

This is the accepted version of the following article:

Lai S., Leone F. (2020) To what extent is integration pursued in compulsory planning tools concerning coastal and marine areas? Evidences from two Mediterranean protected areas. *Land Use Policy*, 99 104859 (16 pp.), ISSN: 0264-8377.

<https://doi.org/10.1016/j.landusepol.2020.104859>

To what extent is integration pursued in compulsory planning tools concerning coastal and marine areas? Evidences from two Mediterranean protected areas.

Abstract: Coastal areas are worldwide characterized by multiple pressures generated by high levels of urbanization and by conflictual and inappropriate uses. The establishment of protected areas represents a tool to contrast such pressures. The integration between planning tools represents a key issue, in particular in the Mediterranean area; hence, it has been addressed by both legally binding acts and voluntary agreements and charters concerning coastal zone management as well as marine spatial planning. By looking at two Italian case studies and analyzing their planning documents currently in force, our study aims at assessing the level of integration in relation to planning and management of areas characterized by the coexistence of various nature protection regimes. Our analysis shows that, although integration seems to be a key point in the planning agenda and in spite of some improvements, an integrated management approach in Mediterranean coastal and marine areas is still in its infancy. The results of the analysis show that, rather than contributing to building an integrated approach to marine and coastal zone management, each planning tool focuses on complying with its sectoral, normative framework. This situation can partly be attributed to the multilayered, and complex, Italian framework, characterized by several categories of protected areas with their own legal act and objectives.

Keywords: Environmental planning; Natural protected areas; Marine protected areas; Natura 2000 sites; Integrated coastal area management; Coastal zone management.



1. Introduction

Coastal areas, increasingly referred to as land-sea interfaces, are characterized by complex natural processes; at the same time, they are affected by environmental degradation due to both the intrinsic fragility of transition areas and conflicting and inadequate uses. According to data provided by Eurostat (Engelbert and Collet, 2013), in the Mediterranean Basin, the high level of urbanization of coastal zones has further exacerbated the situation. Data from the European Environmental Agency (2013) show that around 40 percent of the European population lives within a 50-km buffer zone from the coastline. Moreover, new developments in coastal areas have entailed several impacts on coastal and marine ecosystems in terms of population pressure and in terms of risks deriving from climate change. Therefore, coastal areas are not merely a boundary; rather, they, represent a transitional space where the effects of the land on the sea and vice versa are not fully understood yet (Van Assche et al., in press).

At the international level, various typologies of protected areas (the most popular of which are Marine Protected Areas (MPAs)) have been established in order to deal with pressures that threaten coastal areas. In the Mediterranean Basin, MPAs cover 4 percent of the total marine surface (Gabrié et al., 2012), that is, around 100,000 square kilometers. Moreover, Directive 92/43/EEC “on the conservation of natural habitats and of wild fauna and flora”, henceforth the Habitats Directive, established the Natura 2000 Network, an ecological network of protected areas. In particular, the Network includes three typologies of sites: Sites of Community Importance (SCIs) and Special Areas of Conservation (SACs), established under the Habitats Directive, and Special Protection Areas (SPAs), designed in compliance with the Directive 2009/147/EC “on the conservation of wild birds”, hereinafter the Birds Directive. At the end of 2018, marine Natura 2000 sites covered 9.5 percent of EU seas, approximately 551,900 square kilometers (European Commission, 2019). MPAs and Other



Effective area-based Conservation Measures (OECMs)¹ cover 7.14 percent of the Mediterranean Sea (MedPAN, UNEP/MAP-RAC/SPA, 2016).

On the other hand, the existing governance framework and the several instruments defined at the national level to manage and planning coastal zones have proven to be insufficient to promote sustainable use of coastal and marine resources and to protect coastal and marine ecosystems (Van Assche et al., in press). In fact, governance of coastal and marine systems, conceived as socio-ecological zones where anthropogenic activities interact with natural ecosystems (Papatheochari and Coccossis, 2019), is a newly debated issue (Pittman and Armitage, 2016). Moreover, scholars and policy makers do not agree on what are the most effective policies and instruments to promote a multi-scalar and cross-sectoral governance of coastal and marine areas (Álvarez-Romero et al., 2011; Arkema et al., 2015). For example, Ommer et al. (2012, p. 319) call for interdisciplinary science to achieve effective governance, while, according to Clarke et al. (2013), conventional systems of government fail to integrate and coordinate different knowledge, values and interests that characterize coastal and marine zones.

Various studies (among many: Shipman and Stojanovic, 2007; Portman et al., 2012; Rochette and Billé, 2012; Ioppolo et al., 2013) have highlighted the key role of coordination and integration in planning and management of coastal areas. The first concept accounts for the coordination among different authorities in charge of the management and planning of coastal and marine protected areas. These authorities, sometimes corresponding to different tiers of government, characterized by a fragmentation of sectoral skills and competences, must cooperate in order to perform their functions. The second concept concerns the integration among normative, management and planning tools. In fact, coastal areas are often characterized by activities and problems that transcend national borders and competences

¹ The meaning of OECM was provided during the 14th UN Biodiversity Conference, at which all Parties agreed on defining it as “A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values.”



(Ernoul and Wardelle-Johnson, 2015) and by potential conflictual uses (Ramsey et al., 2015). Therefore, integrated management-based approaches represent a prerequisite to promote an effective use of coastal resources, to mitigate conflicts and to protect ecosystems (Ehler, 2003). For example, Giakoumi et al. (2018) identify stakeholder engagement, leadership and political will as factors that may determine the success or the failure of MPA strategies. On the other hand, although a shift in the paradigm of coastal zone governance towards a more collaborative and integrative approach is a consolidated issue in literature, its implementation in practice is problematic (Walsh, 2019).

According to Portman (2016), integration in marine and coastal planning represents both a fundamental principle and a challenge. In fact, “integration connotes the crossing of boundaries”, be they physical (i.e., ecosystems’ or landscape units’ boundaries) or non-material (e.g., between scientific disciplines, professional fields, administrative, or jurisdictional) (Portman, 2016, p. 63). However, the practical implementation of the integration concept (when and how) and its implications in terms of efficiency and validity of the planning and management process remain an under-researched topic (Piwowarczyka et al., 2019).

For example, according to Gee et al. (2019), the implementation of the integration concept within coastal zone management deals with four typologies of challenges: i. multi-scale and transboundary integration; ii. policy and sector integration; iii. stakeholders’ integration; and, iv. knowledge integration.

Multi-scale and transboundary integration concern a two-dimensional form of coordination and collaboration horizontal, conceived as governmental integration between different national norms and regulations, and vertical, defined as integration between different norms and regulation within national borders (Gee et al., 2019; Piwowarczyka et al., 2019). Several authors (for instance: Kidd, 2013; Janßen et al., 2018a, 2018b) suggest that problems concerning planning and management of marine coastal areas require a supranational approach. Building a sound knowledge and understanding of different roles and functions across supranational and national multi-level governance and effective forms of multi-scale communication is still a major challenge (Janßen et al., 2018b). Policy and sector integration



concerns sharing common objectives and concerns (Gee et al., 2019). According to Saunders et al. (2019), this is not a final goal but a means to tackle disagreements and incompatibilities of interests, focus and objectives between policy fields and sectors.

Stakeholders integration concerns the involvement and inclusion of interested significant groups and individuals (Gee et al., 2019). The main challenges concern three questions: i. who should be involved? ii. how should stakeholders be involved? (Saunders et al., 2019), and, iii. how can stakeholders be effective in contributing to issues concerning marine and coastal zone management? (Morf et al., 2017).

Knowledge integration concerns what types of information and data should be included (Gee et al., 2019). The main challenges concern differences in terms of local knowledge and expertise (Van Assche et al., 2017) and, therefore, how to contextualize and generalize the acquired knowledge (Saunders et al., 2019).

Not surprisingly, other interpretations on how to categorize integration types have been put forward (Portman, 2011; Kidd, 2013; Olsen et al., 2014; Jones et al., 2016; Saunders et al., 2019; Smythe and McCann, 2019), and a number of frameworks aiming at assessing how integration is being interpreted in coastal areas planning and management, as well as integration levels and extent, have been proposed.

Portman (2011) proposes an analytical framework whereby integration in marine spatial planning is assessed through a two-dimensional graph whose axes are scale (understood as the physical extent) and scope (referring to “uses or elements of environmental subsystems”) and applies it to three integrated initiatives in Portugal, UK and US. Jones et al. (2016) and Olsen et al. (2014) both use a two-dimensional lens to evaluate integration as well, but the two dimensions are here horizontal (across sectors) and vertical (across tiers of government). Kidd’s (2013) framework, applied to the Irish Sea case, is similar to the previous two (i.e., Jones et al., 2016; Olsen et al., 2014) in that both integration across sectors and integration across/within governments are considered in evaluating coastal and ocean management; in addition, two more dimensions are here introduced: spatial integration (i.e. across the land-sea interface) and science management integration (regarding decision making informed by science, both natural and social). Smythe and McCann (2019) analyze



integration by focusing on governance aspects only and by using a three-dimensional framework (applied to three US case studies, two on the Pacific Ocean and one on the Atlantic Ocean) comprising interagency and intergovernmental integration, stakeholder integration, and knowledge integration, hence their framework is similar to Kidd's one but it leaves the physical (spatial) aspect aside. A five-dimension analytical framework to examine integration is put forward by Saunders et al. (2019), and it includes cross-border, policy/sector, knowledge, stakeholder and temporal integration: therefore, it shares some common features with the previous frameworks, to which it adds the temporal dimension, understood as the forward-looking, future-oriented character of marine spatial planning, in that future needs must be taken into account when defining present policies, leaving room for adaption and flexibility.

Moreover, other studies focus on the so-called ecosystem-based framework, whereby human beings and societies are regarded as parts of ecosystems (Douvere, 2008; Ehler and Douvere, 2009; Foley et al., 2010; Katsanevakis, 2011; Domínguez-Tejo et al., 2016), rather than something external that merely gains benefits from, and produces pressures on, natural ecosystems. Based upon the precautionary principle and the adaptive management principle (Katsanevakis, 2011), the ecosystem-based approach to management is advocated as the only that can deliver sustainable development, with its multiple objectives, and at the same time reduce or prevent conflicts (Douvere, 2008), hence as an optimal approach to marine spatial planning, which has gained strength in the last twenty years (Maestro et al., 2019).

From these perspectives, the conflict between uses in the Mediterranean coastal and marine areas and the consequent necessity of an integrated planning approach have been analyzed and addressed by several official documents. Some of the them are legally binding, such as the Directive 2008/56/EC "Marine Strategy Framework Directive" and Directive 2014/89/EU "establishing a framework for maritime spatial planning" and others are not mandatory, such as the Protocol on integrated coastal zone management in the Mediterranean (ICZM), ratified by the European Council in 2010, and the Bologna Charter.

From the reviewed literature, it emerges that previous studies concerning integration in planning and management of coastal areas have developed various frameworks that have



been applied either to assess integrated initiatives (as in Portman, 2011) or to analyze the degree of integration by looking at a large marine portion as a whole (as in Kidd, 2013), or at statewide marine areas (as in Smythe and McCann, 2019). Such studies do not explicitly address the issue of how to assess integration across a number of compulsory planning tools stemming from the different laws and regulations in force that need to coexist in the same coastal area, in the absence (at least for the time being) of a comprehensive and integrated planning tool that fulfils the various obligations. Hence, in this study we aim to address this research gap by analyzing the level of integration achieved in areas characterized by the coexistence of various nature protection regimes, and, as a consequence, of various planning and regulatory tools; by doing so, this study takes into account the legal constraints on marine spatial planning in MPAs and Natura 2000 sites, which can only be done by preliminarily looking at the understanding of the integration concept underpinning such legal constraints. To this end, in a first phase, legally binding and voluntary tools are analyzed in order to define a conceptual framework to explore and break up the underpinning integration concept. In a second phase, the conceptual framework is applied to two Italian case studies in order to assess the degree of integration among different tools in force in coastal and marine areas. Moreover, this study does not represent an experimental case but presents the results of a case study interpretation.

