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DOCTORAL THESIS

Design, governance and management performance of Marine Protected Areas in the North-East Atlantic Ocean

Inmaculada Álvarez Fernández

Universidade da Coruña

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Design, governance and management performance of Marine Protected Areas in the North-East Atlantic Ocean

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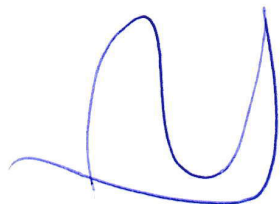
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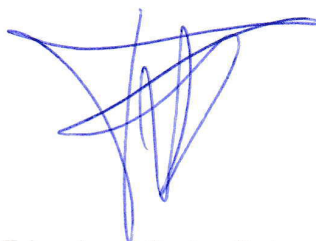
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Y para que así conste, expiden el presente certificado en A Coruña, a 8 de marzo de 2019.



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Para Elisa



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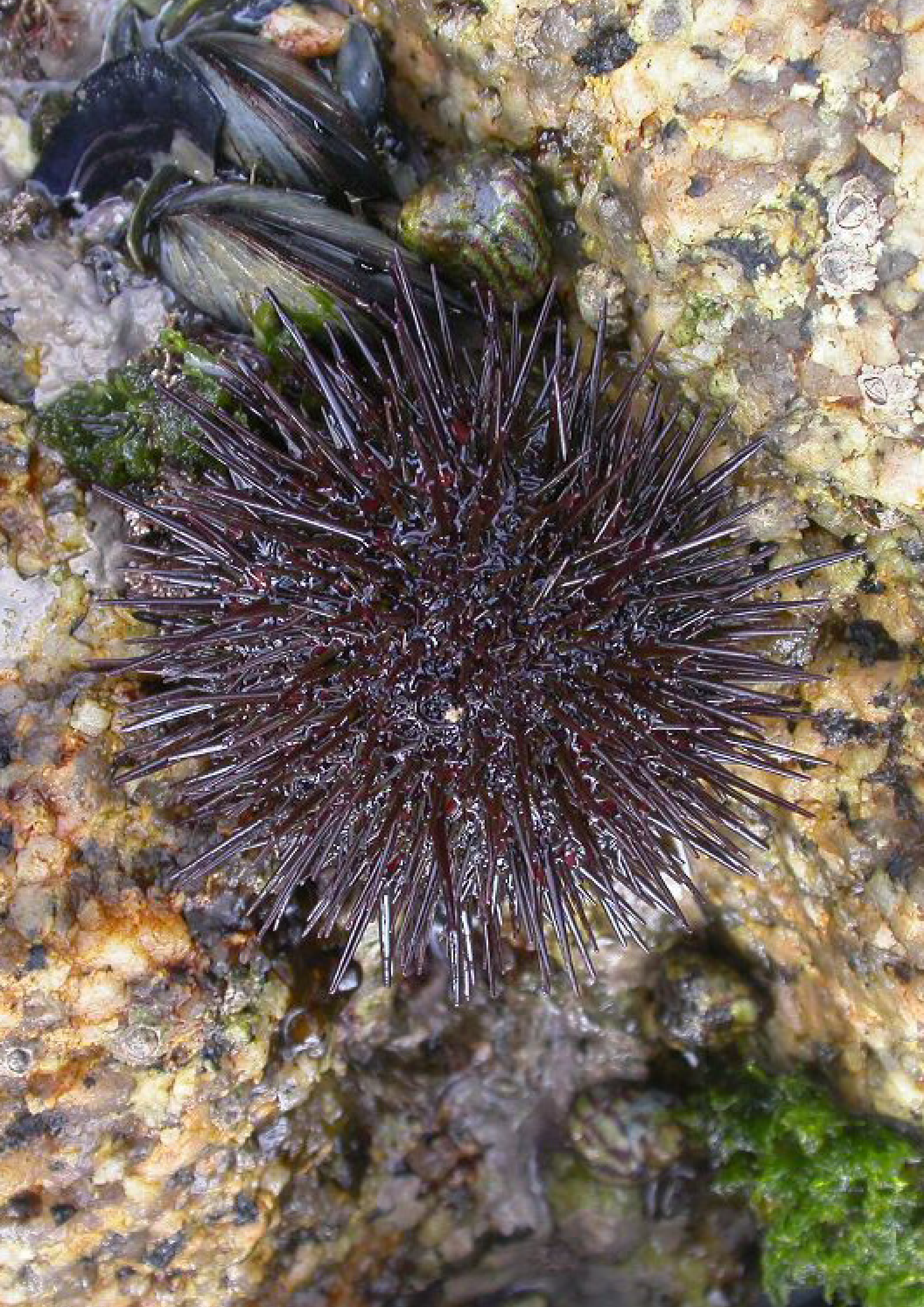
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RESUMO

A principios do 2013, no Océano Atlántico Nororiental (Inglaterra, Francia, Portugal e España), había 550 Áreas Mariñas Protexidas (AMP) establecidas con gran diversidade de obxectivos. Só 244 destas AMPs tiñan plan de xestión (PdX), e só 151 estaban a ser realmente xestionadas por 66 PdG. Para lograr os seus obxectivos, tres procesos deben funcionar de maneira conxunta e eficiente: deseño e implementación de PdX, gobernanza e desempeño. Nesta tese, realizouse unha análise empírica dos tres procesos e as súas relacións, baseada no coñecemento experto dos xestores sobre o PdX e o desempeño da AMPs. Os resultados mostraron que a gobernanza efectiva é fundamental para o desempeño das AMPs, e non así o deseño e a implementación. Estes resultados contradín estudos previos que mostran que o deseño dos obxectivos e o PdX, xunto coa participación dos usuarios neste proceso, son factores clave para o desempeño das AMPs. A gobernanza necesita mellorar contando con: vixilancia e avaliación rutineiros, maior participación da comunidade na xestión, financiamento estable, un sistema de cumprimento establecido e difusión de resultados rutineira. Un bo deseño e unha implementación adecuada dos PdX teñen un valor limitado no rendemento do AMP.

RESUMEN

A principios de 2013, en el Océano Atlántico Nororiental (Inglaterra, Francia, Portugal y España) había 550 Áreas Marinas Protegidas (AMP) establecidas con gran diversidad de objetivos. Solo 244 tenían plan de gestión (PdG), y únicamente 151 estaban siendo gestionadas por 66 PdG. Para lograr sus objetivos, tres procesos deben funcionar de manera conjunta y eficiente: diseño e implementación de PdG, gobernanza y desempeño. En esta tesis, se realizó un análisis empírico de los tres procesos y sus relaciones, basado en el conocimiento experto de los gestores sobre el PdG y el desempeño de las AMPs. Los resultados mostraron que la gobernanza efectiva, y no el diseño y la implementación, es fundamental para el desempeño de las AMP. Estos resultados contradicen estudios previos que muestran que el diseño de los objetivos y el PdG, junto con la participación de los usuarios en este proceso, son factores clave para el desempeño de AMPs. La gobernanza necesita mejorar en tener: monitoreo y evaluación rutinarios, mayor participación de la comunidad en la gestión, financiación estable, un sistema de cumplimiento establecido y difusión de resultados rutinaria. Un buen diseño y una implementación adecuada de los PdG tienen un valor limitado en el rendimiento del AMP.

ABSTRACT

By early 2013, 550 inshore and offshore Marine Protected Areas (MPAs) had been established in the North-East Atlantic Ocean (England, France, Portugal and Spain) to accomplish a wide diversity of objectives. Only 244 of these MPAs had a management plan (MgP), and only 151 were actually managed by 66 MgPs. To achieve their goals, three processes (MgP design and implementation, governance and performance) must work jointly and efficiently in an MPA. In this thesis, an empirical analysis of the three processes and their relationships was performed, based on the expert knowledge of MPA managers about MgP and MPA performance. The results showed that effective governance, rather than design and implementation, is critical for the performance of Atlantic Arc MPAs. These results contradict previous studies showing that objective design, MgP design, and participation of stakeholders in these processes are key factors for MPA performance. The most critical improvements needed in governance are: routine MPA monitoring and assessment, increased community engagement in MPA management, stable funding, established enforcement system and routine dissemination of results. Good design and adequate MgP implementation have a limited value for MPA performance.



INTRODUCTION

Management of the world's oceanic resources and habitats is entering a new stage due to human impacts such as overexploitation, habitat degradation, ocean acidification and climate change (Trenberth et al. 2007, Halpern et al. 2008, Gaines et al. 2010). This has led to the worldwide recognition of the need to safeguard the marine environment and manage the sustainable use of aquatic resources (FAO, 2011; Jones et al., 2011). The concerns raised in the European Union (EU) have led the governments of its member states to develop a common regulatory framework to protect and conserve disappearing natural and seminatural habitats, as well as habitats hosting the most threatened species of fauna and flora in Europe. Thus, the Habitats Directive (Directive 92/43/CEE) was born; this directive complements the Birds Directive (Directive 79/409/CEE), adopted in 1979 and updated by Directive 2009/147/CE. The full enforcement of both directives (Habitats and Birds) constitutes the first goal of the European Biodiversity Strategy to 2020, and its first action is to complete the implementation of the Natura 2000 network¹ and guarantee its good management. Another remarkable EU initiative is the Marine Strategy Framework Directive (Directive 2008/56/CE²), whose main objective is to maintain or achieve a good marine environmental status by the year 2020. This Directive has synergies with the Habitats and Birds directives regarding conservation of the biodiversity of the marine environment, where the Member States have jurisdictional rights. This includes, for each Directive, the obligation to establish Marine Protected Areas (MPAs) as part of their global protection measures.

On the other hand, the use of MPAs has been gaining importance since the early 1990s as an efficient method to manage fisheries, protect marine ecosystems and restore degraded aquatic habitats (FAO, 2011, Jones et al., 2011). MPAs are commonly described as any marine or coastal geographic area that, together with the waters covering it, its flora and fauna and its historical and cultural features, has been designated by law or by any other effective means so as to confer the coastal and/or marine biodiversity a higher level of protection than adjacent areas (SCBD, 2004, p.7).

Despite the increase in protected areas in recent decades, there is growing scientific agreement and political recognition that existing MPAs are not sufficient to mitigate the increasing challenges faced by biodiversity conservation (Gaines et al., 2010). MPAs that had been designated by the end of 2010 represented less than 2% of the total marine area, including the exclusive economic zone of most countries (Lausche, 2011). In addition, the protected areas face growing threats due to direct and indirect causes. Direct threats arise within the boundaries of the protected areas, e.g. improper management, introduction of exotic or invasive species, site pollution or extraction of mineral resources. On the other hand, indirect threats come from outside the MPA and are caused by factors such as pollution outside the area, urban growth, ecosystem degradation outside the area or climate change.

In the past, MPAs were thought to be susceptible to be included within a generic legal framework for protected areas, which mainly focused on and was driven by the needs of terrestrial protected areas (Lausche, 2011). However, the increasing scientific knowledge about MPAs in the last three decades suggests the need for a specific legal treatment due to their unique biophysical characteristics, their management and enforcement requirements

¹ Red Natura 2000, http://ec.europa.eu/environment/nature/natura2000/index_en.htm [Accessed 12/02/2019]

² Directiva Marco sobre la estrategia marina https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/proteccion-internacional-mar/union-europea-proteccion-medio-marino-y-costero/dm_estrategia_marina.aspx [Accessed 12/02/2019]

and, in many cases, the multiple laws and authorities involved in them (Pomeroy et al., 2007). Nowadays, there is wide consensus around the need to plan and manage protected areas using an ecosystem approach. This approach requires that other tools of public policy, such as those related to territorial management, fisheries, use of marine resources, tourism and economic development, be compatible with legislation on marine protected areas (Thomas and Middleton, 2003, FAO, 2011, Jones et al, 2011). Many considerations must be taken into account within the ecosystem approach and, therefore, MPAs must have multiple goals. Thus, the tasks of designing management plans (MgP) for MPAs and managing these areas can be challenging; however, they are essential for the sustainability of natural and cultural resources (Pomeroy et al, 2007, Abdulla et al., 2008) and, therefore, for the viability of MPAs.

In view of the aforementioned, knowing how the design, governance and management are being performed for already implemented MPAs in Europe and, more specifically, in the NE Atlantic Ocean is instrumental to advance in the conservation of biodiversity and in the creation of well-managed networks of MPAs such as Natura 2000 or the OSPAR marine protected area network.

Within the framework of European project MAIA - Marine protected areas in the Atlantic arc, funded by the INTERREGIVB Atlantic Area program (Grant no. 2009-1/143), the opportunity arose to compile information about these three aspects relative to MPAs in the NE Atlantic Ocean belonging to four countries: France, Portugal, United Kingdom and Spain. During the period in which MAIA was developed, between 2010 and 2013, all the existing information (management plans, designation, governance, etc) about the established MPAs and their performance was gathered. In addition, surveys were done to managers of the studied MPAs with the purpose of collecting their expert knowledge on: (i) the description of the areas and MgP contents; (ii) how the existing management plans were being implemented and, specifically, if there were any implemented actions or activities derived from the MgP; (iii) the socio-economic impact of the MPA on its stakeholder community. All that information is the basis of this thesis, whose objective is to perform an empirical study on the situation of MPAs in the NE Atlantic Ocean at a particular moment.

This thesis is original, since it offers an actual vision of how MPAs belonging to four countries in the NE Atlantic ocean (Spain, France, England and Portugal) had been designed and implemented and were being managed in early 2013 through the application of a low-cost method, using the expert knowledge and perceptions of managers operating MPAs, a universal source of information that could allow overcoming the usual gaps due to the restrictions in coverage of scientific monitoring and assessments.

In addition, this analysis is highly relevant as baseline information, as well as useful to improve the effectiveness of these MPAs and correct possible recurring mistakes, due to a large extent to the fact that most of these MPAs are still applying the same management plans and, thus, the same management as in early 2013.

Based on the assumption that good management of a marine protected area is considered a cyclical process, six elements of management can be identified: context, planning, inputs, process, outputs and outcomes. These 6 elements are grouped in three large management “themes”: design (context and planning), appropriateness and adequacy (inputs and process) and delivery (outputs and outcomes; Hockings, et al. 2006). The objective of this thesis is to empirically analyse each one of these three large “themes” for the MPAs in the NE Atlantic Ocean that had been established before January 2013. The analysis of their design focuses on their management plan design and implementation, since management plans contextualize and plan the management of an MPA. The analysis of their appropriateness and adequacy is associated with MPA governance, i.e. how appropriate the management system and process applied in an MPA are. The analysis of their delivery is related to MPA management performance, i.e. whether an MPA achieves the goals for which it was created, which are established in the management plan. In addition, the influence of the different processes on each other is studied based on the hypothesis that good design contributes to good governance, and both, in turn, contribute to good management performance and achievement of objectives (Figure 1).

All the regulation measures that will be applied in a given MPA must be established in a management plan (MgP) that is appropriate for that particular MPA (Pomeroy et al. 2007). A management plan is defined as “a planning document establishing the management approach and objectives, as well as a framework for decision-making, to be applied in the protected area for a given period of time.” It is used to achieve the official protection/conservation objectives according to the designation of the MPA. Plans can be more or less prescriptive, depending

on their goals and on the applicable legal requirements. The planning process, the plan's management objectives and the enforced regulations are generally established by law or otherwise by the coordinators of the protected areas (Thomas and Middleton, 2003; IUCN uses this definition). In turn, management plans should include some mechanism to assess whether the actions performed to manage the MPA are really effective to achieve the objectives or goals proposed in the plan itself, which would lead to modifications in the plan; i.e., adaptive management must be made possible (Thomas and Middleton, 2003; OSPAR, 2003; Moore and Hockings, 2013).

The concept of governance is used in many contexts, and since the early 21st century, it has been gaining relevance in the field of marine protected areas. Graham et al. (2003) defined protected area governance for the Fifth World Parks Congress as “*the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are made, and how citizens or other stakeholders have their say*”. They also suggested five key principles of good governance for protected areas, based on the United Nations Development Program's list of the characteristics of good governance. These principles are also assumed as “IUCN principles of good governance for protected areas”, and they are: Legitimacy and Voice, Direction, Performance, Accountability and Fairness and Rights (Borrini-Feyerabend et al. 2013). Jones (2014) simplified this concept and provided the following definition: ‘*MPA governance*’ is the various processes by which decisions are made and implemented, underlying what is technically described as ‘*MPA management*’. Therefore, governance and management are closely linked.

In turn, MPA management performance is directly related to management efficiency and, therefore, to the activities leading to the achievement of the objectives for which the MPA was created.

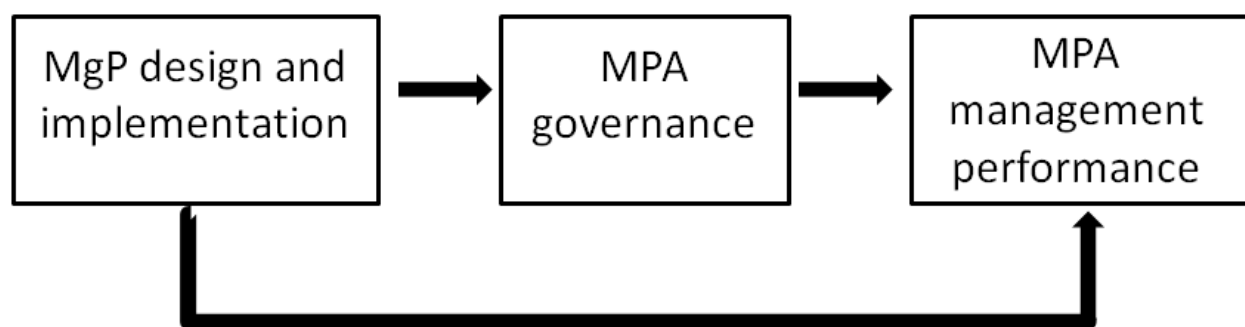


Figure 1. Initial hypotheses of the thesis.

Based on the data collected about the MPAs and their MgPs and on the proposed hypothesis, the main objectives of this thesis are addressed following this structure (Figure 2):

Chapters 1 and 2 are descriptive and are essential to understand and contextualize the analyses presented in subsequent chapters. Chapter 1 describes the study area and its main characteristics. It also outlines the different intergovernmental initiatives that have arisen at the global level and in the European context and that affect the study area. It also provides a historical description, up to the present day, of what is considered an MPA, how they are classified and what an MgP is. Chapter 2 outlines the regulatory frameworks in place at the moment of the study (years 2011 and 2012) relative to the establishment of marine protected areas in the four studied countries (United Kingdom, France, Spain and Portugal). All changes in policies with respect to the moment of the study are mentioned. A comparison is also performed among countries and their laws relative to MPA establishment.

The next three chapters analyse each one of the processes that enable an MPA to be effective and to perform the function for which it was created: design, governance and management. Chapter 3 analyses the design, implementation and MgP processes, as well as the evolution of the implemented management plans through time in the study area and the different management typologies applied in the analysed MPAs. Chapter 4 focuses on the analysis of governance quality in the MPAs within the study area and of the management effort being applied, with the purpose of determining possible strengths and weaknesses. Finally, chapter 5 focuses on MPA management performance and on the factors that contribute to achieving their objectives.

Chapter 6 analyses the relationships among the three aforementioned processes according to the proposed initial hypothesis, according to which design and implementation of MgPs influence MPA governance and all of them impact MPA performance (Figure 1). This chapter also summarizes and jointly discusses the results of the previous chapters.

Thesis structure

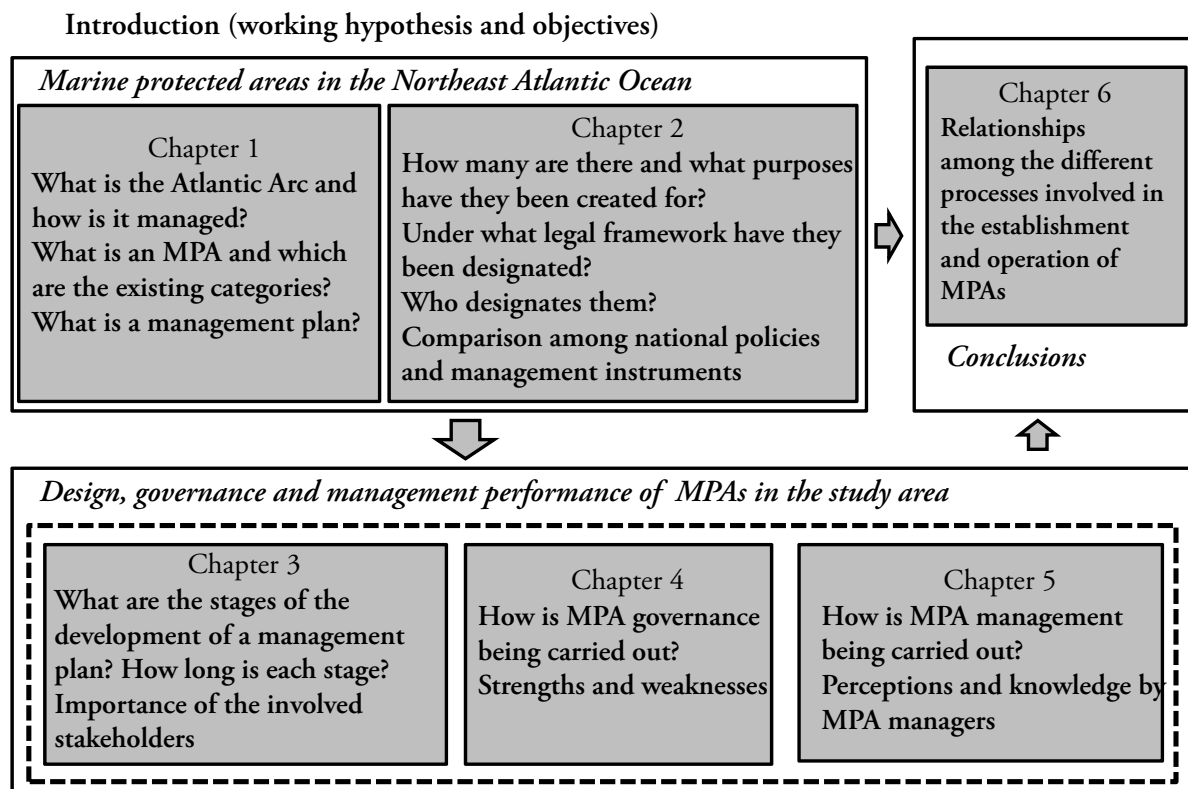


Figure 2. Flowchart outlining the structure of this thesis.

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CHAPTER 1

CONCEPTUAL ASSUMPTIONS OF THE STUDY AREA AND MARINE PROTECTED AREAS

INTRODUCTION

Marine ecosystems of great ecological and socioeconomic importance face severe threats worldwide due to a number of human impacts, including overexploitation, habitat degradation, ocean acidification and climate change (Trenberth et al. 2007, Halpern et al. 2008, Gaines et al. 2010). This has led to the worldwide recognition of the need to safeguard the marine environment and manage the sustainable use of aquatic resources (FAO, 2011; Jones et al., 2011). There are several intergovernmental protection initiatives at the global level, such as the Man and Biosphere Program¹, the Convention of Wetlands of International Importance (Ramsar)² or the Earth Summit 2002³ in Johannesburg, and at the regional level, such as the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR)⁴, which will be explained in detail in subsequent chapters. The concerns raised in the European Union (EU) have led the governments of its member states to develop a common regulatory framework to protect and conserve disappearing natural and seminatural habitats, as well as habitats hosting the most threatened species of fauna and flora in Europe (Sadeleer and Born, 2004). Thus, the Habitats Directive (Directive 92/43/CEE) was born; this directive complements the Birds Directive (Directive 79/409/CEE), adopted in 1979 and updated by Directive 2009/147/CE. The full enforcement of both directives (Habitats and Birds) constitutes the first goal of the European Biodiversity Strategy to 2020, and its first action is to complete the implementation of the Natura 2000 network⁵ and guarantee its good management. Another remarkable EU initiative is the Marine Strategy Framework Directive (Directive 2008/56/CE⁶), whose main objective is to maintain or achieve a good marine environmental status by the year 2020. This Directive has synergies with the Habitats and Birds directives regarding conservation of the biodiversity of the marine environment, where the Member States have jurisdictional rights. This includes, for each Directive, the obligation to establish Marine Protected Areas (MPAs) as part of their global protection measures. This chapter will expand on and contextualize these initiatives according to their influence on our study area, the NE Atlantic Ocean coastal region.

On the other hand, the use of MPAs has been gaining importance since the early 1990s as an efficient method to manage fisheries, protect marine ecosystems and restore degraded aquatic habitats (FAO, 2011, Jones et al., 2011). MPAs are commonly described as any marine or coastal geographic area that, together with the waters covering it, its flora and fauna and its historical and cultural features, has been designated by law or by any other effective means so as to confer the coastal and/or marine biodiversity a higher level of protection than adjacent areas (SCBD, 2004, p.7). However, before reaching this definition, different definitions and classifications have been used according to the objectives for which these MPAs were created; this chapter will analyse these definitions and their management.

¹ Programa sobre el Hombre y la Biosfera, UNESCO. <http://www.unesco.org/new/es/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme> [Accessed 12/02/2019]

² Convención de Ramsar, <https://www.ramsar.org/> [Accessed 12/02/2019]

³ World Summit on Sustainable Development (WSSD), Johannesburg, South Africa, September 2002.

⁴ OSPAR, <http://www.ospar.org> [Accessed 12/02/2019]

⁵ Red Natura 2000, http://ec.europa.eu/environment/nature/natura2000/index_en.htm [Accessed 12/02/2019]

⁶ Directiva Marco sobre la estrategia marina https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/proteccion-internacional-mar/union-europea-proteccion-medio-marino-y-costero/dm_estrategia_marina.aspx [Accessed 12/02/2019]

NORTH EAST ATLANTIC OCEAN COASTAL REGION: SPATIAL SCOPE

The European continent has the longest coastline in the world, expressed as the total coastline length to land area ratio⁷, from the open ocean to regional seas. This implies that the coastal ecosystem and habitats, catches and sea areas vary widely along European coastal regions (EEA, 2013).

The North East Atlantic Ocean coastal region comprises several statistical regions defined at the NUTS⁸ level 3 of the geographical classification system of the European Union. This region has a coastline where more than half of its population live less than 50 km away from the sea (Figure 1). The European Commission defines the North East Atlantic Ocean as the coasts, territorial and jurisdictional waters of the five EU Member States with an Atlantic coastline⁹: France, Ireland, Portugal, Spain, Iceland and the United Kingdom¹⁰. The North East Atlantic Ocean offers a close and permanent connection between the Atlantic Arc territories (Ecorys, 2013).

The Atlantic Arc Commission, which is one of six Geographical Commissions in the Conference of Peripheral Maritime Regions of Europe (CPMR), operates in this area. This Commission is a network of Regions that was established in 1989 in Faro (Algarve, Portugal) and currently brings together 21 Regions situated along the Atlantic seaboard of the European Union (EU). Since June 2016, the Presidency of the Atlantic Arc Commission has been held by the Pays de la Loire Region (France). It acts as an advocate for its members with the EU and Member States to promote an ambitious vision of the European project based on solidarity. The Atlantic Arc Commission has the objective to reach a sustainable and balanced development of the Atlantic territories, through fostering further cooperation among Atlantic Arc regions in terms of socio-economic activities and a more effective governance under the European Strategy for the Atlantic, especially with regard to the maritime domain (Atlantic Arc Commission, 2013).

The North East Atlantic Ocean coastal region is, above all, Europe's Western gateway, where transatlantic exchanges and traffic between the North Sea and the Mediterranean meet. Furthermore, the Atlantic Arc has long been characterised by the development of economic and cultural exchanges such as the Celtic heritage, the Camino de Santiago (Way of Saint James) and the role of these territories in the discovery of the New World and in the Industrial Revolution (Atlantic Arc Commission, 2009).

Nowadays, the human population in the North East Atlantic Ocean coastal region is concentrated in the coastal area, constituting the area with the highest population density in the Iberian coast with over 500 inhabitants per km². This has led to an increase in sewage discharge, maritime transport and use of marine areas for tourism and recreation. In addition, marine-related industries and services, such as the shipping, coastal tourism and seafood sectors, also play an important role. These economic sectors can be drivers of economic development in the Blue Growth Strategy (strategy of the EU to support sustainable growth in the marine and maritime sectors as a whole). They contributed roughly 1.8% to the Gross Domestic Product and 2.1% to employment opportunities in the Atlantic region in 2010 (OSPAR, 2010). However, the result of this pressure on the coast area has come at a high cost to the environment: loss of habitat, pollution, accelerated coastal erosion and climate change.

⁷ Estimates based on Corine Land Cover data from the EEA and the World Vector Shoreline database (scale 1:250 000) by the World Resource Institute suggest that Europe's coastline-to-land mass ratio (m/km²) is two to three times higher than the global ratio.

⁸ Nomenclature of territorial units for statistics (NUTS)

⁹ The somewhat different challenges facing the coasts and waters of the North Sea are not considered here. No decision has yet been made about whether a separate North Sea strategy will be developed.

¹⁰ Including the Outermost Regions of the Azores, the Canary Islands, French Guiana, Guadeloupe, Madeira, Martinique, Saint-Barthélemy and Saint-Martin.

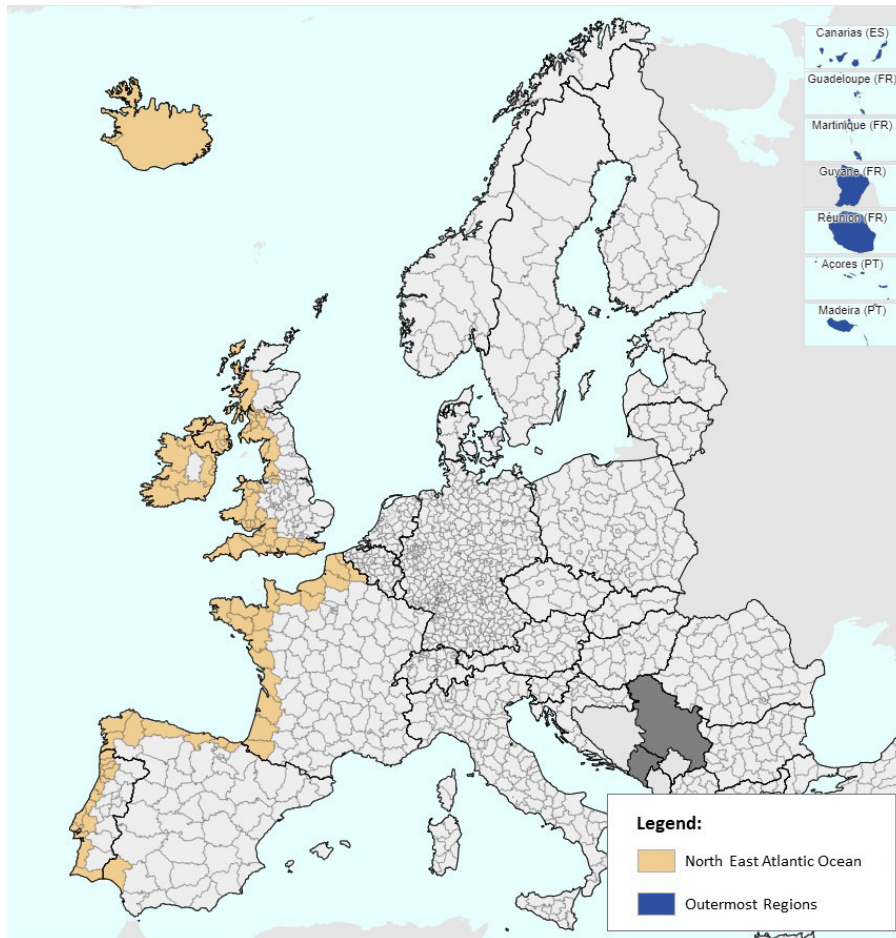


Figure 1. Coastal region in the EU by NUTS 3 regions. Source: Eurostat

The North East Atlantic Ocean coastal region is bounded by the highly productive waters of the North East Atlantic Ocean. This ocean is dominated by deep ocean basins, except for the Celtic Sea, the shelf along the Bay of Biscay and the Iberian coast. The formation of the North Atlantic Deep Water is one of the driving forces for thermohaline circulation of the world's oceans. Biodiversity in this ocean is high, with more than 700 described species of fish. The powerful forces of tides, wind and waves, acting on a substrate alternating hard stone foundation with soft sediment, are primarily responsible for the North East Atlantic Ocean coast being so varied, dynamic and rich in habitats and species. The oceanic climate extends to the inland, because most of the land is flat and low and the sea is not further than 300 km, which leads to mild winters, cool summers, predominance of westerly winds and moderate rains throughout the year (Cameron and Askew, 2011). Some of the major rivers of Europe flow into the North East Atlantic Ocean, such as the Loire, Thames, Garonne, Seine or Tagus.

Of the 117 types of habitats listed in the Habitats Directive, more than half are present in the Atlantic region. This high figure is due to the mild climate and the richness of the land in this area, its close relationship with the Mediterranean and continental regions that share the same habitats and, especially, its long and varied coastline. About half of the halophilic and coastal habitats, as well as 17 out of 21 coastal and inland dunes in the Directive, are present in this region (Sundseth, 2010).

Currently, the main potential threats to Northeast Atlantic marine habitats and species are the lack of sustainable management of fisheries (since this area currently contributes around 10% of global fishery yield), the lack of control of pollution from maritime transport through oilspills, the use of TBT in antifouling paints and anthropogenic eutrophication. Nature protection focuses on coastal areas and is poor in all other parts of the ocean (OSPAR, 2010).

The study area is divided in three ecoregions, which have individual characteristics that will be described in the following sections: Bay of Biscay and the Iberian Coast, the Celtic Sea and the Greater North Sea.

Bay of Biscay and the Iberian Coast ecoregion

The **Bay of Biscay and the Iberian Coast** ecoregion (OSPAR Region IV) stretches from southern Brittany to the south of Spain. It is part of the route connecting the English Channel to the Mediterranean and Africa. This area of the Atlantic Ocean shows a wide continental shelf in the Atlantic west of France, the Bay of Biscay, where upwelling events occur off the coasts of southern Brittany in the summer and where low-salinity water lenses are associated with the river outflows of the Landes coastline. In contrast, the narrower shelf off the northern and western Iberian Peninsula presents summer upwelling events. It also encompasses the deep-sea plains at the foot of the continental slope, which reach 4800 m in depth off the coasts of Spain and Portugal. All these characteristics lead to well-oxygenated coastal waters and strong hydrodynamic processes, which have a positive influence on the ecology of the region (Figure 2; ICES, 2016a).

The ecosystem of Region IV is characterized by the richness and diversity of its flora and fauna due to its biogeography, which allows for a mixture of communities of boreal and subtropical origin, including at least 1000 phytoplankton species, more than 200 copepod species, around 700 fish species and 28 cetacean species (OSPAR, 2000 and 2010).

This region is the cradle of Europe's maritime power. In the 15th and 16th centuries, it was from the Portuguese and Spanish coasts that intrepid explorers started their voyages of discovery. Lisbon, Seville and Cadiz became Europe's leading trade and financial centres thanks to the exploitation of resources from the new lands (Saenz-Cambra, 2012).

This was the age of triangular trade, with the African slave trade, and of the discovery of the Grand Banks of Newfoundland, with Basque and Breton fishermen fishing these waters for cod. The Iberian centres lost their monopoly on the Atlantic trade in the 17th century. The French ports of Bayonne, Bordeaux, La Rochelle and especially Nantes took up the triangular trade in turn, followed by English and Dutch ports. These trade rivalries sparked numerous conflicts, naval battles and corsair wars between these powers (Saenz-Cambra, 2012).

With the end of the Atlantic trade in the 19th century, fishing became the region's principal maritime activity. The exploitation of Newfoundland's stocks constituted an important seasonal activity. The discovery of aseptic canning (1810) made it a centre of industrial development as increasing numbers of tuna and sardine canning plants (and fisheries) were built. South Brittany and Galicia remained major tuna centres even after fishermen moved farther afield to fish for tropical stocks in the 20th century (Lear, 1998).

A large part of this marine area corresponds to the exclusive economic zones of France, Spain and Portugal, which extend 200 nautical miles from their coasts. The three States' territorial waters extend 12 nautical miles from shore, and a large part of the zone lies in international waters. There are various activities undertaken by France, Spain and Portugal in the coastal and offshore waters of the Bay of Biscay and Iberian coast, such as fishing activities, recreation, agriculture and aquaculture. These are also economically important in this region (ICES, 2016a).

The area is strongly affected by human activity. Most of the activities affecting the marine environment are concentrated along the narrow continental shelf, and coastal defences, cable-laying and tourism have all increased since 1998 (OSPAR, 2010). Although major cargo ports are gone, fuel imports account for most shipping and there is still an active fishing industry, with local small-scale fishing in the Bay of Biscay, for instance, and deep-sea fleets based in Brittany and Galicia. A great deal of fish and shellfish farming takes place in the region, and beach tourism is well developed.

Fishing is a key activity in Galicia (Spain), South Brittany (France), the Basque country (France and Spain) and the Lisbon Region (Portugal), with annual catches of 560 000 tonnes in 2007. The most widely targeted species is sardine, followed by Spanish mackerel, blue whiting, jacks, hake and albacore. There are also landings from deep-sea fishing, the largest centres of which are found in this region: Vigo (Spain), which is Europe's leading fishing port (700 000 tonnes); Lorient (France), Lisbon (Portugal), Pasajes (Spain) and the tuna port of Concarneau (France). Marine aquaculture has been practiced in the region for many years, with major production centres: mussels and turbot in Galicia, oysters in Poitou-Charentes and seabass and seabream hatcheries in Cantabria (OSPAR, 2000b).

Tourism is also an important activity throughout the coastal area, from South Brittany to Andalusia. In France, Portugal and Spain, coastal tourism is the largest employer out of all maritime industries. It is dominant in the French coastal area and takes a variety of forms, from sports tourism to gastronomy and seaside tourism. In Portugal (Lisbon and its coast) and the southwest Iberian Peninsula, seaside tourism is most popular. Hiking and cultural visits are the main form of tourism on the Spanish Atlantic coast. Cruises also represent an important activity in Lisbon (407 508 passengers in 2008) (Marking and Gibbons, 2009).

In the Bay of Biscay and the Iberian Coast, maritime traffic is very heavy, particularly on the route that runs from the English Channel to the Strait of Gibraltar. Some 45 000 ships a year cross the waters off Galicia, where three rescue coordination centres are based. Lisbon is the seat of the European Maritime Safety Agency¹¹. Galicia and South Brittany have been the scene of several oil spills. To avoid these effects, numerous protected marine areas are already designed or are in their planning stages in the region's estuaries and bays (rias). Moreover, several offshore areas extend to the foot of the continental slope and include seamounts in waters off Galicia and Algarve (OSPAR, 2010).

Celtic Seas ecoregion

The **Celtic Seas** ecoregion (OSPAR Region III) covers the northwestern shelf seas of the EU. It includes areas of the deeper eastern Atlantic Ocean and coastal seas that are heavily influenced by oceanic inputs. The ecoregion ranges from the north of Shetland to Brittany in the south. Three key areas constitute this ecoregion: the Malin shelf; the Celtic Sea and west of Ireland; and the Irish Sea. The Celtic Seas ecoregion includes all or parts of the Exclusive Economic Zones (EEZs) of three EU Member States: Ireland, United Kingdom and France (Figure 2; ICES, 2016b).

Region III extends from oceanic conditions at the shelf break to the west, through the relatively shallow semi-enclosed Irish Sea, to estuarine and fjordic inlets on its eastern boundary. In very general terms, the overall water movement is from south to north, with oceanic water from the North Atlantic entering from the south and west of the region and moving northwards through the area to exit into Arctic Waters to the north or, after flowing around the north of Scotland, to enter the Greater North Sea. There are however, complex intermediate water movements, particularly within the Irish Sea (OSPAR, 2000c).

Celtic Seas have a wide range of coastal and seabed habitats, including sea lochs and estuaries, with diverse biological communities that include many commercially important species. The Region is at the southern limit of the distribution range for some cold-water species, such as herring and cod, while some warm-water species, such as sea bass and sardine, come up from the south. There are also important seabird areas, and the waters to the south and west of Ireland support a variety of cetaceans. Region III, along with the northern portion of the North Sea, supports a high proportion of the North-East Atlantic seapen and burrowing megafauna communities, where soft coral seapens coexist with large shrimps burrowing in muddy sediments. These occur in sheltered areas such as sea lochs or on the deeper parts of the shelf (OSPAR, 2010).

Regarding their history, its waters facilitated the Roman conquest of (Great) Britain (55 B.C.), the Scotti invasions of Scotland (4th century), the immigration of Britons into Armorica (5th century), the Viking raids (Treaty of Saint-Clair-sur-Epte, 911), the Norman invasion of England (Battle of Hastings, 1066), the conquest of Ireland by England (1169) and different confrontations between France, Spain and England (14th to 19th centuries). All these conflicts did not disrupt the intensity of legal or illegal maritime trade across its shores, however. From the 17th century, the boom in Atlantic trade encouraged the development of ports in the region, with the emergence of large sailing ship ports, such as Brest, Saint-Malo, Le Havre, Cherbourg, Plymouth, Bristol, Portsmouth, Liverpool, Southampton and Cobh-Cork. The English Channel, effectively protected by the mining of the Strait of Dover, was preserved during the First World War. On the other hand, it became a crucial strategic stake during the Second World War (Atlantic Wall, Normandy landings).

¹¹ European Maritime Safety Agency <http://www.emsa.europa.eu/>

Ports have declined in contemporary times. Fishing has become the dominant economic activity, together with seaside tourism, which first appeared in the region in the mid-19th century thanks to the development of railways. Over the past 20 years, aquaculture (fish and seafood farms) has taken off more strongly and diversified than in other areas (Ecorys, 2013).

Currently, the general pattern of population change in the coastal areas of Region III is one of declining numbers in the largest city centres, growing populations in the suburbs of major towns, steady increases in many industrialised countries and stable or declining populations in more rural and remote regions. Although much of the population growth is occurring along the east and west shores of the Irish Sea, significant increases are also apparent in urban areas on the mid-west and south-west coasts of Ireland. Coastal towns, especially those with major port facilities, attract manufacturing and service industries, which provide more employment opportunities, and these, in turn, attract more residents (Ecorys, 2013).

There are multiple pressures on the marine environment in this region, many of them increasing, such as offshore renewable energy, mineral extraction, shipping, mariculture and coastal defence reinforcement (OSPAR, 2010).

The main development in fisheries management in this area was the adoption of long-term management plans for several commercial fish stocks. In EU waters, these include recovery plans for cod in the North Sea, Irish Sea and Celtic Sea; plaice and sole in the North Sea, and northern hake stock. The maritime transport and seafood sectors are important for Ireland (OSPAR, 2010).

Greater North Sea ecoregion

The **Greater North Sea** ecoregion (OSPAR Region II) includes the North Sea, English Channel, Skagerrak, and Kattegat. It is a temperate coastal shelf sea with a deep channel in the northwest, a permanently thermally mixed water column in the south and east, and seasonal stratification in the north (Figure 2; ICES, 2016c).

North Atlantic water mixes with freshwater run-off and river discharges within a roughly anti-clockwise circulation. Residual currents move southward along the east coast of the UK and northward along the continental west European coast. In the Kattegat, salty oxygenated water flows into the Baltic Sea in a surface counter-flow. Shallower areas of the North Sea (<30m) are normally fully mixed by tidal action. In deeper areas, the upper 30 m are usually mixed by wind action (OSPAR, 2010).

The Channel forms the border with the Boreal-Lusitanian zone. Shallow rocky areas are colonised by extensive kelp forests. Most of the seabed is covered by sandy sediment habitats that support large populations of flatfish. The Fladen Ground in the northern North Sea is a large area of muddy seabed with abundant Norway lobster, *Nephrops norvegicus*. The extensive estuaries with mudflats and salt marshes are globally important areas for migrating waterfowl and waders. The southeast of this region comprises the Wadden Sea, the largest area of intertidal mudflat in the world with abundant shellfish, including mussel beds, and patches of seagrass. It is a crucial stopover for millions of migrating birds. In the north-west of the North Sea, offshore islands support major colonies of seabirds. Benthic and pelagic processes in the North Sea are strongly coupled and work together to make the region highly productive. Region II has supported large commercial fish stocks, as well as substantial populations of key prey species such as sandeels that are the main food item for many seabirds. Moreover, this region contains a great number of habitats considered to be threatened or in decline, including most of the North-East Atlantic's littoral chalk communities (OSPAR, 2010).

From the Middle Ages until the end of the 15th century, before the development of good roads, maritime trade on the North Sea connected the economies of northern Europe, Britain, and Scandinavia with each other as well as with the Baltic and the Mediterranean, through the English Channel. The English Channel has been the common link between the history of England and the rest of Europe, as explained above. It was a natural trench, halting invading armies from the Spanish Armada and from Napoleon's armies during the Napoleonic Wars, until the First and Second World Wars (Atlantic Wall, Normandy landings).

The North Sea has an extensive history of maritime commerce and trade routes between its coastal nations, whose economies and industries were also able to exploit its resources, and has often been an area of conflict as well. This is still happening today.

Population density is also over 500 inhabitants per km² in this region. Economically, oil and gas production in the North Sea is also important for Denmark, the Netherlands and the UK. Major offshore oil and gas developments within the Region II are in the North Sea and Norwegian Sea; oil and gas in the northern North Sea and Norwegian Sea, and mostly gas in the southern North Sea. Oil and gas pipelines cover significant areas in the Greater North Sea. This region has an estimated 50 000 km of pipelines transporting oil and gas products from offshore wells to the shore (OSPAR, 2010). Some of the main European seaports are situated along the eastern coast of the North Sea, with world-leading shipbuilding and shipping-related industries (OSPAR, 2010; Ecorys, 2013).

The human activities exerting the greatest pressure on the ecosystem are fishing, coastal construction, maritime transport, oil and gas exploration and production, tourism and recreation, navigation dredging, aggregate extraction, military, and wind farm construction (EEA, 2012; ICES, 2016c).

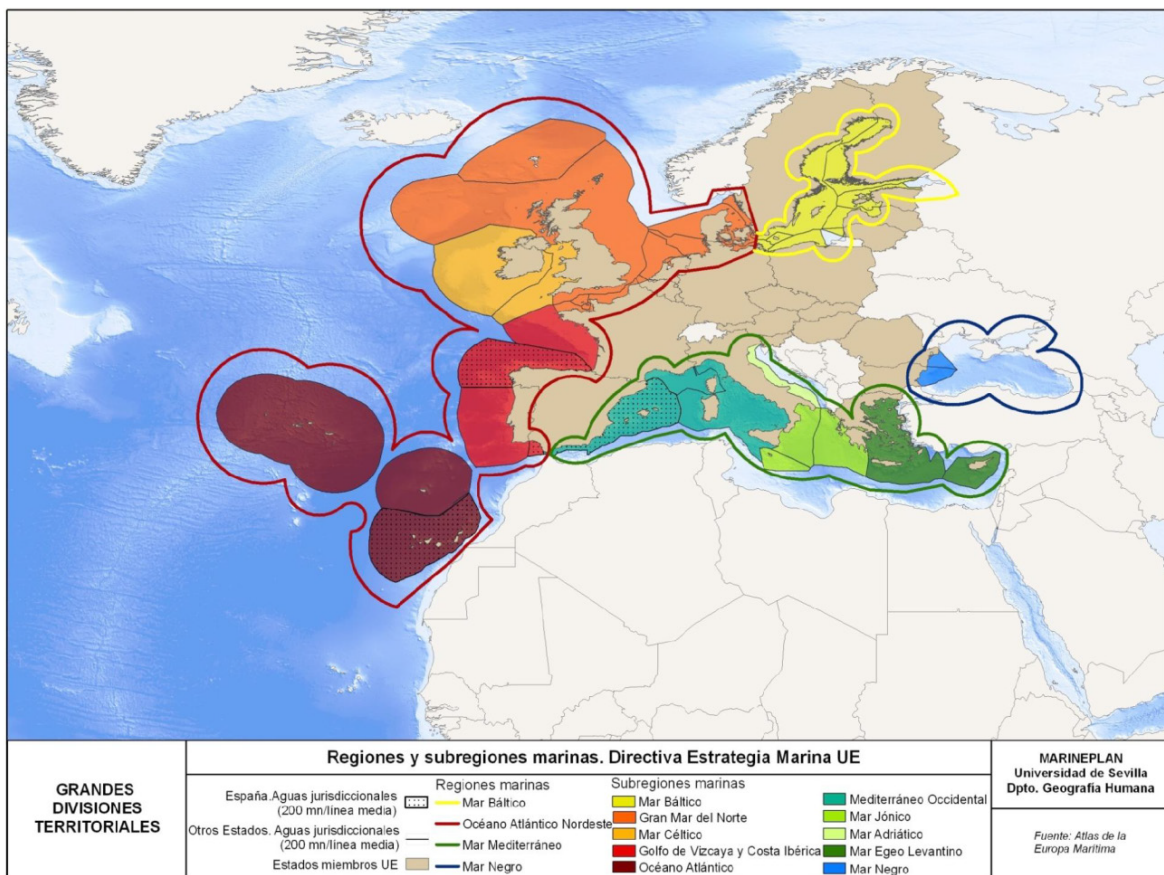


Figure 2. Marine regions and subregions in Europe, Marine Strategy Framework Directive (Directive 2008/56/EC). Source: Suarez-de Vivero JL, 2011.

COASTAL AND MARINE MANAGEMENT

Designation of MPAs and MPA networks is driven by a range of international, regional, and national obligations and initiatives. We will describe this framework from the global down to the regional scale.

International law and policy context

This section describes the framework under which MPAs around the world have been designed. First, the two more important global policy instruments are described (United Nations Convention of the Law of the Sea and Convention on Biological Diversity), followed by others that are also relevant for this study.

United Nations Convention of the Law of the Sea (UNCLOS)

The UNCLOS Convention lays down a comprehensive regime of law and order in the world's oceans and seas, establishing rules governing all uses of the oceans and their resources. It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed as a whole. It is also called "Constitution for the Oceans" because it is widely recognized as the general legal framework within which all activities in the oceans and seas must be carried out.

The international law of the sea comes back centuries, while the sea was becoming important for trade, transport and supply of marine resources, in particular fishing. The United Nations Convention on the Law of the Sea was the culmination of more than 14 years of work involving participation by more than 180 countries representing all regions of the world, all legal and political systems and the spectrum of socio/economic development. The convention was signed in 1982 and entered into force in accordance with its article 308 on 16 November 1994. It comprises 320 articles and nine annexes.

The law of the Sea Convention does not contain specific articles on the designation of marine protected areas. However, in Part XII, *Protection and preservation of the marine environment*, applying to any oceanic area, Article 192 provides for the general obligation for States to protect and preserve the marine environment. Article 194.5 of the Convention further elaborates on the measures to be taken by States, individually or jointly as appropriate, referred to as "measures to prevent, reduce and control pollution of the marine environment from any source", and says that "the measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life". This precept is used as legal basis to design marine protected areas in all jurisdictional zones, including high seas, in international programmes, as Guidelines for designing MPAs of Regional Seas, United Nations Environment Programme (UNEP). Moreover, the extension of sovereign rights of coastal states to their exclusive economic zone (EEZ) with respect to environmental protection helps to establish marine protected areas in these areas. This Convention also promotes international cooperation aimed at protecting the marine environment and its resources. The three key features of the Convention about marine environment conservation are cited below (UNCLOS treaty¹²):

* Coastal States have sovereign rights with respect to natural resources and certain economic activities within a 200-nautical mile exclusive economic zone (EEZ) and exercise jurisdiction over marine scientific research and environmental protection;

* Landlocked and geographically disadvantaged States have the right to participate on an equitable basis in the exploitation of an appropriate part of the surplus of the living resources of the EEZ's of coastal States of the same region or sub-region; highly migratory species of fish and marine mammals are accorded special protection;

* All States enjoy the traditional freedoms of navigation, overflight, scientific research and fishing on high seas; they are obliged to adopt, or cooperate with other States in adopting, measures to manage and conserve living resources.

Convention on Biological Diversity (CBD)

It is the first international legally binding treaty to deal with the entire spectrum of issues related to biological diversity at all levels (species, ecosystems and genetic diversity), and to do so on a global scale. It has an overall objective "to promote measures that will lead to a sustainable future" and three main goals: the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the utilization of genetic resources.

The CBD was ready for signature on 5 June 1992 at the Earth Summit held in Rio de Janeiro and entered into force on December 29, 1993. In this Earth Summit, the Agenda 21 was also approved. Agenda 21 is a voluntarily implemented action plan of the United Nations with regard to sustainable development. Chapter 17 of Agenda 21 is about the protection of the oceans, seas and coastal areas covered by UNCLOS but focusing on

¹² UNCLOS treaty http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

marine and coastal area management and development at the national, subregional, regional and global levels (UN, 1992).

The CBD did not contain any specific article on marine and coastal biodiversity until the second Conference of the Parties (COP2), held in Jakarta in 1995. During this conference, a global consensus on the importance of marine and coastal biological diversity, called Jakarta Mandate, was approved. Its work programme was adopted at the COP meeting in Bratislava in 1998 and is constituted by five key programme elements: integrated marine and coastal area management (IMCAM); marine and coastal living resources (MCLR); marine and coastal protected areas (MCPA); mariculture; alien species and genotypes. The second objective of the Marine and coastal protected area programme is to “*develop criteria for the establishment and management of marine and coastal protected areas*” (SCBD, 2000).

Currently, 198 Parties have ratified the CBD treaty. Its implementation is undertaken through seven thematic programmes, among which is the Marine and Coastal Biodiversity programme, and 21 cross-cutting issues. All of these have their own detailed and extensive work or guidance documents with principles and goals adopted by decisions of the Conferences of the Parties. One of these issues is Protected Areas.

The Programme of Work on Protected Areas was adopted during the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity in 2004. This detailed and ambitious programme considers protected areas as the cornerstones of biodiversity conservation. It is applicable to terrestrial and marine protected areas and provides a globally accepted framework for creating comprehensive, effectively managed and sustainably funded national and regional protected area systems around the globe. In addition, CBD considers that protected areas are a key strategy in climate change adaptation and mitigation.

During the 10th meeting of the Conference of the Parties to the CBD, the Strategic Plan for Biodiversity 2011-2020¹³ was adopted. It was subsequently adopted by the other four biodiversity-related agreements (CMS, CITES, UNESCO World Heritage and Ramsar), referenced in the Rio+20 Conference outcomes and United Nations General Assembly resolutions, and widely supported by many United Nations organizations such as UNDP, UNEP, and FAO, as well as by IUCN and non-governmental organizations. The Strategic Plan for Biodiversity 2011-2020 and its set of targets (Aichi Targets) for achieving biodiversity and sustainable development goals has truly become the overall framework for action on biodiversity.

The Strategic Plan mission is: “*to take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet’s variety of life, and contributing to human well-being, and poverty eradication. To ensure this, pressures on biodiversity are reduced, ecosystems are restored, biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; adequate financial resources are provided, capacities are enhanced, biodiversity issues and values mainstreamed, appropriate policies are effectively implemented, and decision-making is based on sound science and the precautionary approach.*”

Convention on Wetlands (Ramsar)

The Convention on Wetlands of International Importance especially as Waterfowl Habitat is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources in benefit of humankind. The wise use of wetlands is defined as¹⁴ “*the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development*”.

The treaty was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. It is the only international agreement on environment that deals with a particular ecosystem, and member countries of the Con-

¹³ Strategic Plan for Biodiversity 2011-2020, Convention on Biological Diversity (CBD)
<http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf>

¹⁴ Ramsar http://www.ramsar.org/cda/es/ramsar-home/main/ramsar/1_4000_2_

vention cover all geographical regions of the planet. Currently, 169 Parties have ratified it and more than 2220 sites have been designed. The Cobourgh Peninsula in the Northern Territory, Australia, was designated as the first Wetland of International Importance in the world under the Ramsar Convention on May 8, 1974. Ramsar Convention uses a wide definition of the types of wetlands, including lakes and rivers, swamps and marshes, wet grasslands and peatlands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans. This definition contains the majority of marine coastal zones around the world (Ramsar Convention Secretariat, 2013 and 2016).

