Compendium of regional experiences

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Abstract	The **REGINA MSP Compendium of regional experiences** is a collection of practices about diverse approaches to MSP adopted by various regions in Europe. It aims to capture the diversity of these approaches and to report benefits and challenges, with the final goal of boosting replication of positive experiences across all European regions and encourage multi-level governance in MSP. The Compendium showcases different regional approaches to MSP and describe how gaps and barriers have been addressed or could be addressed in the future. The compendium identifies and demonstrates strengths and weaknesses of the selected approaches/practices. The final goal is to encourage replication of positive MSP-related experiences across all the sea basins of the European Union and encourage multi-level and multi-actors' marine governance processes to support a European sustainable Blue Economy.

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ABBREVIATIONS AND ACRONYMS

DMAP	Designated Maritime Area Plan [IE]
EBA	Ecosystem-based Approach
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMFAF	European Maritime, Fisheries and Aquaculture Fund
EU	European Union
GES	Good Environmental Status
ICZM	Integrated Coastal Zone Management
IMP	Integrated Management Plan
LAG	Local Action Group
LSI	Land Sea Interactions
MPA	Marine Protected Area
MSFD	Marine Strategy Framework Directive [EU]
MSP	Marine/Maritime Spatial Planning
MSPF	Maritime Spatial Planning Frameworks [EL]
NGO	Non-Governmental Organisation
NMPF	National Marine Planning Framework [IE]
OECM	Other Effective Area-based Conservation Measures
OR	Outermost Regions
ORE	Offshore Renewable Energy
PAPI	Flood Prevention Action Plan
PU	Planning Unit [IT]
RSPF	Regional Spatial Planning Framework [EL]
SAC	Special Area of Conservation (Habitats Directive)
SCI	Site of Community Importance [EU]
SEA	Strategic Environmental Assessment
SPA	Special Protection Area (Birds Directive)
SSPF	Special Spatial Planning Frameworks [EL]

Executive Summary

This Compendium of regional experiences is a collection of practices about diverse approaches to Maritime Spatial Planning (MSP) adopted by various regions in Europe. It aims to capture the diversity of these approaches and to report benefits and challenges, with the final goal of boosting replication of positive experiences across all European regions and encourage multi-level governance in MSP.

Experiences are organised in two main groups, to (i) delineate regional governance for MSP and (ii) explore how key pre-defined MSP topics have been addressed by regional authorities.

Experiences under the governance group are collected to describe how regions are being involved in the preparation, revision and implementation of marine plans that are mainly managed by central authorities. Experiences come from five countries (Finland, Spain, Italy, Greece and Ireland) and reflect high variety of approaches.

Experiences of the second group describe regional MSP-related activities for four key topics: (i) integrated coastal zone management and land-sea interactions, (ii) climate change, (iii) environmental protection and (iv) tools for MSP. Fourteen experiences have been collected, coming from eight countries (France, The Netherlands, Belgium, Italy, Spain, Greece, Montenegro and Ireland) and different sea basins.

The cross-cutting analysis of the 19 practices finally collected in this Compendium reveals that experiences are quite heterogeneous, both between different topics and within the same topic, making comparison a challenging task. Major findings are reported in the following table. Benefits and challenges experienced by regional authorities in addressing MSP are grouped per topic, since regional experiences were collected with this thematic approach. However, the relevance of individual elements is often general and can be extended to multiple topics.

Topic	Key elements
Governance	The diversity of governance approaches across different countries—ranging from fully decentralised (e.g. Finland) to centralised systems with regional involvement (e.g. Ireland, Greece)—shows different approaches to support MSP implementation. Regions make use of pre-existing governance frameworks (in place for land-use planning or for implementing the MSFD) to support the regional participation in MSP, but capacity and resources are a challenge. Long-term regional engagement is crucial.

	Challenges & Barriers	Complex administrative coordination in multi-level governance schemes; resource constraints; limited technical capacity; strategic nature or not legally binding plans; and working across spatial and governance scales (multi-scalar, multi-level governance approach) needed.
	Benefits	MSP fosters cooperation across all governance levels, enhancing environmental protection and conflict reduction. Regional authorities adapt national plans to local needs, promoting integration of objectives and priorities from existing sectoral plans. Amendment of existing regional and sectoral plans is also possible following MSP, whenever these are too narrow in their scope.
Land-Sea Interactions & ICZM	Regional LSI analysis and ICZM play a key role in integrating land and marine planning. Coastal management occurs mainly at subnational levels and combines with climate adaptation, environmental protection and sustainable coastal development. The connection between the main MSP process and regional experiences of ICZM and LSI initiatives is not always obvious or acted upon, suggesting room for improvement in the implementation of MSP (Article 7).	
	Challenges & Barriers	Division of competences between land and marine planning; limited involvement of stakeholders and complex [formal] transboundary cooperation structures, sectoral dialogue with national authorities.
	Benefits	Alignment of coastal and marine planning, promoting climate adaptation, development of coastal policies and blue economy growth, innovation in coastal and environmental solutions.
Climate Change	Coastal regions participate in MSP through adaptation measures, coastal defence measures and via mitigation strategies such as the realisation of offshore energy plans. Other potential ways of integrating climate change and MSP do not emerge from regional experiences.	
	Challenges & Barriers	Misalignment of priorities between regional and national levels; lack of resources and expertise; need for networking with neighbouring regions.
	Benefits	MSP as a tool to boost climate change adaptation and sustainable development of offshore renewable energy. Benefits are expected in the long term.

Environmental Protection	Regions prioritise environmental protection in MSP. Ecosystem-based approaches are used, connecting the implementation of EU law and policy (MSP, MSFD, Biodiversity Strategy) with macro-regional initiatives (Barcelona Convention for the Mediterranean Sea).	
	Challenges & Barriers	Limited data, lack of funding, and reliance on existing legislation can hinder effective environmental protection. The strategic nature of MSP may limit regulatory power in certain contexts.
	Benefits	MSP supports broader environmental goals, such as achieving GES and biodiversity targets. Regional involvement boosts data collection and aligns with environmental regulations.
Tools for MSP	Regions participate in the national MSP process by making use of regional geoportals and information platforms, supporting decision-making, coastal defence planning, and environmental assessments. Regions collaborate with scientific partners and stakeholders for sound and coordinated tool development.	
	Challenges & Barriers	Technical issues such as data standardisation and interoperability and financial constraints for the long-term management and utility of platforms.
	Benefits	Geoportals offer organised data for decision-making, improve transparency, and foster stakeholder engagement. Involving end users increases ownership and usage. Outcomes are relevant also for research scopes, besides MSP usage.
Stakeholder engagement and training	Stakeholder involvement is crucial in MSP, with different approaches utilised across countries and regions. Countries like Finland, Ireland, and Spain emphasise structured consultations and regional participation. Regional efforts highlight a need for training, public awareness, and inclusive stakeholder participation to align national and regional MSP priorities.	
	Challenges & Barriers	Centralised control limits regional and local participation in countries like Greece and Italy. Limited resources (human, financial, and technical) constrain stakeholder engagement, especially in regions like Sardinia, as well as countries such as Spain and Greece. Complex governance structures slow decision-making and implementation, as seen in Ireland and Spain. Awareness and communication gaps in regions like Zuid Holland and Pays de la

		Loire. Technical challenges, like data accessibility, hinder participation in Région Sud Provence-Alpes-Côte d'Azur.
	Benefits	Collaborative networks, such as Finland's spatial planning network, foster cross-regional collaboration. Training and upskilling initiatives (e.g., Cork, Ireland) enhance regional capacities in MSP processes. Public consultations (e.g., Sardinia, Ireland) promote transparency and community involvement. Regional platforms for data sharing (e.g., Région Sud) enhance stakeholder cooperation and governance.

Table 1: *Summary of the results*

In addition to the above table based on the regional examples analysed, a number of wider issues can also be identified. These span localities, regions and countries but could be viewed as critical to furthering effective, coherent and coordinated MSP. Some of these issues may also require further interrogation across the European Union.

Training – as human resources and technical capabilities were raised across countries and in some regional examples, additional effort may need to be given to who should be responsible for training staff that have responsibilities relating to MSP.

Trade-offs – it is clear from the examples in this document that MSP has had to deal with development and conservation needs. There appears to be limited experience with how regions have dealt with actual experiences relating to competing demands for space. Examples of this type of scenario would be particularly useful for transnational learning.

Interactions and relationships with other relevant policies – whilst many of the examples garnered for this compendium refer to wider national biodiversity objectives, Green Deal objectives and/or Blue Economy priorities, it has been difficult to ascertain whether there is sufficient effective coordination between as of these policies. Special attention should be given to both climate change and coastal management, primarily because the overarching MSP Directive could be described as weak in how MSP should operate with these important policy areas.

Power to influence – though all MSP at all governance scales requires consultation at various scales, there is a risk of consultation fatigue and possibly frustration with the process if and when stakeholders cannot see how their involvement has influence MSP and its outcomes. Positive examples of how this has worked could assist future implementation and help build trust in the operation of MSP at regional and local scales.

I. Introduction

The role of subnational regions in Maritime Spatial Planning (MSP) is quite diverse across the EU, however regional authorities are key actors in achieving the European Green Deal objectives, by representing a node for mainstreaming policies. They are acting on an adequate scale to combine territorial specificities with national and European maritime policies related to the Blue Economy, as well as environmental policies including the Marine Strategy Framework Directive, the EU Biodiversity Strategy, EU Climate Law and the EU Nature Restoration Law. Regions are also a node, in this respect, for stakeholder engagement by favouring actions at local level. Finally, regions play an important role for sea basin level interregional cooperation, by collecting and producing relevant data regarding local and regional issues. Their policies and actions provide information, strategies and means which can contribute to national implementation of MSP, make it concrete through actions and complement it at local levels. Regions therefore should benefit from a greater consideration of their specificities and should be further considered in the drafting, implementation, evaluation and monitoring of national MSP.

Hence, the project "Regions to boost National Maritime Spatial Planning" (REGINA-MSP) aimed to work collaboratively to address these complexities and strengthen coherency of plans across the EU. REGINA-MSP was a two-year project (November 2022 – October 2024) co-funded by the European Maritime, Fisheries & Aquaculture Fund (EMFAF), aiming to improve the participation of regional and local authorities (level 2 units in the NUTS classification), as well as "less represented" stakeholders in the development and implementation of national maritime spatial plans. Their participation in MSP preparation and implementation is expected to improve MSP processes and to improve efficiency and coordination of public policies. REGINA-MSP combines a general analysis and discussion at European level, with an in-depth analysis at the level of eight regional case studies (County Mayo, Pays de la Loire, Region Sud, Galicia, Murcia, Sardinia, Crete and Central Macedonia — North Aegean Sea) chosen from five EU countries (Ireland, France, Spain, Italy and Greece) pertaining to two sea basins (Atlantic and Mediterranean sea basins).

The aim of this Compendium is to showcase different regional approaches to MSP and describe how gaps and barriers have been addressed or could be addressed in the future. The compendium identifies and demonstrates strengths and weaknesses of the selected approaches/practices. The final goal is to encourage replication of positive MSP-related experiences across all the sea basins of the European Union and encourage multi-level marine governance processes to support a European sustainable Blue Economy.

Within REGINA-MSP project, the CPMR and University College Cork - MaREI Centre (UCC-MaREI) act as coordinators of this Compendium of regional experiences, within the REGINA-MSP "Work Package 2" (WP2) focusing on a "Baseline assessment of MSP implementation at national and regional levels and Compendium of regional and subregional experience", supported by THETIS as consultants.

In more detail, the Compendium provides baseline information on how MSP is being implemented at national, regional and sub-national levels to provide an input into the further analysis to be undertaken during the eight regional case studies (developed in Work Package 3). At the national level, this includes a short description of the governance system in place explaining how the country is organised in terms of regions and other administrative units. Specifically, the work carried out in this WP2 determines where national and regional authorities presently stand, where they would like to be in the future and what gaps exist between these positions. The gaps identified are then taken forward in the case study WP. Following the analyses of different regional experiences, a 'wrap-up' of experiences, comparisons and recommendations is made and will be communicated to the Regions and other interested parties. This will complement and supplement work conducted at European Commission level in terms of Article 14 "Monitoring and Reporting of the Maritime Spatial Planning Directive (MSPD)", by adding the regional dimension. The impact of this WP will be better alignment of MSP at a variety of scales, regional learning, and enhanced replication and upscaling of successful experiences.

II. Selection of regional experiences and methodology

The REGINA-MSP compendium showcases various regional experiences in MSP, selected to ensure a nuanced understanding of diverse MSP related topics, capitalising on results from the Project case studies and extending beyond these, to capture experiences from different countries and sea basins. This section introduces the approach taken in both, the selection and presentation of regional experiences in the compendium.

1. Selection of Regional Experiences:

i. Thematic Criteria:

The thematic criteria for selecting regional experiences are based on the D2.1 survey report analysing national and regional implementation of MSP, where the main challenges and opportunities faced by regions relating to MSP emerged. The first topic addressed by the Compendium experiences is Governance. Four additional topics were then selected to describe regional approaches to MSP challenges: (i) Regional coastal zone management and land sea interactions; (ii) Regional commitments on environmental protection; (iii) Regional climate change actions, and (iv) Regional tools to support MSP. The objective was to include at least two distinct regional experiences for each topic, fostering a comparative analysis and a deeper comprehension of MSP practices.

ii. Geographic Criteria:

As MSP is not a "one size fits all" practice and recognising the geographical nuances and diverse challenges in MSP, the compendium aims to represent different countries and European Sea basins comprehensively. The selection process prioritises the inclusion of distinct regional experiences from different sea basins, offering a wider view of the diverse MSP approaches and methodologies employed across Europe.

iii. Information Accessibility:

The compendium has been populated from a wide range of knowledge repositories, such as the results from the REGINA-MSP WP2 survey and its analysis report, the WP3 case study activities and related deliverables (including D.3.1 regional analysis report) and supplemented with the experiences of project partners and other stakeholders. Additionally, inputs from desk research including scientific papers and the EU MSP Platform library were considered and utilised, where necessary. This holistic approach guarantees that the selected regional experiences are grounded in the most relevant and up-to-date information. Notwithstanding, the Compendium presents a limited selection of experiences, based on the available information collected within the project. It does not pretend to be exhaustive, but it could instead act as a first collation of practical regional experiences that might grow over time to increase the learning potential. Readers are reminded that nationally and regionally MSP is at different stages of implementation, which has a direct implication for what can be learned from experiences to date.

2. Methodology for Presenting Regional Experiences:

Regional experiences were developed through the following process:

i. First analysis of available information:

The process started with a desk-based analysis to review available information (literature, REGINA-MSP outputs), to frame the regional experience in the overall MSP process and to identify the most relevant addressed topic.

ii. Collection of Additional Information:

Supplementary interviews and e-mail exchanges were then organised to get in contact with regional actors and/or project partners directly involved in the MSP process at the regional level. These interactions enabled the collection of relevant insights, context-specific details, and various stakeholder

perspectives, contributing to a more comprehensive and nuanced understanding of regional MSP experiences.

iii. Text draft based on a specific template:

A structured template was used to describe regional experiences in a consistent way. The template includes an introductory section (*background*) with a concise description of the selected region, including major features of the marine and coastal area and the current stage of MSP process. The second section describes the activities carried out at the regional level in the framework of the national MSP process. This description is tailored to the assigned topic (Regional governance, Regional coastal zone management and land sea interactions; regional commitments on environmental protection, regional climate change actions and regional tools to support MSP. The subsequent section describes the achieved or expected benefits for the regional authorities and the impacts of regional activities on the national process. Possible barriers and gaps are then described to highlight major needs of regional authorities. Some considerations about transferability (replication/upscaling potential) are finally reported.

iv. Final Check and Validation:

The first draft underwent a final check and validation process, involving collaboration with regional representatives and/or REGINA-MSP partners. This collaborative review ensures the accuracy, relevance, and authenticity of the presented information, particularly for case study regions. This iterative feedback loop aims to align the compendium with real-world experiences and insights, enriching its credibility and applicability.

Finally, 19 experiences were collected and analysed: 5 of them dealing with regional governance (Finland, Spain, Italy, Greece and Ireland) and 14 dealing with regional approaches to specific MSP topics, as reported in the following table.

Topic	**Region**	**Country**	**Sea basin**
ICZM and LSI	Brittany	France	Atlantic
	Zuid Holland	The Netherlands	North Sea
	West Flanders	Belgium	North Sea
	Calabria	Italy	Mediterranean Sea
Environmental protection	Sardinia	Italy	Italy
	Murcia	Spain	Mediterranean Sea

	Central Macedonia	Greece	Mediterranean Sea
	--	Montenegro	Mediterranean Sea
Climate change action	Cork	Ireland	Atlantic
	Crete	Greece	Mediterranean Sea
	Pays de la Loire	France	Atlantic
Tools for MSP	Emilia-Romagna	Italy	Mediterranean
	Galicia	Spain	Atlantic
	Region Sud	France	Mediterranean

***Table 2**: List of regional experiences per topic showcased in this Compendium*

III. The regional experiences

3.1 Regional governance for MSP

The analysis delineates the distinct approaches adopted by five countries—Finland, Spain, Italy, Greece, and Ireland (represented in the figure below)—in their regional MSP governance. The section primarily concentrates on the regional-level governance mechanisms established to address the core aspects of the national MSP process. These aspects include the legal and planning framework, decision-making structures, involvement of local authorities and monitoring and evaluation. The discussion underscores the strategic significance and unique implementation characteristics of each country's MSP governance model, emphasising the interaction between regional councils and authorities with national and local stakeholders in addressing maritime and coastal challenges.

Figure 1: *Regional governance for MSP: the five countries analysed in this Compendium*

3.1.1 Regional Councils for regional non-binding MSP in Finland: the marine regions of Archipelago Sea and Southern Bothnian sea and the Gulf of Finland - Baltic Sea basin

Background

MSP in Finland is organised in three main different plans that both cover the territorial sea and the Exclusive Economic Zone: (MSP-1) the Northern Bothnian Sea, Quark and the Bothnian Bay; (MSP-2) Archipelago Sea and Southern Bothnian Sea and (MSP-3) the Gulf of Finland. In addition, Åland Island, an autonomous region for planning, has a separate plan for territorial waters. For planning purposes, three different spatial planning zones were also identified: 1) inner archipelago and inner coastal waters, 2) outer archipelago and outer coastal waters and 3) open sea. The zone division is based on the classification of coastal waters covering the entire coast of Finland.

Finland's Maritime Spatial Plan 2030 (web-based plan, MSP 2030) is the official plan in Finland, adopted in December 2020. Regional Councils (RCs) are the responsible authorities for the preparation, approval and implementation of the 3 regional MSP plans in Finland. Together, these three plans form the national MSP 2030. The Ministry for the Environment (ME) is responsible for the general development and guidance of MSP, as well as for intergovernmental cooperation. In order to enhance interactions and shared understanding between eight coastal RCs, and to develop a coherent approach for the regional MSPs, an MSP Coordination Group was established. The group consists of coastal RCs, ME and the Coordination of MSP Cooperation, and is managed by the Regional Council of Southwest Finland. The Coordination of MSP Cooperation handles not only inter-regional planning cooperation but also collaboration with maritime sectors, authorities, and other experts in regional, national, as well as cross-border levels.

Even though MSP in Finland has a legal basis (it is regulated by the Land Use and Building Act), maritime spatial plans are non-binding plans. They have instead a strategic role and indirect steering impacts. This practice focuses on the experience of:

- the Regional Council of Southwest Finland that is responsible, together with the Regional Council of Satakunta, for planning the area covered by "MSP-2")
- the Regional Council of Kymenlaakso which is responsible, together with the Regional Council of Helsinkyi-Uusimaa, for planning the "MSP-3" area.

The Archipelago Sea and Southern Bothnian Sea (MSP-2 area) extends over the western and southwestern coast of Finland. In this region, land uplift (3.5 to 6.5 mm per year) continuously changes the morphology of the archipelago and coastal areas: the straits, bays and estuaries are getting shallower, and the

coastline is moving towards the sea, with important modifications of ecosystems. The marine area hosts many economic activities, especially shipping, fisheries and aquaculture.

The Gulf of Finland (MSP-3 area) extends from Hanko's western marine area to Finland's border with Russia in Virolahti, comprising the marine areas of the Uusimaa and Kymenlaakso regions. It is among the marine areas of Finland most affected by human activities, especially including high densities of maritime traffic. The Gulf of Finland has the largest volumes of goods and passenger transport by sea of all Finnish marine areas. The country's largest ports, Helsinki and HaminaKotka, are located in this region.

Environmental protection is particularly relevant in Finnish marine waters. About 10% of the Finnish sea areas (including EEZ) are under some degree of environmental protection. This includes (Virtanen et al., 2018) Natura 2000 sites (8.5%), HELCOM MPAs (7.7%), Ramsar sites (2.2%), National Parks (1.9%), private MPAs (1.8%) and Nature Reserves (0.7%). In addition, the archipelago of Quark and the island of Hailuoto, the Archipelago Sea and the Helsinki coastal area were designated by the Ministry of the Environment among the 27 national landscapes to protect the natural and cultural characteristics of the country.

The regional experience

Regional councils (RC) are responsible for regional development and regional land use planning and the promotion of regional interests. Regional councils are also the responsible authorities for the preparation, approval and implementation of the three regional MSP plans. They are coalitions of coastal municipalities which finance the Council's operations, with contributions that are proportionate to the size of their populations. For the MSP-2 area (43 municipalities in total), the RC of Southwest Finland is comprised of 27 municipalities, while the RC of Satakunta has 16 municipalities. For the MSP-3 area (32 municipalities in total), RC Helsinki-Uusimaa consists of 26 municipalities and the RC - Kymernlaakso includes 6 municipalities.

Decision-making in the RC is based on municipal democracy. The municipalities elect their representatives which in turn elect the members of the county council. The composition of the county council reflects the results of the municipal elections. Municipalities have, therefore, a large mandate in MSP, by not only considering the preparation of the plan but also approving it, including the part that relates to the EEZ.

Before the MSP Directive entered into force, RCs already had responsibility for land-use planning, with plans extending not only over the land part but also at the land-sea interface and the territorial sea waters. In practice, however, land use plans have not covered a large portion of territorial waters, but only areas closest to the shoreline. The region of Kymenlaakso is an exception to this; it prepared a land-use plan covering the entire territorial sea already in the year 2013.

The implementation of the MSP Directive in Finland could therefore rely on this long-term experience in regional planning. However, MSP did not lead to new governance structures, nor did it allocate new dedicated staff within Regional Councils. Moreover, important differences exist between MSP and land-use plans: MSP is a strategic, general-level development document illustrated on a map, whereas land-use plans are legally binding plans for different types of land use. MSP covers the entire sea area and provides a collaboration platform for maritime stakeholders.

The increased workflow has been managed by hiring a Coordinator for MSP Cooperation, who works for all Regional Councils and is responsible for overseeing inter-regional collaboration as well as all stakeholder communication and engagement. The Coordination of MSP Cooperation is funded by the national EMFAF programme.

Land use planners previously involved in regional planning, were also key actors for MSP. This ensured continuity between land-use plans and MSP, and this is reflected in the MSP plan, where an "area-specific development vision" has been introduced. The vision describes the main development goals to be reached over the next ten years, in line with the regional development strategies issued by regional councils.

Nationally, ICZM is covered by strategic Finnish Coastal Strategy (2024) that refines the vision and measures for the coast set out in the MSP 2030. A more detailed ICZM plan has been conducted at regional level and incorporated in the MSP. The ICZM plan of the Satakunta coastal region was applied as background knowledge to characterise marine and coastal tourism for the MSP plan of the Archipelago Sea and the southern Bothnian Sea in 2019 (Hietala et al. 2021), and for defining the potential areas for tourism and recreational activities of Satakunta in the final MSP plan 2030.

The Coordination of the MSP Cooperation arranged training for RCs and ME to support adaptive MSP. Stakeholder engagement (e.g. workshops, sectoral meetings, official hearings) at all levels is primarily managed through the Coordinator of MSP Cooperation. The RCs are responsible for supporting the Coordinator at the regional level by identifying relevant regional stakeholders. Additionally, RCs are responsible for collaborating and communicating with regional-level politicians.

All maritime sectors as well as authorities and experts from national, regional and local level are engaged through an open MSP Network, that serves as an information sharing channel. The network currently has around 1000 members. In addition, the ministerial level MSP Group, Sectoral Contact Person Group (c. 70 organisations) and Scientific Cooperation Network has been established to support the MSP cooperation.

Benefits, Impacts and results

Even though MSP is not legally binding (without a direct impact on permit and other procedures based on other legislation), its added value in Finland (compared to the previous land-use plans) is largely related to the inclusion of the EEZ in the planning process, to new consideration of the marine space as a whole system and to the cooperation between different authorities with difference governance level. MSP has indirect steering effects on land-use planning. Planners can coordinate MSP and land-use plans to ensure they do not contradict each other. Moreover, information collected during the MSP process serves as a database for more detailed land-use planning.

MSP both led to improved connections with maritime sectors and to cross-regional collaboration. This favours a shared national level understanding of the needs of maritime sectors in regions, the creation of operational environments, policies and strategies, as well as improved environmental protection. MSP also allowed to better recognise the role of regional authorities among national authorities, agencies, and other organisations.

There was high expectation among maritime sectors about MSP: it is seen as a tool to solve conflicting sea use issues and support the growth of maritime industries. For example, the pressure to identify more areas for offshore wind energy has increased over the past year and a half and this created discussion about possible conflicts. Since the plan is strategic, it provides stakeholders with the necessary flexibility to discuss the needs and restrictions of their operational environment and to build shared understanding of the vision for the sea use.

Barriers and needs

The land-use planning process follows strict procedures set out in the Land Use and Building Act, which Regional Councils adhere to. The process is very formal, and stakeholder cooperation is primarily based on official hearings. The same Land Use and Building Act requires MSP to broadly include all stakeholders in the process (‘…anyone whom the Plan may affect has a right to participate in the planning…’). This requirement for extensive MSP collaboration has, therefore, challenged MSP planners (who are also land-use planners) to develop skills for managing collaborative processes.

Funds represent another challenge. The EMFAF programme funds the Coordination of the MSP Cooperation, surveys to support the MSP, as well as any collaboration that occurs between RCs (travels, workshops, expert invitations etc.) and with maritime stakeholders, experts, and authorities.

Coastal Regional Councils have established planning practices in land-use planning and have different development visions for sea use. MSP is the largest planning cooperation ever undertaken in Finland, both

geographically and in terms of the number of regions, planners, and stakeholders involved. It is a challenge to build a shared understanding, for example, of how to identify potential sites for fish farming in different planning areas with differing status of the marine environment, or how to create a unified map of maritime traffic when traffic densities vary significantly between planning areas.

Transferability

Regional councils and their mandate in regional planning and MSP are a specific feature of Finland. However, the regional approach to MSP can be easily replicated in other countries especially where land-use planning, including ICZM, is a task under the responsibility of regional authorities.

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3.1.2 A multilevel governance approach to address MSP in Spain: the Monitoring Committees of the Marine Strategies

Background

Spain approved in 2017 the Royal Decree 363/2017 of 8 April establishing a framework for MSP, which transposes the MSP Directive into the Spanish legislation. This Royal Degree is a legislative development of the Law 41/2010 for the protection of the marine environment, which transposes the EU Marine Strategy Framework Directive. In this way, both processes (MSP and MSFD) are linked by law. In addition, both processes have the same competent authority: the Directorate-General for the Coast and the Sea from the Ministry for the Ecological Transition and the Demographic Challenge. Spain's Maritime Spatial Plans (POEM, by its initials in Spanish) were adopted for the five Spanish marine demarcations with the approval of the Royal Decree 150/2023 on 28th February 2023. The MSP process in Spain is nationally driven; however, a complex inter-administrative system has been put in place in order to assure the engagement of all interested administrative authorities, including the regional ones.