The study is composed of five sections. The second section describes the methodological approach, the selected case studies, and the materials used for the analysis. The results are presented in the third section and discussed in the fourth, while concluding remarks and future directions of the research are provided in the fifth section.

2. Materials and Methods

2.1. Methodology

In the first phase we conceptualize recommendations and directions concerning integrated management of marine and coastal areas so as to assess (in the second phase) whether, and in what way(s), such integration is implemented at the local level. Our framework is grounded on the analysis and interpretation of the following documents:



- Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive);
- Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning;
- Protocol on Integrated Coastal Zone Management in the Mediterranean;
- European Regions' charter for coastal protection and for the promotion of a network of a European Interregional Observatory for the defence of Mediterranean coasts ("Bologna Charter");
- Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean ("Barcelona Convention");
- Marine Strategy and Blue Growth ("Livorno Charter").

While the first and second are legally binding directives for all of the Countries in the European Union, the third, fourth, fifth, and sixth are voluntary agreements between the contracting parties.

All of the above documents concern marine and coastal areas and provide either compulsory measures or indicative directions for their management. A preliminary reading of the documents was carried out, which led to a list of fragments relating to integration, or combination, or simultaneous consideration of different aspects. Next, the fragments were grouped according to common issues, which enabled the identification of six underlying themes as follows: i. space; ii. institutional and administrative aspects; iii, planning tools; iv. functions and their impacts on the environment; v. environmental resources; vi. social and economic issues. The six themes were subsequently narrowed down to four (by merging the second and third theme, as well as the fourth and fifth), hence four types of integration were elicited, and a conceptual framework was defined, comprising common features, partially overlapping recommendations, and conflicting directions. Therefore, the framework develops on four types of integration, defined as follows.

Spatial integration is here understood as an approach that considers both marine and terrestrial areas and regards them as a single, unified system. This is of particular significance



in coastal areas, at the land-sea interface, and requires an ecosystem approach to resource management (Forst, 2009).

Institutional, administrative and planning integration focuses on the definition and implementation of policies and strategies, also including planning tools. Therefore, this type of integration, concerns coordination and cooperation between different tiers of government (local, regional, national), which entails, among others, communication on, and consensus about, roles and responsibilities of officers and managers from the various administrations involved. According to Álvarez-Romero et al. (2011), this is a “fundamental barrier to integrated land-sea planning”. Consequently, since institutional visions and rules concerning a territory are laid out in planning documents, this typology of integration also looks at interactions and interdependencies between the various (usually sectoral, according to Smith et al., 2011) planning tools and policies in force in the coastal zone. Such integration, currently mostly lacking, is achieved when mechanisms whereby implications of the development of marine spaces on land (and vice versa) (Turner and Essex, 2016) are accounted for and implemented.

Functional and environmental integration take into account the various functions performed on (or by) the land-sea interface (such as biotic and non-biotic resource exploitation, transports, recreation, conservation: Smith et al., 2011; Kerr et al., 2014; Turner and Essex, 2016), their mutual relationships, and their environmental effects and impacts on coastal and marine natural resources, which was a highly debated issue in the Oceans section of Agenda 21 of the 1992 UNCED Conference (Barcena, 1992).

Socio-economic integration relates to coexistence of different economic activities and social interests, hence it also regards inclusion of local communities and the wider civil society, as well as private sector, NGOs and other stakeholders (Roberts and Jones, 2013). Such inclusion is advocated as necessary to successfully tackle the challenges posed by coastal area management by Davos (1998), who argues that effective management of coastal areas depends on stakeholders’ voluntary cooperation and on the ability to incorporate “the public will in a proactive, participatory and conflict minimizing manner”.



Table 1. Conceptual framework, synthetically matching types of integration with legally binding acts and voluntary charters (full details are provided in Appendix 1).

	Directive 2008/56/EC	Directive 2014/89/EU	ICZM Protocol	Bologna Charter	Barcelona Convention	Livorno Charter
Spatial integration	Yes	Yes	Yes	Yes	No	No
Institutional, administrative and planning integration	Yes	Yes	Yes	Yes	Yes	Yes
Functional and environmental integration	Yes	Yes	Yes	Yes	No	No
Socio-economic integration	No	Yes	Yes	Yes	Yes	Yes

Table 1 summarizes the conceptual framework here developed: lines represent the above-listed types of integration, while columns represent legally binding and voluntary documents here analyzed. We scrutinized the documents to look for sentences in which references (either explicit or implicit) to the types of integration were made, so as to elicit the understanding of each type of integration emerging from the documents. Such excerpts are provided in Appendix 1, while Table 1 only provides a synthetic overview (“Yes”: a specific type of integration is referenced to in a document; “No”: a specific type of integration is not present (neither explicitly, nor implicitly, in a document).

2.2. Case study

In this qualitative study, we use a case study approach. According to Denscombe (2003), “case studies focus on one instance (or a few instances) of a particular phenomenon with a view to providing an in-depth account of events, relationships, experiences or processes occurring in that particular instance” (p. 32). Moreover, this approach focuses on relationships and processes rather than on the outcomes due to its holistic character that allows to explain why these results happen (Bryman, 2012). This study aims to assess how integration in marine and coastal planning and management is carried out in the Italian context without having presumption in explaining a general phenomenon; as argued by

Bryman (2012), “it is not the purpose of this research design to generalize to other cases” (p. 71).

Moreover, the study is implemented within the project “GIREPAM–Integrated Management of Ecological Networks through Parks and Marine Areas”, funded by the Interreg Maritime Italy France 2014-2020 program, whose partners are from two countries, Italy and France (the eligibility of the areas being restricted to five regions, Sardinia, Liguria, Tuscany, Corsica, and French Region Sud, formerly Provence-Alpes-Côte d’Azur). In particular, this study analyzes (against the framework summarized in Table 1 and fully presented in Appendix 1) two Italian case studies, selected on the basis of three criteria: first, they are characterized by regulatory and planning tools that that are compulsory and play a key role with regard to integration of voluntary and legally binding tools analyzed in the conceptual framework (see Table 1); second, a number of binding tools (Plan of the Natural Park; Regulation of the MPA; Conservation measures and Management Plan for the Natura 2000 sites) are in force, which results in a high level of complexity of their respective governance frameworks; third, they are located within the Italian regions that are part of the GIREPAM project. In Italy, the three typologies of protected areas (Natural Park, MPA and Natura 2000 site) overlap in five cases only. Beside the two the case studies here selected and analyzed (one in Sardinia and one in Liguria, see Figure 1), a third one is located in Liguria, and the fourth and the fifth in Campania. One of the Ligurian case studies, concerning the Cinque Terre National Park, was not selected because its Plan was revoked by the regional administration in 2010, while Campania is out of the scope of the project as it is not included in the Interreg Maritime Italy France 2014-2020 program cooperation area. Therefore, to put it with Bryman (2012), the two selected case studies represent a critical case, because they represent the most complex Italian examples in terms of overlapping between protected areas.

For the above reasons, the two selected case studies are appropriate to attempt answering the research question that underpins this study, i.e. to investigate the extent to which integration is pursued in areas characterized by the coexistence of various nature protection regimes. While, as already stated previously, and following Bryman (2012) there is no presumption



that the findings from the two cases studies can be generalized, at least three characteristics link the two selected case studies to current research debates, as follows.

First, integrative approaches on coastal and marine resources require spatial protection measures which should be grounded on the ecosystem approach, while at the same time also considering social and economic impacts; hence, according to Braun (2017), MPAs designations and Natura 2000 provisions, although necessary, are not sufficient per se. Second, a general issue underlined in the literature is the lack of a “coherent governance system” (Ehler, 2003) in the management of coastal and marine areas, leading to fragmented competencies and powers shared across a number of governmental agencies, even in the case of MPAs, where an ad-hoc managing body is set up. As highlighted by Zoppi (2018), this calls for virtuous multilevel governance processes and integrated “strategic environmental stepwise assessment approaches”. Third, both scientific advice and stakeholder inputs should be integrated “in a formal and structured way” into MPA planning processes (Muntoni et al., 2019). With reference to the three items above, the two selected case studies could, in principle, show ambivalent features. On the one hand, their being simultaneously MPAs and Natura 2000 sites is expected to lead to implementing an ecosystem approach which however might be unbalanced towards environmental issue; moreover, their being managed by a single organization (one in the Asinara case and one in the Portofino one) is also expected to facilitate integrative processes which should be reflected in their planning and regulatory documents. On the other hand, the managing bodies in charge of the two selected areas share competences with other organizations, hence no prior expectation concerns the governance processes, as well as the incorporation of stakeholder needs and scientific knowledge.

Both the selected case studies are located in the Mediterranean Sea (see Figure 1). In both cases, various natural protected areas, established under different legal frameworks, coexist. As a consequence, such areas are characterized by overlapping (but not identical) objectives. The Sardinian case study comprises Asinara National Park, the Asinara Island MPA, as well as three Natura 2000 sites (two SPAs, ITB010001 “Isola Asinara”, and ITB013011 “Isola Piana di Porto Torres”, and one SAC, ITB010082 “Isola dell’Asinara”). The Ligurian case study comprises the Portofino Natural Regional Park, the Portofino MPA, as well as four



Natura 2000 sites (all of which SACs and the last one is completely marine: IT1332603 “Parco di Portofino”, IT1332614 “Pineta – Lecceta di Chiavari”, IT1332622 “Rio Tuia – Montallegro”, and IT1332674 “Fondali Monte Portofino”).

While in the Sardinian case study we considered all of the Natura 2000 sites that overlap, completely or partially, the National Park and the MPA, in the Ligurian case we only consider those Natura 2000 sites which, as per the legal documents, form an integrated (albeit not spatially contiguous) system, in that the “Fondali Monte Portofino” SAC is managed by the MPA, and the other three SACs are managed by the Regional Park. This entails, among others, that all of the SACs’ conservation measures must be integrated within the two protected areas’ regulations and planning tools. In proximity of these sites lies the SAC IT1332673 “Fondali Golfo di Rapallo”, which, however, is not part of the system because, as per regional decision, it is managed by the Regional Administration and not by either the MPA or the Regional Park. Hence, integration between this SAC’s Conservation measures and the two protected areas’ regulations and planning tools is not straightforward.