In 1999, Contracting Parties adopted the *Guidelines for international cooperation under the Ramsar Convention* (Resolution VII.19; Handbook 20) to assist them in the implementation of the obligations of the Convention. For example, article 5 of the Convention on Wetlands establishes that “*the Contracting Parties shall consult with each other about implementing obligations arising from the Convention especially in the case of a wetland extending over the territories of more than one Contracting Party or where a water system is shared by Contracting Parties. They shall at the same time endeavour to coordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna.*” These agreements focus on cooperative management arrangements and do not change the distinct legal status of each Ramsar site within its national system.

Article 4.1 of the Convention provides that “*each Contracting Party shall promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands, whether they are included in the List or not, and provide adequately for their wardening*”. The value of establishing nature reserves at wetlands of diverse types and sizes is recognized, along with the value of reserves for promoting conservation education and public awareness about the importance of wetland conservation and the goals of the Convention.

The Fourth Ramsar Strategic Plan 2016-2024 was approved in January 2016 and is designed to support all stakeholders’ efforts to ensure that Wetlands are conserved, wisely used, restored and their benefits recognised and valued by all (Ramsar Convention Secretariat, 2016).

The two conventions, Ramsar and CBD, are currently working closely together under the 5th Joint Work Plan (JWP) 2011 – 2020. The goal of this Joint Work Plan is the conservation, sustainable and wise use of biodiversity especially in wetlands, helping to ensure the full achievement of the Vision, Mission and Goals of the Strategic Plan for Biodiversity (2011-2020) and its Aichi Biodiversity Targets, as well as the Mission and Strategies of the Ramsar Strategic Plan 2009 - 2015 and 2016 - 2024 (JWP, 2011-2020).

Man and the Biosphere Programme (MAB)

This programme of the UNESCO was established in 1971 and is considered as soft law, i.e. its biosphere reserves do not function under a legally binding convention. A biosphere reserve is an area proposed by its residents, established by the country, and recognized under UNESCO’s Man and Biosphere (MAB) programme¹⁵, which promotes sustainable development based on local community efforts and sound science. In 1976 the World Network of Biosphere Reserve (WNBR) was created and currently counts 621 biosphere reserves in 117 countries all over the world, including 12 transboundary sites.

In 1995, the following agreements were adopted: the *Seville Strategy*, which recommended the action to be taken for the future development of biosphere reserves, with emphasis on the importance of coastal and marine designations; and a *Statutory Framework of the World Network Biosphere Reserves*, which stated the designation procedure for biosphere reserves. In 2008, the Madrid Action Plan¹⁶ was adopted, setting the agenda for the MAB Programme and its WNBR in the 2008-2013 period. It focuses on developing models for global, national and local sustainability and use of biosphere reserves as learning sites for policy professionals, decision-makers, research and scientific communities, management practitioners and stakeholder communities to work together to translate global principles of sustainable development into locally relevant praxis.

¹⁵ MAB program <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme/>

¹⁶ Madrid Action Plan of MAB programme <http://unesdoc.unesco.org/images/0016/001633/163301e.pdf>

In 2016, the *Lima Action Plan* for UNESCO's Man and the Biosphere (MAB) Programme was adopted, along with its World Network of Biosphere Reserves (2016-2025). The MAB Strategy 2016-2025 foresees that, in the next 10 years, "*the MAB Programme will concentrate its support to Member States and stakeholders in conserving biodiversity, restoring and enhancing ecosystem services, and fostering the sustainable use of natural resources; contributing to sustainable, healthy, and equitable societies, economies and thriving human settlements in harmony with the biosphere; facilitating biodiversity and sustainability science, education for sustainable development and capacity building; and supporting mitigation and adaptation to climate change and other aspects of global environmental change*"¹⁷.

European Union law and policy context

In parallel with global processes, the EU recognised (EEA, 2015) that the loss of biodiversity was continuing, and that this loss was posing a major threat to long-term sustainable development, both within the EU and beyond. Thus, in May 1992, the European Union (EU) promoted the development of a common legislative framework by EU governments to protect and conserve disappearing natural and semi-natural habitats and threatened habitats and flora and wildlife species of Europe. This framework was articulated in the Habitats Directive (Directive 92/43/EEC), which aims to protect vulnerable natural habitats and wild fauna and flora, together with the Birds Directive (2009/147/EC), which aims to protect all of the 500 wild bird species naturally occurring in the European Union.

Natura 2000 Network

Natura 2000¹⁸ was born as an EU initiative that supports the practical implementation of the Habitats Directive (Directive 92/43/EEC), which complements the Birds Directive (Directive 79/409/EEC), adopted in 1979 and was updated by Directive 2009/147/EC, both of which include legally binding marine components. The Birds Directive requires the establishment of Special Protection Areas (SPAs) for birds, whilst the Habitats Directive requires Special Areas of Conservation (SACs) to be designated for particular species and habitats. Sites designated under the Habitats Directive are built in three stages: 1) National Lists of Sites of Community Importance (SCIs) are produced based on ecological criteria; 2) The definitive lists of Sites of Community Importance for each biogeographical region are approved by the European Commission; 3) Special Areas of Conservation are designated at the national level, including the approval of the conservation measures required to support them (e.g. management plans). Marine SACs are, in many aspects, synonymous with the traditional concept of MPAs.

In 2005, the European Court of Justice found that Member States (MSs) are obliged to designate SACs under the Habitats Directive in their EEZs and to provide species protection in that zone as laid down in the Directive (Case C-6/04, ECJ, 20 October 2005).

The Natura 2000 network is one of the most ambitious actions taken in order to halt and reverse the loss of biodiversity in Europe. In November 2017, 27 732 Natura 2000 sites (1 234 314 Km²) in 28 EU MSs are listed, but only 444 446 Km² of these are marine (EC, 2018). Figure 3 shows the marine sites designated in 2011. Full implementation of the Natura 2000 Network, ensuring its proper management, corresponds to the first objective of the European Biodiversity Strategy.

Although the implementation of the Natura 2000 network is mandatory for all Member States, there are issues about limiting some human activities such as fishing and shipping. The conservation of marine fisheries resources belongs exclusively to the competence of the EU within the framework of the Common Fisheries Policy (CFP)¹⁹. However, environmental issues are shared between the EU and the MSs²⁰. Thus, it is not clear to

¹⁷ MAB Strategy 2016-2025, UNESCO http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/Lima_Action_Plan_en_final.pdf

¹⁸ Red Natura 2000, http://ec.europa.eu/environment/nature/natura2000/index_en.htm

¹⁹ Article 3(1)(d) and article 4(2)(d) of the Treaty on the Functioning of the European Union (TFEU). http://www.eudemocrats.org/fileadmin/user_upload/Documents/D-Reader_friendly_latest%20version.pdf

²⁰ Article 4(2)(e) of the TFEU

what extent the MSs have legal authority to impose regulations for the restriction of fishing activities within the framework of marine nature conservation and whether such measures can be taken through the CFP.

The new CFP, which is effective from January 1st, 2014, suggests achieving the obligations imposed by Directives Habitats and Birds. For this, CFP proposes “to authorise Member States to adopt, in the waters under their sovereignty or jurisdiction, such conservation measures that are necessary to comply with their obligations under those Union acts where such regulations do not affect the fisheries interests of other Member States. Where such regulations might affect fisheries interests of other Member States, the power to adopt such measures should be granted to the Commission and recourse should be had to regional cooperation among the Member States concerned” (OJ L 354/22, 2013²¹).

In 2006, the EU recognized that the loss of biodiversity was continuing and that this loss was posing a major threat to long-term sustainable development, both within the EU and beyond (EEA, 2014). To halt the loss of biodiversity, loss of natural habitats and degradation of ecosystem services, and to restore it, as well as to fully implement the Birds and Habitats Directives, thus reflecting global commitment to this cause, the EU launched the Biodiversity Action Plan through the communication *Halting the loss of biodiversity by 2010 — and beyond — Sustaining ecosystem services for human well-being* (EC, 2006), followed by the 2011 EU Biodiversity Strategy (EC, 2011).

To address this challenge in the marine environment, the EU produced the Integrated Maritime Policy (COM (2007) 575 final), which provides a coherent approach to maritime affairs with greater coordination between different areas, covering the following cross-cutting policies: Blue growth; Marine data and knowledge; Maritime spatial planning; Integrated maritime surveillance and Sea basin strategies. The European Union has set itself the objective to become a smart, sustainable and inclusive economy by 2020.

Blue Growth is the long-term strategy to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the European economy and have great potential for innovation and growth. The main sectors that have a high potential for sustainable jobs and growth are aquaculture, coastal tourism, marine biotechnology, ocean energy and seabed mining. To carry out this strategy, the following elements are needed: marine knowledge to improve access to information about the sea; maritime spatial planning to ensure an efficient and sustainable management of activities at sea; and integrated maritime surveillance to give authorities a better picture of what is happening at sea (COM(2014) 254 final of 8 May 2014).

Moreover, the EU produced new legislation, such as the Water Framework Directive (WFD, 2000/60/EC)²² and the Marine Strategy Framework Directive (MSFD, 2008/56/EC)²³. Both policies have in common that they call for integrated ecosystem management and set targets for good ecological or environmental status and blue growth status. The EU later produced the Framework for Maritime Spatial Planning (FMSP, 2014/89/EU), which encompasses the two aforementioned directives within a common framework.

However, the actions taken or planned so far are not at all sufficient to achieve the biodiversity objectives by 2020, according to recent studies such as the report on the state of nature in the European Union (EEA, 2015).

Water Framework Directive (WFD)

In 2000, the European Union took a groundbreaking step when it adopted the Water Framework Directive (WFD, 2000/60/EC). It introduces a new legislative approach to managing and protecting water, based not on national or political boundaries but on natural geographical and hydrological formations: river basins. Through this Directive, the European Union organizes the management of surface, continental, transitional, coastal and groundwater waters, with a view to preventing and reducing pollution, promoting their sustainable use, protecting the aquatic environment, improving the situation of Ecosystems and mitigating the effects of floods and

²¹ Common Fisheries Policy (CFP), 2013 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF>

²² Water Framework Directive (2000/60/EC) http://www.heritagecouncil.ie/fileadmin/user_upload/Policy/External_Policy_Docs/Water_Framework_Directive.pdf

²³ Marine Strategy Framework Directive (2008/56/EC) http://www.magrama.gob.es/es/costas/temas/estrategias-marinas/Directiva200856_tcm7-198946.pdf

droughts. It also requires coordination of different EU policies and sets out a precise timetable for action, with 2015 as the target date for getting all European waters into good condition.

In 2009, a management plan and a programme of measures for each river basin district should be presented, taking into account the results of the analyses and studies carried out. The measures provided for in the river basin management plan shall aim to: *Prevent deterioration, improve and restore the status of surface water bodies, ensure that they are in good chemical and ecological condition and reduce pollution due to discharges and releases of hazardous substances; Protect, improve and restore groundwater, prevent its contamination and deterioration and ensure a balance between its abstraction and its renewal; Protected areas.*

Marine Strategy Framework Directive (MSFD)

The WFD is aimed at river basins, while the MSFD (2008/56/EC) applies to all marine territorial waters (including coastal waters; Figure 3). The step from WFD to MSFD implies a better incorporation of an Ecosystem Approach to Management, as it requires elevating consideration from the structural community level to a functional ecosystem assessment (Van Hoey et al., 2010).

The MSFD has added a new impetus within the EU because it establishes a framework within which Member States will take measures to maintain or achieve 'good environmental status' (GES) in the marine environment by 2020 through 11 qualitative Descriptors of GES. These measures must address spatial protection in order to contribute to coherent and representative networks of MPAs that adequately cover the diversity of the constituent ecosystems. The challenge of establishing networks of MPAs and thereby protecting biodiversity and ecosystem function is recognised as an essential step by all EU marine and maritime policies. The implementation of the Natura 2000 Network in the marine environment is at the core of the entire process. Within the framework of the CFP, however, it can be argued that the aim for a 'sustainable' use (conservation and management of fishery resources) is primarily aimed at the continuity of the fishing activity rather than solely at environmental concerns. It is clear that a 'sustainable use' can only be achieved when pressure reduction plays a key role in the management of MPAs and marine areas in general. These conflicts can only be resolved via the use of ecosystem-based marine spatial management, which should become the essential approach for the integrated management of the sea (Katsanevakis et al., 2011).

Framework for Maritime Spatial Planning Directive (MSP)

The high and rapidly increasing demand for maritime space for different purposes, such as maritime shipping and fishing activities, aquaculture and other growth areas, renewable energy equipment, oil and gas exploration and exploitation, ecosystem and biodiversity conservation, as well as the multiple pressures on coastal resources, highlights the need for an integrated planning and an efficient management approach.

The Framework for Maritime Spatial Planning Directive 2014/89/EU is created in order to: reduce conflicts, encourage investment, increase coordination, increase cross-border cooperation and protect the environment. Maritime spatial planning involves stakeholders in a transparent way in the planning of maritime activities. While each EU country will be free to plan its own maritime activities, local, regional and national planning in shared seas would be made more compatible through a set of minimum common requirements.

The objective of the IMP is to *'support the sustainable development of seas and oceans and to develop coordinated, coherent and transparent decision-making in relation to the Union's sectoral policies affecting the oceans, seas, islands, coastal and outermost regions and maritime sectors, including through sea-basin strategies or macro-regional strategies, whilst achieving good environmental status as set out in Directive MSFD 2008/56/EC'*.

Maritime Spatial Planning (MSP) was identified as a tool to integrate human activities at sea in the 2007 EU Blue Book "An Integrated Maritime Policy for the European Union". But the tool used specifically in coastal areas is Integrated Coastal Zone Management (ICZM), which integrates management of all policy processes affecting the coastal zone, addressing land-sea interactions of coastal activities in a coordinated way with a view to ensuring the sustainable development of coastal and marine areas. Integrated Coastal Zone Management (ICZM) was established as a process to assist in EU policy implementation through Recommendation

2002/413/EC and the ICZM Protocol to the Barcelona Convention. Therefore, the EU Commission is now proposing to develop these two tools together (2013/0074 (COD)). MSP and ICZM are embedded in the Integrated Maritime Policy of the European Union (IMP).

Maritime Spatial Planning and Integrated Coastal Zone Management are complementary tools. Their geographical scope overlaps in the coastal and territorial waters of Member States, where maritime spatial plans will map existing human activities and identify their most effective future spatial development, while integrated coastal management strategies ensure the integrated management of these human activities. Applied jointly, they both improve sea-land interface planning and management.

The general objective of these jointly developed EU actions is *'to ensure the sustainable development of the EU's coastal zones and maritime areas in accordance with the ecosystem approach. It also aims at supporting the achievement of various other EU Treaty, legislative and policy objectives including Europe 2020, environment, energy, fisheries, maritime transport and cohesion policy'*. Any EU action in this context should limit itself to setting out tools for achieving the above-mentioned policy objectives. To this end, the operational objectives are of procedural nature: *'the development and implementation of processes coherently to manage and plan human uses of maritime space (defined as MSP) and to coordinate coastal management policy instruments in all coastal Member States (defined as ICZM), the delivery and further development of common principles and approaches for MSP and ICZM processes and the development and implementation of appropriate cross border cooperation'* (2013/0074 (COD)).

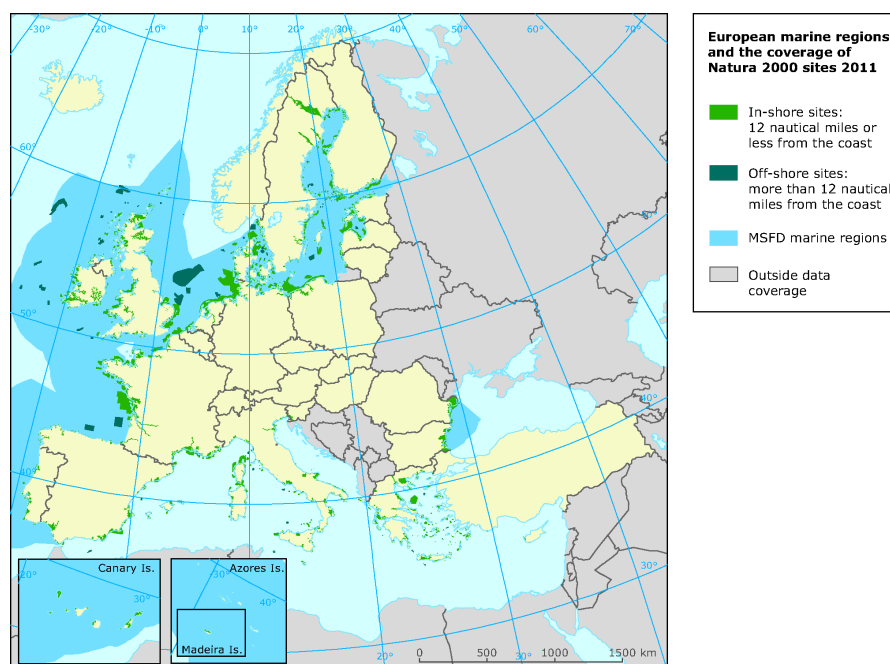


Figure 3. Coverage of marine Natura 2000 sites in 2011. Source: European Environmental Agency²⁴

Other regional law and policy context

The European Regional Seas Conventions, together with related Agreements, have also promoted the designation of MPAs in marine areas under their respective jurisdictions as follows:

OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic arose in 1992 from unifying, updating and extending the 1972 Oslo Convention on dumping waste at sea and the 1974 Paris Convention on the prevention of marine pollution from land-based sources and offshore industries. The convention,

²⁴ European Environmental Agency <http://www.eea.europa.eu/data-and-maps/figures/european-marine-regions-and-the>

with its new annex on biodiversity and ecosystems, was adopted in 1998 for non-polluting human activities that can adversely affect the sea. Currently, the Convention is a legal instrument guiding international cooperation for the protection of the marine environment in the North-East Atlantic and is managed by the OSPAR Commission, made up of representatives of the Governments of 15 Contracting Parties and the European Commission, representing the European Union. It is committed to establish a representative and ecologically coherent network of well-managed MPAs in the North-East Atlantic as part of its programmes and measures (OSPAR, 2003). This target would be achieved by 2016 and it will be assessed in the following years. The OSPAR MPA Network now covers over 5.9% of the OSPAR maritime area, with a total number of 448 MPAs (OSPAR, 2017).

The OSPAR Commission works under the umbrella of the Law of the Seas (UNCLOS), especially in Part XII and Article 197 on the global and regional cooperation for the protection and preservation of the marine environment. The OSPAR Convention recognises the jurisdictional rights of states over the seas and the freedom of the High Seas, and, within this framework, the application of main principles of international environmental policy to prevent and eliminate marine pollution and to achieve sustainable management of the maritime area. This includes principles resulting from the 1972 Stockholm United Nations Conference on the Human Environment and from the 1992 Rio de Janeiro United Nations Conference on the Environment and Development, including the CBD treaty (1992 OSPAR Convention).

Overall, the work of the OSPAR Commission is guided by an ecosystem approach to the integrated management of human activities in the marine environment. This is supported by a general obligation of Contracting Parties to apply the precautionary principle; the polluter pays principle; and the best available techniques and best environmental practice, including clean technology (1992 OSPAR Convention).

The OSPAR Convention classifies marine protected areas (MPAs) into two types: MPAs situated within national waters of Contracting Parties (CPs) and MPAs outside of national waters of CPs, with different jurisdictional protective regimes. The latter MPAs are called areas beyond national jurisdiction (ABNJs). The protection of the marine environment and biodiversity in ABNJs has also attracted great attention at the global level in recent years, in particular in the context of the United Nations General Assembly (UNGA), the legal framework established by the UN Convention on the Law of the Sea (UNCLOS) and the Convention on Biological Diversity (CBD). OSPAR has assumed a pioneering role in this context as a regional organisation to protect marine ecosystems and biodiversity in ABNJs (OSPAR, 2013).

Being aware of the shared responsibilities and the need for a collaborative approach in ABNJ, OSPAR has at the same time aimed at strengthening mutual exchange and cooperation with the various relevant international Competent Authorities responsible for the management of specific human activities in ABNJs, including the North East Atlantic Fisheries Organisation (NEAFC), the International Seabed Authority (ISA) and the International Maritime Organization (IMO) (OSPAR, 2013).

The OSPAR plays a coordination role for the EU Member States that implement the MSFD as a result of an agreement on common indicators and candidate indicators at OSPAR 2013 (OSPAR, 2014).

THE CONCEPT OF MARINE PROTECTED AREA

A brief history of MPAs: from productive to environmental objectives

Marine and coastal biodiversity is under increasing stress from intense human pressures, including rapid coastal population growth and development, over-exploitation of commercial and recreational resources, loss of habitat, and land-based sources of pollution. Almost half of the world's fisheries are fully exploited, while about a fifth are overfished. About 90% of large predatory fish biomass has been lost since pre-industrial times. Approximately 35% of mangrove forests have been lost over the past two decades. At the same time, people around the world are increasingly dependent on these threatened resources for food, tourism, shoreline protection, and numerous other ecological services. As these pressures intensify, marine protected areas are being recognized as essential for nature and biodiversity conservation in order to maintain the basic ecosystem services and functions that sustain human life as we know it. They complement other uses, promote environmental protection and support regulations aimed at the sustainable use of biological resources outside protected areas (Lausche, 2011).

The history of protected areas could be divided in three periods: the first one from the end of the century XIX to beginning of the 1970's, the second one from the 1970's until 2003 and the third one until today (Ortiz, 2002).

During the first period, few protected areas within the marine area were designated 'per se', i.e., there were terrestrial protected areas covering marine areas. These areas were created primarily for aesthetic or recreational purposes. The first marine protected area was Fort Jefferson National Monument in 1935, Florida, USA (Ortiz, 2002). During this period, other types of protected areas designated to manage fisheries or preserve indigenous rights were also in operation.

However, the marine protected area as we understand now did not appear until the second period (from 1970's), where environmental protection became relevant and the concept of rational use of resources arose. This global awareness of environmental protection was linked to a historical period of great economic growth, though uneven between North and South, which promoted an awareness of the need to maintain the balance between conservation and exploitation of natural resources. This was also related to some circumstances such as the intergovernmental conference of experts in 1968, organized by UNESCO and known as the "Biosphere Conference". This conference was the first time that a review about the nature of environmental problems facing humanity and how science and scientists can help to solve them was held at a global and intergovernmental level. It also meant the introduction of the word "biosphere" to the general public. Based on this conference, the current UNESCO MAB programme was launched three years later to create biosphere reserves advocating sustainable development. This programme was described in a previous section (1.2.1.4).

The International Union for Conservation of Nature (IUCN) pointed out in 1988 that the world's marine area is two and a half times larger than the terrestrial area, yet only 1% of the marine area is under protection (Kelleher & Kenchington, 1991).

Global awareness about environmental protection was consolidated in 1992 with the signing of the Convention on Biological Diversity (CBD), which represented a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. The result of this was a considerable rise in the designation of protected areas in general and of marine protected areas in particular from this moment on (Ortiz, 2002; Sadeleer and Born, 2004; Spalding and Hale, 2016) (Figure 4).

The third period was characterized by an exponential growth in the designation of MPAs. Between 2003 and 2009, the area protected under the concept of MPA doubled, and it doubled again from 2009 to 2012, in only 3 years. Global estimates of MPA coverage in August 2014 indicated that over 12 000 sites were considered MPAs, covering 12 million km². This area is equivalent to 3.4% of the world's ocean surface, with the great majority of it covering areas under national jurisdiction, i. e. between 0 and 200 nautical miles from the shore (Juffe-Bignoli et al. 2014). In Europe, the percentage of territorial waters covered by marine protected areas varied from 3.8% in 1990 to 15.9% in 2012 (UNEP-WCMC and IUCN, 2014).

This exponential growth could be due to the adoption of the Programme of Work on Protected Areas by the CBD in 2004, whose goal is 'to achieve a representative and effectively managed MPA network' by 2012 and a tighter specification of targets in 2006, which called for 'at least 10% of each of the world's marine and coastal ecological regions effectively conserved' (Toropova et al., 2010).

In addition, the priorities of the World Commission of Protected Areas (WCPA) regarding marine protected areas, outlined in its Strategic plan 2005-2012²⁵, were 'a network of marine protected areas, elimination of destructive fishing practices, and the implementation of ecosystem-based management could help meet the global goal of maintaining or restoring fisheries stocks to levels that can produce the maximum sustainable yield no later than 2015'.

A specific type of marine protected areas has always existed throughout the three periods, independently of the trends previously described. These are the "de facto MPAs" (DFMPAs), namely marine areas where activities

²⁵ WCPA Strategic plan 2005-2012 <http://cmsdata.iucn.org/downloads/strategicplan0512.pdf>

are restricted by law for reasons other than conservation or natural resource management. Familiar examples include safety, security and danger zones, restricted areas, prohibited lightering areas, some anchorage grounds, and traffic separation schemes. Because DFMPAs can affect access and ocean uses by people, their location, size and purposes are of interest to users, conservationists, scientists and ocean planners. Although they were born with different motivations, DFMPAs have sometimes the same positive effect as any MPA (National Marine Protected Areas Center, 2008).

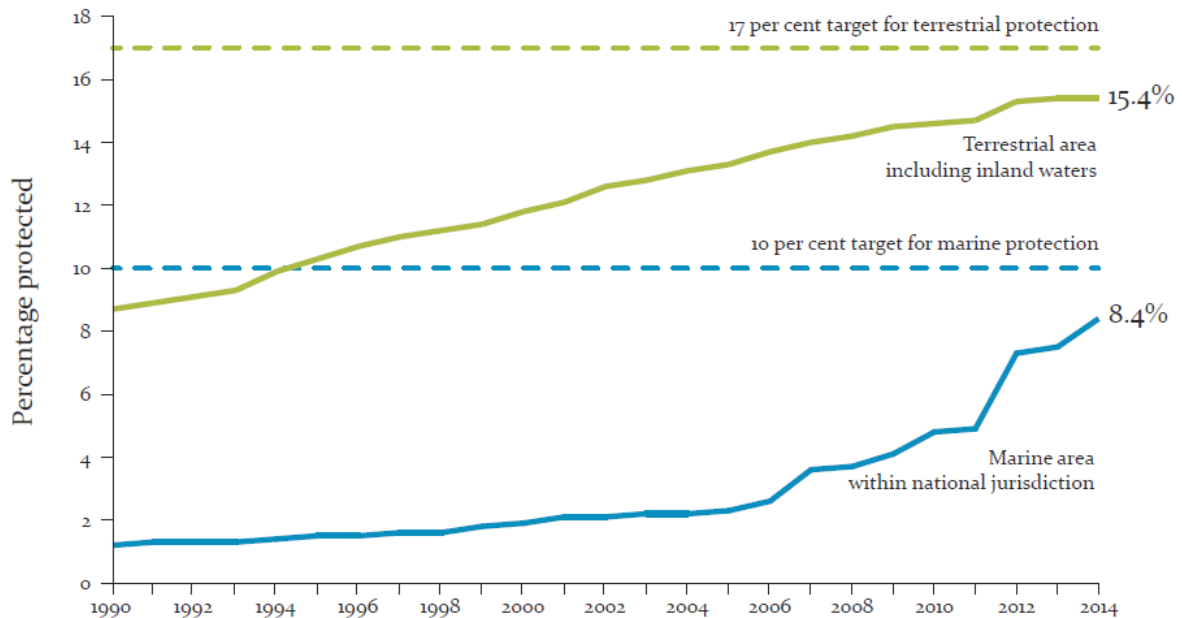


Figure 4. Percentage of all terrestrial and marine areas (0 - 200 nautical miles) covered by protected areas, 1990 - 2014 (Juffe-Bignoli et al. 2014).

The concept of MPA

Marine Protected Area (MPA) is an umbrella term to describe a wide range of areas that are important for marine conservation around the world. Broadly speaking, we can define a marine protected area as *'any protected area in the marine environment'*. The MPA concept is applied with different names for similar policies. MPAs can range from small village-level community-managed areas to large, zoned national parks. The specific rules associated with an MPA vary by context, and names are not used consistently. A clear example of terminological variety is the Australian legislation, which contains the following names: *Marine reserves, National Marine Parks, Conservation Areas, Nature Reserves, Coastal Parks, Historic Shipwreck Protected Zones, Aquatic Reserves, Wildlife Sanctuaries, Wetland Reserves, Fish Habitat Reserve and Marine National Nature Reserve* (Kelleher et al., 1995; Boer and Gruber, 2010), all of them constituting MPAs.

A global definition of MPAs was first adopted by the General Assembly of the International Union for Conservation of Nature (IUCN) in 1988 and reaffirmed in Resolution 19.46 in 1994: *'Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment'* (Kelleher, 1999).

The Convention on Biological Diversity (CBD) defines a Marine and Coastal Protected Area (MCPA) as *'an area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna, and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings'* (SCBD, 2004, p.7). This definition is now widely accepted and emphasizes that the designation applies to coastal areas or areas that cross the land/sea interface, such as estuaries and marine salt marshes.

Different definitions have been formulated since then by different countries to accommodate the issues of management approach and scale. More recently, a revised definition of a protected area has been provided by IUCN and developed within the World Commission on Protected Areas (WCPA) framework. This definition is

accepted worldwide and is applied to both MPAs and protected areas on land: *'A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values'* (Dudley, 2008).

This definition summarizes a great amount of information in one short sentence and has been revised by experts within IUCN-WCPA over the years but is still maintained as defined in 2008. This common definition across all types of protected areas is useful to avoid potential confusion where a protected area system includes MPAs or where a particular protected area includes both terrestrial and marine components. The primary purpose of the 2008 IUCN-WCPA definition is conservation, and marine protected areas without nature conservation goals, such as the extraction of marine products, should not be defined as marine protected areas following IUCN's definition. The table in Appendix I explains and clarifies the meaning of each word or term when applied to the marine environment, along with some examples to illustrate the definition (Day et al., 2012).

Regarding their objectives, nature conservation should be linked to local socio-economic goals or to sustainable resource management. Management can be led by different organisations with different status and governance. A protected area is also defined by the implementation of management measures for biodiversity protection, which can include regulation, best practice guidelines, monitoring, surveillance, education and awareness programmes, etc.

In some cases, conserving marine biological diversity is not the primary objective of protected areas. These are MPAs with multiple objectives, and usually one of the primary objectives is related to fisheries management. In this sense, FAO developed in 2011 guidelines on marine protected areas and fisheries to address the interface between fisheries management and biodiversity conservation and to provide guidance in implementing MPAs with multiple objectives. These Guidelines seek to cover issues relevant to MPAs in all ocean zones, that is, from territorial waters to high seas, and discuss concepts both with regard to a single MPA and to MPA networks. All levels of protection or restriction could be implemented in an MPA, from no-take zones, e.g., energy production areas where all uses are forbidden including shipping traffic, to areas where only some uses are forbidden, e.g. certain fishing gears. In the FAO document, MPA is defined as *'any marine geographical area that is afforded greater protection than the surrounding waters for biodiversity conservation or fisheries management purposes'*. This broad characterization includes very large areas, such as exclusive economic zones (EEZs) at one extreme, but the term MPA is usually understood to apply to areas specifically designated to protect a particular ecosystem, ecosystem component or some other attribute (e.g. historical site; FAO, 2011).

The World Bank has developed a scheme to classify the most common forms of MPAs according to area coverage and degree of protection, from minimal to full protection, in a hypothetical national context, within a nested hierarchy in which integrated coastal management (ICM) provides the overarching framework. The typology shown in Figure 5 allows for a distinction between "protection" and "sustainable use" as the main management objective of individual MPAs (World Bank, 2006). According to this, any MPA can be characterized along a gradient of size and protection level.

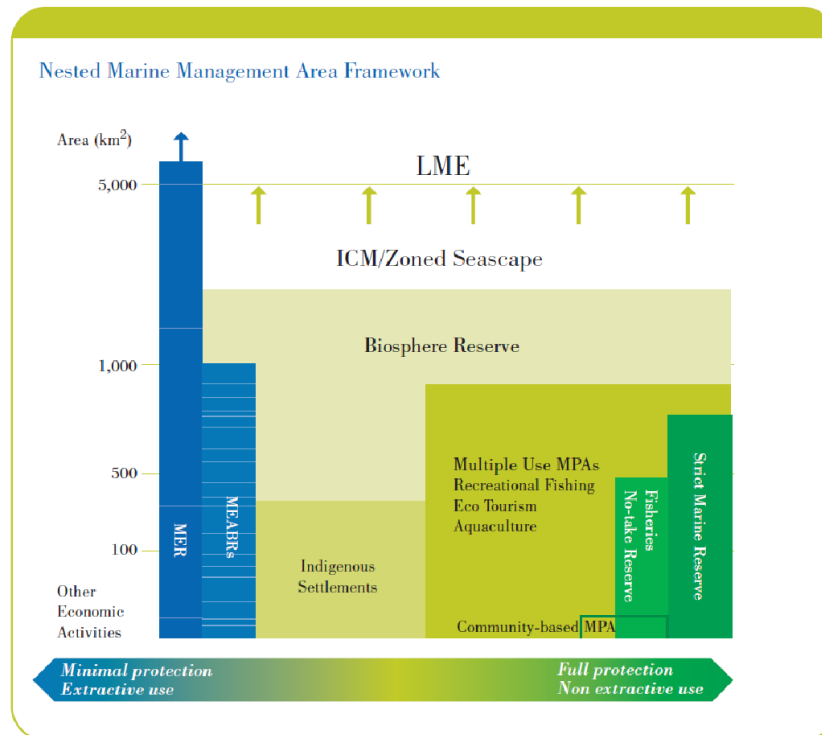


Figure 5. World Bank classification scheme of the most common forms of MPAs according to area coverage and degree of protection in a hypothetical national context, within a nested hierarchy in which integrated coastal management (ICM) provides the overarching framework. MEABRs management and exploitation areas for benthic resources; MER marine extractive reserves (World Bank, 2006).

Other similar concepts

Marine Reserve

Marine reserves are defined as ocean areas that are fully protected from activities that remove animals or plants or alter habitats, except as needed for scientific monitoring, thus being in this case more restrictive than an MPA. It is established with the goal of increasing the abundance and diversity of marine life within it. Marine reserves provide the highest level of marine protection, where all forms of exploitation are prohibited. They are often termed “no-take areas” or “no-take zones”. Marine reserves, being free from human impacts, provide good scenarios for scientific studies, as well as for comparison among areas (Roberts and Hawkins, 2000). However, in other cases, the term marine reserve is used interchangeably with MPA and both represent the same concept: an area of the sea that has some level of legal protection to preserve biodiversity.

De facto Marine Protected Areas

Some of the most effectively closed areas result from no-access zones set aside for reasons such as safety, security or regulation of shipping or military activities. One of the most notable areas is the US Island of Kaho’olawe, Hawaii, which served as a bombing practice range for the U.S. Navy for almost fifty years after the end of World War II. Nowadays, it provides thriving shallow-water coral habitats as an inadvertent result of heavily restricted human use during all this time. Baseline surveys are still being conducted in order to assess the effects of the island’s converted protection as a reserve (National Marine Protected Areas Center, 2008).

Networks of MPAs

In a simple way, an MPA network refers to two or more MPAs that complement each other. At the international level, the concept of a global network of marine and coastal protected areas has emerged as an important concept for achieving marine biodiversity conservation goals. By aggregating the benefits of multiple MPAs, the network can have larger impacts compared to individual MPAs. However, the establishment of marine and

coastal protected areas is successful only if these areas are set up and managed as part of broader programmes that provide for the management of all uses of the marine and coastal area and adjacent land. Thus, representative systems of marine and coastal protected areas should be established at the national and regional levels to comprise complete ecosystems or habitats to as large an extent as possible. These, in turn, should be integrated with national policies and mechanisms. The establishment of large, multiple-use marine and coastal protected areas is a major step towards achieving integrated marine and coastal area management.

IUCN-WCPA defines an MPA network as '*a collection of individual marine protected areas operating cooperatively and synergistically, at various spatial scales, and with a range of protection levels, in order to fulfil ecological aims more effectively and comprehensively than individual sites could alone. The network will also display social and economic benefits, though the latter may only become fully developed over long time frames as ecosystems recover*' (IUCN-WCPA, 2007).

MPA networks contribute to sustainable development goals by fostering integrated ocean and coastal management at three levels (IUCN-WCPA, 2007):

Ecologically. A network can help to ensure marine ecosystem function by encompassing the temporal and spatial scales at which ecological systems operate.

Socially. A network can help resolve and manage conflicts in the use of natural resources and ensure that reasonable uses can occur with minimal conflict.

Economically. A network facilitates the efficient use of resources by preventing duplication of effort, such as when small, individual areas attempt to maintain their own resource management.

Regarding their design, IUCN-WCPA (2007) defines eight ecological criteria for MPA networks: representativeness, replication, viability, precautionary design, permanence, maximum connectivity, resilience and size and shape.

At an international level, transboundary protected areas (TBPAs) are receiving international recognition in international conventions and programmes, as well as in regional networks. The main conventions, such as the Convention on Wetlands of International Importance especially as Waterfowl Habitat and the World Heritage Convention, recognize transboundary sites. The UNESCO MAB Programme also recognizes Transboundary Biosphere Reserves (TBRs). For this reason, an increase in TBPAs along the world has occurred. One of the very large TBPA is Pelagos Marine Sanctuary for Mediterranean marine mammals, with three countries involved: France, Monaco and Italy. Of the waters of the sanctuary, 47% are in national waters of the three countries, and 53% correspond to international waters (IUCN-WCPA, 2007).

DESIGNATIONS OF MARINE PROTECTED AREA MANAGEMENT

Nowadays, Marine Protected Areas (MPAs) are recognized worldwide as an important tool to conserve marine ecosystems. In Europe, the implementation of MPAs is driven by several international and regional obligations and initiatives, as have been described above. Therefore, different management designations for marine protected areas could be identified according to their purpose or to the objectives in which their relation was based.

Designation²⁶ is defined as the legal name under which the different countries establish their protected areas, grounded in law, with the purpose of managing sites according to their objectives. Designations provide a framework, from strict protection to multiple uses, which can be applied to the entire protected area system, even though some sites may be established under other legislation and may also have other designations. Each designation is suited to particular objectives and needs, and each one is capable of contributing to interna-

²⁶ A designation is established in a legal, formal manner and, even when the designation type is defined by international conventions or treaties and concerns more than one country, it is transposed into national legislation, e.g. sites designated under the Natura 2000 "Habitats" or "Birds" Directives.

tional, national or regional biodiversity conservation goals. Each designation also offers different potential for managing the interactions between protected areas and communities and for providing ecosystem services and biodiversity conservation; thus, the benefits of the different designations for the country will vary depending on the particulars of each country's national legislation. In addition, spatial units of a system included under one specific designation are intended to support those under other designations, and each unit must be planned in conjunction with units under other designations in order for the protected area system to function effectively within the categories' framework (Davey, 1998).

Commonly, there are also different MPA designations attached to established definitions, but conventions and initiatives generally try to standardize designations according to IUCN management categories independently of the name of the MPA.

This categorization has been recognized by international conventions, such as the Convention of Biological Diversity (CBD) and the Ramsar Convention, as well as by other international bodies such as the United Nations as a useful tool for countries to provide a formal structure for planning. In addition, many governments find that IUCN categories provide a useful framework for developing their own national protected area categories. A single international classification system for protected areas also allows comparing information across countries and regions (Dudley, 2008).

IUCN management categories for marine protected areas

The International Union for Conservation of Nature (IUCN) recognizes six different categories of protected areas, classified according to their management objectives and ranging from fully protected areas (no-take zones where no extraction is permitted) to multiple-use areas (where a range of resource uses are allowed). These categories will be applied to an MPA or to different sites within an MPA. The designation of the categories is independent of the name of the MPA (e.g. national marine park, marine reserve, marine sanctuary or biosphere reserve), but MPAs must always state nature conservation as their primary aim (Dudley, 2008).

The definition and the primary objectives of each IUCN category are (Dudley, 2008):

- *Ia*: This category includes “*strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.*” Its main objective is “*to conserve regionally, nationally or globally outstanding ecosystems, species (occurrences or aggregations) and/ or geodiversity features: these attributes will have been formed mostly or entirely by non-human forces and will be degraded or destroyed when subjected to all but very light human impact.*”
- *Ib*: This category refers to “*usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.*” Its main objective is “*to protect the long-term ecological integrity of natural areas that are undisturbed by significant human activity, free of modern infrastructure and where natural forces and processes predominate, so that current and future generations have the opportunity to experience such areas.*”
- *II*: This category includes “*large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.*” Its main objective is “*to protect natural biodiversity along with its underlying ecological structure and supporting environmental processes, and to promote education and recreation.*”
- *III*: Protected areas in this category “*are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine caverns, geological feature such as a caves or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.*” Their main objective is “*to protect specific outstanding natural features and their associated biodiversity and habitats.*”

- IV: This category “*aims to protect particular species or habitats and management reflects this priority. Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.*” Its main objective is “*to maintain, conserve and restore species and habitats.*”
- V: This category includes areas “*where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.*” Its main objective is “*to protect and sustain important landscapes/ seascapes and the associated nature conservation and other values created by interactions with humans through traditional management practices.*”
- VI: Protected areas belonging to this category “*conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in natural condition, where a proportion is under sustainable natural resource management and where low-level non industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.*” Its main objective is “*to protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial.*”

These management categories are applied with a typology of governance types, a description of who holds authority and responsibility for the protected area. IUCN defines four governance types (Dudley, 2008):

Governance by government: Federal or national ministry/agency in charge; sub-national ministry/agency in charge; private government by NGOs or other organizations.

Shared governance: Collaborative management (various degrees of influence); joint management (pluralist management board; transboundary management with various levels across international borders).

Private governance: By individual owner; by non-profit organisations (NGOs, universities, cooperatives); by for-profit organisations (individuals or corporate).

Governance by indigenous peoples and local communities: Indigenous peoples’ conserved areas and territories; community conserved areas – declared and run by local communities.

All combinations of protected area categories and governance types are possible in an MPA, see Table 1.

Governance types	A. Governance by government		B. Shared governance		C. Private governance			D. Governance by indigenous		
	Federal or national ministry or agency in charge	Sub-national ministry or agency in charge	Government-delegated management (e.g., to an NGO)	Transboundary management	Collaborative management (various forms of pluralist influence)	Joint management (pluralist management board)	Declared and run by individual land-owners	... by for-profit organizations (e.g., corporate owners, cooperatives)	... by non-profit organizations (e.g., NGOs, universities)	Indigenous peoples' protected areas and territories – established and run by indigenous peoples
Protected area categories										
la. Strict Nature Reserve										
lb. Wilderness Area										
II. National Park										
III. Natural Monument										
IV. Habitat/ Species Management										
V. Protected Landscape/ Seascape										
VI. Protected Area with Sustainable Use of Natural Resources										

Table 1. The IUCN protected area matrix: a classification system for protected areas comprising both management categories and governance types (Day et al., 2012).

However, the application of these management categories to MPAs can lead to errors in the assignment of a particular IUCN category due to a lack of clear and well-defined objectives according to the primary objectives of each designation. To solve these potential mistakes, supplementary marine guidelines for applying IUCN management categories to MPAs were created (Day et al., 2012), also describing the peculiarities of the marine environment that affect the application of protected area categories to MPAs compared to terrestrial protected areas. These guidelines are the following:

Multi-dimensional environment: MPAs are designated in a fluid multi-dimensional environment. As a result, in some cases different management systems may be needed at different depths. In some MPAs, vertical zoning has been used to achieve this. In others, there may be no vertical zoning, but the type of management put in place may nevertheless vary with depth. There is a general presumption against the use of vertical zoning, as there is increasing evidence of strong ecological benthic-pelagic coupling, and the subsequent vertically tiered management is particularly difficult, if not impossible, to effectively police and enforce.

The sub-seafloor may also need management if there is a potential impact such as mining below the seabed. This is similar to the situation in terrestrial protected areas where activities such as mining might potentially impact the protected area below ground.

Currents and tides causing flows/ impacts: MPAs are subject to surrounding and ‘up-current’ influences from tides and currents. These are generally outside the control of the manager or management agency and cannot be addressed. Although similarly to the situation of airborne or wind-borne impacts on terrestrial protected areas, MPAs are perhaps more consistently subject to such influences.

Lack of clear tenure or ownership: Tenure and ownership in the marine environment is often different from on land, where there usually public or private ownership is clearly defined.

Under the UNCLOS, nations have the right to use their EEZs, which extend out to 200 nautical miles from shore, and to establish management regimes such as MPAs. However, within an EEZ, there is generally no individual ownership of either the seabed or water column, and the EEZ may often be used and accessed by all those belonging to the nation concerned. There are some exceptions, generally in inshore areas: thus, in the UK, the Crown Estate owns about 50% of the foreshore (tidal land between Mean High Water and Mean Low Water, as well as most of the seabed from Mean Low Water out to 12 nautical miles (i.e. the territorial sea); and in many countries, coastal communities may own or have tenure and rights over of certain marine areas or resources, like in Fiji, where local communities have customary rights over traditional fishing grounds known as 'qoliqoli'.

Outside the EEZs, i.e. on the High Seas, the oceans are invariably considered 'commons' that may be used and accessed by all nations. MPAs can represent a legitimate restriction on such rights under the UNCLOS or Regional Sea Agreements, according to provisions of the CBD or Regional Fisheries Agencies.

Multiple jurisdictions: Often, the water column, seabed, sea life and foreshore are managed by different jurisdictions or government agencies, which may create difficulties for designation and management.

Difficulties in enforcement and management: Restricting entry to, and activities in, an MPA is often more difficult than for terrestrial protected areas (and often impossible), as there are usually multiple access points, the site is often remote and thus difficult and expensive to patrol, and rights of 'innocent passage' are afforded to all vessels under international law. While controlling activities in the marine environment is more difficult than on land, modern satellite technology is making it easier.

Lack of visibility of features being protected: Being unable to see subtidal features poses particular problems in terms of management and enforcement. Illegal or unregulated activities may damage features within an MPA without anyone knowing, unless appropriate monitoring or surveillance is undertaken (and this may be expensive, requiring SCUBA diving).

Boundary demarcation: It is often difficult to know where the boundary of an MPA is, both seawards (where electronic charts, a Global Positioning System (GPS) or similar technology are needed) and on the landward side, where boundaries based on high and low water marks may be difficult to locate in the field or may be only loosely defined. In a few cases, vertical zoning has been attempted, and horizontal boundaries have been established at certain depths if an MPA does not extend to either the sea surface (such as a protected area for a seamounts) or to the seabed. However, such boundaries are difficult, if not impossible, to mark, and thus effective and practical compliance is also extremely difficult.

Connectivity between ecosystems and habitats: The scale over which marine connectivity occurs can be very large. Since the extent of connectivity may be critical to the health of an MPA, sufficiently large areas must be considered to ensure adequate protection of ecosystem values.

Day et al. (2012) have also published clarifications about IUCN protected area categories as apply to MPAs and examples in each category. These are the following:

- *Ia*: The MPA must be surrounded by other MPAs with different protection levels, and this category is incompatible with any intrusive action regarding the environment (fishing, harvesting, dredging, mining, etc.) except for scientific research. For example, the eleven marine reserves within the Channel Islands National Marine Sanctuary, California, are assigned to category Ia within the category IV National Park. The Marine Reserves are established for scientific purposes and to preserve biodiversity.
- *Ib*: The MPA should be relatively un disturbed seascape locations, free from human impact (e.g. direct or indirect impacts, underwater noise, light pollution, facilities or works) and capable of remaining so through effective management. As with category Ia, species removal and modification, extraction or collection of resources is forbidden, with the exception of scientific research and, under specific circumstances, sustainable resource use by indigenous people to conserve their traditional spiritual and cultural values, provided this is done in accordance with cultural tradition. For example, Glacier Bay National Park and Preserve comprises two official protected area units in S.E. Alaska, jointly managed by the U.S. National Park Service. The

entire area covers 13 300 km² of land and sea, of which an area of 10 784 km² is designated wilderness, with a cap on annual visitor numbers; - this area is assigned to category Ib.

- *II*: The areas should be managed for “ecosystem protection” but should also provide for visitation, non-extractive recreational activities and nature tourism (e.g. snorkelling, diving, swimming, boating, etc.) and research (including managed extractive forms of research). Extractive use (of living or dead material) is not considered consistent with the objectives of category II. However, in some circumstances, extraction for research and sustainable resource use by indigenous people to conserve their traditional spiritual and cultural values are allowed. One example of these are the Marine National Park Zones (known as green zones) within the Great Barrier Reef Marine Park in Australia.
- *III*: This category applies to MPAs designed to protect specific features, such as seamounts or shipwrecks, which have become aggregation sites for biodiversity and have important conservation value; key aggregation areas for iconic species or other marine features that may have cultural or recreational value to particular groups, including flooded historical/archaeological landscapes. Extractive use follows the same restrictions as in category II. For example, the Truk (Chuuk) Lagoon Underwater Fleet, in Micronesia, is a historical shipwreck site supporting outstanding biodiversity.
- *IV*: It is aimed at the protection of particular stated species or habitats, often with active management intervention (e.g. protection of key benthic habitats from trawling or dredging); particular species or groups such as seabird, turtle or shark sanctuaries and MPAs with seasonal protection, such as turtle nesting beaches that are protected during the breeding season. For instance, the Montague Island Habitat Protection Zone is a category IV MPA in Bateman’s Marine Park in New South Wales, Australia. It is designed to protect a critical habitat for grey nurse shark (*Carcharias taurus*).
- *V*: This category would apply to areas where local communities live within and sustainably use the seascape, but where the primary objectives of the areas are nevertheless nature conservation protection. One example is the Iroise Parc Naturel Marin, France (see objectives in chapter three).
- *VI*: In this category, sustainable exploitation of resources is allowed, while the primary goal is still the preservation of natural habitats. They must be defined taking into account IUCN’s definition of a protected area, and they must achieve verifiable ecological sustainability as appropriate measuring systems that reflect its nature conservation objectives. For example, the Misali Islands Marine Conservation Area (Zanzibar, Tanzania) was set up to protect important marine corals and other biodiversity whilst allowing sustainable use.

In general, a single category is applied to an MPA but, in some cases, an MPA is zoned because of its multiple-use nature. This usually happens in large MPAs. Following the 2008 IUCN guidelines, the categorisation of different zones within a protected area is allowed if three specific requirements are met: (a) the zones are clearly mapped; (b) the zones are recognised by legal or other effective means; and (c) each zone has distinct and unambiguous management aims that can be assigned to a particular protected area category (Day et al., 2012).

In very few cases, a MPA has been formally vertically zoned to account for the three-dimensional nature of the marine environment. IUCN is not in favour of this type of zoning because it often does not make ecological sense. The vertical ecological connections that exist in marine ecosystems are not yet fully known. For example, exploitation and even preparation of the seabed for exploitation in the form of deep-sea mining may have a major impact on ecosystem components on and above the sea floor. Furthermore, enforcing vertical zoning is extremely difficult, if not legally impossible.

The first three IUCN management categories (*Ia*, *Ib*, *II*) are those with the highest levels of protection, forbidding any kind of extraction. Activities such as fishing and extraction of wild living resources are highly extended in the marine environment, thus it is normal that there are conflicts with MPAs. Commercial fisheries managed to provide long-term exploitation do not necessarily comply with ecological standards for nature conservation. From IUCN’s point of view, the key point is that all activities that are allowed to take place within a protected area must be compatible with its stated conservation management objectives regardless of the IUCN category. The majority of their objectives are not compatible with commercial fishing. Table 2 summarises the general

guidelines on the relationship between fishing/collection of living resources and the different categories (Day et al., 2012).

In this sense, IUCN lists the marine activities that should be appropriate for each IUCN management category, as summarized in Table 3. However, this table should not be used as the basis for assigning categories, which must be based on the MPA's stated nature conservation objectives (Day et al., 2012).

Table 2. Compatibility of fishing/collecting activities in different management categories (Day et al., 2012)

IUCN category	Long-term and sustainable local fishing/ collecting practices	Recreational fishing/ collecting	Traditional fishing/ collecting	Collection for research
Ia	No	No	No	No*
Ib	No	No	Yes**	Yes
II	No	No	Yes**	Yes
III	No	No	Yes**	Yes
IV	Variable#	Variable#	Yes	Yes
V	Yes#	Yes	Yes	Yes
VI	Yes#	Yes	Yes	Yes

Key:

*	Any extractive use should be prohibited in Category Ia MPAs, with possible exceptions for scientific research that cannot be done anywhere else.
**	In Category Ib, II and III MPAs, traditional fishing/collecting should be limited to an agreed sustainable quota for traditional, ceremonial or subsistence purposes, but not for purposes of commercial sale or trade.
#	Whether fishing or collecting is or is not permitted will depend on the specific objectives of the MPA.

Other MPA categories

As explained above, IUCN defines a protected area as a precise set of management approaches with limitations, which must have nature conservation as a primary aim. However, many managed marine areas protect biodiversity, either directly or indirectly, and do not necessarily fulfil IUCN's definition of a protected area and categories. This is particularly the case in the marine environment, where there is a long history of spatial fisheries management and a growing interest in spatial planning and spatial management of other activities that often have no stated aim or interest in nature conservation, but in which it becomes an incidental or indirect goal.

Table 3. Matrix of marine activities that may be appropriate for each IUCN management category (Day et al., 2012)

Activities	Ia	Ib	II	III	IV	V	VI
Research: non-extractive	Y*	Y	Y	Y	Y	Y	Y
Non-extractive traditional use	Y*	Y	Y	Y	Y	Y	Y
Restoration/enhancement for conservation (e.g. invasive species control, coral reintroduction)	Y*	*	Y	Y	Y	Y	Y
Traditional fishing/collection in accordance with cultural tradition and use	N	Y*	Y	Y	Y	Y	Y
Non-extractive recreation (e.g. diving)	N	*	Y	Y	Y	Y	Y
Large-scale, low-intensity tourism	N	N	Y	Y	Y	Y	Y
Shipping (except as unavoidable under international maritime law)	N	N	Y*	Y*	Y	Y	Y
Problem wildlife management (e.g. shark control programmes)	N	N	Y*	Y*	Y*	Y	Y
Research: extractive	N*	N*	N*	N*	Y	Y	Y
Renewable energy generation	N	N	N	N	Y	Y	Y
Restoration/enhancement for other reasons (e.g. beach replenishment, fish aggregation, artificial reefs)	N	N	N*	N*	Y	Y	Y
Fishing/collection: recreational	N	N	N	N	*	Y	Y
Fishing/collection: long term and sustainable local fishing practices	N	N	N	N	*	Y	Y
Aquaculture	N	N	N	N	*	Y	Y
Works (e.g. harbours, ports, dredging)	N	N	N	N	*	Y	Y
Untreated waste discharge	N	N	N	N	N	Y	Y
Mining (seafloor as well as sub-seafloor)	N	N	N	N	N	Y*	Y*
Habitation	N	N*	N*	N*	N*	Y	N*

Key:

No	N
Generally no, unless special circumstances apply	N*
Yes	Y
Yes because no alternative exists, but special approval is essential	Y*
* Variable; depends on whether this activity can be managed in such a way that it is compatible with the MPA's objectives	*

THE MANAGEMENT PLAN AS AN OPERATIONAL TOOL

Without effective management, MPAs and MPA networks become “paper reserves” (protected in name only) (Roberts and Hawkins, 2000; Rife et al., 2013; EEA, 2015). Therefore, each MPA should have a management plan designed to achieve its goals and objectives. A well-defined management plan will be the main management tool in which specific goals and outcomes are clearly described and the ways in which they will be achieved. It should be designed specifically to address the MPA's specific needs.

Nowadays, there is also wide consensus that protected areas should be planned and managed following an ecosystem approach. This approach requires that other public policy tools, such as those related to land use, fish-

eries, the use of marine resources, tourism and economic development, are compatible with the law on marine protected areas (Thomas and Middleton, 2003, FAO, 2011, Jones et al., 2011).

IUCN defines a management plan for a protected area as “*a document which sets out the management approach and goals, together with a framework for decision making, to apply in the protected area over a given period of time. Plans may be more or less prescriptive, depending upon the purpose for which they are to be used and the legal requirements to be met. The process of planning, the management objectives for the plan and the standards to apply will usually be established in legislation or otherwise set down for protected area planners*” (Thomas and Middleton, 2003).

