriptive theme based performance criteria for constituent elements of the marine and coastal environment. The theme based performance criteria (which were devised by using data sets collected at local level) are also used to overcome the difficulties created by administrative boundaries, unify the management approaches of the different authorities and create partnerships among statutory and non-statutory stakeholders (such as coastal communities and other interests such as oyster farmers). Similar partnership arrangements were in place in Galicia in Spain where local development strategies are focused on the preservation and improvement of the environment. The Irish and Romanian case studies provide a sharp contrast to the French and Spanish area based plan approach. In both Ireland and Romania, national level strategies focussed on non prescriptive high level objectives were under development (in 2020). As there are no regional or local authorities with coastal and marine responsibilities in

Ireland or Romania, it is not possible for either of these countries to engage in data collection or prepare and implement area plans (with theme based performance criteria) for marine and coastal areas below national level.

9.4.6 The Relationship Between Governance and Environmental Outcomes

There was a consensus among the researchers that comprehensive and effective marine and coastal governance systems can achieve the goal of GES. However, striking differences could be seen in the perceptions of researchers on the effectiveness of the current governance arrangements in each of the case study areas. With respect to the French and Spanish case studies, the researchers appeared convinced that the governance structures have either led to (or are leading to) an improvement in the quality of the coastal and marine environment in their subject areas and that the interactions between land and sea were being managed more effectively. As a result, the researchers in the French and Spanish case study areas had a high level of confidence that the overall objective of GES could be achieved.

In contrast, the Irish and Romanian researchers were not convinced that the governance arrangements for their countries would lead to improved environmental outcomes for their marine and coastal areas. While it was acknowledged that the Irish and Romanian systems were a work in progress and that it was too early to comment on whether they had achieved an improvement in marine and coastal environmental quality or not, both sets of researchers were of the view that the governance pathways for delivering effective marine and coastal governance were not clear. This view arose from the fact that in both cases, no obvious attempts seemed to have been made in either Ireland or Romania to assess the suitability of the MSP policy mixes and mechanisms to the existing governance structures that they were being introduced into. There was also a concern among Irish and Romanian researchers that both of these countries were persisting with centralised approaches to marine and coastal governance (confined to national level only) that had been abandoned by France and Spain in favour of more devolved governance systems.

9.4.7 The Application of Evolutionary Governance Theory (EGT)

Noting the complexity of LSI and the difficulties that arise in attempting to manage them, the capacity of EGT as an approach to analyse marine and coastal governance approaches in the four case study areas was considered. The results of the research confirm the consensus view among interview respondents that the EGT perspective provided a useful lens to explore and understand “*governance and governance transformation against the background of co-evolutions of all constituent parts of governance*” (Van Assche et al. 2020, p. 1). All respondents also agreed that it led

to an enhanced understanding of coastal and marine governance pathways in each case study area. In addition, there was an appreciation that EGT was an effective conceptual framework of analysis for exploring the management of LSI in different EU member states.

In the Irish case study, EGT was considered to be an informative approach “*which allowed the researchers to review past ocean and coastal governance in Ireland and apply this experience when looking forward*” (Researcher in the Irish case study, January, 2020). The Romanian researchers found that the EGT approach was useful “*for looking at the journey that Romania has been on – from its transition from a country heavily influenced by the USSR to an EU member state and for reviewing what has happened in the country in recent years and understanding the stage that the country is currently at*” (Researcher in the Romanian case study, January, 2020). In the Spanish case study, the EGT perspective was considered to be an effective means “*of exploring the interactions between the different levels of government and their position in the new system of actors created in the coastal zone*” (Researcher in the Spanish case study, February, 2020). The researchers involved in the French case study described EGT as a constructive approach for analysing marine and coastal management as it helped to reveal the failures of previous governance systems (many of which relied on physical water boundaries) in the Thau Lagoon.