The geographical scope of the five marine demarcations (*Figure 2*) includes Spain's Exclusive Economic Zone (EEZ) and internal marine waters, distributed across two marine regions: the Mediterranean and the North Atlantic.

In the Mediterranean region, there are two marine demarcations:

- The Strait and Alboran Sea marine demarcation, encompassing the internal marine waters of parts of the Autonomous Community of Andalusia, the Autonomous Cities of Ceuta and Melilla, as well as the EEZ.
- The Levantine-Balearic marine demarcation, which includes the EEZ along with the internal waters of parts of the Autonomous Community of Andalusia, the Region of Murcia, the Valencian Community, Catalonia, and the Balearic Islands.

In the North Atlantic region, Spain is divided into three marine demarcations:

- The North Atlantic marine demarcation, covering the EEZ and internal waters of Galicia, the Principality of Asturias, Cantabria, and the Basque Country.
- The South Atlantic marine demarcation, which encompasses the EEZ and part of the internal waters of the Autonomous Community of Andalusia.
- The Canary marine demarcation, which includes the EEZ and internal waters surrounding the Canary Islands.

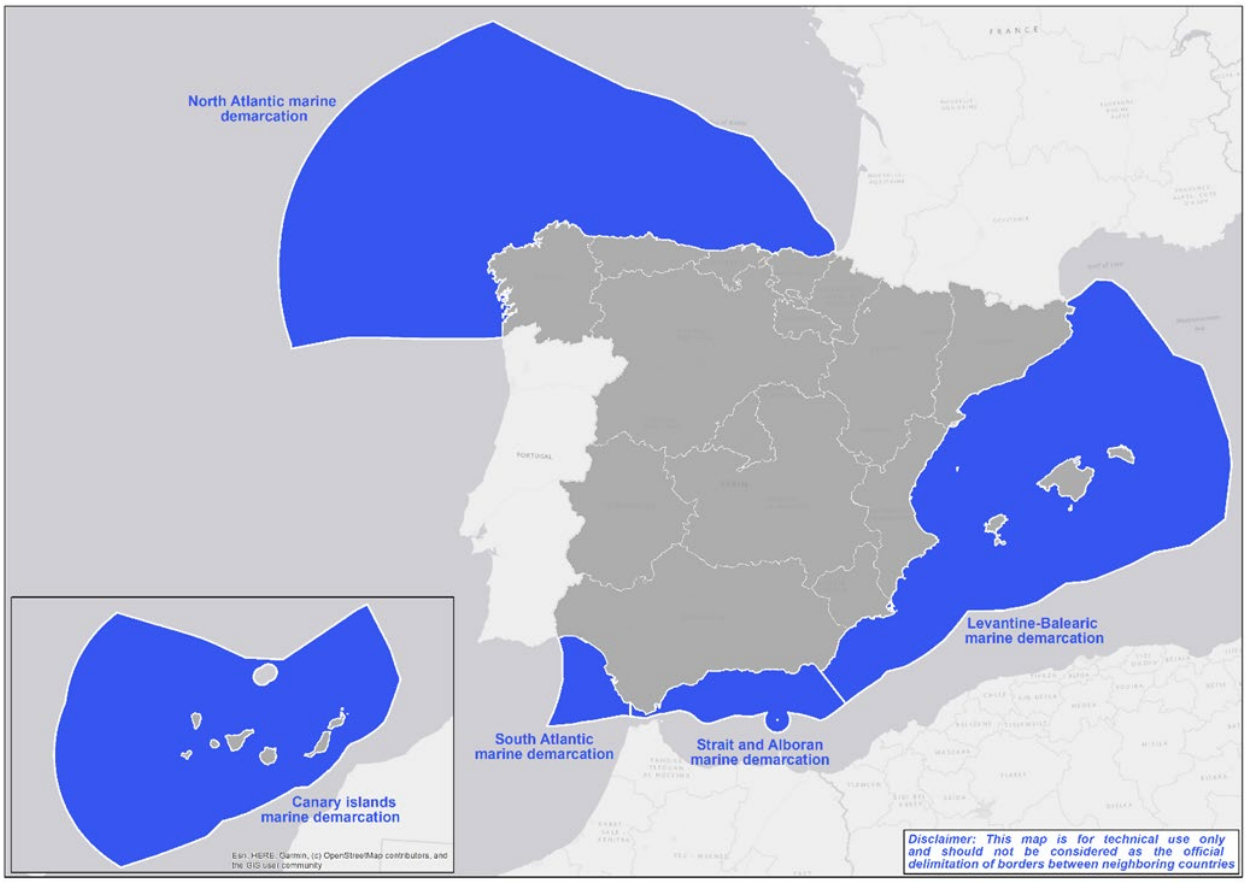

***Figure 2**: Spanish marine sub-regions. *Disclaimer: The limits of the marine demarcations do not correspond to the jurisdictional limits of the Spanish marine waters. They should not be considered as official delimitation with neighbouring countries. Own elaboration. IEO, CSIC.*

Article 10 of the Royal Decree 363/2017, indicates that the spatial and temporal distribution of the corresponding activities and uses, existing and future, will be included in the POEM: (a) aquaculture areas, (b) fishing areas, (c) installations and infrastructures for the exploration, exploitation and extraction of oil, gas and other energy or minerals resources, and mineral aggregates, and the production of energy from renewable sources, (d) shipping routes and maritime traffic, (e) dumping areas at sea, (f) different types of areas as defined in Law 8/1975 of 12 March 1975 areas and installations of national defence interest, as well as marine areas used for the conduct of armed forces exercises, (g) protected areas, sites and habitats that deserve special attention due to their high environmental value and protected species, especially those available in the Spanish Inventory of Natural Heritage and Biodiversity, (h) areas of extraction of raw materials, (i) scientific research, (j) underwater cable and pipeline laying, (k) tourist, recreational, cultural and sporting activities, (l) underwater cultural heritage, and (m) listed or additional elements to be part of the green infrastructure of Article 15 of Law 42/2007 of 13 December 2007 on Natural Heritage and Biodiversity.

In the Spanish MSP plans there is a specific section (Section V: Diagnosis) that includes the existing and future spatial and temporal distribution of the uses and activities mentioned in the previous paragraph for each marine demarcation.

The regional experience

As the MSP and MSFD processes are linked, the same coordination mechanisms have been used: the Interministerial Commission for Marine Strategies and the Monitoring Committees for Marine Strategies of the five marine demarcations. These Monitoring Committees assemble regional (autonomous communities) and national authorities in charge of marine strategies issues. They were originally created in 2014, to monitor the implementation of the five Spanish Marine Strategies, according to the Law 41/2010.

Additionally, the Interministerial Commission for Marine Strategies consist of several working groups, one of which is the Maritime Spatial Planning Working Group (GT-OEM, by its initials in Spanish). This working group is of a technical nature and brings together the different units of the Ministries that regulate maritime activities at the sectoral level, as well as technical advisory institutions.

Finally, ad hoc working groups have been created in the framework of the MSP process to deal with specific topics. These groups are formed by regional and national administrations and other institutions, such as some research centres. Matters discussed in these working groups need to be elevated to the Interministerial Commission on Marine Strategies for formal adoption.

Benefits, impacts and results

Thanks to the ad hoc groups created under the GT-OEM and in the Monitoring Committees for Marine Strategies, issues of regional competence are discussed with the Regions in the framework of the MSP process. In this forum Regions have been able to express their opinion and share relevant information for the process as well as take part in the decision making of issues relevant for them.

Barriers and needs

The MSP governance system in Spain is complex because many responsibilities at sea are shared between the regions and the central government. This makes the inter-administrative coordination of a process such as the MSP one, very resource consuming.

Transferability

The governance system established for MSP in Spain can serve as a model for countries where the MSP process falls under the jurisdiction of the national government, while certain responsibilities related to marine uses and marine environmental protection remain within the authority of regional governments.

It is worth noting that this inter-administrative coordination system was established for MSFD implementation, therefore the replicability of the whole concept lies on the prerequisite of having those two policies interconnected at the legal and governance level in the country.

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3.1.3 The role of Regions in the multi-scalar Italian MSP approach

Background

The Italian territory is divided into 20 regional administrations (hereafter Regions), 15 of which are coastal. Competencies on marine and maritime issues in Italy are rather complex and somewhat fragmented. The State has legislative power for environmental protection, and landscape and cultural heritage preservation. The State and Regions share legislative competencies on several issues, such as ports, maritime transport, energy production and distribution, spatial planning, enhancement of cultural and environmental goods, scientific and technological research and support for business innovation. Regions have legislative power over fisheries, aquaculture, coastal defence and tourism, which the State can also regulate in terms of implementation of international and EU obligations. Administrative competencies are shared between the State and the Regions, involving the local level for specific sectoral aspects (e.g.

licenses and concessions). For example, the State can establish national protected parks, national nature reserves and MPAs, while Regions can establish parks and natural reserves of regional and local interest. In consideration of this distribution of competencies and responsibilities on marine and maritime issues, Regions have been directly involved in formulating the Italian MSP plans.

The statutory Italian MSP process dates back to the transposition of the MSPD through the Italian legislative decree 201/2016, which identified the Ministry of Infrastructure and Transport as the Italian MSP competent authority. The same decree established a Technical Committee responsible for the elaboration of the Italian MSP plans. The Technical Committee is coordinated by the Ministry of Infrastructure and Transport and composed of several other Ministries (i.e. Ministry of the Environment and Energy Security; Ministry of Agriculture, Food Sovereignty and Forestry; Ministry of Enterprises and Made in Italy; Ministry of Culture and Ministry of Tourism) and all the coastal Regions. The elaboration of the Italian MSP plans is scientifically and technically supported by a multi-disciplinary team formed by CNR-ISMAR, CORILA and IUAV University of Venice.

Three plan proposals, one for each of the three identified maritime areas (Adriatic; Central Mediterranean and Ionian Sea; and Western Mediterranean and Tyrrhenian Sea), have been developed. These were submitted to public consultation in September 2022, in parallel to the consultation on the documents drafted as part of the Strategic Environmental Assessment (SEA). The SEA procedure was concluded in October 2023 and MSP plans are being finalised based on received feedback. The finalisation of the plans will also include the input of the National Plan for the Sea (Piano Nazionale del Mare) approved on the 31st of July 2023 by the Inter-ministerial Committee for the Sea Policies (CIPOM). This high-level plan defines the strategic directions for the development of a sustainable blue economy in Italy, recognising the important role that MSP can play in this regard.

The regional experience

The Italian MSP areas are divided into several sub-areas, including those within territorial waters (so-called coastal sub-areas) and those extending beyond territorial waters to the delimitation of the continental shelf (so-called offshore subareas). Being part of the Technical Committee, Italian coastal Regions have had a direct role in the elaboration of the MSP plans. They have developed the following plan elements relevant to their coastal subarea:

- a vision for the development and management of the subarea. In several cases, regional visions highlight the strategic importance of addressing both sustainable blue economy and the protection of environment and landscape, as two interlinked aspects of the same issue.

- a set of specific objectives - coherently defined with the strategic ones identified at the national level and valid in all the Italian marine waters – addressing several maritime sectors, the protection of the marine environment and the preservation of the landscape.
- zoning of the sub-area, with the identification of several planning units with different use vocations.
- a set of region-specific measures aimed at implementing the defined vocations, as well as minimising conflicts and exploiting synergies among uses (coherently with measures identified by the MSP plan at the national level).

To properly contribute to the MSP process, most of the Regions set up internal MSP working groups involving different regional departments and having diverse levels of formalisation. The elaboration of the MSP plans is based on a co-planning approach. Planning elements developed by the Regions – as well as by other involved actors - were integrated into the three MSP plans and checked for coherence and adequacy by the Technical Committee.

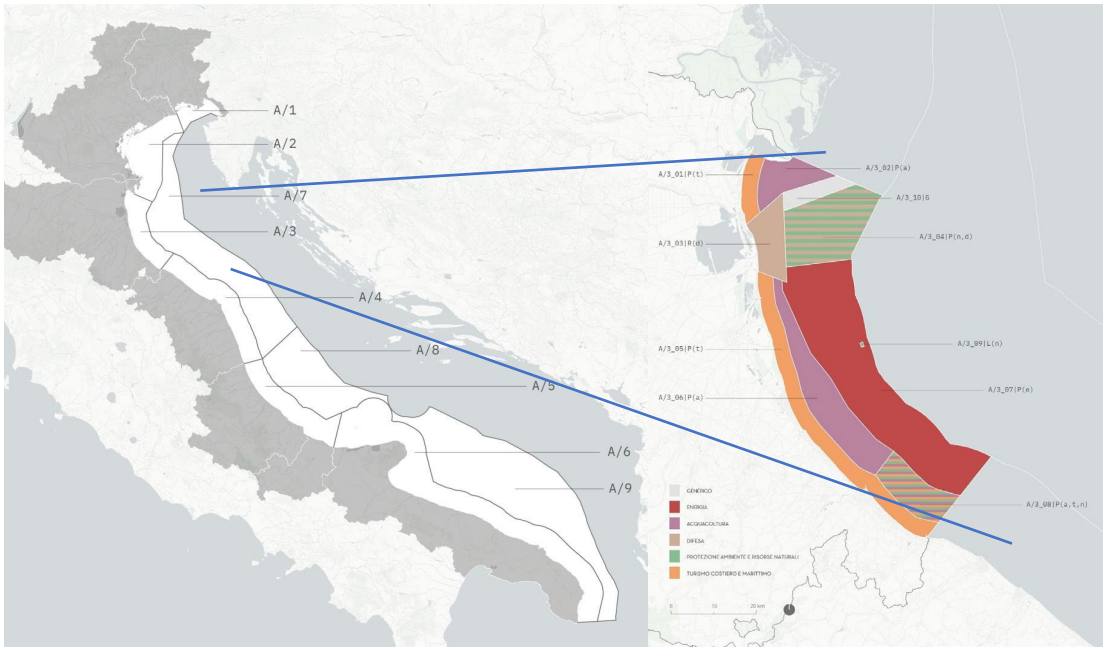

***Figure 3**: Subdivision of the Adriatic maritime area into 9 subareas (left) and identification of planning units in the Emilia Romagna A/3 subarea (right) (Source: Italian MSP plan proposal for the Adriatic maritime area, September 2022).*

Benefits, impacts and results

The Italian MSP plans are based on a multi-scalar approach (Ramieri et al., 2024), including three spatial levels (maritime areas, sub-areas, and planning units). Such an approach enabled the definition of planning objectives, zoning options and measures with different resolutions or details. The number and size of planning units vary according to the local characteristics of the marine environment and system of uses and the availability of data and knowledge. The direct engagement of Regions in the MSP process enabled MSP to properly take into consideration such characteristics and customize the plans according to regional needs and goals. At the same time, great effort was made to integrate the different regional contributions in a coherent planning picture at the maritime area level.

Working groups set up by the Regions fed the planning process with data and knowledge and agreed on key planning decisions taken at the regional level. The experience of the working groups also enabled the dissemination to regional sectoral officers of information on MSP, its role in integrating policies and plans, and its role in managing conflicts among different uses of the sea. This is expected to promote synergies between sectors, improve the protection of marine biodiversity, and minimise the impacts on the marine environment.

Barriers and needs

The Italian MSP plans have a prevalent strategic nature and do not provide detailed, regulatory provisions. From this perspective, the plans might appear too general to meet the needs of local communities. However, the multi-scalar approach adopted enables the incorporation of new data and knowledge and the progressive adaptation and integration of the plans in the next MSP cycles. For example, the need to further detail zoning for specific areas and/or sectors emerged as a common challenge for most of the regional marine areas, due to the high density of different maritime uses and in some cases related conflicts.

The limited availability of some specific data can act as an important gap for detailed analysis and planning at the regional level. This is for example the case of the spatial and temporal distribution of some human activities at sea which are currently poorly investigated, such as small-scale fishing, recreational fishing or leisure boating. More data is also needed to extend the knowledge on some environmental components, such as typically benthic habitats (e.g. seagrass meadows or coralligenous habitats) and megafauna species (in terms of spatial-temporal distribution).

The direct role the Italian Regions have had in the preparation of the MSP plan proposals should be maintained once the plans are adopted, to further link the national level stakes with the needs and

objectives relevant at the regional level. The consolidation of the MSP working groups created within the regional administrations would surely help in this sense, in particular during the implementation phase of the MSP plans' provisions. This requires a political endorsement, as well as the empowerment of human resources, technical capacities and funding opportunities. The limited availability of these elements acted in some cases as a barrier to the full participation of the Regions in the MSP process. At the same time, one of the major challenges is represented by effective and wider stakeholder engagement in MSP at the regional level (but the same could be advocated for the national scale).

Transferability

The multi-scalar approach applied in the Italian MSP process is designed to properly take into consideration some of the specific national characteristics, i.e. its governance structure (including central State and regional powers); the fragmented distribution of competencies on marine and maritime issues among different government levels; the high morphological, environmental, cultural and socio-economic diversity of the Italian coasts and seas; and the high concentration of human uses and activities along the coasts. Although some of these features are quite common, a direct transfer of the Italian MSP approach to other counties might not be immediate and appropriate. However, some elements of inspiration for an improved involvement of regions in MSP can be highlighted:

- Decentralised levels of governance can provide detailed data to the MSP process and ensure better coherence with existing strategies and plans already set at the regional level.
- Regions can have an important role in bridging national needs to interests and willingness of their territories, looking for minimisation of conflicts and trade-offs when needed.
- Regions can better link to local institutions and regional and local stakeholders, although this is an aspect which surely needs more attention and reinforcement.
- Intra-regional working groups on MSP are essential to make MSP a real integrated process through sector perspectives. The involvement of regional administrations in previous regional experiences (such as EU-funded projects) facilitated the establishment of these working groups.

Sources

Information on the Italian MSP process is available on the website of the competent authority, the Ministry of Infrastructure and Transport:

https://www.mit.gov.it/documentazione/pianificazione-dello-spazio-marittimo.

This site includes the link to the Sea Geoportal (SID il Portale del Mare: https://www.sid.mit.gov.it/login) and the MSP documents.

A full description and discussion of the Italian multi-scalar approach to MSP and the role of Regions is addressed in: Ramieri, E., M. Bocci, D. Brigolin, P. Campostrini, F. Carella, A. Fadini, G. Farella, E. Gissi, F. Madeddu, S. Menegon, M. Roversi Monaco, F. Musco, F. Soffietti, L. Barberi, A. Barbanti (2024). Designing and implementing a multi-scalar approach to Maritime Spatial Planning: The case study of Italy. Marine Policy 159 (2024) 105911. https://doi.org/10.1016/j.marpol.2023.105911

An overview of the evolution of the MSP process in Italy can be found in the European MSP Platform:

https://maritime-spatial-planning.ec.europa.eu/media/document/Italy_countryprofile

3.1.4 Governance Aspects of Regional Maritime Spatial Planning (MSP) in Greece

Background

In Greece, the Ministry of Environment and Energy oversees both terrestrial and MSP. MSP is regulated by Law 4546/2018, amended in Law 4759/2020, and will be executed by:

i) the National Spatial Strategy for the Marine Space (NSSMS) which is part of the National Spatial Strategy of article 3 of Law 4447/2016 (Α΄ 241). The strategy was recently completed and approved by the National Spatial Planning Council. However, the final approval by the Council of Ministers is still pending.

ii) the Maritime Spatial Planning Frameworks (MSPFs) that will be regional, interregional or subregional policies and will be developed in four “marine spatial units” (MSU) as defined by the NSSMS.

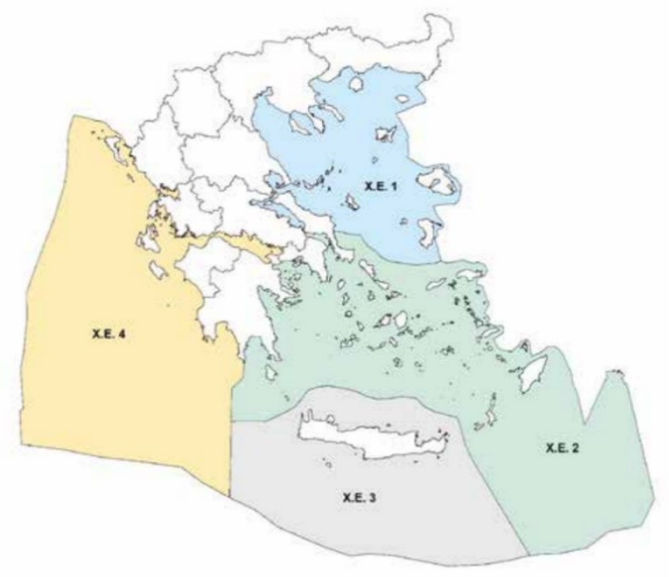

Figure 4: *Marine spatial units (MSU) corresponding to the four Maritime Spatial Planning Frameworks (MSPFs). Source: Integrated view of the maritime space – National Spatial Strategy for the Maritime Space, 2022*

The MSPFs must be harmonised with the various Special Spatial Planning Frameworks (SSPFs) and developed in coordination with the Regional Spatial Planning Frameworks (RSPF). Other considerations include existing sectoral plans such as the Multiannual Development Plan of Aquaculture, National Energy and Climate Plans, Tourism Development Strategies, Insular Policies, underwater and maritime cultural heritage, nature conservation and marine protected areas, landscape protection and coastal zone management, interaction and overlaps between neighbouring MSPFs, and finally the regulatory acts of land use planning.

It must be noted here that Law 4759/2020 provides the possibility of developing and approving the NSSMS, even without the existence of an approved National Spatial Strategy. The same law introduced two amendments to the legal framework for MSP. The first is about the sharing of responsibilities between the terrestrial part of the coastal zone (covered by terrestrial spatial planning) and the marine and coastal waters (covered by MSP). The second amendment updates the selection and designation criteria of the MSUs. As such the spatial and development characteristics must be considered, in addition to the "hydrological, oceanographic, biogeographical, environmental" characteristics.

The Regional experience

Based on the draft NSSMS, the MSPFs correspond to four MSUs. The Northern Aegean Sea (MSU1) and Crete (MSU3) are included in the REGINA-MSP project's eight case studies. A first pilot MSPF for the North Aegean MSU was developed as part of the INTERREG "THAL-CHOR II" project (2018-2023). The national THAL-CHOR geoportal provides organised MSP data at a regional level and offers geo-processing tools related to maritime space.

The MSPFs must be submitted for consultation with: Ministries that are involved in the approval of Maritime Spatial Plans, the National Spatial Planning Council and, among its 22 members, one must represent the Association of Greek Regions and another the Central Union of Municipalities of Greece, ensuring indirect regional involvement in MSP processes, other stakeholders and the public. Stakeholders provide their input via the e-gov platform that facilitates official consultations. For each MSPF several regions and coastal municipalities with varying levels of development and sectoral orientation must be involved. At regional and local levels, MSP must adapt higher-level strategies to specific regional, sub-regional, and local characteristics; ensure socio-economic and ecological resilience; resolve competing uses and promote synergies between different sectoral priorities. In ecologically sensitive areas or in areas where high pressures are exerted and conflicts arise between uses, planning must take place on a regional, sub-regional scale and, where appropriate, local scale, and be normative in nature and contain clear regulations. For areas where soft uses with low to no impacts occur and competing activities do not exist or are not expected, planning should be of a guiding nature.

Benefits, Impacts and Results

In support to the MSPFs, it may be claimed that the adoption of small-scale planning corresponding to an already existing level of administration will constitute the optimal solution towards the establishment of a multi-centred and democratic maritime governance system. Instead of considering MSPF as a barrier towards the implementation of existing Regional and Special (sectoral) spatial planning frameworks, the former may drive the need for adaptation/amendment of the latter, so that one complements and enables the other. For example, in the case of activities with simultaneous development of infrastructure on the land and the marine part of the coastal zone, the respective spatial planning frameworks and the competent authorities must ensure the holistic approach and management of the coastal area (land and sea parts), in accordance with the principles of the Integrated Coastal Zone Management Protocol.

In the Regional Spatial Planning Frameworks that have been revised recently, special mention is made to the development of offshore wind farms in two Greek Regions, those of the North Aegean and the Ionian Islands. These developments however may face challenges due to the peculiarities of the coastal morphology, insularity and oceanographic conditions of a semi-enclosed area as is the Mediterranean Sea, and the differences in priorities and value chains in regional, subregional or interregional level.

Therefore, more focus on Land Sea Interactions must be given. This intention will eventually enable the development of a sustainable blue economy.

Barriers and Needs

Small areas, clearly defined by administrative boundaries are the preferred scale for MSPF in Greece. This might pose a challenge for some issues that would need to be approached with a higher scale of analysis, not constrained by administrative limits.

Compliance with several sectoral spatial plans, which are outdated or are under revision, may pose challenges and delays to the development and implementation of regional MSPFs. As such the necessity for compliance of MSPFs with pre-existing plans and strategies may have to be reconsidered and applied in a case specific basis, as in many cases the opposite may be more desirable (i.e. where the MSPF drives the adaptation of existing plans). Similarly, current plans inadequately address land-sea interactions. The separation of areas/territories of competence between regional/special spatial frameworks and MSPF may reduce this deficiency or increase it. There is also a significant lack of organised MSP data and regional geoportals with geo-processing tools.

Although the local and regional authorities and stakeholders must be strongly involved in the development of the MSPFs, the still highly centralised planning process limits local and regional authorities' participation or in decisions regarding maritime activities in coastal zones and territorial waters. Nevertheless, the necessity to involve a high number of local governments and stakeholders for each MSPF, will lead to the development and application of complex governance schemes. So far, such schemes have only been tested in the context of research projects such as MSP Med-Greece and SUPREME (2013-2015). Other reference projects include COASTGAP that focused on cooperative frameworks for coastal regional administrations, among other objectives.

In order to ensure the local/regional dimensions of MSP, where planning has a more regulatory nature and land–sea interactions can be better addressed, some steps are necessary: (a) establishment of (regional) networks engaging coastal and insular regions and municipalities sharing the same (local) sea in the MSP process, and (b) establishment of local stakeholder networks having the same agendas and priorities at sea (such as the Communities of Practice (CoP) developed within REGINA-MSP), and c) enabling cross-border consultation via regional agreements. Engaging regional and municipal authorities, as well as local stakeholders in a more fundamental way, is of paramount importance because at this (local) level, citizen science and ocean literacy prevail and can be of great use to the MSP process.

Transferability

The regional MSPF approach could be replicated in other countries as it constitutes a good approach for the involvement of the Regions or of groups of Municipalities (sub-regional level) in MSP as well as for interregional collaboration. Greece's national and regional strategies and frameworks (e.g., for climate change adaptation, protection of cultural heritage, biodiversity, and landscape conservation) offer models that could be adapted by other EU countries and regions with similar geographical, cultural, and governance characteristics.

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3.1.5 The implementation of Maritime Spatial Planning in Ireland's Maritime Area with reference to Offshore Renewable Energy.