In 2004, the Secretariat of the Convention on Biological Diversity defined management planning as “*a useful tool for generating clear short and long term management objectives and associated programmes. This approach can also offer a valuable mechanism for involving the community in longer term/broader planning, increasing the level of community consensus on both the day-to-day and longer-term operations of the Marine and Coastal Protected Areas and the community’s level of confidence in area management. Management plans also provide a means to determine longer term budgets, and provide a sound basis for seeking financial support*”. (SCBD, 2004)

In 2011, IUCN’s Guidelines for Protected Areas legislation defined the management plan as “*a written scheme that guides and gives authority to the management entity responsible for carrying out specific management measures and implementing controls in order to preserve and advance the conservation objectives of the site. The scale and scope of a management plan should be proportional to the scale and scope of the protected area. A management plan should have certain core elements that are required for all plans. At the same time, a plan needs to have some flexibility for the management authority to adapt implementation to the conditions of the day, and to plan and implement adaptation for longer-range changes, including the impact of climate change, as long as in accordance with the law*” (Lausche, 2011).

The majority of MPA initiatives, such as the UNESCO MAB or EU Natura 2000 programmes, require implementing a management plan. The World Heritage Convention, through its Operational Guidelines, requires an effective management plan to be in place for natural and cultural sites to be nominated or designated as world heritage sites (UNESCO, 2008). The Operational Guidelines also identify several common elements for an effective management plan, which are instructive for their legislative implications (UNESCO, 2008, para. 111):

- (a) A thorough shared understanding of the property by all stakeholders;
- (b) A cycle of planning, implementation, monitoring, evaluation and feedback;
- (c) Involvement of partners and stakeholders;
- (d) Allocation of necessary resources;
- (e) Capacity building; and
- (f) An accountable, transparent description of how the management system functions.

A Management Plan may be a single document covering all aspects of the management or a general document with appendices where specific plans are described as a day-to-day operational plan, detailed zoning plan or business and financial plan. The level of detail to be included in the plan will be decided by the MPA management board and the relevant management agency. These agencies are usually required by law or policy directive to produce and implement management plans, and their format, content and process may be defined in the legislation.

The management plan can be prepared before or after the MPA is set up, and usually takes at least one year to ensure adequate consultation. Its preparation generally involves the following steps (Amend et al., 2003):

- Pre-planning: establish the planning team, define the process to be used, find funding, and train the planning team and key stakeholders if required.

- Review existing information (e.g. physical, biological, social, economic, policies, legislation) and describe the ‘context’ of the MPA.
- Identify stakeholders and establish a transparent consultation process, which may involve meetings or workshops, with individual interest groups and for all stakeholders together.
- Analyse constraints, opportunities, threats, issues, problems and needs, and identify solutions.
- Formulate vision, objectives and, where appropriate, targets.
- Design management actions and interventions, including boundaries and zonation schemes and acceptable mechanisms for enforcement and compliance.
- Determine financing mechanisms, bearing in mind the need for benefit and revenue sharing with stakeholders.
- Establish monitoring and evaluation protocols, including a process for periodic review and revision.
- Prepare the draft Plan, and submit it for public consultation and review.
- Incorporate comments and publish final Plan (preferably both as a hard copy and electronically).
- Submit plan for approval (the mechanism for this varies between countries) and disseminate it.

The most commonly found elements in management plans according to IUCN’s *Guidelines for management planning of protected areas* are (Thomas and Middleton, 2003):

- **Executive summary.** It summarises essential issues within the plan and relevant decisions.
- **Introduction.** It states the purpose and scope of the plan and provides an explanation of the purpose for which the protected area was established (including any legislative basis) and the authority for plan development.
- **Description of the protected area.** It summarises relevant descriptive information about the protected area. It normally includes a summary account of the resources (features) of the area (natural, cultural, historical and socioeconomic), how it is used, and its legal and management framework. It can be equally important to state what the plan does not cover.
- **Evaluation of the protected area.** It identifies why the protected area is important and explains the values associated with it, i.e., key features of the area.
- **Analysis of issues and problems.** This section contains an analysis of the constraints and opportunities affecting the area and a statement of the main threats to its conservation, management and maintenance. Any impacts (internal or external) on the important features of the area should also be stated, along with any other management considerations.
- **Vision and objectives.** This contains a broad, long-term vision for the protected area, which may take the form of goals, and a ‘vision statement’. Any guiding policies for management can be included here. A set of objectives is provided. These are specific statements outlining what is to be achieved by management in the timeframe of the plan. A rationale for the objectives is often included and provides valuable justification of the decisions made during the planning process. Limits of Acceptable Change (LACs) may be provided for objectives.

- **Zoning plan.** If different management zones are required, a zoning plan can be prepared to illustrate the boundaries, classification and management, as well as other activities allowed or prohibited for each zone. Sub-objectives for each zone can also be provided. The zoning scheme can be included in the Management Plan or presented separately. In many cases, the zoning plan will be prepared to inform the Management Plan, or it may already exist. Its findings are then summarised within the Management Plan. Specific constraints and conditions applying to each zone must be clearly described.
- **Management actions (prescriptions).** This contains the specific actions to be carried out in order to achieve the objectives. It commonly includes: list of required management actions/activities (often called prescriptions); schedule or work plan identifying when each action will be carried out and by whom (this may be a separate document); identified priority activities; and staff and finances required to carry them out (costs). If this section of the plan is to be very detailed, it can further break prescriptions down into 'projects', each of which is a detailed action. An explanation as to how these should be carried out can also be given. More commonly, the information in this section may not be detailed but supplemented by separate annual operational or work plans, which will contain detailed costs and instructions.
- **Monitoring and review.** This section outlines how implementation of the plan will be monitored and when and how a review of the plan will be carried out. It will include the indicators against which the performance of the protected area will be measured.

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CHAPTER 2

DESCRIPTION OF LEGAL FRAMEWORK, PUBLIC POLICIES AND DESIGNATIONS OFFICIALLY RECOGNIZED IN THE STUDIED COUNTRIES

This chapter has the objective to provide an overview of the national legislative frameworks in force relative to marine protected areas (MPA) in the countries within the study area and at the time of the study (years 2011 and 2012). It provides a comparison of legislation relative to MPAs, which can differ greatly from one country to another. It specifies how the countries organise and legally implement marine environment protection policies using the “marine protected area” tool.

LEGAL FRAMEWORK AND PUBLIC POLICY

This section presents the official bodies responsible for MPA issues in each country, both at the national and regional levels. Nature conservation strategies and the way in which each country transposes the European strategy are also described. Finally, this section also describes the legislation under which each country defines the designations considered MPAs at the regional and national levels and transposes the international designations to be included in each country’s MPA network.

France

In France, the Ministry in charge of the environment is the organisation that designates most marine protected areas. Its decentralized services, the *Directions régionales de l’environnement, de l’aménagement et du logement (DREAL)* (Regional Directorates for Environment, Planning and Housing), are responsible for managing and running the sites at the regional level.

The other organisations in charge of MPA matters are:

- The *Agence des Aires Marines Protégées (AAMP)* (French MPA Agency). The Agency was officially created in 2006 by *loi N°2006-436 du 14 avril 2006*, with the aim of managing all French MPAs and bringing them together into a single network. The AAMP was integrated with in the *Agence française pour la biodiversité*, French Agency for Biodiversity, on 1 January 2017;
- *Muséum national d’Histoire naturelle* (National Museum of Natural History);
- *Le Conservatoire des espaces littoraux et des rivages lacustres* (Coastal Protection Agency); and finally,
- The *Conseils régionaux* (Regional Councils) (only for the *Réserve naturelle régionale* designation).

France is the only country present in the three great oceans of the planet and has the second largest maritime area in the world, which includes many different marine ecosystems ranging from coral reefs to rocky outcrops, mangroves, and tidal mudflats in temperate areas (Yvon, 2012). In 2005, during the 1st World Congress of Marine Protected Areas, in Geelong (Australia), France’s delay in terms of protected site designation at the national level, but also at the European (Natura 2000) and international levels (Ramsar sites, biosphere reserves), was highlighted (Lefeuvre, 2005). One of the first tasks supported by the AAMP was completing the national strategy for the creation of MPAs (Yvon, 2012). To implement a national MPA network, a global strategy was approved on 27 November 2007 by the Ministry of the Environment: “*La stratégie nationale pour la création et*

la gestion d'aires marines protégées: note de doctrine pour les eaux métropolitaines". This document was revised in 2011, and a new version was approved by the Ministry in early 2012. In 2015, an assessment of the MPAs was performed.

This strategy has the following principles for the network of marine protected areas:

- Principle 1. A network integrated into a general system for the knowledge and monitoring of the marine environment and its uses;
- Principle 2. A network contributing to the good state of marine ecosystems;
- Principle 3. A network contributing to the maintenance or rational development of maritime economic activities;
- Principle 4. A network embedded in integrated marine environmental management policies and contributing to the land-sea coherence of public policies;
- Principle 5. A network that responds to the objectives defined at multiple scales.

The official documents defining and/or listing the various designations of sites officially considered to be MPAs are:

- “*LOI n° 2006-436 du 14 avril 2006*” (last modified in 2014). The list of MPAs in this law was completed by “*Arrêté ministériel du 3 juin 2011*” to take into account other international engagements;
- “*Code environnement ART L334-1*” (modified by “*LOI n° 2016-1087 du 8 août 2016 - art. 30*”) established the *Agence des Aires Marines Protégées* as the body in charge of management the international MPAs.

Portugal

In Portugal, the ICNF – *Instituto da Conservação da Natureza e das Florestas* (Institute for Nature Conservation and Forest) is the national body in charge of MPA matters (designation and management). This institute is part of the *Ministério da Agricultura, Florestas e Desenvolvimento Rural* (Portuguese Ministry of Agriculture, Sea, Environment and Spatial Planning) since the end of 2011. The *Decreto-Lei n.º 135/2012, de 29 de junho* defines ICNF's objectives, competences, mission, etc.

The official document defining a global nature conservation strategy, including the implementation of an MPA network, is the “*Resolução do Conselho de Ministros nº152/2001 de 11 Outubro*”. It was later modified by “*Declaração de Rectificação n.º 20-AG/2001, de 31 de Outubro. D.R. n.º 253, Série I-B, 5.º*”. This strategy has three general objectives: i) to conserve Nature and biological diversity, including remarkable geological, geomorphological and paleontological elements; ii) to promote the sustainable use of biological resources; and iii) to help achieving the international cooperation objectives in the fields of nature conservation in which Portugal is involved, in particular the objectives set out in the Convention on Biological Diversity, approved for ratification by *Decreto nº 21/93, de 29 de Junho*, for the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources. This strategy is also considered to constitute the Fundamental Nature Conservation Network and the National System of Classified Areas, integrating the National Network of Protected Areas.

The official document defining and/or listing the various designations of sites considered MPAs is the “*Decreto-Lei nº142/2008 de 24 Julho*”. This decree provides for the development of a management plan and specifies the type of governance and the method of financing.

Unlike other countries included in this study, for which all the islands and their waters have been included, in the case of Portugal the study focused only on the continental portion, while the autonomous regions of Azores and Madeira were not included in this study.

Spain

In Spain, the *Ministerio de Agricultura, Alimentación y Medio Ambiente* (Ministry of Agriculture, Food and Environment), currently called *Ministerio de Agricultura, Pesca y Alimentación* and *Ministerio para la Transición Ecológica*, is the national body in charge of MPA matters. Coastal or marine Nature Protected Sites, *Espacios Naturales Protegidos (ENP)*, must meet a number of criteria to be regarded as an integral part of the official MPA Network of Spain. We present all the designations currently considered to be potential MPAs in Spain at the regional, national and international levels.

Regional Governments are responsible for the designation and management of MPAs falling into regional designations, as well as for coastal MPAs where the functional land-sea link between a protected land area and its adjacent marine site has been scientifically demonstrated. As an example, for Galicia, the *Consellería do medio Rural e do Mar da Xunta de Galicia* (currently *Consellería do Mar*) is the authority in charge of the sea and thus of MPAs.

In Spain, the national global strategy for the implementation of a Spanish MPA Network is described in “*Ley 41/2010, de 29 de diciembre, de Protección del Medio marino*” (last modified on 22 September 2015). This law transposes the European Marine Strategy Framework Directive (2008/56/EEC) and divides the Spanish marine environment into five marine demarcations: North Atlantic, South Atlantic, Estrecho and Alboran, Levantine-Balearic and Canary Islands, for each of which a marine strategy has to be created, with an update period of 6 years. The objectives of this law are the following:

- To establish the legal regime that governs the adoption of the necessary measures to achieve the maintenance of good environmental status of the marine environment through its planning, conservation, protection and improvement.
- As a public good, a sustainable use of the resources of the marine environment is ensured, taking into account the general interest.
- The essential marine planning instruments in marine strategies, as defined in Title II of this law, will pursue the following specific objectives:
 - A. To protect and preserve the marine environment, including its biodiversity, prevent its deterioration and restore marine ecosystems in areas that have been adversely affected;
 - B. To prevent and reduce discharges into the marine environment, with a view to progressively eliminating pollution of the marine environment, so that there are no serious impacts or risks to marine biodiversity, marine ecosystems, human health or marine uses.
 - C. To ensure that activities and uses in the marine environment are compatible with the preservation of their biodiversity.

In this law, the “*Título III: Red de Áreas Marinas Protegidas de España (RAMPE) y conservación de especies y hábitat marinos*” describes the, creation, objectives, designations, governance and management of Spain’s official MPA Network.

In order to improve the coordination between the Spanish national and regional governments, the *Real Decreto 715/2012* was approved on 20 April 2012. It establishes the *Comisión Interministerial de Estrategias Marinas* (Inter-Ministerial Committee of Marine Strategies). This Committee aims to coordinate all the Administrations with activities in the marine environment and their marine policies and to coordinate the creation, development and monitoring of a marine environment plan.

Likewise, in compliance with *artículo 22 de Ley 41/2010*, the *Comités de Seguimiento de las estrategias marinas* (Committees for the Monitoring of Marine Strategies) are created by *Orden AAA/705/2014, de 28 de abril*, establishing their composition, functions and operating regime. A Committee was defined for each one of the marine demarcations. These Committees aim to coordinate marine strategies between the General State Administration and the regional governments. On July 12, 2017, the *Real Decreto* is submitted for public consultation to approve the Marine Strategies.

On February 24, 2019 comes into force *Real Decreto 79/2019*¹, of February 22, which regulates the compatibility report and establishes the criteria for compatibility with Marine Strategies.

The official documents defining and/or listing the various designations of sites recognized as MPAs in Spain are:

- *Capítulo III of the Ley 3/2001, de 26 de marzo: Medidas de protección y regeneración de los recursos pesqueros. Sección 1.ª Zonas de protección pesquera* (last modified on 27 December 2014);
- *Art. 3 de la Ley 5/2007, de 3 de abril, de la Red de Parques Nacionales*. This law was repealed by *Ley 30/2014, de 3 de diciembre, de Parques Nacionales*;
- *Art. 30 de la Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad*² (last modified on 22 September 2015);
- *Real Decreto 1599/2011, de 4 de noviembre, por el que se establecen los criterios de integración de los espacios marinos protegidos en la Red de Áreas Marinas Protegidas de España (RAMPE)*. (BOE núm. 294, de 7 de diciembre de 2011)³. This Royal Decree, in accordance with article 26 of Law 41/2010, of December 29th, on the protection of the marine environment, establishes the criteria that must be met by MPAs of national and regional competence for their integration into the MPA Network of Spain (RAMPE).

Note that other documents exist at regional level, such as the Galician Fisheries Law.

United Kingdom

In the UK, several bodies are in charge of MPAs. There is no single entity covering both the territorial sea and the zone beyond 12 nautical miles. In the territorial seas, national agencies have responsibility for identifying MPAs:

- *Natural England* for English territorial waters;
- *Countryside Council for Wales* for Welsh territorial waters until 31 March 2013, when it was merged with *Forestry Commission Wales* and *Environment Agency Wales* to form *Natural Resources Wales*, a single body managing Wales's environment and natural resources;
- *Scottish Natural Heritage* for Scottish territorial waters;
- *Northern Ireland Environment Agency* for Northern Ireland territorial waters;
- *Joint Nature Conservation Committee (JNCC)* for UK offshore waters.

In addition, the *Marine Management Organisation (MMO)* is responsible for managing activities having an impact on designated marine sites in English waters.

Several official documents contribute to the global strategy for MPA Network implementation in the UK:

¹ Real Decreto 79/2019: <https://www.boe.es/buscar/act.php?id=BOE-A-2019-2557>

- *Government's strategy for contributing to the delivery of a UK network of marine protected areas*, published on 1 April 2010, which applies to territorial waters adjacent to England and the UK's offshore waters adjacent to England, Wales and Northern Ireland;
- *Protecting Welsh seas - A draft strategy for marine protected areas in Wales*, published in September 2009 and applying to Welsh territorial waters;
- *A strategy for Marine Nature Conservation in Scotland's seas*, published in March 2011 and applying to Scottish territorial waters and the Scottish offshore region.

The official documents defining and/or listing the various designations of sites considered to be MPAs are:

- *Marine and Coastal Act (2009), clause 123* (Up to date as of 31 March 2015);
- *Marine [Scotland] Act 2010, clause 79*; (Last modified on 17 February 2017))
- *Northern Ireland draft Marine Bill*, 1 July 2013.

DESIGNATIONS OF THE MARINE PROTECTED AREAS IN EACH COUNTRY

All the designations established in the legislation of each country relative to the protection of nature are described below, at all levels: international, national or regional, detailing whether they are included in national MPA networks.

France

The *LOI n° 2006-436 du 14 avril 2006* defines eight designations of MPAs² (five national and three international, which belong to European Nature 2000 Network):

- ***Parcs nationaux*** (national parks)(Article L331-1 Modifié par LOI n°2016-1087 du 8 août 2016 - art. 160 (V)). They are also governed by: *Décret n°2006-943 du 28 juillet 2006 relatif aux établissements publics des parcs nationaux et modifiant le code de l'environnement* and *Décret n°2006-944 du 28 juillet 2006 relatif aux parcs nationaux et modifiant notamment le code de l'environnement*. French national parks are the emblems of the will to protect nature. Their main objectives are the protection of biodiversity, the management of cultural heritage and the reception of the public. With renewed governance in 2006, national parks cover a variety of land and sea domains. As of January 2016, they represent almost 9.5% of the French territory and attract more than 8.5 million visitors every year;
- ***Réserves naturelles*** (natural reserves): The natural reserves of all statuses (national, regional and Corsica) are spaces that protect a remarkable natural (biological and geological) heritage through adapted regulation, taking into account the local context. Protecting, restoring, knowing and managing this heritage are the main missions of the management body officially appointed to manage each site. By the end of 2016, there were 342 nature reserves: 167 national nature reserves, 169 regional nature reserves and 6 nature reserves in Corsica;
- ***Aires de protection de biotopes*** (biotope protection areas): Biotope protection areas preserve the natural environments necessary for the survival of protected animal or plant species. It is the prefect of the department who, by decree, takes measures to prohibit or regulate activities to prevent the disappearance of protected species. As of January 2016, there are more than 700 biotope protection areas in metropolitan France and overseas;

² In this list, the MPAs are referred only to the protected areas with a marine part.

- **Parcs naturels marins** (nature marine park): It is a French designation whose fundamental principle is to associate the local and regional authorities and the users (such as fishers, NGOs or scientists) with the State authority for the sea, along with the objectives of protection and sustainable development. The objectives of a nature marine park are to contribute to the knowledge of the marine nature heritage and to the protection and sustainable development of the marine environment. It is adapted for large marine areas and, as of September 2016, there were 8 nature marine parks, six in mainland France and two in overseas territories: *Iroise, Mayotte, Golfe du Lion, Glorieuses, Estuaires picards et mer d'Opale, Bassin d'Arcachon, Estuaire de la Gironde et mer des Pertuis, cap Corse et de l'Agriate*. In addition, two more nature marine parks were in project: *Golfe normand-breton* and *Martinique*.
- **Domaine public maritime relevant du Conservatoire de l'espace littoral et des rivages lacustres** (public maritime domain of the Conservatoire de l'espace littoral and the lacustrine shores): This public establishment was created in 1975, and its task is to protect the French coastline by mastery of land, both in metropolitan France and overseas. It acquires private land and is entrusted with land in the public domain. The management of these inalienable lands is entrusted to local authorities, associations or public institutions. By the end of 2016, the land and sea domain under the protection of the Conservatoire du Littoral was nearly 190,000 hectares, comprising over 1,450 kilometres of shoreline.
- **Sites Natura 2000**: The centrepiece of EU nature and biodiversity policy (explained in the previous chapter). The aim of the Natura 2000 Network is to ensure the long-term survival of Europe's most valuable and threatened species and habitats. It is composed of *Zone Spéciale de Conservation* (ZSC), Special Areas of Conservation (SAC), designated by Member States under the Habitats Directive 92/43/EEC (*Site d'Intérêt Communautaire* (SIC) - *Site of Community Importance* (SCI)), and also incorporates *Zone de Protection Spéciale* (ZPS), Special Protection Areas (SPAs), designated under the 1979 Birds Directive 2009/147/EC. The establishment of this Network of protected areas also fulfils a Community obligation under the UN Convention on Biological Diversity. By establishing a network of sites across the full distribution of these habitats and species, Natura 2000 is intended to be a dynamic and living Network providing a guarantee for their conservation. The Habitats Directive outlines three stages in the establishment of Natura 2000 sites: 1) Proposal of sites for their inclusion in the Natura 2000 network (the responsibility for proposing sites for Natura 2000 lies with the Member States); 2) Selection of a list of sites of Community importance from proposals made by Member States; and 3) Establishment of management regimes for the sites. The provisions of the directive clearly make the Member States responsible for the designation of Natura 2000 sites and for their management. Often, the detailed work involved is further delegated to various national agencies or, in the case of federal Member States, to the regions.

In April 2016, France designated approximately 12.75% of the metropolitan territory as Natura 2000 sites (1 756 land, sea, or mixed land and sea sites). A process of extending offshore marine sites was underway with the objective of completing the Natura 2000 Network at sea by the end of 2016 (this objective was not achieved).

Several years later, with the introduction of the *arrêté ministériel du 3 juin 2011*, other international designations were included in the French MPANetwork (all those with a marine portion are presented below). They are the following:

- **Biens inscrits sur la liste du patrimoine mondial (Unesco)**– Convention Concerning the Protection of the World Cultural and Natural Heritage (Site inscribed on the world heritage list (UNESCO)).
- **Réserves de Biosphère (Unesco)**– Resolution approving the Seville Strategy for Biosphere Reserves (UNESCO Biosphere Reserve, explained above);
- **Zones humides d'importance internationale (convention de Ramsar)**– Convention on Wetlands of International Importance (RAMSAR);
- **Aires spécialement protégées d'importance méditerranéenne** (Barcelona convention);
- **Zones marines protégées OSPAR**(OSPAR convention, see above);

- **Zones spécialement protégées de la convention de Carthagène** - Cartagena convention. Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region;
- **Zones spécialement protégées de la convention de Nairobi**;
- **Zones spécialement protégées du traité de Madrid concernant l'Antarctique** – Annex V to the Protocol on Environmental Protection to the Antarctic Treaty on Area Protection and Management.
- **Réserves nationales de chasse et de faune sauvage** (Hunting and Wildlife National Reserve).

Moreover, in France there are also some designations of protected sites located in marine zones which are not officially regarded as being part of the French MPA Network, because these sites belong to French overseas territories and are designated under other national or regional legislation. These designations are:

- **Cantonnement de pêche** (Professional fishing reserve);
- **Site classé** (Classified Site): Classified sites are designated to safeguard or protect open or built-up spaces of artistic, historic or scientific interest, or which are legendary or picturesque (*Art. L341-1 et seq. and R341-1 et seq.* of the French Environmental Code);
- **Grand site** (Grand site): An area considered remarkable for its landscape or natural and cultural qualities, the national dimension of which is recognized by listing a substantial part of the territory under the 1930 law; it receives a large number of visitors and requires sustainable and concerted management in partnership to preserve its value and appeal;
- **Sanctuaire PELAGOS** (PELAGOS Sanctuary) – International agreement for the protection of marine mammals - Rome 1999, North-West Mediterranean Sea;
- **Sanctuaire Agoa** (AGOA Sanctuary) – Policy declaration with no legal existence for the protection of marine mammals, French West Indies;
- **Protection tools developed by the Pays d'Outre-Mer** (POM – overseas countries), such as, for example, *Sanctuaires de Nouvelle Calédonie et de Polynésie française* (New Caledonia and French Polynesia Sanctuaries) – Documents by the authorities of New Caledonia and French Polynesia (Pacific Ocean) for the protection of marine mammals.
- Finally, the sites listed under the regional instrument **Zone protected under the APIA Convention**, signed on 12 June 1976 (South Pacific Ocean).

These currently non-recognized designations may cover land or marine territories, or territories with land and marine areas. Only *cantonnements* (reserves) and *sanctuaries* (sanctuaries) cover strictly marine territories.

Portugal

The *Decreto-Lei n.º 142/2008, de 24 de Julho* recognizes five MPAs in mainland Portugal:

- **Parque natural** with a marine area (*Artigo 17*, nature park). This designation is understood as an area containing predominantly semi-natural ecosystems where biodiversity conservation in the long term may depend on human activity, ensuring a sustainable flow of natural products and services.
- **Reserva natural** with a marine area (*Artigo 18*, nature reserve). It is understood as an area that contains ecological, geological and physiographic attributes or other with scientific, ecological or educational value and that is not permanently or significantly inhabited.

- **Parque nacional** with a marine area (*Artigo 16*, national park). It is an area containing mainly representative samples of characteristic natural regions, natural and humanized landscapes, biodiversity elements and geosites with scientific, ecological or educational value. This designation aims at protecting the existing natural values, preserving the integrity of the ecosystems both at the level of their constituent elements and their inherent ecological processes, and adopting measures compatible with its objectives.
- **Monumento natural** with a marine area (*Artigo 20*, natural monument). It is understood as a natural occurrence containing one or more aspects which, due to their singularity, rarity or representativeness in ecological, aesthetic, scientific and cultural terms, require their preservation and maintenance of their integrity. This designation is intended to protect natural values, including notable occurrences of the geological heritage, the integrity of its features and the immediate surrounding areas, and the adoption of measures compatible with its objectives.
- **Paisagem protegida** with a marine area (*Artigo 19*, protected landscape). It is an area containing sites resulting from the harmonious interaction of the human being and nature and that have a great aesthetic, ecological or cultural value. It aims at the protection of existing natural and cultural values, highlighting the local identity, and at adopting measures compatible with its objectives.

At the moment of the study, none of the last three of these protected area designations had any example that included a marine part, and no projects in this sense were underway either.

In the same law, four international designations are also recognized. Three protected area designations are officially recognized as international MPAs listed under European instruments, Nature 2000 Network (*Artigo 25*), in Portugal:

- **Sítio de importância comunitário** (SIC) with a marine part (Site of Community Importance (SCI)) – “Habitats” Directive 92/43/EEC;
- **Zona especial de conservação** (ZEC) with a marine part (Special Area of Conservation (SAC)) – “Habitats” Directive 92/43/EEC;
- **Zona de protecção especial** (ZPE) with a marine part (Special Protection Area (SPA)) – “Birds” Directive 2009/147/EC.

These sites were described in detail in the France section.

The fourth international site considered as a Portuguese international MPA is listed under the global instrument Man and Biosphere (UNESCO) and is:

- **Reserva da Biosfera** with a marine area - Biosphere Reserves, Resolution approving the Seville Strategy (UNESCO). There is one site designated in 2011 under this international instrument: Berlengas Biosphere Reserve. Sites established by countries and recognized under UNESCO’s Man and the Biosphere (MAB) Programme to promote sustainable development based on local community efforts and sound science. They seek to reconcile conservation of biological and cultural diversity and economic and social development through partnerships between people and nature.

Biosphere reserves are areas of terrestrial and coastal ecosystems organized into three interrelated zones: [i] a core area; [ii] a buffer zone and [iii] a transition zone. This international designation came into force in 1975. After their designation, biosphere reserves remain under national sovereign jurisdiction, yet they share their experience and ideas nationally, regionally and internationally within the World Network of Biosphere Reserves (WNBR). Biosphere reserves are nominated by national governments to the relevant bodies of the MAB and must meet some criteria and minimum conditions to be admitted in the WNBR.

There are three other international sites that are not included in the Portuguese MPA Network because they are not represented in mainland Portugal. They are:

- **Zona húmeda RAMSAR** with a marine area - Convention on Wetlands of International Importance (RAMSAR); in mainland Portugal, existing RAMSAR sites do not have a marine component.
- **Beminscrito no património mundial da UNESCO** with a marine area – Convention Concerning the Protection of the World Cultural and Natural Heritage (Site Inscribed on the World Heritage List (UNESCO)). Only one site is currently proposed: Arrábida, but it is not yet evaluated or listed.
- **Área marinha protegida OSPAR** – OSPAR Convention - Annex V on the protection and conservation of the ecosystems and biological diversity (Marine Protected Area (OSPAR)). Sites designated under this designation are classified under regional instruments (Azores and Madeira).

Spain

The only designation defined under *Ley 3/2001, de 26 de marzo, de Pesca Marítima del Estado* that is included in the Spanish MPA network is:

- **Reservas Marinas** (*Art. 14, Marine Reserves*): The Spanish Marine Reserve designation is a specific action to achieve sustainable exploitation of important fisheries resources through specific protection measures in specific areas of traditional fishing grounds. These areas are selected based on their conservation status, and they must hold certain characteristics that allow for the improvement of the conditions for the reproduction of commercial interest species and the survival of their young stages. The designation document defines the regulations in most cases, specifies the type of governance and funding and provides for the development of a management plan. Marine Reserves may be integrated into the MPA Network referred to in *Ley 41/2010*.

The *Ley 42/2007* defines six national MPAs and 10 international MPAs. The national MPAs are the following:

- **Parques** (*Art. 31*) are divided in two designations: *Parques Naturales* y *Parques Nacionales*.
 - **Parque Natural** with a marine area (Natural Park) is described in this national law and managed by the regional governments. Sites designated under this designation may only extend out at sea up to the regional sea limits if the ecological continuity between the marine ecosystem and the adjacent land zone is proven by sound scientific evidence. In this case, only the regional government will be in charge of the coastal marine protected site. There are *Parques Naturales* (Natural Parks) with a marine area in the regions mentioned below:

Andalusia: They are governed by the law on the inventory of natural protected spaces in Andalusia (*Ley 2/1989, de 18 de julio, approving the inventory of Espacios Naturales Protegidos de Andalucía* (modified by *art. 121 de Ley núm. 18/2003, de 29 de diciembre*), establishing the necessary means for their protection.

Cantabria: They are governed by the law on nature conservation of Cantabria (*Ley 4/2006, de 19 de mayo, de Conservación de la Naturaleza de Cantabria*). Article 31 of this law on regulations of the protected areas was modified by *art. 23.1 de Ley núm. 10/2012, de 26 de diciembre*.

Galicia: They are governed by the law on nature conservation of Galicia (*Ley 9/2001, de 21 de agosto, de conservación de la naturaleza*).

Canarias: At the time of the study, they are designated by the law on natural spaces of the Canary Islands (*Ley 12/1994, 19 diciembre, de Espacios naturales de Canarias*). This law was repealed by *Ley 1/2013, de 25 de abril, Ordenación del territorio y espacios naturales protegidos. Modificación del Texto Refundido de las Leyes de Ordenación del Territorio de Canarias y de Espacios Naturales de Canarias, aprobado por Decreto Legislativo 1/2000, de 8-5-2000*.

- **Parque Nacional** with a marine area (National Park) are natural sites with a high ecological and cultural value that have suffered little transformation by exploitation or human activity and that, due to

the beauty of their landscapes, the representativeness of their ecosystems or the singularity of their flora, fauna, geology or geomorphological formations, have ecological, aesthetic, cultural, educational and scientific values whose conservation deserves preferential attention and is declared of general interest of the State. National Parks shall be designated and governed by their specific legislation *Ley 5/2007, de 3 de abril, de la Red de Parques Nacionales*.

In all cases, regulations on these designations are defined in the designation document, which also provides for the development of a management plan.

- **Reservas Naturales** with a marine area (*Art. 32, Nature Reserves*) are natural spaces whose purpose is the protection of ecosystems, communities or biological elements that, due to their rarity, fragility, importance or uniqueness, deserve special assessment. Resource exploitation will be limited within Reserves, except in those cases in which this exploitation is compatible with the conservation of the values whose protection is intended. In general, the collection of biological or geological material is prohibited, except in those cases justified by research, conservation or educational reasons, which will be subject to the relevant administrative authorization.
- **Áreas Marinas Protegidas** (*Art. 33, Marine Protected Areas*). This designation (that shares the name with the general figure where it is included) is defined as natural areas designated for the protection of the ecosystems, communities or biological elements in the marine environment, which are specially protected by their rarity, fragility, importance or uniqueness. These spaces may be incorporated into the Network of Marine Protected Areas of Spain, regulated by Law 41/2010, of December 29, on the protection of the marine environment; this law will also establish the minimum common management criteria applicable to the MPA Spanish Network. At the time of the study, only one was designated: *El Cachucho (litoral atlántico; Real Decreto 1629/2011, de 14 noviembre)*. It is located 60 km off the coast of Asturias.
- **Monumentos Naturales** with a marine area (*Art. 34, Nature Monuments*) are spaces or elements of nature constituted basically by formations of notorious singularity, rarity or beauty, which deserve to be the object of special protection. At the time of the study, there was no site with a marine part designated within this designation.
- **Paisaje protegido** with a marine area (*Art. 35, Protected Landscape*) are parts of the territory which, by their natural, aesthetic and cultural values, and in accordance with the European Council's Landscape Convention, are considered to deserve special protection.

Artículo 37 of Ley 42/2007. In general, the management of MPAs depends on the national government, and the limitations on the exploitation of fishery resources in external waters will be carried out in accordance with the provisions in *Artículo 18 de la Ley 3/2001, de 26 de marzo, de Pesca Marítima del Estado*, regardless of the designation used.

In addition, law 42/2007 officially recognises 10 international designations as marine protected areas. From these, the five designations that appear in the study area are the following:

- **Red Natura 2000** (Natura 2000 Network). *Capítulo III: Espacios protegidos Red Natura 2000* of the law explains how to design, manage and control the designations within this network. The three designations within this Network are called in Spanish: *Lugares de Importancia Comunitaria (LIC)*, *Zonas Especiales de Conservación (ZEC)*, and *Zonas de Especial Protección para las Aves (ZEPA)*.
- **Humedal de importancia internacional or Humedal RAMSAR** with a marine area – Convention on Wetlands of International Importance (RAMSAR);
- **Reserva de biosfera** with a marine area – Resolution approving the Seville Strategy for Biosphere Reserves (UNESCO);

- **Sitio natural de la lista del patrimonio de la humanidad, de la Convención sobre la protección del patrimonio mundial, cultural y natural** with a marine area – Convention Concerning the Protection of the World Cultural and Natural Heritage (Site Inscribed on the World Heritage List (UNESCO)).
- **Área protegida del Convenio OSPAR** – OSPAR Convention – Annex V on the protection and conservation of the ecosystems and biological diversity (Marine Protected Area (OSPAR)).

Finally, regional governments may define other designations of protected areas specific to them, in compliance with their authority and their legislation on nature protection. In these cases, they are responsible for the designation and management of these sites. Seven protected area designations are officially recognized as regional marine protected areas in Spain. The designations below are those developed by the regional governments bordering the Atlantic Ocean:

- **Reserva de pesca** – Andalucía (Fishing reserve – Andalusia). This designation, defined in *Ley 1/2002, de 4 de abril*, about the management, promotion and control of marine fisheries, shellfish and marine aquaculture, exclusive of Andalusia (Spain), applies to sites that act as spawning areas and aims to maintain favourable conditions for fishing resource development in order to protect and restore fish stocks. Regulations governing this designation are defined in the designation document by the relevant authority. The reference document for this designation provides for the development of a management plan and specifies the type of governance and funding.
- **Paraje natural** – Andalucía (Natural site – Andalusia). This regional designation exists in most regions, but it only includes marine areas in the Andalusian region. This designation is established by law *Ley 2/1989, de 18 de julio, por la que se aprueba el inventario de Espacios Naturales Protegidos de Andalucía y se establecen medidas adicionales para su protección*. The law provides for the development of regulations and a management plan.
- **Reserva natural parcial** – Asturias (Partial natural reserve – Asturias). This is a specific designation defined by the Asturias' regional government on its legislation regarding natural protected spaces, *Ley 5/1991, de 5 de abril, de Protección de los Espacios Naturales*. Sites designated under this designation may only extend out at sea as far as the territorial sea limit when ecological continuity between the marine ecosystem and the adjacent land areas is proven by sound scientific evidence. In this case, the government of Asturias will be the single authority in charge of the coastal marine protected site. The reference document stipulates that the relevant authority must define the regulations and provides for the development of a management plan.
- **Zona de especial protección de los valores naturales (ZEPVN)** – Galicia (Special protection zone of natural values – Galicia). They are defined in *Ley 9/2001, de 21 agosto, de conservación de la naturaleza* and *Decreto 72/2004, de 2 de abril*. ZEPVN is applied to those areas that, due to their natural, cultural, scientific, educational or landscape values or interest, require measures to ensure their conservation and are under no other specific protection figure. In these areas, uses and activities that do not violate the protected traditional values are allowed to continue under certain regulations. All remaining activities, including building, will require approval by the Ministry of Environment. This designation encompasses the designations resulting from the European Habitats directive 92/43/CEE: *Lugar de importancia comunitaria (LIC)* and *Zona especial de conservación (ZEC)*;
- **Reserva marina de interés pesquero** – Galicia (Marine Reserve of Fishing Interest - Galicia). There is no document defining this designation, which only exists in Galicia, but two site designation documents contribute to its definition: “*Decreto 28/2009, de 29 de enero, por el que se crea la reserva marina de interés pesquero Ría de Cedeira*” and “*Decreto 8520077, de 12 de abril, por el que se crea la reserva marina de interés pesquero Os Miñarzos*”. Regulations applying to these sites are specified in their designation acts. Provision is made for the development of a management plan, and the type of governance and funding is also specified;
- **Reserva natural integral** – Canarias (Integral Nature Reserve – Canary Islands). It is designated under the *Ley 12/1994, 19 diciembre, de Espacios naturales de Canarias* (Law on natural sites in the Canary Islands). Generally, this designation has the same perimeter as Natura 2000 sites within this region;

- ***Biotopo protegido*** – País Vasco (Protected Biotope – Basque Country). This Spanish designation, which only exists in the Basque Country, is described in the law on nature conservation of the Basque Country, *Ley 16/1994, de 30 de junio, de conservación de la naturaleza del País Vasco*. These areas are generally small in size, and their creation aims to protect ecosystems, communities, biological and geological areas, specific locations and singular formations by virtue of their rarity, spectacular beauty or outstanding scientific interest. Regulations are defined in the site designation document, and provision is made for the implementation of a management plan.

These designations can be included in the Spanish MPA Network, RAMPE, if they meet the criteria established in *Real Decreto 1599/2011, de 4 de noviembre*.

United Kingdom

There are six national designations of protected areas officially regarded as “national” MPAs in the UK, which are part of the UK’s official MPA network.

- ***Marine part of Site of Special Scientific Interest*** (SSSI – England, Wales and Scotland);
- ***Marine part of Area of Special Scientific Interest*** (ASSI – Northern Ireland); Both of these series (SSSI/ASSI) have developed since 1949 as a suite of sites providing statutory protection for the best examples of the UK’s flora, fauna, or geological or physiographical features. These sites are also used to underpin other national and international nature conservation designations. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-governmental organisations. Originally notified under the *National Parks and Access to the Countryside Act 1949*, SSSIs were re-notified under the *Wildlife and Countryside Act 1981*. Improved provisions for the protection and management of SSSIs were introduced by the *Countryside and Rights of Way Act 2000* (in England and Wales) and (in Scotland) by the *Nature Conservation (Scotland) Act 2004* and the *Wildlife and Natural Environment (Scotland) Act 2010*. ASSIs are notified under the *Nature Conservation and Amenity Lands (Northern Ireland) 1985*. Measures to improve ASSI protection and management are contained in the *Environment (Northern Ireland) Order 2002*.
- ***Marine Conservation Zone*** (MCZ – English inshore waters and English, Welsh and Northern Irish offshore waters. Note that this designation may also include *Highly Protected MCZs* (HPMCZ – Wales)). MCZs can be established to protect nationally important marine wildlife, habitats, geology and geomorphology and can be designated anywhere in English and Welsh inshore and UK offshore waters. They are established under the *Marine and Coastal Access Act (2009)*.
- ***Nature Conservation MPA*** (Scotland). The Scottish Ministers may designate it under the *Marine (Scotland) Act 2010*. This complements the MPA power introduced through the *Marine and Coastal Access Act for offshore waters around Scotland*. These designations will contribute to the UK’s ecologically coherent network of marine protected areas, which will include SACs and SPAs. The *Act* also allows the Scottish Ministers to designate MPAs for demonstration and research and for historic/cultural conservation.
- ***Future MPA designation defined by Northern Ireland***;
- ***Marine Nature Reserves (MNRs)***. The purpose of MNRs is to conserve marine flora and fauna and geological features of special interest while providing opportunities for study of marine systems. They are a mechanism for the protection of nationally important marine (including subtidal) areas. Their designation requires the agreement of statutory and voluntary bodies and interest groups. There were three designated MNRs: Lundy Island (in England), Skomer Island (in Wales) and Strangford Lough (in Northern Ireland). The introduction of the *Marine and Coastal Access Act (2009)* has meant that MNRs in England and Wales are to be replaced by *Marine Conservation Zones*. Currently, Lundy Island is the only MNR to have changed to MCZ, and Strangford Lough remains a *Marine Nature Reserve* for the time being. Elsewhere, a number of *voluntary marine nature reserves* (vMNRs) have been established by agreement between non-governmental organisations, stakeholders and user groups. These have no statutory basis. Statutory MNRs are established

under the *Wildlife and Countryside Act 1981 for England and Wales*. In Northern Ireland they are designated under the *Nature Conservation and Amenity Lands (Northern Ireland) Order 1985*.

The UK's official MPA network will also include "international" MPAs: the marine parts of *Special Areas of Conservation* (SACs) and *Special Protection Areas* (SPAs), and the *Ramsar Wetlands of International Importance* (Convention on Wetlands of International Importance). The SAC and SPA sites belong to the European Union-wide network of nature conservation sites established under the EC Habitats (92/43/EEC) and Birds Directives (2009/147/EC), Natura 2000 Network. The EC Habitat Directive is transposed into the 'Habitats Regulations' in 1994 (HM Government, 1994) and is revised in 2010 (HM Government, 2010). Regulations 33 and 34 of the 1994 Regulations, now equated to Regulations 35 and 36 of the 2010 Regulations, are fundamental to the evolution of MPA's management. Until this moment, there is scarce information on how to design conservation objectives and almost no information on how to construct management plans for the MPAs (Morris et al. 2014).

Regulation 33 (now 35) requires that:

'(1) The appropriate nature conservation body may install markers indicating the existence and extent of a European marine site.

This power is exercisable subject to the obtaining of any necessary consent under section 34 of the Coast Protection Act 1949(1) (restriction of works detrimental to navigation).

(2) As soon as possible after a site becomes a European marine site, the appropriate nature conservation body shall advise other relevant authorities as to

(a) the conservation objectives for that site, and

(b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated.'

Regulation 34 (now 36) requires that:

'(1) The relevant authorities, or any of them, may establish for a European marine site a management scheme under which their functions (including any power to make byelaws) shall be exercised so as to secure in relation to that site compliance with the requirements of the Habitats Directive.

(2) Only one management scheme may be made for each European marine site.

(3) A management scheme may be amended from time to time.

(4) As soon as a management scheme has been established, or is amended, a copy of it shall be sent by the relevant authority or authorities concerned to the appropriate nature conservation body.'

In the UK, there are designations of protected sites established in marine zones but not officially considered as contributing to the UK's MPA network. In this group, there are sites listed under international and regional instruments:

— **OSPAR MPA** (OSPAR Convention – Annex V on the protection and conservation of the ecosystems and biological diversity). The UK has also reported many marine sites to the OSPAR convention secretariat. This is because all of the sites that have been submitted as *OSPAR MPAs* in the UK are existing *SACs* and *SPAs* with marine parts.

— **Biosphere Reserve** with a marine part – Resolution approving the Seville Strategy for *biosphere reserves*.

— **Inscribed Site on the World Heritage List** with a marine part – UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage.

COMPARISON OF NATIONAL POLICIES AND MANAGEMENT TOOLS

Although each country has its own strategy for creating and managing Marine Protected Areas, responding to the singularities of its community and its history of environmental protection, many patterns are similar, both

in terms of legislation and management of MPAs. In this section, these similarities and differences will be briefly summarized.

One of the first differences among studied countries is the regional level of designation. While in the UK all MPAs are regional (called territorial because they are linked to territorial seas of Wales, England, Scotland and Northern Ireland) or international, in France and Spain there are national (including designations of international engagements) and regional ones. Likewise, Portugal also includes international engagements in national MPAs, but it does not have any regional ones.

Regarding the body in charge of MPAs matters (designation, management, etc.), Spain and France have only one body in charge (designation and management), exclusively dedicated to manage national and international MPAs. At the regional level, both countries have several bodies in charge, the *conseils régionaux* in France (different in each region) and the regional governments where there are MPAs in Spain. Portugal also has a single organism in charge of all matters related with nature protection activities for land and marine areas (*Instituto da Conservação da Natureza e das Florestas* (ICNF)). On the other hand, the UK has at least one per territorial sea (e.g. *Natural England* for English territorial waters or *Countryside Council for Wales* for Welsh territorial waters), while JNCC takes charge of offshore waters.

These bodies in charge have defined, within each partner country, a global strategy for designing MPAs in their territory and creating an MPA Network, particularly in response to the European *Marine Strategy Framework Directive* (*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). This European strategy has been adapted, taking specific national and regional features into account, to one official document in Portugal and one in France, whereas this strategy is adapted to three official documents in the UK, depending on the region in which it is applied: (i) England and UK's offshore waters adjacent to England; (ii) Wales and Northern Ireland, Welsh territorial waters, and (iii) Scottish territorial waters and the Scottish offshore region. Spain is the only country where this European directive has been transposed into national legislation.

In the four studied countries, the number of designations defined, i.e. legal name under which an MPA is established, is vast. The two countries with the most designations are France (n=15) and Spain (n=25), because they have national and regional designations. UK and Portugal have around ten designations each. In general, these designations were initially designed for protecting land environments and their adaptations for the marine environment did not emerge until later.

It is interesting to note the difference in terms of integration into national legislation of sites protected under international instruments (RAMSAR, UNESCO) or under a regional instrument like the OSPAR Convention for the North East Atlantic. Clear examples of this are Natura 2000 sites, where the three designations are translated to the native language of the country (Table 1). These three designations are recognized by the legislation of each country but with differences among them, e.g. differences in regulations, legal application area at sea, official goals of the designations and their type of governance or funding (Table 2). For example, Spain is the only country that defines the regulations in the site designation document; another example is that only one common official goal among the four partner countries is presented in the definition of Natura 2000 designations (MAIA partners, 2012). At the time of the study (years 2011 and 2012), there were no other international sites with a marine part designated in the four countries. RAMSAR sites were represented in the UK, France and Spain, but also with differences regarding how they were designated. For example, Spain did not have 'improving water quality' among its objectives; conversely, it was the only country where the type of governance was defined following IUCN categories and where public funds were allocated to this designation (Table 3; MAIA partners, 2012).

There were three more international designations (Biosphere Reserve – UNESCO, UNESCO World Heritage Sites and Marine Protected Area – OSPAR) represented in

France and Spain but not represented in the UK and mainland Portugal. As in the other international designations, each country adapted and integrated them into its national legislation in a different way. It should be noted that only one objective was common to the three designations and the two countries: the objective of

‘maintaining, conserving and restoring biodiversity, the natural heritage of habitats, species, landscapes and seascapes under protection status’. The development of a management plan was required in two cases: the Biosphere Reserve designation in Spain and the MPA OSPAR designation in France (Table 4; MAIA partners, 2012).

Table 1: Denominations given by each country’s national government to Natura 2000 designations.

NATURA 2000			
ENGLAND	FRANCE	PORTUGAL	SPAIN
<i>Special Protected Areas (SPA)</i>	<i>Zone de Protection Spéciale (ZPS)</i>	<i>Zona de Protecção Especial (ZPE)</i>	<i>Zonas de Especial Protección para las Aves (ZEPA)</i>
<i>Special Area of Conservation (SAC)</i>	<i>Zone Spéciale de Conservation (ZSC)</i>	<i>Zona Especial de Conservação (ZEC)</i>	<i>Zona Especial de Conservación (ZEC)</i>
<i>Site of Community Importance (SCI)</i>	<i>Site d’Intérêt Communautaire (SIC)</i>	<i>Sítios de importância comunitária (SIC)</i>	<i>Lugar de Importancia Comunitaria (LIC)</i>

Observing the national designations in each country, there are three designations that are called the same in two of the countries. These are national parks, recognized in France and Spain, and nature parks and nature reserves, recognized in Portugal and Spain. They share more than only the name (Table 5):

- National parks (*parc national* (France); *parquet nacional* (Spain)): The main objectives of this designation in both countries are the protection of biodiversity, the management of cultural heritage and the reception of the public. The law foresees the development of a management plan and specifies the type of governance and financing method in both countries;
- Nature park (*parque natural*). In Spain, it is designated as a national designation, but its management is in charge of regional governments, while in Portugal it is also a national designation but it is managed at a national level.
- Nature reserve (*reserva natural*). It is a national designation, and the national authority is in charge of MPA matters in both countries.

Analyzing the designations of NE Atlantic ocean, and taking into account how each country legislates and establishes said designations, two administrative models can be distinguished: the English model and the model followed by the rest of the countries (France, Portugal and Spain). The model followed by the rest of the countries is centralized and integrates international designations into national law (Tables 1 and 4). The different national designations have similar denominations in different countries, although their objectives differ, as has been mentioned above (Table 5).

Contrarily, the English model is decentralized according to territorial and offshore waters. National law is only applicable to four international figures: three figures included in Natura 2000 and one included in RAMSAR (Table 1), and a management plan is not mandatory, unlike in the rest of the countries (Table 3). The remaining designations are completely different from those in the other countries, both in terms of their denomination and their objectives.

Table 2. Summary of the general characteristics of each country's recognition of the three Nature 2000 designations including a marine area (MAIA partners, 2012).

	United Kingdom	Mainland Portugal	Spain	France
National legislation transposing the two European directives	<p>The Conservation of Natural, Habitats &c. Regulation 1994.</p> <p>The Conservation of Habitats and Species Regulations 2010 (as amended)</p> <p>The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended)</p> <p>The Conservation (Natural Habitats, &c.) Regulations (Northern Ireland) 1995</p>	<p>Decreto-Lei nº 149/99 de 24 Abril</p> <p>Decreto-Lei nº 49/2005 de 24 Fevereiro</p>	<p>CAPITULO III.</p> <p>Artículo 31 de la Ley 42/2007 del 13 de diciembre, del Patrimonio Natural y de la Biodiversidad</p> <p>In Spain, each Natura 2000 site is designated by a specific document and subsequently managed by the Autonomous Government, except for exclusively marine sites.</p>	<p>Code de l'environnement (Art. L. 414-1 à L. 414-7, R. 414-1 à R. 414-24)</p> <p>Code rural (Art. L. 313-1, L. 341-1, R. 311-1, R. 311-2 et R. 341-7 à R. 341-20)</p> <p>Code général des impôts (Art. 1395 E)</p>
Regulations	Not defined in the ministerial designation decision.	Not defined in the designation documents but proposed by the management authority to the relevant authorities.	Defined in the site designation documents by the relevant authorities.	Not defined in the designation documents but proposed by the management authority to the relevant authorities.
Physical area of application	Seabed Sub-bottom Water column Surface			
Legal area of application at sea	British Fishery Limit (200 nm) UK Continental Shelf Designated Area beyond British Fishery Limit (only for habitat features associated with the seabed) Territorial seas	Territorial seas	EEZ Extended continental shelf Territorial seas	EEZ Extended continental shelf Territorial seas
Official goals				
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes under protection status	X	X	X	X
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes outside protection status			X	

To maintain key ecological functions (spawning grounds, nurseries, feeding and rest areas, etc.)	Only for Special Areas of Conservation (SAC)		X	
To protect, preserve and restore the cultural heritage				
To promote the sustainable management/ development of socio-economic activities				
To manage use of natural resources				
To improve the governance of the MPA territory				
To improve the quality of water				
Environmental awareness and education				
To encourage scientific research			X	
To create socio-economic added value				
Development of a management plan required by the reference documents	The documents provide that a Management Scheme may be drawn up for all Natura 2000 sites, but this is not compulsory.	Provided for in the documents.	Provided for in the documents.	Provided for in the documents and called an objectives document (DOCOB).
Type of governance (IUCN categories)	(A) Governmental: national sub-entity	(A) Governance by government (national/ territorial body or national sub-entity or delegated management) (B) Shared governance (concerted or joint management) (C) Private governance (individual)	(A) Governance by government (national/ territorial body)	(B) Shared governance (concerted management)
Type of funding specified by reference documents	Public	Public and/or private	Public	Not specified in the documents

Table 3. Summary of general characteristics concerning how the UK, France and Spain recognize the Wetlands of International Importance (RAMSAR) designation including a marine area (MAIA partners, 2012).

	UK	SPAIN	FRANCE
National legislation relative to the convention		Artículo 65 de la Ley 42/2007, del 13 de diciembre, del Patrimonio Natural y de la Biodiversidad	Treaty ratified by France in 1987. Décret n°87-126 20/02/1987 Décret 95-143 6/02/1995) Circulaire du 24 décembre 2009, circular implementing the RAMSAR convention in France Arrêté du 3 juin 2011
Physical area of application	Seabed Sub-bottom Water column Surface		Water column Surface
Legal area of application at sea	Territorial seas		
Official goals			
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes under protection status	X	X	X
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes outside protection status	X	X	X
To maintain key ecological functions (spawning grounds, nurseries, feeding and rest areas, etc.)	X	X	X
To protect, preserve and restore the cultural heritage			X
To promote the sustainable management / development of socio-economic activities	X Sustainable development of wetlands		
To manage use of natural resources			
To improve the governance of the MPA territory			
To improve the quality of water	RAMSAR sites contribute to the implementation of the Water Framework Directive		X
Environmental awareness and education			
To encourage scientific research			
To create socio-economic added value			
Management plan development required by the reference documents	Not stipulated by the documents	Stipulated by the documents	Stipulated by the documents
Type of governance (IUCN categories)	Not defined by the documents	(A) Governmental: national/territorial body	Not defined by the documents
Type of funding specified by reference documents	Not stipulated by the documents	Public	Not stipulated by the documents

Table 4. Summary of general characteristics concerning how France and Spain recognize the Biosphere Reserve – UNESCO, UNESCO – World Heritage Sites and MPA- OSPAR international designations including a marine area (MAIA partners, 2012).

	BIOSPHERE RESERVE		WORLD HERITAGE SITES		MPA - OSPAR	
	SPAIN	FRANCE	FRANCE	SPAIN	FRANCE	SPAIN
National reference legislation integrating this international instrument into national law	Artículo 65 de la Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad	Décret du 3 juin 2011, Art.2	Décret n°76-160 10/02/1976 Arrêté du 3/06/2011	Ley 42/2007 Art 49	Décret n°2005-145-14/02/2005 Décret du 3/06/2011	Ley 42/2007, Art 49
Regulations	Defined in the designation documents by the relevant authorities.					
Physical area of application	Seabed Sub-bottom Water column Surface		Seabed Sub-bottom Water column Surface		Seabed Sub-bottom Water column Surface	
Legal area of application at sea	High Sea EEZ Extended continental shelf Territorial seas	EEZ Extended continental shelf Territorial seas	EEZ Extended continental shelf Territorial seas		High Sea EEZ Extended continental shelf Territorial seas	
Official goals						
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes under protection status	X	X	X	X	X	X
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes outside protection status	X			X	X	
To maintain key ecological functions (spawning grounds, nurseries, feeding and rest areas, etc.)	X		X	X	X	
To protect, preserve and restore the cultural heritage	X	X			X	
To promote the sustainable management / development of socio-economic activities	X					
To manage use of natural resources					X	
To improve the governance of the MPA territory						
To improve the quality of water					X	
Environmental awareness and education					X	
To encourage scientific research	X				X	
To create socio-economic added value					X	
Development of a management plan	Yes	Not provided for by the documents	Not specified by the documents		Yes	No
Type of governance (IUCN categories)	(A) Governmental: national/territorial body	Not specified in the documents				
Type of funding specified by reference documents	Public	Not specified in the documents				

Table 5. Summary of general characteristics of national parks, nature parks and nature reserves in the different countries (MAIA partners, 2012).