9.4.8 Commonalities Between Approaches to Governing Marine and Coastal Areas in the EU

While MSFD has been adopted by all EU member states (since at least 2016) and all member states are committed to delivering the common desired goal of GES in marine and coastal environments, the research demonstrates that a degree of harmonisation of governance approaches to managing LSI and governing marine and coastal areas can be discerned in the four member states under study. This harmonisation is occurring despite the fact that the land use (and marine) planning systems differ significantly between the four case study areas. According to the research findings, two different types of marine and coastal governance systems can be identified. The first of these systems (found in both Ireland and Romania) has strongly centralised governance arrangements that are concentrated at the national level with fragmented responsibilities for government departments/ministries/agencies and no responsibilities for managing marine and coastal resources afforded to non statutory stakeholders. The strongly centralised systems also appear to rely on national level strategies and data sets as well as non prescriptive high level objectives to deliver GES in marine and coastal areas. The second type of system (that can be found in France (and to a lesser extent Spain)) has devolved marine and coastal governance arrangements with good coordination among stakeholders at all levels (national, regional, local and community). The devolved systems tended to use area based

plans with theme based performance criteria (devised from local data sets) to realise GES. Co-management of marine and coastal resources between statutory and non-statutory stakeholders at community level is also a feature of the devolved systems of France and Spain.

9.5 Conclusions and Recommendations

Under MSFD, EU member states are committed to delivering GES in marine and coastal areas by managing LSI and regulating all uses and activities in their marine and coastal areas. While it is understood that comprehensive marine and coastal governance systems are needed to govern LSI and manage marine and coastal areas, the physical diversity of maritime areas and coastlines combined with the complex and dynamic relationship between the land and the sea present major challenges to achieving this. Recognising these difficulties, the MSP expert group in 2017 proposed a framework for addressing LSI that called for MSP Authorities (and other stakeholders) to engage in a two phase process that reflects the complexity of the task. The first phase of the process involves the development of an understanding of the dynamics involved in LSI in their jurisdiction and the second phase requires member states to identify institutional mechanisms to manage LSI that are most suited to their individual marine and coastal governance frameworks. This section of the research reviews the investigation of LSI in each case study area as well as the mechanisms and measures that were used to manage them. Conclusions are drawn on the effectiveness of the mechanisms and measures introduced to deal with LSI and marine and coastal management, while recommendations for future governance are provided.

(i) *The extent to which member states have investigated the dynamics of LSI in their jurisdictions*

The research reveals that the French case study (from the Thau Lagoon) has undertaken the most in depth investigation into LSI. This has been achieved by developing a devolved marine and coastal governance system comprising of sub national authorities (such as the SMBT) with multidisciplinary (i.e., technical and administrative) staff who engaged in the collection of local level ‘holistic’ data sets that are focussed on ecological themes. The holistic data sets were then analysed to ascertain the ‘impact chain’ of land based activities on marine and coastal areas by identifying the most ecologically harmful activities and devising measures to either mitigate or avoid them altogether. The specific local data sets are also used to devise performance criteria for key environmental indicators in the marine and coastal environment (such as water quality). A similar approach was followed in Spain where local level theme based data sets were gathered by authorities who devised local development strategies designed to preserve and improve the marine and coastal environment. In Ireland and Romania, the centralised governance systems were dominated by national level stakeholders with sectoral interests. This was also

reflected in the data sets collected which were aggregated at national level and often had a sectoral focus. The absence of data sets with local specificity then made it more difficult to determine the 'impact chain' of land based activities on marine and coastal areas or to identify and take action on the most harmful terrestrial activities. Matters are further complicated in Romania as the national level data sets that exist on the marine and coastal environment (of the Black Sea) are not directly comparable with the data sets collected by the non EU member states that border the Black Sea.

Recommendation 1: Best Practice Guidance on Data Collection

It is strongly recommended that best practice guidance is produced at the EU level on collecting and recording holistic theme based data sets (at national, regional and local level) in order to underpin integrated approaches to managing LSI and marine and coastal resources. It is also recommended that common standards for data collection and recording are agreed between EU and non member states (who share borders with the EU) in order to ensure effective monitoring of shared marine and coastal resources.

(ii) *The institutional mechanisms and measures that each of these member states have chosen to manage LSI within their marine and coastal governance systems*

The four case study areas revealed that two distinct types of marine and coastal governance systems can be discerned from the research – devolved systems and centralised systems. Both France and Spain provide examples of devolved marine and coastal governance systems which afford decision making roles to stakeholders at national, sub national/regional, local and community level. There was also evidence (from France) to demonstrate that these devolved systems had higher levels of co-ordination between stakeholders and more integrated governance approaches to managing marine and coastal areas. This was achieved by creating a regional brokering organisation with multi disciplinary staff to coordinate land, water, sea and biodiversity planning and to facilitate interactions between statutory stakeholders and community level groups. Centralised marine and coastal governance systems can be found in Ireland and Romania. These systems are confined to national level only as there are no competent authorities and agencies involved at regional, local or community levels. The research results have shown that a prominent feature of centralised systems is weak coordination of sectoral interests (many of whom have fragmented responsibilities) and an absence of devolved governance layers which enable sub national, local and community level stakeholders to participate in management, decision making and data collection.