Background

The Irish Maritime Area stretches from the mean high-water mark to the outer limit of the continental shelf, comprising internal waters, the territorial sea, the EEZ and the continental shelf. This equates to an area of approximately 490,000 km2. The EU MSP Directive was transposed into national law through the enactment of the Maritime Area Planning Act, 2021 which also provided for a new consenting system for the majority of maritime uses and activities. Ireland currently has one national marine spatial plan, known as the National Marine Planning Framework (NMPF), published in July 2021.

Ireland's ocean economy has a turnover of €7.01 billion and employed over 33,000 people (FTEs) resulting in a GVA of €2.85 billion in 2022 (MI, 2023). The top five sectoral contributors to the economy, in order, were shipping and maritime transport, oil and gas exploration and production, tourism in marine and coastal areas, bioresources/seafood (including fisheries, aquaculture, processing, seaweed, blue bioeconomy) and marine commerce. Tourism in marine and coastal areas was the largest employer, followed by bioresources/seafood, and shipping and maritime transport. There are strong policy commitments for the deployment of offshore wind energy: 5 GW of grid-connected offshore wind by 2030; 20 GW by 2040 and at least 37 GW in total by 2050, but as yet there is only one operational wind farm located on the south-east coast (Arklow Bank).

Ireland's 4th National Biodiversity Plan was published in January 2024 and under objective 2 (meet urgent conservation and restoration needs), the Government's commitment to developing national legislation for Marine Protected Areas (MPAs), is reiterated in order to progress implementation to meet a target of 30% protection in the marine environment by 2030. Currently marine species and habitats are protected under EU law, through the Birds and Habitats Directives. Work conducted by the Expert Advisory Group on MPAs found that new national legislation is necessary to ensure protection of habitats and species that are not covered by EU law.

The NMPF provides a policy framework for MSP, which will be supplemented by a statutory Marine Planning Policy Statement in due course. The NMPF provides guidance on how MSP should be conducted but does not in itself, have a zoning component or contain priority objectives for specific sea areas. Rather the NMPF outlines a number of Overarching Marine Planning Policies (OMPPs) covering objectives relating to environmental, economic and social aspects. Those relating to the environment, for example, align with the provisions of the EU Marine Strategy Framework Directive (MSFD). Those relating to the economy

focus on co-existence and infrastructure, whereas those covering more social aspects relate to access, employment, heritage, seascape, and rural/island communities.

In addition to the overarching policies, there are 16 Sectoral Marine Planning Policies (SMPPs), covering a range of activities including Offshore Renewable Energy. The Maritime Area Planning Act, 2021 also provides for the creation of Designated Maritime Area Plans (DMAPs), essentially a marine plan than can cover a region or activity and be proposed by a public body to advance a particular sector, a number of sectors or a particular location. The Maritime Area Planning Act, 2021, requires that all DMAPs must be prepared by a designated Competent Authority, who has been approved for this purpose by the Minister for Housing, Local Government and Heritage. The intention is that a DMAP will act as a management plan for a specific area of marine waters, which can be used to develop multi-activity area plans to promote the use of specific activities. All future Offshore Renewable Energy will be taken forward through DMAPs, meaning it will not be possible to propose an offshore energy development outside a DMAP area. The DMAP establishment process includes a statutory requirement to provide opportunities for engagement with citizens and local communities. Accordingly, the publication of any DMAP proposal must be accompanied by a Public Participation Statement outlining opportunities for the involvement of interested parties in the DMAP establishment process to ensure development occurs in the most suitable locations and delivers maximum benefits, whilst considering other existing marine activities and usages in planning processes.

In parallel to MSP and DMAPs, a Seafood/Offshore Renewable Energy (ORE) Working Group was established by the Government in May 2022 to facilitate discussions on the interactions between seafood and offshore renewable energy industries, to promote and share best practice, and to encourage liaison with other sectors in the marine environment. The Working Group is composed of representatives from the Irish seafood organisations, including aquaculture, and representatives from renewable energy companies. A Summary Guide for Seafood - ORE Engagement in Ireland was published in July 2023 and provides guidance on how to engage and co-exist in a constructive manner throughout the lifecycle of an ORE Project.

The regional experience

In July 2023, a proposal for a South Coast Designated Maritime Area Plan (DMAP) was published by government. The Minister for the Environment, Climate and Communications was designated as the Competent Authority to prepare DMAPs for the development of offshore renewable energy. The proposed South Coast DMAP covers an area of 8,600 km2 in size, extending from the mean high-water mark on Ireland’s south coast to the 80-metre depth contour and/or the edge of the Irish EEZ and will effectively dictate the second round of offshore wind energy developments in Irish waters. The proposed

plan was subject to a nine-week public consultation (August-October 2023). A 'Draft South Coast DMAP for Offshore Renewable Energy' [SC-DMAP] was published on 3rd May 2024 and covers a slightly adjusted spatial area of 8,813 km2. The DMAP proposal process led to the identification of four broad Maritime Areas of low environmental and technical constraint and low LCOE [Levelised Cost of Energy] and therefore potentially suitable for future fixed offshore wind development. The draft DMAP is now subject to a further six-week statutory public consultation period. After that the draft DMAP will be presented to the Minister for Housing, Local Government and Heritage and both houses of the Oireachtas [parliament] for approval.

Targeted engagement will be conducted with the fishing and seafood production industries, and environmental and other Non-Governmental Organisations and a number of consultation events along the south coast are also scheduled. In addition to these, consultation will also take place with a range of public bodies.[1] The draft SC-DMAP is accompanied by a range of supporting documents including a Strategic Environmental Assessment (SEA) Environmental Report, Natura Impact Statement and supporting studies detailing how the areas were identified and the regional economic impact of offshore wind.

Benefits, impacts and Results

It is anticipated that as implementation progresses, regions with avail of the DMAP process to further MSP in their region if necessary.

Barriers and needs

As a relatively new responsibility in DECC, the MSP area is still being developed with additional staff needed and expected to be in post before the end of this year. In some coastal and marine areas there are data gaps that need to be addressed in order to provide a better evidence base for marine planning

[1] The Minister for Housing, Local Government and Heritage along with relevant divisions such as Marine Planning Policy & Legislation and Marine Environment divisions; Minister for Tourism, Arts, Gaeltacht, Sport and Media; Minister for Transport; Minister for Agriculture, Food and the Marine; An Taisce; The Heritage Council; Inland Fisheries Ireland; Irish Water; Bord Iascaigh Mhara [Sea Fisheries Board]; Environmental Protection Agency; Commission for Regulation of Utilities; Sustainable Energy Authority of Ireland; EirGrid [transmission system operator]; Marine Institute; Geological Survey Ireland; Department of Defence; Office of Public Works; Maritime Area Regulatory Authority (MARA); Commissioner of Irish Lights; National Parks and Wildlife Service (NPWS); Irish Coastguard; the Southern Regional Assembly; and Coastal Planning Authorities in Counties Cork, Waterford and Wexford.

and management decisions. Funding mechanisms for almost all types of development need to be found as, currently, there is no dedicated funding associated with implementation of MSP or marine infrastructure, in contrast to land-based planning which has a dedicated funding plan (through the National Development Plan).

Transferability

Whilst the DMAP for offshore energy on the south coast is still in the process of being finalised, this approach could act as a template or example for how to plan ORE on a regional basis elsewhere.

Sources

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- National Biodiversity Action Plan: https://www.gov.ie/en/publication/93973-irelands-4th-national-biodiversity-action-plan-20232030/
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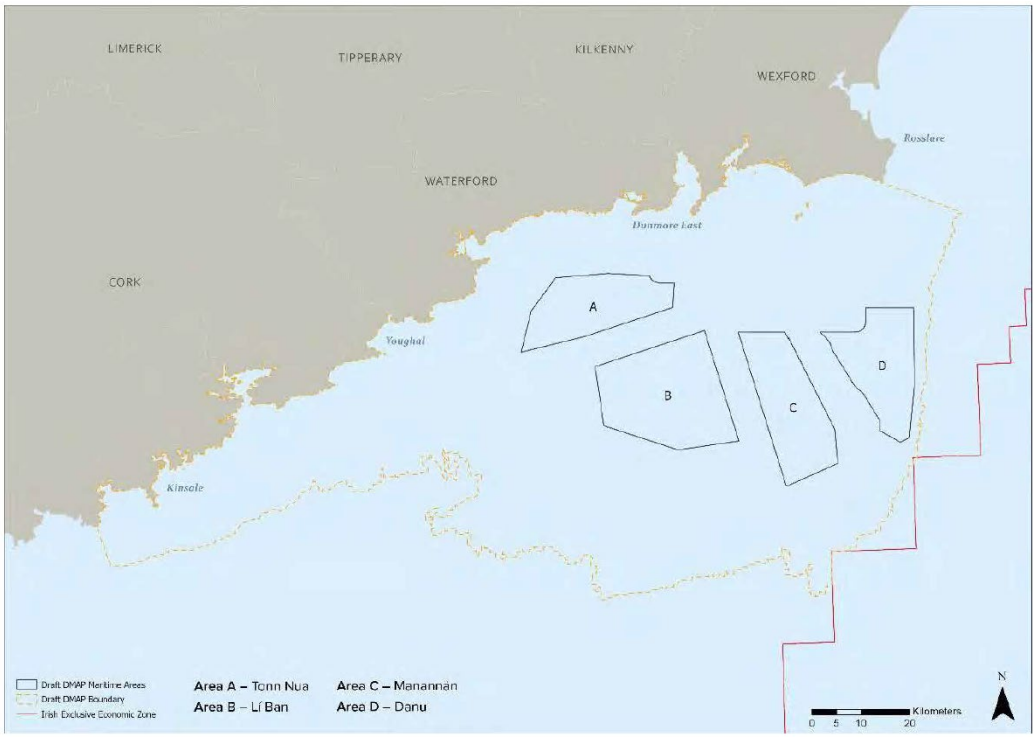

***Figure 5**: Maritime Areas A to D proposed for fixed offshore wind development in the South Coast DMAP (DECC, 2024).*

3.2 Regional approaches towards MSP challenges

This section provides an overview of the various regional approaches to addressing the challenges of MSP. The experiences collected highlight how different regions have responded to specific maritime-related challenges and how MSP has interfaced with specific topics such as Coastal Zone Management and Land Sea Interactions (par. 3.2.1), environmental protection (par. 3.2.2), climate change actions (par. 3.2.3), and the use of regional tools (par. 3.2.4). The described regional approaches offer valuable lessons for aligning local planning with broader national and European MSP objectives, ultimately fostering more effective and sustainable marine governance. local environmental, social, and economic needs.

The geographical location of the topics described in the following paragraphs is shown in the figure below.

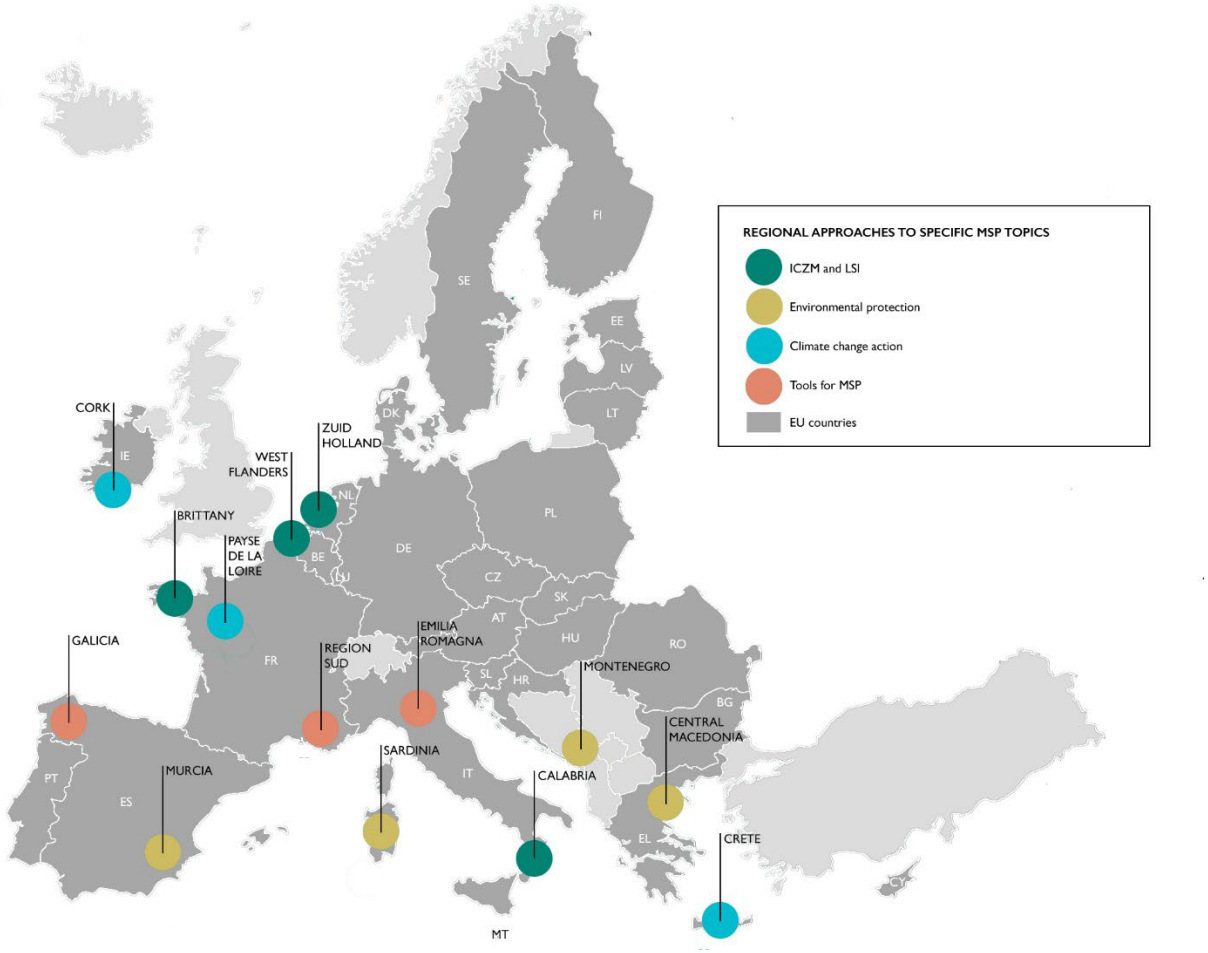

***Figure 6**: Location of regional experiences per specific topic*

3.2.1 - Regional coastal zone management and land sea interactions

Integrated coastal zone management (ICZM) is the holistic and coordinated approach to the sustainable management of coastal areas. It involves the integration of various activities and the participation of regional/local stakeholders to balance economic development, environmental protection and conservation, and social well-being in coastal zones. The approach to Land-sea interactions in this context emphasizes the interconnections between terrestrial and marine systems. Activities on land can have significant impacts on coastal and marine environments and vice versa. ICZM at regional level aims to address these interactions through comprehensive planning and management strategies that promote coastal resilience, biodiversity protection, and the sustainable use of natural resources. The EU MSP directive asks to incorporate land-sea interactions in the marine plans. Existing formal and informal ICZM activities performed at the regional level can be capitalised to approach LSI within MSP.

3.2.1.1 Brittany: a successful regional maritime experience to support multi-stakeholder cooperation (Atlantic Basin, France)

Background

Situated in the north-west of France, Brittany is renowned for its rich marine and coastal biodiversity. Its vast coastline, stretching for almost 5,000 kilometres, is marked by cliffs, sandy beaches and numerous small islands. Its maritime space is increasingly coveted by new activities such as marine renewable energies, in competition with its traditional activities, notably fishing and aquaculture. In terms of main maritime uses, Brittany is one of France's leading regions for fishing and aquaculture. Its ports, such as Lorient and Concarneau, are essential to the fishing industry, which includes both traditional fishing and modern aquaculture. The region's main commercial ports, such as Brest and Saint-Malo, play an important role in shipping, particularly to the UK, along the Atlantic coast and beyond. Coastal tourism is also an essential part of Brittany's economy, with the region attracting millions of visitors each year for its typical landscapes and range of water-based leisure activities. Brittany is home to France's first marine park, the Iroise Marine Park, created in 2007 to protect the rich marine biodiversity of the Iroise Sea and promote its sustainable development. Other coastal and marine nature reserves protect specific habitats and species, such as the Sept-Îles Nature Reserve (Côtes d'Armor) and the Armorique Regional Nature Park (Finistère).

With regard to maritime issues and its socio-economic and environmental challenges, the Brittany Region has, at various stages, established a set of strategic frameworks and bodies, giving it a solid maritime governance structure, ensuring its commitment to the development of sustainable maritime activities while emphasising the importance of striking a balance between human activities and the conservation and protection of the environment. These efforts ensure the protection of Brittany's unique marine ecosystems while supporting the traditional and developing maritime sectors, and Brittany's cultural heritage and natural heritage.

The regional experience

In 2005, faced with environmental and socio-economic challenges, the Brittany Region launched a consultation process to ensure the sustainable development of the Breton sectors and maintain the ecological potential of marine environments. The result was the "*Breton coastal areas Charter, for an integrated management of coastal zones in Brittany*" (Charte des espaces côtiers bretons - Pour une gestion intégrée de la zone côtière bretonne), adopted by the Regional Council in 2007.

The charter was used to define the governance mechanisms and, in 2009, to deploy the Regional Conference of the Sea and Coastal areas" ("Conférence Régionale de la Mer et du Littoral (CRML)"). Recognised by the French government in 2012, the CRML is a governance and consultation body, co-chaired by the regional prefects and the President of the Regional Council and bringing together a wide range of stakeholders. It deals with maritime and coastal issues, and in particular has taken on major challenges for regional development, such as marine renewable energy. This dynamic conference, capable of producing concerted decisions, has improved the management of coastal areas and coastlines by bringing together local authorities, representatives of national authorities, socio-economic players and civil society.

Developed within the framework of the CRML, the "Brittany's Strategy for the Sea and Coastline" (Stratégie de la Bretagne pour la Mer et le Littoral (SBML)) has enabled the actions discussed to become operational. This regional strategy is a reference and action document in terms of integrated maritime policy in Brittany and develops a strategic planning vision applicable at regional and local level. Brittany's experience of maritime governance shows that coastal zone management can be effectively implemented through a multi-stakeholder dialogue established through consultation and governance bodies at each level of management. At local level, the network of consultation bodies is completed by the Sea and Coastal Commissions ("Commissions Mer et Littoral – CML").

The "CML" or Sea and Coastal Commission is a decision-making and advisory body for projects applying for European EMFAF funding, as part of the community-led local development (CLLD) scheme. These

projects are developed at the level of the Local Fishing and Aquaculture Action Groups (LAGFAs) managed by the local authorities. It is also a forum for discussion on various maritime issues (marine renewable energies, employment, coastline management, etc.).

Each CML is made up of a public college and a private college and may also include an advisory council. The public college is made up of joint associations with links to the local coastline, the "Pôles d'Équilibre Territoriaux et Ruraux" (Regional and Territorial balance hubs), public education bodies (universities, maritime colleges) and other public bodies. The private college brings together development councils, professional organisations (Shellfish Farming Regional Committee – "Comité Régional de la Conchyliculture", Departmental Committee for fisheries and Marine Farming – "Comité Départemental des Pêches et Élevages Marins"), oyster farming unions, local missions and businesses. This network of local players represents and develops knowledge of the region's socio-economic ecosystem, and members are called upon to play an active role in assessing project applications and voting on their selection.

As part of the implementation of the MSP Directive, the Brittany region is proposing a multi-level, cross-cutting maritime governance framework. The CMLs act as a genuine operational consultation body with a real understanding of the issues facing each territory at local level. On a regional management scale, the CRML is a forum for exchange that can consider all the local territories of Brittany in order to reflect on possible improvements to the implementation of the various public policies for the sea and coast. The Brittany Region is also in contact with the national authorities responsible for implementing the MSP Directive, through the "Conseil maritime de façade of the Direction Inter-régionale de la Mer" (DIRM), and with its neighbouring region of Pays de la Loire.

Benefits expected and/or already observed for regional issues

- The role of the "*Conférence Régionale de la Mer et du Littoral*" (CRML), which brings together regional players, helps to strengthen cooperation and improve decision-making on maritime and coastal issues.

- Consultation at regional and local level has led to the development of regional strategic frameworks, such as the Breton Coastal Areas Charter, which is the result of broad consultation and has helped to formalise integrated coastal zone management practices; and the "*Stratégie Glaz Économie*" (Glaz Economy Strategy), which aims to develop an innovative and sustainable maritime economy, involving various economic and institutional players. Working together, innovative projects can be launched and supported, particularly in the areas of the blue economy and marine renewable energy.

- The Local Sea and Coastal Commissions (CML) help to adapt regional strategies to specific local circumstances, thereby ensuring more effective and relevant action.

- Multi-level and multi-player maritime governance in Brittany helps to better reconcile the region's ecological, economic and social objectives and to create coherence and complementarity between local, regional and national public policies, facilitating the implementation of European directives and national legislation.

Barriers and needs

In the context of cross-cutting, multi-level and multi-stakeholder maritime governance, ongoing efforts at consultation, mediation, dialogue and communication are essential to maintain effective cooperation and enable concerted and sustainable maritime management. The issue of multi-use of maritime space can give rise to local opposition, for example when MRE projects are being set up because of perceived environmental impacts or the taking of space and impacts on fishing activities, necessitating long and complex negotiations.

Transferability

The recognition of the CRML by the French government in 2012 highlights the key role played by regional and local consultation in the implementation of European and/or national legislation. Brittany's regional experience of the LRC can inspire other European regions to develop their consultative capacities at local level by involving a multi-actor and multi-level dimension.

In addition, the CMLs and the allocation and implementation of specific projects associated with the CLLD EMFAF through the distribution of LAGAPs, demonstrate the implementation and integration at local level of territorial actions consistent with regional strategies and co-financed by the European Union. This specific structure could serve as an example for other European regions that could benefit from the CLLD EMFAF scheme and support them in developing innovative and promising projects in line with their maritime territorial development objectives.

Sources / website

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3.2.1.2 Coastal defence and land sea interactions in the Zuid Holland, the Netherlands (North Sea)

Background

Zuid Holland is a coastal province located in the South-western part of the Netherlands, along the southern North Sea. The territorial waters and the EEZ are intensively used, like the whole Dutch part of the North Sea. The area is protected from the sea by (natural) dunes and by technical infrastructure in the proximity of coastal towns. The Rhine–Meuse–Scheldt Delta (southern area) is protected by a series of works (storm surge barriers, locks and dams) to protect the area from flooding. Zuid Holland is densely populated and has a high economic value. The harbour of Rotterdam is one of the largest in Europe and a gateway to the hinterland. Ship building and other industries and companies related to the harbour of Rotterdam have a long history.

Zuid-Holland has several coastal towns with a long tradition of fisheries. Nowadays the coastal area is extensively used for recreation and tourism. The coastline varies from bustling coastal towns to quiet natural dune areas. Most of the dune area has Natura 2000 status. Most of the beaches have been designed as natural areas under the National Ecological Network, a network of existing and newly created nature reserves, within which nature is a priority. Besides the natural characteristics and value, the dune area has an important role in freshwater storage and supply.

In the coastal area from Hoek van Holland to Noordwijk the “National Park Hollandse Duinen” brings together over 50 partners that cooperate to improve and protect the natural values of the whole area. Along the coast several EU Natura 2000 sites are also present. The marine area from Hoek van Holland to the north is protected under the National Ecological Network (Natuurnetwerk Nederland). The southern marine area (the Delta) is a marine Natura 2000 site (“Voordelta”) that extends over the southern boundary of the country.

Since 2005, the expected growth of various maritime uses and the potential conflicts that could derive triggered the central Dutch government to work on a spatial planning vision for the North Sea. The National Spatial Planning Policy Document (the first policy document both covering land and sea) was issued in 2005 by the Ministry of Housing, Spatial Planning and Environment. In the same year, this policy document was further elaborated into the Integrated Management Plan of the North Sea (2005-2015), to improve the management of uses for a *healthy*, *safe* and *profitable* sea space. The Plan was issued as a regulation and was legally binding. Opportunity maps were created to show potential future use in areas where growth could take place.

In 2009, the Dutch government published the 'National Water Plan 2009-2016', that replaced the Spatial Planning Policy for the North Sea space. In 2015, a second National Water Plan was issued (2016-2021), after that a North Sea vision 2050 was elaborated. Finally, the Netherlands adopted the North Sea Programme 2022-2027 as part of the National Water Programme as "the policy to bolster the ecosystem, the transition to sustainable food supply and the transition to sustainable energy provision" (North Sea Programme). The main uses addressed by the plan are ecosystem preservation and restoration, fisheries and aquaculture, renewable energy, oil and gas, carbon capture and storage, shipping, sand extraction, defence, and protection of underwater cultural heritage.

The Interdepartmental Directors North Sea Consultative Body (IDON) coordinates the development of the North Sea MSP policy, that is mainly a national task. The Consultative Body is composed of the Ministries with tasks and responsibilities on the North Sea: The Ministry of Infrastructure and Water Management (Chair), Economic Affairs and Climate Policy, Agriculture, Nature and Food Quality, Interior and Kingdom relations, Defence, Finance, Justice and Security, Education Culture and Science, and the executive organisations of Rijkswaterstaat [*Directorate General for Public Works and Water Management*] and the Coastguard.

The jurisdiction of municipal and provincial authorities extends seaward to 1km from the low water mark on shore: responsibility for this area is shared with central government by the five coastal Provinces. Only central government has jurisdiction over marine areas beyond 1 km from the coast to the extent of the Dutch EEZ.

The regional experience

Local authorities were involved in the preparation of the national North Sea Programme 2022-2027 through the plan consultation and were specifically called to contribute to the section about land-sea interactions (LSI), since their responsibility is mainly on the coastal areas. Coastal zones are strategically important for the Netherlands. Planning activities at sea and along the coast are strictly related to land

use planning in the hinterland. In particular, sand nourishment for protecting the coastal zone from sea level rise, relies on deep marine sand deposits, mostly lying in the west of the Zuid Holland islands and Zeeland. This is recognised in the North Sea Programme 2022-2027 highlighting that the availability of sufficient quantities of affordable sand for coastal safety, construction activities and infrastructure must be safeguarded, also in the long term. This contributes to flood risk management and climate resilience of coastal areas. The North Sea Programme reports that the required amount of sand until 2032 is expected to be 11 million m^3 per year and it is expected to increase in the future.

Since large parts of the Dutch coastal areas are impacted from sea level rise and increasing storminess, the main objective of the national coastal policy is the sustainable maintenance of protection for the hinterland against flooding from the sea. As provincial government, Zuid Holland is in charge of coastal spatial planning and coastal protection interventions, requiring high coordination with national authorities that have responsibility on the marine area. In 2003 an investigation was made at the national level to assess the degree of coastal protection along the Dutch coast from floods. It identified several "weak links", i.e. areas that would have been at risk not to meet the safety standards in the following 50 years. Plans have been made at the provincial level for improving each of these weak links, so that the coast continues to meet the requirements of coastal safety in a climate change perspective. The approach of the weak links in Zuid-Holland was a large success. The provinces forced the national government not to look only at safety measures, but also at improving attractiveness of coastal areas through coordinated spatial planning, with a sustainable approach. The Zuid Holland province incorporates land-sea interactions in its policy for the marine and coastal environment, not only in relation to coastal protection. A comprehensive analysis about LSI in the Zuid Holland province was prepared together with Wageningen University to understand current and future challenges in regional MSP. Strong relationships and interdependencies between various activities and processes occurring at sea and on land were identified. The need for a healthy balance between economic development and nature conservation was highlighted, as well as the need for a more integrated approach to marine and coastal management.