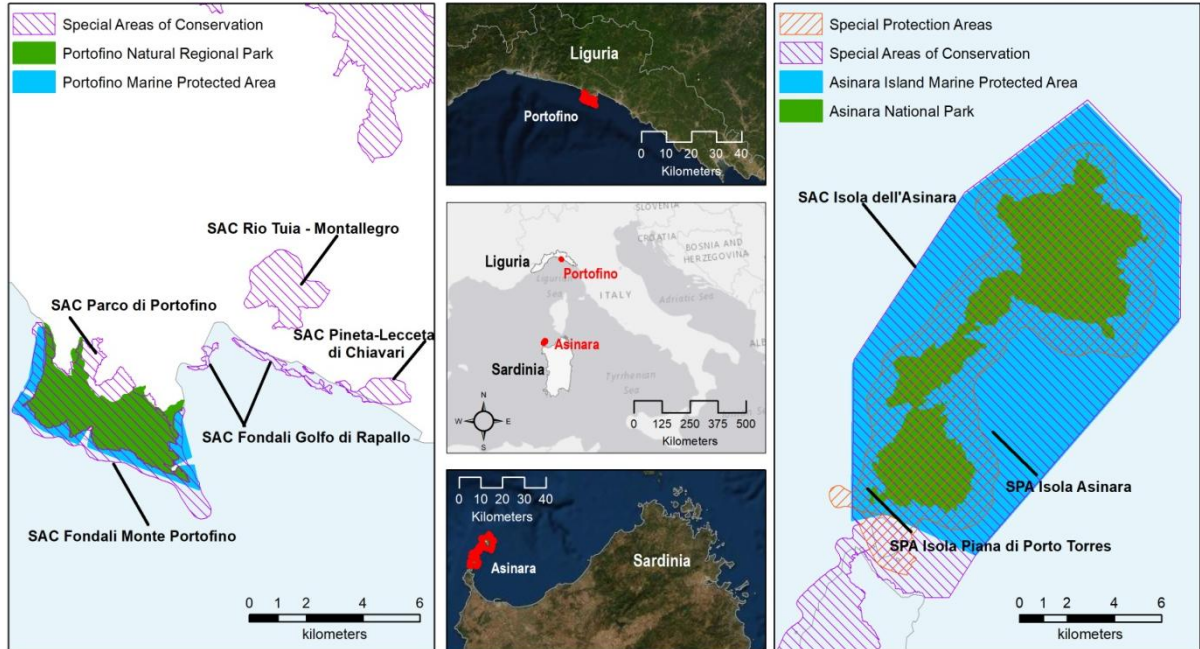


Figure 1. Natural parks, Marine Protected Areas, Natura 2000 sites in the Ligurian (left-hand side) and Sardinian (right-hand side) case studies. Map by the authors (Basemaps: Esri “Imagery” and Esri “Light Canvas”).

2.3. Materials

The conceptual framework in Appendix 1 was next used to analyze planning and management tools in force in the two selected case studies, for which we examined the following documents:

- the Plans of the natural Parks and their Implementation Codes, drafted and approved in compliance with the national law on protected areas (no. 1991/394, article 12 for the Asinara National Park and article 25 for the Portofino Regional Park), aiming at preserving natural and environmental values (and, to a lesser extent, historical, cultural, anthropological, and traditional values) of the natural protected area by controlling land uses. They are legally binding and prevail over any other land use plan or sectoral plan, with two notable exceptions: first, the regional river basin management plan and the flood risk management plan, compliant with the European Water Framework Directive (Directive 2000/60/EC “establishing a framework for community action in the field of water policy”) and Floods Directive (Directive 2007/60/EC “on the assessment and management of flood risks”) respectively, together with their implementing plans (prominently the plan for the natural hazard management, i.e. flooding and erosion), because they ultimately aim at safeguarding human lives; and, second, the regional landscape plan, compliant with the National Code of Cultural Heritage and Landscape (national law no. 2004/42) and the European Landscape Convention, because it aims at preserving communities’ identities and senses of places by ensuring that their distinctive features are protected and managed so as to ensure that heritage values and characteristic features of a landscape are maintained for future generations;
- the national Decrees (1999/04/26 for the Portofino MPA and 2002/08/13 for the Asinara Island MPA) that establish the two MPAs, together with the two regulatory tools (in Italian: “*Regolamenti di Esecuzione e Organizzazione*”, which roughly translates as “Executive and Organizational Regulations”); the latter are compliant with the national law on protected areas (no. 1991/394, articles 18 and 19), and with the national law for the protection of the sea (no. 979/1982, articles 25-27), and



regulate human activities through a zoning scheme ranging from no-take, no-entry areas to areas in which tourism, fishing, and recreational activities are allowed, and subject to the limitations and restrictions provided by the regulatory tools;

- the SAC and the SPA management plans (in the Sardinian case study) together with the general and site-specific conservation measures² (in the Ligurian case study); both management plans and conservation measures are identified, approved, and established under the Habitats Directive and ultimately aimed at ensuring that natural and semi-natural habitats and species of Community interest are restored or maintained at a favorable conservation status.

Each of the above listed documents was analyzed to find out evidences of the integration elements reported synthetically in Table 1 and in detail in Appendix 1.

It has to be pointed out that other studies that propose frameworks to assess integration in marine and coastal planning (e.g. Portman, 2011; Jones et al., 2016; Smythe and McCann, 2019), or identify principles for integrated marine planning (e.g. Dickinson et al., 2010), or assess the integration levels in marine initiatives (e.g. Gee et al., 2019), also rely on documental analysis and/or case study assessment.

3. Results

The full results of the analysis of the planning and regulation documents listed in Section 2.3 concerning the selected case studies against the framework presented in Section 2 is provided in Table 2 (Sardinia, Asinara island) and Table 3 (Liguria, Portofino area).

² The Habitats Directive states that "...Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans..." (article 6). Therefore, the European Commission did not provide strict guidelines on the structure and contents of management plans of Natura 2000 sites. Moreover, the Decree of the President of the Italian Republic no. 357/1997, which implements the Habitats Directive into the national legislative framework, establishes that regional administrations are in charge of defining and implementing conservation measures, but without providing common rules and procedures. Therefore, Italian regional administrations have adopted different approaches. While the Sardinian regional administration established that a management plan must be elaborated for each Natura 2000 site, the Ligurian regional administration defined general conservation measures for all Natura 2000 sites, site-specific conservation measures for each Natura 2000 site in relation to the site peculiarities and established the elaboration of the management plan for some Natura 2000 sites.

In relation to the Sardinian case study, an idea of spatial integration between marine and terrestrial zones is defined only within the Plan of the Natural Park, which recognizes an integrated systemic unit composed by terrestrial and marine areas identified in relation to structural, functional, social and economic peculiarities (article 3 of the Implementation Code). In other words, the Plan of the Natural Park conceives the terrestrial and marine components as a single, unitary ecosystem (article 10). The integration between spatial conservation tools is more common, although not reciprocal. For example, the Plan of the Natural Park refers to Regulation of the MPA, while the SAC and SPA Management Plans refer both to the Plan of the Natural Park, in terms of zoning and conservation measures, and to the regulatory tool of the MPA in relation to the management of specific threats to biodiversity.

As regards institutional, administrative and planning integration, a reference to coordination and/or cooperation between Member States is totally absent, except for the fact that the Pelagos Sanctuary³, an international marine protected area, established for protecting marine mammals, is mentioned in the Management Plans of Natura 2000 sites. On the other hand, references to coordination between different authorities with competences on coastal areas at the national, regional and local levels are more common. For instance, the Plan of the Natural Park provides for agreements between the authority in charge of the management of the Asinara Natural Park, the Sardinian regional administration and the municipality of Porto Torres in order to approve the implementation plans of hamlets (termed “urban units” within the plan) located within the island, and agreements between different institutions in relation to the provisions concerning areas that are not included within the territory of the Natural Park, but are contiguous to it. In relation to the planning implementation tool, article 1 refers to the national Decree that establish the MPA and its Regulation in relation to provisions concerning the marine areas surrounding the National Park, where the Plan takes a purposeful role, rather than a prescriptive one. The relations between the Plan of the Natural

³ The Pelagos Sanctuary for Mediterranean Marine Mammals was established in 1999 through the Pelagos Agreement, an official document signed by France, Italy and the Principality of Monaco in order to coordinate actions and initiatives to safeguard cetaceans and their habitats. The agreement came into effect on 2002.

Park and the other planning tools are addressed by different articles of the Implementation Code, as well. The Plan of the Natural Park is conceived as an overarching, and higher-level in the Italian hierarchical planning system, tool that replaces the other urban, landscape and sectoral planning tools within the park's borders, whereas it represents a tool to address planning decisions in the areas contiguous to the Park. The Management Plans of Natura 2000 sites do not take into account the relations between different protection tools; nonetheless, they make provision for several actions whose implementation entails a close cooperation among different authorities, which, if put into effect, may strengthen the conservation strategies envisioned in these tools. The theme of collaboration between different authorities or institutions in order to guarantee the surveillance and control is present in the Regulation of the MPA and in the Management Plans. Data sharing, scientific research and monitoring represent three key issues. The Plan of the Natural Park provides for the implementation and management of an information system whereby the analyses carried out in the plan-making process should be continuously updated and the effects resulting from actions implemented by other authorities and institutions that have a competence within the Natural Park boundaries should be monitored. Moreover, according to the Management Plans of Natura 2000 sites, the above-mentioned information system must contain an atlas of biodiversity to be integrated within the regional information system. According to the Regulation of the MPA, the monitoring of marine and coastal environment should use datasets and protocols defined by the Ministry of the environment and protection of the territory and the sea, whereas the Management Plans of the Natura 2000 sites promote a broader collaboration with universities in order to define monitoring actions concerning species' and habitats' conservation status. On the other hand, the Regulation of the MPA does not consider the integration among different planning tools.

In relation to functional and environmental integration, maintenance or achievement of a good ecological status of ecosystems through the elimination of factors that may impact negatively on them is made explicit in two objectives of the SAC and the SPA Management Plans. These objectives are purely oriented towards conservation issues, in which “healthy” ecosystems have an intrinsic value, regardless of the services that these ecosystems may



provide to humans. Only the Plan of the Natural Park refers to the ecosystem approach when it introduces the concept of “landscape-environmental units”, which are taken as the spatial reference for the plan’s regulations and are defined as areas characterized by specific natural, ecological, environmental and functional peculiarities and strongly connected through ecological, structural and functional relations. Hence, both the Plan of the Natural Park and the Regulation of the MPA make provisions for a vision that integrates conservation and use of biodiversity, for instance in relation to nature tourism in the first tool and to fish resources in the second. However, in both tools the focus on protection of biological diversity prevails over their potential uses, whereas the theme of the plurality of pressures on coastal areas due to the increasing demand for different, competing uses is not tackled. **Table 2.** Implementing the four-dimensional integration framework: evidences from the Sardinian case study.

Sardinian case study	
<i>Spatial integration</i>	Directive 2008/56/EC
	<p>“In the so-called environmental units, any activities that might compromise the protection of the environment are forbidden [...]; the norm to which such units is subject corresponds to that in force in the MPA as per the national Decree that establishes the MPA” (Plan of the National Park, Implementation code, articles 28-36).</p> <p>“In order to foster responsible fishing schemes within the MPA, the Plan of the National Park introduces the following restrictions [...]” (Plan of the National Park, Implementation code, article 50).</p> <p>The Management Plans for the three Natura 2000 sites contains a number of references to the Plan of the National Park and the Regulation of the MPA: first, they include the National park’s zoning scheme, as well as that of the MPA (page 5); second, some of the conservation measures envisioned in the implementation code of the Plan of the National Park and of the Regulation of the MPA are integrated in the Management Plans (for instance, hunting ban, and intensive or semi-extensive fisheries, page 123); third, the contents and provisions of the Plan of the National Park and of the Regulation of the MPA are described (pages 129-133 and 136-140); finally, one of the conservation measures included in the Management Plans comprises stakeholders’ and tourists’ involvement and information on restrictions in force in the National Park and in the MPA.</p>
	Directive 2014/89/EU
	<p>The Plan of the National Park aims at: “restoring and maintaining, in a dynamic equilibrium, natural, ecologic and environmental aspects pertaining to the unitary and integrated marine and terrestrial system, having regards to its structural, functional, social, and economic peculiarities; [...] preserving both the terrestrial one and the submerged landscapes in their multiple aspects”(Plan of the National Park, Implementation code, article 3).</p>
	ICZM Protocol
<p>The Plan of the National Park aims at: “restoring and maintaining, in a dynamic equilibrium, natural, ecologic and environmental aspects pertaining to the unitary and integrated marine and terrestrial system, having regards to its structural, functional, social, and economic peculiarities; [...] preserving both the terrestrial one and the submerged landscapes in their multiple aspects”(Plan of the National Park, Implementation code, article 3).</p> <p>The Plan of the National Park “applies to the Asinara island, having regard to its terrestrial and marine components which</p>	