	SPAIN		FRANCE	PORTUGAL	
	<i>PARQUENATURAL/ NACIONAL</i> (Natural/National Park)	<i>RESERVA NATURAL</i> (Natural Reserve)	<i>PARC NATIONAL</i> (National Park)	<i>PARQUE NATURAL</i> (Natural Park)	<i>RESERVA NATURAL</i> (Natural Reserve)
Physical area of application	Seabed Sub-bottom Water column Surface				
Legal area of application at sea	EEZ Extended continental shelf Territorial Sea		Territorial Sea		
Official goals					
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes under protection status	X	X	X	X	X
To maintain, conserve and restore biodiversity, the natural heritage of habitats, species, landscapes and seascapes outside protection status	X	X	X	X	X
To maintain key ecological functions (spawning grounds, nurseries, feeding and rest areas, etc.)		X	X	X	X
To protect, preserve and restore the cultural heritage	X		X		
To promote the sustainable management / development of socio-economic activities	X		X	X	
To manage use of natural resources			X		
To improve the governance of the MPA territory					
To improve the quality of water			X		
Environmental awareness and education			X		
To encourage scientific research		X	X		
To create socio-economic added value			X		
Development of a management plan required by reference documents	YES				
Type of governance specified by reference documents (IUCN categories)	(A) Governance by government (national/territorial body)		(A) Governance by government (national sub-body) (B) Shared governance (collaborative management)	(A) Governance by government (national/territorial body)	
Type of funding specified by reference documents	Public		Public and/or private		

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CHAPTER 3

DESIGN AND IMPLEMENTATION OF MANAGEMENT PLANS OF MARINE PROTECTED AREAS: AN EMPIRICAL ANALYSIS FOR THE NORTH-EAST ATLANTIC OCEAN

ABSTRACT

The characteristics and duration of the processes occurring from the design and designation of a Marine Protected Area (MPA) to the effective implementation and renewal of its management plan (MgP) were analysed in 226 MPAs from four countries in the North-east Atlantic Ocean (France, Portugal, Spain and England (UK)). These MPAs were managed by 118 MgPs; each management plan could be applied to between one and 11 MPAs, with a mean of 1.9 MPAs per MgP, according to 3 different typologies defined in this study based on the spatial combinations of MPAs and MgPs. Of these MgPs, 81% had been implemented since 2000, motivated by the approval of different directives at the European and global levels.

Four main failures were identified in the design and implementation of MgPs: (i) Gaps between MPA designation and MgP implementation, with a mean period of 10.9 years, are a clear shortcoming in MPA performance because during this period the MPAs were “paper parks”; (ii) seventy percent of the analysed MPAs shared an MgP, not allowing for the definition of SMART (Specific, Measurable, Audience- or issue-focused, Reasonable and Timely) objectives for every MPA involved; (iii) stakeholders were involved in the revision phase of MgP design in 90% of the study cases, while their involvement in the remaining design processes occurred in less than 30% of the cases. Actively involving stakeholders in all phases from the development of the MgP to its daily management is an important point for the long-term success of an MgP; (iv) renewal of operating MgPs was delayed by a median of 4 years in 39% of the analysed MgPs, thus extending the duration of MgPs to twice their planned 4- to 5-year duration. Renewal is an essential process to ensure the continuous improvement and innovation in management required for the good performance of the MPA.

INTRODUCTION

Under the European Marine Strategy Framework Directive (Directive 2008/56/EC), the establishment of Marine Protected Areas (MPAs) is considered an important contribution to the achievement of a good marine environmental status. In a context of overfishing, endangered species and habitat deterioration, MPAs are increasingly used as instruments for protection and management throughout the world's seas. Moreover, MPAs are considered an affordable way to mitigate and promote adaptation to climate change (Roberts et al., 2017; EUROPARC España, 2018). In this sense, an exponential increase in the establishment of MPAs throughout the world, including the EU, has been observed in recent decades (Devillers et al., 2015; Batista and Cabral, 2016; Hopkins et al., 2016; Ban et al., 2017). However, establishment is only one aspect of MPA performance and effectiveness. Protected areas need to be managed effectively within the appropriate legal frameworks and governance structures in order to meaningfully contribute to improving the management of resources and ecosystem services, halting biodiversity loss and mitigating climate change impacts (Dudley et al., 2010; Leverington et al., 2010; Watson et al., 2014).

OSPAR is the Convention for the Protection of the Marine Environment of the North-East Atlantic. It is managed by the OSPAR Commission, composed of representatives of the Governments of 15 Contracting Parties and the European Commission, representing the European Union. It is committed to establishing a representative and ecologically coherent network of well-managed MPAs in the North-East Atlantic as part of its programmes and measures (OSPAR, 2008). This target would have been achieved by 2016 and would be assessed in the following years. In 2003, OSPAR created guidelines for the outline structure of an MgP for an MPA of the OSPAR Network based on the IUCN model (OSPAR, 2003).

MPA establishment, management and operation are usually performed by national institutions, although the type of designation can be international or national (Hopkings et al., 2016; Jones et al., 2016). This makes MPAs dependent on the legislation and administrative mechanisms of each country, presenting great variability in these processes and strategies (IUCN, 2004; Jones et al., 2016). Most MPAs gather their management strategies in a Management Plan (MgP), which is formally drawn in documents setting the management approach and goals, together with a framework for decision making, to be applied in the protected area for a specific period of time (Thomas and Middleton, 2003; IUCN uses this definition). MgPs may be more or less prescriptive, depending upon the purpose for which MPAs were created and the legal requirements to be met. The planning process, the MgP's management objectives and the standards to be applied will usually be stated by legislation or otherwise established by protected area planners (Thomas and Middleton, 2003).

This process varies greatly, following different steps depending on the country of application and on the type of MPA designation, and becomes very slow in many cases. The long duration of this process has a negative impact on the success of the MPA (IUCN, 2004; Ministry of Fisheries and Department of Conservation, 2005), at least in the short term, because during the development of management plans, MPAs are not managed and work as 'paper parks' (Rife et al., 2013; Halpern, 2014; Gallacher et al., 2016). Knowing the duration of each implementation step would allow identifying bottlenecks and improving the process.

The objective of this work is to describe the processes occurring from the design and designation of a MPA to the effective implementation and renewal of its management plan (MgP) and to assess their duration in four countries of the North-east Atlantic Ocean: France, Portugal, Spain and England (UK). Differences in processes among MgPs and among countries and their implications for the improvement of MPA processes and performance will be discussed. Moreover, the influence of OSPAR guidelines in the MgPs studied will be analysed.

MATERIALS AND METHODS

Study area and cases

This study was focused on the MPAs located in the North-east Atlantic Ocean along the coast of mainland Portugal, the Spanish Atlantic coast (including Canary Islands), the French Atlantic coast from Cherbourg in the Channel (Basse-Normandie region) to the Spanish border, and the English coast (Figure 1). These shores are washed by the North East Atlantic Ocean, where the powerful tidal forces, winds and waves that act on a substrate of alternating hard stone and soft sediment are primarily responsible for the North-east Atlantic Ocean coast being so varied, dynamic and rich in habitats and species (Cameron and Askew, 2011). The oceanic climate penetrates to the interior, due to most of the land being flat and low with the sea not farther than 300 kilometres, which leads to mild winters, cool summers, predominance of westerly winds and moderate rain throughout the year. The degree of biodiversity is high, with more than 1100 species of fish described (EEA, 2003). In addition to its ecological importance, this area supports a high human population, with the highest density found in the Iberian coast, with over 500 inhabitants per km². This leads to relevant sewage discharge, maritime transport and use of the sea for tourism and recreational purposes, which produces a high anthropogenic pressure on its environment. In addition, fisheries and maritime shipping are also important economic activities in the area (OSPAR, 2008).



Figure 1. Distribution of the MPAs with MgP along the study area, comprising the Atlantic coast of the Iberian Peninsula, the French Atlantic coast (from the Spanish border to the Belgian border), the English coast of the UK and the Canary Islands (© ProtectedPlanet 2014-2015). The coast of the study area is divided in sections (black and light grey), and grey circles indicate the number of MPAs that exist in each section. The OSPAR Convention divides the North-East Atlantic in five regions. The studied MPAs are located in three of them: region II: Greater North Sea, region III: Celtic Seas and region IV: Bay of Biscay and Iberian Coast.

Study cases

All the Marine Protected Areas (MPAs) with an MgP established in the study area were included in this study. A total of 244 MPAs with any type of documentation relative to management measures were identified: 88 MPAs in Spain, 76 in France, 61 in England and 19 in Portugal. In addition to MgPs *per se*, every country had different types of documents that were comparable to an MgP regarding their contents, such as “*Documents d’objectifs*” [Documents of objectives] in France or “*Plan Rector de Uso y Gestión*” [Use and Management Rector Plan] in Spain. In this study, all MgPs *per se* or any other similar documents implemented with management details in the MPA were taken into account. Other documents, such as those with some recommendations of specific regulations but not a management plan structure, were not taken into account.

To understand the framework, a database summarizing the different designations with an MgP appearing in each country was created (Annex 3.I). These MPAs were also grouped by the administrative nature of the designation: international, national or regional. The country with the highest number of different designations was Spain, with fifteen; most of them were regional designations. The only designation that appeared in the four countries was Special Protection Area (SPA), which belongs to the Natura2000 network. Natura2000 sites

were the most abundant designation in all countries. The “Natural Park” designation was used in two different countries (Portugal and Spain), but its objectives were different in each country.

Data collection

First, a compiling period took place from April 2011 to December 2012; during this period, MPAs in the study area were identified by the organism in charge in each country: Natural England in England; *Agence des Aires Marines Protégées* in France; *Instituto da Conservação da Natureza e das Florestas* (ICNF) in Portugal and *Universidade da Coruña* in Spain. Of the 550 MPAs recorded during this process, only 244 MPAs had MgPs *per se* or other similar documents. These 244 MPAs were managed by a total number of 125 documents. Of these, only 118 MgPs had been implemented (England, 21; France, 47; Portugal, 6 and Spain, 44).

For each MPA, general characteristics (such as total protected area, zoning by level of protection, designation type, etc.) and information relative to MgP development and implementation process or MgP contents were compiled.

This information was collected from official institutions of the different countries: UK's Statutory Nature Conservation Bodies [Natural England and Joint Nature Conservation Committee (JNCC)]; the Portuguese National Authority for Nature Conservation [*Instituto da Conservação da Natureza e das Florestas* (ICNF)]; some relevant organizations in France [*Agence des Aires Marines Protégées*, *Direction régionale de l'environnement, de l'aménagement et du logement*, *Muséum National d'Histoire Naturelle* and *Réserves Naturelles de France*]; and the Spanish Regional or National Ministries of Environment and Fisheries [e.g. *Xunta de Galicia* or *Ministerio de Agricultura, Alimentación y Medio Ambiente*]. In France, Spain and Portugal, public administrations are responsible for storing and maintaining management plans. However, in the case of England, a high diversity of organisations play this role, making data gathering about MgPs a very difficult task. For this reason, only Natura 2000 sites were included in England because they are grouped in management units called European Marine Sites (EMS). This is not a statutory site designation; the term EMS refers to marine areas within Special Protection Areas (SPA) and Special Areas of Conservation (SAC), which are designated and protected under the EC Birds (Directive 79/409/EEC) and Habitats (Directive 92/43/EEC) Directives in England. European Marine Sites range from entirely subtidal to exclusively intertidal areas and may comprise a single SPA or SAC or elements of both. Moreover, they can include Ramsar sites sharing the same geographic area.

Each official organism summarized the information collected about management through a questionnaire filled for every existing MgP (Annex 3.II). This questionnaire comprised 89 questions organised in 6 groups: Site description, Management, Administration, Governance, Control and Enforcement and Monitoring of management plan objectives. Precise criteria were provided to fill in the questionnaires in order to minimise bias due to different interpretations. A web form was put in place during the data collection period to facilitate the completion of the questionnaire and the integration of the information gathered. In France and in Portugal, a single data provider fulfilled the questionnaire for all existing management plans in each country (*Agence des Aires Marines Protégées* in France and *Instituto da Conservação da Natureza e das Florestas* (ICNF) in Portugal). In England and Spain, data input was largely undertaken by MPA managers, overseen by a staff member of Natural England and of the *Universidade da Coruña*, respectively. The database generated from the completed questionnaires was sent back to the corresponding providers for validation.

Data analysis

To analyse the compiled information, a relational database with the information collected by the questionnaires was created. Most of the data was codified as boolean variables (TRUE/FALSE), as much of the questionnaire questions had Yes/No answers, or as factors, when more than two different types of responses were possible. Some numeric and text variables were also recorded (database available as supplementary data).

Descriptive statistical analyses were performed in order to describe the basic features of the MPAs and of the management plans governing them. Both Microsoft Excel 2010 and R (R. Core Team, 2015) were used to create summary tables and descriptive graphs. Some of the results were aggregated either by country or by MPA designation to give a better insight about data structure.

RESULTS

Temporal development of MgPs in the North-east Atlantic Ocean

Since the late 1980s, when the first MgP for an Spanish MPA was implemented in the study area, there was an exponential increase in the total number of MgPs, and most of those MgPs were implemented since the year 2000 (81%). A steady increase in the number of MgPs occurred in England from 1995, with a slight peak in implementations in the early 2000s. In France, the early 2000s were also a turning point in the creation of management plans, with an increase in the rate of creation that was maintained until the end of the present study. Portugal increased the number of management plans implemented since 2005, and at least four plans were under development when this study was undertaken. In the case of Spain, the year 2011 was especially relevant because the number of MgPs under implementation more than doubled (Figure 2).

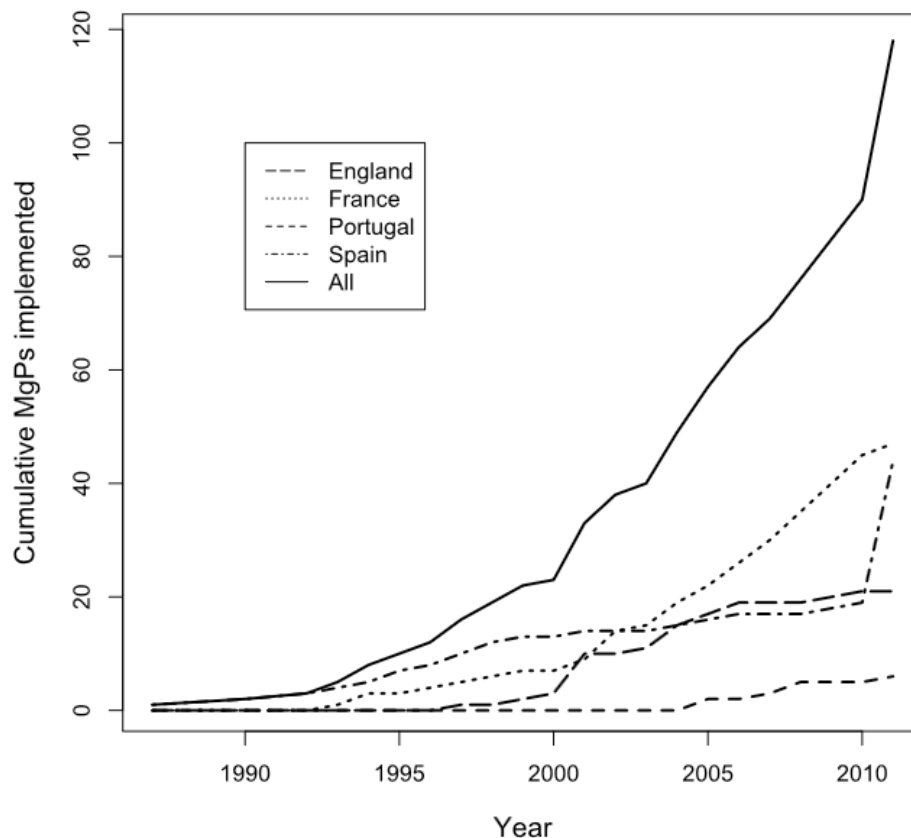


Figure 2. Time series of the cumulative number of management plans (MgPs) implemented according to the year of first implementation in each country and overall.

Spatial typologies: relations among MgPs and MPAs

The 244 MPAs were managed by 125 MgPs *per se* or other similar documents (one MgP can manage more than one MPA). England was the country with the highest number of MPAs (61) managed with the lowest number of MgPs (21) (an average of ~3 MPAs included in each MgP), followed by Spain and Portugal, where the proportion was two to one: 1.8 MPAs per MgP in Spain and 1.7 MPAs per MgP in Portugal. In France, it was lower: 1.6 MPAs per MgP.

Of the 125 considered MgPs, there are 4MgPs from Portugal that were under development at the beginning of 2013. The 4 Portuguese MPAs under development corresponded to Natura 2000 MPAs, and although they were not covered by any specific MgP, there was a global orientation document (*Plano Sectorial*) for management purposes. Those were *Ria de Aveiro SPA*, *Ria Formosa SPA*, *Sintra/Cascais SCI* and *Santa Cruz/Peniche SCI*. These four were excluded, and the analysis was performed on 121 MgPs.

A single management plan could be applied to one or to several MPAs, and different typologies according to the spatial combinations of MPAs and MgPs were defined (Annex 3.III). Thirty percent of the analysed MPAs were in **typology 1**, where one MPA corresponded to one management plan (Figure 3A), e.g. Os Miñarzos Marine Reserve of Fishing Interest in Spain. In other cases, some MPA designations coexisted not only geographically but also within a single management unit, meaning that they were included in the same MgP, and for these configurations two more typologies were described.

Typology 2 corresponded to cases in which two or more MPAs that did or did not overlap geographically shared the same management plan (Figures 3B and 3D). In the case of England, Natura 2000 sites were grouped into management units called European Marine Sites (EMS) with a single management plan, which included Special Areas of Conservation (SAC) under the EU Habitats Directive (92/43/EEC) and Special Protection Areas (SPA) under the EU Birds Directive (2009/147/EC), as well as Ramsar sites in some cases. An example of a geographically overlapping EMS-MPA (Figure 3B) was the case of *Severn Estuary European Marine Site*, which includes 3 MPAs (*Severn Estuary SAC*, *Severn Estuary SPA* and *Severn Estuary RAMSAR*). An example of an EMS-MPA not overlapping geographically (Figure 3D) was the case of *Plymouth Sound & Estuaries EMS*, which includes 2 MPAs (*Plymouth Sound & Estuaries SAC* and *Tamar Estuaries Complex SPA*). In the rest of the English typology 2 cases, the number of MPAs under the same EMS ranged from two to eleven, with a mean of 3.7 MPAs and a median of 2 MPAs (see Annex 3.III).

Typology 2 represented 43% of the MPAs analysed in France (Annex 3), among which some examples were: (i) MPAs overlapping geographically and sharing the same management plan (Figure 3B): the case of *Archipel de Glénan SCI* and *Archipel de Glénan SPA*; (ii) MPAs not overlapping geographically but sharing the same management plan (Figure 3D): the case of *National Nature Reserve Baie de L'Aiguillon (Vendée)* and *National Nature Reserve Baie de L'Aiguillon (Charente-Maritime)*. The number of MPAs sharing the same MgP under **typology 2** was normally 2, and only in *Marais Poitevin* it was 3 (see Annex 3.III) in France. Portugal and Spain did not have any case classified as **typology 2** (Table 1).

Typology 3 occurred when two or more MPAs overlapping total or partially in the same geographic area were covered by the management plan of one of these MPAs. This management plan included the rest of the overlapping MPAs but belonged specifically to only one of them. The management plans were more linked/associated with one of the designations (MPA) than with the others (Figure 3C). There were four cases of this **typology 3** in France, e. g. *Iroise Natural Marine Park*. It was a management plan that included five other Natura 2000 MPAs partially overlapping with *Iroise Natural Marine Park* (Annex 3.III).

There were 5 cases of **typology 3** in Portugal (Table 1), where a single MgP covered from 2 to 3 MPAs. As an example, *Arrabida Natural Park* had a management plan that included two other Natura 2000 MPAs partially overlapping with *Arrabida Natural Park* (Annex 3.III).

Spain had the highest number of cases in **typology 3**, with 17 cases (Table 1). In Spanish **typology 3**, a single MgP managed from 2 to 5 MPAs. One example was the *Parque Nacional Marítimo-Terrestre de las Islas Atlánticas de Galicia*, whose management plan covered five other MPAs totally or partially overlapping with the *National Park* geographic area (Annex 3.III).

Table 1. Number of MgPs in each typology by country.

TYOLOGIES	ENGLAND	FRANCE	PORTUGAL	SPAIN
1	6	30	2	28
2	15	14	0	0
3	0	4	5	17
Total	21	48	7	45

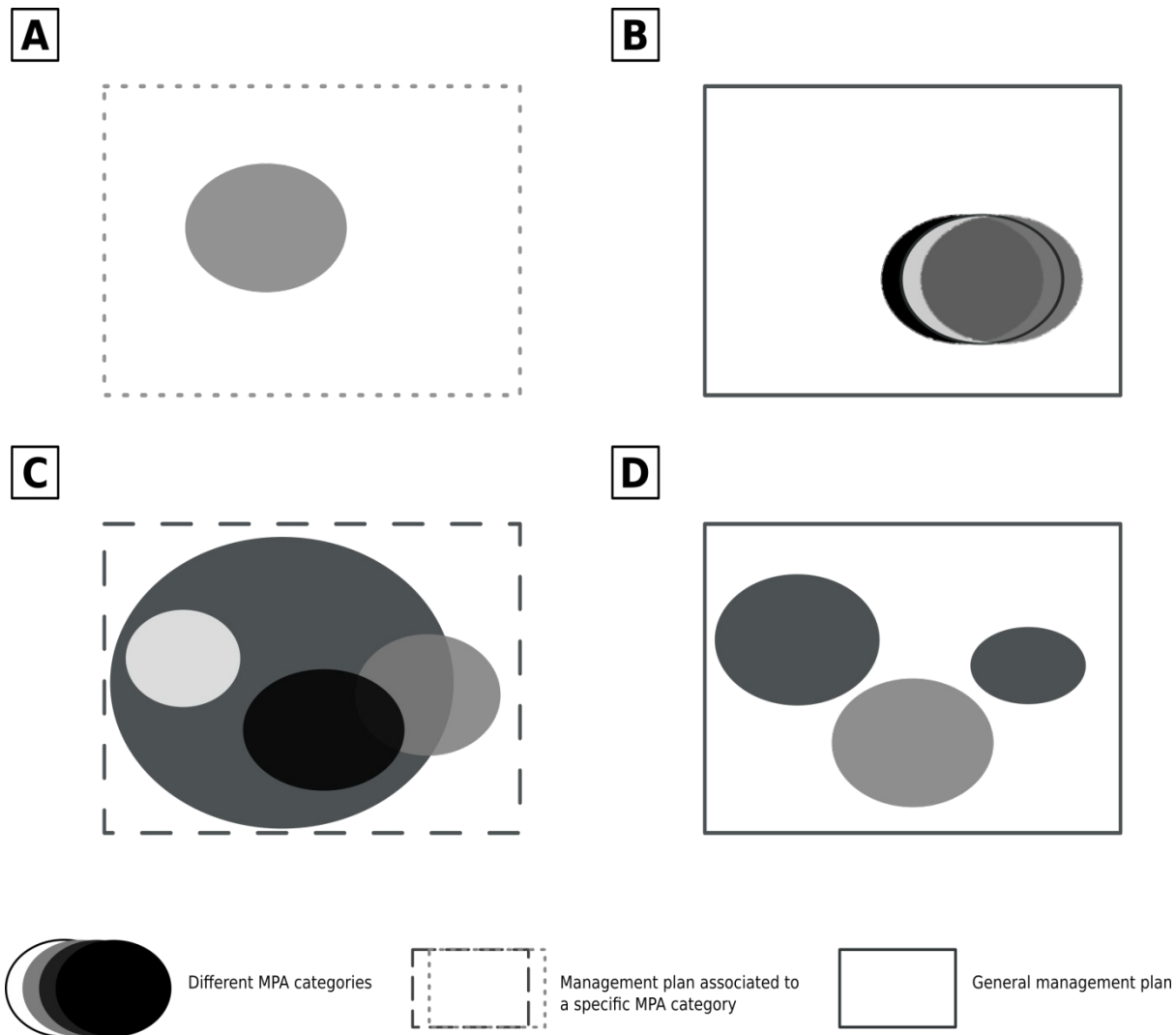


Figure 3.-Diagram of the different typologies of MgP-MPA combinations in the dataset. Figure 3A represents *typology 1*; figure 3B and 3D represent *typology 2*, and figure 3C represents *typology 3*. Each circle corresponds to one MPA, and the square represents the corresponding MgP.

Development, implementation and renewal of MgPs

Among the 121 MgPs considered, there were 3MgPs (from Portugal, Spain and France) that were fully developed but not yet implemented at the beginning of 2013. The French MgP not yet implemented was shared by *Marais et Falaises des Coteaux de Gironde SAC* and *Estuaire de la Gironde: Marais de la Rive Nord SPA*. The reason for the lack of implementation of the French one was that the document had been validated by the governing body in January 2006 but not approved by the regional administration (*préfet*), as there was no Natura 2000 charter and there had been some difficulties for its creation. The charter was mandatory since 2005, according to French law. There was also one Natura 2000 site in Portugal, *Ilhas Berlengas SPA*, where the MPA area was expanded in 2011 and a new MgP was elaborated but was not yet implemented at the moment of the study. There were also some Spanish MPAs covered by a non-implemented MgP: *El Cachucho Marine Protected Area*, *El Cachucho MPA OSPAR* and *El Cachucho SAC*. This MgP had still not been implemented because it had been approved by the national government in December 2011 and the management body for these MPAs had not been created by early 2013. These three MgPs were excluded from the analysis.

Therefore, this study was focused on only 118 MgPs that had been implemented by December 2012: 21 in England, 47 in France, 44 in Spain and 6 in Portugal. All analysed management plan documents were publicly accessible in each country's official websites (see references in Annex 3.IV).

Several processes take place between the initial idea of an MPA and the implementation of its MgP. Usually, MPA designation is followed by MgP kick-off, which is divided in four steps: design (preparation of a draft), revision (e.g. public revision or revision by stakeholders), validation (e.g. by the official body in charge) and implementation (starting to apply the MgP in the MPA or MPAs) (Figure 4). In this work, the time elapsed from MPA designation to MgP kick-off is defined as t1, and the time used in developing and implementing an MgP is defined as t2 (Figure 4).

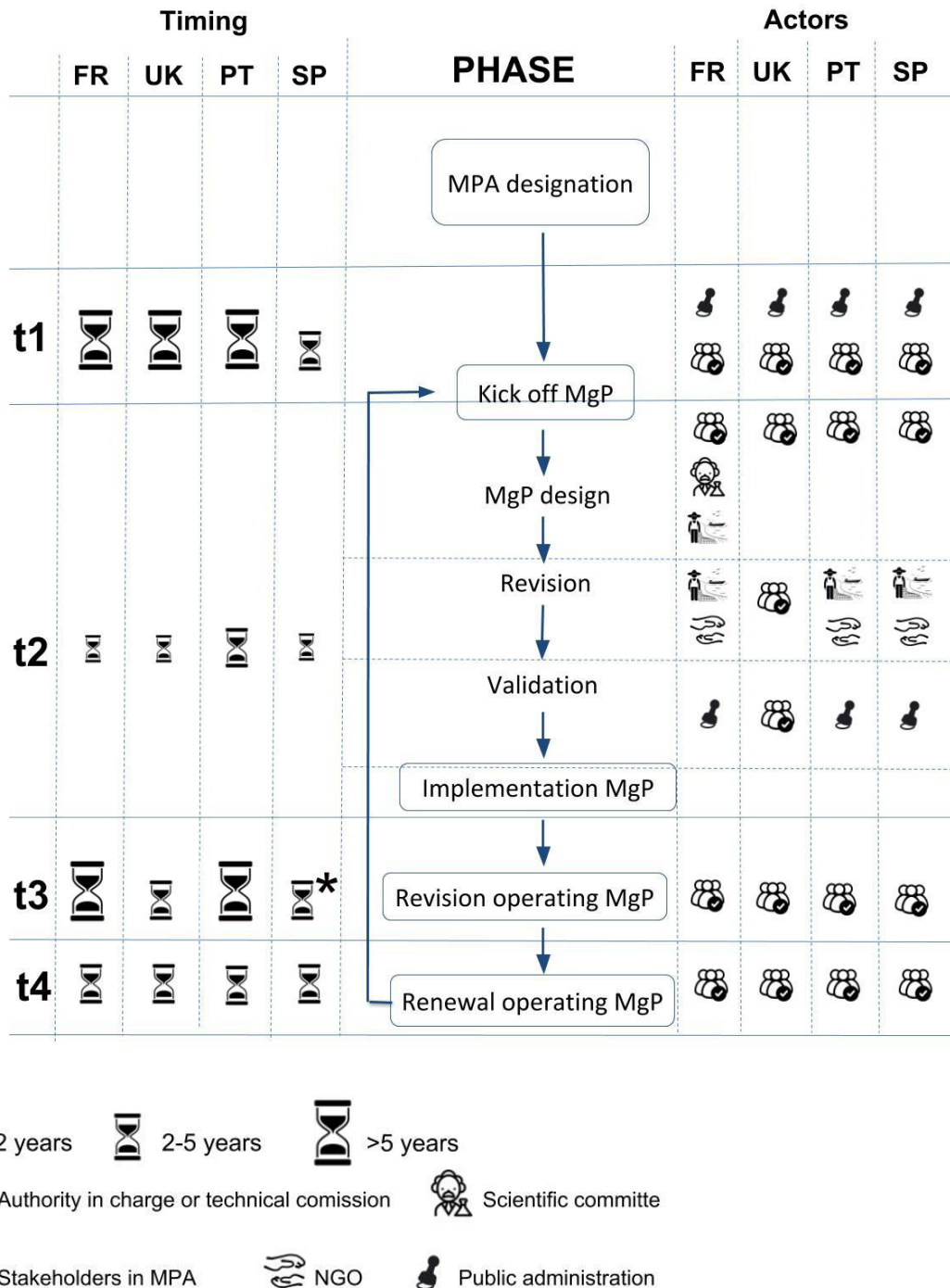


Figure 4. Diagram showing the different phases of MPA design: from MPA designation until MgP kick-off (t1), design and implementation of the MgP (t2), revision (t3) and renewal of the operating MgP (t4). On the left, the duration of each phase by country is represented by the size of the sand clock. The asterisk means that the revision of operating MgPs was carried out whenever it was deemed necessary. On the right, the different actors are represented by country (Icons' source: thenounproject.com).

MPA establishment process

Although the designation of an MPA is usually followed by kicking off the MgP design, sometimes both processes (MPA designation and MgP design) start in parallel, with MgP implementation occurring before MPA designation in some cases. In this study, MPA designation occurred first in 83% of the 118 study cases (98). Meanwhile, in 17% of the cases (20), the MgP was implemented before the MPA was designed (this number increased to 24 cases when the MgP design process started before MPA designation, even when the MgP design process finished after the MPA was designed). In Portugal, all MPAs were designated before their MgPs were implemented. The same occurred in Spain, except in one case. In France, 78% of MPAs followed this pattern and 21% of MPAs implemented their MgP first, while in England the proportions were 62-38%.

The reasons that explain why MgPs were implemented before MPA designation could be diverse. As an example, in the case of Natura2000 sites that are first designated as “Sites of Community Importance (SCI)”, they must have implemented an MgP in order to become “Special Areas of Conservation (SAC)” (within six years at most) (Directive 92/43/EEC). This was the case for most MPAs in England and some in France where MgP implementation preceded MPA designation. In the Spanish case, the national law under which these MPAs were designated required the implementation of an MgP prior to MPA designation (Ley 15/2002).

Regarding the duration of these steps, among the 98 study cases where MgP kick-off occurred after MPA designation, only in 25 of them the time elapsed from designation to kick-off (t_1 in Figure 4) was known, showing a t_1 of approximately 9 years in France and England and up to 13 years in Portugal. Spain had the shortest t_1 period, with a mean duration of 5 years.

Regarding the start of MgP, there were 24 study cases that began before MPA designation (of which 20 ended before MPA designation). In these cases, designation followed shortly after (taking into account “administrative time frames”). The longest period from MgP kick-off to MPA designation was approximately 5 years in England, 2 years in France and Spain, and 1 year in Portugal. In four of the cases, although the MgP process had already started before, MPA designation and MgP implementation were achieved at the same time.

Design and implementation of MgP

Following the usual flow after MPA designation, in most of the cases managers, stakeholders and scientists started to work in the definition of an MgP up to its implementation. Depending of the country, stakeholders were involved in the whole MgP development processor only in some steps. Spain was the country with the shortest period from MPA designation to MgP implementation (t_1+t_2), with a mean of approximately 2 years, followed by France, with 6.5 years, and England, with 7 years. In Portugal, this period was 14.5 years, twice as long as those of France and England.

Information about the time elapsed from the start of MgP design (t_2 in Figure 4) to its implementation was obtained only for 45% of the MgPs involved in this study. This time (t_2) varied greatly (from less than 1 month to almost 8 years), with an overall mean of 1.9 years. Portugal was the country with the longest MgP development period (t_2), with a mean of 3.6 years. This time frame was reduced to half in other countries such as England (1.8 years) or France (1.9 years). Spain was the country with the shortest MgP preparation period, with a mean of 1.4 years. As the studied Portuguese MPAs were all mixed coastal areas with a huge predominance of terrestrial areas, this could account for a greater heterogeneity of problems and stakeholders, therefore causing this extension in MgP preparation time compared to other countries.

The MgP design process was performed in different ways depending on the country. In the four countries, the body in charge of developing the MgP was the management organisation. In England and Spain, over 86% of MgPs were developed only with the participation of the agencies in charge, while in France (77%) and Portugal (100%) different agents such as public administrations, NGOs, scientists, local representatives or professional fishers were usually involved as well.

Another key issue when developing an MgP is the cost. In the study, the proportions of MgPs with available estimated development costs were 86% in Portugal ($n=6$), 67% in England ($n=14$), 46% in France ($n=22$) and

none in Spain. Mean development cost in Portugal was 310,833 € (data available for 86% of the MgPs, n=6), with a median of 182,500 €. In England, the total development cost was only known for three of the 14 management plans, with a mean of 200,000 €, and the process lasted from 5 to 7 years for these three MgPs. In the remaining English management plans (n=11), only personnel/staff costs required for MgP development were estimated, with a mean of 38,400 € and a median of 45,500 €. In France, development costs were very variable, ranging from less than 1,000 € (n=3) to 3.5M € (corresponding to the *Iroise Nature Marine Park* management plan). The mean cost was 237,803 € (n=22), and the median was 83,546 €. In Spain, development costs were not described in any management plan. The budget described in Spanish management plans corresponded to the funds for the implementation and management of the site and did not include the development costs.

Management plan design - First phase

In this first phase, a draft of the MgP is defined. The content of a 'good' MgP document must include [18, 19]: (a) a legal description of the area and how it relates to the system plan; (b) the authority in charge of the MPA and other important governance arrangements; (c) a basic description of the resources and conservation values for which the area is being designated and of the related human interactions intended to be permitted in the area; (d) the conservation objectives and management category for the area; (e) the main threats and management approaches for dealing with them; (f) a zoning plan as needed; (g) the types of activities permitted and prohibited in the area; (h) a monitoring plan; (i) performance criteria for assessing progress toward goals and objectives and effectiveness of specific management approaches; (j) the life of the plan and its basic cycle for review, revision and updating.

The body in charge of designing an MgP was variable and depended on the designation type and the country. In England, MgPs were produced by the collective group of bodies with management powers. They were free to produce an MgP in whatever format they considered, providing it delivered the conservation objectives for the site. However, 100% of the analysed MgPs followed the UK-wide Guidance. It was a 'model process', and the suggested format was provided in the 1997 document *Natura 2000: European Marine Sites: an introduction to management*.

In France, MgP development was done differently for each MPA designation: (i) For *Natura 2000* sites, the MgP was created locally by a steering committee (chaired by the state authority); (ii) for *Réserves Naturelles Nationales ou Régionales*, the MgP was developed by the state authority. The manager drew up an MgP relative to scientific evaluation of the natural environment and its evolution and gathered recommendations from both the advisory committee and the scientific council; (iii) for *Nature Marine Parks*, the MgP was developed by the management organization including the management council; (iv) for *Marine State Property managed by the Conservatoire du Littoral*, the MgP was created by the Conservatoire du littoral, the management team and the local authorities; (v) There were no specific processes for *Biotope Protection Bylaw*, for which no MgP was required by law.

In Spain, a draft of the MgP was generally created by the organism in, but 24% of the MgPs did not follow any specific development process. The process in Portugal was defined by law in 100% of the MgPs analysed and was coordinated by the Instituto da Conservação da Natureza e das Florestas (ICNF; former Instituto da Conservação da Natureza e Biodiversidade, ICNB). The plan was designed by the Technical Commission (governing body board that included relevant administration representatives).

Regarding the information required to write the MgP, studies about the previous state of the site were very useful because they helped to decide the necessary measures and to describe the status of the habitats and how the MPA will affect them in the future (Wood and Dragicevic, 2007). Approximately 100% of the MgPs in Portugal and France used information on the previous status of the site, whereas in England less than 40% of the MgPs used and described the previous situation. In Spain, barely 13% of MgP took into account the previous status of the site.

Geographic Information Systems (GIS) are also a useful tool, as they allow using spatial information about specific variables of the MPA (Wood and Dragicevic, 2007). It is useful to adapt management to MPA requirements by making the most of key geographical information such as habitats, human activities, species distribution, etc. Over 70% of the studied MgPs had Geographic Databases and used them as management tools (100% of MPAs

in Portugal, followed by England, with almost 90%, and France and Spain, with around 70%). Regarding the type of information, most of them included biological and physical GIS information, while information about traditional and commercial uses was less frequent (less than 10% in England and Spain) (Table 2).

Table 2. Percentage of management plans by country that included GIS shapes relative to different types of information: physical (geographic characteristics of the MPA), biological (flora and fauna), cultural (cultural heritage in the area), recreational (recreational uses in the area), commercial (commercial uses in the area) and/or traditional (traditional uses in the area).

COUNTRY	n	PHYSICAL	BIOLOGICAL	CULTURAL	RECREATIONAL	COMMERCIAL	TRADITIONAL
ENGLAND	20	90	42	5	15	10	5
FRANCE	47	27	71	6	44	37	0
PORTUGAL	6	100	100	86	29	14	43
SPAIN	44	76	73	58	58	4	9

Revision - Second phase

Once the draft of the MgP is completed, the review process begins. In this phase, MgPs are reviewed and can be modified according to the corrections or allegations made to them. This process is carried out differently in each country. Most of the countries had a public consultation process that involved stakeholders (over 90% of the studied MgPs in all countries, except for Spain, where it was 80%).

In France, as in the MgP design phase, the revision process varied as a function of MPA designation: (i) For Natura 2000 sites, stakeholders were continuously involved in MgP revision (65% of the MgPs analysed). (ii) For the MgPs of *Réserves Naturelles Nationales ou Regionales*, the state authority consulted with the regional scientific council for nature heritage, as well as with civilian and military administrations if required (23% of the MgPs analysed). The remaining designations in France did not have any specific process to involve stakeholders in the revision phase. In the case of Spain, after the MgP draft was finished, the revision started. A presentation, scoping and public participation process was carried out in 69% of MgPs analysed. During this process, all stakeholders could appeal against the MgP; these appeals were discussed with the organism in charge and included in the MgP if applicable. The remaining 31% of Spanish MgPs did not specify this process. In Portugal, public interests were taken into account in a commission designated by the government (private organizations or personalities could be invited). The participatory process with sectorial representatives was ongoing, but there was also a final public phase open to private and individual participation (100% of the MgPs analysed). As has been previously discussed, in England MgPs were produced by the collective group of bodies who had management powers, the Management Group, which was also in charge of revising the MgP.

Validation and approval - Third phase

After MgP revision, the validation and approval period begins. In general, this period consists in checking the contents of the MgP and in its formal approval by the authority in charge. During this phase, the MgP becomes official. In some of the studied cases, validation did not occur because the MgP was designed and approved by the same organism, and thus it was directly approved following revision without further ado.

Focusing on those cases where there was a process for management plan validation, in England, 90% of the management plans analysed were approved by the Management Group, generally as a formality, since this group was involved in their designing. This group was formed by legislative bodies with the power to manage activities within the site, and the final MgP was signed by all those bodies to signify that they agreed to deliver the actions they were responsible for.

The process varied depending on the type of designation in France: (i) Natura 2000 sites, which corresponded to 65% of the MgPs analysed, were approved by the state authority after consultation with the steering committee. (ii) MgPs of *Réserves Naturelles Nationales ou Regionales* were approved by the National council for nature protection – Ministry (23% of the MgP analysed). (iii) The MgP of the *Parc Naturel Marin* was first adopted by the executive board of the Nature Marine Park and then approved by the governing board of the French MPA Agency. (iv) The two MgPs of *Domaine public maritime du Conservatoire du littoral* created with the *Conservatoire du littoral* were validated by a management committee and then approved by the director of the *Conservatoire du littoral*. These MgPs were transmitted to the mayor and to the state authority.

Validation and approval was done by the governing body and relevant administration in all the Portuguese MgPs analysed and in 95% of the Spanish MgPs analysed. After validation and approval, MgPs were generally published in the official state or regional gazette.

Duration, revision and renewal of operating management plans

The implementation of the first MgP of an MPA represents the beginning of MPA management. After an MPA starts to be operative, several revisions and changes should be made throughout time.

Revision and renewal were defined as regular processes that should be done at the time specified in MgPs. In the revision of operating MgPs, it was recognized that, after a given period, some of the results had been delivered and new management issues would need to be addressed. However, due to resource and staff constraints, some MgPs were reviewed more frequently than others.

The maximum duration of an MgP was specified, and a renewal of the MgP was expected in 92% of the studied cases. For its renewal, a new MgP would be created taking into account the obtained results and lessons learnt during the performance of the former MgP. Subsequently, all the steps of the MgP development process (design, revision, validation and approval; see Figure 4) would be restarted.

Revision of operating MgPs

In some cases (83%), a frequency for the revision of the operating MgPs (t3 in Figure 4) was specified in the MgP document. This frequency could be the same as the validity period of the MgP (14%), or it could often be longer (58%); it could also be revised whenever it was deemed necessary, like in 84% of the Spanish cases. These revisions were slight modifications of the operating MgP but sometimes derived in the creation of new versions of an MgP; in such cases, this was considered a renewal of the MgP (see next section). Although the distinction between a new version of an MgP and slight modifications of the old one (which was not considered another version) was not very clear, the number of different versions of the MgP was recorded into the database and analysed (see next section).

Regarding the revision frequency established by each operating MgP, the majority of the plans in England were expected to undergo a revision process every 5 years (90%). There were two exceptions: one where the MgP should be revised annually and another where it should be revised every 6 years. The revision of the French operating MgPs (n=47) was expected to take place every 5 or 6 years in 87% of the cases. The remaining 13% of French MgPs corresponded to 5 cases where it was reported to never take place and one case where the revision of the operating MgP should be done every 15 years. For the operating MgPs in Portugal, no periodicity for plan revision was specified, except in one case that was reviewed every 5 years. In Spain, only 31 operating MgPs (69% of Spanish cases) specified information about revision; among them, revision was performed whenever deemed necessary in all of them except for five cases, in which frequencies from 1 to 10 years were stated (Figure 5).

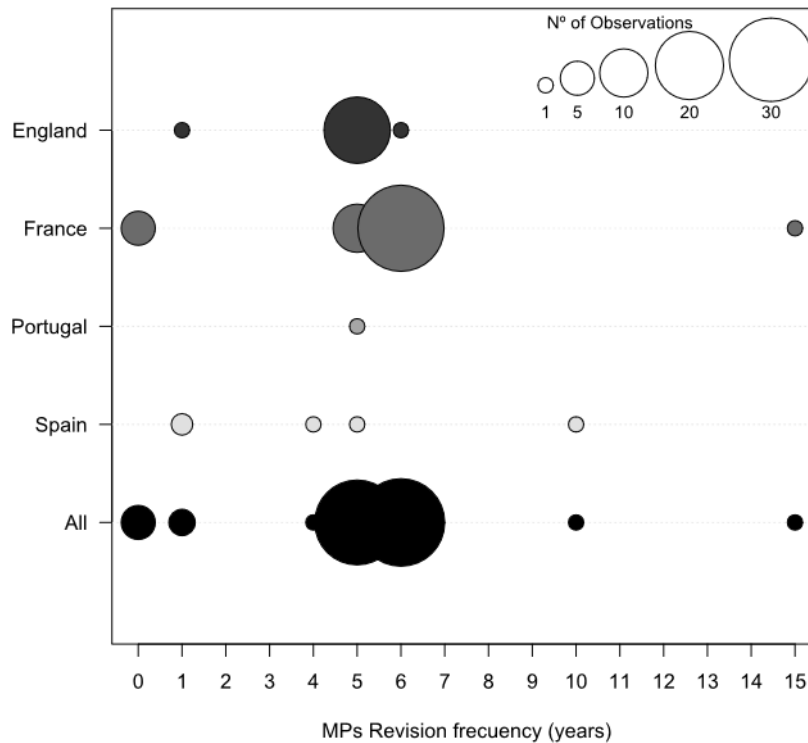


Figure 5. Revision frequency in years (t_3) established by operating MgPs by country. Circle sizes indicate the number of MgPs with that duration. Cases where revision should be undertaken whenever deemed necessary were not represented ($n=26$; all from Spain).

Renewal of operating MgP

The specified validity period of an MgP establishes when its renewal should be done and a new MgP should be elaborated and implemented (t_4 in Figure 4). In the renewal process, failures and learnt lessons should be identified to introduce improvements for the creation of a new version of the MgP. All the parts of the MgP are revised and improved, and a new implementation process is started comprising the three phases previously discussed (design, revision, and validation and approval; Figure 4).

The theoretical validity period of operating MgPs (only 108 cases have information related to it) was 6 years on average, ranging from 1 to 15 years. In particular, the validity period of management plans in England ranged only from 4 to 6 years, and the majority had a 5-year duration. Contrarily, MgPs in France and Spain had longer life spans: from 5 to 15 years and from 1 to 10 years, respectively. The life span of MgPs in Portugal depended on the category: (i) Natura 2000 categories had a validity period of 5 years, and (ii) Nature Reserve and Natural Park categories had a validity period of 10 years (Figure 6A).

The actual life span of the first MgPs that were implemented was recorded in the 20 cases in which a newer version of the plan had been implemented. At the beginning of 2013, 11% of MgPs ($n=13$) had been renewed on time: one in France, *Réserve Naturelle Nationale de la baie de Saint-Brieuc*; five in England: i) *Flamborough Head European Marine Site (EMS)*, ii) *North East Kent (Thanet) EMS*, iii) *Plymouth Sound and Estuaries EMS*, iv) *Poole Harbour EMS*, and v) *Stour & Orwell Estuaries EMS*; and seven in Spain: i) *Parque Natural de la Bahía de Cádiz*, ii) *Reserva Natural Parcial de Barayo*, iii) *Reserva Natural Parcial de la Ría de Villaviciosa*, iv) *Parque Natural del Estrecho*, v) *Reserva de la Biosfera de Urdaibai*, vi) *Reserva Marina de Interés Pesquero Os Miñarzos*, y vii) *Parque Natural de la Breña y Marismas del Barbate*. The remaining seven cases were renewed after their validity period was overdue. The life span of the first MgPs varied greatly from less than 1 year to 10 years, with a mean period of 5 years. In the case of Portugal, all of the management plans were still in their first version (Figure 6B).

In this work, the beginning of 2013 was used as a reference date, after finishing the compiling period at the end of 2012, to analyse the renewal of operating MgPs. By early 2013, some plans had been renewed once or even twice. Twenty percent of the MgPs in England had been renewed once (the second version of MgPs was

implemented), and 10% had been renewed twice (the third version of MgPs was implemented), while the remaining 70% had still not been renewed. France had renewed 12% of the MgPs once and 2% of them twice by the beginning of 2013. These second and third versions of the French MgPs corresponded mainly to the *Réserves Naturelles Nationales* designation. Spain had plans in their second version (16%) but not in their third version, and these MgPs were mainly for the *Parque Natural* and *Reserva Natural Parcial* designations. Finally, in Portugal, all of the implemented MgPs were in their first version because MPAs changed after the inclusion of the marine part (Figure 7).

About half of the operating MgPs at the beginning of 2013 had not reached the validity period described in their management plan (n=50), as was the case of MgPs in Portugal, where the implementation was done shortly before the time of the study and none of them had exceeded their expected period of 10 years. Nine MgPs in Spain had no defined maximum validity period. The remaining 46 plans had already exceeded their initially planned life span (i.e. 'expired'), with no revision or renewal having been made. There were 15 English MgPs that had exceeded their planned time, with a median life span of 4 years. The 22 French cases in which the validity period of MgPs was exceeded also had a median life span of 4 years. Both countries had an established maximum of 9 years. Finally, in the nine Spanish MgPs, the median was 5 years, with a maximum of 21 years corresponding to the *Parque Natural* and *SCI of Dunas de Liencres*. The minimum was one year in the three countries (Figure 8).

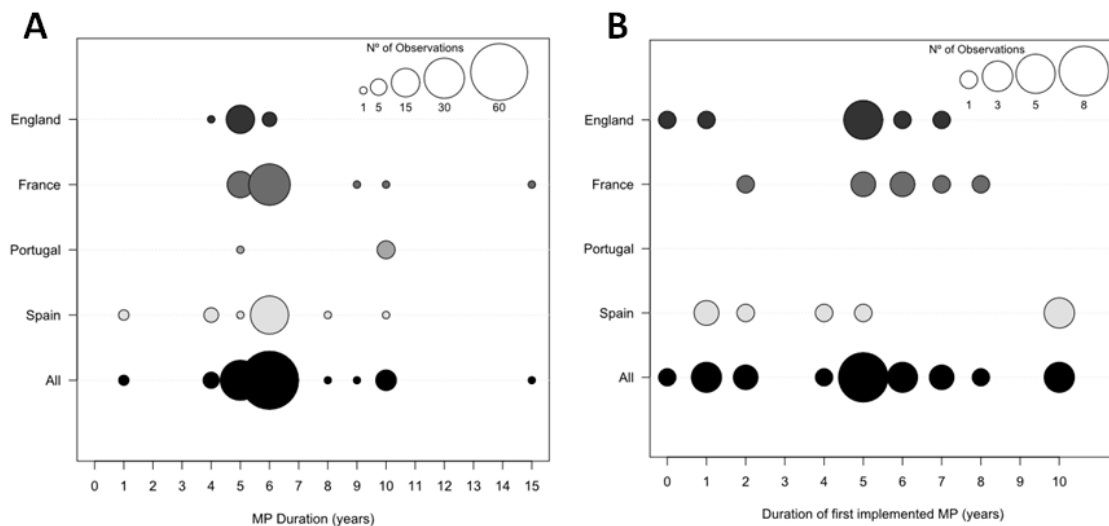


Figure 6. (A) Theoretical validity period in years of the operating MgPs by country. (B) Actual life span in years of the first MgP that was implemented in cases where a newer version of the plan was in place. No data are shown for Portugal because all the MgPs were in their first version. Circle sizes indicate the number of MgPs with that duration.

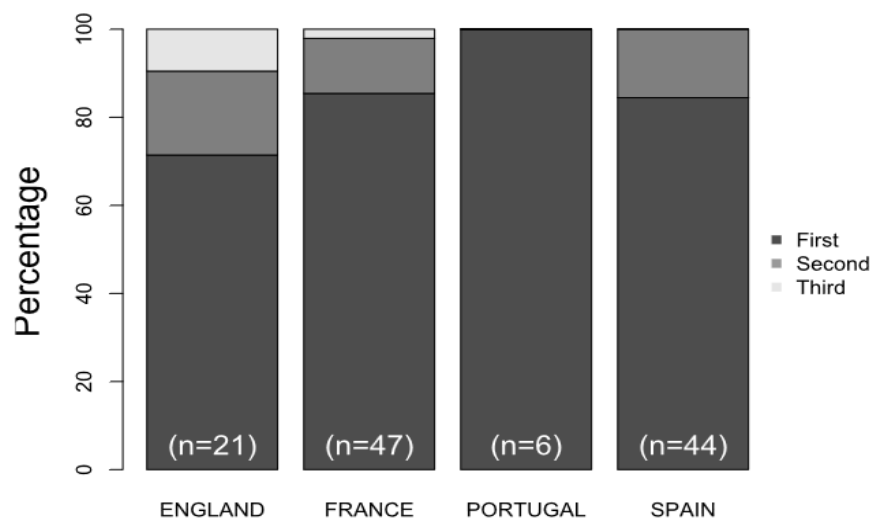


Figure 7. Percentage of operative management plans attending to their version (first, second or third) at the beginning of 2013. The number of MgPs (n) with available information about the versions is shown at the bottom of each bar.

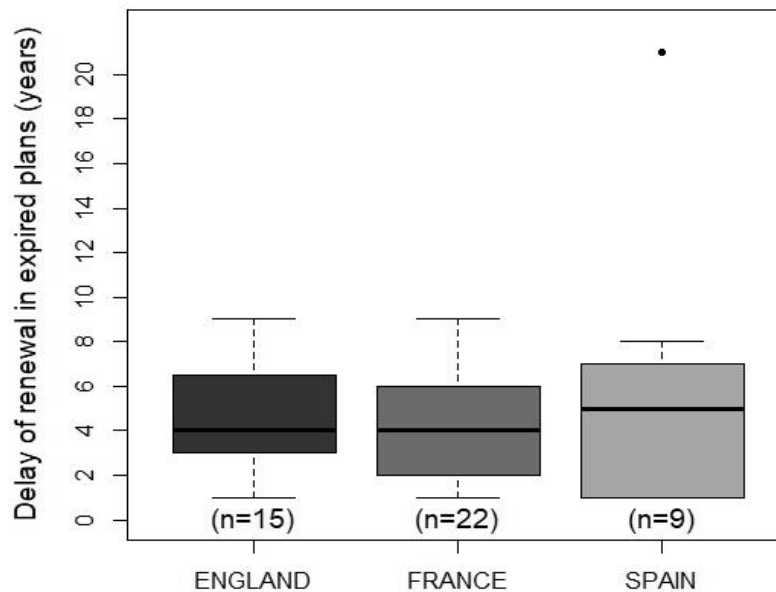


Figure 8. Distribution of delays, in years, in the renewal of MgPs that had already exceeded their planned validity period by the beginning of 2013. The ends of the boxes are the upper and lower quartiles; therefore, the boxes spans the inter-quartile ranges. The horizontal lines inside boxes mark the median values, and whiskers extend to the highest and lowest observations. Portuguese MgPs had not exceeded their initially planned life span by the beginning of 2013.

Comparison of OSPAR guidelines for MPA management (2003-18) with the process of MgP design

As all MgPs used in this study were under the OSPAR Convention, in this section the degree of compliance of studied MgPs with the OSPAR guidelines was analysed. The overall priority goal in all of the management plans was nature conservation and restoration of habitats under protection status, except in Spain, where the management of exploited natural resources was always present as an objective in the MgPs, as was observed in the previous study about management performance of MPAs in the NE Atlantic (Álvarez-Fernández et al., 2017). Overall, 70% of MgPs had a high degree of compliance with OSPAR guidelines.