Benefits, impacts and results

Zuid Holland was the first Province that completed coastal protection in all six "weak links" identified from the national study, in good cooperation with all parties involved and with an innovative approach. Benefits for the province are now visible since several interventions were realised along the coast. They combine safety issues (protection from sea level rise) with environmental (preservation of natural habitats) and societal (recreational activities, wellbeing) benefits.

For example, in Autumn 2007 Noorwijk initiated strengthening its coast in collaboration with the Rijnland District Water Control Board, the Dutch government and the province of Zuid Holland. The "dike-in dune"

approach was used, combining elements of hard and soft-engineering. This system involved building a dike in the original dune system identified as a weak link, and covering it with sand, thus creating new dunes. The new dunes were connected to the existing ones, heightened 5 m and broadened by 42 m towards the sea. Consequently, a new beach was created. Sand was introduced on the beach and for 800 m out to sea to raise the coastline, helping to get a smooth transition to the beach. Through the new dune system, and parallel to the Queen Wilhelmina Boulevard, a new path was established. In the Delfland area (another identified weak link), the Sand Motor was implemented as an innovative intervention to protect the low-lying coastal zone from sea level rise impacts. It is a large nourishment performed in 2011, immediately after a general reinforcement of the Delfland coastal area. It involved 21.5 million cubic metres of sand extracted ten kilometres offshore in the North Sea and deposited along the coast, to form a hook-shaped peninsula of 128 ha, including a dune lake and a lagoon. The intervention was complemented with two foreshore nourishment operations conducted on either side of the peninsula.

Barriers and needs

Provincial authorities need a deeper involvement in the decision-making process made at the national level, especially concerning the holistic perspective brought by MSP. A good connection between the provincial authorities and the national authorities already exists but it is mainly confined to the development of sectoral plans. For example, the Zuid Holland province was involved in the discussions about the development of wind energy at sea and mediated between national and local governments (municipalities). The province has a role in these discussions, due to interactions between activities developed offshore and the coastal areas, where the province has responsibility for spatial planning. However, a cross-sectoral perspective in these interactions is still missing.

Moreover, thinking with a long-term horizon is a pre-requisite for climate change adaptation and coastal zone protection. Within the MSP process, this requires more awareness at the provincial and national level, since it can generate potential conflicts with short-term political goals. Although LSI is an urgent topic for Zuid Holland, the perception is that this issue is not adequately addressed by national spatial planning policies that are mostly oriented to manage conflicts between different uses (e.g. energy, fisheries) and interactions with nature conservation.

Transferability

Main lessons learned that can be used to inspire other regions are:

- Coastal development benefits from nature-based solutions. The “building with nature” approach undertaken in several coastal interventions demonstrates its success to protect the coastal area from sea level rise in a sustainable way and can inspire further interventions in other regions and countries. Sand Motor-like solutions are being considered in several locations outside the Netherlands both in Europe (e.g., Sweden, United Kingdom, Belgium) and elsewhere (United States, Mexico).
- Coastal development benefits from an integrated approach. The “Layer approach” or “Wedding cake model” were used in spatial planning. Nature is the base layer that should be kept healthy to support various ecosystem services that in turn support maritime and coastal uses.
- Cooperation and communication are key. Cooperation between different levels of government (each from his own responsibility) for an integrated and cross-sectoral approach to MSP is needed. Stakeholder involvement and clear communication help understand and accept solutions.

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3.2.1.3 West Flanders: Coastal zone management and Land Sea interactions regional experiences (Belgian Part of the North Sea)

Background

West Flanders is the westernmost province of Belgium, bordered by a 65km coastline around the North Sea. As the only Flemish coastal province, the region is crucial in supporting and developing Belgium's marine activities. The blue economy represents an important and diverse sector in the region, consisting of established industries like fishing and shipping, as well as recent industries such as offshore energy production and mariculture. Without exception, these industries rely heavily on the geographical location and associated ecosystem services for their activities. These economic activities share a limited amount of space with important habitats, species, and natural processes in the nearshore marine area. The region's natural areas, such as coastal dunes and estuaries, are protected under several designations, including Natura 2000 and Ramsar. In addition to safeguarding biodiversity, their role in protecting coastal infrastructure and the hinterland against storm surges is becoming increasingly important. Robust and integrated coastal zone management, with attention to land-sea interactions, is therefore indispensable for a sustainable development of not only the province of West Flanders, but the wider Flemish Region and marine space.

To organise the different marine user functions/marine activities, Belgium has implemented a Marine Spatial Plan (MSP), which was first established in 2014 and updated for the period 2020-2026. A third revision phase for the period 2026-2034 is currently (August 2024) ongoing. This plan outlines zones for economic and ecological functions such as shipping, fishing, renewable energy, and nature conservation. While the MSP is federally governed, West Flanders provides advice to the MSP authority during the public consultation phase of MSP revision cycles to ensure the plan is aligned with regional and local contexts and development plans. As the only coastal province in Belgium, the regional authority of West Flanders is an important liaison between people, organisations and sectors potentially impacted by MSP decisions.

The regional experience

The following list showcases a non-exhaustive overview of policy driven initiatives putting land-sea interactions central in coastal zone management. For a broader perspective on spatial use in the Belgian part of the North Sea and coastal zone, consult the Knowledge Guide of the Compendium for Coast and Sea (Dauwe et al. 2022).

- Master Plan for Coastal Safety: this plan consists of a series of area-specific measures to protect the Flemish coast against flooding until at least 2050 taking into account a 0.3 m sea level rise.
- The Coastal Vision project: the long term strategic Flemish policy strategy to protect the coast and the hinterland from future (2100 and beyond) sea level rise. An adaptive approach is being developed, with scenarios for handling sea level rises of 1, 2, and 3 meters, allowing for flexible and scalable upgrades in response to changing conditions or insights. Measures include raising and widening dunes and dikes, moving the beach seaward, and developing future port visions to ensure optimal paths forward. This approach maintains current beach widths and should provide space for effective protection measures, nature experiences, sports and recreation and economy activities. A public inquiry was held from February to April 2024, where everyone could review and respond to the draft strategic policy plan.
- Draft MSP 2026-2034: Considers the need for coastal protection by reserving space in the marine area for a 'coastal ribbon,' where no activities can be licensed if they hinder coastal protection, ensuring coordination between terrestrial and sea planning.
- Territorial development programme T.OP Kustzone: an initiative between the Environment Department of the Government of Flanders and the province of West Flanders to find short to medium term solutions for regional (spatial) challenges and opportunities together with local governments and partners. There are three focal themes: land-sea interactions, urbanised coastal area and polders (an area of land that was once under the sea but that has been separated from it by dykes).
- The ZeeBONK development strategy (2024-2029): focuses on innovation in the fisheries and aquaculture sector, specifically concerning the sustainable management of the marine environment and maritime heritage.
- Think Tank North Sea: a think tank developing future visions (2050) on the use and state of the Belgian part of the North Sea through stakeholder engagement (quadruple helix). Subjects for vision development are chosen bottom-up, with past topics including multi-use, sustainable economic development, living with climate change, etc. Previous vision reports have been used as addenda to the current MSP.
- Marine Resources Working Group: The Province of West Flanders also holds an advisory position in the Marine Resources Working Group. A working group managed by the North Sea Commission that establishes partnerships around the North Sea basin between regional authorities dealing with the challenges and opportunities of the North Sea.
- Maritime test and innovation sites: examples include the "Blue Accelerator", VLIZ's Ocean Innovation Space and Marine Robotics Center, "Drone Port", Ostend Science Park, etc., to test products and technologies in real-life offshore conditions. Thanks to these test site, innovative developments in sustainable energy, climate change, wind farm maintenance, coastal defence, and more, can be refined and eventually brought to market.

Benefits, impacts and results

- Stakeholder engagement: the region is involved in a collaborative approach, ensuring that national objectives align with regional needs and conditions, promoting sustainable use of marine resources and environmental protection.
- Fostering the Blue Economy: The West Flanders Development Agency (POM West Flanders) established the so-called Factories for the Future (FvT) to foster close cooperation between companies, knowledge institutes and government. The FvT Blue Energy and (to a lesser extent) FvT Drones are of particular importance for the marine domain. Within the FvT Blue Energy, the focus is inter alia on testing floating energy installations, new materials and drones at the maritime test platform Blue Accelerator.
- Research and innovation: promoting increased collaboration between marine research and industry. In Belgium, there is a long tradition of marine research. Today (June 2023), Belgium's marine research capacity amounts to 135 marine research groups active in 20 different research disciplines (Pirlet et al. 2023). Marine research is highly internationally oriented, facilitated by an array of state-of-the-art research infrastructure that puts Flanders firmly on the global map and stimulates international cooperation. Research agendas are addressing blue innovation challenges. At the level of the Province of West Flanders, a number of locally anchored initiatives have been set up that are directly related to marine science and innovation or via entities such as "The Blue Cluster".
- Sharing good practice through the Compendium for Coast and Sea: With a view to marine knowledge valorisation to science, companies (within the context of the Blue Economy) and policy, the Flanders Marine Institute (VLIZ) coordinates the development of the Compendium for Coast and Sea. The Compendium for Coast and Sea is the go-to knowledge portal for the marine experts, aiming to increase the visibility and accessibility of marine/coastal knowledge and serves as a catalyst for the development of high-level marine research, enhancing the blue innovation capacity and facilitating science-based policy making. Under the umbrella of the Compendium for Coast and Sea, the CoastalINsight (het KustINzicht) (update foreseen early 2025) provides a regional knowledge base that relies heavily on data and trends to identify area-specific conditions and developments which are visualised within the geoportal the Coastal Portal.

Barriers and needs

- There is a division of competences between terrestrial and marine affairs in Belgium. Moreover, the priorities and regulations for land and sea differ significantly due to their unique ecological, economic, and social functions. Effective multilevel marine governance requires tailored

approaches to each domain, thus the alignment between regional, and national and international maritime policies is necessary to ensure a continuous and coherent strategy across land and sea domains.

- In a small country like Belgium space is scarce, both on land and at sea. Belgium has one of the highest population densities in Europe. This places immense pressure on land resources, necessitating efficient use of available space. The optimisation of land and sea use and their interactions is essential for a sustainable development and balancing economic growth with the environmental protection and social challenges. Therefore, it is necessary to continuously look for space optimisation, better alignment between uses and multiple use of scarce surface space.
- Due to the relatively small size of the Belgian part of the North Sea, it is also relevant to look abroad for optimising spatial planning, e.g. through the Greater North Sea Basin Initiative and the North Seas Energy Cooperation (NSEC). For instance, the Princess Elisabeth Island, which is currently under construction, will enable the exchange of electrical power between North Sea countries.
- Other identified barriers and needs include technical capacity, awareness raising regarding national level processes such as marine spatial planning, availability of data, funding, cooperation amongst land and sea competences and legal issues. The region already has expertise in setting up data management systems (e.g. VLIZ), but there is a call (also at the EU level through EMODnet) for more sharing of data also from private industry partners.

Transferability

The regional expertise of West Flanders in coastal zone management and Land Sea Interactions can provide useful insights and information on critical aspects of MSP such as:

- How to maintain continuous optimisation of the land and sea areas user functions,
- Integrating to deliver a better alignment between regional plans/strategies and national MSP,
- Identifying the challenges and opportunities linked to the different user functions within a small and densely populated area towards reaching international climate and environmental targets (UN SDGs, Mission Ocean, Paris Agreement),
- regional support in leveraging technology and innovation to boost the blue economy
- promoting stakeholder collaboration (such as the partnership between the Province of West Flanders and VLIZ to create practical guidelines for stakeholder participation within the BlueBALANCE project, which can also be used for future local and EU initiatives).

Sources

Knowledge sources used for drafting the experience, name of the regional contact (if consensus given)

Blue accelerator: https://www.pomwvl.be/over-ons/onze-projecten/blue-accelerator

Coastal portal (Kustportaal) - https://www.kustportaal.be/en

Coastal protection - https://www.vlaanderen.be/en/departement-mobility-and-public-works/projects/coastal-protection (more recent information only available in Dutch).

Coastal vision process: https://www.vlaanderen.be/kustvisie

Compendium for Coast and Sea - http://www.compendiumcoastandsea.be/en

3.2.1.4 Protecting the landscape and the environment and supporting sustainable tourism across LSI in Calabria

Background

Region Calabria is one of the 20 main administrative territorial units of Italy (See section 3.1.3). The region is located in southern Italy and represents the most southeastern part of the Italian peninsula. It borders Region Campania, to the northwest, and Region Basilicata, to the northeast. Calabria faces on two seas: the Tyrrhenian Sea on the western coast and the Ionian Sea on the eastern coast. Calabria is separated by Sicily (the largest island of the Mediterranean, administratively also an Italian Region) by the strait of Messina: an 18 km wide sea area representing one fundamental waterway in the Mediterranean, as well as a corridor for migration of many important species: fish, cetaceans, sea turtles, elasmobranchs, as well one of the most important migratory routes of the Mediterranean for birds. Calabria, with an overall territory of about 15,200 km^2, has a coastline of about 790 km. Calabrian seas are characterised by rapid increase in the depth of seabed from the coast to the open sea.

The centre of regional administration is the city of Reggio Calabria, located in a strategic position close to the strait of Messina. Reggio Calabria is an important passenger and commercial port, but it also hosts a number of moorings for leisure boats. Ports are a fundamental asset to the economy of Calabria: Corigliano Calabro, Crotone, Vibo Valentia, Reggio Calabria, Villa San Giovanni, Gioia Tauro, etc. Tourism

is also an important contributor to the regional economy: in 2023, Calabria recorded approximately 8.3 million tourists, with bathing tourism being the most productive segment. Fisheries represents a traditional maritime sector, and it is important as a source of income for local communities but also represents an important component of cultural heritage tradition.

Calabria consists of an immense terrestrial, coastal and marine environmental and cultural patrimony: six regional marine parks exist: Baia di Soverato, Costa degli Dei, Costa dei Gelsomini, Riviera dei Cedri, Scogli di Isca, Secca di Amendolara, as well as the national Marine Protected Area of Capo Rizzuto. The coasts of the Region constitutes an invaluable landscape and cultural heritage patrimony: seven traits of coast, with specific geomorphological, landscape, cultural and marine environment features are recognised, protected and managed: Costa degli Achei, Costa dei Saraceni, Costa degli Aranci, Costa dei Gelsomini, Costa Viola, Costa degli Dei, Costa dei Cedri.

The underwater cultural heritage of the Region is great too: many underwater values (as for example the marine areas in front of Monasterace, Camini, Riace, Stignano, Caulonia and Roccella Jonica) are found. Throughout the centuries, land-sea interactions (LSI) have been crucial for this territory: access to the sea meant opportunities for commerce but also exposition to attacks and invasions: in fact, many villages on the coast are fortified (e.g. Tortora, Scalea, Cirella, Diamante, Sangineto, Cetraro, Amantea, Cariati, Pietrapaola, Trebisacce ecc.).

The regional experience

Region Calabria participated in the national MSP process, by being represented in the Technical Committee responsible for the elaboration of the Italian MS plans. The Region has been directly engaged in the planning for three so called sub-areas: coastal marine units defined according to the Italian nested approach to MSP. The sub-areas are MO/6 in the Tyrrhenian Sea, IMC/3 in the Ionian Sea and IMC/4 (Gulf of Taranto), in the Ionian Sea too. For the latter, Region Calabria shares planning responsibility with Region Basilicata and Region Apulia, also facing the Gulf.

According to the multi-scalar approach adopted by the Italian MSP plans (see section 3.1.3), Calabria has defined the vision for the three sub-areas under regional competence. Region Calabria aims to link the development of maritime economy to the protection of environmental, cultural and landscape heritage, both at sea and on land. In fact, the Region recognises the crucial value for its economy of the tremendous coastal and marine ecological richness, as well as coastal landscape and underwater cultural heritage. Accordingly, the vision formulated at regional level, declares that preserving natural, landscape and cultural values of both marine and coastal area is considered as a cornerstone in the region maritime strategy and planning and in the definition of the allowed uses. Coastal and maritime tourism is

considered a priority for development, to be achieved in a sustainable way. This means limiting the impact on seawater of tourist infrastructures and activities located along the coast and, vice versa, limiting the impact of maritime tourism (e.g. cruising, recreational boating) on coastal communities. Such overall approach is strongly characterised by in-depth consideration of land-sea interactions.

To accomplish these needs, several planning tools have been introduced by the Region in the plans of its sub-areas. Such tools belong to the following typologies:

- Specific Vision, as mentioned above, defined at regional level;
- Specific Objectives, also defined at regional level and valid in the maritime area of regional competence; they are defined in addition to the strategic objectives defined at national level and valid in all the Italian maritime areas;
- Zoning of the sub-areas of regional competence: including identification of Planning Units (PU) and attribution of a use typology to each one of them;
- Specific Measures, again defined at regional level and valid in the maritime area of regional competence (or in a part of it, if specified); they are defined in addition to the measures identified at national level and valid in all the Italian maritime areas.
- The importance of taking land sea interactions into account is well reflected in the Specific Objectives, with particular reference to the one linking environmental and landscape preservation with their touristic valorisation:
- To enhance the aesthetic-perceptive structure of the landscape and promote reciprocal and complementary relationships between inland landscapes and coastal landscapes; to develop land-sea interactions and the enjoyment of cultural heritage, with particular attention to coastal sites and cultural heritage related to territorial defence (castles, fortified buildings, towers, city walls), often located in valuable urban and environmental contexts. Enhancement shall also be carried out through inclusion of routes linked to cruises and recreational boating.

Another example can be given with regard to coastal protection and management of land-sea interaction processes:

- Development of actions related to coastal protection, fight to erosion, protection from floods and restoration of sandy and gravelly coastlines, with particular attention to river mouths, promoting appropriate naturalistic engineering interventions aimed at containing degraded coasts, as well as a coherent development of the local flora.

In the coastal sub-areas, Planning Units (PU) have identified in a coastal strip (also called “coastal buffer”) extending 2 nm from the coastline. A “Priority use” typology has been assigned to coastal PU, meaning that specific sectors have the priority over other uses. Priority uses are: (1) nature protection, (2) landscape and cultural heritage preservation (both coastal and underwater) and (3) sustainable tourism.

Landscape preservation refers to protection of both landscape and seascape preservation, meaning that both the view of the sea from land, as well as the view of the land from the sea is protected. Such a zoning solution is applied, for example, in the area between Villa San Giovanni, Reggio Calabria and Lazzaro, along the Tyrrhenian coast and in the area between Roccella, Riace, Monasterace, and Guardavalle, Sant'Andrea dell'Apostolo along the Ionian coast.

Benefits, impacts and results

Benefits are related to the inclusion of the regional vision, objectives, zoning and measures in the national MSP plans. This means that regional priorities are brought to the attention of the national level, ensuring alignment between regional and national implementation processes.

By incorporating LSI in the vision and specific objectives of the plan, it is expected that the future development of certain maritime economic activities occurs without impairing coastal areas, preserving the landscape, the natural environment and the cultural heritage of the region.

This is particularly considered in the case of the three Priority uses assigned to coastal PUs: environmental protection, landscape preservation and sustainable tourism, that are characterised by strong land-sea interactions.

Barriers and needs

As reported in the other Italian experiences collected in this Compendium (see section 3.1.3), due to their strategic nature, the Italian MS plans do not provide detailed regulatory provisions. More specific provisions were postponed until the implementation phase and to the next revision (expected after 10 years at the latest, but potentially even earlier). However, in the present version of the plans, detailed provisions are identified in many cases at regional level, through the definition of Specific Measures, aiming to complement the measures identified at national level that are valid in all the Italian maritime areas. Region Calabria has identified some specific measures with reference to some MSP topics (sectors): nature protection, coastal defence, landscape and cultural heritage protection, and tourism. Specific measures regarding sectors such as fisheries and aquaculture are still missing. In fact, during the plan preparation phase, some regions encountered difficulties in engaging with some of the sectors (and also internally, in the interdepartmental dialogue), and consequently the plans may lack this specificity in some components.

In addition to that, it is worth noting that quite a large part of the sea space of Region Calabria has been assigned to the G (Generic) typology. This means that in those areas all uses should coexist and no one use is prioritised, based on the present situation and on the development perspectives. This planning option has been decided by the Region due to the lack, both at national and at regional level, of specific directions and strategies for maritime sectors in the maritime area of Calabria (e.g. offshore wind developments, offshore aquaculture, etc.). This feature does not necessarily represent a weakness or a gap in the plan but could be seen as a degree of freedom for future planning actions. More detailed planning is postponed to the next phases of plan revision. For example, initiatives toward research and development, as well as innovation, including offshore renewable energy production, multi-use of the sea, blue biotechnologies shall be considered for future developments.

Transferability

Within the multi-scalar approach applied in the Italian MSP planning process, the tools identified and applied by the Regions and described in the case of Region Calabria have proved to be successful and feasible to be adapted to capture regional specificities (Specific Vision, Specific Objectives, Zoning, Specific Measures). Such an approach is considered flexible enough to be applied in other countries, provided the legislative and governance frameworks allow for it. Within this approach, is it crucial to guarantee continuity and harmonisation of planning solutions (particularly zoning) between neighbouring Regions and in the wider maritime region as a whole. This can be achieved through consultation and discussion between Regions which have to be guaranteed by the national MSP Competent Authority. In the case of Calabria this was accomplished, for example, through the integrated approach to planning of the Messina straight, achieving harmonisation of the planning choices (zoning and identification of priority uses) between Region Sicily and Region Calabria.

The planning of the Gulf of Taranto, where three Italian regions share their competence (Calabria, Basilicata and Apulia), was reached though a long process of dialogue and confrontation, through the establishment of an informal technical working table, promoted and coordinated at national level. All the elements of the plan at sub-area level were discussed (Vision, Objectives, Zoning, Measures), starting from the different regionals priorities and working towards the identification of commonalities.

Sources

Information on the Italian MSP process is available on the website of the Competent Authority, the Ministry of Infrastructure and Transport (https://www.sid.mit.gov.it/documenti-piano)

A description of the Italian multi-scalar approach to MSP and the role of regions is reported in Ramieri et al., 2024[2].

[1] The Italian MS plans identify the following typologies of PU: Generic use (G), Priority use (P), Limieted use (L), Reserved use (R).

[2] Ramieri E., M. Bocci, D. Brigolin, P. Campostrini, F. Carella, A. Fadini, G. Farella, E. Gissi, F. Madeddu, S. Menegon, M. Roversi Monaco, F. Musco, F. Soffietti, L. Barberi, A. Barbanti, Designing and implementing a multi-scalar approach to Maritime Spatial Planning: The case study of Italy, Marine Policy, Volume 159, 2024.

3.2.2 Regional commitments for environmental protection and MSP

This section presents a selection of regional experiences approaching the issue of environmental protection within the MSP process. They refer to agreements and initiatives undertaken by a specific region to safeguard the environment and effectively manage maritime spaces. These commitments involve coordinated efforts among regional stakeholders, governments, and organizations to address environmental concerns and promote sustainable practices in coastal and marine areas. The focus is on integrating environmental protection principles into maritime spatial planning processes to ensure the conservation and protection of marine ecosystems and foster a sustainable use of natural resources.

3.2.2.1 Prioritising biodiversity conservation through MSP in Sardinia Region (Italy, Mediterranean Sea basin)

Background

The Sardinia Autonomous Region is one of the most extended islands in Italy and the Mediterranean Sea. Its strategic location in the Tyrrenian Sea, its marine-coastal space, and numerous sites of interest for the conservation of habitats and species make the Region suitable for the sustainable development of several socio-economic activities.

With more than 1,800 kilometres of coast, largely protected landscape, it represents a major tourist destination for cruising, bathing, and recreational boating. Infrastructure and logistic systems support the development of this sector and make the island accessible through airports and ports. The port of Olbia to the North and Cagliari to the South enabled the Region to assume a central role in international and European commercial maritime transport activities. The fishing and aquaculture sectors contribute as well to the island's economy. Data on the fishing sector record a high effort in the Gulf of Asinara, Oristano, and Cagliari, along the western coast, and in the Sulcis Archipelago on the southeastern coast. The Gulf of Olbia, Oristano, and Cagliari are also known for fish and shellfish aquaculture, the latter including the cultivation of mussels and, more recently, of oysters. Some coastal and marine areas are reserved for the operation of the National Navy, such as *Capo Telauda* and *Capo Frasca* in the South, where different levels of restriction and accessibility apply.

The Region hosts different marine areas subject to various conservation regimes, including Marine Protected Areas (MPAs), National and Regional Parks, and several Natura 2000 sites. Extended marine areas are covered by international and European agreements for the protection of species and habitats. Among these, northern Sardinia falls almost entirely within the Pelagos Marine Mammal Sanctuary and the Ecologically or Biologically Significant Marine Areas (EBSA) "Northwestern Mediterranean". Moreover, the marine area also includes the Cetacean Critical Habitat (CCH) “Northwestern area of Sardinia” and the Important Marine Mammal Area (IMMA) “Northwestern Mediterranean Sea slope and canyon system”. In this zone the following major protected areas are designated: *Capo Caccia MPA, Asinara National Park and MPA, Capo Testa - Punta Falcone MPA, Tavolara-Punta Coda Cavallo MPA*, *Maddalena Archipelago National Park*. The northern area of Sardinia overlooks the Strait of Bonifacio, designed as one of the 18 areas worldwide declared as PSSA (*Particularly Sensitive Sea Areas*) by the IMO. Here vessel pilotage is recommended to reduce the risk of collision with other vessels and megafauna. The southern part of the island equally hosts a relevant ecological-environmental richness with different MPAs: *Capo Carbonara*, *Capo Spartivento*, and *Sinis-Isola di Mal di Ventre*. Many SCIs/SACs and SPAs sites forming part of the Natura 2000 Network such as *Isola dei Cavoli*, *Serpentara*, *Punta Molentis* and *Campulongu*, *Capo Carbonara*, and *Stagno di Notteri - Punta Molentis* are included.

The statutory Italian MSP process dates back to the transposition of the MSP Directive (2014/89/EC) through the Italian Legislative Decree 201/2016, which identified the Ministry of Infrastructure and Transport as the Italian MSP competent authority. The Tyrrhenian MSP Plan (relevant for Sardinia) is part of three plan proposals developed in Italy, one for each of the three identified maritime areas (Adriatic, Central Mediterranean and Ionian Sea, Western Mediterranean and Tyrrhenian Sea). These were submitted to public consultation in September 2022, in parallel to the consultation on the documents drafted as part of the Strategic Environmental Assessment (SEA). The SEA procedure was concluded in October 2023 and MSP plans are being finalised based on received feedback. As members of the Technical Committee responsible for the elaboration of the Italian MSP plans, coastal Regions, including Sardinia, played a crucial role in the process. They were called to develop planning proposals for the marine space

facing their coastal area up to 12NM, specifically through: (i) the elaboration of a regional vision articulated in specific objectives, (ii) the identification of planning units (PUs)[2] defined as homogeneous zones with different use vocations, and (iii) the identification of measures to achieve the set objectives and the vocations as well as to improve the coexistence between uses.

In developing its regional plan proposal, Sardinia Region adopted an interdisciplinary approach and established an interdepartmental Table, through the Regional Council Resolution No. 36/51 of 12 September 2019.