	<p>constitute a unitary ecosystem, and to the surrounding area (north-western Sardinia sub-region), which has significant relationships with the Asinara island (Plan of the National Park, Implementation code, article 10).</p> <p>The Management Plans for Natura 2000 sites look comprehensively at the three sites, which comprise both marine and terrestrial habitats, hence they necessarily integrate the terrestrial and marine dimensions.</p>
	Bologna Charter
	<p>The Plan of the National Park aims at: “restoring and maintaining, in a dynamic equilibrium, natural, ecologic and environmental aspects pertaining to the unitary and integrated marine and terrestrial system, having regards to its structural, functional, social, and economic peculiarities; [...] preserving both the terrestrial one and the submerged landscapes in their multiple aspects”(Plan of the National Park, Implementation code, article 3).</p> <p>Since the ITB010001 “Isola Asinara” SAC stretches over land and over the sea, conservation objectives identified in the Management Plans for Natura 2000 sites refer to both the terrestrial and the marine area.</p>
	Directive 2008/56/EC
	<p>The Management Plans for Natura 2000 sites mention twice the Pelagos Sanctuary, a marine area of nearly 90,000 square kilometers in the north-west Mediterranean Sea established for the protection of marine mammals.</p>
	Directive 2014/89/EU
	<p>“The provisional discipline for the MPA [contained in the Decree that establishes it] stays in force [...]. Hence, with reference to the MPA, this Plan is only a propositive and not legally binding tool” (Plan of the National Park, Implementation code, article 1).</p>
	ICZM Protocol
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Institutional, administrative and planning integration</p>	<p>“The Plan identifies, for each parcel of land, both which organization owns them and which organization has institutional competences on it (Plan of the National Park, Implementation code, article 4). “Within the park’s territory, in compliance with article 12 of the national law no. 1991/394, this Plan replaces the regional landscape plan, the province spatial plan, and all of the urban land-use plan and detailed development plans” (Plan of the National Park, Implementation code, article 6).</p> <p>“The Plan is implemented by means of the following tools: [...] partnerships across the various organizations that share competences on the area [...]”(Plan of the National Park, Implementation code, article 11).“In case any municipal land-use plans, or amendments of current ones, or province of regional plans dictate provisions the park’s territory, such plans can only be approved in agreement with the National Park”(Plan of the National Park, Implementation code, article 6).</p> <p>“Detailed development plans for urban areas within the park are drafted by the National Park, or by the Autonomous Region of Sardinia together with the municipality of Porto Torres and the Park itself (Plan of the National Park, Implementation code, article 23)</p> <p>“The area surrounding the park constitutes a lab where institutional stakeholders establish shared ways to cooperate and build together an environmental project for the territory, therefore fostering interactions between said stakeholders” (Plan of the National Park, Implementation code, article 53). “Provisions on the area surrounding the park [...] are to be regarded by the concerned municipalities as mere propositions; such municipalities can, if they wish so, integrate these provisions within their municipal land-use plans” (Plan of the National Park, Implementation code, article 6). “The plan grounds itself on the basic assumption that the environmental excellence of the Asinara island cannot be sustained if one looks at the island only; rather, this is only possible if territorial policies are environmentally oriented in its surrounding area.”(Plan of the National Park, Implementation code, article 51). “To drive local authorities’ actions towards an environmental-oriented view of the surrounding area is a cultural foundation of the Plan” (Plan of the National Park, Implementation code, article art.2).</p> <p>Moreover, “Each subject [in the surrounding area] commits itself to integrate the shared rules and provisions contained in this Plan within its spatial plans and socioeconomic programs” (Plan of the National Park, Implementation code, article 54).</p> <p>“An efficient and viable management model is one where [...] a single entity manages the whole water cycle, by means of cooperation among the involved institutional stakeholders” (Plan of the National Park, Implementation code, article 46).</p>

<i>Functional and environmental integration</i>	<p>“The Manager of the MPA can be the same person as the Director of the National Park” (MPA Regulation, article 5).</p> <p>“Surveillance in the MPA is carried out by the coast guard, as well as by local police. The management body of the MPA can also involve the regional Forestry Corps” (Decree that establishes the MPA, article 7; MPA Regulation, article 28).</p> <p>The Management Plans for Natura 2000 sites contain a conservation measure aiming at strengthening the surveillance capacity of the National Park’s organization, of the coast guard, and of the regional Forestry Corps.</p> <p>The Management Plans for Natura 2000 sites contain a conservation measure fostering cooperation among institutional authorities to implement a number of conservation objectives (preservation of vegetal species, monitoring of marine mammals, monitoring of amphibians and reptiles, surveillance, restoration of buildings).</p>
	<p>Barcelona Convention</p>
	<p>“The Geographic Information System of the National Park is an essential tool to manage environmental resources and processes within the park’s territory, as well as to foster information sharing and cooperation required for social and institutional participation in the park’s management” (Plan of the National Park, Implementation code).</p> <p>The National Park [...] implements and manages The Geographic Information System so as to complete and update spatial analyses and environmental assessments carried out in the preparation of the plan; moreover, it monitors the environmental effects of projects and actions implemented by the National Park by the municipalities, by the province, and by whomever is entitled to act within the park’s boundaries (Plan of the National Park, Implementation code, article 7).</p> <p>“Research programs within the MPA aiming at controlling the quality of marine waters must be carried out in accordance of the Environmental Ministry’s protocols established in the framework of the National program for the monitoring of coastal and marine environment”. “The MPA management body can make use of the Environmental Ministry’s datasets” (MPA Regulation, article 27).</p> <p>The Management Plans for Natura 2000 sites contain a conservation measure titled “Implementation of the Biodiversity Atlas within the park’s Geographic Information System, integrated within the Environmental Regional Information System of the Autonomous Region of Sardinia”.</p>
	<p>Directive 2008/56/EC</p>
	<p>The Management Plans for Natura 2000 sites refer to the Habitats Directive (Directive 92/43/EEC), the Birds Directive (Directive 2009/147/EC) and the Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.</p>
	<p>Directive 2014/89/EU</p>
	<p>Two of the four conservation objectives of the Management Plans for Natura 2000 sites aim at maintaining the island’s ecosystems (there including marine ones) in a favorable conservation status.</p>
	<p>ICZM Protocol</p>
	<p>The Implementation code of the Plan of the National Park caters for preservation of natural and historic assets in their physical, biological, ecological, human, social, and economic integrity, and for the preservation of a relational spatial organization aiming at maintaining natural resources and historical assets (article 2). Moreover (article 10) it structures the National Park into homogeneous areas, termed “landscape-environment units”, pertaining to a certain biocenosis or into territories that can be easily identified for their natural, ecologic, or environmental character.</p> <p>“The Natura 2000 site must become an economic resource for the sustainable development of local communities, where both natural and historical-cultural assets are valorized” (Management Plans for Natura 2000 sites).</p> <p>The plan aims at “preserving vegetal and animal species, vegetal associations, biological communities, as regards structures, functions, and processes at the various spatial and temporal scales; moreover, it preserves geological features, paleontological singularities, natural processes, hydraulic regimes [...]” (Plan of the National Park, Implementation code, article 3).</p> <p>The elements of the hydro-geological, geomorphological, climatic, ecologic and cultural systems are analyzed in detail in the</p>



	<p>Management Plan for Natura 2000 sites.</p> <p>Bologna Charter</p> <p>The Implementation code of the Plan of the National Park (article 3) fosters education, environmental awareness-raising, scientific research, and tourism activities compatible with the park's conservation mission.</p> <p>Strict limits are set on fishing: only small professional fishing and fishing tourism are allowed in "B" and "C" zone types (while they are banned entirely from the "A" zones). Sports fishing is forbidden, as well as trawling (MPA Regulation, articles 18 and 19).</p> <p>"Visitors inflows (70,000 persons per year as of 2012) mainly consist of day visitors, due to the absence of proper tourist accommodation on the island. The Plan of the National Park envisions a management model whereby tourism offer is differentiated, the quality standard is high, and tourism is compatible with conservation of natural resources" (Management Plans for Natura 2000 sites).</p>
Socio-economic integration	<p>Directive 2014/89/EU</p> <p>Management Plans for Natura 2000 sites provide a socio-economic analysis (section 6) and a set of indicators for monitoring socio-economic impacts that would stem from the implementation of the plans (section 11).</p> <p>"The Natura 2000 site must become an economic resource for the sustainable development of local communities, where both natural and historical-cultural assets are valorized" (Management Plans for Natura 2000 sites).</p>
	<p>ICZM Protocol</p> <p>"The Plan is the framework for the actions of whichever subject operating within the park's territory. It is a transparent tool [...] that makes indications and priorities clear for all the involved stakeholders." (Plan of the National Park, Implementation code, article 2).</p> <p>The MPA Regulation lists allowed activities within the protected areas (e.g. scientific research, diving, photo shoots) and for each of them provides the rules, and, when needed, the authorization process (articles 9-20).</p> <p>"On the islands (both Asinara and Isola Piana, no farming or fishing industry is present" (Management Plans for Natura 2000 sites).</p> <p>"Visitors inflows (70,000 persons per year as of 2012) [on Asinara island] mainly consist of day visitors, due to the absence of proper tourist accommodation on the island" (Management Plans for Natura 2000 sites). "Visitor numbers on Isola Piana are much lower because this island can only be accessed using private boats. On this island, no tourism facility is present" (Management Plans for Natura 2000 sites).</p>
	<p>Bologna Charter</p> <p>"The Plan is the framework for the actions of whichever subject operating within the park's territory. It is a transparent tool [...] that makes indications and priorities clear for all the involved stakeholders." (Plan of the National Park, Implementation code, article 2).</p> <p>The Management Plans for Natura 2000 sites contain a conservation measure aiming at involving local communities in the management of the SAC and SPAs (Management Plans for Natura 2000 sites).</p>
	<p>Barcelona Convention</p> <p>The National Park promotes: the establishment of a forum where all relevant subjects are involved, so as to define an environmental and shared strategy for the management of the area surrounding the park; a permanent consultation of local communities so as to identify their needs, define resources that can be used, and identify and manage any conflicts that may arise; the preparation and audit of a report on the state of the environment; a shared vision of the park's objectives and priorities; the preparation of an environmental action plan towards a formal adoption of Agenda (Plan of the National Park, Implementation code, article 57).</p> <p>The Management Plans for Natura 2000 sites contain a conservation measure aiming at involving local communities in the management of the SAC and SPAs (Management Plans for Natura 2000 sites).</p>

	<p>Livorno Charter</p> <p>The National Park promotes: the establishment of a forum where all relevant subjects are involved, so as to define an environmental and shared strategy for the management of the area surrounding the park; a permanent consultation of local communities so as to identify their needs, define resources that can be used, and identify and manage any conflicts that may arise; the preparation and audit of a report on the state of the environment; a shared vision of the park's objectives and priorities; the preparation of an environmental action plan towards a formal adoption of Agenda (Plan of the National Park, Implementation code, article 57).</p> <p>The Management Plans for Natura 2000 sites contain a conservation measure aiming at involving local communities in the management of the SAC and SPAs (Management Plans for Natura 2000 sites).</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

As for socio-economic integration, only the Management Plans of Natura 2000 sites consider social and economic aspects oriented to sustainable growth of the territory and to sustainable use of its resources. The multiple uses of coastal areas and their integration are considered both in the Plan of the Natural Park, where they represent a reference framework to orient, plan and implement actions to be carried out by authorities and institutions that have competences within Park's borders (article 2 of the Implementation Code), and in the Management Plans of Natura 2000 sites, where, however, they are analyzed only in descriptive terms. Although the participation of local communities and stakeholders is foreseen in both the Plan of the Natural Park and in the Management Plans of Natura 2000 sites, their involvement takes the form of a consultation in the first tool and of mere information in the second, rather than that of a real participation.