The only countries in which some MgPs did not fit at all with OSPAR guidelines were England and Spain, with one and five MgPs, respectively. The English MgP *Solent European Maritime Site* was in the process of being updated. The Spanish MgPs (n=6) that did not agree with OSPAR guidelines were MPAs focusing on the management of exploited marine resources.

There were some MgPs that fit with some OSPAR recommendations, and they agreed partially with the OSPAR guidelines. In France, the only plan partially agreeing with the OSPAR guidelines was the one governing the *National Nature Reserve Lilleau des Niges*, which was the second MgP for the MPA and constituted an assessment of the first MgP rather than a complete MgP for the second period. In the remaining countries, the percentage of MgPs partially agreeing with the OSPAR guidelines was 14% in Spain, 19% in England and almost 30% in Portugal.

DISCUSSION AND CONCLUSIONS

MPAs are currently under discussion, and their effectiveness is being evaluated (Bennett and Dearden, 2014; Ban et al., 2017; Hilborn, 2017; Lopez-Rodríguez and Rosado, 2017). Existing analyses show that the percentage of MPAs that could be considered “successful” or effective in ecological and/or socioeconomic terms is debatable (Agardy et al., 2011; Batista and Cabral, 2016; Agardy, 2018; Pendleton et al., 2017). The effective management, which requires the implementation of an MgP, plays a key role in the success of MPAs (Lopez-Rodríguez and Rosado, 2017; McDermott et al., 2018). In the present work, the development process of MgPs in MPAs at the North-East Atlantic Ocean was analysed, defining the complete process and identifying differences among countries, which allow us to highlight topics to be improved to increase MPA performance. The effective performance of an MPA should be highly linked to the continuous management of the MPA. In this

sense, management should be continuously improved applying the lessons learnt from the failures and successes generated by the implementation of the MgP, and for this reason, the timely revision of the plans is of critical relevance.

Temporal development of MgPs in the North-east Atlantic Ocean

The results obtained in this work showed a continuous increase in the number of MgPs for MPAs in the North-east Atlantic Ocean since the 1980s. This increase accelerated from 1992, coinciding with the consolidation of the Convention for Biodiversity (CBD), which marked an important milestone in the conservation and creation of MPAs (Ortiz, 2002; Spalding and Zeitlin-Hale, 2016). At the same time, the Directive Habitats 92/43/EEC of the European Union was also approved.

Most of the MgPs in this area were implemented since the year 2000 (81%), probably motivated by the approval of different directives at the European or global levels, especially three of them: i) the adoption in 2004 of the programme of work on MPAs by the CBD. This programme had as its main objectives to achieve at least 10% of each of the world's ecological and coastal regions effectively conserved by 2006 and to create a representative and effectively managed network of MPAs by 2012 (Toropova et al., 2010). ii) The establishment of the Natura 2000 Network, an EU initiative that supports the practical implementation of the Habitats Directive (Directive 92/43/EEC), which complements the Birds Directive (Directive 79/409/EEC), adopted in 1979 and updated by Directive 2009/147/EC, both of which include legally binding marine components. The Natura 2000 network is one of the most ambitious actions taken to halt and reverse the loss of biodiversity in Europe. iii) The 2005-2012 Strategic Plan of the World Commission on Protected Areas (WCPA) for marine protected areas, which had also stated among its priorities that “a network of MPAs, the elimination of destructive fishing practices, and the implementation of management based in ecosystems could help meet the goal of maintaining or restoring fish stocks to levels that can produce maximum sustainable yield by 2015”.

Focusing on the Spanish MgPs, an exponential growth was observed from 2010 onwards. This increase was not observed in the remaining countries and could be related to the overall national strategy for the implementation of the Spanish Network of MPAs described in Law 41/2010 of 29 December, on the Protection of the Marine Environment. This law transposes the Framework Directive of the European Marine Strategy (2008/56 EEC), whose general objective is to maintain the marine environment in good environmental condition.

Spatial typologies: relations among MgPs and MPAs

Most guidebooks about how to manage an MPA assume that an MPA is managed by its own MgP (OSPAR, 2003; Lausche, 2011; FAO, 2011), because each MPA is unique and its MgP must be designed specifically to address its particular needs (IUCN, 2004). However, this typology 1 (under our definition) occurred only in half of the studied cases in the North-east Atlantic Ocean (54%). The remaining studied cases presented more complex combinations, described as *typologies 2* (24%) and *3* (21%) in this study (Figure 3).

Management plans are valuable tools to help to achieve MPA objectives (OSPAR, 2003; Lausche, 2011; Bennett and Dearden, 2014). These management objectives should be SMART (Specific, Measurable, Audience- or issue-focused, Reasonable and Timely) and should be focused on biophysical, socioeconomic and governance categories of the managed area (FAO, 2011). However, in typology 2, a single MgP manages several MPAs, either geographically overlapping or not, making it difficult to define and achieve SMART objectives for all of the MPAs represented. For example, the definition of SMART objectives in an MgP of this *typology 2* that includes SAC and Ramsar sites can be complicated because the objectives in both designations, while addressing conservation, have a different focus. If geographic, biophysical and socioeconomic differences among the MPAs were added, a more global MgP with general objectives would then be expected.

The situation in *typology 3* is more complicated, since the MgP is designed focusing on one MPA designation, while other MPAs are managed following this MgP without taking into account the specific characteristics of these designations. This typology 3 could be very effective for the main MPA in the MgP but could show deficiencies regarding the other MPAs included if the aims of these designations differ from the aims of the main MPA.

Development, implementation and renewal of MgPs

There is a large amount of international MPA guidelines about how to develop and implement an MgP in an MPA, but the majority of them describe it from a theoretical point of view, presenting only a few study cases (OSPAR, 2003; Lausche, 2011; FAO, 2011). This empirical study shows this process in 118 MgPs implemented in 226 MPAs of the North-east Atlantic Ocean.

MPA manuals suggest that this MgP design and implementation process starts after MPA designation, but this actually occurred only in 83% of the studied MgPs. The remaining 12%, all from France and England, implemented MgPs before MPA designation. This exception was related to Natura 2000 sites first designated as “Sites of Community Importance (SCI)” (without the requirement for an MgP) that later became “Special Areas of Conservation (SAC)”, for which an MgP must have been implemented within six years at most (Directive 92/43/EEC).

In general, recommendations about the time required for the processes occurring from MPA designation to MgP implementation are not described in international guidelines, since these guidelines describe the process from a general point of view (OSPAR, 2003; Lausche, 2011; FAO, 2011). The process should be as short as possible, depending on the complexity of the area where an MPA is designed. Previous studies suggested that the heterogeneity in the process of creation and subsequent management of a MPA should have repercussions on the MPA performance and effectiveness (Francour et al., 2001; Scianna et al., 2018). In this study, the duration of each step of the process was described in detail (Figure 4). The time required to complete the process from MPA designation to MgP implementation varied from an average of 2 years in Spain to 7 years in France and England and 14 years in Portugal. During these long periods, MPAs were not being managed and were considered “paper parks” (Matz-Lück and Fuchs, 2014; Di Minin and Toivonen, 2015). These gaps in management had a negative effect on the MPAs, even worse than if the MPAs were not designated. This was demonstrated in the Phoenix Islands Protected Area (PIPA) when this area was earmarked for eventual protected status and triggered a preemptive resource extraction before the conservation intervention went into force. This additional fishing effort resulted in an impoverished starting point for PIPA equivalent to 1.5 years of banned fishing (McDermott et al., 2018). However, when the MgP was implemented before designating the MPA, the time elapsed was reduced by half in all countries (all of the cases corresponded to Natura 2000 designations). Since recent studies have pointed out that the duration of the process has a negative impact on the success of MPAs (IUCN, 2004; Ministry of Fisheries and Department of Conservation, 2005), it is worth considering whether the Natura 2000 network model (from SCI to SAC) should be copied for all designations.

Focusing on the duration of MgP development (t_2), which varied greatly among countries (from one year in Spain to 3.6 years in Portugal), three general steps were shared by the different countries:

1. *A technical committee creates a draft of the management plan following a model process.* In England, this committee was formed by the collective group of bodies who had management power to manage activities within the site. The technical committee in Portugal and Spain was formed only by the management organizations in charge, while in France it was formed by the management organizations in charge as well as several agents such as public administration, NGOs, scientists, local representatives, professional fishers or other users, depending on the MPA designation.
2. *Revision process (second phase of MgP design).* All the countries included this process and in all cases involved stakeholders at least in this phase. The revision could be public (Spain, 76%, and Portugal, 100%), and corrections or allegations made to the MgP should be included in it. If the revision was not public, the organizations involved in the design were consulted as part of a scientific advisory council.
3. *MgP validation and approval.* The MgP could be approved by one or more of the following three figures in all countries: management committee, relevant administration and/or governing body board. In England, all MgPs were approved by the three, while in France all were approved by the relevant administration depending on the MPA category.

These three general phases are similar in the reviewed MPA examples around the world described in the international guidelines (Thomas and Middleton, 2003; IUCN, 2004; FAO, 2011). The IUCN guidelines, *Managing*

Marine Protected Areas: A Toolkit for the Western Indian Ocean (IUCN, 2004), state that a Plan can be prepared before or after the MPA is set up, and it will usually take at least a year to ensure adequate consultation. Only Spain developed an MgP in 1 year, while the rest of the countries required a longer time (up to 4 years in the case of Portugal).

Comparing the MgP development process among countries, two general patterns were evident. In the English case, MgPs were developed by a collective group of bodies who had capabilities and powers to manage all the three phases. France, Portugal and Spain followed a similar model, with MgPs being designed by the management organizations in charge and with public revision, validation and approval done by the governing body and relevant administrations. Studies about the previous status of the site where MPAs are to be designed are considered very useful, because they help to decide the necessary measures needed and to describe the current status of the habitats and how the MPA will affect them in the future (Wood and Dragicevic, 2007). Despite this, only 20% of Spanish MgPs took into account the previous status of the sites. This percentage is higher in the rest of the studied countries.

Recent studies about the effectiveness of the MPAs have highlighted the importance of involving stakeholders in the design of the MgP (EEA, 2003; Rife et al., 2013; Spalding and Zeitlin-Hale, 2016; Álvarez-Fernández et al., 2017). In this sense, stakeholder involvement in MgP development was present in most studied MgPs, although most of them only included stakeholder involvement in the validation step. This is an issue that should be improved in the study area, especially in Spain, where stakeholder involvement was the lowest. The importance of involving stakeholders in MPA management performance was also observed in the previous study about management performance of MPAs in the NE Atlantic Ocean (Álvarez-Fernández et al., 2017).

After MgP approval, the next two phases are revision and renewal at appropriate intervals, involving all stakeholders and ensuring an objective-oriented approach (IUCN, 2004). The results showed that in those cases where the duration of both processes was reported, revision and renewal took place more or less synchronously (5 or 6 years). Revision and renewal are two concepts that are difficult to differentiate, even more when they occur at the same time. The revision phase analyses the performance of the MgP and makes slight modifications to improve the operating MgP, while renewal performs a deep analysis of the performance of the operating MgP, identifying failures and learnt lessons; once this is done, a new MgP is created. This new MgP goes through all the design and implementation phases described in this work.

Only in 13 of the 118 studied MgPs, renewal was performed within the period defined by the MgP. Each of these 13 MgPs had also undergone their second revision on time, showing continuity in management until the present. Since MgP renewal is considered necessary for MPA effectiveness (IUCN, 2004; Agardy et al., 2011), an in-depth study focusing on the objectives achieved in these MPAs could show whether renewal had indeed had a positive effect on their success. On the other hand, this number of 13 MgPs renewed within the established period represents a very low percentage (11%), taking into account that the objective of the OSPAR Convention is to create a representative and ecologically coherent network of well-managed MPAs in the North-east Atlantic Ocean.

Thirty-nine percent of the MgPs (46 cases) had already exceeded their originally planned validity period by a median of 4 years by the beginning of 2013. Non-renewed MgPs were three times as many as the MgPs renewed within the established period. Moreover, a 4-year delay is substantial, considering that the general life span of an MgP version is around 4-5 years. These results suggested that 39% of the MgPs in the North-east Atlantic Ocean were not being managed as effectively as they should.

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GOVERNANCE OF MARINE PROTECTED AREAS IN THE NORTH-EAST ATLANTIC

ABSTRACT

The effectiveness of a marine protected area (MPA) relies on having a management plan adapted to the area, good management performance and effective governance. In this study, a low-cost diagnosis of the governance quality was performed on 126 MPAs managed by 57 management plans belonging to four countries in the NE Atlantic Ocean. For this, an adaptation of the MPA Management Effectiveness Assessment Tool (MPA MEAT) method was applied to allow assessing governance quality, management effort, and strengths and weaknesses. The results obtained showed that, despite the fact that these MPAs have been established for less than 14 years, fewer than 30% of the cases showed governance capacity, 18% showed operational governance, and only 3% showed efficient governance. It can therefore be concluded that, in practice, 70% can be considered “paper reserves” only. MPAs in the four countries (France, England, Spain and Portugal) show one common strength: good legislated. Moreover, France and England also have operational management bodies, but substantial improvement is required regarding implementation of management plans in order to achieve effective management. Among the needs for improvement, the most critical ones are routine MPA monitoring and assessment, increased community engagement in MPA management, stable funding (which only truly exists in England and Portugal), an established enforcement system and routine dissemination of results.

INTRODUCTION AND OBJECTIVES

By early 2013, 550 inshore and offshore MPAs had been established in the NE Atlantic, of which only 244 had implemented management plans (MgPs) per se or other similar documents (see chapter 3). However, only 151 MPAs were actually managed, i.e. they had the staff and resources required to operate the plan (see chapter 5, Álvarez-Fernández et al., 2017). MPAs need to fulfil a number of requirements (such as funding) in order to yield positive results. Some particularly important requirements are having a management plan adapted to the area, good management performance, and effective governance (Pomeroy et al., 2005; Hockings et al., 2006; Weigel et al., 2014; Bennett and Dearden, 2014). Specifically, governance is considered a critical factor for marine protected area management (Dearden et al., 2005; Borrini-Feyerabend et al. 2013), and Dearden et al. (2005, p. 98) maintain that “*it is not sufficient to have the right numbers of protected areas in the right places, it is also necessary to ensure that their governance is able to manage them in an effective manner and produce the desired outcomes.*”

The concept of governance is used in many contexts, and it has been gaining relevance in the field of marine protected areas in the early 21st century. Graham et al. (2003) defined protected area governance in the Fifth World Parks Congress as “*the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens or other stakeholders have their say*”. They also suggested five key principles of good governance for Protected Areas, based on the United Nations Development Programme’s list of characteristics of good governance. These principles are also assumed as IUCN’s Principles of Good Governance for Protected Areas and are: Legitimacy and Voice, Direction, Performance, Accountability, and Fairness and Rights (Borrini-Feyerabend et al. 2013).

Within the field of MPAs, governance is generally defined as the institutions, structures and processes that are implemented in the MPA for its operation and that address social and environmental issues (Lebel et al., 2006; Bennett and Dearden, 2014; Halik et al., 2018). Jones (2014) simplified this concept and provided the following

definition: '*MPA governance*' is the various processes by which decisions are taken and implemented, underlying what is technically described as '*MPA management*'. Therefore, governance and management are closely linked, and this study assumes an equivalence between effective MPA governance and MPA management performance.

Most of the tools that allow assessing governance quality actually measure management effectiveness in a protected area and are based on the IUCN WCPA Framework for assessing management effectiveness (Hockings et al., 2000, 2006). This framework is based on the principle that good management of a protected area is a cyclical process in which six elements of management can be identified: context, planning, inputs, process, outputs and outcomes. These 6 elements are grouped in three large "themes" of management: design (context and planning), appropriateness and adequacy (inputs and process) and delivery (outputs and outcomes). This is the approach we have used throughout this thesis: chapter 3 studies design, this chapter will address appropriateness and adequacy, and the next chapter will deal with delivery (Álvarez-Fernández et al., 2017). Governance assessment is particularly associated with the analysis of appropriateness and adequacy, i.e. how adequate the management system and process are.

The aim of this chapter is to perform a diagnosis of governance quality of the MPAs in the NE Atlantic. An important factor must be taken into account when performing this diagnosis: our case studies are highly diverse, since the 151 MPAs are small in size and belong to different countries, which causes them to have different management systems and processes according to country-specific legislation for the different types of MPA designations (see chapters 2 and 3). This diagnosis of governance focuses on the involved stakeholders, the implemented processes and the structures that have been created to implement said processes. In this sense, the most appropriate assessment tool for our cases has been selected.

There are several MPA monitoring and evaluation systems, including the IUCN's Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness (Pomeroy et al., 2004), the World Commission on Protected Areas' Management Effectiveness Tracking Tool (METT) (Stolton et al., 2007), the WWF Rapid Assessment and Prioritization of Protected Area Management (RAPPAM) Methodology (Ervin, 2003), the World Bank Score Card to Assess Progress in Achieving Management Effectiveness Goals for marine Protected Areas (Staub and Hatzios, 2004) and the National Coral Triangle Initiative (CTI) Coordinating Committee MPA Management Effectiveness Assessment Tool (MPA MEAT; CTI NCC, 2011). Each tool has its strengths and advantages and is appropriate for different MPA management regimes. Among these tools, the MPA Management Effectiveness Assessment Tool (MPA MEAT) has been selected for this study. This tool was developed empirically based on the recommendations in the guidelines created by the IUCN to assess management effectiveness (Hockings, 2000, 2006) through harmonizing previous MPA benchmarking tools used by the Coastal Conservation Education Foundation and the Environmental Governance Project of the United States Agency for International Development (USAID). This process was facilitated by the MPA Support Network and supported by the Coral Triangle Support Partnership (CTSP). In addition, MEAT was created with the purpose of helping MPA managers in the Philippines to have a greater knowledge on management and a reference point for management performance, as well as a standardized way of monitoring governance quality. The reasons why the MPA MEAT tool is appropriate for our study are the following: (i) it was developed and validated for marine protected areas that present a high variability in their governance and is therefore appropriate for assessing highly heterogeneous groups, such as our case studies (CI-Philippines, 2013; Horigue et al, 2014; Castagnino et al, 2018); (ii) because it assesses each MPA individually (represented by its MgP) and it focuses on governance as the level of effort exerted to enhance and sustain MPA management, incorporating time from MPA implementation in the governance indicator; (iii) because data gathering is fast and cheap, since it is based on surveys and expert knowledge; and (iv) due to its feasibility given the available data.

The final objective of this study is to use the assessment of governance quality of our cases to identify key factors that influence effectiveness, therefore allowing for the identification of critical improvement areas in the analysed MPAs. To better understand these factors, possible patterns are identified in relation to the different countries and to the objectives stated in the creation of the MPAs described in their management plans.

MATERIALS AND METHODS

Study area, study cases and MPA typology

This study focused on the 244 inshore and offshore MPAs that had implemented true MgPs and that were located in the Northeast Atlantic Ocean, along the coast of mainland Portugal, the Spanish Atlantic coast (including the Canary Islands), the French Atlantic coast from Cherbourg in the Channel (Basse-Normandie region) to the Spanish border, and the English coast (Figure 1). These 244 MPAs were associated with 22 different MPA designations (see chapter 3).

At the international level, the designations belonging to the Natura 2000 Network, centrepiece of EU's nature and biodiversity policy, were common to all studied countries. These are three designations: Site of Community Importance (SCI) and Special Areas of Conservation (SAC), both of them designated by member states under the Habitats Directive, and Special Protection Areas (SPAs), designated under the 1979 Birds Directive. Among the study cases, corresponding to 244 AMPs, these international designations encompassed 54 protected areas in France (FR), 51 in Spain (ES), 12 in Portugal (PT) and 41 in England (EN). There were also three other international designations: Biosphere Reserves (1 in PT and 6 in ES), Ramsar sites (7 in ES and 19 in EN) and OSPAR Marine Protected Areas (4 in FR and 2 in ES) (Annex 4.I).

At the national and local levels, each country also had its own designations, such as Réserve Naturelle Nationale (France) or Reserva Marina (Spain). In some cases, one designation name was common to two or more countries, but the objectives of the designations were different in each country (e.g. Natural Park was present both in Portugal and Spain). A total of 47 MPAs associated with 16 national designations (two of them with the same name but in different countries) were identified in the study area (Annex 4.I).

MPAs in the Atlantic Arc are greatly dependent on the legislation and administrative mechanisms of each country, presenting a great variability in terms of processes and strategies (Jones, 2014; Morris et al., 2014). Most MPAs outline their management strategies in a Management Plan (MgP), which is formally drawn in documents setting the management approach and goals, together with a framework for decision making, to be applied in the protected area for a specific period of time (Thomas y Middleton, 2003; IUCN uses this definition). Since a single management plan could be applied to one or to several MPAs, three different typologies according to the spatial combinations of MPAs and MgPs were defined: i) typology 1, where one MPA corresponded to one management plan; ii) typology 2, corresponding to cases in which two or more MPAs that did or did not overlap geographically shared the same management plan, and iii) typology 3, when two or more MPAs totally or partially overlapping in the same geographic area were covered by the management plan of one of these MPAs (Álvarez-Fernández et al., submitted, or chapter 3).



Figure 1. Distribution of MPAs with MgPs throughout the study area, comprising the Atlantic coast of the Iberian Peninsula, the French Atlantic coast (between the Spanish and Belgian borders), the English coast of the UK and the Canary Islands (© ProtectedPlanet 2014-2015). The coast of the study area is divided into sections (black and light grey), and grey circles indicate the number of MPAs that exist in each section. The OSPAR Convention divides the North-East Atlantic in five regions. The studied MPAs are located in three of them: region II (Greater North Sea), region III (Celtic Seas) and region IV (Bay of Biscay and Iberian Coast).

Data collection

From the total 550 inshore and offshore MPAs identified in the study area, only 244 MPAs had MgP. A total of 125 MgPs *per se* or other similar documents (corresponding to the 244 MPAs) were identified. Amongst these, only 118 MgPs had been implemented by December 2012 (see chapter 3); of these, only 66 MgPs (corresponding to 151 MPAs) were actually working effectively, i.e. the MPAs had the staff and resources required to operate the plan (see chapter 5). Since it was not possible to gather data from 9 of these MgPs, corresponding to 25 MPAs, this study focused on 126 MPAs, which were actually managed by 57 MgPs. In England, 17 MPAs were managed by 5 MgPs; in France there were 52 MPAs managed by 31 MgPs; in Portugal, 14 MPAs were managed by 6 MgPs, and in Spain 43 MPAs were managed by 15 MgPs.

Our methodology was based on sequentially structured surveys composed mostly of closed-ended questions, as well as a few open-ended questions. Accurate criteria were provided to fill in the surveys in order to minimise biases due to different interpretations. This information was also used in chapter 3 and 5. The surveys were aimed at recovering information on MPA description and MgP contents (98 questions), on how the existing management plans were being implemented (56 questions) and on the socio-economic impact of the MPA on its stakeholder community (34 questions).

These surveys were sent to individual MPA managers in charge of each studied MPA. For Spanish MPAs, these surveys were sent directly to be filled out by MPA managers. For the rest of the countries, this was done through the main managing organisations for each MPA in the study area: Natural England (EN), Agence des Aires Marines Protégées (FR) and Instituto da Conservação da Natureza e das Florestas (ICNF, PT).

All surveys were completed between April 2011 and December 2012. Surveys were sent back by email; after revision, MPA managers were directly contacted again whenever a question arose about the answers. Each dataset was finally submitted to its corresponding provider for validation. Surveys from France were validated in December 2011, while surveys from the remaining countries were not validated until December 2012. These different reference dates were taken into account in the following analyses.

Data analysis - MEAT

As explained in the introduction, the MPA MEAT tool assesses governance in terms of compliance, implementation and sustaining of processes and structures. For this, it uses information gathered through the MPA-MEAT survey form. This survey consists of 48 items related to nine criteria: (i) Law enforcement; (ii) Monitoring and evaluation; (iii) Financing; (iv) Management body; (v) Information, education and communication; (vi) Legitimization; (vii) Community participation; (viii) Site development. The maximum score is 3 for each of the 18 most relevant items (“thresholds”) and 1 for the remaining 30 items (“standards”). The threshold items are significantly relevant activities that MPA management bodies must undertake to allow for effective MPA governance.

On the other hand, this tool has been designed following a sequential level system (Table 1). The following requirements are necessary to complete a level: (i) the MPA has been implemented for a minimum number of years; (ii) the previous levels have been completed; (iii) 75% of the total score established for each level has been reached, based on the number and type of questions (Threshold = 3 points and standard = 1 point), and (iv) all the threshold items of the level have been fulfilled. Moreover, this tool allows assessing an MPA even if it does not comply with the requirements for any of the levels, based on the answers to the survey (Figure 2).

Table 1. The table shows the different levels in the MPA MEAT tool and their requirements in terms of number of years from MPA implementation, number of items, number of thresholds, and maximum total score by level.

LEVELS OF GOVERNANCE	TIME REQUIREMENT (years from MPA establishment)	NUMBER OF ITEMS	THRESHOLD ITEMS	MAXIMUM TOTAL SCORE
Level 0	None	None	None	None
Level 1 - MPA is established	1	17	5	27
Level 2 - MPA is strengthened	3	9	3	15
Level 3 - MPA is effectively sustained	5	11	5	21
Level 4 - MPA is effectively institutionalized	7	11	5	21

Since the surveys used in this study were not originally designed to be used for the MPA MEAT tool, an equivalence has been established between the items in our surveys and the items defined in the MPA MEAT survey form (Annex 4.II). It is worth noting that this adaptation was possible because the objectives of the surveys carried out in this study were similar to those of the MPA MEAT tool and the questions in both surveys addressed equivalent issues. Some of the correspondences have been directly established, since the same information was

sought even though questions were worded differently (approximately 15% of the total). For example, the following question in the MPA MEAT: *1.2.4 Management plan adopted. Has the management plan been finalised and adopted?* was comparable to *Q3.1–1.8 Is the management plan implemented?* In other cases, one question in the MPA MEAT corresponded to several questions in our survey. For example, the following question in the MPA MEAT: *1.4.3 Budget allocated for at least one year. Has the budget for at least one year of MPA implementation been allocated?* corresponded to two questions in our survey: question *Q3.1 - 2.3.7 Does the management plan provide the global budget, with detail line for human resources, operational costs, equipment?*, and question *Q3.1 – 2.3.8 Does the MgP provide the budget per activities?* The two answers needed to be affirmative in order to consider the answer to question 1.4.3 as positive and assign 3 points to it. The correspondence between questions in our surveys to and items in the MPA MEAT are detailed in Annex 4.II, along with the criteria used to define the scores corresponding to the MPA MEAT criteria. It is worth highlighting that questions *4.1.6 (Performance monitoring and evaluation system linked to an incentive system)* and *4.1.9 (Expansion strategies or resource enhancement programmes initiated)* were excluded from the analysis because this information was not gathered by our surveys. As a consequence, the maximum score of our indicators was 4 points lower. Therefore, the maximum score for Level 4 was 17 points instead of 21. Taking into account the criterion established by MPA MEAT tool according to which the minimum score to pass one level must be 75% of the total score of said level, the minimum score for Level 4 was 12 points instead of 16.

Once the score matrix was generated, containing all the case studies within each country and the scores obtained for each item in the MPA-MEAT survey form, three governance analyses were performed:

- 1. Governance level reached by each MPA** by meeting the following requirements: minimum number of years, minimum overall score, and all threshold items fulfilled for that Level and the previous ones. This analysis allowed assessing governance of each MPA and its MgP, but was highly sensitive to any unfulfilled requirement.

Two different approaches were used to define the minimum number of years:

- Analysis 1: the reference date used was the date of MPA establishment. In this case, the MPA MEAT tool as originally described was used, taking the date of MPA establishment as the reference date to calculate the years for each level. This study focused on the 57 MgPs that were operational at the time of the study, which managed 126 AMPs—a single MgP can manage several MPAs, according to the above mentioned typologies—. Out of these 57 MgPs, 24 managed a single MPA, while the remaining 33 MgPs managed 102 MPAs grouped in typologies 2 and 3. To select the reference date when the MPA was established, necessary for this analysis, the following criteria were used, depending on their typology: (i) For typology 2, the oldest MPA, i.e. the one that was first established, was selected as the reference MPA. (ii) For typology 3, the MPA for which the MgP was designed was selected. In summary, 57 groups of MPAs managed by 57 MgPs were analysed.
- Analysis 2: the reference date used was the date of MgP implementation. Previous studies have pointed out that, as long as no management plan has been implemented, no real management exists and reserves could therefore be considered “paper reserves” (Rife et al., 2013; Halpern, 2014; Matz-Lück and Fuchs, 2014; Gallacher et al., 2016). Moreover, these periods with no real management have a negative impact on MPAs, which can even be worse than the absence of MPA designation and which can lead to an increase in fishing effort within the MPA perimeters (McDermott et al., 2018). The time from MPA establishment to MgP implementation is sometimes very long: in 6 of the 57 study cases, the plan was even implemented before the MPA was established, with a mean difference of 5 years (chapter 3). In the remaining 51 cases, MPAs were established before MgP implementation, with a mean difference of 3 years; the maximum difference was 27 years, while the minimum difference corresponded to those cases where MPA designation and MgP implementation were done simultaneously. Therefore, this analysis allowed assessing governance within the period of real MPA management.

- 2. Total score of each MPA.** Higher scores mean that a greater effort has been invested in MPA management, which can potentially increase MPA effectiveness. This was rated according to the originally proposed application of the MEAT method (CTI NCC, 2011) as follows: <24 points = “Fair”; 25 to 39 = “Good”; 40 to 61 = “Very Good”; 62 to 84 = “Excellent”. This analysis allowed us to rate each MPA without having to

take into account the requirements of the previous analysis, which allows compensating for any unfulfilled item with good scores in other items. This analysis, combined with the previous one, allowed us to have an idea about how to improve MPA governance by identifying those MPAs that, despite making great efforts for their correct governance (high score), did not meet some key item that prevented them from achieving higher MEAT levels.

3. **Strengths and weaknesses of each MPA** were identified by grouping the questions of the MEAT survey into 8 key categories and assessing the obtained score. These categories were: Management plan (relative to its creation, implementation and renewal), Management body (relative to whether it was constituted and operative and had defined roles), Legal instrument (relative to whether MPA establishment and management were legislated), Community participation (relative to stakeholder engagement in MPA design and management), Financing (relative to the existence of continued and sufficient funding to cover MPA needs), Information, Education and Communication (IEC) activities (related to the transference of MPA results and user awareness and education campaigns), Enforcement (related to a surveillance and control plan), and Monitoring and Evaluation (relative to the development of periodical biological and ecosystem monitoring activities). Annex 4.III shows how questions were grouped by categories. For each key category and case, the percentage of points obtained relative to the maximum total score for the group of questions was estimated as a result. Each category was considered a strength when its score percentage was >75%.

Finally, two comparative analyses of governance quality were performed, taking into account:

- 1) The study countries;
- 2) The objectives of each MPA, which are described in their MgPs. Two groups have been defined: (i) socio-economic and conservation objectives, (ii) in addition to socioeconomic and conservation objectives, there are objectives aimed at the management of exploited resources.

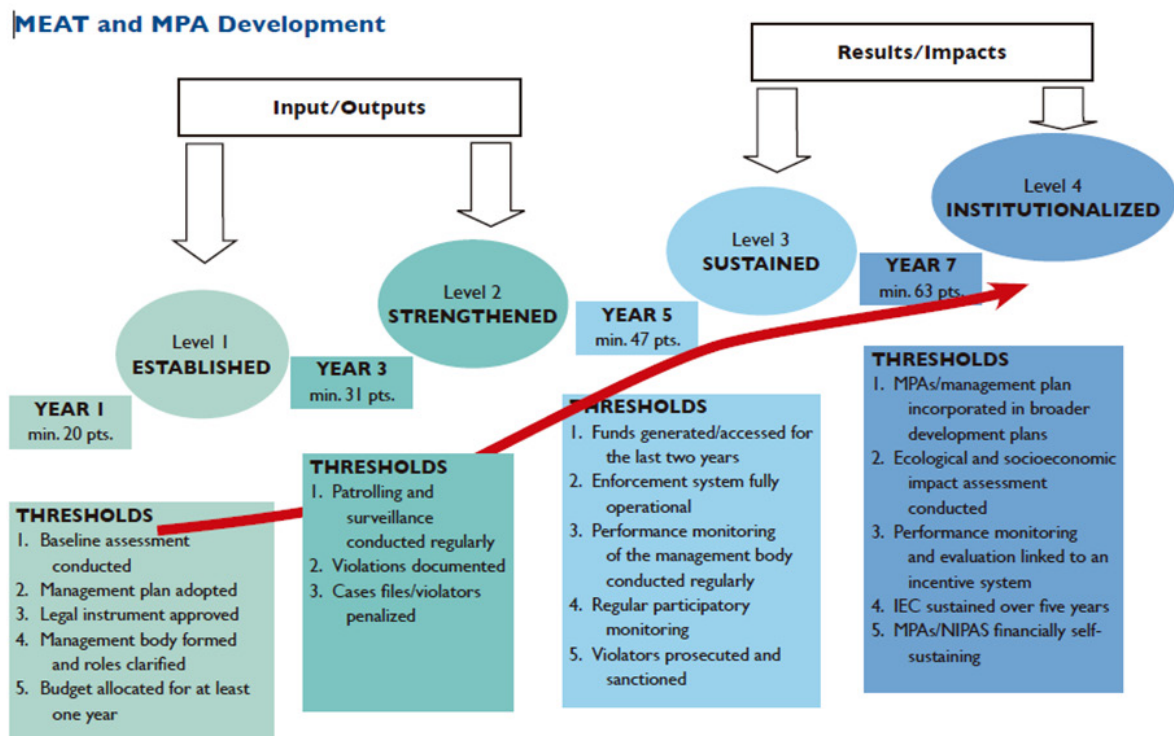


Figure 2. Overview of the MPA MEAT tool. The four MPA MEAT levels are represented, along with the minimum score required for each level and the threshold items that must be fulfilled in each one to pass to the next Level. The number of years from MPA establishment required to pass to the next level are also represented (CI -Philippines, 2013).

RESULTS

Two approaches have been used to diagnose governance. The first one analysed the governance level of each MPA using the date of MPA establishment as the reference date, which is the one used by the MPA MEAT tool itself. In a second, more restrictive diagnosis, the same analysis was performed using the date of implementation of the management plan as the initial date. The third one determined which cases had made the greatest management effort, while the fourth one identified strengths and weaknesses of each MPA. The scores obtained by applying the MEAT survey adapted for each case study and level are detailed in Annex 4.IV. Figures 3, 4 and 5 summarize the results of these four analyses.

Out of the 57 analysed study cases, only two had effectively institutionalized MPA management (Level 4): one in France (*Réserve naturelle du banc d'Arguin*) and one in Spain (*Parque Nacional marítimo-terrestre de las Islas Atlánticas de Galicia*) (Figure 3). This number can be considered very low for MPAs that have been established for a mean period of 14 years and whose management plan has been implemented for a mean period of 9 years. In these two cases, time from MPA establishment and from management plan implementation was almost twice the mean: 25 and 16 years, respectively. On the other hand, this period was three times the minimum 7-year period established by the MEAT method for this level relative to the date of MPA establishment, while it was twice the minimum period when the MgP implementation date was used as the reference date. As expected, both cases were classified as “Excellent” when the effort dedicated to management was assessed, with a score of 78 points for the French one and 71 points for the Spanish one.

The previous governance level (level 3), where MPA management is effectively sustained but may or may not be effective, was reached in 8 cases: 4 in France and 4 in Spain (Figure 3). In these cases, some deficiencies were observed in relation to the lack of ecological and socioeconomic assessment of the impact of the MPA or to the fact that their management plans are not part of local, regional or national strategies. As for management effort, they obtained high scores, with a mean score of 69 classifying them as “Excellent” (Figure 4, top). In addition, in these 8 cases MPAs had been established for a mean period of 20 years, while management plans had been implemented for a mean period of 14 years.

Level 2, where governance capacity is consolidating, was reached in 7 cases: 6 from France and 1 from Portugal (Figure 3), which had a mean period of 12 years since MPA establishment and 6 years since MgP implementation. As for management effort, all of them were classified as “Very good”, with a mean score of 56 points (Figure 4, top). Level 2 was the only one in which the classification of some of the cases was different depending on which reference date was selected: the date of MPA establishment or the date of management plan implementation (7 vs. 5 cases).

Thirty-two percent of cases (20 MgPs) were classified as Level 1 (MPA is established), where governance is not stable, and the most relevant deficiency was the lack of an established surveillance and control system with defined infractions, even though these MPAs had been established for a mean period of 11 years and their MgPs had been implemented for a mean period of 6 years (Figure 4, bottom). In addition, 39% of cases (22 MgPs) were classified as Level 0, which means that they had major deficiencies in governance despite the fact that they had been established for a mean period of 13 years and their management plans had been in operation for a mean period of 9 years (longer than cases classified as Level 1). In summary, 71% of the studied cases did not show operational governance, since their governance capacity was still building. However, their management effort was classified as “Very good” for all the cases in Level 1 (mean score 47 points)—except for one French MPA classified as “Good”—and for 16 cases classified as Level 0 (mean score: 46 points). Out of the remaining 6 cases in Level 0, 5 were classified as “Good”, with a mean score of 36 points, and only one Spanish case was classified as “Fair”, with 15 points. The latter had a period of 15 years both from MPA establishment and MgP implementation (Figure 4, bottom).

Analysing the strengths and weaknesses of the 57 case studies, legal instruments were among their strengths in the four countries (Figure 5); in addition, the French and English cases also presented strengths relative to their management bodies. Both aspects are the basis for governance capacity when it comes to efficiently manage an MPA, and they are imperative to allow for effective MPA management and performance (Bennett and Dearden, 2014). On the other hand, the weaknesses found in the four countries were relative to their Management plans and Monitoring and Evaluation. Weaknesses in the England also included Community participation, while in

Portugal both Community participation and IEC activities were included, although the latter did not exceed 40% in the remaining countries. In France and Spain, Community participation did not exceed 60%. France, England and Portugal also had deficiencies in Enforcement, not exceeding 40% (Figure 5).

A comparative analysis of the results obtained by country shows that England was the country with the poorest governance quality, since the five English cases were classified as Level 0 (Figure 3). However, four of them were classified as “Very good” according to their management effort; their strengths were relative to their legal instruments and management bodies, and they reached 80% in Financing. In Portugal, only one case reached Level 2, and this was the only one in which governance was consolidated. The only countries that achieved operational governance (levels 3 and 4) in some of their case studies were France and Spain, although in a small percentage of the studied cases (16% and 33%, respectively). It is also worth highlighting that, even though 33% of the Spanish cases had operational governance, 60% did not have governance, since they were in level 0. Almost 50% of studied cases in France were in Level 1, and 25% reached Level 2 (Figure 3).

The comparative analysis of MgP objectives among countries showed that all of the cases in England and 87% of the ones in France had conservation objectives only, while the opposite occurred in Portugal and Spain, where the case studies also including objectives related to management of exploited resources were 83% and 73%, respectively. It is worth noting that, although the only two cases reaching Level 4 had conservation and socioeconomic objectives, in Portugal and Spain those cases that also had objectives related to the management of exploited resources reached higher levels. One hundred percent of the cases that reached Levels 3 and 1 in Spain and levels 2 and 1 in Portugal had also defined objectives related to management of exploited resources (Table 2).

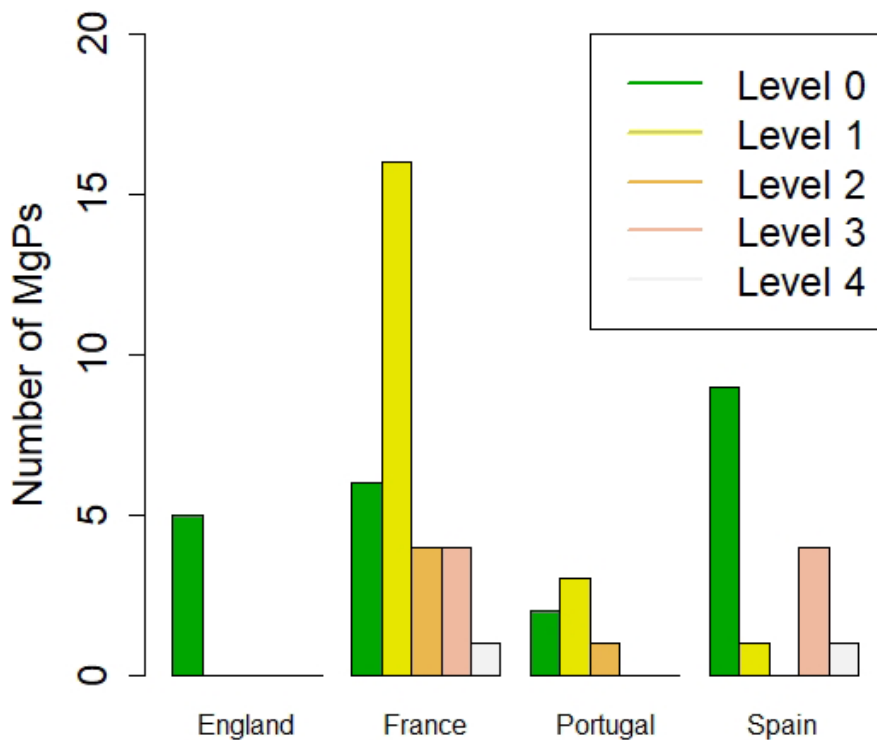


Figure 3. Number of management plans for the different Levels of Governance by country, using the date of MPA establishment as reference.

Table 2. Distribution of governance levels reached by studied cases by country and by type of objectives established by MgPs. 1: Socioeconomic and conservation objectives, and 2: in addition to socioeconomic and conservation objectives, there are objectives aimed at the management of exploited resources.

Type of objectives	Level of governance	Spain	France	England	Portugal
1	Total	4	27	5	1
	Level 0	3	4	5	1
	Level 1	0	15	0	0
	Level 2	0	4	0	0
	Level 3	0	3	0	0
	Level 4	1	1	0	0
2	Total	11	4	0	5
	Level 0	6	2	0	1
	Level 1	1	1	0	3
	Level 2	0	0	0	1
	Level 3	4	1	0	0
	Level 4	0	0	0	0

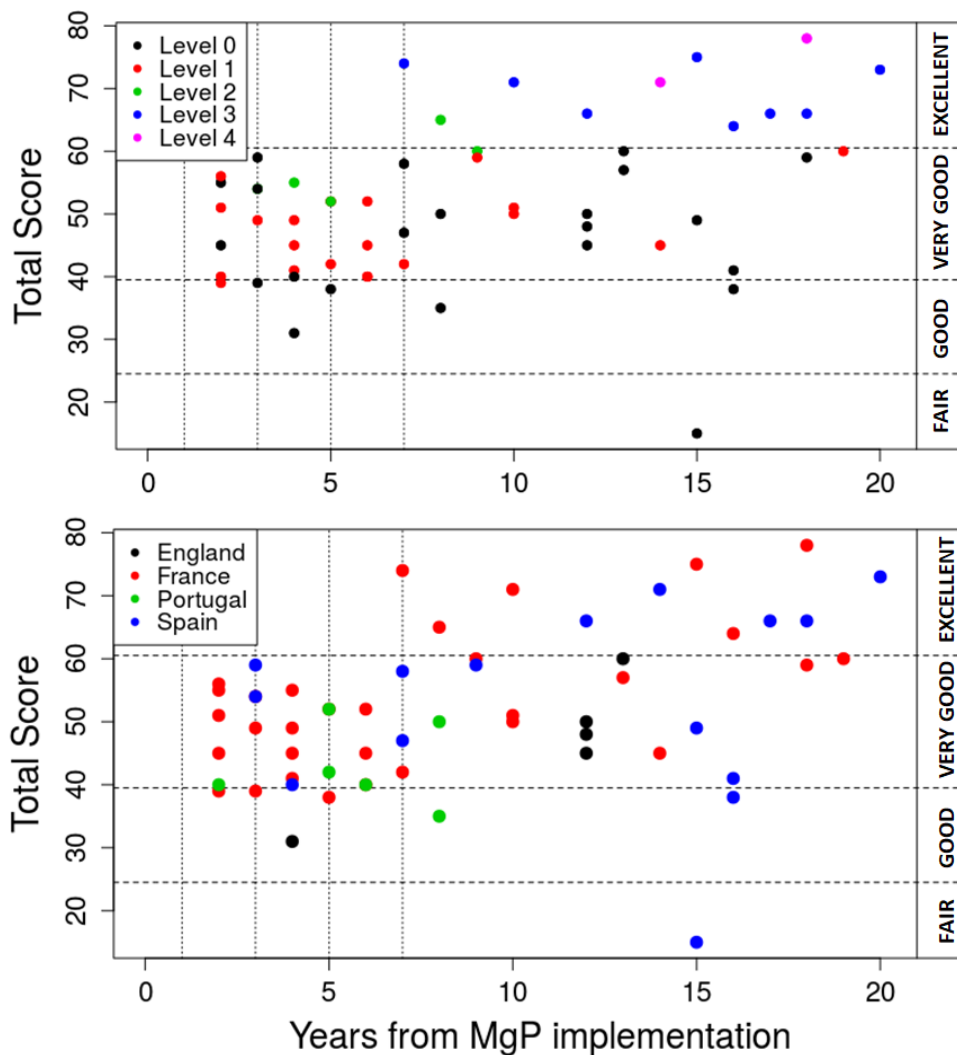


Figure 4. Total cumulative score against years from MgP implementation by Level of governance (top) and by country (bottom). Horizontal dotted lines indicate changes in classification of management effort as follows: <24 points = “Fair”; 25 to 39 = “Good”; 40 to 61 = “Very Good”; 62 to 84 = “Excellent”. Vertical dotted lines indicate the minimum number of years from MPA establishment required for each level.

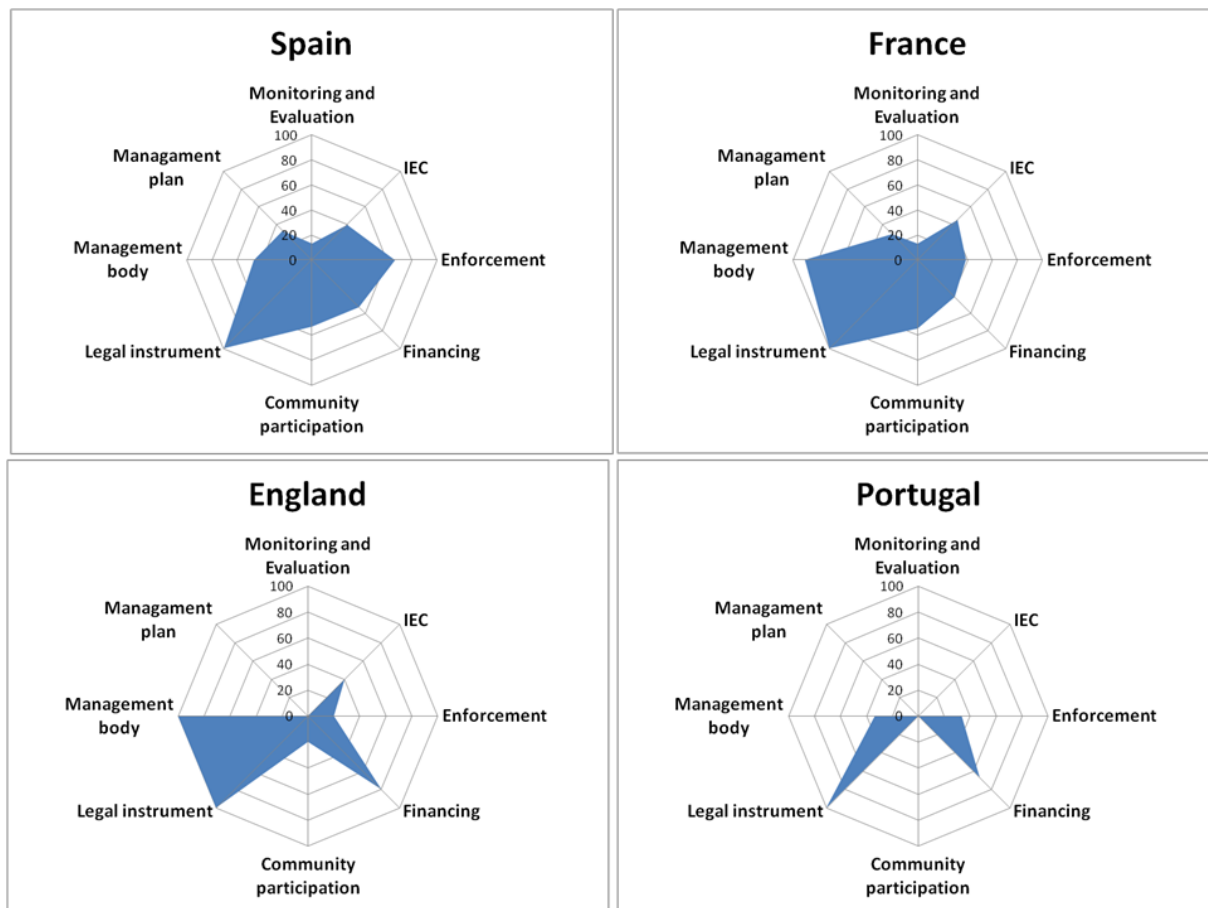


Figure 5. Star plots representing strength of the different key categories. The coloured area is the percentage of studied cases that obtained >75% of points over the total score in each key category over the total number of cases in each country, from 0% in the centre of the star to 100% in the vertex; each dashed line corresponds to a 20% difference.

DISCUSSION

Diagnosis of governance of MPAs in the NE Atlantic Ocean

This study has performed an individualized diagnosis of governance on 57 case studies (combination of one MgP and one or more MPAs) in the NE Atlantic Ocean, which will serve as a benchmark for potential improvement actions in these MPAs.

When diagnosing governance quality, it is striking that, despite the fact that MPAs have been established for a mean period of over one decade and their MgPs have also been implemented for nearly a decade, only 18% of studied cases had governance ability to manage MPAs (levels 3 and 4) and only 3% could be considered to manage them effectively and were able to deliver the desired results (level 4). Additionally, 12% (referring to MPAs) or 9% (referring to MgPs) of the remaining cases had consolidated governance (level 2), i.e. were on track to reach effective governance. In summary, 70% of the studied cases could be considered “paper reserves”, which contrasts with the OSPAR Convention’s objective of having a well-managed OSPAR MPA network by 2016 (OSPAR, 2010).

The study cases from all four countries have in common the strength of being well legislated. In addition, management bodies were also identified as a strength in the French and English cases. Therefore, governance would be expected to be effective at least in these two countries, since established legal mechanisms and a created and consolidated management body are the basis for good governance (Bennett and Dearden, 2014; Gallacher et al., 2016). However, an MgP is essential for MPA management, as it constitutes the operational tool that contains the strategy to be followed for MPA management (López-Rodríguez and Rosado, 2017; McDermott et

al., 2018), and this was a general weakness observed in all countries included in this study. These deficiencies in MgP renewal are consistent with the results obtained in chapter 3. Moreover, periodic MPA monitoring and assessment throughout time is a key tool for efficient management, and this was identified as a weakness in the MPAs from the four countries. This deficiency was also observed in the results obtained in chapter 5, where case studies with routine monitoring and assessment were the ones with the highest fulfilment of objectives (Álvarez-Fernández et al, 2017). This is consistent with other studies that highlight the importance of integrating monitoring with the rest of management activities in order to achieve efficient management (OSPAR, 2014; Rodríguez-Rodríguez et al., 2015).

Community engagement was around 50% in Spain and France, but this percentage decreased dramatically in England (~20%) and Portugal (0%). This lack of community engagement was also observed in the study on management performance of MPAs in NE Atlantic Ocean, where it was identified to directly impact fulfilment of the objectives established in MgPs, i.e. management performance (Álvarez-Fernández et al, 2017). This lack of community participation compromises the achievement of effective governance, as seen in previous studies (Bennett and Dearden, 2014, Weigel et al., 2014, Christie et al., 2017), or as Jones (2014) concludes: *'MPA governance needs to combine people, state and market approaches, rather than being based on one approach and its related ideals'*.

Two other key factors for effective governance are stable and sufficient financing throughout time, on one hand, and enforcement, on the other. The study cases in France, England, and Portugal were observed to present deficiencies in terms of Enforcement, which was present only in 40% of cases, while this percentage was a little higher in Spain. Contrarily, financing reached higher values in all of the countries: funding was considered appropriate in 40% of cases, reaching 80% in England. Previous studies have shown that a lack of financing and enforcement has a direct effect in MPA consolidation and acceptance by its users (Thur, 2010; Rees et al., 2013; Edgar et al., 2014; Gill et al., 2017; Scianna et al., 2018). For example, the ecological effects of MPAs with adequate staff capacity were 2.9 times greater than those of MPAs with inadequate capacity (Gill et al., 2017).

Finally, the lack of education and communication activities was identified as a weakness, since communication and education activities were appropriately carried out in less than 40% of all case studies and were virtually absent in Portugal. This is also contrary to the principles of good governance, legitimacy and voice (Borrini-Feyerabend et al. 2013).

Only 7 out of the 57 cases did not invest adequate levels of effort for MPA management. However, taking into account the weaknesses identified in key factors of governance, as well as the low number of study cases that reached levels 2, 3 and 4, these efforts seemed not to be appropriately targeted. Therefore, a lack of governance was identified, making 70% of case studies susceptible of being considered "paper reserves" (Matz-Lück and Fuchs, 2014; Di Minin and Toivonen, 2015), which, as has been recently demonstrated, may even have negative impacts compared to a normal non-protection situation (McDermott et al., 2018)

Finally, poor community engagement has been identified as another weakness in the North Atlantic, as has already been pointed out by different studies at the worldwide level, which have identified the need to involve communities in all aspects of MPA design and designation (Gallacher et al., 2016; Christie et al., 2017).

Comparison of governance of MPAs in the North Atlantic with other MPAs around the world

As has been mentioned in the introduction, there are different methods for assessing governance of MPAs. In this study, we have used the MPA MEAT method due to the possibility of adapting our database to its surveys, which represents a low-cost alternative to gathering new raw data, which is a time-consuming and costly task if carried out as proposed by some guidelines (Pomeroy et al., 2005). However, different approaches used in recent years can be found in the literature, both for studying governance (Gallacher et al., 2016) and management performance (Gill et al., 2017; Scianna et al., 2018; Edgar et al., 2014).

Comparing the results obtained by these studies, the identification of weaknesses and deficiencies is common both in general management and in governance, with the exception of some cases that are considered successful (Gallacher et al., 2016). In CI-Philippines (2013), which studied governance in a group of 9 MPAs in the

Philippines using the MPA MEAT method, only 33% of them reached level 2 or greater (i.e. had consolidated governance). This figure, although low, is still greater than those found in this study, where only 26% of cases (taking the date of MgP implementation as start date) reached levels 2, 3 or 4. If we also take into account that the MPAs in our study had been established for a mean period of 14 years, while this period was 11 years in the case of the Philippines, this suggests that MPAs in the Philippines have higher governance standards than MPAs in the Atlantic Arc. In the same study, management plan implementation and community engagement in MPA design were identified as strengths of the MPAs in the Philippines (Weeks et al., 2010; CI-Philippines, 2013; Horigue et al., 2014); contrarily, both of these aspects were identified as weaknesses in the cases analysed here. However, both studies agree in some of the areas that need improvement: monitoring and evaluation, sustainable financing and information, and education and communication.

Gill et al. (2017), in a previous study on management performance at the global level, concluded that the analysed MPAs in Europe, all of them located in the Baltic Sea, had legislation as their strength and plan implementation and monitoring as their weaknesses, among others. These conclusions are in line with those obtained for our case studies, suggesting that MPAs in two distinct European regions face similar issues. On the other hand, Scianna et al. (2018) analysed management performance in 11 MPAs in the Mediterranean belonging to four countries (Spain, France, Italy and Greece) and concluded that these MPAs needed to improve monitoring and enforcement, which is consistent with the results obtained for the same countries in this study. These results suggest that monitoring is generally an area that requires improvement in European MPAs.