The regional experience

In developing its MSP plan proposal, Sardinia prioritised the conservation and valorisation of its environmental components, "as the only way to achieve harmonious and sustainable systemic development". In compliance with the UN 2030 Agenda and the National Sustainable Development Strategy, the Region identified sustainable development as an overarching and cross-cutting objective. Thirty-two specific objectives articulate the regional vision; four of them directly relate to the protection of the environment and natural resources. Intending to contribute to the national pledges to the 30 by 30 and 10% targets for strictly protected areas established by the EU Biodiversity Strategy, Sardinia Region promotes the enhancement of the existing protected areas, by verifying the coherence of existing conservation measures, and the establishment of new protected areas, including the Bocche di Bonifacio Transnational Park. In addition, the Region recognises the importance of achieving and maintaining the environmental objectives, stemming from the Marine Strategy Framework Directive (MSFD) and the Water Framework Directive (2000/60/EC).

Based on defined and specific objectives, as well as the current distribution of uses at sea, 40 planning units were identified for the regional waters. 17 PUs are associated with a vocation on "Environmental protection and natural resources". This vocation was assigned to the PU typology "limited" (i.e. environmental protection as predominant use, allowing for other compatible uses with or without specific limitations) to all seven established MPAs and National Parks with management plans and specific strict regulations. In this case, the existing MPA perimeter matches the perimeter of the PU and does not

[2] As stated by the national guideline and by Ramieri et al. (2024), each Planning Unit (PU) was categorized into one of the following types, each representing an increasing level of exclusive use of the area: Generic PU: All maritime uses are equally considered, with regulations aimed at ensuring safety, minimizing environmental impacts, and promoting coexistence among users. No specific use vocations are defined; Priority PU: Areas where priorities for existing or future uses are identified, with regulations specifying other compatible uses. Limited PU: Areas where a predominant use is identified, allowing for other compatible uses with or without specific limitations. Reserved PU: Areas exclusively designated for a specific use, with other uses permitted only if they serve the needs of the reserved use or with specific concessions from the managing authority

contemplate multiple vocations, shared with other uses. A “priority” PU typology (i.e. priority for current or future environmental protection activities, with regulations allowing other compatible uses) was assigned to six PUs that overlap or partially include existing or newly proposed protected areas without management plans or with low protection regimes, such as Natura 2000 sites or Particularly Sensitive Sea Areas in Bonifacio Straits.

In four PUs, nature conservation has a shared priority with other uses (such as maritime transport or fishing) that can generate potential conflicts with environmental protection (“dual priority”). The need for addressing interactions and mitigating impacts was emphasized through the portfolio of national and regional measures. In addition, in the remaining PUs with a different vocation from environmental protection, the presence of existing international and European agreements for the protection of species and habitats were highlighted, and the need to respect them was emphasised.

With the aim to foster coexistence among uses, minimize environmental impacts and ensure biodiversity and resources conservation, the region developed a portfolio of 39 measures, four of which directly address nature conservation. Each of these four measures link to the nature conservation specific objectives, by: (i) promoting a regional monitoring system focusing on the state of pollution in port areas that are within or close to environmentally protected marine areas; (ii) elaborating a dissemination plan to spread awareness and increase social consensus on the measures contained in the Marine Strategy; (iii) launching an initiative to finalize an agreement with France for the creation of the Bonifacio Straits Transnational Park; (iv) drafting guidelines for those who intend to carry out interventions in compliance with the constraints, objectives and conservation measures defined by the park areas and the SCI and SPA areas of the Natura 2000 Network and that encourage restoration. Moreover, several other measures aim at minimising the pressure of maritime activities on the environment.

Benefits, impacts and results

The regional MSP process in Sardinia represented for the Region a new and articulated interdisciplinary exercise, leading to the establishment of the interdepartmental Table. Biodiversity conservation was recognised as a cross-cutting principle over maritime activities. In this way, different nature conservation instruments have been mapped, with the aim of integrating them in a single MSP strategy, capable of maintaining their main characteristics while building a common dialogue with the other existing uses of the sea. This was pursued through the definition of planning units with environmental protection prioritisation (single or dual priority) or limited use. Through PUs for marine conservation, the MSP regional strategy aids in structuring sea activities to align with conservation goals. This prioritisation emphasises practices with minimal environmental impact and fosters strategies for sustainability. Priority designation for marine conservation within planning units offers strategic guidance for intended use, which sectors must consider in their plans and strategies, without excluding any marine activities unless

explicitly stated in the plan. Moreover, PUs are supported by the provision of regional measures that, if implemented, will contribute to minimise potential conflicts by promoting their coexistence. The regional approach is also relevant to the European and national context, in paving the way and supporting the achievement of the '30 by 30' protection and 10% strict protection targets established by the EU Biodiversity Strategy.

Barriers and needs

As a first attempt to implement MSP at the regional level, the establishment of the strategic framework and the identification of priority areas for marine conservation should be based on the collection of best available knowledge on habitats and species in the planning area, which currently presents several gaps. Furthermore, despite the legally binding nature of the plan, the regional approach as well as the national one, do not provide specific regulatory provisions to mitigate conflicts in protecting environmental values but rely on existing protected area management plans and related conservation measures, that have not always been drafted or identified. At regional level, the planning process was developed without properly engaging with local stakeholders through dedicated local workshops, but only through the national public consultation on the Plan and the SEA. The regional plan proposal, as well the national MSPlan, does not identify new MPAs, nor other type of nature protected areas, and neither propose enlargement of existing ones. Finally, uncertainties exist concerning the financial availability to implement measures.

Transferability

The interdisciplinary character with which the strategy was developed stems from the establishment of the regional interdepartmental group, a key element of potential inspiration for other practices. This unanimously made it possible to emphasise the theme of conservation effects on maritime uses and activities, calibrating the choices and paying particular attention to interactions and potential impacts on them, in agreement with the principles of the ecosystem approach. This is also closely related to the approach developed for integrating and harmonizing the various nature conservation regimes, which often have limited dialogue within each other.

Sources / websites

Dirigente Dott. Fabrizio Madeddu –Direttore del Servizio per il trasporto marittimo e aereo e della continuità territoriale, Regione Autonoma Sardegna

Information on the Italian MSP process is available at the Ministry of Infrastructure and Transport website

Data knowledge is available at the Sea Geoportal (SID il Portale del Mare), restricted access

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GU. DECRETO DEL PRESIDENTE DEL CONSIGLIO DEI MINISTRI 1 Dicembre 2017 Approvazione delle Linee Guida Contenenti gli Indirizzi e i Criteri per la Predisposizione dei Piani di Gestione dello Spazio Marittimo. (18A00392) (GU Serie Generale n.19 del 24-01-2018). 2017. Available online: https://www.gazzettaufficiale.it/eli/id/2018/01/24/18A00392/sg.

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3.2.2.2 The regional experience of Murcia region related to environmental protection and MSP

Background

The Region of Murcia, located in southeastern Spain, is known for its significant maritime and coastal resources. Murcia's commitment to marine conservation is reflected in several protected areas both marine and maritime-terrestrial:

- Marine Protected Area of Cabo de Palos-Islas Hormigas: This is one of the most important marine reserves in the Mediterranean, known for its rich biodiversity, including coral reefs, and it is a popular diving destination.
- Calblanque, Monte de las Cenizas y Peña del Águila Regional Park: This coastal park includes marine areas that are protected for their ecological value and beaches.

In Murcia, several sites are also part of the natura 2000 network:

- Salinas y Arenales de San Pedro del Pinatar: This coastal wetland area is crucial for bird species, serving as a habitat for numerous migratory birds.
- Sierra de la Muela, Cabo Tiñoso y Roldán: A coastal mountain range with significant marine and terrestrial habitats.

In addition to the previously mentioned protected areas, Murcia has other regional initiatives to preserve its marine environment:

- Mar Menor and the Surrounding Wetlands: The Mar Menor, Europe's largest saltwater lagoon, is an important site for marine biodiversity and is protected through various regulations to address the environmental challenges that it suffers.
- Isla Grosa and El Farallón: These small islands and their surrounding waters are protected due to their unique marine ecosystems and are part of regional conservation efforts.

Murcia's coastal and marine environments face several challenges, including pollution, habitat degradation, and the impacts of climate change. Conservation efforts are ongoing, with a focus on sustainable fishing practices, habitat restoration, pollution control, and public awareness campaigns to promote the protection of these valuable ecosystems.

The regional experience

There are several important projects that involve the designation of new marine protected areas, such as the Life INTEMARES project[3], which is working towards the effective management of marine areas in the Natura 2000 Network, with science and participation as basic tools. Furthermore, at the MSP level, there are ad hoc groups created under the GT-OEM for certain topics that bring together different regional and national institutions and research centres (eg. Non-regulated anchoring WG). Specifically, when the POEM (Planes de Ordenación del Espacio Marítimo, by its Spanish initials), were being prepared a group of protected spaces was created and now with the review of the plans it will be reactivated.

[3] The LIFE INTEMARES project 'Integrated, innovative and participatory management of the Natura 2000 Network in the Spanish marine environment' is one of the largest marine conservation projects in Europe. It completes the work and advances promoted within the framework of the LIFE+ INDEMARES project.

Land-Sea Interactions, included in the POEM, are of great importance for the protected marine and maritime-terrestrial areas in the Region of Murcia, since several of these areas have been considered in the POEM as "coastal sensitive areas" due to land contributions (pollution and nutrients mainly).

Additionally, Murcia released a "Comprehensive management plan for the protected areas of the Mar Menor and the Mediterranean coastline of the Region of Murcia" to find a common management approach for all the protected areas of this coastal zone. This plan includes 19 areas belonging to the following categories:

Natura 2000 network:

- 6 SACs (Special Areas of Conservation - Habitats Directive)
- 6 SPAs (Special Protection Areas – Birds Directive)

Natural Protected Areas (NPA) (national and regional figures):

- 2 Regional Parks
- 3 Protected Landscape Areas protected by international instruments (APII)
- 1 Ramsar Site [Wetland of International Importance]
- 1 *Zona Especialmente Protegidas de Importancia para el Mediterráneo* (ZEPIM) [Specially Protected Areas of Importance for the Mediterranean]

Additionally, within the territorial scope of the Integrated Management Plan (IMP) there are two Marine Reserves of Fishing Interest (MRFI) overlapping, whose management is partially shared between the national government and the regional administration, and two Marine SPAs whose management is the responsibility of the national administration. Although this plan was issued by the Autonomous Region of Murcia, all public administrations are involved, as certain areas fall under the jurisdiction of national authorities while others are managed by regional authorities.

Benefits, impacts and results

Due to the different types of protected areas present in the Region of Murcia established from both, the national and regional administrations, an integrated document that coordinates all the management and planning mechanisms of the different categories to present a "coherent whole" is essential. The purpose of the Integrated Management Plan is the maintenance, conservation and/or restoration, where appropriate, of the richness and diversity of terrestrial and submerged species, habitats and landscapes, as well as the structure and function of ecosystems and associated ecological processes.

Barriers and needs

The distribution of powers in Spain complicates the attainment of a unified management approach. The Integrated Management Plan (IMP), released in 2019, underscored this need. MSP implemented through a multilevel governance approach should contribute to the overarching goal of establishing a cross-cutting and coherent management framework throughout the entire region.

Transferability

A unified management approach for all marine and maritime-terrestrial areas in other regions, irrespective of the distribution of powers, would be advantageous for establishing synergies and fostering a collaborative framework among administrations, sectors, and users.

Sources

- PG_API02_VOL2_Version22_junio2016 (coecmarmenor.es)
- BOE-A-2023-5704 Royal Decree 150/2023, of February 28, approving the maritime spatial plans of the five Spanish marine demarcations.

3.2.2.3 Environmental protection considerations and MSP in the Central Macedonia Region, Greece

Background / Geographical scope

Central Macedonia Region (CMR) is a prominent coastal area in northern Greece, known for its extensive 700 km coastline along the North Aegean Sea. The region's maritime space extends up to 6 nautical miles from the coastline, making it a critical area for maritime activities and environmental protection. The region hosts a diverse range of maritime uses, including fishing, aquaculture, tourism, and marine transportation, each of which plays a significant role in the local but also the national economy.

Central Macedonia is located in the North Aegean Sea (ΘΧΕ1), for which the first Maritime Spatial Plan of Greece has already been drafted, and pending adoption, aligning regional strategies with national and EU policies. This draft plan, but also the terrestrial spatial plans relevant to the region favour balanced economic growth with environmental sustainability, ensuring that activities like aquaculture, tourism, and fishing are managed in a way that supports long-term ecological health and economic vitality.

Regarding the most important Blue Economy sectors, Central Macedonia is known for its fishing zones and aquaculture areas (providing 80% of the national mussel production), which are vital for local and national seafood production. Specific regions, like Pieria, are designated as Areas of Organised Development of Aquaculture (AODA), ensuring sustainable practices and environmental protection. Also, the region boasts popular tourist destinations, such as Chalkidiki and the Thermaikos Gulf. Maritime tourism, including marine sports, diving, and recreational boating, plays a significant role in the local economy. Last but not least, Thessaloniki Port serves as a major international gateway, facilitating trade and transportation within the Aegean and beyond. The development of smaller ports aims to enhance connectivity and support tourism.

The regional experience

Environmental protection is a major focus, particularly within Marine Protected Areas (MPAs) and Natura 2000 sites, including the Axios-Loudias-Aliakmonas National Park. These areas protect critical habitats and species but are under pressure from human activities such as industrial operations, urbanisation, and tourism. To maintain ecological balance, strict regulations govern activities like trawl fishing, and efforts are ongoing to improve monitoring and management within these MPAs. Additionally, Maritime Cultural Heritage sites, such as ancient shipwrecks are legally protected, with restrictions around them for activities like fishing and anchorage.

Benefits / Impacts and results

The draft MSP for the North Aegean Sea, where Central Macedonia is located, prioritises environmental protection through the Ecosystem Approach. This plan emphasises sustainable development in maritime transportation, fisheries, aquaculture, and tourism, ensuring that these activities do not compromise the region's environmental integrity.

The region’s strategic location and diverse maritime activities are integral to Greece’s broader maritime planning and conservation efforts, aligning regional strategies with national and EU policies to balance economic growth with environmental sustainability. For instance, the Regional Spatial Framework (RSF) for Central Macedonia, although primarily focusing on the land parts of the region, acknowledges land-sea interactions by providing guidelines for sustainable aquaculture, fishing, environmental protection of the coast, and the development of maritime transportation and marine tourism. The RSF aims to maintain ecosystem services and enhance natural and cultural heritage sites, indirectly supporting environmental protection in marine areas.

Barriers and needs

Introducing local and regional authorities and other stakeholders to the MSP process, building their capacity for active participation and involvement as well as the enhancement of cross-sectoral collaboration including with the environmental sector are the most urgent needs to be addressed. Cross-regional collaboration among the five Greek regions that share the North Aegean Sea, aiming to establish a multi-governance scheme that could take the form of a working group, committee, or community of practice.

There is also a need to address the significant gaps in geo-spatial data, which are critical for performing integrated analysis of the marine space in CMR. Developing a centralized marine data platform for the region will support effective MSP and decision-making. Inclusion of enhanced environmental monitoring systems to track biodiversity and ecological health within MPAs and other sensitive zones, would facilitate the integration of MPAs and MSP.

The ongoing development of MSP plans for the North Aegean Sea, where Central Macedonia plays a critical role, needs to be finalised and formally approved. This will ensure that sectoral conflicts are addressed, and a clear framework for the sustainable use of maritime spaces is established.

Transferability

The localised integrated spatial planning approach of CMR that considers blue growth trends, environmental protection, and the impacts of climate change could be beneficial for other regions looking to balance economic development with environmental sustainability. The initiative to address data gaps through regional and trans-regional cooperation can serve as a model for other regions facing similar data fragmentation issues. The suggested trans-regional collaboration and establishment of multi-governance schemes can lead to more coherent and effective marine management in any region not just CMR. The region's emphasis on understanding and integrating Land-Sea Interactions (LSIs) into spatial planning processes can help other regions to better manage the complex dynamics between terrestrial and marine environments, ensuring that both are sustainably developed. Finally, drafting an Integrated Coastal Zone Management (ICZM) study for CMR (as part of MSP or not) can be a useful approach for other regions that are in the process of formalising their MSPs but need immediate planning tools.

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3.2.2.4 Implementing the ecosystem approach in MSP for Montenegro (Adriatic, Mediterranean Sea basin)

Background

The Montenegrin coastline is 322 km long and mostly rocky, with deep waters usually found close to the shore. The sea area includes some islands, islets and reefs, with a total length of about 11 km. The littoral zone includes the Boka Kotorska Bay (124 km), and open sea area from Boka Kotorska to the border with Albania. The total sea area is 6,426km^2 and it includes internal waters, the territorial sea and the continental shelf. Boka Kotorska Bay, a particularly vulnerable environment, affected by urbanisation and tourism development represents a very productive area and one of the richest zones in terms of species diversity. Coralligenous habitats occupy about 0.14% of the bottom surface of the bay and are very important for conservation. In the open sea, seagrass meadows of *Posidonia oceanica* and *Cymodocea nodosa* are important habitat for a significant number of animal species.

Concerning environmental protection, Platamuni, Katič and Stari Ulcinj island were declared as the first marine protected areas in 2021. Additionally, two sites with significant coralligenous communities in Boka Kotorska Bay, Dražin vrt and Sopot, have been designated. The Montenegrin coastal area also includes the special reserve for flora and fauna Tivat salt pans, declared in 2013 as a Ramsar site, and the UNESCO natural and the cultural world heritage of Boka Kotorska Bay since 1979. Important maritime economic activities in Montenegro are maritime transport, ports and shipbuilding/vessel maintenance; fisheries and mariculture; coastal and maritime tourism.

Montenegro applied for membership of the European Union in 2008, and accession negotiations have been underway since 2012. Nationally, the purpose and basic goals of marine spatial planning in Montenegro are determined by the current Act on Spatial Planning and Construction. This also contains an obligation to cooperate with neighbouring countries in marine planning in order to ensure harmonization and coordination. The MSP plan for Montenegro has been prepared as part of the project "Implementation of the Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning" (the GEF Adriatic Project). The GEF Adriatic Project is a subregional project carried out in Albania and Montenegro with the aim of restoring the ecological balance of the Adriatic Sea by implementing the ecosystem approach and marine spatial planning. It seeks to implement policies that are relevant both at the Mediterranean level (the Barcelona Convention, its Protocol on Integrated Coastal Zone Management and the related Conceptual framework for marine spatial planning in the Mediterranean) and at the European level (Directive 2014/89/EU on MSP), Montenegro being an EU candidate country. The resulting MSP draft plan should be incorporated in the spatial plan of the country, as envisaged by the Montenegrin legislation.

The Ministry of Spatial Planning, Urbanism and State Property is responsible for spatial planning, including the marine space. The Public Enterprise for the Management of the Maritime Domain of Montenegro has management responsibility over the maritime domain, that includes marine space. In addition, several other institutions have sector-specific responsibilities related to the use and protection of marine areas. Montenegro is a particularly small country, without subdivision into NUTS 2 or NUTS 3 areas, so regional authorities cannot be identified, and the MSP process is mainly managed by the central government. However, Montenegro includes 25 municipalities, 6 of which are located in coastal areas. The MSP preparation involved the participation of these municipalities through broader participatory process. It included numerous direct meetings with key stakeholders through three rounds of thematic consultations. These stakeholders comprised relevant ministries, national institutes responsible for marine biology, hydrography, and water pollution, national agencies for environment, nature protection, hydrocarbons, and the maritime domain, local authorities, private associations (mainly for nautical tourism), environmental NGOs, and individual experts. The participatory process was organised and led by the Ministry of Ecology, Spatial Planning, and Urbanism[4], and PAP/RAC. Towards the end of the process, broad consultation meetings were held to present the initial draft of the Plan and make final adjustments based on stakeholders' comments and requirements. The final draft of the Plan was delivered in August 2021, and its formal adoption, preferably integrated into wider statutory planning document has not been finalised yet.

The regional experience

Strategic and sectoral goals were defined at the beginning of the MSP process. The preservation of nature, landscapes and cultural assets are among the strategic goals. According to the plan, these need to be incorporated into development policies in order to ensure the stability of ecosystems and services they provide, preserving the attractiveness of the coastal area, human well-being (population and tourists), and the ability of society and nature to adapt to natural hazards and processes. Moreover, the plan recognises that healthy ecosystems are essential for various uses, such as tourism, fisheries, and aquaculture. Therefore, the plan establishes specific regimes for the protection, use, and remediation of vulnerable marine environments. These regimes include clear guidelines for allowed and prohibited activities within protected areas, valuable habitats, important fisheries zones, significant landscapes and cultural sites, beach areas, and regions affected by pollution.

The ecosystem approach underpinned the whole MSP process in Montenegro. According to the ecosystem approach, marine and coastal areas are characterised by complex systems of interactions and

[4] In 2021, the Ministry of Ecology, Spatial Planning, and Urbanism was the competent authority for spatial planning, including MSP. The Ministry was later rearranged and renamed as Ministry of Spatial Planning, Urbanism and State Property.

mutual dependencies between natural elements and human activities. Implementing the ecosystem approach means to adopt a strategy for the integrated management of natural resources that promotes conservation and sustainable use. Under the Barcelona Convention, the ecosystem approach is aimed at managing activities that affect marine and coastal ecosystems, with the ultimate goal of achieving good environmental status of the Mediterranean Sea and the coast. T, that encompasses the identification of 11 environmental objectives and related targets.

A methodology for integrating the ecosystem approach into MSP was developed and tested in Montenegro, within the framework of the GEF Adriatic Project. Data about the current state of the marine environment were collected, based on IMAP Common Indicators, (e.g. biodiversity and landscape features, such as habitat distributional range, population abundance of selected species). It was therefore possible to map the distribution of habitats in the marine area of Montenegro and, for the first time, the distribution of selected commercial fish species. Information about the existing pressures (e.g. eutrophication, contamination, physical disturbance of the coastline) was also collected and organised, based on IMAP indicators. This led to the creation of a pollution dispersion map, including the concentration of litter distributed in the sea. Specific values were assigned to different components of the environmental state (value index) and to pressures (pressure index). The cumulative effects on biodiversity were therefore assessed through GIS applications, integrating the information on pressures, exposure and sensitivity, and the most affected areas were identified. Results informed the proposal of specific measures for coastal and marine management.

A thorough analysis of land-sea interactions was also performed to identify activities that may disrupt natural processes or create conflicts. Strong interaction areas were identified in beaches/bathing areas, i.e. coastal areas near settlements and tourist zones, which are threatened by multiple activities, and impacted by pollution, beach infrastructure and other manmade structures (roads, walls, parking lots, coastal fortification and construction of piers) as well as sea level rise and erosion. In particular, this is due to the fact that some of beaches are located in areas with valuable coastal habitats. Large areas of interactions also occur in natural areas, where the number of interactions increases with the degree of complexity and diversity. Results were incorporated in the draft MSP plan and used for discussion management measures.

Benefits, impacts and results

The GEF Adriatic project produced a draft plan that is expected to be incorporated into the spatial plan of Montenegro, which will be the overarching document regulating land and marine uses. Additionally, a GIS database compiling planning uses and regimes was created, along with simplified sea use layers for easy access via the Google Earth platform, benefiting a wide range of stakeholders.

The GEF project also developed an online GIS application and data system for storing, assessing and reporting data collected during national marine monitoring. It is fully based on IMAP Info standards, enabling easy IMAP and MSFD reporting. This data system is also relevant for MSP as it incorporates relevant marine environmental data.

The major outcome of the project is the mainstreaming of the ecosystem approach into planning process through a replicable methodology. This approach provides a comprehensive standardized assessment of all the relevant components of the marine and coastal environment, including how they are interconnected. The approach is a step towards the integration of the IMAP monitoring scheme with the ICZM Protocol and the MSP Directive, further linking marine policies established at the Mediterranean and the European level.

In the long term, using the ecosystem approach to MSP in Montenegro is expected to guarantee the Good Environmental Status (GES) pursued by the Barcelona Convention and by the EU Marine Strategy Framework Directive and ultimately to ensure the long-term conservation of marine and coastal resources in the Adriatic.

Barriers and needs

One of the major problems encountered in the implementation of the ecosystem approach methodology is related to data management. Existing data were not clearly organised and compliant with the requirements of the national infrastructure of geospatial data. Different types of data, owned by different institutions were needed, and integration proved to be a challenge. Data were also converted from existing planning and other documents, but associated metadata were often missing. Furthermore, high-quality relevant socio-economic data were largely missing, and these will be of particular relevance for all the future planning documents. The development of a maritime domain cadastre with a register of all forms of use and users is also strongly recommended by the draft MSP plan. All these challenges call upon upgrading the spatial information system and strengthening data management capacities.

The GIS database systems developed under the GEF Adriatic project and available in the Ministry, can be used as an initial basis for an organised comprehensive data management infrastructure.

The MSP process in Montenegro was developed with the involvement of relevant stakeholders. However, due to the COVID-19 pandemic most of the meetings were carried out via video-calls, which has somewhat reduced the level of active engagement. To overcome that, it will be necessary to ensure additional consultations with public stakeholders, local communities and relevant institutions during the process of the formal integration of the Plan in the national spatial planning document.

Transferability

The ecosystem approach to MSP was applied in Montenegro as part of the GEF Adriatic project, but lessons learned from the project will be widely applicable around the Mediterranean. Built from this experience, MSP workspace has been built particularly addressing the need for integrating ecosystem approach within MSP process. Furthermore at the 23rd meeting of the Contracting Parties to the Barcelona Convention (COP23) a Conceptual Framework for Implementing MSP in the Mediterranean was adopted, which puts the ecosystem approach at the forefront of MSP implementation. This is an important policy basis towards ecosystem-based MSP implementation across the Mediterranean.

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3.2.3 - Regional climate change actions and MSP

This section presents regional experiences concerning the integration of climate change challenges into MSP. Experiences refer to the establishment of strategic measures, policies or initiatives implemented at a regional level to address the impacts of climate change on coastal and marine areas or to promote mitigation. Such actions encompass policies, regulations, and collaborative efforts among regional stakeholders to minimize and mitigate the effects of climate change on coastal areas, their marine ecosystems, and human activities. The goal is to integrate climate change adaptation and mitigation strategies into the planning and management of maritime spaces, ensuring a sustainable and resilient approach to climate challenges. The compendium topic particularly looks at including considerations for renewable energy projects and measures against coastal flooding and erosion taken by the regions.

3.2.3.1 Considerations of climate change in MSP decision-making within Co. Cork, Ireland (Atlantic Sea basin)

Background

Located in the south of Ireland, County Cork has a coastline which extends for approx. 1,100km, encompassing approx. 1/5th of the entire Irish coastline. Cork County Council is the local authority with planning jurisdiction over County Cork. Located in Cork Harbour is the Port of Cork, which has been identified as a Port of National Significance and is a Core Port within the TEN-T Network. This economic and amenity value of Cork Harbour and the Cork coastline is recognised by Cork County Council in the Cork County Development Plan 2022-2028.

Cork County Council was involved in the development of the National Marine Planning Framework (NMPF) as part of the stakeholder engagement process (for more details about the national MSP process, see section 3.1.5 about MSP Governance in Ireland). It made a detailed submission in the consultation stage, highlighting the economic potential of Cork Harbour, for example in carbon capture and hydrogen technology. It is expected that Cork County Council will feed in again to the development of the next NMPF when it will be updated later this year. For now, there remains one national Marine Spatial Plan. Public bodies can propose and develop regional / sectoral / local plans, in the form of Designated Maritime Area Plans, only with prior ministerial approval.