In relation to the Ligurian case study and with reference to spatial integration, the management tools of the MPA (i.e., the national Decree that establishes the MPA and its Regulation) do not take into account any consideration defined within the conceptual framework. However, the Plan of the Natural Park and the SACs Conservation measures (be it general or site-specific) consider the integration between conservation goals and management measures. In particular, both tools promote an integrated management of SACs and the Regional Park. The Plan of the Natural Park focuses only on a functionally integrated management, whereas the site-specific Conservation measures promote the elaboration of an integrated management plan with the Plan of the Natural Park.

As regards institutional, administrative and planning integration, nearly all of the tools define relations and mechanisms for cooperation between the authority in charge of the



management of the site and the other authorities and institutions that have competences within the site borders. In particular, the Regulation of the MPA establishes and regulates roles and responsibilities of its management bodies. In relation to the effectiveness of control activities over the sea and coasts, although most tools make provisions for surveillance and monitoring activities, only the site-specific Conservation measures concerning the marine SAC explicitly promote coordination between port authorities and regional administration in order to prevent unauthorized trawling. Moreover, the Plan of the Natural Park is conceived as a tool that integrates measures and rules established by regional, provincial and local planning, whereas the site-specific Conservation measures promote the integration between provisions of Management Plans and the Plan of the Natural Park.

In relation to functional and environmental integration, all tools refer to the integration of objectives and strategies deriving from higher-level laws and directives that regulate specific environmental aspects within the protected areas borders. For example, the Regulation of the MPA defines the characteristics of boat engines by making explicit reference to the criteria established by the Directive 2003/44/EC concerning noise and gas emissions. The general Conservation measures of terrestrial SACs are more forward-looking and establish characteristics that future Management Plans and site-specific Conservation measures must have in terms of normative consistency. For example, they establish that Management Plans must integrate measures concerning the reduction of the risk caused by the use of plant protection products (Italian Decree 22 January 2014 concerning the adoption of the National Action Plan for the sustainable use of plant protection products). All of the tools make reference to the ecosystem approach, ecosystem services and to the effects of climate change. Although the management tools of the MPA and the Plan of the Natural Park do not explicitly refer to an integrated approach to plan and manage these areas by governing its multiple functions, they do regulate activities and their interactions within their reference sites and therefore they integrate different uses to balance human activities in coastal areas with protection and conservation of biodiversity objectives. Only site-specific Conservation measures explicitly promote an integrated approach.



Table 2. Implementing the four-dimensional integration framework: evidences from the Ligurian case study.

Ligurian case study	
<i>Spatial integration</i>	Directive 2008/56/EC
	The Plan regulates the areas included within the park's borders and the three terrestrial Natura 2000 sites (Plan of the Regional Park).
	The Plan aims at managing Natura 2000 sites and the regional park according to a functional integration (Plan of the Regional Park).
	MP and Plan of the natural park should be integrated (Site-specific conservation measures related to each Natura 2000 site analyzed).
	Directive 2014/89/EU
	The Plan aims at promoting an integrated image of the regional park with Natura 2000 sites in order to enhance the whole territorial system (Plan of the Regional Park).
	Bologna Charter
The Plan aims at managing Natura 2000 sites and the regional park according to a functional integration (Plan of the Regional Park).	
<i>Institutional-administrative integration</i>	ICZM Protocol
	Article no. 7 establishes roles and relationships between the authority in charge for the management of MPA and the Ministry of the environment, land and sea in relation to the elaboration and approval of the regulatory tool (national Decree that establish the MPA).
	Articles nos. 4, 5, 6 and 7 establish roles and responsibilities of management bodies and define relations and mechanisms for cooperation between the authority in charge of the management of the site and the other authorities and institutions that have competences within the site borders (Regulatory tool of the MPA).
	Article no. 4 defines relations and mechanisms for cooperation between the authority in charge of the management of the site and the other authorities and institutions that have competences within the site borders (Plan of the Regional Park; site-specific conservation measures concerning the three terrestrial Natura 2000 sites).
	The Plan is conceived as a tool that integrates measures and rules established by regional, provincial and local planning (Plan of the Regional Park).
	Provisions of MPs and the Plan of the natural Park should be integrated (site-specific conservation measures related to each Natura 2000 site analyzed).
	Livorno Charter
Surveillance and monitoring activities are defined (Regulatory tool of the MPA; general conservation measures concerning terrestrial SACs; site-specific conservation measures concerning Natura 2000 sites).	
Coordination between port authorities and regional administration in order to prevent unauthorized trawling is promoted (site-specific conservation measures concerning the marine Natura 2000 sites).	
<i>Functional and environmental</i>	Directive 2008/56/EC
	Objectives and strategies deriving from higher-level laws and directives that regulate specific aspects within the protected areas borders should be integrated (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs; site-specific conservation measures related to each Natura 2000 site analyzed).
	Characteristics of boat engines concerning noise and gas emissions must be compatible with those established by the

	<p>Directive 2003/44/EC (Regulatory tool of the MPA).</p> <p>MPs must integrate measures concerning the reduction of the risk caused by the use of plant protection products (Italian Decree 22 January 2014 concerning the adoption of the National Action Plan for the sustainable use of plant protection products) (General conservation measures concerning terrestrial SACs).</p> <p>General conservation measures must be integrated with site-specific conservation measures and MPs, if planned (General conservation measures concerning terrestrial SACs).</p>
	<p>Directive 2014/89/EU</p> <p>Activities, uses, and their interactions are regulated in order to balance human activities in coastal areas with protection and conservation of biodiversity objectives (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs).</p> <p>MP and Plan of the natural park should be integrated (Site-specific conservation measures related to each Natura 2000 site analyzed).</p>
	<p>ICZM Protocol</p> <p>Protected areas should be managed so as to take into account significant issues such as climate change (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs; site-specific conservation measures related to each Natura 2000 site analyzed).</p> <p>Activities uses and their interactions are regulated in order to balance human activities in coastal areas with protection and conservation of biodiversity objectives (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs; site-specific conservation measures related to each Natura 2000 site analyzed).</p>
	<p>Bologna Charter</p> <p>Activities, uses, and their interactions are regulated in order to balance human activities in coastal areas with protection and conservation of biodiversity objectives (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs).</p>
Socio-economic integration	<p>Directive 2014/89/EU</p> <p>The manager of the protected area should promote a socio-economic development of the territory in line with the natural and landscape value of the protected area (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs).</p> <p>The Plan defines nine regulatory annexes that regulate environmental, economic and social components. Each of them tackles a specific management issue and in particular: i. Regulation on regeneration of the building heritage; ii. Regulation on vegetation intervention; iii. Regulation on waters and springs; iv. Regulation on accessibility; v. Regulation on agricultural activities; vi. Regulation on fauna; vii. Regulation of fruition of the area; viii. Regulation on environmental protection; and, ix. Regulation on coastal areas and beach operators (Plan of the Regional Park).</p>
	<p>ICZM Protocol</p> <p>Activities, uses, and their interactions are regulated in order to balance human activities in coastal areas with protection and conservation of biodiversity objectives (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs; site-specific conservation measures related to each Natura 2000 site analyzed).</p>
	<p>Bologna Charter</p> <p>The director of the MPA should develop socio-economic projects through the use of private and public funds (national and EU) (Regulatory tool of the MPA),</p>
	<p>Livorno Charter</p>

Information and education campaigns are defined and promoted in order to spread ecological knowledge among local communities and potential users of the territory (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs; site-specific conservation measures related to each Natura 2000 site analyzed),
ICZM Protocol
Protected areas should be managed in order to taking into account significant issues such as climate change (national Decree that establish the MPA; Regulatory tool of the MPA; Plan of the Regional Park; general conservation measures concerning terrestrial SACs; site-specific conservation measures related to each Natura 2000 site analyzed).

Finally, as regards socio-economic integration, all of the tools promote the territory's socio-economic development in line with the natural and landscape value of their protected areas. The Plan of the Natural Park regulates environmental, economic and social components by defining nine regulatory annexes; each of them tackles a specific management issue, such as the Regulation on agricultural activities, or the Regulation on coastal areas and beach operators. All tools define and promote information campaigns in order to spread ecological knowledge among local communities and potential users of the territory.

4. Discussion

The results from the analysis here presented highlight some common aspects across the two case studies, but also some distinctive features.

As for spatial integration, this is somewhat tackled in both case studies, although only the Ligurian documents explicitly mention future integration between conservation objectives and measures and set up spatial protection measures (namely, on the one hand, conservation measures and Management Plans for the Natura 2000 sites, and on the other hand the Plan of the Natural Park on land and the MPA Regulation at sea). This is probably due to differences in the normative choices between the two Italian regions. As for Liguria, with the Rural Development Programme Liguria 2007-2013, Measure 3.2.3, Action A1, "management plans for Natura 2000 sites, natural parks, and other areas of outstanding natural value" and with the Resolution of the Regional Executive no. 1400/2011, the regional government allocated funds for the preparation of Management Plans for SCIs and SACs managed by natural (both national and regional) parks or by the regional government itself. To this end,



public bodies in charge of natural parks with old planning tools that needed updating and that overlapped Natura 2000 sites, used such funds to prepare integrated planning tools, among which the Plans of the natural parks “Alpi Liguri”, “Antola”, “Aveto”, and “Beigua”. On the other hand, in Sardinia only Management Plans for SCIs, SPAs, and SACs were funded, none of which integrated into Plans for the Natural Parks or Regulation for MPAs. Moreover, in both the case studies a spatially integrated marine-terrestrial system is almost never mentioned, the only exception being the Plan of Asinara National Park; this signals the lack of a unitary vision, widely acknowledged in the literature (Tsilimigkas and Rempis, 2017), and most likely originates from sectoral characteristics of the analyzed planning and regulatory tools, prominently MPA Regulations, which exclusively focus on marine areas.

With reference to institutional, administrative and planning integration, the theme of coordination and/or cooperation is highly relevant in both cases, as detailed provisions can be found concerning coordination between national, regional, and local institutions sharing competences on coastal areas. Such diversity in governance systems is deemed, in the literature, as key to resilience in marine protected areas (Jones et al., 2013) rather than a problem to tackle by concentrating competences in one institution and some successful examples are reported (Day and Dobbs, 2013). Among matters on which coordination is deemed necessary, and problematic, the construction of shared data bases to address the so-called “knowledge deficit” (Gazzola et al., 2015), prerequisite to develop sound environmental policies, which is only present in the Asinara case study and not made clear in the Portofino one. For what concerns the implementation of policies and strategies through planning tools, shared features emerge from the two case studies: most of the planning and regulatory documents here analyzed do mention the other documents in force in the same area; however, full integration is not made clear (let alone implemented), but for the site-specific Conservation measures in the Portofino case, which call for integration between, on the one hand, the management plans (to be prepared yet) for Natura 2000 sites and, on the other hand, either the plan of the natural park or the MPA regulation. According to Soriani et al. (2015) coastal areas are characterized by uncoordinated legislation due to a fragmentation of roles and responsibilities at the national, regional and local level. Therefore, a change in



governance models is necessary in order to go beyond short-term perspectives that address socio-economic interests.

Concerning functional and environmental integration, an integrated vision of the several overlapping systems and functions is almost never made explicit, the only exception being site-specific Conservation measures in the Ligurian case study, which provide directions for a desired, integrated approach to planning and management of the sites. Since they establish clear regulations concerning activities, uses, and their interactions, all of the documents provide an analysis of human activities so as to balance uses on land and at sea that can, in principle, be harmful to the environment with biodiversity conservation and protection. In this respect, Portofino site-specific Conservation measures are the only documents, among those analyzed in this study, that explicitly promote an integrated approach. The issue of functional integration may represent a key problem to address integration. In fact, it reflects the theoretical discussion on soft versus hard sustainability. Soft sustainability focuses on economic development of coastal and marine areas, where conservation has not a privileged role. To the contrary, the hard sustainability conceives conservation as a pillar of coastal and marine planning and therefore planning actions should be oriented to achieve a good environmental quality (Piwowarczyka et al., 2019). Such low consideration for the multiple functions performed by the two areas reflects in a general neglect of the ecosystem approach, explicitly declared and taken as a reference point only within the Plan of the Asinara National Park, but never acknowledged in any of the Portofino documents. According to Kirkfeldt (2019) concepts such as the ecosystem-based approach, the ecosystem-based management and the ecosystem approach intend to implement an ecosystem viewpoint within coastal and marine planning. However, these commonly used concepts are rarely effectively implemented within planning processes (Sardà et al., 2015) due to a lack of clear definition and strategies on how to operationalize such concepts in real cases (Jay et al., 2016).