Governance and management objectives of MPAs

Other studies have observed that MPAs with objectives related to management of exploited resources obtained better long-term results in terms of ecosystem conservation, since a reserve where fishing is prohibited changes fishing behaviour, which is attracted towards MPA boundaries, therefore offsetting the long-term spill-over effects (Forcada et al., 2010; Slijkerman and Tamis, 2015). If these negative effects in areas adjacent to the MPAs counteract the positive impacts inside the reserves, estimates of effectiveness must be taken into account, since all MPAs are used as tools to achieve sustainable use of resources or preserve a wider biodiversity (Agardy, 2018). Therefore, MPAs that include objectives aimed at the management of exploited resources have a higher positive impact, both ecological and socioeconomic, since the community also benefits from the establishment of the MPA (Gallacher et al., 2016; Christie et al., 2017). This is confirmed by the results obtained in this study, where cases including objectives aimed at the management of exploited resources have a higher governance capacity, reaching levels 2 and 3.

This article is a part of a series of analyses based on the same dataset and on the same geographical area: one of them analyses MgP design and implementation (chapter 3), another one analyses management performance (chapter 5, Álvarez-Fernández et al., 2017) and this one analyses governance. The three analyses show highly consistent results, thus demonstrating the connection among the different processes: good design and implementation are more likely to lead to good governance, while, in turn, all the aforementioned increase performance.

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CHAPTER 5

THE MANAGEMENT PERFORMANCE OF MARINE PROTECTED AREAS IN THE NORTH-EAST ATLANTIC OCEAN

ABSTRACT

In the North-east Atlantic Ocean there are 550 inshore and offshore MPAs established to accomplish a high diversity of objectives, which can be classified into 22 different types of MPA designations. Only 244 of these MPAs have a management plan (MgP) --the basic tool required for an effective management. Amongst these, only 151 are actually managed, i.e. they have the staff and resources required to operate the plan. A common characteristic of these MPAs is the lack of standardized indicators of their performance. In order to address this issue, an alternative approach was developed based on the assessment of management performance using the expert knowledge and perceptions of managers operating MPAs, a universal source of information that could allow overcoming the usual gaps due to the restrictions in coverage of scientific monitoring and assessments. MgPs showed differences among countries but were homogeneous within each country, reflecting the usual top-down approach in the establishment of MPAs. Compliance with the qualitative objectives present in MgPs was higher than compliance with quantitative ones (87% versus 50%), and the MPAs that most successfully achieved their objectives were those with regular monitoring. This analysis also shows that beyond these objectives, the establishment of an MPA and the activities developed as a consequence of its creation have a positive socio-economic impact on the local human community.

INTRODUCTION

Increasing evidence of the adverse impact of anthropogenic activities over marine systems has been reported in the last decades. Factors associated with this deterioration are overfishing, habitat loss and pollution at scales ranging from local to global (FAO, 2014; Costello and Ballantine, 2015). Thus, the more natural resources are exploited, the more an ocean conservation strategy is needed. In this sense, the use of Marine Protected Areas (MPAs) has been at the centre of biodiversity conservation strategies and has been gaining leadership as a tool that, effectively implemented, can help to manage fisheries, protect marine ecosystems and reverse the degradation of aquatic habitats (CBD, 2010; FAO, 2011; Lausche, 2011; OSPAR, 2014a). In 2015 more than 11,000 MPAs have been listed on the MPAtlas (<http://www.mpatlas.org>) (most of them established during the last 10 years), covering 2.12% of the world's oceans.

However, the concept of MPA currently encompasses several types of designation of marine and coastal protection, as explained below. Since these designations have been established in order to address different demands, with different objectives and in different institutional settings, their implementation processes vary from one situation to another. For example, whereas stakeholders are sometimes involved in promoting the establishment of the MPA, in other cases they are only consulted or simply not involved at all (Jones et al., 2013). Regarding their objectives, they could be focused on the conservation of marine biodiversity or on the sustainable exploitation of natural resources (including environmental protection), e.g. fisheries (Hilborn, 2016).

The 2008 International Union for Conservation of Nature (IUCN) - World Commission on Protected Areas (WCPA) definition of protected areas clearly states that these areas should have a secure conservation status over the long term, and this necessarily implies that they must have an effective management plan in place. This last point is a key aspect, since an MPA that is not effectively implemented and managed can become a useless tool. In this sense, the Convention for the Protection of the Marine Environment of the North-east Atlantic (OSPAR) established the objective of having a well-managed OSPAR MPA network by 2016. All this produced

an increasingly large number of publications and reports in the peer-reviewed and grey literature directly related to management of marine protected areas (Morris et al., 2014 and references therein).

Management Plans (MgPs) are the required tool for effective protected area management. They should be concise documents that identify the key features of a marine protected area, clearly establish the management objectives to be met and indicate the actions to be implemented. They also need to be politically and economically feasible and flexible enough to provide for unforeseen events that might arise during the period of validity of the plan (Thomas and Middleton, 2003; Lausche, 2011). There is no standard format for an MgP. However, international guidelines identify several key components that have to be included in a 'good' MgP (OSPAR, 2003; Lausche, 2011): (a) a legal description of the area and how it relates to the system plan; (b) the authority in charge of the MPA and other important governance arrangements; (c) a basic description of the resources and conservation values for which the area is being designated and of the related human interactions intended to be permitted in the area; (d) the conservation objectives and management category for the area; (e) the main threats and management approaches for dealing with them; (f) a zoning plan as needed; (g) the types of activities permitted and prohibited in the area; (h) a monitoring plan; (i) performance criteria for assessing progress toward goals and objectives and effectiveness of specific management approaches; (j) the life of the plan and its basic cycle for review, revision and updating .

The process of developing an MgP may be more or less complex depending on the objectives of the MPA, the risks or threats to these objectives, the number of competing interests, the level of stakeholder involvement and issues arising from outside the protected area. Whether the plan is simple or complex, sound planning principles should be applied to guide the planning process and ensure that the completed MgP is a thorough and useful document (Thomas and Middleton, 2003; Lausche, 2011). Two key points for making an MgP successful in the long term are actively involving stakeholders from the development of the MgP to its daily management, and using adaptive management (OSPAR, 2003; Thomas and Middleton, 2003; CBD COP, 2004; UNESCO, 2008).

Once an MgP is developed, it must be launched and continued to achieve effective management. Management effectiveness is the way to achieve the goals and objectives of a protected area and to show accountability for its management as defined by IUCN (Hockings et al, 2000) and the OSPAR Commission (OSPAR, 2007 y 2014b). Guidelines to assess management effectiveness have been developed by international organizations such as IUCN (Pomeroy et al., 2004; Hockings et al, 2006), the World Bank (Staub and Hatzios, 2004) or the OSPAR Commission (OSPAR, 2007). However, no standardized set of measures or global coordination mechanism for sharing and analysing comparable data exists (Fox et al, 2014; OSPAR, 2014b). Moreover, the assessment of management effectiveness through indicators requires a larger input in terms of time, resources and money (OSPAR, 2007 y 2014b).

Only in the North-east Atlantic Ocean there are 550 inshore and offshore MPAs with a high diversity of objectives, resulting in a large diversity of MPA designation types that are highly site- and country-specific. This complicates the adoption of common standards to measure the performance of these MPAs.

The objective of this study is to assess management performance in achieving the goals of MPAs of the North-east Atlantic Ocean, belonging to four countries in NW Europe (England, France, Spain and Portugal). Although the present study cannot claim to be an exhaustive synthesis, it does offer the first quantitative overall estimate of the magnitude of management performance of MPAs in the study area. This approach is based on the assessment of MgP performance using the expert knowledge and perceptions of managers operating MPAs, a universal source of information that could allow overcoming the usual gaps due to restrictions in the coverage of scientific monitoring and assessments.

MATERIALS AND METHODS

Study area, study cases and typology of MPAs

The Atlantic Ocean is dominated by deep ocean basins, with the exception of the Celtic Sea, the shelf along the Bay of Biscay and the Iberian coast. The formation of the North Atlantic Deep Water is one of the driving

forces for the thermohaline circulation of the world's oceans (EEA, 2003). The powerful forces of tides, wind and waves that act on a substrate alternating hard stones with soft sediments are primarily responsible for the North East Atlantic Ocean coast geomorphology and dynamics (Cameron and Askew, 2011). The degree of biodiversity is high, with more than 1,100 described species of fish (EEA, 2003). It is also a highly populated area full of tourist destinations, which produces a high anthropogenic pressure on its environment. In addition, fisheries and maritime shipping are important economic activities in the area (OSPAR, 2008).

The study area ranges from the Atlantic coast of the Iberian Peninsula through the French Atlantic coast (from the Spanish border to the Belgian border) to the English coast of the UK. The study also includes the region of the Canary Islands. This area is a part of the marine regions of the Oslo Paris Convention (OSPAR): i) the English coast of Region II: Greater North Sea, ii) Region III: Celtic Sea, and iii) Region IV: Bay of Biscay and the Iberian Coast (Figure 1). One of the main goals of this Convention is to prevent, and eventually stop, further loss of biodiversity by 2020 in the OSPAR maritime area. The Convention also focuses its efforts on conservation and protection of ecosystems and aims to restore, where practicable, marine areas that have been adversely affected. One way to reach those goals is to establish a well-managed network of marine protected areas in the OSPAR region by 2016 (OSPAR, 2010).



Figure 1. Distribution of the MPAs with MgP along the study area, comprising the Atlantic coast of the Iberian Peninsula, the French Atlantic coast (from the Spanish border to the Belgian border), the English coast of the UK and the Canary Islands (© ProtectedPlanet 2014-2015). The coast of the study area is divided in sections (black and light grey), and grey circles indicate the number of MPAs that exist in each section. The OSPAR Convention divides the North-East Atlantic in five regions. The studied MPAs are located in three of them: region II: Greater North Sea, region III: Celtic Seas and region IV: Bay of Biscay and Iberian Coast.

In order to conserve all the diversity of the marine protected areas (MPAs) established in the study area, all kinds of protected zones with local, national or international designation were included. In total, 550 inshore and offshore MPAs were identified based on a high diversity of objectives, from these this focused in 244 MPAs, which yielded 22 different MPA designations. A designation was defined as the legal name under which the

different countries designate protected areas, grounded in law, for managing sites according to their objectives. It is important to note that a designation is established in a legal, formal manner and, even when the designation type is defined by international conventions or treaties and concerns more than one country (such as the sites designed under the OSPAR convention), it is transposed into national legislation. Moreover, sometimes several MPAs may overlap in the same area (within the same perimeter), even holding different designations (i.e. within one protected area there could be a sub-area with a more restrictive protection regime).

At an international level, the designations belonging to the Natura 2000 Network, centerpiece of EU's nature and biodiversity policy, were common to all studied countries. These are three designations: Site of Community Importance (SCI) and Special Areas of Conservation (SAC), designated by member states under the Habitats Directive, and Special Protection Areas (SPAs), designated under the 1979 Birds Directive. In the study cases, these international designations encompassed 54 protected areas in France (FR), 51 in Spain (ES), 12 in Portugal (PT) and 41 in England (EN). There were also three other international designations: Biosphere Reserves (one in PT, and 6 in ES), Ramsar sites (7 in ES, and 19 in EN) and OSPAR Marine Protected Areas (four in FR and one in ES) (Table 1).

At the national or local level, each country had its own designations, such as Réserve Naturelle Nationale (France) or Reserva Marina (Spain). In some cases, one designation name was common to two or more countries, but the objectives of the designation were different in each country (e.g. National Park was present in Portugal and Spain). A total of 16 national designations were identified in the study area (Table 1).

In several cases, some of these MPA designations coexist not only geographically but also within a single management unit, meaning that they are involved in the same MgP. For example, in England, Natura 2000 sites are grouped into management units called European Marine Sites (EMS), which include Special Areas of Conservation (SAC) under the EU Habitats Directive (EEC, 1992) and Special Protection Areas (SPA) under the EU Birds Directive (EEC, 1979).

Table 1: Number of studied MPA designations by country and type of designation.

	CATEGORY	EN	FR	PT	SP
INTERNATIONAL	BIOSPHERE RESERVE			1	6
	MARINE PROTECTED AREA OSPAR		4		2
	RAMSAR SITE	19			7
	SITE OF COMMUNITY IMPORTANCE (SCI)		27	5	9
	SPECIAL AREA OF CONSERVATION (SAC)	16	9		29
	SPECIAL PROTECTION AREA (SPA)	25	18	7	13
NATIONAL	AREA OF OUTSTANDING NATURAL BEAUTY	1			
	BIOTOPE PROTECTION BYLAW HAVING A MARITIME PART		3		
	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL		2		
	NATIONAL NATURE RESERVE		11		
	NATURE MARINE PARK		1		
	REGIONAL NATURE RESERVE		1		
	NATURAL PARK			3	8
	NATURE RESERVE			3	
	FISHING RESERVE				1
	MARINE PROTECTED AREA				1
	MARINE RESERVE				3
	MARINE RESERVE OF FISHING INTEREST				2
	NATIONAL PARK				2
	NATURAL SITE				1
	PARTIAL NATURE RESERVE				2
	PROTECTED BIOTOPE				2

Data collection

From the total 550 inshore and offshore MPAs identified, only 244 had an MgP and, amongst these, only 151 were actually managed, i.e. they had the staff and resources to operate the plan. Our study was focused on these 151 managed MPAs, corresponding to 66 MgPs (as stated before, one MPA can include several designations).

Our methodology was based on three sequential structured questionnaires composed mostly of closed-ended questions and with a few open-ended questions (complete questionnaires can be found in Annex 5.I). Precise criteria were provided to fill in the questionnaire in order to minimise biases due to different interpretations.

These questionnaires were sent to the individual MPA manager in charge of each of these 66 MPAs. For Spanish MPAs, these questionnaires were sent directly to be filled out by MPA managers. For the rest of the countries this was done through the main managing organisations for each MPA in the study area: Natural England (EN), Agence des Aires Marines Protégées (FR) and Instituto da Conservação da Natureza e das Florestas (ICNF, PT). Returned questionnaires were received from 86% of the MPA managers, corresponding to 57 MPAs in the study area (by country, 31 MPAs in FR, 5 in EN, 6 in PT, and 15 in ES).

The first questionnaire (Q1) was aimed at recovering information about the description of the areas and MgP contents. It comprised 98 questions organised in seven groups: Site description, Management, Administration, Governance, Control and enforcement, Monitoring and Specific regulation of the MPA.

The second questionnaire (Q2) was focused on how the existing management plans were being implemented and, specifically, if there were any implemented actions or activities derived from the MgP. It comprised 56 questions organised in five groups: Site description, Management plan implementation assessment, Staff, Control and enforcement, and Monitoring and assessment of activities, habitats and species.

Finally, the third questionnaire (Q3) was aimed at collecting information on the socio-economic impact of the MPA on its stakeholder community. It comprised 34 questions organised in four groups: New income generated by activities developed due to the MPA implementation; Socio-economic impact related to the MPA implementation; Socio-economic impact related to the MPA implementation - Focus on fisheries; and Detailed description of one example of a new income-generating activity implemented in the MPA.

All questionnaires were completed between July 2011 and August 2012. Questionnaires were sent back by email and after revision, whenever a question arose about the answers, MPA managers were directly contacted again. Each dataset was finally sent to its corresponding provider for validation.

Data analysis

Information from questionnaires 1 and 2 was entered into a database and properly encoded. Boolean questions were coded as 1 (yes) or 0 (no). Some questions had their answers categorized from 0 to 3. The remaining questions, with an open answer, were analysed without encoding. The final database contains 353 encoded variables distributed as follows: 95 variables about Management Plan, 57 variables about Applied Regulations (both from Q1), 88 about Management Performance and 113 about Monitoring of Species, Habitats and Activities (both from Q2). Data from Q3 were not encoded.

Data analysis was carried out in three consecutive stages, each one corresponding to data from one of the questionnaires, in order to answer three different sets of questions (Figure 2): What is the content of the management plan?, To what extent has the implemented management plan been accomplished?, and How do MPAs affect the community? A descriptive approach was applied to study the distribution of the answers in the study cases globally and by country. Moreover, multiple correspondence analysis (MCA) (Greenacre, 2008) was applied for variables from Q1 and Q2. This analysis works like a factorial analysis but with categorical variables, decomposing the data in order to study their "structure" (Panagiotakos and Pitsavos 2004). MCA analyses were carried out using FactoMineR (Le et al., 2008; Husson et al., 2016) and factoextra (Kassambara, 2015) libraries in statistical software R (R Core Team, 2015). The last stage, corresponding to the information obtained from Q3, was only analysed descriptively to complement the results obtained in the previous stages. The three stages were as follows:

- I. **Planning and Regulation:** using all the study cases, the characteristics of the MgPs were studied, focusing on their objectives and regulations. MCA was performed using the complete database from Q1 (157 variables) in order to analyse systematic patterns in the variability of MgPs and thus look for patterns of association among management plans' features. Relationships among these groups and the different countries were also studied.
- II. **Management and Monitoring:** MPAs where objectives were achieved were identified. MCA was performed using 201 encoded variables with the aim of identifying patterns of association among distinctive characteristics (understood as the analysed variables) and the 57 MPAs. Since two study cases were significantly different from the rest in 43 of the 201 variables (mainly associated with specific monitoring of habitats and species), these two cases were considered outliers and removed in order to improve the interpretation of the graphic results. The interpretation of these two study cases was previously performed independently in order to justify their removal.
- III. **Social and economic impact.** In this stage, the socio-economic impact on the community or/and stakeholders in 35 MPAs was analysed. The remaining 22 study cases did not provide any information about this subject. The information gathered from Q3 was summarized looking for key points in the data. Finally, by comparing the results obtained in the three stages, it was studied whether the influence of the MPA implementation on the income generated by activities was related to MPA management performance.

First - Planning and regulation

What is the management plan content?



Second - Management and monitoring

How is the management plan being accomplished?



Third - Social and economic impact

How do MPAs affect the community?

Figure 2. Diagram of the three stages of data analysis.

RESULTS

Planning and regulation

Among the 57 study cases analysed, there were 16 different designations. In some cases, these designations coexisted in the same geographic area (perimeter) under a single MgP, e.g. Barayo Partial Nature Reserve and Peñaronda-Barayo SCI and SPA share a single MgP. In other cases, a single management plan was shared by a few adjoining MPAs. This was very common in England MPAs, e.g. Berwickshire & North Northumberland coast SAC and other associated designations (Annex 5.II).

According to the managers' information, only 26% of MPA designations and management plans established quantitative objectives. Meanwhile, 98% of them established qualitative ones. In order to observe the purpose for which MPAs were established, qualitative objectives of the MPAs were grouped in: objectives related to biological and ecological aspects, and objectives related to socio-economic interests. In the first group, objectives of restoration within MPA boundaries were the most common (above improvement), with "to maintain, conserve and restore biodiversity, natural heritage of habitats, species and landscapes under protection status" being present in 90% of all MPAs. It was the main objective in all countries except for Spain, where the main one

was “management of exploited natural resources” (Figure 3A). Regarding socio-economic interest, the most frequent objectives in MgPs of all countries were: sustainable management and/or development or improvement of environmental education and awareness raising (80%) and scientific research (70%), which usually appeared together. Socio-economic activities (60%) were also common in all the countries [Figure 3B]. Observing trends by countries, Portugal showed a higher number of objectives in their MPAs, while in England most MPAs had only one objective in their MgPs (Figure 3).

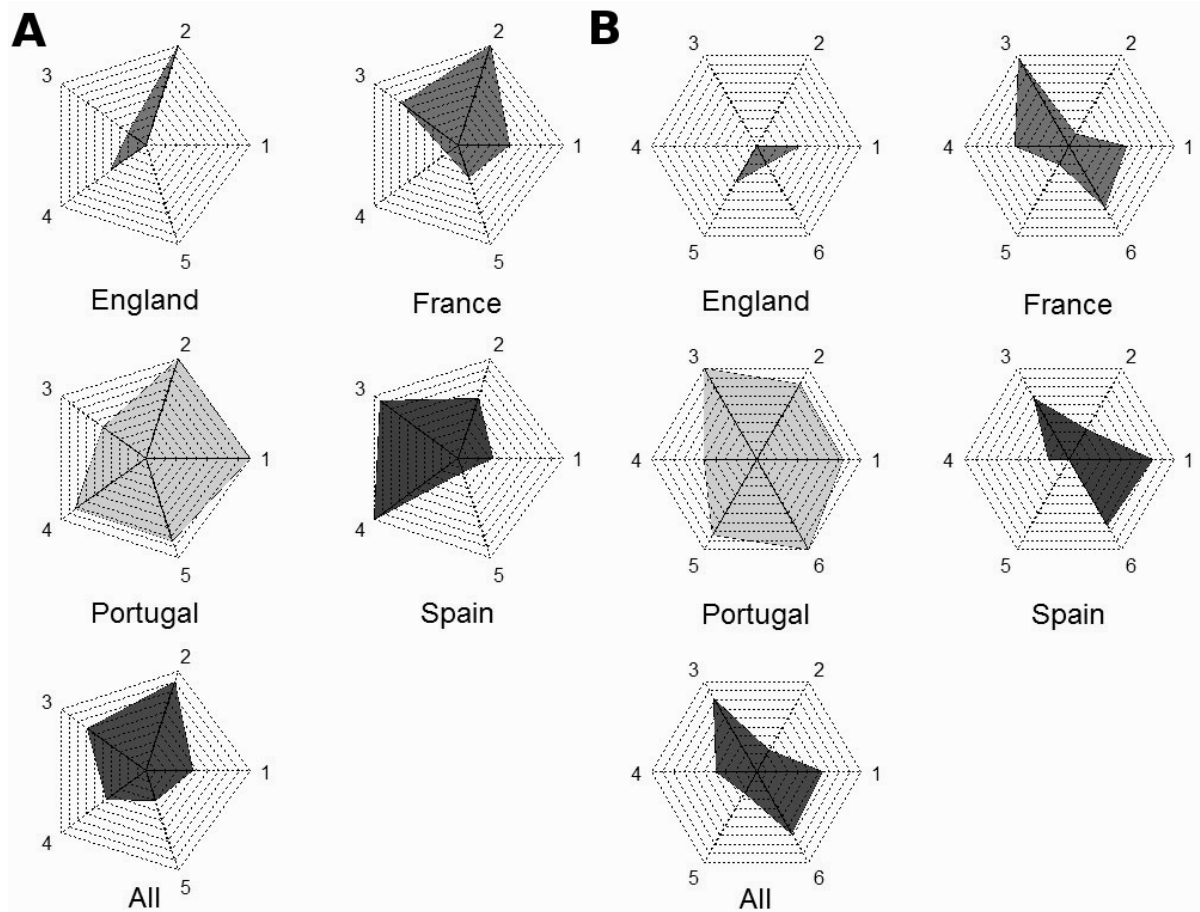


Figure 3. Each vertex of the star plots represents one particular objective, either related to biological and ecological aspects (A) or to socio-economic aspects (B). The coloured area is the percentage of MgPs that has this particular objective over the total number of MgPs by country, from 0% in the centre of the star to 100% in the vertex; each dashed line corresponds to a 10% difference. Panel A: 1- To maintain/conservate/restore biodiversity, natural heritage of habitats, species or landscapes with no protection status; 2- To maintain/conservate/restore biodiversity, natural heritage of habitats, species or landscapes under protection status; 3- To maintain key ecological functions (spawning areas, nurseries, feeding zones, resting areas, productivity areas, etc.); 4- Management of exploited natural resources; 5- To improve water quality. Panel B: 1- Sustainable management/development of socio-economic activities; 2- To protect/conservate/restore cultural heritage; 3- To improve environmental education and raise public awareness; 4- To create socio-economic added value; 5- To improve governance of the MPA territory; 6- Scientific research.

The objectives were detailed in an action plan or operational plan (detailed information on how/when specific management actions are to be carried out) in 86% of MPAs and were linked to an agenda (72%) and bound to a budget for each action (63%) in the majority of MgPs. In contrast, only 35% of MgPs provided a global budget with detailed items for human resources, operational costs and equipment.

The results of the MCA analysis grouped the MPAs by country (Figure 4). In two countries, England and France, MPAs appeared very closely grouped, showing a high level of homogeneity among each country's MgPs. This result was expected in England, where all MPAs belong to the Nature 2000 Network, having very similar objectives focused on conservation and biodiversity restoration. In the case of France, although most of its MPAs had international designations (Nature 2000 and OSPAR), this country also had 15 MPAs with national designations that, like international ones, tend to have few objectives focusing on conservation.

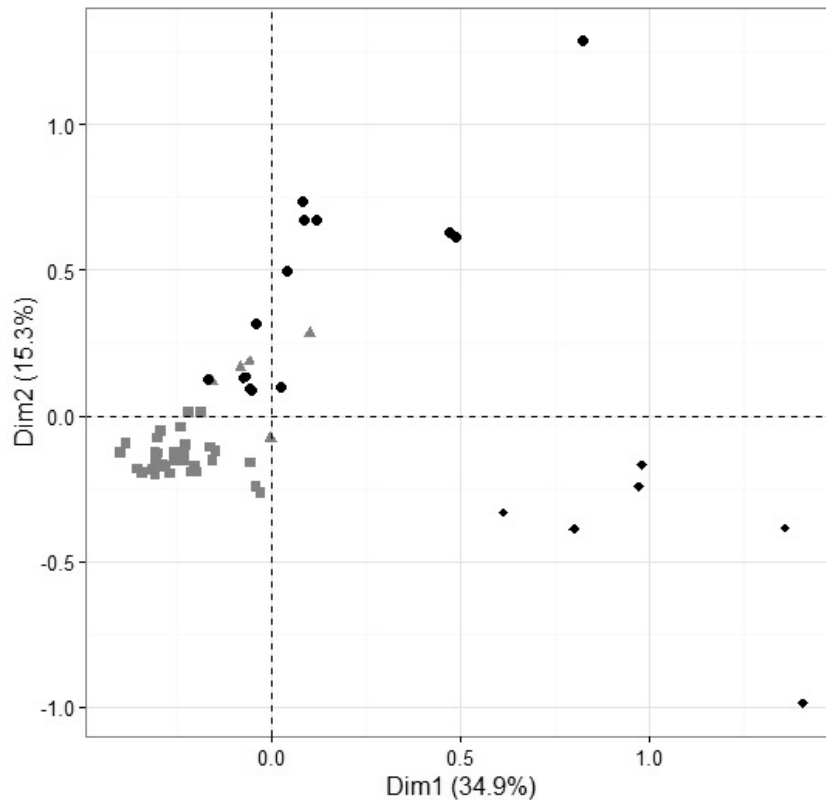


Figure 4. Biplot of MCA carried out for planning and regulation data. The 57 MPAs, differentiated by country, were shown in the two first dimensions: England (\blacktriangle), France (\blacksquare), Portugal (\blacklozenge) and Spain (\bullet). Percentages for each axis correspond to the proportion of explained variance in each dimension.

Contrarily, Portugal and Spain showed a wider dispersion in their MPAs in the two first MCA dimensions, which means a higher variability in their MgPs. Regarding this variability, two aggregations of MPAs were observed in Spain: one formed by the Marine Reserves of Isla de la Palma (IP), Isla Graciosa e Islotes del Norte de Lanzarote (IG_IN) and Punta de la Restinga-Mar de las Calmas (PRMC), and another one formed by the Marine Reserves of Fishing Interest of Ría de Cedeira (RC) and Os Miñarzos (OM) (Figure 5A). MPAs from the first aggregation did not have a specific process for the MgP development and validation, and scuba diving activity was regulated in them. Meanwhile, in the MPAs from the second group, professional fishing with nets or hooks was regulated, and gathering activities were forbidden. In addition, in the two Spanish MPAs, professional pole and line fishing was regulated (Figure 5A). MPA designations of these two groups are also clearly different from the rest in their objectives, focused on the sustainable management of exploited natural resources, i.e. both were designed to contribute to the sustainable exploitation of fishing resources, establishing specific protection measures in limited areas within traditional fishing grounds. These two designations, Marine Reserves and Marine Reserves of Fishing Interest, are national and regional designations respectively, and both were designed following a bottom-up model. Currently, Marine Reserves are managed by the national government, while Marine Reserves of Fishing Interest are managed by Fishers' Associations and by the regional government. The rest of Spanish MPAs, located close to the axis centre in the MCA plot, were more similar to English MPAs, with a higher number of objectives and a focus on conservation, although those focused on management were still present.

Portugal, on the other hand, did not show any groups among their MPAs, although they showed some dispersion (higher than for English ones). The MgPs of Portuguese MPAs showed a trend towards having more objectives than the remaining countries. Moreover, these objectives were not only about conservation and management of exploited resources, but also about water quality. This last subject was only present in the objectives of some French MPAs.

In addition to the above mentioned, two MPAs were placed in the plot away from the rest, which means that they had unique characteristics that were not present in other MgPs. Thus, the Dunas S. Jacinto Nature Reserve

(DSJ) forbade leisure activities outside authorized groups, anchoring or mooring in MPA waters and professional fishing, not only with unselective gears (trawling), as in other MPAs, but also with the majority of selective fishing gears. The Islas Atlánticas de Galicia National Park (IA) was characterized by regulating unselective fishing gears (trawling, bivalve dredging) and banning ship traffic and energy production activities (Figure 5B).

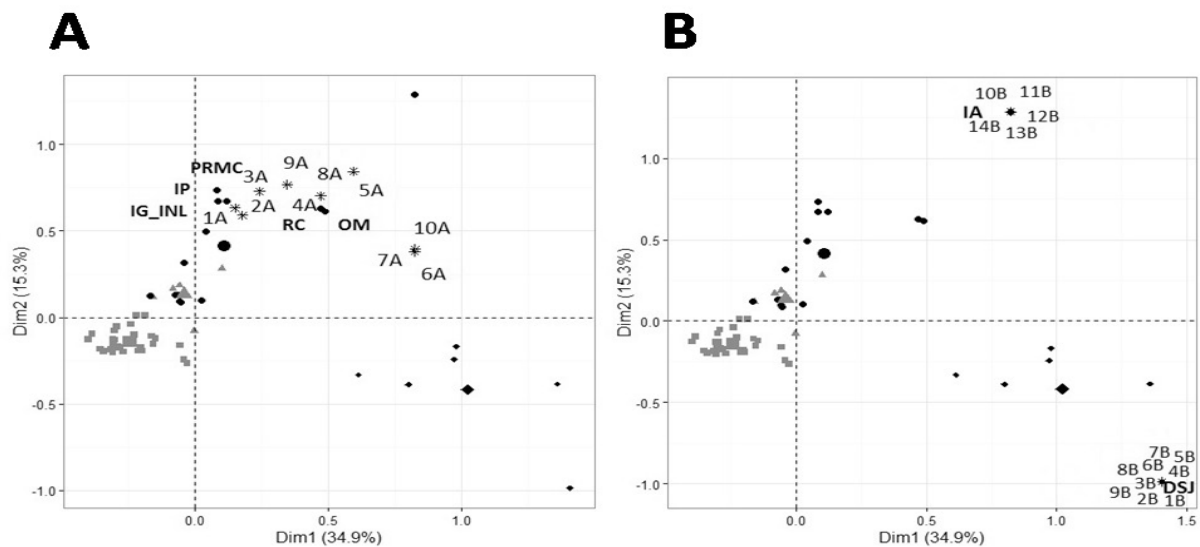


Figure 5. Factor map of MCA carried out for planning and regulation data. The MPAs studied ($n=57$, England (▲), France (■), Portugal (◆) and Spain (●)) and categories of variables (MgP characteristics) are shown in the two first dimensions. (Figure 5A) Spanish Marine Reserves group (PRMC, IP and IG_INL) and Marine Reserves of Fishing Interest group (RC and OM) were labelled as their closest categories (asterisk). (Figure 5B) Dunas S. Jacinto Nature Reserve (DSJ) and Islas Atlánticas de Galicia National Park (IA) were labelled as well as their closest categories (asterisk). See Annex 5.III for numbers of categories. Percentages for each axis correspond to the proportion of explained variance in each dimension, and the large symbol for each country corresponds to the centre.

Management and monitoring

Most of the studied MPAs (98%) presented qualitative objectives in their MgPs, and in 87% of the cases, these objectives were successfully achieved. Not so good were the results for quantitative objectives, which were present in 15 MPAs (26%) but were only achieved in seven of them. There were five MPAs where both types of objectives were accomplished: all the English FH MPAs, BNNC MPAs and WNNC MPAs (100%) and around half of Spanish E and RC MPAs. These three English MPAs were similar in terms of their designation (SAC) and of their objective “to maintain, conserve and restore biodiversity, natural heritage of habitats, species, and landscapes under protection status”. These MPAs and the Spanish E MPA also had in common their regular monitoring of species, habitats and socio-economic activities. The RC MPA had occasional monitoring of socio-economic activities and fishing activities regulated. France only showed fulfilment of qualitative objectives in some MPAs, while Portugal was the country with a lower rate of objective achievement. Generally, Spain and England showed the highest rate of achieved objectives, both qualitative and quantitative.

Regarding the reasons for non-compliance with the objectives, 67% of the managers considered that the budget was insufficient to cover all actions of the MgP, and 65% thought that more staff was needed to pursue these actions. This opinion was common to the four countries. The lack of surveillance observed in 21% of the studied MPAs was also identified as a factor for non-compliance. Concerning monitoring, 63% of MPAs focused on species and 46% on habitats, while only in 21% of MPAs socio-economical activities were monitored. This pattern was similar in all the countries.

Multiple correspondence analysis (MCA) for the Management and Monitoring dataset allowed us to delve deeper into the causes for this patterns. This analysis did not show grouping by countries as observed in the previous stage [Figure 6]. The clear differences observed respect to the characteristics of the MgPs by country and among some designations were not evident in terms of management and monitoring. In this case, there were general patterns that were common to most cases. Thus, MgPs in general did not provide indicators for the evaluation of actions or activities done in the MPA. Likewise, no specific training for MPA staff was provided.

Regarding the MCA graphic (Figure 6), two MPAs (located far away from the rest) showed unique characteristics: Marais de Sene National Nature Reserve (MS), in France, and Teesmouth and Cleveland coast SPA (TCC), in England. These two MPAs were unique because both monitored specific species (while monitoring in the rest of MPAs was performed over families) and habitats. In the MS MPA, several species of invertebrates were regularly monitored and, moreover, other species and habitats were occasionally monitored. In the TCC MPA, several habitats were regularly monitored (salt meadows, vegetated cliffs, halophilous, etc.). In these two MPAs with unique characteristics, qualitative objectives were achieved, whereas none of them had quantitative objectives. MCA analysis was repeated without these two outliers in order to visualise the patterns of the rest of MPAs.

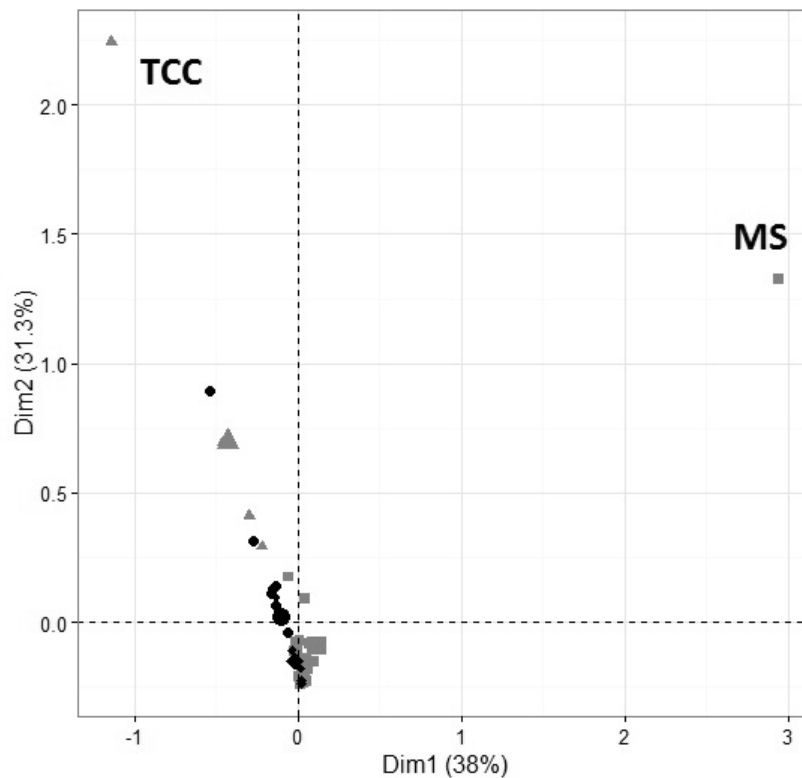


Figure 6. Biplot of MCA carried out for management and monitoring data. The 57 MPAs, differentiated by country, were shown in the two first dimensions: England (\blacktriangle), France (\blacksquare), Portugal (\blacklozenge) and Spain (\bullet). The two outliers are Marais de Sene National Nature Reserve (MS) and Teesmouth and Cleveland coast SPA (TCC). Percentages on each axis correspond to the proportion of explained variance in each dimension, and the large symbol of or each country corresponds to the centre.

While the MCA analysis on MgP characteristics showed a larger dispersion in Spanish and Portuguese MPAs (with the English and French ones being more homogeneous), more heterogeneity is observed in English and Spanish MPAs regarding management and monitoring characteristics, while Portugal and France remain closely together (Figure 7). This suggests that Portugal and France had a homogeneous management of their MPAs and therefore had more similarities between their MPAs than with MPAs in other countries. As an example, the budget for each MPA was not being spent according to the action plan in most of the Portuguese MPAs and in several of the French ones, while most of the Spanish and all English MPAs were using the budget as their MgP reflected. Moreover, European or international funds contributed to support the action plans implemented in most French MPAs and in all the Portuguese ones, while this was uncommon in the Spanish and English cases. On the other hand, regular monitoring of species, habitats and socio-economic activities was not common in the management of Portuguese and French MPAs. Only two MPAs from France (Iroise Marine Nature Park (I) and Banc D'Arguin National Nature Reserve (BDA)) and one from Portugal (Arrábida Natural Park (A)) diverged from this pattern, appearing closer to Spanish ones in the graph, probably because they presented regular or occasional monitoring on species, habitats and activities (Figure 7).

The two Spanish MPA aggregations observed in the Planning and Regulation stage remained after this stage of the analysis (Figure 7). The Spanish Marine Reserves group (IP, IG_INL, PRMC) was characterised for having

a website for environmental education and awareness raising. In addition, for all sub-perimeters with specific regulations/uses, boundaries were signposted in these reserves. The group formed by Marine Reserves of Fishing Interest (RC and OM) had in common that the MPA's government body was informed by the stakeholder community about the progresses through notifications on the reserve's notice board, while technical reports were used to improve management regulations. Navigation and sailing activities were also regularly monitored, and they had a monitoring programme about socio-economic activities that took place occasionally (Figure 7). Both groups presented a high fulfilment of their qualitative objectives, being higher in Marine Reserves (which did not have quantitative objectives). The E Natural Park was isolated in the graph because it had the highest number of unique characteristics about regular monitoring of specific habitats classified by IUCN and OSPAR and about harassment and destruction of species with no protection. It was also characterised by achieving 75% of actions not included in its management plan (Figure 7). The last Spanish MPA with unique characteristics was the IA National Park. It appeared as having a different status in the previous stage as well. In this case, its government body informed the MPA stakeholder community about the progresses through memos, and scuba diving activities were regularly monitored (Figure 7).

A similar dispersion to that observed in Spanish MPAs was also observed in English MPAs, although in this case no aggregations were shown. Two of them shared MCA space with most of the French and Portuguese MPAs (Figure 7) around the axes' origin, showing similarities in their monitoring characteristics. The other three English MPAs (FH, BNNC and WNNC) appeared separated. The English FH MPA was characterized by performing regular monitoring of habitats classified by IUCN (1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts) and OSPAR (Littoral chalk communities) and of seaweeds, algae and maerl. In addition, technical reports were produced by technical and scientific contractors. In the English BNNC MPA, there was regular monitoring of professional bivalve dredging activities and extraction of non-living resources (e.g. aggregates, oil and gas, etc.). 25% of actions not included in the management plan were achieved. The English WNNC MPA also monitored regular shipping traffic, shellfish gathering and spearfishing activities, and extraction of living resources (other than professional fishing; e.g. algae, maerl). In addition, the staff attended local training (Figure 7).

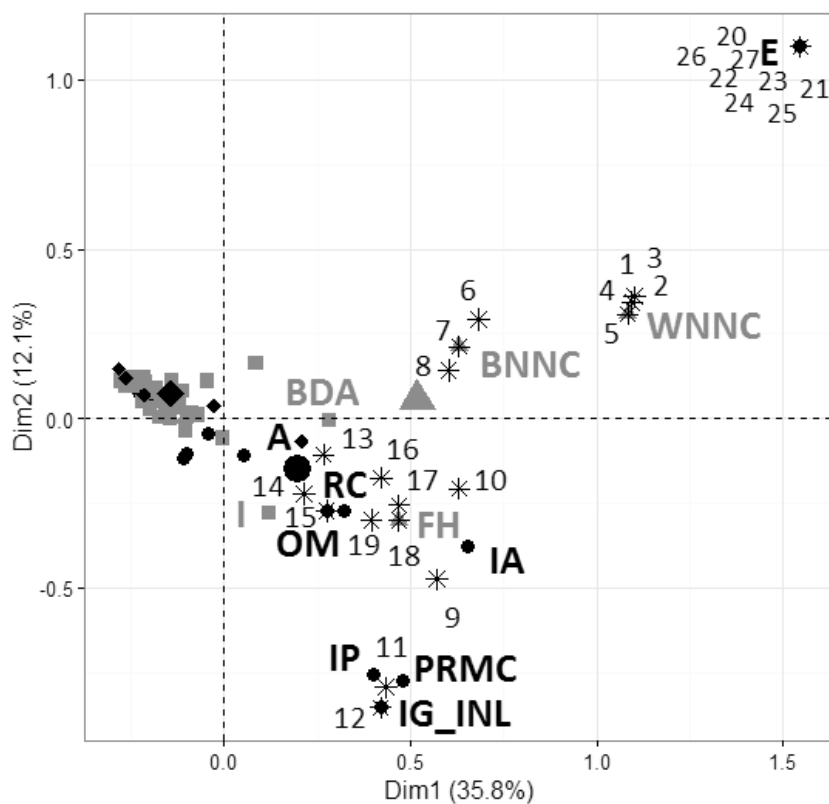


Figure 7. Factor map of the second MCA carried out for management and monitoring data, without outliers. The MPAs studied ($n=55$) and variable categories (MgPs characteristics, labelled as numbers) associated to MPAs labelled are shown in the two first dimensions and differentiated by country: England (▲), France (■), Portugal (◆) and Spain (●). See Annex 5.III for numbers and Annex 5.II for abbreviations. Percentages on each axis correspond to the proportion of explained variance in each dimension, and the large symbol of each country corresponds to the centre.

Socio-economic impact

The managers of the 35 MPAs analysed in this stage had a general perception (77%) of socio-economic benefits after the implementation of the MPA. The majority of managers (68%) confirmed eco-tourism as the new activity for generating new income, e.g. birds/nature watching. Other newly implemented income-generating activities (23%) were related to fishing activities, e.g. implementing a brand or quality certification for products linked to the MPA. In general, all these new activities were publicly funded, and the local population was trained for their implementation. Managers considered the newly implemented activities as economically sustainable, operational and long-term.

There was also the perception (31%) of a social impact by empowering fishers or shellfishers after implementation of the MPAs.

DISCUSSION

This work assesses management performance in 57 MPAs in the European Atlantic coast. Firstly, the content of MPA management plans was studied, focusing on the similarities and particularities among those in the same or different countries. After that, the performance of MgPs was assessed regarding their management and the fulfilment of their objectives. Finally, both the positive and negative socio-economic effects of MPA implementation were studied.

According to their content, MgPs showed differences by country but were homogeneous within each country, particularly in England and France, and showed a maximum diversity in Spain. The intra-country similarities in MgPs seemed to be related to a top-down approach in the establishment of MPAs in most countries, since both MPA proposals and drafts of MgPs were led by state organisms (Natural England (EN) and Conservatoire du littoral (FR)). In this sense, the heterogeneities observed in Spain could be related to the more widespread promotion of MPAs, carried out by national organisms (Ministerio de Agricultura, Alimentación y Medio Ambiente (ES)) but also by regional ones, local stakeholders or NGOs, resulting in a variety of MgPs that reflects the diverse idiosyncrasies of these collectives.

Despite their heterogeneity, two groups can be identified in Spanish MPAs, corresponding to two different designations: Marine Reserves and Marine Reserves of Fishing Interest, the former being designated by a national organism (Ministerio de Agricultura, Alimentación y Medio Ambiente) and the latter by a regional government (Xunta de Galicia) (Chuenpagdee et al., 2013; Fernández-Vidal and Muiño, 2014).

In the case of Portugal, although the establishment of MPAs is done by a single national organism (Instituto da Conservação da Natureza e das Florestas) as in England and France, a greater heterogeneity was observed, perhaps due to a greater flexibility in MgP proposals by this regulatory organism in terms of MPA objectives and of regulations adapted to the site's characteristics.

Another item in the MgPs that explains the observed differences are their objectives. MPAs have been established with a wide range of goals (including protecting marine biodiversity and habitats from degradation, restoring depleted fish populations, regulating tourism and recreation or accommodating conflicting resource uses) (Rodríguez-Rodríguez et al. 2015b; Pomeroy et al., 2004), and these goals determine the objectives defined in the MgP, which can therefore be diverse as well. In this sense, the most usual objective in all countries, except for Spain, was the maintenance and restoration of biodiversity, habitats, species or landscapes under protection status within the protected area, following Europe's nature conservation policy (Habitats 92/43/EEC and Birds 2009/147/EC Directives) and the OSPAR Convention. It was commonly found in MPAs outside the boundaries of this study as well (Rodríguez-Rodríguez et al., 2015a; Thomas and Middleton, 2003). In Spanish MPAs, the management of exploited natural resources is the most frequent objective, which is consistent with several of them being directly promoted by stakeholders (FAO, 2011; Perez de Oliveira, 2013; Morris et al., 2014). Thus, in two special MPA groups (Marine Reserves and Marine Reserves of Fishing Interest), their creation was driven by stakeholders but with different aims and motivations (e.g. sustaining fishing activity) (FAO, 2011; Perez de Oliveira, 2013; Morris et al., 2014), which explains differences in their MgPs.

In the second part of this work, the fulfilment of the objectives present in MgPs was assessed to understand whether MPAs were effective at achieving their objectives, as well as the reasons of their failure if applicable (Fernández-Vida and Muiño, 2014; OSPAR, 2003; Hockings et al., 2000). First of all, differences in success by country were found to be small, success rates being much more homogeneous than their MgPs characteristics. This suggests that performance levels are similar regardless of the original MgP.

Assessing outcomes and achievement of management objectives in detail would require an independent evaluation or analytic assessment tools (such as the WCPA framework (Hockings et al., 2000) or the IUCN ‘How is your MPA doing?’ guidebook (Chuenpagdee et al., 2013)). These tools rely on indicators that measure the efficiency of management actions as the achievement of qualitative and quantitative objectives (Pomeroy et al., 2004; Sala et al., 2013; Fernández-Vidal and Muiño, 2014). These indicators have been widely used, but that requires having access to a larger time span, resources and money (Le et al., 2008). In this work, an empirical approach was used to assess management performance based on the expert knowledge and perceptions of managers operating MPAs.

Compliance with qualitative objectives was higher than with quantitative ones, according to these results (87% versus 50%). This could be because quantitative objectives were more difficult to fulfil: both because their assessment was not subjective, leaving no room for a “benevolent” interpretation, and because quantitative objectives had been established wherever specific issues must be improved or preserved. In these cases, issues referred to particular risk situations often existed and, therefore, fulfilling the objectives involved a greater degree of difficulty. On the other hand, MPAs with the highest ratios of fulfilment of both types of objectives (all of them from Spain and England) showed stakeholder involvement in their MgP definition, in their management, or in both. MPAs designed following a bottom-up model also showed good levels of accomplishment of objectives.

In order to analyse these results in depth, key management actions aimed at achieving the objectives were studied: planning, design, implementation, monitoring, evaluation, communication and adaptation (Pomeroy et al., 2004). In this sense, the MPAs that most successfully fulfilled their objectives were those with regular monitoring, according to this study (FH MPA, BNNC MPA and WNNC MPA in England, and E MPA and RC MPA in Spain). This was in accordance with the importance of integrating monitoring together with the rest of management activities aimed at management effectiveness, as remarked by other authors (OSPAR, 2014b; Rodríguez-Rodríguez et al., 2015a). The MPAs that fulfilled both types of objectives monitored specific species, habitats and/or activities that were characteristic of each MPA site. Therefore, monitoring adapted to the features and uses of the site seemed to help achieving the objectives. On the other hand, the lack of monitoring seemed to be linked to a lack of sufficient staff and budget.

In the third part, the analysis of questionnaires indicated that new socio-economic activities related to the MPAs appeared after their designation, as has been pointed out by other studies (Hopkins et al., 2016). These activities had a positive socio-economic impact on the human community (Rodríguez-Rodríguez et al., 2015a). Among these new activities was, for instance, ecotourism, but MPAs were also considered beneficial for the fishers’ communities, as other studies corroborate (Pomeroy et al., 2005; Hopkins et al., 2016). Some of the benefits were the creation of quality labels for fishery resources obtained in the reserves, reassessing their market prices.

CONCLUSIONS

In this work, a study of the European Atlantic MPAs was carried out from the point of view of their management plans, their efficiency and performance. This assessment has been addressed from the point of view of the expert knowledge and perceptions of managers operating the MPAs. This methodology provided highly relevant information, and it constituted a cheap means of assessing management performance of multi-use MPAs in single or in wide areas such as the North-east Atlantic Ocean.

The study revealed that MgPs for MPAs showed differences between countries but were homogeneous within each country, reflecting the usual top-down approach in the establishment of MPAs. However, implementation of MgPs was similar in all the countries regardless of the original MgP, thus reducing the differences among them. This suggests that management worked similarly in all countries.

Compliance with qualitative objectives established in MgPs was higher than with quantitative ones (87% versus 50%). Moreover, the MPAs that successfully fulfilled their objectives were those with regular monitoring. This link between the achievement of objectives and regular monitoring suggests that a regular monitoring process is a key point for good MPA management practices. This study also revealed other key points for management, such as the necessity of sufficient staff and a budget linked to a regular monitoring programme for the good management of an MPA.

Finally, the establishment of an MPA and the activities developed around it was found to have a positive socio-economic impact on the local human community.

These results suggest some considerations to be taken into account when developing an MgP, in order to improve the management of an MPA:

- Involving stakeholders contributes to the success of an MPA in the long term.
- Performing regular site-specific monitoring of species, habitats and activities is a key point for good MPA management practices.
- Having sufficient staff and budget to carry out the action plan will help achieve their objectives.

These results contribute to a better understanding of the differences and similarities among MPAs in the study area as part of the OSPAR network, and could improve their management in order to achieve OSPAR Commission's goal of a well-managed OSPAR network.

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CHAPTER 6

RELATIONSHIPS BETWEEN THE DIFFERENT PROCESSES INVOLVED IN THE ESTABLISHMENT AND OPERATION OF MPAS

ABSTRACT

This study has tested the hypothesis that the design and implementation of management plans (MgP) and Marine Protected Areas (MPA) governance processes affect its performance using information from 125 MPAs of the NE Atlantic ocean, managed by 56 MgPs. For this purpose, eight indicators that characterize the most relevant factors of the processes (design and implementation of MgPs, MPA governance and MPA performance) have been defined. Our empirical results, relating MPA performance with the other indicators using GLMs, demonstrate that effective governance, and not the design and implementation, is critical for the performance of Atlantic Arc MPAs. These results contradict previous studies showing that the design of objectives and MgP, together with the participation of stakeholders in this process are key factors for the performance of MPAs. Our results show that the effect of governance is complex and depends more of the correct allocation of effort and resources than of the absolute management effort. For a given management effort, an excessive focus in budget and law enforcement is negative for performance. In the other side, we could hypothesize that investment in other tasks (such as the existence of a operative management body, monitoring and evaluation, information, education and communication of MPA benefits and results to stakeholders, and community participation) produce high performance. In this sense MPAs with modest investments in management could present high performance if they have the right allocation whereas other MPAs with high efforts could underperform greatly. Our results suggest the need for a revision of the rationale of public policies for MPAs in Europe. A good design and an adequate implementation of the MgPs have a limited value in MPA performance. However, a good governance could promote high performance independently of an adequate design of the MPA in the early stages. Good governance implies the continuous process of knowledge generation and organizational learning that improves continuously design and management aligning them to the objectives.

INTRODUCTION

By early 2013, the NE Atlantic Ocean (specifically England, Spain, France and Portugal) had 126 MPAs managed by 57 management plans (MgPs). Through the analysis of these 126 MPAs, previous chapters (chapters 3, 4 and 5) have studied the three critical processes for an MPA to meet its goals and obtain the results for which it was created: (i) design and implementation of an MgP adapted to the MPA, (ii) effective governance of the MPA, and (iii) good management performance (Pomeroy et al., 2005; Hockings, 2006; Weigel et al., 2014; Bennett and Dearden, 2014).

The management plan plays a key role for the success of MPAs (López-Rodríguez and Rosado, 2017; McDermott et al., 2018), since it is the tool through which MPAs define their objectives and management strategies. For an MgP to be effective, it must be designed according to the requirements of the MPA, and the correct definition of these objectives requires the participation of all the involved stakeholders (Rodríguez-Rodríguez et al., 2015). Previous studies have examined the influence of stakeholders on MPA management plan design, governance and management, and they found a positive effect (Bennett and Dearden, 2014; Weigel et al., 2014; Rodríguez-Rodríguez et al., 2015; Álvarez-Fernández et al., 2017; Christie et al., 2017).

On the other hand, governance is considered a critical factor for the governance of marine areas (Dearden et al., 2005; Borrini-Feyerabend et al. 2013), since it guarantees that MPAs are being efficiently managed to obtain the intended results (Dearden et al., 2005). Recent studies have shown that adaptive governance and management

efforts focused on introducing appropriate changes both in the management plan and in governance seem to be the key to the success of an MPA (Dehens and Fanning, 2018; Halik et al., 2018).

Finally, management performance is the way to achieve the goals and objectives of a protected area and to show accountability for its management, as proposed by IUCN (Hockings et al., 2000) and the OSPAR Commission (OSPAR, 2007 and 2014). These environmental or management objectives are described in the MgP, depending on the purpose for which the MPA is established, and may be divided into two types: qualitative objectives (defined as general aims of the desired future situation of an MPA) and quantitative objectives (those specifying the extent to which this objective will be achieved, e.g., a 20% reduction of the area occupied by exotic or alien species). The availability of sufficient resources to manage the MPA, both in terms of personnel and economic resources, plays an essential role for the fulfillment of its objectives (Gill et al. 2017). In addition, following the evolution of the MPA and, therefore, routinely monitoring both its environmental and socioeconomic aspects is considered relevant to achieve the objectives for which the MPA was created and must be integral to their management activities (OSPAR, 2014; Rodriguez-Rodriguez et al., 2015; Álvarez-Fernández et al, 2017).

Once these three critical processes have been studied for the case of the NE Atlantic ocean (chapters 3, 4 and 5), this chapter will analyze the relationships among these processes based on the hypothesis that MgP design and implementation affect MPA governance which, in turn, influences MPA performance (Figure 1). To perform this analysis, indicators were selected in order to assess the quality of these processes, and statistical models were adjusted to analyze different hypotheses about the cause-effect relationships between processes.