The regional experience

Cork County Council has actively participated in a number of EU and nationally funded research projects over the years that aim to build capacity and awareness of MSP and related climate change challenges in Cork, including:

- Blueprint For Atlantic-Arctic Agora On Cross-Sectoral Cooperation For Restoration Of Marine And Coastal Ecosystems And Increased Climate Resilience Through Transformative Innovation (**AA-AGORA**) (*Aim: Protect valuable ecosystems located in coastal communities particularly vulnerable to climate change impacts, namely the risks of sea level rise and the loss of biodiversity due to increased pollution; Mitigate the effects of climate change by increasing engagement and promoting societal well-being, **2022-2026**)*
- **IMCORE** (Aim: to foster innovative management for climate adaptation of coastal areas, **2008-2011**)
- **COREPOINT** (Aim: to create a sustainable framework for ICZM, **2004-2008**)
- **Bantry Bay Charter** (Aim: to build a consensus-based strategy for ICZM implementation, **1997-2002**)

The main concern within Cork County Council regarding climate change is the impact of coastal-related climate impacts, particularly flooding and coastal erosion. Offshore renewable energy is seen as the main driver of MSP implementation, and as the best chance to slow down carbon emissions and to halt the progress of ever worse storm events, which have in the past caused serious damage on land. Now the view is highly prevalent that more integration between traditional land-use planning and MSP is needed, as the implications of MSP-related decisions will not stop at the coastline, but will have implications for land, especially in light of climate change.

Flood risk is considered at the plan-making stage (for example County Development Plan, Local Area Plan etc.) and at the development stage (where there is a development proposed). The Strategic Flood Risk Assessment review of the Cork County Development Plan was prepared alongside the current plan and aims to provide a comprehensive assessment of the implications of the current plan for flood risk in County Cork. Beginning with a flood risk identification, the review then assesses the level of risk in different towns and villages throughout Cork, and also provides a framework for assessing flood risk at site development level.

Cork County Council has brought climate into bear on several influential policy documents which guide and inform planning decisions. Like all public bodies in Ireland, the Council is legally obligated to take the objectives of the National Marine Planning Framework (NMPF) into account when conducting their duties. The Cork County Development Plan 2022-2028 consists of 2 policy volumes, 3 sub-regional plans, and 1 volume containing detailed geographical maps which specify the land-use zones. The County Development Plan contains two main chapters which are relevant to climate and MSP, which are Chapter 7 (Marine, Coastal, and Islands) and Chapter 17 (Climate Action). Chapter 7 specifies that the Council has

the objective of "working with the appointed Implementation Groups for the NMPF" and "supporting the potential of the marine environment by nurturing opportunities for innovation in the Maritime economy while ensuring that its ecosystems are managed sustainably." Accordingly, the chapter proceeds to outline the different maritime activities and marine uses that occur in the county and sets out the Council's objectives in relation to each of these. In addition to the County Development Plan, there is the Climate Action Plan 2024-2029, which provides more information on efforts made by Cork County Council to reduce its climate impacts and provides a framework for climate action in areas such as governance, transport, stakeholder engagement, waste, biodiversity, and many others.

Benefits, impacts and results

The view of Cork County Council is that MSP delivers many benefits, in particular relating to offshore renewable energy, as the introduction of MSP into the Irish planning system would allow for a balanced and holistic approach to sustainable development of renewable energy projects, helping Ireland to meet its national climate targets. However, the implementation of MSP in Ireland is at such an early stage that it is difficult to assess already experienced benefits. Additionally, there is concern that this approach may result in an over-emphasis on MSP for renewable energy as opposed to the many diverse functions, uses, and needs of MSP to deliver the best possible outcomes for sustainability of marine ecosystems.

One output of the NMPF to date has been the draft South Coast Designated Maritime Area Plan (DMAP) for Offshore Renewable Energy, which was published on 3rd May 2024 (see section 3.1.5). This is the first DMAP to be developed, the intention being that in future DMAPs will serve as roadmaps for sectoral-based planning within Irish waters, designating broad areas where development may and may not occur. The intention is for DMAPs to contribute to a completion of MSP implementation; however, concerns remain that the sectoral segmentation of the DMAPs may only fragment MSP implementation.

Barriers and needs

Cork County Council highlighted a number of barriers regarding implementation of climate-sensitive MSP policy, especially around human resources and capacity building. What is needed is more links between harbour management and planners, and more staff with expertise in MSP. An additional barrier is the lack of expertise regarding ecology, particularly marine ecology. Lack of information was highlighted as another barrier, with much of the information around MSP being sourced informally from departmental newsletters and memos, rather than from a central repository of MSP and maritime-related information.

Transferability

A key learning from this region is the importance of investment in training and upskilling people to specialise and work in Marine Spatial Planning and the fostering of expertise in climate change, ecology, and flood risk. Additionally, enhanced information sharing systems to aid knowledge transfer about upcoming developments in MSP, best practice in coastal and marine governance and management, and incorporating climate-related considerations into MSP would aid decision-making.

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3.2.3.2 Linking Crete Region's Climate Adaptation Planning to Regional Coastal and Maritime Spatial planning

Background

Crete, a significant region in Greece, holds geopolitical importance and is a major tourist destination. It is part of Greece's "Just Development Transition" initiative, focusing on phasing out the use of lignite as a source of energy production and decarbonisation. This initiative includes other regions such as Western Macedonia, Megalopolis, and the North and South Aegean islands. Crete's maritime region faces numerous challenges, particularly in relation to climate change and energy transition. Under Greek Law 4546/2018, which transposed the EU MSP Directive, and the National Spatial Strategy for the Marine Space as provided by this law, Crete forms Maritime Spatial Unit 3 (MSU3).

The revised Regional Spatial Planning Framework (RSPF) of Crete (Decision 42284/2017) emphasises addressing climate change and coastal erosion through spatial development and renewable energy projects. It mandates that projects incorporate climate change adaptation strategies. The framework's Environmental Impact Assessment (EIA) report for the RSPF, suggests preparing sectoral studies for integrated coastal management.

The RSPF's implementation is supported by the operational programme entitled CRETE 2021-2027, focusing on green growth, reducing carbon dioxide emissions, and integrated spatial development. Additionally, the Regional Plan for Climate Change Adaptation (hereinafter PeSPKA) for Crete, funded by NSRF 2014-2020, prioritises necessary adaptation measures for the next 5 to 15 years, with a particular focus on coastal areas, especially in the northern part of the island.

The regional experience

The revised RSPF highlights the need to include new efforts for the comprehensive integration of the Region into the whole of the spatial systems that surround it. These must have a stronger interventionist character than the policy practiced until now. For managing climate change related to sea activities, a prioritisation of areas for fishing, aquaculture and energy infrastructure in the Crete Region are foreseen in the Crete's PeSPKA. It also lists 15 coastal engineering and anti-erosion projects either completed, underway, or planned to align with coastal protection goals and proposes actions and measures for an integrated coastal zone management plan, considering climate change, and for adapting energy infrastructure to climate change. The estimated cost for coastal-related actions is approximately €25,850,000 or 8.74% of the total measures across sectors.

Furthermore, the national offshore wind farm development programme plans to install 800 MW of offshore wind power in Crete: 600 MW between Ag.Nikolaos and Sitia in the northeast and 200 MW east of Sitia and hence allocate Areas of Organised Development of Offshore Wind Farms (POAYAP). A critical aspect for increasing renewable energy penetration is connecting and operating the proposed Energy Centres in Atherinolakos, Korakia, and Xylocamara, and implementing the Crete-Continental National Transmission System interconnection (Phase I to Peloponnisos, Phase II to Athens). Greece also supports the Crete-Cyprus-Israel electric interconnection project, formalised by the EuroAsia Interconnection Project Memorandum of Understanding signed on March 8, 2021.

Additionally, as natural gas still plays an important role in the country's energy transition towards complete independence from fossil fuels and energy independence in general, the construction of a liquefied or compressed gas station (beyond Revythoussa in Attica) is planned in the Heraklion area of Crete and the possibility of creating liquefied natural gas facilities is foreseen in the land/sea area of Atherinolakos (Siteia) and Korakias (Rethymno). The development of a cargo port in Tympaki (Herakleion), with a review of its role, will see the abandonment of bunkering and support for planned facilities for pumping and transporting natural gas from southern offshore Crete.

Benefits, Impacts and results

The emphasis placed by the Region (and its role) on coastal zone management for climate adaptation and on POAYAP planning for the development of offshore RES and for the connection to the grid, can act as a driver for a more organised regional MSP, which will help reduce/resolve conflicts and increase/highlight synergies. Public awareness and participation initiated by the Region as shown below that allows for a more critical position of the public and the Region’s Services on prospective spatial decisions, is another good element that MSP development in Crete can benefit from.

Challenges, barriers, and needs

One challenge is that Crete’s RSPF and both terrestrial and maritime planning must align with national and regional strategies, including sectoral and conservation plans. Effective implementation of PeSPKA requires coordination with various authorities and agencies with competencies relating to coastal and marine areas. It must also synergise with neighbouring regions' PeSPKAs (Attika, South Aegean, and Peloponnese) to ensure coherent climate change adaptation and mitigation efforts. The implementation of the aforementioned may prove challenging not only within the Crete Region itself but also for interregional collaboration, considering the usual constraints, such as conflicting priorities at various administrative scales and/or different timelines and budget availability.

The challenge of finding a balance between Regional and national priorities and plans is also highlighted in a recent decision of the Regional Council (n. 59/8-12-2023) where the Environment and Spatial Planning Committee of the Crete Region has expressed a negative opinion on the Strategic Environmental Assessment Study of the National Offshore Wind Farm Development Programme. Specifically, although Crete Region is not rejecting in principle the development of Renewable Energy Sources (RES) and Offshore Wind Farms (OWF), it provides a negative opinion on all the suggested locations for installation and operation of OWF in Lasithi This objection along with objections from the Central Archaeological Council resulted in an enquiry filed by the Ministry of Environment and Energy for the "Remediation" of the Ministerial Decision approving the Strategic Environmental Impact Assessment for the National Offshore Wind Farm Development Program, which among others suggests amendments in the limits and the location, of some of the suggested ORE developments in Crete.

Nevertheless, the development of POAYAPs according to Law 4969-2022 constitutes a challenge that requires addressing issues, such the need to create the necessary infrastructure (e.g. shipyards, ports), the availability of specialist human resources for such projects, problems in the supply chains and the high level of competition with other areas where large-scale development of POAYAPs is taking place internationally.

Based on the above decision, to facilitate solutions to these challenges, the active participation of the Region of Crete, the Municipalities and the local Agencies is required both in the spatial planning concerning Crete for both the M and the RES spatial planning and the securing of sufficient compensatory benefits for the local communities.

Transferability

The transfer of know-how will be possible through the experience gained from the systematic monitoring of the Plans and will only be achieved through the regular communication and exchange of information of the executives of the Regions who will undertake the implementation and monitoring of the PeSPKA. The transfer of know-how concerns the future re-evaluation of all relevant Climate Change Adaptation Plans. In this context, constant communication between the Regional services is proposed throughout the implementation of the PeSPKA, for the exchange of opinions on the experience of implementing the Plans.

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News article 3

News article 4

3.2.3.3 The Pays de la Loire Regional Agreement for the Sustainable Coastal Management, a regional approach to adapting territories to coastal risks (France, Atlantic)

Background

The Pays de la Loire Region, bordered by the Atlantic Ocean, is one of the France's eight coastal metropolitan Regions. The maritime waters along the region's coastline are covered by the façade strategic document (DSF) for North Atlantic and West Channel façade. This key maritime plan defines the State's orientations in terms of integrated maritime policy and preservation of the marine environment. Due to rising sea levels and climate change, adapting to the risks caused by coastal erosion and marine flooding is a major challenge for the Pays de la Loire coastline. The region was deeply affected by storm Xynthia in February 2010, which caused major damage to coastal communities and areas, particularly in the south of the Vendée Département (a Département is the administrative unit under the Region unit: France counts 101 départements and 18 Régions). This disaster marked a turning point in national and regional awareness of the risks of marine submersion, which have been exacerbated by global warming. Knowing, preventing and managing maritime and coastal risks in an integrated way is one of the objectives of the DSF for North Atlantic and West Channel façade, which implements the EU's framework Directive on Maritime Spatial Planning for the waters bordering the regions of Brittany and Pays de la Loire.

The regional experience

Faced with the risks of coastal erosion and marine submersion, the French government, the Pays de la Loire region and the Départements of Vendée and Loire Atlantique have shared the need for collective support for local managers since 2006.

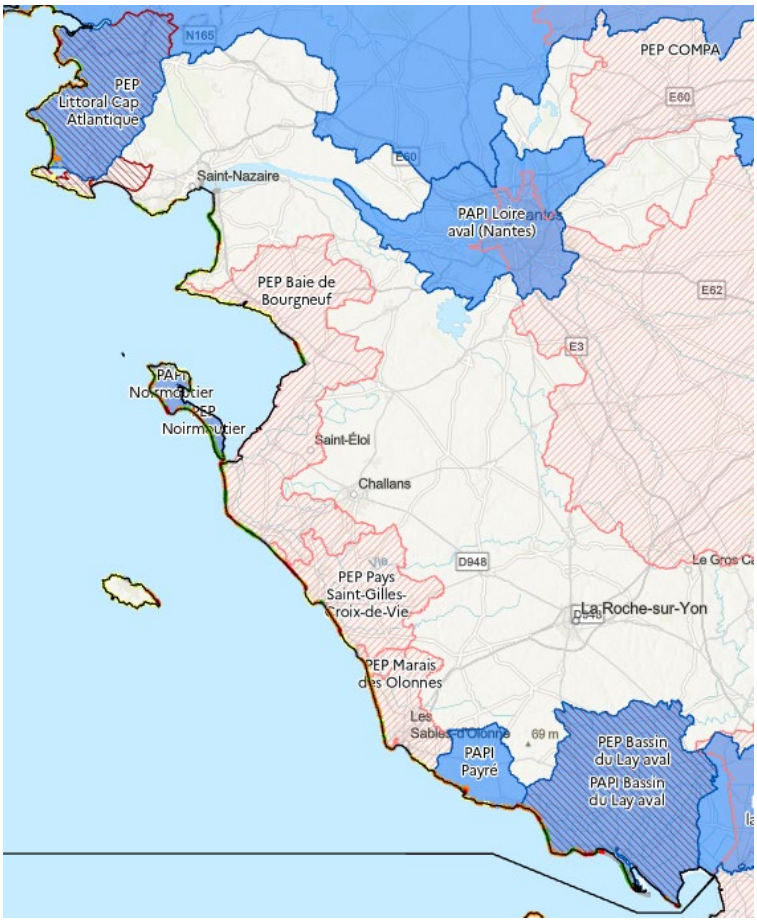

***Figure 7**: Delimitation of PAPIs (red and blue) on the Pays de la Loire coastline and national coastal erosion indicator (red and orange: recession, yellow: unnoticeable, green: progress)*

Source: Geolittoral, 2023

They therefore made a collective commitment through the "regional agreement for sustainable coastal management", with three main objectives for the 2023/2024 period:

1. Advancing knowledge of the regional coastline and data sharing, with funding for the Coastal Risk Regional Observatory. Set up in 2016 and supported by the University of Nantes, it is helping to improve knowledge of coastal phenomena, disseminate this information to regional managers and harmonise the monitoring carried out.
2. To encourage and support local authorities in implementing local strategies for the prevention of coastal risks, enabling concrete action to be taken in the short term, through the funding of projects and developments carried out by local managers. These managers draw up flood

prevention action plans (PAPI in French), which identify the actions to be carried out in their areas, particularly planning. Through this agreement, the State, the Region and the Département have supported the development of the PAPIs and the funding of the actions included in them, in accordance with the rules set out in the agreement.

3. Supporting territories in the development of their local strategy for managing the shoreline in the longer term.

The continuation of this agreement up to 2025 is currently being discussed and formalised, with the aim of strengthening anticipation of the consequences of climate change on coastal risks. The Regional Commission for Sustainable Coastal Management regularly brings together the various government departments involved in this area, the Region, the two Départements and the Coastal Risk Observatory, enabling these players to work together, monitor the actions taken and coordinate their efforts to support the regions.

Benefits, impacts and results

Over the previous period (2019-2022), the Regional Commission for Sustainable Coastal Management supported 26 projects, with a total value of €25.4 million, submitted by local authorities. This long-term partnership and shared working practices mean that partners can take swift, coordinated action to support local areas. This was particularly the case in the aftermath of storm Xynthia, which required emergency action by local authorities. It also provides a regional response to recent national guidelines on adapting to climate change and coastal risks (national strategy for integrated coastline management, implementation of the 2018 Elan law on housing, development and the digital environment).

Barriers and needs

The development practices implemented by local authorities are primarily sea defence works. Other development solutions, such as strategies to support changes in the coastline or relocation, are still rarely implemented. Raising awareness among local decision-makers, sharing knowledge about the various techniques and setting up experiments are major challenges. Similarly, raising public awareness is an area that needs to be developed in order to prepare the population for the various measures that will be taken to deal with the risks. Responding to these issues is one of the subjects being addressed by the regional and local authorities as part of the renewal of the Pays de la Loire Regional Coastal Convention.

Transferability

The regional agreement for sustainable coastal management is a voluntary initiative by the various regional and local authorities and can be replicated in other European regions.

Sources

Interview on 07/03/2024 with the Biodiversity and Coastline Unit, Pays de la Loire Region

Regional agreement for the sustainable management of the Pays de la Loire coastline (period 2019-2022) (French version only)

3.2.4 - Regional tools for MSP

In section 3.2.4, the focus shifts to regional tools designed to support MSP. These tools are crucial for gathering, organising, and processing spatial data related to coastal and marine environments. In this context, various regions have developed systems to manage marine data, which serve as essential resources for decision-making and environmental management. These regional tools allow for comprehensive planning that takes into account local economic activities, environmental protection, and the impacts of climate change. The experiences highlighted in this section demonstrate the importance of data accessibility, cooperation between regional and national entities, and the ongoing need for funding and technical improvements to maximize the utility of these tools for sustainable maritime governance.

3.2.4.1 Coastal and marine Information systems and geoportals to support ICZM and MSP in Emilia-Romagna region, Italy (Adriatic basin)

Background

Emilia-Romagna region is a low-lying, Italian, coastal region located in the Northern Adriatic basin. Its coastline is composed of sandy beaches that extend approximately 130 km and have an average width of

about 70m. The coastline features vast lagoon areas, harbour jetties and various hard coastal defence structures built to preserve the coast from erosion. The area is affected by land subsidence caused by both natural processes (sediment consolidation) and historically aggravated by human activities (groundwater extraction on land and offshore gas extraction in the Adriatic Sea). The situation is exacerbated by sea level rise (due to climate change), that increases the risk of flooding. The sea space facing the coast of Emilia-Romagna between the Po delta to Cattolica shoreline, up to the limit of Italian-Croatian territorial waters, is characterised by shallow depths and prevalent soft bottoms, with quite uniform morphology. Like the whole Northern Adriatic Sea, the sea space hosts several maritime uses. According to the Portodimare Action Plan, major uses are : tourism features and facilities, fishing (small-scale and bottom trawler fisheries), aquaculture (mussel production), maritime transport, Oil & Gas Offshore infrastructures pipelines and cables (61 platform mostly distributed within the 12 nautical miles), coastal defence infrastructure, dredging areas for offshore sand deposits, and military zones (shooting area) (Portodimare, 2020). Moreover, the area includes two marine Natura 2000 sites (Adriatico Settentrionale extending across the Veneto and Emilia-Romagna regions - IT3270025 - IT4060018, and Relitto della piattaforma Paguro - IT4070026), several coastal Natura 2000 sites as well as the Regional Delta Po Park. Environmental protection is key to protect essential fish habitats, protected species (e.g. bottlenose dolphins and turtles) and marine bird species.

In Italy, the Adriatic MSP is part of three plan proposals (see also section 3.1.3), one for each of the three identified maritime areas (Adriatic, Central Mediterranean and Ionian Sea, Western Mediterranean and Tyrrhenian Sea). These plans were submitted to public consultation in September 2022, in parallel to the consultation on the documents drafted as part of the Strategic Environmental Assessment (SEA). The SEA procedure was concluded in October 2023 and MSP plans are being finalised based on feedback received. The finalisation of the plans will also take into account the input of the National Plan for the Sea (Piano Nazionale del Mare) approved on the 31st of July 2023 by the Inter-ministerial Committee for the Sea Policies (CIPOM). This high-level plan defines the strategic directions for the development of a sustainable blue economy in Italy, recognising the important role that MSP can play in this regard. The Italian MSP plans have a prevalent strategic nature and do not provide detailed, regulatory provisions.

The Italian regions (20 regional administrations, 15 of which are coastal, including Emilia-Romagna) have been directly involved in the MSP process through their participation in the Technical Committee responsible for the elaboration of the Italian MS plans. The Committee was coordinated by the Ministry of Infrastructure and Transport and composed of several other Ministries (i.e. Ministry of the Environment and Energy Security; Ministry of Agriculture, Food Sovereignty and Forestry; Ministry of Enterprises and Made in Italy; Ministry of Culture and Ministry of Tourism). The elaboration of the three MSP plans is scientifically and technically supported by a multi-disciplinary team comprised of CNR-ISMAR, CORILA and IUAV University.

The regional experience

The coastal zone of Emilia-Romagna region and the adjacent Adriatic marine area are strategic assets for the regional economy and key areas for environmental protection. This prompted the Region to invest in building the knowledge basis needed to preserve the marine-coastal system from multiple threats.

The experience of Emilia-Romagna region in building this knowledge basis firstly originated from the urgent issue of addressing coastal land subsidence, a widespread regional phenomenon caused by both natural processes (sediment consolidation) and aggravated by human activities (groundwater extraction on land and offshore gas extraction in the Adriatic Sea). Moreover, the sound management of offshore marine sand deposits for beach nourishment activities to contrast the effects of coastal erosion has been another issue for Emilia-Romagna region for a long time. Nourishments are in fact periodically carried out along the coast, mainly to preserve coastal tourism, one of the major economic activities in the area. Data about the location and extent of offshore sand deposits have been considered essential to manage this non-renewable sediment source.

Since the beginning of 2000s, a marine and coastal information system (SIC, *Sistema informativo del mare e della Costa*) started to be shaped with the aim of supporting the Integrated Coastal Zone Management (ICZM) process and the management of various coastal risks. The information system evolved, starting from a first prototype, to gradually cover the requirements of the EU Floods Directive (flood risk maps), the EU MSP Directive, the challenge of climate change adaptation to sea level rise and storminess, and increasing attention towards the blue growth aspects. In particular, there is a growing demand of marine and coastal space for the development of tourism, fisheries, aquaculture, oil and gas extraction, transport and sand dredging and more recently for renewable energy.

The marine and coastal information system collects and organises spatial data and maps over the coastal plain of the region and over the marine area until the demarcation line between Italy and Croatia. Data architecture is organised around seven thematic areas, to cover: (i) the coastline physical evolution (In_sand); (ii) forecasting and monitoring of storm events (In_Storm); (iii) geological and geomorphological aspects of offshore sand deposits (In_Sand); (iv) information about human activities at sea (In_Sea); (v) catalogues of coastal defence and nourishment activities (In_Defence); (vi) subsidence data (In_Move); and (vii) information for assessing coastal risks (In_Risks).

Within the EU Shape project and its successor, the Adriplan project, the first geo-portal for the Adriatic Sea was built to include data about different sea uses. By capitalising data from these projects and databases/portals developed at European and national level, the new community-based and free access Geoportal for the Adriatic-Ionian Sea (GAIR) was developed within the EU project Portodimare (2018-2021), led by Emilia-Romagna region. Thanks to the cooperation with research institutions (CNR Venice in particular), the portal offers, beyond data, innovative tools for data processing, tested in the Adriatic-

Ionian area and is able to support ICZM and MSP processes. Tools include modules for Cumulative Effects Assessment (CEA), Maritime Use Synergy and Conflict Analysis (MUSC), Supporting Allocated Zones for Aquaculture (AZA), Particle/conservative contaminants dispersion (PAR TRAC), Coastal Oil Spill Vulnerability Assessment, Small Scale Fishery Footprint (SSF), Medium Scale Fishery Footprint (MSF) and Cumulative Effects Assessment on SSF & MSF.

GAIR represents an instrument that improves the transnational cooperation between the Adriatic and Ionian Region Countries on maritime and marine governance and support the implementation of ICZM/MSP processes.

Benefits, impacts and results

Emilia-Romagna region participated in the preparation of the MSP plan as part of the Technical Committee. Data available at the regional level were used and transferred to the national portal "SID - Portale del mare", the national integrated portal for planning public domain and maritime space, used for organising data within the national MSP process. Even though the national MSP process was based on SID, and not GAIR, the experience gained by Emilia-Romagna and its collaboration with European initiatives and research institutions was key. It served as knowledge basis for structuring and populating the national portal. Moreover, the availability of well organised data at regional level allowed a detailed zoning of the marine area in front of Emilia-Romagna in the national MSP plan and the establishment of evidence-based measures that reflect regional needs.

The coastal and marine information system developed at the regional level is extensively used for planning ordinary intervention measures along the coast (e.g. nourishment projects). It is also used to prepare and update the flood risk maps according to the EU Floods Directive. Moreover, private users and companies that operate in the Northern Adriatic area use the coastal and marine information system and the GAIR to find the data needed to develop Environmental Impact Studies, Strategic Environmental Assessments and to design interventions.

The collaboration with research institutions within Portodimare and other European projects allowed important synergies: MSP tools developed by scientific partners were tested using data provided by the region; results were both used to consolidate tools (scientific result) and to provide outcomes useful for MSP.

Barriers and needs

The set up of coastal and marine information systems and geoportals required high levels of motivation, great effort and long-term perseverance. In particular, data collection and harmonisation were long and complex processes. All activities were mainly realised with European and regional funds (through the participation of regional actors in European funded projects and initiatives). The lack of dedicated funding and of legal obligations to mainstream data collection to support ICZM and MSP hinders the process that is mainly carried out thanks to the willingness of individuals.

The coastal and marine information system needs to be constantly updated with new data and revised alert thresholds for marine storms. An improved understanding of the coastal sediment budget (sediment load from rivers and its distribution along the coast) is needed to properly plan interventions in the long-term.

Transferability

The experience gained with the information system developed at the regional level (SIC) contributed to build the Adriatic-Ionian portal (GAIR, sea basin scale, transboundary level) and the national portal (SID, national scale), showing high transferability potential. Although each system is tailored to specific features and needs, the general architecture can be easily capitalised to build similar initiatives in other regions. SIC, being a pioneering system for regional authorities, has been considered as a reference for other Italian regions and for ISPRA, the national institute for environmental protection and research (personal communication). A twinning initiative was organised, to develop a similar information system in Campania region, in southern Italy. The participation of Emilia-Romagna region in European projects and in international initiatives further enabled exchange of good practices that facilitate the capitalisation and replication potential.

Sources

A description of the Emilia-Romagna coastal and marine information system (SIC) can be found in the Emilia-Romagna region website: https://ambiente.regione.emilia-romagna.it/en/geologia/geology/the-coastal-system and https://ambiente.regione.emilia-romagna.it/it/geologia/geologia/costa/sistema-informativo-del-mare-e-della-costa-sic.