The type of marine and coastal governance system also exerts a strong influence on the governance mechanisms that are used to deliver improved environmental outcomes for marine and coastal environments. The devolved French and Spanish systems are focussed on area based plans as a means of managing marine and coastal resources more effectively. This was demonstrated in the Thau Lagoon in France and in the local development strategies in Galicia, Spain where the area

plans and the local development strategies at local levels have a strong environmental emphasis. This is particularly the case in the Thau Lagoon in France where prescriptive theme based performance criteria for constituent elements of the marine and coastal environment are included as targets of the area based plan. These performance criteria are compiled using the local area specific data sets and they are used to integrate the management approaches of all Authorities (statutory and non statutory) and overcome the difficulties created by administrative boundaries. The research also revealed that the devolved marine and coastal governance systems provided for greater participation at all levels of governance (from national to community level) and a higher level of coordination and engagement among statutory and non statutory stakeholders. The development of a community level of governance has also led to the formation of effective partnerships and co-management innovations between statutory authorities and community based stakeholders. Centralised marine and coastal governance systems (such as those found in Ireland and Romania) rely on national level strategies with high level aims and objectives. National level strategies (and objectives) afford little or no participation to statutory and non statutory stakeholders at regional, local and community levels in managing LSI and marine and coastal resources.

Recommendation 2: Prepare best practice guidance on coordinating the management of LSI

The research has demonstrated that best practice examples are available on coordination mechanisms that can be used to ensure integrated approaches to managing LSI and marine and coastal governance (such as the brokering organisation with multi disciplinary staff in the Thau Lagoon case study in France). It is recommended that best practice guidance should be prepared at EU level to illustrate how integrated marine and coastal governance can be achieved.

Recommendation 3: Engaging in participative management with coastal communities and non statutory stakeholders

It has been shown that significant benefits can be derived from involving coastal communities and / or non statutory stakeholders in the management of marine and coastal areas. These benefits include stakeholder groups (such as Fishermans Guilds (Spain) and oyster farmers (France)) undertaking stewardship roles by monitoring environmental quality and enabling the development of innovative co-management techniques between statutory authorities and non statutory stakeholders. It is recommended that EU member states should undertake proactive measures to involve coastal communities and non statutory stakeholders in their coastal and marine governance systems in order to realise these valuable benefits.

(iii) *The overall effectiveness of these mechanisms and measures*

The effectiveness of the different governance mechanisms and measures for managing LSI and maritime activities and for delivering GES for marine and coastal areas was considered. The results revealed that the researchers who worked on the

Thau Lagoon (France) and Galicia (Spain) case studies were confident that the devolved governance arrangements that were in place in these areas were proving effective and that they were leading to improvements in marine and coastal environments. In contrast, the researchers who carried out the case studies in Ireland and Romania stated there was no evidence that the coastal governance systems in these countries were leading to marine and coastal environmental improvements. The Irish and Romanian researchers also shared a lack of confidence in the capacity of their marine and coastal governance systems to deliver GES as the pathways for doing so were unclear.

Recommendation 4: Revise the current methodology for assessing the effectiveness of marine and coastal governance

There is evidence in the research which appears to show that some member states have introduced mechanisms and measures to comply with EU requirements on MSP and MSFD without carrying out the necessary due diligence to ascertain whether the adopted mechanisms and measures are suitable to existing governance systems. To address this issue, the methodology by which marine and coastal governance approaches are being assessed at EU level (i.e., the assessment procedure of measures adopted by member states) should be reviewed to ensure that the effectiveness of the approaches being followed by member states and their suitability to their different governance contexts is fully assessed.

Recommendation 5: Introduce tiered deadlines for compliance with GES

It is clear from the research that the marine and coastal governance systems of some member states are more advanced than others with respect to managing LSI and delivering GES for marine and coastal areas. As member states should be encouraged to road test the suitability of different measures to their differing governance contexts, staggered deadlines for compliance with GES should be considered at the EU level. This would enable member states to find the most effective measures that would suit their governance systems rather than rushing in changes to their systems that are unlikely to realise their desired environmental outcomes.

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