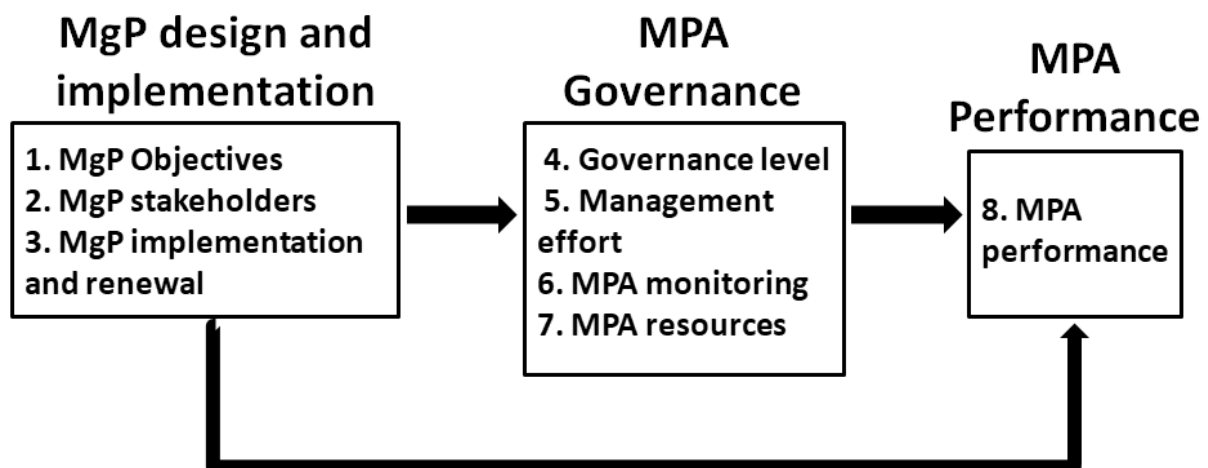


Figure 1. Conceptual hypotheses about the cause-effect relationships among the three critical processes in an MPA. The boxes show the indicators defined for each process (see Table 1).

MATERIAL AND METHODS

Study area, study cases and typology of MPAs

This study focused on the 126 inshore and offshore MPAs that had implemented MgPs and that were located in the North-east Atlantic Ocean, along the coast of mainland Portugal, the Spanish Atlantic coast (including Canary Islands), the French Atlantic coast from Cherbourg in the Channel (Basse-Normandie region) to the Spanish border, and the English coast. These 126 MPAs were managed by a total of 57MgPs. In England, 17 MPAs were managed by 5 MgPs; in France, 52 MPAs were managed by 31 MgPs; in Portugal, 14 MPAs were managed by 6 MgPs, and in Spain, 43 MPAs were managed by 15 MgPs (Figure 2). A single management plan can cover more than one MPA, following a series of typologies described in chapter 3. Therefore, in this work “case study” is defined as each one of the MgPs along with the MPAs managed by it. The MPA and MgP of Gaztelugatxe (Spain) was not included in the data analyses of this chapter because it lacked some data impeding the estimation of some indicators.

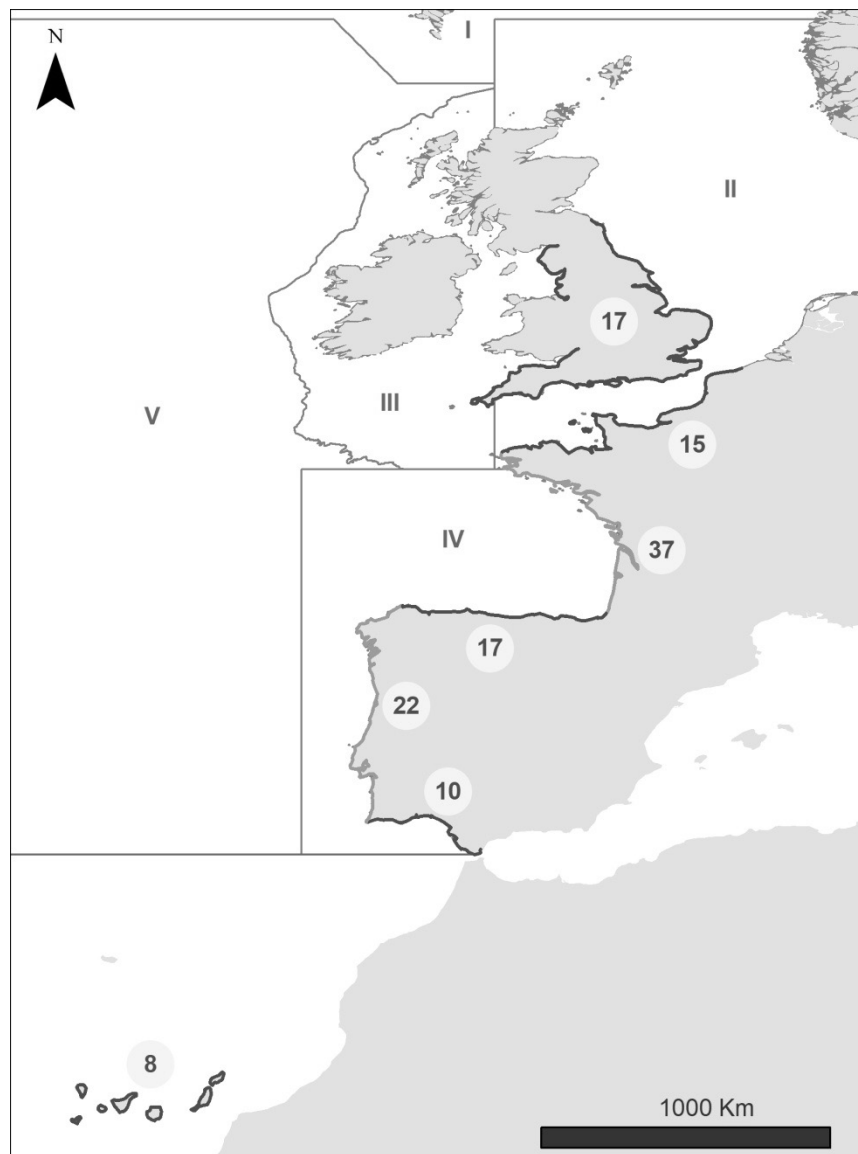


Figure 2. Distribution of the 126 MPAs with MgPs along the study area, comprising the Atlantic coast of the Iberian Peninsula, the French Atlantic coast (from the Spanish border to the Belgian border), the English coast of the UK and the Canary Islands (© ProtectedPlanet 2014-2015). The coast of the study area is divided in sections (black and light grey), and grey circles indicate the number of MPAs actually managed by MgPs in each section. The OSPAR Convention divides the North-East Atlantic in five regions. The studied MPAs are located in three of them: region II: Greater North Sea, region III: Celtic Seas, and region IV: Bay of Biscay and Iberian Coast. The French coast is divided into two sections: the Bay of Biscay and the English Channel. The Spanish coast is divided into four sections: the Cantabrian coast, the Atlantic coast, the Algarve coast-Gulf of Cádiz, and the Canary Islands.

Definition of indicators

The indicators described below have been defined to synthesize the main factors determining each one of the three critical processes for the implementation of an MPA: MgP design, governance and management performance. In total, eight indicators have been built using the databases obtained in chapters 3 (MgP design and implementation in MPAs), 4 (quality of MPA governance) and 5 (MPA management performance in terms of achievement of the established goals).

Management plan design and implementation indicators

Compliance with the schedule for MgP implementation and renewal is another important factor. During the period while an established MPA does not have an operational MgP, that MPA would not be effectively man-

aged and would therefore work as a “paper reserve” (UNESCO, 2008, Halpern, 2014; Gallacher et al., 2016). In fact, these situations can even lead to increased resource exploitation efforts (McDermott et al., 2018). Therefore, long delays in this process can have a negative impact on MPA success (Lausche, 2011, CBD COP, 2004). Additionally, renewing plans according to the periodicity defined by the plan itself is instrumental to adapt and improve management based on the experience gained through MPA management.

Taking the aforementioned into account, three indicators have been defined to characterize the process of MgP design and implementation (Table 1). The first one, management plan objectives, assesses whether the environmental or management objectives described in the MgP are quantitative or qualitative. Whether these objectives are qualitative or quantitative determines the degree of baseline knowledge about the MPA, since quantitative objectives must specify the extent to which this objective will be achieved (e. g. a 20% reduction of the area occupied by exotic or alien species). A useful quantitative objective is SMART (Specific, Measurable, Audience- or issue-focused, Reasonable and Timely).

Quantitative objectives are general aims or general summaries of the desired future situation of a marine protected area. Example: to protect native species and minimize the impact of invasive alien species. They have a very general purpose and little or no quantitative information. The second indicator, management plan stakeholders, assesses the level of stakeholder involvement during the MgP design and implementation process. The third indicator, management plan implementation and renewal, analyzes the timing of MgP implementation and renewal regarding the established schedule. In some cases, the MgP had not reached its renewal period at the moment of analysis (January 2013), and possible delays in renewal could therefore not be assessed. In these cases, +1 was taken as the score value for the third indicator, thus representing the average of the possible range of values (0-2 points).

Governance indicators

Four governance indicators have been defined (Table 1). The first two ones are complementary ways of measuring governance and were established through an adaptation of the MPA Management Effectiveness Assessment Tool (MPA MEAT) (CTI NCC, 2011), described in chapter 4. The first one, governance level, represents the governance level reached by each case study. This indicator is constituted by five sequential levels that define the process quality spectrum. The second one, management effort, measures the level of effort invested in governing the system. Both indicators focus in six different themes: (i) Law enforcement; (ii) Monitoring and evaluation; (iii) Financing; (iv) Management body; (v) Information, education and communication; and (vi) Legitimization),

Chapter 5 analyzed monitoring as part of management performance, since previous studies have addressed it using this approach (OSPAR, 2014; Rodríguez-Rodríguez et al., 2015). However, strictly speaking, monitoring has a dual nature, since on one hand it is an element of management effort, as a necessary activity to meet the goals, and on the other hand it is a management result in itself, since it generates new information and knowledge. In this chapter, MPA monitoring has been included as a governance indicator, since it is considered part of the factors influencing MPA performance, i.e. the achievement of objectives. This indicator takes into account whether species, habitats and activities are monitored and how frequently. The monitoring frequency is defined as follows: (i) monitoring is considered regular when it is done periodically throughout the year (e. g. every two months) (ii) monitoring is considered occasional when it is performed but there is no established moment (e. g., it can be done once a year but be performed in different trimesters depending on the year).

The last governance indicator, MPA resources, assesses whether the MPA has sufficient resources for its management, i.e. if there is sufficient budget and personnel to carry out the activities proposed in the MPA's MgP.

Management performance indicators

A single indicator of management performance has been defined (MPA performance), which is defined as the degree of achievement of MPA objectives (Table 1). Meeting the objectives described by the MgP means to achieve the purpose for which the MPA was established, i.e. the MPA constitutes a useful tool for biodiversity conservation and management of exploited resources.

Table 1. Indicators defined for each one of the three critical MPA processes and their method of estimation. Indicators can be divided into two types: quantitative, when the different items that compose them are independent of each other and their scores are cumulative; and semi-quantitative, when items define levels and one condition must be met in order to assess the next one.

Process	Indicator	Type of indicator	Item	Questions	Score/Level	Min. score	Max. score
MgP design and implementation	1. MgP objectives	Quantitative	Objectives	1.1 Does the MgP define qualitative objectives? 1.2 Does the MgP define quantitative objectives?	No = 0; yes = 1 No = 0; yes = 1	0	2
	2. MgP stakeholders	Quantitative	Degree of stakeholder involvement in MgP design	2.1 Do stakeholders only take part in the validation process? 2.2 Are stakeholders involved in the entire MgP design process?	No = 0; yes = 1 No = 0; yes = 2	0	2
	3. MgP implementation and renewal	Semi-quantitative	3.1 MgP implementation	3.1.1 MgP is implemented after the establishment of the MPA with a delay of more than 3 years 3.1.2 MgP is implemented after the establishment of the MPA with a delay of less than 3 years 3.1.3 MgP and MPA are implemented at the same time 3.1.4 MgP is implemented before the establishment of the MPA	1 2 3 4	1	6
			3.2 MgP renewal	3.2.1 Renewal is delayed 4 years or more with respect to the time established in the MgP 3.2.2 Renewal is delayed less than 4 years with respect to the time established in the MgP 3.2.3 Renewal is done in time	0 1 2		
Governance	4. Management effort	Quantitative	Management effort	Adaptation of MPA MEAT survey	0 - 84	0	84
	5. Governance level	Semi-quantitative	Governance level	5.1 None 5.2 MPA is established 5.3 MPA is strengthened 5.4 MPA is effectively sustained 5.5 MPA is effectively institutionalized	0 1 2 3 4	0	4
	6. MPA monitoring	Quantitative	6.1 Monitoring of the MPA species	6.1.1 There is no species monitoring in the MPA 6.1.2 There is occasional species monitoring in the MPA 6.1.3 There is regular species monitoring in the MPA	0 1 2	0	6
			6.2 Monitoring of the AMP habitats	6.2.1 There is no monitoring of habitats in the MPA 6.2.2 There is occasional monitoring of habitats in the MPA 6.2.3 There is regular monitoring of habitats in the MPA	0 1 2		
6.3 Monitoring of the socio-economic activities within the MPA			6.3.1 There is no monitoring of socio-economic activities in the MPA 6.3.2 There is occasional monitoring of socio-economic activities in the MPA 6.3.3 There is regular monitoring of socio-economic activities in the MPA	0 1 2			
7. MPA resources	Quantitative	Management resources	7.1 The MPA personnel is sufficient to carry out the activities in the MgP 7.2 The budget of the AMP is sufficient to carry out the activities in the MgP	No = 0; yes = 1 No = 0; yes = 1	0	2	
MPA performance	8. MPA performance	Semi-quantitative	8.1 Degree of compliance with qualitative objectives defined in the MgP	8.1.1 The MPA does not meet the qualitative objectives 8.1.2 The MPA meets qualitative objectives at 50% 8.1.3 The MPA meets qualitative objectives at 90% or more	0 1 2	0	4
			8.2 Degree of compliance with quantitative objectives defined in the MgP	8.2.1 The MPA does not meet quantitative objectives 8.2.2 The MPA meets quantitative objectives to 50% 8.2.3 The MPA meets quantitative objectives to 90% or more	0 1 2		

Data analysis

To statistically characterize the relationships among the different indicators, an exploratory correlation analysis was performed using Spearman's coefficient. In order to consider a correlation statistically significant, a $p=0.05$ significance level was established *a priori*.

Secondly, to determine the impact of MgP design and implementation and of MPA governance on their performance, following the conceptual model presented in Figure 1, Generalized Linear Models (GLM) were fitted. Since indicators are variables that take values within a delimited interval, their values were rescaled between their possible minimum and maximum values, obtaining values between 0 and 1, so that in case of obtaining the minimum (maximum) value of the indicator, the rescaled value will be 0 (1). Given that the generalized linear model relates score variables that can be regarded as coming from a binomial (or, in this case, quasi binomial) distribution, a logit link function (the canonical link function for binomial transform) was used for the mean of the dependent variable, and a logit transformation was applied to the remaining score variables in the model. Starting from the complete model (including all the variables) and using the quasi-likelihood criterion (QAIC), a version of AIC (Akaike, 1973) for overdispersed count data where quasi-likelihood adjustments are required. The maximum parsimony model was adjusted for the variable MPA performance among the possible combinations of independent variables (the remaining indicators). These analyses were performed using the R statistics software (R Core Team, 2018).

RESULTS

The correlation analysis showed significant associations in 9 out of the 28 variable pairs analysed (32% of cases, a much higher value than expected by chance alone: 5% of 28 cases = 1.4; Table 2). Regarding plan design and implementation, MgP Objectives showed significant correlation with two out of the four governance indicators: MPA Resources and MPA Monitoring. Contrarily, MgP Stakeholders and MgP Implementation and Renewal did not show any correlation with any other variable. Governance indicators showed significant positive correlations among all of them, with the exception of MPA Resources and MPA Monitoring. In addition, Management Effort and MPA Resources also showed significant correlation with MPA Performance.

Table 2. Spearman correlation coefficient matrix (ρ) (p-values between parentheses) between each pair of indicators (N= 56 study cases).

	MgP Stakeholder	MgP implementation and renewal	Governance level	Management effort	MPA monitoring	MPA resources	MPA performance
MgP Objectives	0.1362 (0.3169)	-0.1853 (0.1715)	0.1876 (0.1661)	0.2593 (0.0536)	0.2689 (0.0451)	0.2936 (0.0280)	0.0269 (0.8437)
MgP Stakeholder		0.1104 (0.4178)	-0.1050 (0.4410)	-0.1774 (0.1908)	0.0108 (0.9371)	0.0226 (0.8688)	-0.2110 (0.1186)
MgP implementation and renewal			0.0143 (0.9166)	0.0456 (0.7386)	0.0118 (0.9313)	0.0506 (0.7111)	0.2400 (0.0748)
Governance level				0.5951 (<0.0001)	0.3202 (0.0161)	0.3262 (0.014)	-0.0007 (0.9960)
Management effort					0.6919 (<0.0001)	0.3299 (0.0130)	0.3819 (0.0037)
MPA monitoring						0.1031 (0.4495)	0.2063 (0.1270)
MPA resources							0.3567 (0.0070)

It is worth noting that Governance Level is a complex indicator integrating many factors, including those related to management effort; therefore, Management Effort and Governance Level are not totally independent variables, as corroborated by their positive correlation. Since both are highly relevant indicators to understand MPA governance, we have analysed their relationships and behaviour in more detail. Governance Level is an indicator with four sequential levels. In order to move from one of these levels to the next, management effort is assessed by scoring each achieved item. Additionally, in order to achieve a certain level, a number of items defined as threshold must be achieved. The minimum score required to achieve level 1 was reached in 50 out of the 56 analysed cases, but only 35 out of those 50 cases effectively reached level 1 or higher by fulfilling the threshold items for level 1. Out of the 35 MPAs that reached level 1 and had a high enough score to achieve higher levels, 18 did not reach level 2 or higher. Out of the 15 MPAs with sufficiently high score but that did not reach level 1, 12 cases did not fulfil the threshold item “Budget allocated for at least one year”. All the threshold activities involved in moving from level 1 to level 2 are related to law enforcement. Specifically, 12 did not fulfil threshold items “Violations documented” and “Cases filed or violators penalized”, and 7 did not fulfil “Patrolling and surveillance conducted regularly”. Therefore, threshold items have a major effect on indicator Governance Level, since management effort does not progress simultaneously with threshold fulfilment.

An adjusted governance level was estimated by removing the effect of Management Effort on Governance Level. Residuals of Governance Level were extracted from a regression model. Different regression models were fitted (linear: $R^2=0.5192$, exponential: $R^2=0.5484$; quadratic: $R^2=0.5959$; $p<0.0001$ in all cases). Quadratic regression was selected because it provided the best fit and less biased in residuals (Figure 3).

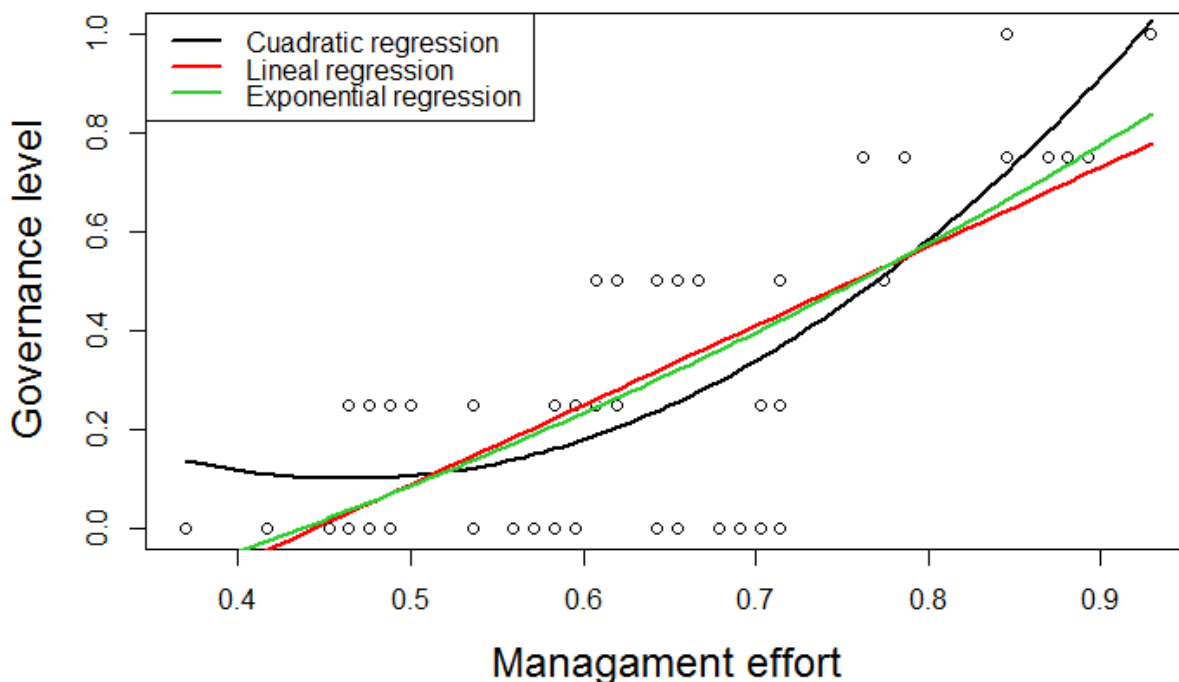


Figure 3. Relationship between Governance level and Management Effort (both indicators re-scaled from 0 to 1 corresponding to their minimum and maximum potential values). The lines represent the regressions adjusted: linear, exponential and quadratic.

GLM models were fitted using as explanatory variables the adjusted governance level and all original indicators for the rest of variables. According to the QAIC criterion, the best model was the one including only the adjusted Governance Level, which showed a negative effect on performance (Table 3, Annex 6.I).

Table 3. Parameters of the most parsimonious model resulting from the GLM that relates MPA performance with the different indicators. This most parsimonious model was selected applying the QAIC criterion (see Annex 6.I for complete results)

VARIABLES	ESTIMATE	STD. ERROR	T VALUE	PR(> T)
Intercept	-0.467	0.140	-3.331	0.001
Adjusted Governance Level	-1.932	0.773	-2.498	0.016

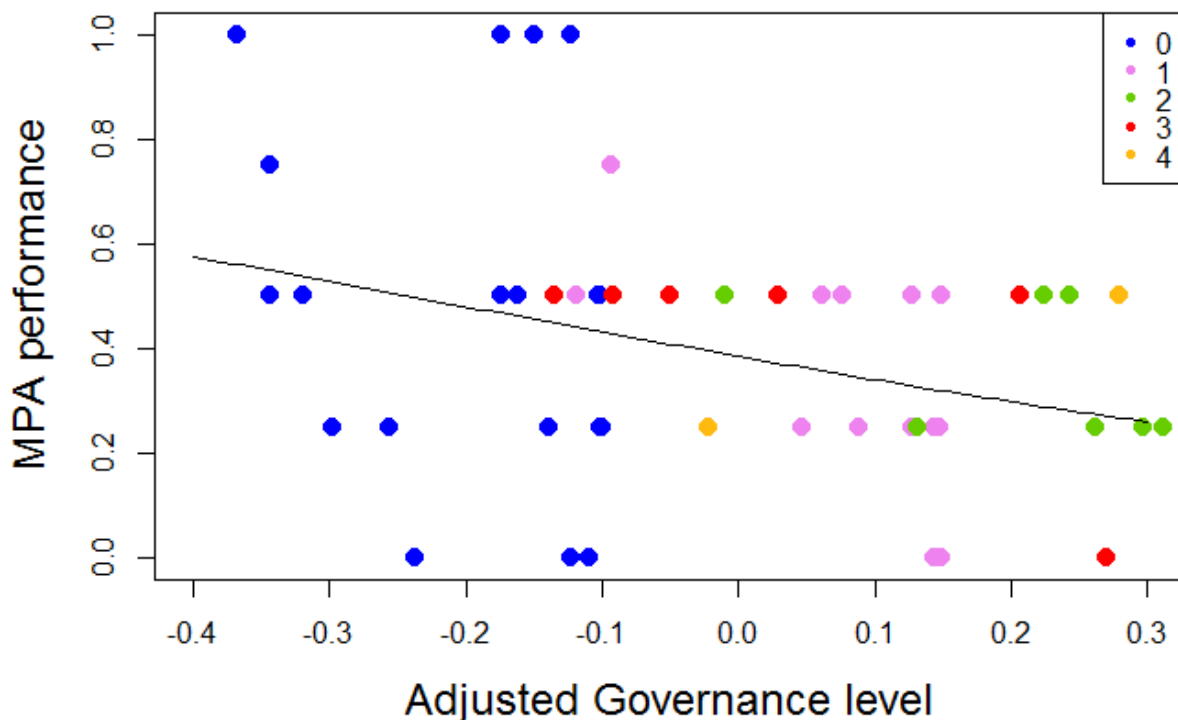


Figure 4. Relationship between MPA performance and adjusted Governance Level. The selected GLM model is shown. Colours represent the original Governance Level reached by each MPA.

DISCUSSION

Our main hypothesis for this study (Figure 1) is that MgP design and implementation and MPA governance processes have a positive effect on MPA performance that we defined as the achievement of objectives. Our empirical results show that, for the MPAs of the NE Atlantic Ocean, MgP design and implementation processes does not affect the performance. In the other side, governance is the key process determining the performance of MPAs. These results contradict previous studies in other European MPAs showing that the design of objectives and MgP, together with the participation of stakeholders in this process are key factors for the performance of MPAs (Rodríguez-Rodríguez et al., 2015; Rodríguez and Rosado, 2017; McDermott et al., 2018). The effect of governance has been demonstrated by previous studies that consider it as a critical factor in management (Dearden et al., 2005, Borrini-Feyerabend et al., 2013). However, our results show that the effect of governance is complex and depends more of the correct allocation of effort and resources than of the absolute management effort.

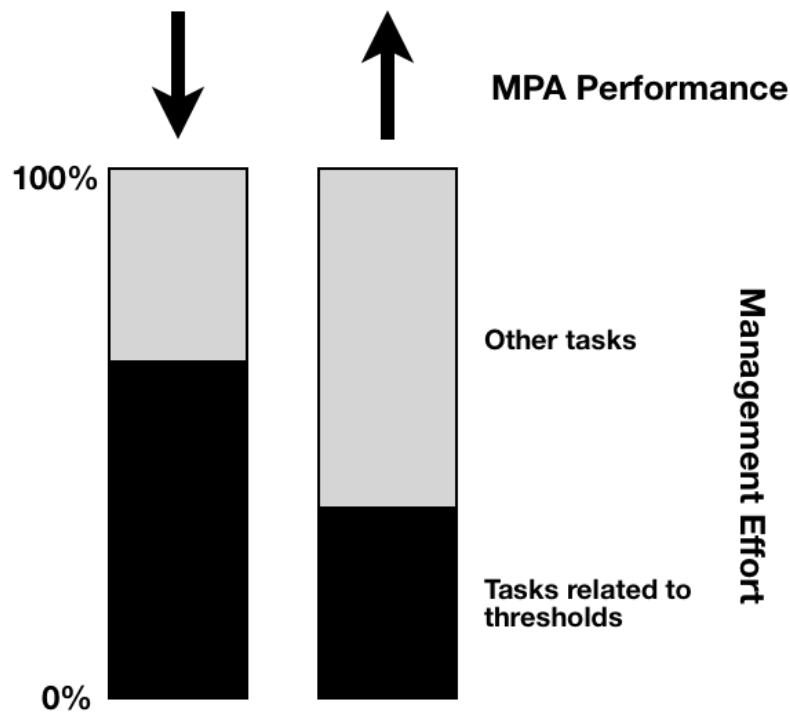


Figure 5. Conceptual explanation of the negative effect of adjusted governance level in MPA performance (see text for details).

Our results show that for a given management effort the attained level of governance is greatly variable (Figure 3) indicating that a large part of this level is related to other factors. In this sense, the thresholds that in our data are critical in the observed gap between effort and governance level are the allocation of budget and law enforcement of different aspects. The negative effect on performance of the adjusted governance level (that excludes the effect of management effort) (Figure 4) means that for a given management effort those MPAs that devote more effort to tasks related to the accomplishment of the above thresholds under-perform respect to MPAs where the effort is allocated to other tasks such as the existence of a operative management body, monitoring and evaluation, information, education and communication of MPA benefits and results to stakeholders, and community participation. Our study does not allow to assess the specific effects of these different tasks and this should be part of future research. Complimentarily, our results do not mean that accomplishing those threshold-related tasks is directly negative for performance. However, because resources are always finite a restricted, their allocation to accomplish these goals means less resources available for other tasks (Figure 5).

The reason why some specific tasks as budget and law enforcement are thresholds in the MEAT method is because they are considered both by the original authors (CTI NCC, 2011) and many others (Thur, 2010; Rees et al., 2013; Edgar et al., 2014; Gill et al., 2017) as critical in the governance and performance of MPAs. Our results demonstrate that in the case of MPAs from the Atlantic Arc other tasks are more relevant for performance. These results should be understood within the framework of our dataset framework that includes MPAs that in all cases have some management effort invested; probably below some effort we could observe that the effect of adjusted governance level could reverse.

Our results demonstrate that, between some levels of effort investment, the critical decision for performance is the allocation of effort to different tasks. In this sense MPAs with modest investments in management could present high performance if they have the right allocation whereas other MPAs with high efforts could under-perform greatly.

Taking into account our results we could propose two strategic recommendations related to the public policies for MPAs in the NE Atlantic Ocean to increase their performance. First, the conceptual framework used to design and manage MPAs is not working according to the implicit assumptions and it is needed to prioritize the available resources for the tasks and processes with a stronger impact on performance. Incorrect allocations could reduce the resources available for other management tasks critical for performance.

Second, our results show that the effective governance, and not design and implementation, is critical for MPA performance in the Atlantic Arc. We have used the available evidences, based in expert knowledge and documentary sources, for a large set of MPAs. In this sense, our results put forward several evidences and hypotheses that should be assessed with more and better information. We should not take conceptual frameworks of public policies by default and we need to confront in a rigorous way the details affecting the functioning of marine reserves. It is not about increasing effort and resources, that will be always restricted, it is about to gather solid evidences about specific factors critical for performance and use these evidences in the management of MPAs.

The main conclusion of this study is that the a good design and an adequate implementation of the MgPs have a limited value in MPA performance. However, a good governance could promote high performance independently of an adequate design of the MPA in the early stages. Good governance implies the continuous process of knowledge generation and organizational learning that improves continuously design and management aligning them to the objectives.

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CONCLUSIONS

Marine protected areas (MPAs) of Europe, and in particular of the NE Atlantic Ocean, emerge as a key tool to counter the loss of marine biodiversity and ecosystem degradation and to help mitigate climate change, as well as being useful for resource conservation and sustainable exploitation. However, for MPAs in the NE Atlantic Ocean to achieve their goals, a number of processes and factors must work jointly and efficiently. This assembly is highly complex, since not only is it constituted by several processes, but many stakeholders with different interests are also involved. This thesis has described processes (design and implementation of the management plan [MgP], MPA governance and performance) to test the hypotheses that MgP design and implementation influence MPA governance and all these processes affect its performance in four countries of NE Atlantic Ocean (France, England, Spain and Portugal). This thesis was developed through the application of a low-cost method, based on using the expert knowledge and perceptions of managers operating MPAs, a universal source of information that could allow overcoming the usual gaps due to the restrictions in coverage of scientific monitoring and assessments. This knowledge was gathered through surveys carried out with managers with the purpose of collecting their expert knowledge on: (i) the description of the areas and MgP contents; (ii) how the existing management plans were being implemented and, specifically, if there were any implemented actions or activities derived from the MgP; (iii) the socio-economic impact of the MPA on its stakeholder community.

The following are the main conclusions of the research developed in this thesis:

1. In the NE Atlantic Ocean, with a large number of intergovernmental protection initiatives (e.g. OSPAR), the European Union is making substantial effort to create common regulatory frameworks and to jointly implement these initiatives across the different countries.
2. In the four studied countries, the number of designations defined, i.e. legal name under which an MPA is established, is 51 in total, without taking into account international designations. This gets worse in the countries where exist national and regional designations with a lack of connection among them, as in France (n=25) and Spain (n=15). All this suggests that a simplification of regulatory framework could be necessary.
3. Analyzing the designations of NE Atlantic Ocean, and taking into account how each country legislates and establishes those designations, two administrative models can be distinguished: (i) the English model, decentralized according to territorial and offshore waters, and (ii) the model followed by the rest of the countries (France, Portugal and Spain), centralized and integrating international designations into national law.
4. A total of 550 inshore and offshore MPAs were established in the study area, and only 244 MPAs had MgP (managed by 125 management plans [MgPs]). However only 151 of those MPAs (corresponding to 66 MgPs) were working effectively, i.e. the MPAs had the staff and resources required to operate the plan.
5. A continuous increase in the number of MgPs for MPAs in the North-east Atlantic Ocean since the 1980s was shown, becoming exponential since the year 2000 (81% of MgPs (n=125) were implemented between 2000 and 2012), probably motivated by the approval of different directives at the European or global levels.
6. Since a single management plan (MgP) could be applied to one or to several MPAs in the NE Atlantic Ocean, three different typologies according to the spatial combinations of MPAs and MgPs were defined: i)

typology 1, where one MPA corresponded to one management plan; ii) typology 2, corresponding to cases in which two or more MPAs that did or did not overlap geographically shared the same management plan, and iii) typology 3, when two or more MPAs totally or partially overlapping in the same geographic area were covered by the management plan of one of these MPAs.

7. 70% of the 151 MPAs shared an MgP (n=121) and consequently it is not possible to define SMART (Specific, Measurable, Audience- or issue-focused, Reasonable and Timely) objectives for every MPA involved.
8. Delays between MPA designation and MgP implementation occurred in 98 cases of the 118 studied, with a mean period of 10.9 years. These delays are a clear shortcoming in MPA performance because during these periods, MPAs worked as “paper parks”.
9. In 39% of the MPAs (n=118) renewal of operative MgPs delay an average of 4 years respect to the planned date, implying that the duration of operating MgPs doubles the official one that is generally of 4-5 years. Renewal is an essential process to ensure the continuous improvement and innovation in management required for the good performance of the MPA.
10. Stakeholders were involved in the revision phase of MgP design in 90% of the study cases (n=118), while their involvement in the remaining design processes occurred in less than 30% of the cases. Actively involving stakeholders in all phases from the development of the MgP until its daily management is relevant for the long-term success of an MgP.
11. Governance level of 126 MPAs of NE Atlantic Ocean, managed by 57 MgPs were analysed. These MPAs were functioning for a mean of 14 years (39 years of maximum and 4 of minimum). Less than 30% of the cases showed governance capacity, 18% showed operational governance, and only 3% showed efficient governance. It can therefore be concluded that, in practice, 70% can be considered “paper reserves” only.
12. MPAs in the four countries show one common strength in governance: legislation is applied in a proper and robust way. Moreover, France and England also have operational management bodies but substantial improvement is required regarding implementation of management plans in order to achieve effective management.
13. The most critical improvements needed in governance are: (i) routine MPA monitoring and assessment, (ii) increased community engagement in MPA management, (iii) stable funding (which only truly exists in England and Portugal), (iv) an established enforcement system and (v) routine dissemination of results.
14. The MgPs of NE Atlantic Ocean MPAs showed differences among countries but were homogeneous within each country, reflecting the usual top-down approach in the establishment of MPAs.
15. Compliance with the qualitative objectives presented in MgPs was higher than compliance with quantitative ones (87% versus 50%, n=57), and the MPAs that most successfully achieved their objectives were those with regular monitoring.
16. The managers of MPAs of NE Atlantic Ocean (n=35) had a general perception of socio-economic benefits after the implementation of the MPA.
17. Effective governance, and not the design and implementation, is critical for the performance of Atlantic Arc MPAs. These results contradict previous studies showing that the design of objectives and MgP, together with the participation of stakeholders in this process are key factors for the performance of MPAs.
18. The effect of governance is complex and depends more of the correct allocation of effort and resources than of the absolute management effort. In this sense MPAs with modest investments in management could present high performance if they have the right allocation whereas other MPAs with high efforts could underperform greatly.

19. A good design and an adequate implementation of the MgPs have a limited value in MPA performance. However, a good governance could promote high performance independently of an adequate design of the MPA in the early stages. Good governance implies the continuous process of knowledge generation and organizational learning that improves continuously design and management aligning them to the objectives.



ANNEXES



RESUMEN TESIS

Los ecosistemas marinos de importancia ecológica y socio-económica del mundo se enfrentan a graves amenazas debidas a una variedad de impactos humanos, que incluyen la sobreexplotación, la degradación del hábitat, la acidificación de los océanos y el cambio climático (Trenberth et al 2007, Halpern et al 2008, Gaines et al 2010). Esto hace que se reconozca mundialmente la necesidad de salvaguardar el ambiente marino y gestionar el uso de los recursos acuáticos de forma sostenible (FAO, 2011; Jones et al., 2011). Existen varias iniciativas de protección intergubernamentales a nivel mundial como Programa sobre el Hombre y la Biosfera¹, Convención sobre los Humedales de Importancia Internacional (Ramsar)² o la Cumbre de Johannesburgo del 2002³, o a nivel regional como la Convención para la Protección del medio ambiente marino del Atlántico nordeste (OSPAR⁴). La preocupación suscitada en la Unión Europea (UE) hace que en mayo de 1992 los gobiernos comunitarios desarrollen un marco legislativo común para proteger y conservar los hábitats naturales y seminaturales en vías de desaparición, y los hábitats de especies de flora y fauna más amenazada de Europa. De este modo nace la Directiva Hábitats (Directiva 92/43/CEE), que complementa a la Directiva de Aves (Directiva 79/409/CEE) adoptada en 1979 y actualizada por la Directiva 2009/147/CE. La plena aplicación de ambas directivas (Hábitats y Aves) corresponde al primer objetivo de la Estrategia Europea sobre Biodiversidad hasta el 2020, siendo la primera actuación completar la implantación de la red Natura 2000⁵ y garantizar su buena gestión. Otra iniciativa notable de la UE es la Directiva Marco sobre la estrategia marina (Directiva 2008/56/CE⁶) cuyo principal objetivo es mantener o lograr un buen estado ambiental del medio marino para el año 2020. Esta Directiva presenta sinergias con las Directivas Hábitats y Aves en el aspecto de la conservación de la biodiversidad del medio ambiente marino, donde los Estados Miembros tienen derechos jurisdiccionales. Esto incluye, en cada Directiva la obligación de establecer Áreas Marinas Protegidas (AMPs) como parte del conjunto global de medidas de protección.

Por otro lado, desde principio de 1990, el uso de las MPAs ha ido ganando importancia como forma eficiente de gestionar las pesquerías, proteger los ecosistemas marinos y de revertir la degradación de los hábitats acuáticos (FAO, 2011, Jones et al, 2011). Las AMPs se describen comúnmente como cualquier área geográfica marina o costera que junto con las aguas que la cubren, la flora, la fauna y las características históricas y culturales, ha sido designada por la ley o por otros medios efectivos, de forma que la biodiversidad costera y/o marina goza de un nivel de protección más elevado que las zonas colindantes (SCBD, 2004, p.7).

A pesar del aumento de las Áreas Protegidas en las últimas décadas, existe un creciente acuerdo científico y un reconocimiento político de que las MPAs existentes no son suficientes para mitigar los desafíos crecientes que

¹ Programa sobre el Hombre y la Biosfera, UNESCO. <http://www.unesco.org/new/es/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme> [Accessed 12/02/2019]

² Convención de Ramsar, <https://www.ramsar.org/> [Accessed 12/02/2019]

³ World Summit on Sustainable Development (WSSD), Johannesburg, South África, September 2002.

⁴ OSPAR, <http://www.ospar.org> [Accessed 12/02/2019]

⁵ Red Natura 2000, http://ec.europa.eu/environment/nature/natura2000/index_en.htm [Accessed 12/02/2019]

⁶ Directiva Marco sobre la estrategia marina https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/proteccion-internacional-mar/union-europea-proteccion-medio-marino-y-costero/dm_estrategia_marina.aspx [Accessed 12/02/2019]

supone la conservación de la biodiversidad (Gaines et al, 2010). Las AMPs designadas a finales del 2010 representaban menos del 2% del área marina total incluyendo las zona económica exclusiva de la mayoría de los países (Lausche, 2011). Además, las áreas protegidas se enfrentan a crecientes amenazas debidas a causas directas e indirectas. Las amenazas directas surgen dentro de los límites de las áreas protegidas, por ejemplo, de una mala gestión, la introducción de especies exóticas invasoras, la contaminación en el lugar o la extracción de recursos minerales. Mientras que las amenazas indirectas provienen del exterior del AMP y son causados por factores tales como la contaminación fuera del área, la expansión urbana, la degradación de los ecosistemas fuera del área o el cambio climático.

En el pasado, se asumía que las AMPs podrían caber dentro de un marco legal genérico para las áreas protegidas que se centraba y regía principalmente por las necesidades de las áreas protegidas terrestres (Lausche, 2011). Pero los avances en los conocimientos científicos de las MPAs, realizados en las últimas tres décadas, sugieren la necesidad de un tratamiento legal especial debido a sus características biofísicas únicas, necesidades de gestión y ejecución y, en muchos casos, a las múltiples leyes y autoridades involucradas en las mismas (Pomeroy et al, 2007). Hoy en día también existe un amplio consenso en que las áreas protegidas deben ser planeadas y manejadas con un enfoque ecosistémico. Este enfoque requiere que otras herramientas de la política pública, como las relativas a la ordenación del territorio, la pesca, el uso de los recursos marinos, el turismo y el desarrollo económico sean compatibles con la legislación de las áreas marinas protegidas (Thomas y Middleton, 2003, FAO, 2011, Jones et al, 2011). Se deben tener en cuenta diversas consideraciones dentro del enfoque ecosistémico, por lo que las MPAs van a tener múltiples objetivos. Por lo tanto, las tareas de diseñar los planes de gestión (PdG) de las AMPs y de gestionar las mismas pueden ser complejas, sin embargo, es esencial para la sostenibilidad de los recursos naturales y culturales (Pomeroy et al, 2007, Abdulla et al., 2008) y por tanto para la viabilidad de las AMPs.

Por todo lo expuesto anteriormente, conocer cómo está siendo el diseño de los PdGs, la gobernanza y gestión de las AMPs ya en funcionamiento en Europa y corregir sus deficiencias es imprescindible para poder avanzar en la conservación de la biodiversidad y en la creación de redes bien gestionadas de MPAs como Natura 2000 o la red de áreas marinas protegidas de OSPAR. Esta tesis se desarrolló a través de la aplicación de un método de bajo coste, basado en el uso del conocimiento experto y las percepciones de los gerentes que operan AMPs, una fuente universal de información que podría permitir superar las brechas habituales debido a las restricciones en la cobertura de monitoreo y evaluaciones científicas. Este conocimiento se recopiló a través de encuestas realizadas a los gerentes de las AMPs con el propósito de recopilar su conocimiento experto sobre: (i) la descripción de las áreas y los contenidos de MgP; (ii) cómo se implementaron los planes de manejo existentes y, específicamente, si hubo acciones o actividades implementadas derivadas del MgP; (iii) el impacto socioeconómico del AMP en su comunidad de partes interesadas.

Partiendo de la premisa de que la buena gestión de un área protegida es considerada un proceso cíclico en el que se identifican seis elementos de gestión: contexto, planificación, insumos, procesos, productos y resultados. Estos 6 elementos se engloban en tres grandes “temas” de gestión: diseño (contexto y planificación), pertinencia y adecuación (insumos y procesos) y logros (productos y resultados; Hockings, et al. 2006). El objetivo de esta tesis es analizar de forma empírica cada uno de los tres grandes “temas” para las AMPs del Océano Atlántico NE establecidas antes de enero del 2013. El análisis del diseño se centra en el diseño y la implementación del plan de gestión, ya que el PdG es donde se contextualiza y planifica como se va a gestionar el AMP. El análisis de pertinencia y adecuación se asocia con la gobernanza del AMP, es decir, cuán adecuado son el sistema y el proceso de gestión que se están realizando en la AMP. A su vez el análisis de los logros se relaciona con el desempeño de la gestión en el AMP, es decir, si se alcanzan los objetivos para los que fue creada la AMP y que se han establecido en el PdG. Además se estudia la influencia de unos procesos en otros partiendo de la hipótesis de que un buen diseño ayuda a una buena gobernanza y todo ello al desempeño de la gestión y a la consecución de los objetivos (Figure1).

Todas las medidas de regulación que se van a aplicar a una determinada MPA deben estar recogidas en un plan de gestión adecuado a dicha MPA (Pomeroy et al 2007). Un plan de gestión se define como “un documento de planificación que establece el enfoque de la gestión y los objetivos, así como un marco para la toma de decisiones, para aplicar en la zona protegida por un período determinado. Se utiliza para la consecución de los objetivos oficiales de protección / conservación de acuerdo con la designación del AMP. Los planes pueden ser más o menos prescriptivos, dependiendo de la finalidad para la que se van a utilizar y los requisitos legales que deben cumplir. El proceso de planificación, los objetivos de gestión para el plan y las normas que se aplican,

por lo general se establecerán en la legislación o en caso contrario por los coordinadores de las áreas protegidas (Thomas y Middleton, 2003, la UICN utiliza esta definición). A su vez los planes de gestión deberían incluir alguna forma de evaluar si las acciones realizadas para gestionar el AMP son realmente efectivas para alcanzar los objetivos o metas propuestos en dicho plan y poder modificarlo, debe poder realizarse una gestión adaptativa (Thomas and Middleton, 2003; OSPAR, 2003; Moore and Hockings, 2013).

El concepto de gobernanza se utiliza en muchos contextos, y desde comienzos del siglo 21 cada vez ha ido teniendo más relevancia en las áreas protegidas. Graham et al. (2003) define la gobernanza de las áreas protegidas para el Fifth World Parks Congress como *“las interacciones entre estructuras, procesos y tradiciones que determinan cómo se ejercen el poder y las responsabilidades, cómo se toman las decisiones y cómo los ciudadanos u otras partes interesadas ejercen su opinión”*. También sugirieron cinco principios clave de buena gobernanza para las Áreas Protegidas, basados en la lista de características de buena gobernanza del Programa de las Naciones Unidas para el Desarrollo. Estos principios también se asumen como “Principios de UICN de buena gobernanza para áreas protegidas” y son: Legitimidad y Voz, Dirección, Desempeño, Responsabilidad y Equidad y Derechos (Borrini-Feyerabend et al. 2013). Jones (2014) simplifica este concepto y proporciona la siguiente definición: *“Gobernanza de AMP” son los diversos procesos mediante los cuales se toman e implementan las decisiones, subyacentes a lo que técnicamente se describe como “gestión de AMP”*. Por tanto la gobernanza y la gestión están estrechamente vinculadas.

A su vez el desempeño de la gestión en el MPA está directamente relacionado con la eficiencia de gestión y por lo tanto con las actividades que lleven a la consecución de los objetivos para los que fue creada la MPA.

A principios de 2013, en el Océano Atlántico nororiental estaban establecidas 550 Áreas Marinas Protegidas (AMP) con gran diversidad de objetivos. En los cuatro países a los que pertenecen estas AMPs, Inglaterra, Francia, Portugal y España, se distinguen dos modelos organizativos para establecer y legislar dichas AMPs: (i) el modelo inglés, descentralizado en función de sus aguas territoriales o marinas, y (ii) el modelo seguido por el resto de los países (Francia, Portugal y España), centralizado y que integra las designaciones internacionales en su legislación nacional. Por otra parte, solo 244 de estas AMP tienen un PdG, y solo 151 se gestionan realmente (lo que corresponde a 66 PdG). Puesto que un solo PdG se puede aplicar a una o varias AMPs en el NE Atlántico, se definieron tres tipologías diferentes según las combinaciones espaciales de AMPs y PdG: i) tipología 1, donde un AMP correspondió a un plan de gestión; ii) tipología 2, corresponde a los casos en que dos o más AMPs que se superponen o no geográficamente comparten el mismo plan de gestión, y iii) tipología 3, cuando dos o más AMPs se superponen total o parcialmente en la misma área geográfica y están cubiertas por el plan de gestión de una de estas AMPs.

Las características y la duración de los procesos que se producen desde el diseño y la designación de un AMP hasta la implementación efectiva y la renovación de su PdG se analizaron en 226 AMPs, gestionadas por 118 PdG; cada plan de gestión puede gestionar entre una y 11 AMPs, con una media de 1.9 AMPs por PdG, de acuerdo a las 3 tipologías definidas en el párrafo anterior y basadas en las combinaciones espaciales de AMPs y PdGs. De estos PdG, el 81% se implementó a partir del año 2000, motivado por la aprobación de diferentes directivas a nivel europeo y mundial.

Se identificaron cuatro fallos mayores en el diseño e implementación de los PdG: (i) Las brechas entre la designación de las AMPs y la implementación de los PdG, con un período medio de 10,9 años, son una clara deficiencia en el rendimiento de las AMPs porque durante este período las AMPs funcionan como “parques de papel”; (ii) el setenta por ciento de las AMPs analizadas compartieron un PdG, sin permitir la definición de objetivos SMART (S-específicos, M-medibles, A-centrados en la audiencia o problema, R-razonables y T-oportunos) para cada AMP involucrada; (iii) las partes interesadas participaron en la fase de revisión del diseño de PdG en el 90% de los casos de estudio, mientras que su participación en los procesos de diseño restantes ocurrió en menos del 30% de los casos. La participación activa de las partes interesadas en todas las fases, desde el desarrollo del PdG hasta su gestión diaria, es un punto importante para el éxito a largo plazo de un PdG; (iv) la renovación de los PdG operativos se retrasó una media de 4 años en el 39% de los PdG analizados, lo que amplió la duración de los PdG al doble de la duración prevista de 4 a 5 años. La renovación es un proceso esencial para garantizar la mejora continua y la innovación en la gestión requerida para el buen desempeño del AMP.

La eficacia de un área marina protegida (MPA) depende de contar con un plan de gestión adaptado a la misma, un buen desempeño de la gestión y que la gobernanza sea efectiva. En el capítulo 4 se realizó un diagnóstico low cost de la calidad de la gobernanza en 126 AMPs gestionadas por 57 planes de gestión pertenecientes a los cuatro países del NE Atlantic Ocean. Para ello se hizo una adaptación del método MPA Management Effectiveness Assessment Tool (MPA MEAT) que permite evaluar la calidad de la gobernanza, el esfuerzo invertido en la gestión y sus fortalezas y debilidades. Los resultados obtenidos muestran que, a pesar de que estas MPAs llevan establecidas una media de 14 años (39 años de máximo y 4 de mínimo), menos de un 30% de los casos mostraron capacidad de gobernanza, un 18% una gobernanza operativa y solo un 3% una gobernanza eficiente. Por tanto, se puede concluir que en la práctica el 70% de casos son reservas de papel. Los cuatro países (Francia, Inglaterra, España y Portugal) tienen en común la fortaleza de estar bien legislados y además Francia e Inglaterra también cuentan con management bodies operativos, pero se necesitan considerables mejoras en la implementación de los planes de gestión si se quiere conseguir una gobernanza efectiva. Entre las necesidades de mejora las más críticas son: monitorización y evaluación del AMP realizada de forma rutinaria, aumentar la participación de la comunidad en la gestión del AMP, contar con una financiación estable, un sistema de enforcement consolidado y realizar una comunicación y divulgación de resultados de forma rutinaria.

En el capítulo 5 realizó un análisis del desempeño que se estaba realizando en las 244 AMPs que tienen un plan de gestión. Entre estas, solo 151 están siendo gestionadas, es decir, tienen el personal y los recursos necesarios para operar el plan. Una característica común de estas AMPs es la falta de indicadores estandarizados sobre su desempeño. Para abordar este problema, se desarrolló un enfoque alternativo basado en la evaluación del desempeño de la gestión utilizando el conocimiento experto y las percepciones de los gestores que operan en las AMPs, una fuente universal de información que podría permitir superar las brechas habituales debido a las restricciones en la cobertura de las evaluaciones y monitorizaciones científicas. Los PdG mostraron diferencias entre los países, pero eran homogéneos dentro de cada país, lo que refleja el enfoque de arriba-abajo habitual en el establecimiento de AMPs. El cumplimiento con los objetivos cualitativos presentes en los PdG fue mayor que el cumplimiento con los cuantitativos (87% versus 50%), y las AMPs que lograron sus objetivos con mayor éxito fueron aquellas con monitoreo regular. Este análisis también muestra que más allá de estos objetivos, el establecimiento de una AMP y las actividades desarrolladas como consecuencia de su creación tienen un impacto socioeconómico positivo en la comunidad local.

En el capítulo 6 se ha testado la hipótesis de que el diseño y la implementación de los planes de gestión (PdG) y los procesos de gobernanza de las Áreas Marinas Protegidas (AMP) afectan a su desempeño utilizando información de 125 AMPs del Océano Atlántico NE, gestionadas por 56 MgP. Para este propósito, se han definido ocho indicadores que caracterizan los factores más relevantes de los procesos (diseño e implementación de PdG, gobernanza de AMP y desempeño de AMP). Nuestros resultados empíricos, al relacionar el desempeño de las AMPs con los otros indicadores utilizando un modelo lineal multivariable (GLM), demuestran que la gobernanza efectiva, y no el diseño y la implementación, es fundamental para el desempeño de las AMPs del Océano Atlántico NE. Estos resultados contradicen estudios previos que muestran que el diseño de los objetivos y el PdG, junto con la participación de las partes interesadas en este proceso, son factores clave para el desempeño de las AMPs. Nuestros resultados muestran que el efecto de la gobernanza es complejo y depende más de la correcta asignación de esfuerzos y recursos que del esfuerzo de gestión absoluto. Para un esfuerzo de gestión dado, un enfoque excesivo en el presupuesto y la aplicación de la ley es negativo para el desempeño. En el otro lado, podríamos suponer que la inversión en otras tareas (como la existencia de un órgano operativo de gestión, monitoreo y evaluación, información, educación y comunicación de los beneficios y resultados de las AMPs a los usuarios, y la participación comunitaria) produce un alto desempeño. En este sentido, las AMPs con modestas inversiones en gestión podrían presentar un alto desempeño si tienen la asignación correcta, mientras que otras AMPs con grandes esfuerzos podrían tener un desempeño inferior. Nuestros resultados sugieren la necesidad de una revisión de las bases de las políticas públicas para las AMPs en Europa. Un buen diseño y una implementación adecuada de los PdG tienen un valor limitado en el desempeño de AMP. Sin embargo, una buena gobernanza podría promover un alto desempeño independientemente de un diseño adecuado de la AMP en las etapas iniciales. La buena gobernanza implica un proceso continuo de generación de conocimiento y aprendizaje organizativo que mejore continuamente el diseño y la gestión, alineándose con los objetivos.

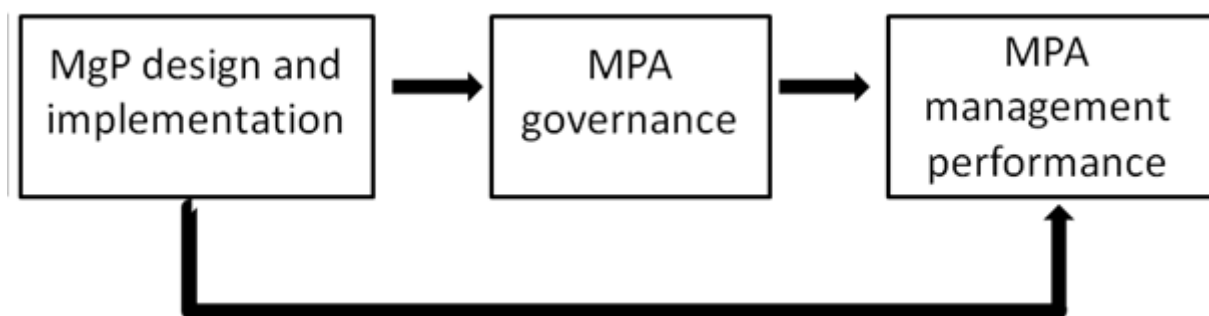


Figure 1. Hipótesis de partida de la tesis.