The GAIR portal and related documentation can be accessed from the Portodimare project website: https://www.portodimare.eu/.

The SID portal (restricted access) can be found here: https://www.sid.mit.gov.it/login

The testing of GAIR tools for the Emilia-Romagna region is described in the project deliverable: PORTODIMARE, 2020. DT2.8.3 Action plan on the testing area of Emilia-Romagna Region (Italy), Ver. 2. https://digitalibrary.adrioninterreg.eu/wp-content/uploads/2023/07/Action_Plan_LP.pdf

This regional experience was prepared with the collaboration of Luisa Perini, Emilia-Romagna Region, Geological service.

3.2.4.2 Regional tools for MSP: available information and platforms in Galicia, Spain, Atlantic sea basin

Background

The region of Galicia is located in the northwest corner of Spain, bordered by the Atlantic Ocean to the west and the Cantabrian Sea to the north. It comprises four provinces, three are maritime (A Coruña, Lugo and Pontevedra) and one inland (Ourense). Despite its small surface, the regional coastline represents more than thirty percent of the national coastal longitude. It is characterised by numerous “rías” (coastal inlets formed by river valleys submerged by the sea) that are high productivity ecosystems.

Galicia holds a strong legacy of maritime activity, so a large part of its population works directly in the primary and secondary sectors related to fishing, aquaculture and shellfish gathering. These activities coexist with different protected areas included in the Natura 2000 Network, as well as with one national park (The Atlantic Islands of Galicia National Park) and two marine reserves. In addition, many recreational and leisure activities are carried out along the marine and coastal areas of Galicia, particularly in the Southern part of the Region.

Galicia has different Initiatives and tools that shall be useful for MSP. Among them, there are different geoportals that collect regional information of great utility for the competent administrations and actors involved. Most of the geoportals depend on the Galician regional departments and their associated bodies. However, there are others that are managed by local entities or have originated from previous research projects.

The regional experience

The following geoportals and viewers, which have been developed by the regional administration and other public bodies are relevant for MSP. The information they collect may be helpful for planning purposes, to manage potential conflicts and overlapping uses as well as the increasing anthropogenic pressures:

- **SIGREMAR**, is a GIS based web platform created and hosted by INTECMAR (Technological Institute for the Control of the Marine Environment of Galicia), associated entity of the Galician Ministry of the Sea in charge of controlling water quality in shellfish production areas. Many of the regional aquaculture and shellfish gathering information is available in this geoportal, including data layers of protected areas, shellfish banks, aquaculture establishment's location etc.

In addition, INTECMAR hosts the **State of Zones Reports viewer** that provides daily information on the presence and evolution of toxic phytoplankton and marine toxins that may affect the production of bivalve molluscs and other marine invertebrates, as well as the administrative situation of each production area (closed or open for harvesting activities).

It is also worth mentioning the Plan CAMGAL viewer, a GeoPortal that integrates geographic information of different nature, sources and scales, and both spatial and non-spatial data, which can be useful during the planning and management of accidental pollution events.

- **Regional Ports Locator**: *Portos de Galicia*" (Ports of Galicia) is a public entity dependent on the regional Ministry of the Sea. It is entrusted with the powers of planning, construction, operation, conservation and advancement of the 122 Galician ports. The website of this institution includes a viewer (port locator), which provides information including the address, coordinates, contacts, services, nautical charts references, main characteristics and pictures of each port.

The "*Instituto de Estudios del Territorio*" (Territorial Studies Institute) is a body dependent on the Regional Ministry of the Environment and Climate Change, whose main objective is to analyse, study and provide advice on urban and regional planning. Its website centralises geographic information for Galicia, providing access to downloadable digital data, detailed information on the digital products with links to them as well as different viewers with both general and sectoral information.

In relation to MSP the following five geoportals accessible from this Institute can be highlighted:

- Hydrological Plan of the Galicia-Costa demarcation Viewer: "Augas de Galicia" (Waters of Galicia) is the autonomous body attached to the Regional Ministry of Environment and Infrastructures that manages the "Galicia-Costa" demarcation, which includes those rivers whose entire course runs through the Galician region. It consists of a geoportal where this hydrological plan can be consulted.

- **Coastal Ordinance Plan Viewer:** Its objective is aligned with the Coastal Management Plan (Decree 20/2011), establishing the criteria, principles and general rules for the urban planning of the coastal zone based on criteria of durability and sustainability.

- **Integrated Planning and Management of the Galician Coastline Viewer**: Following the recent approval of Law 4/2023, which necessitates an ecosystem approach, a new viewer was developed, collecting the cartographic information necessary for its application. This digital tool includes, among others, information on protected natural areas, natural parks, protected wetlands, Natura 2000 Network, natural monuments and protected landscapes, delimitation of urban and rural areas, service areas of each of the regionally owned ports, and boundaries of the public maritime land domain.

- **Geographical nature conservation viewer:** Tool that provides cartographic information related to the natural spaces and biodiversity in Galicia.

- **Catalogue of Landscapes of Galicia:** Tool that aims to facilitate the planning, management and protection of the landscape of Galicia, establishing common criteria and methodologies of analysis for future works, studies and plans on a larger scale.

At a local level, there are examples of geoportals where information is limited to entities of territorial scope smaller than the region, for example, provinces. As an example, the local government of one of the Maritime Provinces (Pontevedra) hosts a geoportal that provides information on Blue Flag beaches and locations of marinas.

- Research projects can also result in the development of initiatives that extend beyond the project lifetime, and continue to be useful tools for multiple fields, including MSP. This is the case of the **RAIA Oceanographic observatory,** which brings together relevant entities in operational oceanography. It provides useful information from observational, predictive and data management infrastructures on the state of the sea, promoting the development of tools and services, to public administrations and citizens.

- MARPLAN: The CETMAR Foundation (REGINA-MSP partner) supported the Galician Government during the public consultation phase of the Spanish Marine Spatial Plans (POEM), during which the MARPLAN tool was produced. The main objective is to support the Regional Ministry of the Sea in terms of socio-economic geo-referenced assessment of aquaculture, shellfish gathering and fishing. The geoportal includes layers with information on the economic value, yield and production of those activities. Additionally, information is provided regarding environmental parameters relevant to assess the suitability of offshore areas for aquaculture development and infrastructure.

Given the characteristics of the information collected and the purpose for which MARPLAN was created, the current geoportal version is not accessible to the public but may be used for planning exercises and

discussions with MSP stakeholders. It is currently being updated and improved, in terms of both the information contained and functionalities (no link access is provided in this document).

Benefits, impacts and results

The generation of knowledge, data and tools that support decision making and facilitate the assessment of the impact of economic activities on marine resources and ecosystems is crucial. These platforms integrate various datasets, providing a comprehensive overview of marine and coastal ecosystems. They can also support decision-making processes by offering accurate and up-to-date information on environmental conditions and human activities. In addition, many of these geoportals/ tools provide public access to spatial data, promoting transparency and stakeholder engagement in MSP. These tools collectively enhance the capacity for regional MSP in Galicia, ensuring that marine and coastal areas are managed sustainably and effectively.

Barriers and needs

Advancements at the regional level on the availability and use of data and knowledge on MSP are being made through the existing geoportals and the current development of MARPLAN tool to support the decision-making and MSP in Galicia, but more efforts and investment are required to complete them and improve spatial and temporal resolutions. Likewise, it must be ensured that the data displayed in geo-referenced form are of high quality both in terms of content and geolocation. Moreover, the development of compatibility analyses and ecosystem services valuation could support MSP decision-making and site selection, especially in areas where there are overlapping uses or conflicts of interests (e.g. wind energy vs fishing).

- Avoid the multiplication of platforms containing the same information. Facilitate the inclusion and transfer of GIS layers in existing geoportals so that information can be centralised, creating comprehensive and robust tools.

- Facilitate the standardisation and interoperability of data, complying with established international directives, thus allowing for greater cooperation at different levels; local, regional, national, etc.

- Update of the data provided, so that users obtain reliable information, thus ensuring subsequent correct decision-making by end-users.

- Periodic maintenance of the geoportals and the websites that host them, so that they are operational for end users and facilitate access to the information contained therein.

- Promote cooperation, mainly in cross-regional areas, trying to solve problems derived from the lack of harmonisation in the digitisation of borders, the existence of different units of territory, which cause a lack of homogeneity in the legends, etc.

- Facilitate the downloading of the data contained in the geoportals, both in terms of content and data formats.

Transferability

Those specific platforms/tools can provide territorial tailored information and can be useful in MSP especially in considering, for example, an ecosystem-based approach relying on scientific-based knowledge and data.

Sources

SIGREMAR: http://ww3.intecmar.gal/Sigremar/

INTECMAR: http://sig.intecmar.gal/EstadoZonas/Default.aspx?tmapa=1

http://mapas.intecmar.gal/plancamgal/

Regional Ports Locator: https://portosdegalicia.gal/gl/locportos

Territorial Studies Institute: https://mapas.xunta.gal/gl

Hydrological plan of the Galicia-Costa demarcation: https://mapas.xunta.gal/visores/dhgc/

Coastal ordinance plan: https://mapas.xunta.gal/visores/pol/?locale=es

Integrated Planning and Management of the Galician Coastline: https://xuntasix.maps.arcgis.com/apps/webappviewer/index.html?id=8faf8ce613ce4189a6fa4063ef47c3e9

Nature conservation: https://mapas.xunta.gal/visores/conservaciondanatureza/

Landscapes of Galicia: https://mapas.xunta.gal/visores/paisaxe/

Local information (Province of Pontevedra): https://ide.depo.gal/web/idepo/visores

RAIA oceanographic observatory: https://visor.marnaraia.org/w_raiaco_visor/visor, http://mapas.intecmar.gal/plancamgal/

3.2.4.3 A regional platform co-managed by the State and the Region to support climate-proofed and coastal stakeholders' development in Region Sud (France, Mediterranean Sea basin)

Background

The Region Sud is one of the France's eight coastal metropolitan Regions. It is bordered by the Mediterranean Sea. The Region Sud (Provence Alpes Côte d'Azur Region)'s land territory is administratively divided into 65 coastal municipalities grouped into inter-municipalities, including three coastal metropolises (Marseille-Aix-Provence, Toulon Provence Méditerranée and Métropole Nice Côte d'Azur). Each of these metropolitan areas hosts major trade ports. The Region hosts 135 fishing and leisure ports and numerous seaside resorts. The Region Sud coastline is highly diverse. It is characterised by a succession of sandy coasts (large stretches in the Camargue or pocket beaches in the Var) and rocky coasts that are often steep, as well as wetlands and vast urbanised areas (three metropolitan areas). The pace of development has accelerated since the 1960s, with a boom in the residential economy, tourism and consequent sharp increase in population. Thus, it faces huge challenges in terms of coastal and marine biodiversity protection and restoration on one hand, and tourism and blue economy on the other hand. The Region is responsible for ensuring the sustainable development and equality of its territories.

The waters bordering the Region are covered by the façade strategic document (DSF) for the Mediterranean Sea, a plan that defines the State's ambitions in terms of integrated maritime policy and preservation of the marine environment. The Region is well integrated in the elaboration and implementation of the plan, notably on the topics it is already involved in (e.g. *Posidonia* protection, sustainable beach management). However, there is a need to improve regional public stakeholders' participation and raising their awareness on how they should include coastal strategies at their level.

The regional experience

As part of the National Strategy for Integrated Coastline Management, adopted in 2012, France decided to set up a national network of coastline **observatories. The "Mon Littoral Provence-Côte d'Azur" platform, launched in 2020, aims to meet this need. It aims to pool, share and disseminate local data and organise exchanges on coastline management, with a view to contributing to a regional culture of coastal risk management and adaptation to climate change. It aims at gathering coastal stakeholders to:**

- co-create contents (data, analyses) to meet commonly defined production objectives

- ensure open access to data and its interoperability with tools

- cross competences and analyses which is necessary to embrace **coastal management**

- share data with all types of stakeholders (public, private or citizens)

- acculturate stakeholders, build a learning and active community of actors to make sustainable solutions emerge. To this end, gatherings are organised by the platform on specific topics.

Benefits, impacts and results

Co-creation of the platform with end users to ensure it meets their needs.

Repository of verified data and documents: the platform provides a catalogue of numerous resources, both documentary and geographical, that are useful for integrated coastal management. It references data already available on other sites and publishes data that has not been published before.

Shared governance to consistently inspire and activate the network. An approach initially funded by the State (since 2017), then State/Region co-piloting (in 2021) to share the coordination of the actors and the development of the site. A scientific committee made up of researchers from universities and public institutions makes recommendations on the construction and orientation of the platform.

Production of research studies to identify coastal stakeholders and their needs.

"Lowtech" platform developed from free software (Wordpress) and a neutral identity at monlittoral.fr for a good adoption of the site by all actors.

Barriers and needs

The initiative faces some technical challenges: difficulty of collecting and making data available to everyone, interoperability of data (format, etc.), articulation with the dynamics of local observatories (existing or in creation). There is also a need to provide local stakeholders with more operational and ready-to-use data. Besides, it also needs to ensure the sustainability of the tool (human and financial investment) and to share more technical content to support emerging public policies on the coast.

Transferability

The approach to build the platform is transferable as it started from a local experience (Var department) by associating different families of actors (users, contributors) to create an initial prototype. It then moved forward in an « agile » way and with specialists coordinated by one internal project manager, which shows that such initiative does not necessarily require huge resources.

Sources

https://www.monlittoral.fr

IV. Cross-cutting analysis

This section looks for commonalities between the various themes and across regional experiences with a view to identifying themes or areas that would need additional focus in furthering the implementation of MSP.

4.1 Governance

The Compendium collects experiences from five countries (Finland, Italy, Spain, Ireland and Greece), revealing some snapshots of quite heterogeneous approaches to MSP governance, from those that are fully driven by regions (Finland) to mainly centralised mechanisms that involve regions in consultation processes (Ireland, Greece)

- In the Finnish case, Regional Councils (coalitions for coastal municipalities) are the responsible authorities for preparation, approval and implementation of the three MSP plans that cover the three coastal regions of Finland. The MSP process is therefore fully delegated to the subnational level. Before the MSP Directive entered into force, Regional Councils already existed (and had competences relating to land and sea planning), but their responsibility was further extended with the implementation of the Directive.
- In Spain, MSP is carried out by the Interministerial Commission for Marine Strategies (CIEM, by its initials in Spanish) through its MSP working group (GT-OEM) at the national level. However, this governance scheme is supported also by the Monitoring Committees that assemble regional (autonomous communities) and national authorities as well as specific *ad hoc* working groups created to discuss specific technical issues with the regions. Besides these working groups, al, in this case, they are not new governance structures, as they have been operational since 2014, to implement the Marine Strategy Framework Directive.
- In Italy, a multi-level Technical Committee is responsible for the elaboration of the three MSP plans that cover the three identified maritime areas. The Italian coastal Regions are part of this Committee that is coordinated by the Ministry of Infrastructure and Transport and composed of several other Ministries. By being members of the Committee, regional authorities participated in the plan preparation by setting the vision, the objectives, the zoning of marine areas under their jurisdiction and the identification of specific measures.
- In Greece, although the MSP process is mainly driven by the central level, the association of Greek Regions and the Central Union of Municipalities are involved in the consultation process, ensuring

indirect regional involvement. Moreover, according to the legislation, MSP must adapt higher-level strategies to specific regional, sub-regional, and local characteristics. The MSP Frameworks (MSPF) must be harmonised with the various Special Spatial Planning Frameworks (SSPFs) and developed in coordination with the Regional Spatial Planning Frameworks (RSPF).

- In Ireland, Designated Maritime Area Plans (DMAPs) are being prepared to cover specific regions or to plan the development of certain activities, within the overarching MSP policy, that sets main strategic directions (National Marine Planning Framework). Any public body can be designated by the Minister as a Competent Authority for the preparation of a DMAP. As this process develops, it is probable that the Regional Assemblies and/or Local Authorities could propose and prepare DMAPs. This process requires stakeholder involvement through specific consultation activities at defined stages.

The analysis of the five cases reveals the possible *role of pre-existing governance frameworks* in supporting the MSP process. In this regard, the long-term experience of Regional Councils in Finland in land-use planning was capitalised upon to address new challenges related to maritime planning. The CIEM and the Monitoring Committees established in Spain to progress implementation of both the MSP Directive and the MSFD is another illustrative example of synergies, where the same governance system incorporates two processes that are strictly related. Secondly, the establishment of ad hoc formal and informal *working groups* emerged in both Spain (inter-regional working groups) and in Italy (intra-regional working groups). These are promising opportunities that can bring together different actors representing different perspectives. In all these examples, existing governance frameworks have a *multi-level* dimension, since actors from the national, regional and local scales share the opportunity to work together, as means to address the multifaceted distribution of competencies on the sea space.

Challenges

The collected experiences are examples of **multi-level governance** mechanisms, as a key success feature for MSP. These experiences also show some challenges related to the **complex administrative systems** and highlight the difficulties relating to **coordination** (where responsibilities are shared across different authorities and levels of governance) which require ongoing significant effort, time and resources.

Highly centralised planning processes limit local and regional participation, potentially reducing the effectiveness of MSP at these levels. In some cases, complex governance schemes required for MSP have yet to be fully tested outside research projects, indicating a lack of practical experience. Bureaucratic challenges and slower implementation need also to be addressed. Moreover, multi-level collaboration needs to be maintained in the long-term and be politically endorsed, to consolidate relationships over

time, after plans are adopted and throughout their implementation. This is also relevant when considering future revisions of plans which also need to reflect regional and local priorities.

Resource constraints, lack of necessary data and limited capacity of regional actors are found to be factors that currently limit the full engagement and participation of regions in MSP. For example, regional planners previously involved in land-use planning are also the key actors for MSP in Finland. In Ireland many land planners are now also tasked with marine planning. Whilst this could ensure connectivity and coherence between land and marine planning it could also introduce risk to MSP implementation as staff may not have the requisite technical skills or experience for implementing MSP. With respect to data, substantial efforts have gone into developing national marine planning portals and geo-databases but, in most instances, these require additional refinement and additional data to be fully utilised at regional and local scales.

The prevalent **strategic nature** of some marine plans (Italy, Ireland), or non-legally binding format (Finland) may be perceived as unsuitable for regions, since such a format may not provide the necessary regulatory provisions or be insufficiently detailed to address regional and local issues. This was also highlighted in the regional experience of two Italian regions: Sardinia (reported under the topic of environmental protection), and Calabria (reported under the topic of ICZM and LSI). Since strict regulatory provisions are lacking, the effectiveness of the plan for environmental protection is reliant on the existing regulations in place in protected areas, and there have been experiences where such regulations do not actually exist yet (Sardinia). The difficulty of reaching specific stakeholders during MSP preparation prevented specific measures regarding some sectors such as fisheries and aquaculture (Calabria) being included in the final plan.

Uncertainties with respect to regional directions or priorities relating to the future development of specific sectors may also prevent the establishment of specific priorities in the use of the regional marine space, thus forcing the plan to be quite generic. Conversely, the strategic nature of the plan can be also seen as beneficial, since it facilitates flexibility, enables stakeholder discussion and supports common understanding (e.g. Finland). The Irish experience shows that subnational marine plans (Designated Maritime Area Plans) could be a solution to supplement the overarching and strategic national policy with more specific provisions for specific issues or subnational marine areas. However, this could also introduce sectoral segmentation and fragment MSP implementation, which conceptually MSP is intended to avoid by focusing on integration.

Another linked challenge relates to the selection of the best **spatial scale** in which to work. The adoption of small-scale plans that correspond to an already existing level of administration can be a solution to address regional and local needs. However, as revealed by the Greek experience, this might be reductive for some issues which need to be approached at a higher or transversal scale of analysis, not constrained by administrative limits. MSP is considered as the largest planning cooperation ever undertaken in

Finland: working across spatial and governance scales and sectors is a big challenge. Adopting a multi-scalar approach (like in the Italian MSP) can represent a solution to help define planning objectives, zoning options and measures with different levels of detail. In any case, the selection of the most appropriate scale to approach with MSP is highly variable and depending on specific cases.

Finally, in a number of cases there remains no dedicated **funding** associated with the implementation of planning actions in the marine domain, in contrast with land-based planning. This was also reported as a possible challenge for regional level implementation among regional authorities (Irish and Finnish experience).

Benefits

All collected experiences demonstrate that MSP can be considered as an **opportunity for cooperation** between different authorities with difference governance levels, promoting synergies between sectors, enhancing **environmental protection** at the regional level and giving new or added consideration to the marine system in a holistic way. This is being achieved through the establishment of working groups, and technical and monitoring committees where the role of regional authorities, among national authorities, agencies, and other organisations involved in MSP is valorised. This analysis also reveals that regions participating in such exchange mechanisms can express their opinions and share relevant information for the process as well as take part in the decision making.

The direct engagement of regional authorities in the MSP process and the inclusion of small-scale planning are seen as an opportunity to **customise plans** according to regional and local needs supporting the achievement of the objectives set by regional policies.

While the preparation of MSP plans should ensure consistency with pre-existing regional and sectoral plans, MSP can also drive the **amendment of existing regional and sectoral plans** whenever they are too narrow in their scope, to include a more holistic approach, thus improving the whole regional and national planning process.

Stakeholder participation

Although specific information on stakeholder participation was not specifically collected for the Compendium, the five experiences reported under the Governance section and the fourteen experiences reported under different topic sections refer to the importance of stakeholders in regional MSP activities. Key findings are presented below, which may provide further insight into how stakeholders may be involved in future iterations of MSP.

Finland has established a spatial planning cooperation network involving all maritime sectors, authorities, and experts at national, regional, and local levels. This network, comprising around 600 members, serves as an information-sharing channel and fosters cross-regional collaboration. Regional councils in Finland received training through the MSP-cooperation network, addressing new skills required for MSP. The MSP process has improved connections with maritime sectors and enhanced the recognition of regional authorities' roles among national entities.

In **Greece** the MSP process requires consultations with multiple entities including Ministries, the National Spatial Planning Council, regional representatives, and the public. Stakeholders provide input via an e-gov platform. Recommendations include establishing regional networks and local stakeholder groups to address land-sea interactions and ensure local input. In this regard, **Crete**, while emphasising coastal zone management and planning of RES (Renewable Energy Sources), considers public awareness and participation as vital. Besides regional involvement in spatial planning, there is a focus on ensuring local stakeholder engagement in both maritime and terrestrial planning, with compensatory benefits secured for local communities. In the **Central Macedonia** region, numerous stakeholders, including local and regional authorities, environmental groups, and key industries like aquaculture, fishing, and tourism, are integral to the environmental planning and implementation process that has positive implications for MSP.

In **Ireland,** the first Irish marine plan, the National Marine Planning Framework (NMPF) emphasises stakeholder participation in its implementation. To encourage involvement, officials hosted regional roadshows to inform the public about the plan and ways to contribute. Additionally, a National Marine Planning Stakeholder Advisory Group, created in 2018, includes representatives from economic, environmental, and social sectors to guide decision-making for current and future marine spatial plans. The ongoing development of the first regional plan, the South Coast Designated Maritime Area Plan

(DMAP), particularly focused on offshore renewable energy, has involved extensive public and statutory consultations, ensuring engagement with local communities, industries, and NGOs. The legislative framework further ensures transparency and public participation throughout the planning process. The participation of **Cork County Council** in developing the National Marine Planning Framework (NMPF) emphasised the need for training and upskilling in MSP, particularly in areas like climate change, ecology, and flood risk. Initiatives like the AA-AGORA project focus on cross-sectoral cooperation to protect ecosystems and promote societal well-being, underscoring the region's commitment to stakeholder engagement and climate resilience.

In **Italy**, regions were directly involved in the co-design of MSP together with national authorities, and public consultation of the plans was regularly performed. Regions autonomously organised different types of interactions with stakeholders, sometimes revealing the need for improvement. For example, in **Sardinia**, stakeholder engagement was considered quite limited, and regional workshops were not conducted, raising concerns about the thoroughness of stakeholder involvement and the financial viability of implementing proposed measures. In **Calabria**, engaging with stakeholders of some sectors revealed to be particularly difficult as well as ensuring good collaboration between different regional departments. The impossibility to reach out specific stakeholders within the MSP preparation prevented to set specific measures regarding some sectors such as fisheries and aquaculture. In the **Emilia Romagna**'s experience, focussed on tools for MSP, the added value of working in a multidisciplinary team was underscored, in particular when involving scientists from universities and research institutions.

In the Netherlands, stakeholder involvement is considered key for **Zuid Holland**. The region emphasises cooperation across government levels for an integrated MSP approach. The Interdepartmental Directors North Sea Consultative Body (IDON) coordinates North Sea MSP policy, engaging local authorities particularly for LSI. Long-term climate adaptation planning requires increased awareness at provincial and national levels, with the MSP process incorporating stakeholder input to balance short-term political goals and long-term sustainability.

In **Spain,** a complex inter-administrative system to ensure the involvement of all relevant administrative authorities, including regional ones was established. This system is designed to also accommodate diverse stakeholder interests and facilitate coordinated planning. At the regional level, the experience of **Galicia** in flood risk management, while integrating flood risk assessments with climate adaptation,

fosters multi-stakeholder collaboration to reduce flooding impacts. However, coordination challenges among stakeholders remain a barrier.

In France, the regional experience of **Pays de la Loire** brings the attention to significant coastal risks faced by the region due to rising sea levels and climate change. Stakeholder engagement is facilitated through the Regional Commission for Sustainable Coastal Management, which coordinates government departments and local stakeholders. The region is focused on increasing public awareness and implementing adaptive coastal strategies, although traditional sea defence works remain prevalent. **Brittany** reported the experience of the *Conférence Régionale de la Mer et du Littoral* (CRML) a key governance and consultation body that brings together a broad range of stakeholders, including local authorities, national representatives, socio-economic actors, and civil society. This multi-stakeholder platform has been essential in improving integrated management of coastal areas and resolving conflicts among various maritime sectors. Cooperation of stakeholders is also reported in **Region Sud - Côte d'Azur**, with the establishment of the regional platform "Mon Littoral Provence-Côte d'Azur" to facilitate information and best practice exchanges.

Montenegro's MSP process involved extensive stakeholder participation, including multiple rounds of thematic consultations with ministries, national institutes, local authorities, NGOs, and private sectors. Despite the COVID-19 pandemic limiting face-to-face meetings, the process was thorough, although additional consultations are required during the plan's integration into the national spatial planning document.

These examples highlight the current reality that with respect to engagement there is no **one common approach** adopted in any region but rather it can be driven by the governance system in place, the culture, the location's priorities and objectives or something entirely separate. What is clear is that in almost all regions there are **challenges that still need to be addressed** to enhance the effectiveness and inclusiveness of MSP processes at regional level. These include:

- **Limited or Ineffective Stakeholder Participation**
- **Need for Awareness and Communication**
- **Technical and Financial Constraints**

4.2 Land Sea Interactions and integrated coastal zone management

The MSP Directive recommends that Member States consider land-sea interactions in developing their MSP plans. In order to do this, Member States may use integrated coastal management or other similar formal and informal processes (Article 7) and reflect this in their maritime spatial plans. Regional experiences concerning land-sea interactions (LSI) and integrated coastal zone management (ICZM) as part of the MSP process come from France (region of Brittany), the Netherlands (province of Zuid Holland), Belgium (province of West Flanders), and Italy (region Calabria).