As regards socio-economic integration, all of the documents concerning the Sardinian case study tackle the multiple economic uses and activities in coastal areas. In the Portofino case, the Plan for the Natural Park, with its nine regulatory annexes, provides a more detailed discipline than the other tools. Such difference can be explained by looking at dissimilarities



between the two case studies: while a management plan is in place for all of the Sardinian Natura 2000 sites here considered, such management plans, albeit contemplated, are not in place yet in the Ligurian Natura 2000 sites, where only general and site-specific conservation measures have been approved so far. Moreover, although in both cases participation of local communities and stakeholders is foreseen in all of the documents we examined, as a matter of fact in none of them participation translates as a process in which local communities can effectively play an active role and rise to positions of responsibility. This holds true for most part of planning processes, as participation is often regarded as a formal, statutory accomplishment rather than as something that can create an added value in terms of knowledge, shared goals and plan actions (Cooke and Kothari, 2001; Innes and Booher, 2004).

5. Conclusions

In this study, we have attempted to assess the level of integration emerging from planning documents in coastal and marine areas characterized by the coexistence of overlapping nature protection regimes, where a number of compulsory planning tools need to coexist, hence taking into account the legal constraints on marine spatial planning in MPAs and Natura 2000 sites. For this reason, after reviewing relevant literature that explores the integration concept and assesses it through multi-dimensional frameworks and other approaches (such as the ecosystem-based framework), a four-dimensional framework (comprising spatial integration, institutional, administrative and planning integration, functional and environmental integration, socio-economic integration) was here developed based upon legally-binding acts and voluntary agreements in force in the Mediterranean area. The framework was next applied to two case studies, showing that the various planning and regulatory tools here analyzed are more concerned with complying each with its own normative framework rather than with contributing towards building an integrated approach to coastal and marine area management. This can partly be attributed to the multilayered, and complex, Italian framework, where several categories of protected areas (natural parks,



having either national or regional significance, marine protected areas, Natura 2000 sites, natural reserves, Ramsar sites, to name the most important ones) coexist, each stemming from its own legal act (e.g., a national law, a regional law, or a European directive), and each pursuing its own mission and objectives. Lack of a unitary legal framework has led to overlapping planning and regulatory tools in force in areas that are subject to a number of protection regimes, as the two case studies have shown.

Apart from such common aspects, some differences between the two case studies have been highlighted and can be traced back to regional disparities in the way Italian regions, to which the national state devolved competences on the management of Natura 2000 sites, interpret their roles and the duties and tasks stemming from the Habitats Directive (Lai, 2020).

The framework here proposed makes it possible to compare, under a multidimensional lens, how various planning and regulatory tools in force in the same area pursue integration. Precisely because it is designed to assess “ex post” such tools, the method allows protected area managers, planners, and decision makers to critically examine the very provisions on which activities are framed and regulated in their protected areas, hence stimulating reflections on weak areas that could possibly be strengthened when revising their regulations and plans. In this respect, the work by Zoppi (2018), which puts forward a method to integrate Natura 2000 conservation measures into MPAs regulations, could be taken as a starting point to address the issue of scarce institutional, administrative, and planning integration. Moreover, some scholars have proposed models, experiences, and approaches that promise to deliver a high level of integration in decision-making processes, for instance by making use of new tools envisioned by the European Union, such as the Integrated Territorial Investment (Garcia-Ayllon, 2018), through participatory mechanisms. Similar collaborative approaches are advocated, among others, by Gillgren et al. (2019), and on such basis a revised Systems Approach Framework has been implemented, to develop scenarios that are meant to help decision makers translate into practice the concepts of integrated coastal zone management (Inácio and Umgieser, 2019; Støttrup et al., 2019). Such approaches are faced with what Billè (2008) has termed “the four entrenched illusions” concerning integrated coastal zone management, most prominently the belief that



participative processes and consensus building can bring about success. Great expectations are also being placed, as far as decision making processes are concerned, also on the full implementation of the Marine Spatial Planning Directive (Qiu and Jones, 2013; Olsen et al., 2014; Smythe and McCann, 2019), which is one of the binding documents which was used in this study to develop the framework against which the two case studies were assessed.

To the best of our knowledge, the proposed four-dimensional framework here developed is a novel approach to framing integration, in that the dimensions that compose the framework are not predefined (hence, there is no a-priori theoretical assumption of what integration is about), but rather they emerge from the wording of acts and voluntary agreements concerning the Mediterranean Sea Basin. Hence, the significance of the method, rather than relying on the four types of integration here chosen, is to be found in the fact that in developing the framework we elicited how each dimension of integration is understood in high-level documents valid across the Mediterranean basin; next, when applied to the case studies, such conceptualization of each dimension is looked for in a number legally-binding plans and regulation that concern a certain area. Therefore, the methodology here proposed shows some tracts that can be common across the European countries belonging to the Mediterranean Basin. On the other hand, the implementation of the framework is strongly influenced by the reference context characterized by country-specific legally-binding plans and regulations.

From this perspective, the significance of the method can be generalized in spatial contexts located outside Italy. Indeed, the methodology here proposed and applied can easily be replicated in other coastal and marine protected areas in the north Mediterranean region, since the conceptual framework was developed building on recommendations and directions concerning integrated management of coastal and marine areas contained in legally binding acts and voluntary charters and documents ratified by countries belonging to the European Union.

Further research is needed to test whether the framework can be applied to non-EU countries in the south Mediterranean region (from Morocco to the west to Turkey to the east), and what modifications or integrations are necessary to account for the different legal frameworks



concerning nature protection and management of coastal and marine protected areas. From this point of view, the methodology is characterized by a certain degree of flexibility that allows for additional typologies of integration and/or for further recommendations and directions contained in other documents that may include planning traditions and institutional and administrative framework that characterized non-EU countries.

Finally, a limitation of this study that should be taken into account in directions for future research concern the assessment of the integration level emerging from planning documents only through the analysis of these documents without involving appropriate stakeholders, such as regional officials and protected areas managers, that may provide different perspectives in relation to problems concerning the theme of integration in coastal and marine areas.

Acknowledgements: The study was implemented within the Research project based on the Agreement between Dipartimento di Ingegneria Civile, Ambientale e Architettura (Department of Civil, Environmental Engineering and Architecture, DICAAR) of the University of Cagliari, Italy, and the Autonomous Region of Sardinia, Departmental Office of Environment Protection, finalized to the objectives of the Project “GIREPAM–Integrated Management of Ecological Networks through Parks and Marine Areas” (Programme INTERREG Marittimo Italy-France Maritime 2014–2020, Axis 2).



Appendix 1

This appendix presents in full the conceptual framework developed to analyze how integration is understood in planning and management tools in force in overlapping protected areas.

While a synthesis is provided in the main body of the article (Table 1), here full excerpts from the six legally binding acts and voluntary charters examined are reported, split into two tables for the sake of legibility.

Abbreviations used are as follows:

SI: Spatial integration

IAPI: Institutional, administrative and planning integration

FEI: Functional and environmental integration

SEI: Socio-economic integration

Accepted manuscript

Conceptual framework, part 1: legally binding acts

	Directive 2008/56/EC	Directive 2014/89/EU	ICZM Protocol
SI	Integration of conservation objectives, management measures and monitoring and assessment activities set up for spatial protection measures (such as SPAs, SACs and MPAs).	Consideration of land-sea interactions.	Integration between the marine and terrestrial areas forming a single entity.
I-API	Coordination between Member States [...] as regards to measures or even a common plan of action Coordination between Member States and third countries having sovereignty or jurisdiction over waters in the same marine region or subregion.	Trans-boundary cooperation between Member States bordering marine waters to ensure coherence between their maritime spatial plans Cooperation with third countries. Promoting maritime spatial planning as a cross-cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated and trans-boundary approach. Maritime spatial planning can help determining orientations related to sustainable and integrated management of human activities at sea, preservation of the living environment, the fragility of coastal ecosystems, erosion and social and economic factors. Maritime spatial planning should aim to integrate the maritime dimension of some coastal uses or activities and their impacts and ultimately allow an integrated and strategic vision. Member states shall promote coherence between maritime spatial planning and the resulting plan or plans and other processes, such as integrated coastal management or equivalent formal or informal practices and other relevant processes.	Coordination between all decisions by the public authorities, at the national, regional and local levels, which affect the use of the coastal zones. Institutional coordination [...] in order to avoid sectoral approaches and facilitate comprehensive approaches. Cooperation between competent [...] authorities to strengthen the coherence and effectiveness of the coastal strategies, plans and programmes established. Cross-sectorally institutional coordination of the various administrative services at regional and local levels. Coordination between the various authorities competent for both the marine and the land parts of coastal zones. Coordination between national authorities and regional and local bodies in the field of coastal strategies, plans and programmes.

Directive 2008/56/EC	Directive 2014/89/EU	ICZM Protocol
<p>Integration of environmental considerations into relevant policy areas.</p> <p>Promoting integration of environmental consideration into other policies.</p> <p>FEI Coherence between, and integration of environmental concerns into, the different policies, agreements and legislative measures which impact on the marine environment.</p>	<p>Integrated planning and management approach to deal with the multiple pressures on coastal resources and the high and rapidly increasing demand for a maritime space for different purposes, such as installations for the production of energy from renewable sources, oil and gas exploration and exploitation, maritime shipping and fishing activities, ecosystem and biodiversity conservation, the extraction of raw materials, tourism, aquaculture installations and underwater cultural heritage.</p> <p>Integration of healthy marine ecosystems and their multiple services that can deliver substantial benefits in terms of food production, recreation and tourism, climate change mitigation and adaptation, shoreline dynamics control and disaster prevention within planning decisions</p>	<p>Taking into account of all elements relating to hydrological, geomorphological, climatic, ecological, socioeconomic and cultural systems in an integrated manner.</p> <p>Balanced allocation of uses throughout the entire coastal zone.</p> <p>Implementation of the ecosystems approach to coastal planning and management in order to ensure the sustainable development of coastal zones.</p> <p>Integration between the environment and landscapes on the one hand and economic, social and cultural development on the other hand.</p>
<p>SEI ---</p>	<p>Taking into account of environmental, economic and social aspects, as well as safety aspects.</p> <p>Implementation of an ecosystem approach in order to promote a sustainable development of coastal and maritime economies and a sustainable use of coastal and marine resources.</p>	<p>Taking into account of the multiplicity and diversity of activities in coastal zones.</p> <p>Taking into account of the relevant interactions of activities and uses.</p>

Conceptual framework, part 2: voluntary charters

	Bologna Charter	Barcelona Convention	Livorno Charter
SI	Integration between the objectives of management of land, water and living resources.	---	---
IAPF	Integrated modelling tools, monitoring systems, data management and decision support systems.	Cooperation between the contracting parties in relation to: complementary or joint programmes for pollution monitoring in the Mediterranean Sea Area; aspects in the fields of science and technology and to exchange data as well as other scientific information for the purpose of this Convention; [...] the formulation and adoption of appropriate rules and procedures for the determination of liability and compensation for damage resulting from pollution of the marine environment.	High level of institutional coordination and synergies in relation to sea issues also in Italy in order to make national strategies on sustainability more effective. Coordination and effectiveness of surveillance activities in the sea and along the coast in order to obtain unitary standards and adequate levels of scientific and functional monitoring activities.
FEI	Appropriate balance between, and integration of, conservation and use of biological diversity.	---	---
SEI	Coordination between public and private initiatives which affect the use of the coastal zone.	Taking into account of all forms of relevant information, including scientific indigenous and local knowledge. Appropriate governance allowing adequate and timely participation in a transparent decision-making process by local populations and stakeholders.	Promoting the empowerment of responsibilities and the participation of coastal communities. Implementation of interventions for participation and communication of all involved actors in relation to the marine environment strategy.