- The Brittany regional authority adopted a Regional Strategy of Sea and Coast, as main policy document relating to integrated maritime policy. This evolved from the establishment of a regional governance framework for coastal and marine issues (Regional Conference of the Sea and Coastal areas) that facilitates coordination between regional actors and various stakeholders. Against this background, the Brittany region participates in both the national MSP process through the *Conseil maritime de façade of the Direction Inter-régionale de la Mer* and with the *Sea and Coastal Commission* for local projects applying for the community-led local development (CLLD) scheme promoted by EMFAF (European Maritime Fisheries and Aquaculture Fund).
- The province of Zuid Holland oversees coastal spatial planning and coastal protection interventions, sharing responsibilities for coastal waters (up to 1km from the coast) with national authorities. The issue of LSI is perceived as fundamental at the provincial level: a comprehensive analysis of interdependencies between various activities and processes occurring at sea and on land was performed to understand current and future challenges in regional MSP. However, this remains quite disconnected from the main MSP managed by the national level government.
- The West Flanders provincial authority is involved in several policies putting land-sea interactions central in coastal zone management. Being the only coastal province of Belgium, West Flanders provides key advice to the MSP authority during the public consultation phase of MSP revision cycles to ensure the plan is aligned with regional and local contexts and development plans. The new version of the Belgian national MSP (2026-2034, still not adopted) reserves for a 'coastal ribbon,' where no activities can be licensed if they hinder coastal protection, ensuring coordination between terrestrial and sea planning.
- The Calabria region, as part of the technical committee set up for the preparation of the national maritime spatial plan, pursues the objective of linking the development of the maritime economy to the protection of environmental, cultural and landscape heritage, both at sea and on land. Calabria introduced LSI in the vision and specific objectives of the regional marine plan. Moreover,

LSI are widely reflected in the uses assigned to coastal planning units where the region exerts its responsibility.

The experiences collected in this Compendium, though quite heterogeneous, confirm that coastal zone management often takes place at the subnational level, involving coastal regional authorities and coastal provinces as major actors (ref. Baseline assessment – regina Survey report). In other countries, such as Ireland, MSP is seen very much as something which applies offshore and not to the coastal zone though this might change as implementation matures and more local and regional authorities get involved in the DMAP process.

In the **North Sea basin**, both the Dutch and Belgian experiences show that coastal policies are especially focussed on coastal defence from sea level rise, with strong linkages to the topic of **climate change adaptation**. Zuid Holland (Netherlands) has a key role in coastal defence interventions, combining safety issues (addressing the so-called weak links along the coast through specific adaptation measures) with environmental (preservation of natural habitats) and social (recreational activities, wellbeing) benefits. West Flanders (Belgium) reported several coastal policies, including the Master plan for coastal safety and the Coastal vision project, as addressing long-term challenges related to climate change.

For the **Mediterranean basin,** Calabria and the Central Macedonia's experiences (the last reported under 3.2.2 for the topic of environmental protection) emphasise LSI as an integral part of regional marine and land planning, particularly relevant for addressing the issue of **environmental protection and the sustainability of maritime sectors,** like tourism, aquaculture and fishing. The Brittany experience shows the importance of mainstreaming regional initiatives and community-led development projects into the national implementation of the MSP Directive.

Challenges

The experience from West Flanders highlights that the **sharp division of competences** between terrestrial and marine affairs can limit the incorporation of land-sea interactions in MSP. This evidence again highlights the need for cooperation amongst land and sea competences. On the other hand, the Finnish experience (reported under the Governance section) revealed that making reference to the same authority for both land and sea planning can have added value in ensuring continuity and consistency of planning, even though this can also be constrained by the lack of specific skills.

Dialogue and ongoing communication between authorities responsible for coastal and land planning (mainly working at the regional level) and authorities responsible for MSP (mainly working at the national level) still occurs primarily with a **sectoral approach** in the Netherlands, according to the experience of Zuid Holland. A more holistic approach and better recognition of LSI in the MSP process is therefore

advocated. Similarly, engaging with stakeholders of some sectors, as well as creating a fruitful interdepartmental dialogue within the same region as well as establishing multi-stakeholder consultation and governance frameworks were considered challenging (Calabria and Brittany regions).

Another topic that emerged from this comparative analysis is the need for improved **transboundary cooperation in LSI**, especially for countries with a small maritime area. In this regard, the province of West Flanders reported the importance of looking at large scale initiatives like the Greater North Sea Basin Initiative and the North Seas Energy Cooperation, for improving networking with other countries sharing the same sea basin.

Although the collected experiences are interesting examples of the role of regional authorities in integrated coastal zone management, climate change adaptation and sustainable coastal development, the linkage with the main national MSP process **does not emerge in a clear manner** for some of them. This suggests that there is room to improve the connection between formal and informal integrated coastal management initiatives that happen at the regional level and the national MSP process, to better align the two planning approaches and properly consider land-sea interactions, as required by the MSP Directive.

Benefits

As expected, benefits of mainstreaming ICZM and LSI concepts in MSP, emerging from the cross-cutting reading of collected experiences, are related to an improved **alignment of coastal plans** (often developed by regional and local authorities) **with marine plans.**

Results of efforts made by subnational authorities for coastal planning are visible since several **coastal defence interventions** were actually realised. In the Dutch experience (Zuid Holland) interventions combine safety issues (protection from sea level rise) with environmental benefits (preservation of natural habitats) and social benefits (recreational activities, wellbeing).

Results of efforts made by subnational authorities in collaboration with national authorities are also visible in terms of important **policy developments and multi-level governance frameworks** for coastal and marine areas. New regional initiatives are fostering the development of **Blue Economy,** establishing cooperation mechanisms among companies, research institutions and governments, favouring a cooperative environment with industry (West Flanders experience). In this regard, expected benefits of incorporating LSI in the marine plans are ultimately related to the future development of certain blue economy sectors that should occur with larger consideration for the landscape, the natural environment and the cultural heritage (Calabria experience).

4.3 Environmental protection

Regional experiences relating to environmental protection in MSP are presented for Italy (Sardinia region), Spain (Murcia region) and central Macedonia (Greece). Moreover, the experience of Montenegro (national perspective) is also included. In the latter case, due to the limited extent of the country, the MSP process is mainly driven by the national authorities, although coastal municipalities were involved in the consultation process.

- In Italy, the region of Sardinia, as member of the MSP Technical Committee, contributed to the MSP process by elaborating a regional zoning proposal where environmental protection is prioritised and valorised. The territorial marine waters surrounding the island were split into 40 planning units, 17 of them were associated with "Environmental protection and natural resources". This means that in these areas, environmental protection should be either the prevalent use, or a prioritised use, or at least a shared use with other compatible activities.
- In Spain, the Murcia region participated in an MSP thematic working group on marine protected areas. The group brought together different regional and national institutions and research centres to support the elaboration of the national MSP plan. Thematic working groups, covering different topics, had been established within the preparation of the first maritime spatial plan and were then reactivated within the plan revision process.
- In Greece, the Regional Spatial Framework (RSF) for Central Macedonia, although primarily focussed on the land parts of the region, aims to maintain ecosystem services and enhance natural and cultural heritage sites, indirectly supporting environmental protection in marine areas. The draft MSP for the North Aegean Sea, where Central Macedonia is located, prioritises environmental protection through the Ecosystem Approach and its implementation must be harmonised with RSFs.
- The experience of Montenegro is mainly focussed on the operationalisation of the ecosystem approach to MSP by using a methodology that allowed it to assess the cumulative effects of various maritime uses on the environment and by integrating the spatial information on pressures, exposure and sensitivity of marine and coastal habitats and species. The methodology led to the identification of the areas most affected by human activities, and the results informed the identification of specific measures for coastal and marine management.

All the collected regional experiences come from the Mediterranean basin, capturing challenges and benefits that may not represent other European Seas. However, this Mediterranean perspective is interesting to understand synergies with macroregional policies (e.g. the Barcelona Convention and the Mediterranean Action Plan) that extend beyond the EU boundaries. Moreover, the Mediterranean Sea is

often referred to as a biodiversity hotspot, with the highest level of endemism at the global level.[5] Therefore, it follows that the topic of environmental protection is regarded particular as a priority in the MSP process.

Challenges

Inadequate knowledge on habitats and species in the planning area is found to limit an informed analysis of the environmental impacts of maritime activities and proper planning. This was pointed out in the experience of Sardinia region, Montenegro and Central Macedonia who also highlighted the need for improved data management (e.g. a regional marine data platform) to make data compliant with the requirements of the national infrastructure of geospatial data.

The experience of Sardina region reveals that the **strategic nature of the plan** (not legally binding) prevents the plan from setting specific regulations for environmental protection or from establishing new conservation areas. The plan relies instead on existing management plans for MPAs and OECMs which may also be lacking in certain cases. The same challenge, related to the Italian MSP, is also described in the Governance section (see 3.1). Uncertainties related to **financial resources** are also reported and may limit the implementation of conservation measures established by MSP.

Poor stakeholder engagement (also exacerbated by the Covid-19 pandemic) was reported both in Italy and Montenegro, highlighting the need to ensure additional opportunities for consultations with public authorities, local communities and relevant institutions. Cross-regional collaboration was reported as a challenge in the Greek experience, with respect to MSP for the North Aegean Sea, advocating for multi-level governance schemes, like working groups, committees and/or communities of practice.

The distribution of powers in Spain makes it difficult to achieve a common management approach, since several topics at sea, like environmental protection, share competences between regional and national authorities. In this case, a common approach to manage all the protected areas, habitats and species at sea would be advisable to guarantee a suitable biodiversity conservation in the maritime waters of the Region of Murcia, as it was tried to be achieved through the “comprehensive management plan for the protected areas of the Mar Menor and the Mediterranean coastline of the Region of Murcia”. However, this plan was approved prior the MSP plan and, although it is considered in the POEMs, it remains a separate process, as in general, the approval and management of protected spaces

[5] State of the Environment and Development in the Mediterranean, SoED, United Nations Environment Programme, 2020

Benefits

The collected experiences reveal the role of regions and local authorities in protecting the marine environment and coastal resources, to preserve marine ecosystem services (Crete experience) and accelerate the achievement of the **Good Environmental Status (GES)** of European Seas (MSFD) and of the Mediterranean Sea (Barcelona Convention) in a coordinated way. In particular, the Montenegrin ecosystem-based approach applied to MSP was operationalised by using the framework of the Integrated Monitoring and Assessment Program of the Mediterranean Sea and Coast (IMAP), established to achieve the GES of the Mediterranean Sea, according to the Mediterranean Action Plan under the Barcelona Convention. Regional commitments to improved environmental protection in MSP are also expected to contribute to the achievement of the strict protection targets established under the EU Biodiversity Strategy, as reported in the Sardinia experience.

Beyond the above-mentioned long-term benefits, the experiences also show that regional involvement in approaching environmental protection through MSP can **boost data collection and presentation,** further linking MSP to the requirements of the MSFD. Regional experiences reported under the section about Tools for MSP (section 3.2.4) represent a response to this challenge. The three experiences about tools reported the existence of geoportals and stakeholder knowledge platforms which streamline data collection for MSP, including environmental protection.

4.4 Climate change

Three regional experiences about climate change and MSP were outlined in this Compendium. They come from Cork (Ireland), Crete (Greece) and Pays de la Loire (France). Moreover, some other snapshots of regional experiences have been captured from the North Sea (Zuid Holland and West Flanders) and reported in the section on coastal zone management and land sea interactions (section 3.2.1).

- In Ireland, the regional experience put special emphasis on MSP as opportunity to foster renewable energy (climate change mitigation). A draft South Coast Designated Maritime Area Plan (DMAP) for Offshore Renewable Energy was published on 3rd May 2024 and once formally adopted will form part of the National Marine Planning Framework (NMPF, the overarching policy document for MSP in Ireland). At a more local level, the Cork County Development Plan and the Climate Action Plan link climate action (including adaptation) to MSP and also envision working with the appointed Implementation Groups for the National Marine Planning Framework (NMPF).
- In Greece, Regional and Special Spatial Planning Frameworks (SSPF and RSPF) complement the main Marine Spatial Planning Framework. The region of Crete was involved in the preparation of

its RSPF (Decision 42284/2017) addressing both adaptation (coastal erosion) and mitigation (renewable energy projects). In addition, the Regional Plan for Climate Change Adaptation (PeSPKA) for Crete, envisions adaptation measures for coastal and marine areas, being particularly relevant for MSP.

- In France, the regional agreement for sustainable coastal management elaborated by the Pays de la Loire together with the French government and the Départements of Vendée and Loire Atlantique aims to protect the coast from the increasing risk of flooding. The objectives of the agreement are consistent with the objectives of the Façade strategic document (DSF) for North Atlantic and West Channel façade, one of the four plans adopted in France for implementing the MSP Directive.

The collected experiences only capture two aspects of the integration between climate change and MSP: **coastal defence measures** (for climate change adaptation) and promotion of **offshore renewable energy** (for climate change mitigation). Other aspects of adaptation (such as managing new spatial conflicts emerging from climate change, preserving climate refugia) or mitigation (e.g. optimising transport routes to reduce fuel consumption) are missing. The challenges and benefits emerging from this analysis could consequently be limited. However, the two main aspects that regional experiences focus on (coastal defence measures and offshore renewable energy) represent the most direct and pronounced connection between MSP and climate change actions in coastal and marine environments.

Challenges

The three experiences collected under the topic of climate change agree on the need for having **more human resources and expertise** in order to properly address the integration of informed climate change considerations into MSP. Awareness raising and capacity building are being addressed by the regional and local authorities, for example, within the revision of the Pays de la Loire Regional Coastal Convention.

Misalignment of priorities and understanding between regional and national levels may create some obstacles in the development of specific policies for mitigation. This emerged from the experience of Crete regarding offshore windfarms. Although, the development of the offshore renewable energy sector is a common goal of both regional and national authorities, the proposed locations for offshore wind farms envisioned by the National Offshore Wind Farm Development Programme have encountered opposition at regional level. The lack of consensus on this specific issue is only one example of the challenge commonly encountered in incorporating climate change mitigation measures into MSP.

The importance of **synergy with neighbouring regions** was highlighted for the region of Crete, to ensure coherent adaptation and mitigation efforts, but this proved to be challenging considering different

priorities, views and budget availability between different administrative scales. The importance of networking is not confined to the issue of climate change. It was also mentioned in the case of West Flanders (reported under the section 3.2.1 on ICZM and LSI): the region has an advisory position in the Marine Resources Working group of the North Sea that, among various objectives, aims for better coordination of MSP across national borders and administrative levels.

Further challenges relate to the **actual implementation** of climate change measures envisaged by marine spatial plans that might necessitate the creation of specific, complex infrastructure requiring dedicated funds (Crete experience).

For climate change adaptation, reported coastal protection measures are primarily implemented to **preserve the coastline** (Pays de la Loire), while relocation or managed realignment (allowing the coastline to change according to new conditions) are not addressed. For climate change mitigation, an **over-emphasis on MSP for offshore renewable energy** (Cork experience) might deprioritise other objectives of MSP, which are vital to enable balanced sustainable development of various maritime uses and environmental protection activities.

Benefits

The regional experiences confirm that MSP is seen as a tool that **may boost climate change adaptation** (mainly in relation to coastal protection from flooding) and sustainable development of offshore renewable energy, helping member states to meet their **national climate targets**.

Benefits are expected in the **long term**, so no specific experienced benefits are reported. However, experiences demonstrate that regional initiatives have contributed to the implementation of local projects (e.g. the Regional Commission for Sustainable Coastal Management in Pays de la Loire) and prepared roadmaps for the development of offshore energy sector in the Irish waters (Cork experience).

4.5 Tools for MSP

The collected experiences relate to three regions located in Italy (Emilia Romagna), Spain (Galicia) and France (Region Sud). Emilia-Romagna and Galicia describe their experience in developing geoportals for collecting and organising data relevant to ICZM and MSP, while the experience of Region Sud is about an information platform to connect stakeholders of the coastal area. Specifically,

- The Emilia-Romagna region developed a regional marine and coastal information system initially designed to support ICZM and the management of various coastal risks, and later this evolved to address additional requirements, including aspects related to the MSP Directive. The region was also involved in the development of the Geoportal for the Adriatic-Ionian Sea (GAIR), in collaboration with research institutions, offering data and innovative data processing tools to support ICZM and MSP.
- The Galicia region reported different thematic geoportals and data management tools which exist at the regional level and are relevant to MSP. These enable the participation of the Galician region in the consultation phase of the plan and resulted in the production of the MARPLAN geoportal. This tool includes layers of information relating to the economic value, yield and production from aquaculture and fisheries, supporting socio-economic and environmental suitability evaluations for those activities to refine spatial allocations in the marine plan.
- Region Sud reported a national initiative to set up a national network of coastline observatories as part of the National Strategy for Integrated Coastline Management, adopted in 2012. This led to the creation of a regional platform "Mon Littoral Provence-Côte d'Azur" launched in 2020. It brings together different stakeholders from the coastal area and facilitates information and best practice exchanges.

In addition to the above experiences, the West Flanders region (reported under section 3.2.1 on ICZM and LSI) described a knowledge portal (Compendium for the coast and sea) favouring blue innovation capacity and facilitating science-based policy.

Challenges

The analysis of the three cases collected to explore the relevance of regional tools for MSP reveals quite common challenges in setting up and running different applications. Challenges relate to **both** technical **issues (harmonisation, standardisation and interoperability of data coming from different sources) and to** financial **issues (to ensure the long-term running and usability of tools). Moreover, needs for the future development and usage of tools to support MSP include:**

- improving spatial and temporal resolution, to display high quality data
- providing stakeholders with more operational and easier to download data
- Avoiding duplication of platforms containing similar information
- Ensuring resources to maintain platforms and updating of information

Concerning the last point, the participation of regional actors in European funded projects was particularly important (as reported in the Emilia-Romagna case). The lack of dedicated regional level funding and the

lack of a legal requirement for continuous data collection and organisation, means that this process is left to the willingness of individuals, and in turn can be viewed as a barrier.

Benefits

The most evident benefit related to the development of geoportals and information platforms is about the advantage of having a well organised **knowledge repository** of validated data and documents that can be utilised to support decision making. These tools extensively support many processes at the regional level: planning coastal defence measures, supporting the environmental impact assessment of economic activities and informing the design of specific interventions.

Another important **finding relates** to the collaboration between regional actors and scientific partners through **their** participation in research projects. In the case of Emilia-Romagna, tools developed by research institutions (CNR) were tested using data provided by the region, leading not only to useful information for the regional MSP process but also to exploitable scientific results. In the case of Galicia, the MARIPLAN portal was built with the participation of CETMAR Foundation (REGINA-MSP partner) and supports the region's participation in the Spanish Marine Spatial Plans (POEM) process. In the case of Region Sud, a scientific committee made up of researchers from universities and public institutions makes recommendations on the construction and orientation of the platform.

Moreover, the importance of the co-creation process is also reported (Region Sud), stressing the added value of involving end users (beyond scientific partners) to increase the sense of ownership of shared platforms. Whenever these tools ensure public access to spatial data, transparency and stakeholder engagement in MSP is enhanced. In this regard, the use of free software and user-friendly platforms are important aspects to consider.

4.7 Insular perspectives

In the implementation of the MSP process, EU islands represent territories facing particular challenges, but also representing key assets and relevant blue economy aspects for countries in considering what is included in their national MSP plans. Their involvement in MSP implementation as insular regions vary depending on national MSP governance structures and processes, legal status, legislative competencies or arrangements. This Compendium collects experiences from two islands: Sardinia (Italy) and Crete (Greece).

Sardinia is part of the Tyrrhenian MSP Plan of Italy (as described section 3.2.2.1 of the Compendium). The Sardinia region was involved in the planning process for the marine space surrounding its coastal area up to 12 nautical miles. Prioritising conservation and valorisation of its environment, the region developed an interdisciplinary exercise, leading to the establishment of an interdepartmental Table. However, uncertainties remain concerning the financial availability to implement the MSP plan and its measures within the region.

Other approaches in marine and MSP governance[6] and integration of regional legislative aspects can be highlighted depending on insular territories characteristics and administrative processes and competencies. In Portugal, Madeira and the Azores, as Outermost Regions (OR)[7], have dedicated competencies. Indeed, in terms of governance, at national level, the Portuguese Directorate General for Maritime Policy (DGPM) is responsible for monitoring national MSP instruments and regular assessment reports. At regional level, the responsible entity is the Regional Directorate of Sea Affairs (DRAM) which is responsible for coordinating MSP development in the Azores, and the Regional Directorate for Spatial Planning and Environment (DROTA), who coordinate MSP in the Madeira archipelago. However, as stated in the study "The *ups and downs of maritime spatial planning in Portugal,*[8]", the preparation of the PSOEM (National Ocean Strategy Plan) was meant to be a collaborative effort between the Central Government and the Autonomous Regions of Madeira and the Azores, but the contents for each sub-area were not fully integrated. Instead, efforts focused mainly on standardising the presentation format, with some adaptation for regional contexts. The Azores sub-area, which has the largest territorial scope, is still under development, preventing the plan from being truly national. Additionally, the lack of involvement of research centres weakened the plan, missing valuable scientific input. Public participation was largely a formality, with unclear criteria for how contributions were integrated or rejected.

In Spain, the Balearic Islands are integrated into the Levantine-Balearic marine plan of Spain. As part of the efforts to implement conservation measures and ensure sustainable use of marine resources in line with European and national regulations, several Special Areas of Conservation (SACs) and Sites of Community Importance (SCIs) that are specifically designated to protect marine habitats and species are included in the Levantine-Balearic marine spatial plan. The Menorca Channel SCI, the Marine Area of Cap

[6] https://www.researchgate.net/publication/340846722_Marine_Spatial_Planning_for_Islands

[7] These refer to EU Member States that have part of their territory located in areas of the globe that are remote from Europe. There are nine outermost regions namely five French overseas departments (Martinique, Mayotte, Guadeloupe, French Guiana and Réunion), one French overseas community (Saint-Martin), two Portuguese autonomous regions (Madeira and the Azores) and one Spanish autonomous community (the Canary Islands).

[8] **The ups and downs of maritime spatial planning in Portugal**, H. Calado, C. Frazão Santos, A. Quintela, C. Fonseca, D. Gutierrez (https://www.sciencedirect.com/science/article/pii/S0308597X23005171)

Martinet SAC, and other designated sites specific to Balearic Island waters, including zones around major islands like Mallorca, Menorca, Ibiza, and Formentera, often focusing on *Posidonia* meadows, reefs, and habitats crucial for marine species, as well as areas around Cabrera Archipelago, Sa Dragonera, and the southwestern coast of Mallorca have been integrated into the broader Levantine-Balearic Marine Spatial Plan. However, the plan also covers areas under the jurisdiction of the General State Administration (AGE), as they involve deeper waters and offshore zones that are strictly marine.

As highlighted within the framework of the MSP-OR project, which developed the OR´s Ocean Governance Hub, an online platform where stakeholders from Outermost Regions share knowledge and experiences, managing the development, implementation and monitoring of marine spatial plans in ORs require refinement of the planning process to address their specific management needs, especially regarding Marine Protected Areas and their specific ecosystems.

As an OR in the Indian Ocean, La Réunion is facing relevant transboundary and cross-border challenges with neighbouring countries. Cross-border issues and the development of the blue economy between neighbouring countries have also been highlighted as part of the Ocean METISS project[9] (2018-2020). The Réunion region could explore within this cooperation framework cross sectoral planning tools, with a view to developing public policies that create a sustainable, integrated, and long-term strategy for the Southwest Indian Ocean Basin.

A number of Member States can have both inhabited and non-inhabited coastal and offshore islands (e.g. Ireland, Greece, France) these do not constitute ORs in the EU parlance, but their remoteness, small size, difficult topography and climate could also warrant them a special consideration in national MSP processes.

These different insular contexts, and their often unique legislative and governance structures, highlight their unparalleled status for national MSP processes, indicating their need for a more customised, localised and dedicated approach, in terms of application of the EU Directive and its links to other EU legislation especially environmental and energy transition policies. As islands can host endemic species and particularly vulnerable habitats, they are more exposed to radical threats from climate change and represent exceptional drivers for the Blue Economy.

[9] https://maritime-spatial-planning.ec.europa.eu/projects/south-western-indian-ocean-maritime-spatial-planning-ocean-metiss

V. Key conclusive recommendations

The Compendium attempted to showcase a range of regional approaches, reflecting the diversity and complexity of MSP implementation across Europe and to identify key challenges and successes in integrating key aspects and priorities of MSP at both national and regional levels. Key conclusions include:

1. **Diversity in Governance Approaches**: Different governance models across Europe (decentralised in Finland vs. centralised with regional involvement in Ireland and Greece) show that there is no one-size-fits-all approach to MSP. The most effective models promote long-term engagement and adaptability, relying on pre-existing governance frameworks. However, administrative coordination and resource constraints remain common challenges.

2. **Importance of Integrating Land-Sea Interactions (LSI) and Coastal Zone Management (ICZM)**: Regional integration of LSI and ICZM remains critical, but it is uneven across regions. Stronger alignment between land and marine planning can promote climate adaptation, environmental protection, and coastal development. This alignment needs improved stakeholder involvement and transboundary cooperation.

3. **Climate Change Adaptation and Mitigation**: MSP has the potential to boost climate change adaptation and mitigation efforts, particularly in coastal defence and the promotion of offshore renewable energy. However, many regions still face challenges in aligning priorities between regional/local and national levels.

4. **Stakeholder Engagement and Collaboration**: MSP processes greatly benefit from active participation of local stakeholders, but methods and levels of engagement vary widely. The most successful cases involved robust training, network-building, and public participation.

5. **Use of Geoportals and Data Platforms**: Regional experiences demonstrate the value of information platforms and geoportals in decision-making and stakeholder involvement. These tools facilitate environmental assessments, coastal planning, and regional governance.

Possible recommendations for areas in need of additional effort include:

1. **Fostering Multi-level Governance and Long-term Engagement**: Encourage authorities to adopt multi-level governance systems that enable regional authorities to participate effectively in national MSP processes. Ensure long-term engagement through capacity-building, adequate resources, and continuous feedback loops.

2. **Strengthening Integration of LSI and ICZM in MSP**: Strengthen the integration of LSI and ICZM within MSP by mandating better cooperation between land and marine authorities. Address legal and administrative barriers to enhance the role of regional authorities in managing land-sea interactions, especially in cross-border contexts.

3. **Enhancing Climate Change Measures in MSP**: Regions should prioritise incorporating climate adaptation and mitigation measures, particularly for coastal protection and renewable energy development. National governments should provide financial and technical support for regions lacking the necessary resources.

4. **Improving Stakeholder Engagement Practices**: Promote more structured and consistent methods for stakeholder engagement at all levels of MSP. Establish stakeholder networks and ensure public access to spatial data through user-friendly platforms to increase transparency and inclusiveness.

5. **Supporting the Development of Geoportals and Data Platforms**: Encourage regions to develop and maintain geoportals and data platforms that integrate environmental, economic, and social data to support MSP decision-making. Ensure that these platforms are interoperable and accessible to a broad range of stakeholders.

6. **Replicating and Scaling Successful Experiences**: National and EU-level policymakers should promote the replication and scaling of successful regional MSP experiences across sea basins. This can be facilitated through knowledge-sharing platforms and targeted funding for regions demonstrating innovative MSP practices.

By focusing on these key areas, regions can enhance their contribution to sustainable marine governance, ensuring that MSP effectively supports both national policies, regional and local needs while addressing broader European environmental and economic objectives.

Regions to boost National Maritime Spatial Planning
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