References

- Álvarez-Romero, J.G.; Pressey, R.L.; Ban, N.C.; Vance-Borland, K.; Willer, C.; Klein, C.J.; Gaines, S.D.; Integrated land-sea conservation planning: the missing links. *Annu. Rev. Ecol. Evol. Syst.* **2011**, *42* (1), 381–409. <https://doi.org/10.1146/annurev-ecolsys-102209-144702>.
- Arkema, K.K.; Verutes, G.M.; Wood, S.A.; Clarke-Samuels, C.; Rosado, S.; Canto, M.; Rosenthal, A.; Ruckelshaus, M.; Guannel, G.; Toft, J.; Faries, J.; Silver, J.M.; Griffin, R.; Guerry, A.D. Embedding ecosystem services in coastal planning leads to better outcomes for people and nature, *PNAS* **2015**, *112* (24), 7390–7395. <https://doi.org/10.1073/pnas.1406483112>.
- Barcena, A. An overview of the Oceans in Agenda 21 of the 1992 United Nations Conference on environment and development. *Marine Pollution Bulletin* **1992**, *25*, 107–111. [https://doi.org/10.1016/0025-326X\(92\)90197-E](https://doi.org/10.1016/0025-326X(92)90197-E).
- Braun, D. Marine Protected Areas as spatial protection measures under the Marine Strategy Framework Directive. In Goriup, P.D. (Ed.) *Management of Marine Protected Areas: A Network Perspective* **2017**, Chichester, UK: Wiley & Sons Print. ISBN:9781119075776, Online ISBN:9781119075806. <https://doi.org/10.1002/9781119075806>. Pages 89–101.
- Bryman, A. *Social Research Methods*, 4th ed.; Oxford University Press: New York, USA, 2012.
- Clarke, B.; Stocker, L.; Coffey, B.; Leith, P.; Harvey, N.; Baldwin, C.; Baxter, T.; Bruekers, G.; Danese Galano, C.; Good, M.; Haward, M.; Hofmeester, C.; Martins De Freitas, D.; Mumford, T.; Nursey-Bray, M.; Kriwoken, L.; Shaw, J.; Shaw, J.; Smith, T.; Thomsen, D.; Wood, D.; Cannard, T. Enhancing the knowledge governance interface: coasts, climate and collaboration. *Ocean Coast Manag.* **2013**, *86*, 88–99. <https://doi.org/10.1016/j.ocecoaman.2013.02.009>.
- Cooke, B.; Kothari, U. *Participation: the New Tyranny?*; Zed Books: London, UK, 2001.
- Davos, C.A. Sustaining co-operation for coastal sustainability. *J Environ Manage* **1998**, *52*, 379–387. <https://doi.org/10.1006/jema.1998.0186>.
- Day, J.C.; Dobbs, K. Effective governance of a large and complex cross-jurisdictional marine protected area: Australia's Great Barrier Reef. *Mar Policy* **2013**, *41*, 14–24. <https://doi.org/10.1016/j.marpol.2012.12.020>.
- Denscombe, M. *The Good Research Guide for Small-scale Social Research Projects*, 2nd ed.; Open University Press: Maidenhead, Philadelphia USA, 2003.
- Dickinson, M.; Rutherford, M.; Gunton, T. Principles for integrated marine planning: A review of international experience. *Environments* **2010**, *37*, 21–46
- Domínguez-Tejo, E.; Metternicht, G.; Johnston, E.; Hedge, L. Marine Spatial Planning advancing the Ecosystem-Based Approach to coastal zone management: A review. *Mar. Policy* **2016**, *72*, 115–130. <https://doi.org/10.1016/j.marpol.2016.06.023>.
- Douvere, F. The importance of marine spatial planning in advancing ecosystem-based sea use management. *Mar. Policy* **2008**, *32*, 762–771. <https://doi.org/10.1016/j.marpol.2008.03.021>.
- Ehler, C.; Douvere, F. *Marine Spatial Planning: a Step-by-step Approach toward Ecosystem-based Management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. UNESCO, Paris, France, 2009.*



- Ehler, C.N. Indicators to measure governance performance in integrated coastal management. *Ocean Coast. Manage.* **2003**, *46*, 335–345. [https://doi.org/10.1016/S0964-5691\(03\)00020-6](https://doi.org/10.1016/S0964-5691(03)00020-6).
- Engelbert, A.; Collet, I. *Coastal regions: People Living Along the Coastline and Integration of NUTS 2010 and Latest Population Grid*, 2013. Available online: https://webgate.ec.europa.eu/maritimeforum/system/files/Sif_coastal%20regions_07Nov2013.pdf (accessed on 20 November 2019).
- Ernoul, L.; Wardelle-Johnson, A. Environmental discourses: Understanding the implications on ICZM protocol implementation in two Mediterranean deltas. *Ocean Coast. Manage.* **2015**, *103*, 97–108. <https://doi.org/10.1016/j.ocecoaman.2014.11.014>.
- European Commission. Natura 2000. Key drivers of success for Natura 2000. *Nature and Biodiversity Newsletter* **2019**, n. 45, February. http://ec.europa.eu/environment/nature/info/pubs/docs/nat2000newsl/nat45_en.pdf (accessed on 20 November 2019).
- European Environmental Agency. *Balancing the Future of Europe's Coasts. Knowledge Base for Integrated Management. Report no. 12/2013*, Publications Office of the European Union: Luxembourg, 2013. Available online: <https://www.eea.europa.eu/publications/balancing-the-future-of-europes> (accessed on 20 November 2019).
- Foley, M.M.; Halpern, B.S.; Micheli, F.; Armsby, M.H.; Caldwell, M.R.; Crain, C.M.; Prahler, E.; Rohr, N.; Sivas, D.; Beck, M.W.; Carr, M.H.; Crowder, L.B.; Duffy, J.E.; Hacker, S.D.; McLeod, K.L.; Palumbi, S.R.; Peterson, C.H.; Regan, H.M.; Ruckelshaus, M.H.; Sandifer, P.A.; Steneck, R.S. Guiding ecological principles for marine spatial planning. *Mar. Policy* **2010**, *34*, 955–966. <https://doi.org/10.1016/j.marpol.2010.02.001>.
- Forst, M.F. The convergence of Integrated Coastal Zone Management and the ecosystems approach. *Ocean Cost Manage* **2009**, *52*, 294–306. <https://doi.org/10.1016/j.ocecoaman.2009.03.007>.
- Gabrié, C.; Lagabrielle, E.; Bissery, C.; Crochelet, E.; Meola, B.; Webster, C.; Claudet, J.; Chassanite, A.; Marinesque, S.; Robert, P.; Goutx, M.; Quod, C. *The Status of Marine Protected Areas in the Mediterranean Sea, MedPAN and RAC/SPA*, 2012. Available online: http://www.rac-spa.org/sites/default/files/doc_medmpanet/final_docs_regional/5_status_of_marine_protected_areas_in_the_mediterranean_2012.pdf (accessed on 20 November 2019).
- Garcia-Ayllon, S. The Integrated Territorial Investment (ITI) of the Mar Menor as a model for the future in the comprehensive management of enclosed coastal seas *Ocean Cost Manage* **2018**, *166*, 82–97. <https://doi.org/10.1016/j.ocecoaman.2018.05.004>.
- Gazzola, P.; Roe, M.H.; Cowie, P.J. Marine spatial planning and terrestrial spatial planning: reflecting on new agendas. *Environ Plann C* **2015**, *33*, 1156–1172. <https://doi.org/10.1177/0263774X15612317>.
- Gee, K.; Blazauskas, N.; Dahl, K.; Göke, C.; Hassler, B.; Kannen, A.; Leposa, N.; Morf, A.; Strand, H.; Weig, B.; Zaucha, J. Can tools contribute to integration in MSP? A comparative review of selected tools and approaches *Ocean Coast. Manage.* **2019**, *179*, 104834. <https://doi.org/10.1016/j.ocecoaman.2019.104834>.
- Giakoumi, S.; McGowan, J.; Mills, M.; Begger, M.; Bustamante R.H., Charles, A.; Christie, P.; Fox, M.; Garcia-Borboroglu, P.; Gelcich, S.; Guidetti, P.; Mackelworth, P.; Maina, J.M.; McCook, L.; Micheli, F.; Morgan, L.E.; Mumby, P.J.; Reyes, L.M.; White, A.; Grorud-Colvert, K.; Possingham, H.P. Revisiting



- “success” and “failure” of marine protected areas: A conservation scientist perspective. *Front. Mar. Sci.* **2018**, *5*, 223. <https://doi.org/10.3389/fmars.2018.00223>.
- Gillgren, C.; Støttrup, G.G.; Schumacher, J.; Dinesen, G.E. Working together: collaborative decision making for sustainable Integrated Coastal Management (ICM). *J. Coast. Conserv.* **2019**, *23*, 959–968. <https://doi.org/10.1007/s11852-018-0631-z>.
- Innes, J.E.; Booher, D.E. Reframing public participation: Strategies for the 21st century. *Planning Theory & Practice* **2004**, *5* (4), 419–436.
- Ioppolo, G.; Saija, G.; Salomone, R. From coastal management to environmental management: The sustainable eco-tourism program for the mid-western coast of Sardinia (Italy). *Land Use Policy* **2013**, *31*, 460–471. <https://doi.org/10.1016/j.landusepol.2012.08.010>.
- Janßen, H.; Bastardie, F.; Eero, M.; Hamon, K.G.; Hinrichsen, H.; Marchal, P.; Nielsen, J.R.; Le Pape, O.; Schulze, T.; Simons, S.; Teal, L.R.; Tidd, A. Integration of fisheries into marine spatial planning: Quo vadis? *Estuar. Coast. Shelf S.* **2018a**, *201*, 105–113. <https://doi.org/10.1016/j.ecss.2017.01.003>.
- Janßen, H.; Varjopuro, R.; Luttmann, A.; Morf, A.; Nieminen, H. Imbalances in interaction for transboundary marine spatial planning: Insights from the Baltic Sea Region. *Ocean Coast. Manage.* **2018b**, *161*, 201–210. <https://doi.org/10.1016/j.ocecoaman.2018.05.008>.
- Jay, S.; Klenke, T.; Janßen, H. Consensus and variance in the ecosystem approach to marine spatial planning: German perspectives and multi-actor implications. *Land Use Policy* **2016**, *54*, 129–138. <https://doi.org/10.1016/j.landusepol.2016.02.015>.
- Jones, P.J.S.; Lieberknecht, L.M.; Qiu, W. Marine spatial planning in reality: Introduction to case studies and discussion of findings. *Mar Policy* **2016**, *71*, 256–264. <https://doi.org/10.1016/j.marpol.2016.04.026>.
- Jones, P.J.S.; Qiu, W.; De Santo, E.M. Governing marine protected areas: Social–ecological resilience through institutional diversity. *Mar Policy* **2013**, *41*, 5–13. <https://doi.org/10.1016/j.marpol.2012.12.026>.
- Katsanevakis, S.; Stelzenmüller, V.; South, A.; Sørensen, T.K.; Jones, P.J.S.; Kerr, S.; Badalamenti, F.; Anagnostou, C.; Breen, P.; Chust, G.; D’Anna, G.; Duijn, M.; Filatova, T.; Fiorentino, F.; Hulsman, H.; Johnson, K.; Karageorgis, A.P.; Kröncke, I.; Mirto, S.; Pipitone, C.; Portelli, S.; Qiu, W.; Reiss, H.; Sakellariou, D.; Salomidi, M.; van Hoof, L.; Vassilopoulou, V.; Vega Fernández, T.; Vöge, S.; Weber, A.; Zenetos, A.; ter Hofstede, R. Ecosystem-based marine spatial management: Review of concepts, policies, tools, and critical issues. *Ocean Coast. Manage.* **2011**, *54*, 807–820. <https://doi.org/10.1016/j.ocecoaman.2011.09.002>.
- Kerr, S.; Johnson, K.; Side, J.C. Planning at the edge: Integrating across the land sea divide. *Mar Policy* **2014**, *47*, 118–125. <https://doi.org/10.1016/j.marpol.2014.01.023>.
- Kidd, S. Rising to the integration ambitions of Marine Spatial Planning: Reflections from the Irish Sea. *Mar. Policy* **2013**, *39*, 273–282. <https://doi.org/10.1016/j.marpol.2012.11.004>.
- Kirkfeldt, T.S. An ocean of concepts: Why choosing between ecosystem-based management, ecosystem-based approach and ecosystem approach makes a difference. *Mar. Policy* **2019**, *106*, 103541. <https://doi.org/10.1016/j.marpol.2019.103541>.
- Inácio M.; Umgieser, G. A systems approach framework for coastal management and its application in practice *J. Coast. Conserv.* **2019**, *23*, 877–879. <https://doi.org/10.1007/s11852-019-00709-8>



- Lai, S. Hindrances to effective implementation of the Habitats Directive in Italy: Regional differences in designating Special Areas of Conservation. *Sustainability* **2020**, *12*(6), 2335 (18 pp.) <https://doi.org/10.3390/su12062335>.
- Maestro, M.; Pérez-Cayeyro, M.L.; Chica-Ruiz, J.A.; Reyes, H. Marine protected areas in the 21st century: Current situation and trends. *Ocean Coast. Manage.* **2019**, *171*, 28–36. <https://doi.org/10.1016/j.ocecoaman.2019.01.008>.
- MedPAN; UNEP/MAP-RAC/SPA. *The 2016 Status of Marine Protected Areas in the Mediterranean. Main Findings*, 2016. http://d2ouvy59p0dg6k.cloudfront.net/downloads/medpan_forum_mpa_2016___brochure_a4_en_web_1_.pdf (accessed on 20 November 2019).
- Morf, A.; Sandström, A.; Jagers, S.C. Balancing sustainability in two pioneering marine national parks in Scandinavia. *Ocean Coast. Manage.* **2017**, *139*, 51–63. <https://doi.org/10.1016/j.ocecoaman.2017.01.002>.
- Muntoni, M.; Devillers, R.; Koen-Alonso, M. Science should not be left behind during the design of a Marine Protected Area: Meeting conservation priorities while integrating stakeholder interests. *Facets* **2019**, *4*, 472–492. <https://doi.org/10.1139/facets-2018-0033>
- Olsen, E.; Fluharty, D.; Hoel, A.H.; Hostens, K.; Maes, F.; Pecceu, E. Integration at the Round Table: Marine Spatial Planning in Multi-Stakeholder Settings. *PLOS ONE* **2014**, *9*, e109964. <https://doi.org/10.1093/icesjms/fsr157>.
- Ommer, R.E.; Perry, R.I.; Murray, G.; Neis, B. Social-ecological dynamism, knowledge, and sustainable coastal marine fisheries. *Curr. Opin. Env. Sust.* **2012**, *4*, 316–322. <https://doi.org/10.1016/j.cosust.2012.05.010>.
- Papatheochari, T.; Coccossis, H. Development of a waterfront regeneration tool to support local decisionmaking in the context of integrated coastal zone management. *Ocean. Coast. Manage.* **2019**, *169*, 284–295. <https://doi.org/10.1016/j.ocecoaman.2018.12.013>.
- Pittman, J.; Armitage, D. Governance across the land-sea interface: A systematic review. *Environ. Sci. Policy* **2016**, *64*, 9–17. <https://doi.org/10.1016/j.envsci.2016.05.022>.
- Piwowarczyka, J.; Gee, K.; Gilek, M.; Hassler, B.; Luttmann, A.; Maack, L.; Matczak, M.; Morf, A.; Saunders, F.; Stalmokaitė, I.; Zaucha, J. Insights into integration challenges in the Baltic Sea Region marine spatial planning: Implications for the HELCOM-VASAB principles. *Ocean Coast. Manage.* **2019**, *175*, 98–109. <https://doi.org/10.1016/j.ocecoaman.2019.03.023>.
- Portman, M.E. *Environmental Planning for Oceans and Coasts: Methods, Tools and Technologies*; Springer International Publishing, Switzerland, 2016; ISBN 978-3-319-26971-9.
- Portman, M.E. Marine spatial planning: achieving and evaluating integration. *ICES Journal of Marine Science.* **2011**, *68*, 2191–2200. <https://doi.org/10.1093/icesjms/fsr157>.
- Portman, M.E.; Esteves, L.S.; Le, X.Q.; Khan, A.Z. Improving integration for integrated coastal zone management: An eight-country study. *Sci. Total Environ.* **2012**, *439*, 194–201. <https://doi.org/10.1016/j.scitotenv.2012.09.016>.
- Qiu, W.; Jones, P.J.S. The emerging policy landscape for marine spatial planning in Europe. *Mar. Pol.* **2013**, *39*, 182–190. <https://doi.org/10.1016/j.marpol.2012.10.010>



- Ramsey, V.; Cooper, J.A.G.; Yates, K.L. Integrated coastal zone management and its potential application to Antigua and Barbuda. *Ocean Coast. Manage.* **2015**, *118*, 259–274. <https://doi.org/10.1016/j.ocecoaman.2015.04.017>.
- Roberts, T.; Jones, P.J.S. North East Kent European marine site: Overcoming barriers to conservation through community engagement. *Mar Policy* **2013**, *41*, 33–40. <https://doi.org/10.1016/j.marpol.2012.12.016>.
- Rochette, J.; Billé, R. ICZM Protocols to regional seas conventions: What? Why? How? *Mar. Policy* **2012**, *36*, 977–984. <https://doi.org/10.1016/j.marpol.2012.02.014>.
- Sardá, R.; Valls, J.F.; Pintó, J.; Ariza, E.; Lozoya, J.P.; Fraguell, R.M.; Martí, C.; Rucabado, J.; Ramis, J.; Jimenez, J.A. Towards a new integrated beach management system: The ecosystem-based management system for beaches. *Ocean Coast. Manage.* **2015**, *118*, 167–177. <https://doi.org/10.1016/j.ocecoaman.2015.07.020>.
- Saunders, F.; Gilek, M.; Day, J.; Hassler, B.; McCann, J.; Smythe, T. Examining the role of integration in marine spatial planning: Towards an analytical framework to understand challenges in diverse settings. *Ocean Coast. Manage.* **2019**, *169*, 1–9. <https://doi.org/10.1016/j.ocecoaman.2018.11.011>.
- Shipman, B.; Stojanovic, T. Facts, Fictions, and failures of integrated coastal zone management in Europe. *Coast. Manage.* **2007**, *35*, 375–398. <https://doi.org/10.1080/08920750601169659>.
- Smith, H.D., Maes, F., Stojanovic, T.A., Ballinger, R.C. The integration of land and marine spatial planning. *J Coast Conserv* **2011**, *15*, 291–303. <https://doi.org/10.1007/s11852-010-0098-z>.
- Smythe, T.C.; McCann, J. Achieving integration in marine governance through marine spatial planning: Findings from practice in the United States. *Ocean Coast. Manage.* **2019**, *167*, 197–207. <https://doi.org/10.1016/j.ocecoaman.2018.10.006>.
- Soriani, S.; Buono, F.; Camuffo, M. Problems and pitfalls in ICZM implementation: Lessons from some selected Mediterranean and Black Sea cases. *Journal of Integrated Coastal Zone Management* **2015**, *18(S1)*, 7 pp. <https://doi.org/10.4172/2473-3350.1000S1-002>.
- Støttrup, J.G.; Dinesen, G.E.; Schumacher, J.; Gillgren, C.; Inácio M.; Schernewski, G. The systems approach framework for collaborative, science-based management of complex systems. *J. Coast. Conserv.* **2019**, *23*, 881–898. <https://doi.org/10.1007/s11852-018-00677-5>
- Tsilimigkas, G.; Rempis, N. Maritime spatial planning and spatial planning: Synergy issues and incompatibilities. Evidence from Crete island, Greece. *Ocean Cost Manage* **2017**, *139*, 33–41. <https://doi.org/10.1016/j.ocecoaman.2017.02.001>.
- Turner, J.; Essex, S. Integrated terrestrial and marine planning in England's coastal inter-tidal zone: Assessing the operational effectiveness of the Coastal Concordat. *Mar Policy* **2016**, *72*, 166–175. <https://doi.org/10.1016/j.marpol.2016.07.014>.
- Van Assche, K.; Beunen, R.; Duineveld, M. The will to knowledge: natural resource management and power/knowledge dynamics. *J. Environ. Pol. Plan.* **2017**, *19*, 245–250. <https://doi.org/10.1080/1523908X.2017.1336927>.
- Van Assche, K.; Hornidge, A.K.; Schlüter, A.; Vaidianu, N. Governance and the coastal condition: Towards new modes of observation, adaptation and integration. *Mar. Policy* **2020**, *112*, 103413. <https://doi.org/10.1016/j.marpol.2019.01.002>



- Walsh, C. Integration of expertise or collaborative practice? Coastal management and climate adaptation at the Wadden Sea. *Ocean Coast. Manage.* **2019**, *167*, 78–86. <https://doi.org/10.1016/j.ocecoaman.2018.10.004>.
- Zoppi, C. Integration of conservation measures concerning Natura 2000 sites into Marine Protected Areas Regulations: A study related to Sardinia. *Sustainability* **2018**, *10*, 3460 (18 pp.); <https://doi.org/10.3390/su10103460>.

Web references

- Directive 92/43/EEC of the European Council of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043> (accessed on 20 November 2019).
- Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (1995). <https://wedocs.unep.org/rest/bitstreams/2467/retrieve> (accessed on 20 November 2019).
- European Landscape Convention (2000). <https://www.coe.int/en/web/conventions/full-list/-/conventions/rms/0900001680080621> (accessed on 20 November 2019).
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy. <https://eur-lex.europa.eu/legal-content/en/TXT/HTML/?uri=CELEX:32000L0060> (accessed on 20 November 2019).
- Directive 2003/44/EC of the European Parliament and of the Council of 16 June 2003 amending Directive 94/25/EC on the approximation of the laws, regulations and administrative provisions of the Member States relating to recreational craft. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32003L0044> (accessed on 20 November 2019).
- Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the Assessment and Management of Flood Risks. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32007L0060> (accessed on 20 November 2019).
- Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 Establishing a Framework for Community Action in the Field of Marine Environmental Policy. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008L0056> (accessed on 20 November 2019).
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147> (accessed on 20 November 2019).
- Protocol on Integrated Coastal Zone Management in the Mediterranean (2009). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:22009A0204%2801%29> (accessed on 20 November 2019).
- European Regions' Charter for Coastal Protection and for the Promotion of a Network of a European Interregional Observatory for the Defence of Mediterranean Coasts (2013). <http://www.bolognacharter.eu/the-charter/#tab-1> (accessed on 20 November 2019).



Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 Establishing a Framework for Maritime Spatial Planning. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0089> (accessed on 20 November 2019).

Carta di Livorno: Marine Strategy e Blue Growth [Livorno Charter: Marine Strategy and Blue Growth] (2014). <http://www.strategiamarina.isprambiente.it/carta-di-livorno-marine-strategy-e-blue-growth> (accessed on 20 November 2019).

Accepted manuscript