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ANNEX 3.I

3.I. Existing categories in the MPAs having a management plan analysed, divided by international and national level

	CATEGORY	EN	FR	PT	SP	TOTAL
INTERNATIONAL	BIOSPHERE RESERVE			1	6	7
	MARINE PROTECTED AREA OSPAR		4		2	6
	RAMSAR SITE	19			7	26
	SITE OF COMMUNITY IMPORTANCE (SCI)		27	5	9	41
	SPECIAL AREA OF CONSERVATION (SAC)	16	9		29	54
	SPECIAL PROTECTION AREA (SPA)	25	18	7	13	63
NATIONAL	AREA OF OUTSTANDING NATURAL BEAUTY	1				1
	BIOTOPE PROTECTION BYLAW HAVING A MARITIME PART		3			3
	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL		2			2
	NATIONAL NATURE RESERVE		11			11
	NATURE MARINE PARK		1			1
	REGIONAL NATURE RESERVE		1			1
	NATURAL PARK			3	8	11
	NATURE RESERVE			3		3
	FISHING RESERVE				1	1
	MARINE PROTECTED AREA				1	1
	MARINE RESERVE				3	3
	MARINE RESERVE OF FISHING INTEREST				2	2
	NATIONAL PARK				2	2
	NATURAL SITE				1	1
	PARTIAL NATURE RESERVE				2	2
	PROTECTED BIOTOPE				2	2
	TOTAL		61	68	19	88



ANNEX 3.II

3.II. Part A. Questionnaire: “Structure and contents of the management plans”

QUESTIONNAIRE	HOW TO ANSWER?
Data input date	Automatic
COUNTRY	Tick in a list FRA; ESP; PRT; GBR Give the country for which you answer the questionnaire
DATA PROVIDER	Give your name and first name
ORGANIZATION	Give the complete name of your organization in original language
GENERAL FEATURES OF THE MANAGEMENT PLAN	
MPA official name	Please give the official name of the MPA in original language Example : NO : Parc naturel marin d'Iroise YES : Iroise <i>Parc naturel marin is the designation not the official name</i>
Official name in English	Please give the official name of the MPA translated in English
The document analyzed here is	<input type="checkbox"/> the finalized management plan <input type="checkbox"/> the management plan under development <input type="checkbox"/> another management practice document (Please select one item)
This document (management plan) is	<input type="checkbox"/> Confidential <input type="checkbox"/> public (Please select one item)
What is the marine part of the MPA?	<input type="checkbox"/> 100% <input type="checkbox"/> > 50% <input type="checkbox"/> <50% Please select one item
The management plan is ?	<input type="checkbox"/> Implemented <input type="checkbox"/> Not implemented because of no obligation <input type="checkbox"/> Not implemented because of lack of means <input type="checkbox"/> Other, please specify
Beginning of implementation (date)	jj/mm/aaaa
Duration of the management plan	in years
Duration of the management plan preparation	in months
Number of management plans implemented since the official designation of the MPA	<input type="checkbox"/> First <input type="checkbox"/> second <input type="checkbox"/> third ... Give the number of the MP implemented. If it's the first one, etc
Date of the first management plan implemented	jj/mm/aaaa If the management plan is not the first one please give the date when the implementation of the first management plan or equivalent began

Duration of the first management plan implemented	in months
What is the frequency of renewal or revision of the management plan for this MPA ?	in months
Does the management plan follows the OSPAR guide lines for MPA management (2003-18)?	<input type="checkbox"/> not at all <input type="checkbox"/> a little bit (average/low degree) <input type="checkbox"/> by its majority (high degree) Please select one item
MPA objectives	<input type="checkbox"/> To maintain, conserve, restore biodiversity, natural heritage of habitats, species, landscapes, under protection status <input type="checkbox"/> To maintain, conserve, restore biodiversity, natural heritage of habitats, species, landscapes, out of protection status <input type="checkbox"/> To maintain key ecological functions (spawning areas, nursery, feeding zone, rest areas, productivity areas, etc.) <input type="checkbox"/> To protect, conserve, restore Cultural heritage <input type="checkbox"/> Sustainable management /development of socio-economic activities <input type="checkbox"/> Management of exploited natural resources <input type="checkbox"/> To improve the Governance of the MPA territory <input type="checkbox"/> To improve Water quality <input type="checkbox"/> To improve environment education and public awareness raising <input type="checkbox"/> For scientific research <input type="checkbox"/> To create socio economic added value <input type="checkbox"/> other, specify
If you select : <input type="checkbox"/> Sustainable management: development of socio economic activities, please specify which ones	
If you select : <input type="checkbox"/> Management of exploited natural resources, please specify which ones in detail	
MANAGEMENT PLAN STRUCTURE AND CONTENTS	
Site description and characteristics	
Does the management plan describe the location of the MPA ?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
Is there an atlas (map set) of the MPA?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
Is there a GIS?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
with physical shapes	<input type="checkbox"/> Yes / <input type="checkbox"/> No
biological shapes	<input type="checkbox"/> Yes / <input type="checkbox"/> No
cultural building shapes	<input type="checkbox"/> Yes / <input type="checkbox"/> No
recreational uses shapes	<input type="checkbox"/> Yes / <input type="checkbox"/> No
commercial uses shapes	<input type="checkbox"/> Yes / <input type="checkbox"/> No
traditional uses shapes	<input type="checkbox"/> Yes / <input type="checkbox"/> No
Is the GIS used for management?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
Does the management plan describe the conservation value of the MPA ?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
Does the management plan describe the legal framework?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
Does the management plan provide a threat analysis?	<input type="checkbox"/> Yes / <input type="checkbox"/> No
If the answer is yes, please select on which topics from the following list If the answer to the previous question is NO, please continue in question n°39	Sources of external or internal pollution and/or eutrophication Biological threats, such as the invasion / introduction of alien species Exploitation of living and non-living natural resources Maintenance or capital dredging and/or dumping activities Coastal development and land usage plans and projects Climate change Marine cultures Recreational uses (water sport, boating, etc.) Others
Does the management plan provide a conflict analysis?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Does the management plan provide an analysis about current gaps of knowledge ?	_Yes / _No
Management	
Does the management plan describe the previous situation and previous results ?	_Yes / _No
Does the management plan describe quantitative objectives?	_Yes / _No
Does the management plan describe qualitative objectives?	_Yes / _No
Does it describe an expected level of results ?	_Yes / _No
If yes, are the objectives detailed in an action plan ?	_Yes / _No
If the objectives are detailed in an action plan, is there a linked up agenda?	_Yes / _No
If the objectives are detailed in an action plan, is there a budget for each action?	_Yes / _No
Does the management plan describe the organization of governance?	_Yes / _No
Does the management plan describe all the agreements between administrations for the management of the site ?	_Yes / _No
Does the management plan describe the site's boundaries?	_Yes / _No
Does the management plan describe the zoning plan?	_Yes / _No
Does the management plan describe specific regulations for the MPA ?	_Yes / _No
Does the management plan describe a study action plan?	_Yes / _No
Does the management plan describe the management tools for biodiversity conservation?	_Yes / _No
Does the management plan describe the management tools for biodiversity restoration?	_Yes / _No
Does the management plan describe the management tools for cultural heritage support?	_Yes / _No
Does the management plan describe the management tools for natural resource exploitation?	_Yes / _No
Does the management plan describe the management tools for water quality monitoring and improvement?	_Yes / _No
Does the management plan describe the management tools for commercial fisheries?	_Yes / _No
Does the management plan describe the management tools for leisure fishing?	_Yes / _No
Does the management plan describe the management tools for sailing/anchoring?	_Yes / _No
Does the management plan describe the management tools for scuba diving?	_Yes / _No
Does the management plan describe the management tools for other economic activities?	_Yes, please specify _No
Does the management plan describe the action plan for governance?	_Yes / _No
Does the management plan describe a communication plan for stakeholders in the MPA territory?	_Yes / _No
Does the management plan describe the management tools for environmental education and awareness raising?	_Yes / _No
Is the management plan focused on a regional (broader) scale, so that the MPA may be characterised regarding the ecological Atlantic Arc MPAs for the MPA stakes ?	_Yes / _No
Existence of monitoring between sites / harmonization/ team work among different sites	
Does the management plan describe an action plan for cooperation with other MPAs at the Atlantic arc scale ?	yes no

If yes specify what for :	Study Management tools for biodiversity conservation and restoration Management tools for cultural heritage Management tools for natural resource exploitation Management tools for water quality Management tools for commercial fisheries Management tools for leisure fishing Management tools for sailing Management tools for scuba diving Management tools for other economic activities, please specify For governance For environment education an awareness raising Other, please specify Please select one or several items (management tool : action plan + evaluation)
Administration	
Does the management plan provide MPA manager contact (full address)?	_Yes /_No
Does the management plan provide a list of the current staff?	_Yes /_No
Does the management plan provide future staff needs?	_Yes /_No
Does the management plan provide the current and future training needs for the staff ?	_Yes /_No
Does the management plan provide the cost of the current and future training needs for the staff	_Yes /_No
Does the management plan provide supplies and installation, both current and needed?	_Yes /_No
Does the management plan provide the global budget, with detailed lines for human resources, operational costs, equipment?	_Yes /_No
Does the management plan provide the budget per activities?	_Yes /_No
Does the management plan provide the MPA control/police budget?	_Yes /_No
Governance	
Does the management plan describe the organisation of governance?	_Yes /_No
Are all the representatives equally important (in terms of vote, opinion)?	Yes No, please specify how is distributed
Control and enforcement	
Does the management plan provide a control action plan ?	_Yes /_No
Does the management plan provide enforcement tools (warning, fine, etc.)?	_Yes /_No
Does the management plan provide agreements with other institutions for control missions in the MPA?	_Yes /_No
How is the management plan developed ?	
Is there a specific process for management plan development?	_Yes /_No
If yes please describe it :	_Yes /_No
Is there a specific process for management plan validation?	_Yes /_No
If yes please describe it :	
Is there a specific process for stakeholder involvement?	_Yes /_No
Who is in charge of management plan development?	_The management organisation _A service supplier _Other, specify Please select one or several items
The management plan is prepared only by the structure in charge?	_Yes /_No

If not, who else has taken part in its development?	_Public administrations _Local representatives _Scientists _Professional fishermen and shellfishermen _Other users' organizations _NGOs _Management and advisory committee _Other stakeholders, please specify	Please select one or several items
By whom is the management plan approved?	_Scientific committee _Management committee _the governing body (board) _the relevant administration	Select one or several items
What is the management plan development cost (€) ?	€	Please give the global cost in euros of the management plan development
MONITORING AND ASSESSMENT OF THE MANAGEMENT PLAN ACCORDING TO THE MPA OBJECTIVES		
Does the management plan provide a regular monitoring programme that support your MPA objectives?	_Yes / _No	
Does the management plan provide indicators to monitor each of the MPA objectives?	_Yes / _No	
If yes, please specify which ones		
Does the management plan provide specific indicators to monitor the effectiveness of the MPA at the Atlantic arc scale?	_Yes / _No	
Perception assessment by the MPA manager		
Does your management plan allow you to well manage your MPA?	_Yes / _No	
Are there any lacks/gaps in the management plan?	_Yes / _No	
If yes, please specify which ones		
Further information		
Please feel free to add any document, remark, experience you think is interesting for this study		

PART B. KEYS OF READING

General feature of the management plan:

mpa_official_name: The official name of the MPA in original language

designation: The category or designation of your MPA

english_designation: The designation of the MPA translated in English

document_analysed: The document analysed in Questionnaire 3.1 can be “the finalized management plan”, “the under development management plan” or “another management practice document”.

document_management_plan: This document (management plan) can be “Confidential” or “Public”. It is a basic data. If the information is accessible to everyone is public but it is confidential when only the managers know it.

mpa_marine_part: The marine part of the MPA is: 100%, >50% or <50%. If you include the current data of the site and this is different from what appears in de MP, explain it in the comment cell, the last one.

management_plan: The management plan is: “Implemented”, “Not implemented because of no obligation”, “Not implemented because of lack of means” or “Other, please specify”

other_management_plan_implementation: The answer can be “implemented” or “not implemented”, if there is other answer you have to specify it in this moment. For example, you can say “other” in the previous column because the management plan is in process of implementation.

beginning_implementation: It is the beginning date of the management plan implementation (dd/mm/yyyy). If the date is unknown the answer is NA (Not Applicable).

mp_duration: It is the duration of the management plan in years. It is possible than it doesn't exist a duration so the management plan duration is “indefinite”.

mp_preparation_duration: It is the duration of the management plan preparation in months. The management plan can tell how long it took its preparation.

nb_management_plan: Number of management plans implemented since the official designation of the MPA. It can be: 1 (first), 2 (second), 3 (third)... The management plan analysed can be the first one or it may be another one before it.

date_first_mp: It is the date of the first management plan implemented (dd/mm/yyyy). If the management plan analysed is not the first one, it is important to know when the first management plan was implemented.

first_implemented_mp_duration: Duration of the first management plan implemented in years. If the management plan analysed is not the first one, it is important to know how long the first management plan was enforced.

renewed_or_revision_mp_frequency: Frequency of renewal or revision of the management plan for the MPA (every ... years).

It is possible than the frequency of renewal is not defined in the management plan and the answer would be “NA” or than in the management plan there is not a frequency (the management plan will be revised when it was necessary), then the answer would be “when necessary”.

ospar_guide_lines: The management plan follows the OSPAR guidelines for MPA management (2003-18) “not at all”, “a little bit” or “by its majority”.

mpa_objectives (DESIGNATION) / mpa_objectives (MP): There are different objectives because an AMP has objectives by its designation or by the management plan. The objectives are:

To maintain conserve restore biodiversity, natural heritage of habitats, species, landscapes, under protection status

To maintain conserve restore biodiversity, natural heritage of habitats, species, landscapes, out of protection status

To maintain key ecological functions (spawning areas, nursery, feeding zone, rest areas, productivity areas, etc.)

To protect, conserve, restore Cultural heritage

Sustainable management /development of socio-economic activities

Management of exploited naturals resources

To improve the Governance of the MPA territory

To improve Water quality

To improve environment education and public awareness raising

For scientific research

To create socio economic added value

Other, specify

sustainable_management_specify: If you select “Sustainable management: development of socio economic activities objective, it is important to specify which ones

management_of_exploited_natural_resources_specify: If you select “Management of exploited natural’s resources objective, it is important to specify which ones with detail.

other_specify: It is possible to write other objectives freely.

Management plan structure

Site’s description and its characteristics:

localisation_description_in_mp: It is important to know if the management plan describes the localization of the MPA (Yes/ No). In the management plan can have general information about the MPA localization.

atlas_of_mpa: There is an atlas (map set) of the MPA (Yes/ No)

gis: There is a GIS in the MP (Yes/ No). It is possible than the management plan doesn’t specify if there is a GIS, so the answer should be “unknown”.

physical_shape: There is physical shape in the GIS (Yes/ No).

biological_shapes: There are biological shapes in the GIS (Yes/ No).

cultural_building_shapes: There are cultural building shapes in the GIS (Yes/ No).

recreational_uses_shapes: There are recreational uses shapes in the GIS (Yes/ No).

commercial_uses_shapes: There are commercial uses shapes in the GIS (Yes/ No).

traditional_uses_shapes: There are traditional uses shapes in the GIS (Yes/ No).

gis_used_for_management: The GIS can be used for the management (Yes/ No).

mpa_conservation_value: The management plan describes the conservation value of the MPA (Yes/ No).

mpa_describe_legal_framework: The management plan describes the legal framework (Yes/ No).

threat_analysis: The management plan gives a threat analysis (Yes/ No).

if_threat_analysis: If the management plan gives a threat analysis, it is important to select on which topics from the list, where the different threats identified during the threat analysis process are specified. It is possible to select one or several items. It is important to record than in the beginning there was a different list. For more information refer to Table 1 in pg. IV-24.

other_threat_analysis: There are other threats of difficult classification and it is possible to write them here.

conflict_analysis: The management plan gives a conflict analysis (Yes/ No).

analysis_about_current_gaps_of_knowledge: The management plan gives an analysis about current gaps of knowledge (Yes/ No).

Management

previous_situation_and_previous_results: The management plan describes the previous situation and previous results (Yes/ No)

quantitative_objectives: The management plan describes quantitative objectives (Yes/ No).

qualitative_objectives: The management plan describes qualitative objectives (Yes/ No)

expected_level_of_results: The management plan describes an expected level of results (Yes/ No).

are_the_objectives_details_in_an_action_plan: If the management plan describes an expected level of results, it is important to know if the objectives are detailed in an action plan (Yes/ No).

objectives_detailed_in_an_action_plan_linked_up_agenda: If the objectives are detailed in an action plan, it is important to know if there is a linked up agenda (Yes/ No).

objectives_detailed_in_an_action_plan_budget_for_each_action: If the objectives are detailed in an action plan, it is important to know if there is a budget for each action (Yes/ No).

all_agreements_between_administrations_for_management_of_site: The management plan describes all the agreements between administrations involved in the management of the site (Yes/ No).

boundaries: The management plan describes the boundaries (Yes/ No).

zoning_plan: The management plan describes the zoning plan (Yes/ No).

regulations_specific_to_mpa: The management plan describes the specific regulations of the MPA (Yes/ No).

study_action_plan: The management plan describes the study action plan (Yes/ No).

management_tools_for_biodiversity_conservation: The management plan describes the management tools for biodiversity conservation (Yes/ No).

management_tools_for_biodiversity_restoration: The management plan describes the management tools for biodiversity restoration (Yes/ No).

management_tools_for_cultural_heritage_support: The management plan describes the management tools for cultural heritage support (Yes/ No).

management_tools_for_natural_resources_exploitations: The management plan describes the management tools for natural resources exploitations (Yes/ No).

management_tools_for_water_quality_monitoring_and_improvement: The management plan describes the management tools for water quality monitoring and improvement (Yes/ No).

management_tools_for_commercial_fisheries: The management plan describes the management tools for commercial fisheries (Yes/ No).

management_tools_for_leisure_fishing: The management plan describes the management tools for leisure fishing (Yes/ No).

management_tools_for_sailinganchoring: The management plan describes the management tools for sailing and choring (Yes/ No).

management_tools_for_scuba_diving: The management plan describes the management tools for scuba diving (Yes/ No).

management_tools_for_other_economic_activities: The management plan describes the management tools for other economic activities (Yes/ No).

specify_economic_activities: If there are other economic activities, it is important to specify them.

action_plan_for_governance: The management plan describes the action plan for governance (Yes/ No).

communication_plan_for_stakeholders_of_mpa_territory: The management plan describes a communication plan for stakeholders of the MPA territory (Yes/ No).

management_tools_for_environment_education_an_awareness_raising: The management plan describes the management tools for environmental education and awareness rising (Yes/ No).

management_plan_focused_to_a_regional_scale: The management plan is focused to a regional scale (broader), so as the MPA may be characterized regarding the Atlantic Arc MPAs for the MPA stakes (Yes/ No).

existence_of_monitoring_between_sites_harmonisation_team_work_between_different_sites: Existence of monitoring between sites / harmonization/ team work between different sites (Yes/ No).

action_plan_for_cooperation_with_other_mpa_at_atlantic_arc_scale: the management plan describes an action plan for cooperation with other MPA at the Atlantic arc scale (Yes/ No).

if_describe_an_action_plan_for_cooperation: If the management plan describes an action plan, it is important to specify for what:

Study

Management tools for biodiversity conservation and restoration

Management tools for cultural heritage

Management tools for natural resources exploitation

Management tools for water quality

Management tools for commercial fisheries

Management tools for leisure fishing

Management tools for sailing

Management tools for scuba diving

Management tools for other economic activities, please specify

For governance

For environment education an awareness raising

Other

other_plan_cooperation: If other cooperation plan exists, it is important to specify it.

Administration

mpa_manager_contact: The management plan provides MPA manager contact (full address) (Yes/ No).

current_staff: The management plan provides the current staff (Yes/ No).

future_staff_needed: The management plan provides the future staff needed (Yes/ No).

current_and_future_training_needs_for_staff: The management plan provides the current and future training needs for the staff (Yes/ No).

cost_of_current_and_future_training_needs_for_staff: The management plan provides the cost of the current and future training needs for the staff (Yes/ No).

supplies_and_installation_current_and_needed: The management plan provides supplies and installation, current and needed (Yes/ No).

global_budget_with_detail_line_for_human_resources_operational_costs_equipment: The management plan provides the global budget, with detailed mention for human resources, operational costs, equipment (Yes/ No).

budget_per_action: The management plan provides the budget per activities (Yes/ No).

mpa_control_police_budget: The management plan provides the MPA control/police budget (Yes/ No).

Governance

organisation_of_governance: The management plan describes the organization of the governance (Yes/ No).

are_all_representatives_equally_important: All the representatives are equally important (vote, opinion...) (Yes/ No).

It is possible than the management plan doesn't describe the governance and this question wouldn't be logic (blank). Other option is than the MP was new and this question wasn't known, then the answer would be "NA".

specify_no_are_all_representatives_equally_important: If all the representatives are not equally important it is important to specify how their duties are distributed.

Control and enforcement

a_control_action_plan: The management plan provides a control action plan (Yes/ No).

enforcement_tools: The management plan provides enforcement tools (warning, fine...) (Yes/ No).

agreements_with_other_institutions_for_control_missions_in_mpa: The management plan provides agreements with other institutions for control missions in the MPA (Yes/ No).

How is the management plan developed?

specific_process_for_mp_development: It is interesting to know if there is a specific process by which the management plan is developed (Yes/ No).

if_yes_please_describe_it: If a specific process exists, it is important to describe it.

specific_process_for_mp_validation: There is a specific process for the management plan validation (Yes/ No).

is_there_specific_process_if_yes_please_describe_it: If there is a specify process for the management plan validation, it is important to describe it.

specific_process_for_stakeholders_involvement: There a specific process for stakeholders involvement (Yes/ No).

who_in_charge_of_the_mp_development: It is important to know who is in charge of the management plan development:

The management organization

A service supplier

Other

other_in_charge_of_mp_development: If there are others in charge of the management plan development, it is important to specify it.

mp_prepared_only_by_structure_in_charge: It is important to know if the management plan is prepared only by the structure in charge (Yes/ No).

if_no_with_who_it_has_been_prepared: If the management plan is not prepared only by the structure in charge it is important to describe by whom:

Public administrations

Local representatives

Scientists

Professional fishermen and shellfish men

Organizations from others users

NGOs

Management and advisory committee

Other stakeholders.

specify_other_skateholders_who_have_been_prepared_mp: If there are other stakeholders, it is important to specify them.

by_whom_is_approved_mp: It is interesting to know by who is approved the management plan:

Scientific committee

Management committee

The governing body (board)

The relevant administration

plan_development_cost: It is important to know the global cost in Euros of the management plan development.

Monitoring and evaluation of the management plan according to the MPA objectives

a_regular_monitoring_programme_that_support_your_mpa_objectives: The management plan provides a regular monitoring programme that supports your MPA objectives (Yes/ No).

indicators_to_monitor_each_of_mpa_objectives: The management plan provides indicators to monitor each of the MPA objectives (Yes/ No).

indicators_description: If the management plan provides indicators to monitor each of the objectives, it is important to know which ones are.

specific_indicators_to_monitor_effectiveness_of_mpa_at_atlantic_arc_scale: The management plan provides specific indicators to monitor the effectiveness of the MPA at the Atlantic arc scale (Yes/ No).

Perception assessment by the MPA manager

your_management_plan_allow_you_to_well_manage_your_mpa: It is a question for the MPA manager: the management plan allows you to well manage your MPA (Yes/ No).

are_there_lacksgaps_in_mp: There are lacks/gaps in the management plan (Yes/ No).

lacks-gaps_description: If there are lacks or gaps in the management plan, it is important to know which ones are.

Further information's

Comment: Every comment, explanation, document, remark, experience which can be interesting for this study. For example, the AMP's with the same MP are specified here or if some AMP are overlapped.

ANNEX 3.III

3.III. List of total MPAs analysed

Typology	Country	MPAs. grouped	ID_MP	MPA_OFFICIAL_NAME	DESIGNATION	ENGLISH_DESIGNATION
Typology 2	FRANCE	49	31	ANSE DE FOURAS, BAIE D'YVES, MARAIS DE RO-CHEFORT	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	15	1	ARCHIPEL DES GLENAN	SITE D'IMPORTANT COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	15	1	ARCHIPEL DES GLENAN	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	21	2	BAIE D AUDIERNE	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	21	2	BAIE D'AUDIERNE	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	FRANCE	22	3	BAIE DE L'AIGUILLON	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 2	FRANCE	22	3	BAIE DE L'AIGUILLON	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 2	FRANCE	22	3	BAIE DE L'AIGUILLON	ZONE MARINE PROTÉGÉE DE LA CONVENTION ^{1a} OSPAR	MARINE PROTECTED AREA (OSPAR)
Typology 2	FRANCE	23	37	BAIE DE QUIBERON	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	24	4	BAIE DE SAINT BRIEUC	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	24	4	BAIE DE SAINT BRIEUC	SITE D'IMPORTANT COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	5	BAIE DE SAINT-BRIEUC	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 2	FRANCE	25	6	BAIE DU MONT SAINT-MICHEL	SITE D'IMPORTANT COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	25	6	BAIE DU MONT SAINT-MICHEL	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 3	FRANCE	53	7	BANC D'ARGUIN	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 3	FRANCE	53	7	BANC D'ARGUIN	ZONE MARINE PROTÉGÉE DE LA CONVENTION ^{1a} OSPAR	MARINE PROTECTED AREA (OSPAR)
Typology 1	FRANCE	NA	8	BELLE ILE EN MER	SITE D'IMPORTANT COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	26	21	CAMARET	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)

Typology 2	FRANCE	27	9	CAP D'ERQUY CAP FRE-HEL	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	27	9	CAP D'ERQUY CAP FRE-HEL	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	10	CHAUSEY	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	26	21	CHAUSSEE DE SEIN	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	26	21	COTES DE CROZON	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	28	11	COTES DE GRANIT ROSE LES SEPT ILES	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	28	11	COTES DE GRANIT ROSE LES SEPT ILES	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	12	DUNES DE LA SAUZAIE - MARAIS DU JAUNAY	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	54	13	DUNES ET COTES DE TREVIGNON	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	54	13	DUNES ET COTES DE TREVIGNON	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 3	FRANCE	55	38	DUNES ET FORETS LITTORALES DE L'ILE D'OLERON	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	FRANCE	29	34	ESTUAIRE DE LA GIRONDE, MARAIS DE LA RIVE FALSERD	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	30	46	ETIER DE PENERF	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 1	FRANCE	NA	14	FRANCOIS LE BAIL DE L'ILE DE GROIX	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 2	FRANCE	31	15	GOLFE DU MORBIHAN	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	31	15	GOLFE DU MORBIHAN, COTES OUEST DE RHUYS	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	FRANCE	NA	16	GUISSENY	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)

Typology 1	FRANCE	NA	17	HAVRE DE SAINT-GERMAIN-SUR-AY ET LANDES DE LESSAY	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	18	ILE AUX DAMES	ARRETE DE PROTECTION BIOTOPE	BIOTOPE PROTECTION BYLAW HAVING A MARITIME PART
Typology 1	FRANCE	NA	19	ILE AUX MOUTONS (Moelez) ET DES ILOTS ENEZ AR RAZED ET PENNEGERN	ARRETE DE PROTECTION BIOTOPE	BIOTOPE PROTECTION BYLAW HAVING A MARITIME PART
Typology 1	FRANCE	NA	20	ILE DE GROIX	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	26	21	IROISE	PARC NATUREL MARIN	NATURE MARINE PARK
Typology 3	FRANCE	26	21	IROISE	ZONE MARINE PROTÉGÉE DE LA CONVENTION OSPAR	MARINE PROTECTED AREA (OSPAR)
Typology 1	FRANCE	NA	22	LA COLOMBIERE	ARRETE DE PROTECTION BIOTOPE	BIOTOPE PROTECTION BYLAW HAVING A MARITIME PART
Typology 1	FRANCE	NA	23	LES ILES CHAUSEY	DOMAINE PUBLIC MARITIME DU CONSERVATOIRE DU LITTORAL	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL
Typology 1	FRANCE	NA	24	LES SEPT ILES	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 1	FRANCE	NA	25	LILLEAU DES NIGES	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 1	FRANCE	NA	26	LITTORAL OUEST COTENTIN DE SAINT-GERMAIN-SUR-AY AU ROZEL	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	27	LITTORAL OUEST DU COTENTIN DE BREHAL A PIRIOU	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	28	MARIS BRETON, BAIE DE BOURGNEUF, ILE DE FALSEIRMOUTIER ET FORET DE MONTS	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	55	38	MARIS DE BROUAGE (ET MARAIS NORD D'OLERON)	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	FRANCE	55	38	MARIS DE BROUAGE-GE-OLERON	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)

Typology 3	FRANCE	55	38	MARAI DE MOEZE	ZONE MARINE PROTÉGÉE DE LA CONVENTIONla OSPAR	MARINE PROTECTED AREA (OSPAR)
Typology 1	FRANCE	NA	29	MARAI DE MOUSTERLIN	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	30	MARAI DE MULLEM-BOURG	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 2	FRANCE	49	31	MARAI DE ROCHEFORT	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	FRANCE	NA	32	MARAI DE SENE	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 1	FRANCE	NA	33	MARAI DE TALMONT ET ZONES LITTORALES ENTRE LES SABLES ET JARD	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	29	34	MARAI ET FALAISES DES COTEAUX DE GIRONDE	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	FRANCE	48	35	MARAI POITEVIN	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	FRANCE	48	35	MARAI POITEVIN	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	48	35	MARAI POITEVIN	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	36	MARAI SALANTS DE GUERANDE, TRAICTS DU CROISIC ET DUNES DE PEN BRON	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	23	37	MASSIF DUNAIRE GAVRES QUIBERON ET ZONES HUMIDES	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	55	38	MOEZE OLERON	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 3	FRANCE	26	21	OUESSANT MOLENE	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	FRANCE	26	21	OUESSANT MOLENE	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 1	FRANCE	NA	39	POINTE D'ARCAY	DOMAINE PUBLIC MARITIME DU CONSERVATOIRE DU LITTORAL	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL
Typology 1	FRANCE	NA	40	POINTE DE CORSEN, LE CONQUET	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)

Typology 1	FRANCE	NA	41	PRES SALES D'ARES ET DE LEGE CAP FERRET	RESERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE
Typology 1	FRANCE	NA	42	PRESQU'ILE DE CROZON	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	43	RADE DE LORIENT	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 1	FRANCE	NA	44	RECIFS ET LANDE DE LA HAGUE	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	FRANCE	NA	45	RIA D'ETEL	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	FRANCE	30	46	RIVIERE DE PENERE, MA-RAIS DE SUSCINIO	ZONE SPECIALE DE CONSERVATION	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	FRANCE	NA	47	SILLON DE TALBERT	RESERVE NATURELLE REGIONALE	REGIONAL NATURE RESERVE
Typology 2	FRANCE	47	48	TREGOR GOELO	ZONE DE PROTECTION SPECIALE	SPECIAL PROTECTION AREA (SPA)
Typology 2	FRANCE	47	48	TREGOR GOELO	SITE D'IMPORTANCE COMMUNAUTAIRE	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 2	ENGLAND	32	49	BERWICKSHIRE & NORTH NORTHUMBERLAND COAST	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	32	49	BERWICKSHIRE & NORTH NORTHUMBERLAND COAST	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	32	49	BERWICKSHIRE & NORTH NORTHUMBERLAND COAST	AREA OF OUTSTANDING NATURAL BEAUTY	AREA OF OUTSTANDING NATURAL BEAUTY
Typology 2	ENGLAND	46	52	BLACKWATER ESTUARY	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	46	52	BLACKWATER ESTUARY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	34	50	CHESIL AND THE FLEET	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	34	50	CHESIL BEACH AND THE FLEET	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	39	62	CHICHESTER AND LANGSTONE HARBOURS	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	39	62	CHICHESTER AND LANGSTONE HARBOURS	RAMSAR SITE	RAMSAR SITE

Typology 2	ENGLAND	46	52	COLNE ESTUARY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	46	52	COLNE ESTUARY	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	46	52	CROUCH AND ROACH ESTUARIES	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	46	52	CROUCH AND ROACH	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	46	52	DENGIE	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	46	52	DENGIE	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	NA	51	DUDDON ESTUARY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	46	52	ESSEX ESTUARIES	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	ENGLAND	NA	53	EXE STUARY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 1	ENGLAND	NA	54	FAL & HELFORD	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	33	55	FLAMBOROUGH HEAD	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	33	55	FLAMBOROUGH HEAD AND BEMPTON CLIFFS	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	46	52	FOULNESS	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	46	52	FOULNESS	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	36	68	GIBALTAR POINT	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	45	56	HUMBER ESTUARY	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	45	56	HUMBER ESTUARY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	45	56	HUMBER ESTUARY	RAMSAR SITE	RAMSAR SITE
Typology 1	ENGLAND	NA	57	ISLES OF SCILLY COMPLEX	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	32	49	LINDISFARNE	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	32	49	LINDISFARNE	RAMSAR SITE	RAMSAR SITE
Typology 1	ENGLAND	NA	58	LUNDY	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)

Typology 2	ENGLAND	44	59	MORECAMBE BAY	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	44	59	MORECAMBE BAY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	36	68	NORTH NORFOLK COAST	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	36	68	NORTH NORFOLK COAST	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	42	60	PLYMOUTH SOUND AND ESTUARIES	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	39	62	PORTSMOUTH HARBOUR	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	39	62	PORTSMOUTH HARBOUR	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	40	61	SEVERN ESTUARY	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	40	61	SEVERN ESTUARY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	40	61	SEVERN ESTUARY	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	39	62	SOLENT AND SOUTHAMPTON WATER	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	39	62	SOLENT AND SOUTHAMPTON WATER	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	39	62	SOLENT MARITIME	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	39	62	SOLENT MARITIME	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	35	63	SOLWAY FIRTH	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	ENGLAND	NA	64	SOUTH WIGHT MARITIME	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	38	65	STOUR AND ORWELL ESTUARIES	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	38	65	STOUR AND ORWELL ESTUARIES	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	42	60	TAMAR ESTUARIES COMPLEX	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)

Typology 2	ENGLAND	37	66	TEESMOUTH AND CLEVELAND COAST	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	37	66	TEESMOUTH AND CLEVELAND COAST	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	43	67	THANET COAST	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	43	67	THANET COAST AND SANDWICH BAY	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	36	68	THE WASH	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	36	68	THE WASH	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	35	63	UPPER SOLWAY FLATS AND MARSHES	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	35	63	UPPER SOLWAY FLATS AND MARSHES	RAMSAR SITE	RAMSAR SITE
Typology 2	ENGLAND	36	68	WASH AND NORTH NORFOLK COAST	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 2	ENGLAND	41	69	POOLE HARBOUR	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)
Typology 2	ENGLAND	41	69	POOLE HARBOUR	RAMSAR SITE	RAMSAR SITE
Typology 3	PORTUGAL	3	70	ARRÁ BIDA	PARQUE NATURAL	NATURAL PARK
Typology 3	PORTUGAL	3	70	ARRÁ BIDA/ESPICHEL	SÍTIOS DE IMPORTÂNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	PORTUGAL	14	71	BERLENGAS	RESERVA NATURAL	NATURE RESERVE
Typology 3	PORTUGAL	3	70	CABO ESPICHEL	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)
Typology 3	PORTUGAL	7	76	COSTA SUDOESTE	SÍTIOS DE IMPORTÂNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	PORTUGAL	7	76	COSTA SUDOESTE	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)
Typology 3	PORTUGAL	14	71	BERLENGAS	RESERVA DA BIOSFERA	BIOSPHERE RESERVE
Typology 1	PORTUGAL	NA	72	DUNAS S. JACINTO	RESERVA NATURAL	NATURE RESERVE
Typology 1	PORTUGAL	NA	73	ILHAS BERLENGAS	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)
Typology 3	PORTUGAL	9	74	LAGOA DA SANCHA	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)

Typology 3	PORTUGAL	9	74	LAGOA SANTO ANDRÉ	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)
Typology 3	PORTUGAL	9	74	LAGOAS ST. ANDRÉ E SANCHÁ	RESERVA NATURAL	NATURE RESERVE
Typology 3	PORTUGAL	13	75	LITORAL NORTE	PARQUE NATURAL	NATURAL PARK
Typology 3	PORTUGAL	13	75	LITORAL NORTE	SÍTIOS DE IMPORTÁNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	PORTUGAL	NA	122	RIA DE AVEIRO	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)
Typology 3	PORTUGAL	7	76	SW ALENTEJANO E COSTA VICENTINA	PARQUE NATURAL	NATURAL PARK
Typology 1	PORTUGAL	NA	123	RIA FORMOSA	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)
Typology 1	PORTUGAL	NA	124	SINTRA/CASCAIS	SÍTIOS DE IMPORTÁNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 1	PORTUGAL	NA	125	SANTA CRUZ/PENICHE	SÍTIOS DE IMPORTÁNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	11	77	ARCHIPIÉLAGO DE CHI-NIJO	PARQUE NATURAL	NATURAL PARK
Typology 1	SPAIN	NA	78	ÁREA MARINA DE LA ISLETA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	1	79	BAHÍ A DE CÁDIZ	HUMEDAL RAMSAR	RAMSAR SITE
Typology 3	SPAIN	1	79	BAHÍ A DE CÁDIZ	PARQUE NATURAL	NATURAL PARK
Typology 3	SPAIN	1	79	BAHÍ A DE CÁDIZ	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	1	79	BAHÍ A DE CÁDIZ	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	80	BAHÍA DE GANDO	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	81	BAHÍA DEL CONFITAL	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	18	82	BARAYO	RESERVA NATURAL PARCIAL	PARTIAL NATURE RESERVE
Typology 1	SPAIN	NA	83	CAGAFRECHO	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	2	84	COMPLEJO DE LAS PLAYAS, LAGUNA Y DUNA DE CORRUBEDO	HUMEDAL RAMSAR	RAMSAR SITE

Typology 3	SPAIN	2	84	COMPLEXO DUNAR DE CORRUBEDO E LAGOAS DE CARREGAL E VIXÁN	PARQUE NATURAL	NATURAL PARK
Typology 1	SPAIN	NA	85	COSTA DE GARAFÍA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	86	COSTA DE LOS ÓRGANOS	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	87	COSTA DE SAN JUAN DE LA RAMBLA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	88	COSTA DE SARDINA DEL NORTE	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	89	CUEVA MARINA DE SAN JUAN	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	4	90	DESEMBOCADURA DEL RÍO GUADALQUIVIR	RESERVA DE PESCA	FISHING RESERVE
Typology 3	SPAIN	4	90	DOÑANA	HUMEDAL RAMSAR	RAMSAR SITE
Typology 3	SPAIN	4	90	DOÑANA	PARQUE NACIONAL	NATIONAL PARK
Typology 3	SPAIN	4	90	DOÑANA	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE
Typology 3	SPAIN	4	90	DOÑANA	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	4	90	DOÑANA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	4	90	DOÑANA	PARQUE NATURAL	NATURAL PARK
Typology 3	SPAIN	5	91	DUNAS DE LIENCRES	PARQUE NATURAL	NATURAL PARK
Typology 3	SPAIN	5	91	DUNAS DE LIENCRES Y ESTUARIO DEL PAS	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	6	92	EL CACHUCHO	ÁREA MARINA PROTEGIDA (OSPAR)	MARINE PROTECTED AREA (OSPAR)
Typology 3	SPAIN	6	92	EL CACHUCHO	ÁREA MARINA PROTEGIDA	MARINE PROTECTED AREA
Typology 3	SPAIN	6	92	EL CACHUCHO	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	8	93	ESTRECHO	PARQUE NATURAL	NATURAL PARK
Typology 3	SPAIN	8	93	ESTRECHO	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)

Typology 3	SPAIN	8	93	ESTRECHO	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	94	FRANJA MARINA DE FUENCALIENTE	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	95	FRANJA MARINA DE MOGÁN	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	96	FRANJA MARINA SANTIA-GO-VALLE GRAN REY	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	97	FRANJA MARINA TENO-RASCA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	98	GAZTELUGATXE	BIOTOPO PROTEGIDO	PROTECTED BIOTOPE
Typology 3	SPAIN	10	99	ILLA DE CORTEGADA	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	10	99	ILLA DE ONS	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	10	99	ISLAS ATLÁNTICAS DE GALICIA	PARQUE NACIONAL	NATIONAL PARK
Typology 3	SPAIN	10	99	ILLAS CÍES	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	10	99	ILLAS CÍES	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	50	100	ISLA DE LA PALMA	RESERVA MARINA	MARINE RESERVE
Typology 3	SPAIN	51	101	ISLA GRACIOSA E ISLOTES DEL NORTE DE LANZAROTE	RESERVA MARINA	MARINE RESERVE
Typology 3	SPAIN	10	99	ISLAS ATLÁNTICAS	ÁREA MARINA PROTEGIDA (OSPAR)	MARINE PROTECTED AREA (OSPAR)
Typology 3	SPAIN	11	77	ISLOTES DEL NORTE DE LANZAROTE Y RISCOS DE FAMARA	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	12	102	LA BREÑA Y MARISMAS DE BARBATE	PARQUE NATURAL	NATURAL PARK
Typology 3	SPAIN	12	102	LA BREÑA Y MARISMAS DE BARBATE	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	12	102	LA BREÑA Y MARISMAS DE BARBATE	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)

Typology 1	SPAIN	NA	103	MAR DE LAS CALMAS	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	16	104	MARISMAS DE SANTOÑA Y NOJA	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	16	104	MARISMAS DE SANTOÑA, VICTORIA Y JOVEL	HUMEDAL RAMSAR	RAMSAR SITE
Typology 3	SPAIN	16	104	MARISMAS DE SANTOÑA, VICTORIA Y JOVEL	PARQUE NATURAL	NATURAL PARK
Typology 3	SPAIN	16	104	MARISMAS DE SANTOÑA, VICTORIA Y JOVEL	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	17	105	MARISMAS DEL ODIEL	HUMEDAL RAMSAR	RAMSAR SITE
Typology 3	SPAIN	17	105	MARISMAS DEL ODIEL	PARAJE NATURAL	NATURAL SITE
Typology 3	SPAIN	17	105	MARISMAS DEL ODIEL	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE
Typology 3	SPAIN	17	105	MARISMAS DEL ODIEL	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	17	105	MARISMAS DEL ODIEL	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 1	SPAIN	NA	106	OS MIÑARZOS	RESERVA MARIÑA DE INTERESE PESQUEIRO	MARINE RESERVE OF FISHING INTEREST
Typology 3	SPAIN	18	82	PEÑARONDA-BARAYO	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	18	82	PEÑARONDA-BARAYO	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 1	SPAIN	NA	107	PLAYA DE SOTAVENTO DE JANDÍ A	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	108	PLAYA DEL CABRÓN	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 3	SPAIN	52	109	PUNTA DE LA RESTINGA - MAR DE LAS CALMAS	RESERVA MARINA	MARINE RESERVE
Typology 1	SPAIN	NA	110	RÍA DE CEDEIRA	RESERVA MARIÑA DE INTERESE PESQUEIRO	MARINE RESERVE OF FISHING INTEREST
Typology 3	SPAIN	19	121	RÍA DE MUNDAKA - GUERNICA	HUMEDAL RAMSAR	RAMSAR SITE
Typology 3	SPAIN	19	121	RÍA DE URDAIBAI	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)

Typology 3	SPAIN	20	111	RÍA DE VILLAVICIOSA	HUMEDAL RAMSAR	RAMSAR SITE
Typology 3	SPAIN	20	111	RÍA DE VILLAVICIOSA	RESERVA NATURAL PARCIAL	PARTIAL NATURE RESERVE
Typology 3	SPAIN	20	111	RÍA DE VILLAVICIOSA	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	20	111	RÍA DE VILLAVICIOSA	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 1	SPAIN	NA	112	SEBADAL DE SAN ANDRÉS	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	113	SEBADALES CORRALEJO	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	114	SEBADALES DE ANTEQUERA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	115	SEBADALES DE GUASIMETA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	116	SEBADALES DE GÜIGÜI	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	117	SEBADALES DE LA GRACIOSA	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	118	SEBADALES DE PLAYA DEL INGLÉS	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	119	SEBADALES DEL SUR DE TENERIFE	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)
Typology 1	SPAIN	NA	120	TRAMO LITORAL DE BA-ZUMAIA	BIOTOPO PROTEGIDO	PROTECTED BIOTOPE
Typology 3	SPAIN	19	121	URDABAI	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE
Typology 3	SPAIN	19	121	ZONAS LITORALES Y MARRISMAS DE URDAIBAI	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)
Typology 3	SPAIN	50	100	LA PALMA	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE
Typology 3	SPAIN	51	101	LANZAROTE	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE
Typology 3	SPAIN	52	109	EL HIERRO	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE
Typology 3	SPAIN	2	84	COMPLEXO LITORAL DE CORRUBEDO	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)
Typology 3	SPAIN	2	84	COMPLEXO HÚMIDO DE CORRUBEDO	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)

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REGIONAL SOURCES OF INFORMATION

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	http://reddeparquesnacionales.mma.es/parques/index.htm
	http://www.magrama.gob.es/es/pesca/temas/espacios-y-especies-marinas-protegidas/reservas-marinas-de-espana/rmarinas-intro.asp
	http://www.reservasmarinas.net/
GALICIA	http://www.magrama.es/es/cartografia-y-sig/servicios/ide/descargas/biodiversidad/descargas_biodiversidad.aspx
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ASTURIAS	http://pescadegalicia.com/default.htm
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CANTABRIA	http://www.medioambientecantabria.com/
	http://www.cantabria.es/medio-ambiente;jsessionid=44FBCB6186A5C255F0C9752175626F1C
PAÍS VASCO	http://www.ingurumena.ejgv.euskadi.net/r49-u95/es/u95aWar/lugaresJSP/U95aEntradaFiltroLugaresCAPV.do?fnMenu=true
	http://www.bizkaia.net/home2/Temas/DetalleTema.asp?Tem_Codigo=222&Idioma=CA
ANDALUCÍA	http://www.juntadeandalucia.es/medioambiente/site/web/menuitem.486fc6e1933804f2c562ce105510e1ca/?vgnextoid=c349185968f04010VgnVCM1000001625e50aRCRD&vgnnextchannel=3259b19c7acf2010VgnVCM1000001625e50aRCRD&lr=lang_es
ISLAS CANARIAS	http://www.gobiernodecanarias.org/cmayerot/medioambiente/medionatural/index.html

Websites of French managing bodies

Agence des Aires Marines Protégées, French Agency for MPAs	http://www.aires-marines.fr/	
Direction régionale de l'environnement, de l'aménagement et du logement (national administration for Environment, devolved/ decentralized in regions)	Basse Normandie	http://www.basse-normandie.developpement-durable.gouv.fr/
	Bretagne	http://www.bretagne.developpement-durable.gouv.fr/
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	Poitou Charentes	http://www.poitou-charentes.developpement-durable.gouv.fr/
	Aquitaine	http://www.aquitaine.developpement-durable.gouv.fr/
French Focus Point (Museum National d'Histoire Naturelle)	http://inpn.mnhn.fr	
Réserves Naturelles de France (French organisation for National Nature Reserves)	www.reserves-naturelles.org	



ANNEX 4.I

4.I. Existing categories in the MPAs having a management plan analysed, divided by international and national level

	CATEGORY	EN	FR	PT	SP	TOTAL
INTERNATIONAL	BIOSPHERE RESERVE			1	6	7
	MARINE PROTECTED AREA OSPAR		4		2	6
	RAMSAR SITE	19			7	26
	SITE OF COMMUNITY IMPORTANCE (SCI)		27	5	9	41
	SPECIAL AREA OF CONSERVATION (SAC)	16	9		29	54
	SPECIAL PROTECTION AREA (SPA)	25	18	7	13	63
NATIONAL	AREA OF OUTSTANDING NATURAL BEAUTY	1				1
	BIOTOPE PROTECTION BYLAW HAVING A MARITIME PART		3			3
	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL		2			2
	NATIONAL NATURE RESERVE		11			11
	NATURE MARINE PARK		1			1
	REGIONAL NATURE RESERVE		1			1
	NATURAL PARK			3	8	11
	NATURE RESERVE			3		3
	FISHING RESERVE				1	1
	MARINE PROTECTED AREA				1	1
	MARINE RESERVE				3	3
	MARINE RESERVE OF FISHING INTEREST				2	2
	NATIONAL PARK				2	2
	NATURAL SITE				1	1
	PARTIAL NATURE RESERVE				2	2
	PROTECTED BIOTOPE				2	2
	TOTAL	61	68	19	88	244



ANNEX 4.II

4.II. Equivalence established between the items in our surveys and the items defined in the MPA MEAT survey form

MPA MEAT questionnaire	Allowable Points	Correspondence with our questionnaires	Assumptions	Remarks / Means of verification
LEVEL 1 - MPA IS ESTABLISHED (17 Items, 27 Points) At least one year from establishment, minimum score 20 and all Thresholds should have been met to pass this level. Thresholds are in BLOCK CAPITALS				
1.1 Establishment based on Participatory Process (5/5) MPA established with the participation of the community based on informed decisions				No tenemos información sobre como fue el proceso de establecimiento de la AMP, pero si sobre como se adoptó el plan de gestión. Se ha asumido que los procesos son similares y se ha utilizado la información sobre el plan de gestión para resolver las preguntas 1.1
1.1.1 MPA concept explained to stakeholders	0 or 1	Q3.1 - 2.6.3	If there a specific process for stakeholders involvement?	<ul style="list-style-type: none"> • Minutes of consultations & public hearings • Activity report / proceedings of the consultation
Was the MPA concept explained to the stakeholders? Affected stakeholders have been oriented on MPA concepts and benefits				

1.1.2 MPA accepted and approved by the community or local government	0 or 1	Q3.1 - 2.6.1	Is there a specific process for the management plan development?	<p>If yes please describe it: (to compare with MEAT the following answers were chosen)</p> <ol style="list-style-type: none"> 1. The elaboration of the management plan is done locally with a steering committee (chaired by the state authority). The study and the consultation are made simultaneously to involve continuously the stakeholders. 2. Draft presentation, scoping and public participation and publication in official newspaper. <p>Se considera 1 la pregunta cuando al menos una de las dos preguntas con las que se compara se responde con al menos una de las respuestas seleccionadas</p> <ul style="list-style-type: none"> • Resolution(s) • Minutes of meeting
Was the MPA accepted by the community (for local MPAs) or local governments? Public consultation on site selection should be conducted in order to gain community approval and acceptance		Q3.1-2.6.2	Is there a specific process for the management plan validation?	<p>If yes please describe it:</p> <ol style="list-style-type: none"> 1. Sign off by stakeholders and statutory nature conservation bodies 2. The marine reserve coordinator calls professional fishermen to prepare a draft management plan. This document, together with the report of scientific monitoring team, is valued by the management committee that validate it

<p>1.1.3 BASELINE ASSESMENT CONDUCTED * 0 or 3</p>	<p>Does the management plan describe the previous situation and previous results?</p>	<p>Q3.1 - 2.2.1</p>	<p>Does the management plan give a conflict analysis? Does the management plan give a threat analysis? Does the management plan describe the management tools for commercial fisheries? Does the management plan describe the management tools for leisure fishing? Does the management plan describe the management tools for scuba diving? Does the management plan describe the management tools for other economic activities?</p>
<p>Were the stakeholders engaged in baseline assessment using standard methods / any acceptable methods? Baseline assessment survey includes biophysical assessment and community profile</p>	<p>Q3.1-2.1.15 Q3.1-2.1.13 Q3.1-2.2.19 Q3.1-2.2.20 Q3.1-2.2.22 Q3.1-2.2.23</p>	<p>Se da la puntuación de 3 si la primera pregunta es afirmativa y también lo es al menos una de las seis siguientes</p>	<ul style="list-style-type: none"> • Biophysical assessment report • PCRA/PRA report • Technical reports of consultants • BMS (for NIPAS seascapes) • Names of local participants
<p>1.2 Adoption of a Legitimate Management Plan (6/6) Management plan is adopted and legitimized by the LGU or Protected Area Management Board (PAMB) or similar legal body</p>			
<p>1.2.1 Management Plan Drafted Has the management plan been drafted?</p>	<p>0 or 1</p>	<p>Se considera 1 para todas porque todos nuestros casos de estudio ya tienen un plan de gestión implementado por tanto asumimos que previamente hubo un draft</p>	<ul style="list-style-type: none"> • Any draft of management plan

1.2.2 MPA plan prepared in a consultative and participatory manner	0 or 1	Q3.1 - 2.6.1	Is there a specific process for the management plan development?	<p>If yes describe it (to compare with MEAT the following answers were chosen)</p> <p>1.- The elaboration of the management plan is done locally with a steering committee (chaired by the state authority). The study and the consultation are made simultaneously to involved continuously the stakeholders.</p> <p>2.- Draft presentation, scoping and public participation and publication in official newspaper.</p>	<p>Se considera 1 la pregunta cuando al menos una de las dos preguntas con las que se compara se responde con al menos una de las respuestas seleccionadas</p> <ul style="list-style-type: none"> • Documentation of public consultation about the MPA plan
Was the MPA plan prepared in a consultative and participatory manner?		Q3.1-2.6.2	Is there a specific process for the management plan validation?	<p>If yes please describe it:</p> <ol style="list-style-type: none"> 1. Sign off by stakeholders and statutory nature conservation bodies 2. The marine reserve coordinator calls professional fishermen to prepare a draft management plan. This document, together with the report of scientific monitoring team, is valued by the management committee that validate it 	

<p>1.2.3 Functions of MPA management body explained through IEC (Information, Education and Communication)</p> <p>Were the functions of the MPA management body and benefits from the MPA explained through initial IEC activities?</p>	<p>0 or 1</p>	<p>Q3.1 - 2.6.3</p>	<p>If there a specific process for stakeholders involvement?</p>	<ul style="list-style-type: none"> • IEC materials
<p>1.2.4 MANAGEMENT PLAN ADOPTED *</p> <p>Has the management plan been finalised and adopted?</p>	<p>0 or 3</p>	<p>Q3.1 - 1.8</p>	<p>The management plan is implemented?</p>	<ul style="list-style-type: none"> • Management Plan • Resolution or ordinance
<p>1.3 Legislations (Municipal Ordinance / Presidential Proclamation / Republic Act) (5/5)</p> <p>Management plan is adopted and legitimized by the LGU or Protected Area Management Board (PAMB) or similar legal body</p>	<p>0 or 1</p>			
<p>1.3.1 Legal instrument declaring the MPA has been drafted?</p> <p>Has the legal instrument declaring the MPA been drafted?</p> <p>For locally-managed MPAs: The Barangay Ordinance is in place and the Municipal Ordinance has been drafted.</p> <p>For NIPAS seascapes: a Republic Act has been drafted</p>	<p>0 or 1</p>		<p>Se considera 1 para todos los casos porque todas las AMPs ya han sido declaradas y tienen su decreto ley o similar.</p>	<ul style="list-style-type: none"> • Draft or final ordinance / resolution • Draft Republic Act (for NIPAS)

1.3.2 Consultations on legal instrument with stakeholders conducted	Q3.1 - 2.6.2	Is there a specific process for the management plan validation?	<p>If yes please describe it:</p> <ol style="list-style-type: none"> 1.- Sign off by stakeholders and statutory nature conservation bodies 2.- The marine reserve coordinator calls professional fishermen to prepare a draft management plan. This document, together with the report of scientific monitoring team, is valued by the management committee that validate it 3. The state authority consults the regional scientific council for nature heritage is consulted as the civilian and military administrations if required. The first MP is then approved by the National council for nature protection - Ministry. 	<ul style="list-style-type: none"> • Minutes of public consultations • Resolutions of endorsement
Were there public hearings / community consultations on the legal instrument declaring the protected areas?	Q3.1-2.6.5	The management plan is prepared only by the structure in charge? If no with who it has been prepared? These answers were chosen:	<p>Se ha dado la puntuación de 1 cuando se contesta la primera pregunta (Q3.1_2.6.2) con las respuestas 1 o 2 y/o cuando se contesta la segunda pregunta (Q3.1-2.6.5) con alguna de las respuestas seleccionadas.</p> <p>En el caso de que la pregunta (Q3.1_2.6.2) se conteste con la respuesta 3, como esta es ambigua y podría dar lugar a error, solo se ha da la puntuación de 1 en los casos en que además se conteste la segunda pregunta (Q3.1-2.6.5) con alguna de las respuestas seleccionadas.</p>	<ul style="list-style-type: none"> Local representatives Professional fishermen and shellfishermen Organisations from others users NGOs Others stakeholders

<p>1.3.3 LEGAL INSTRUMENT APPROVED *</p> <p>Has the legal instrument establishing the MPA been approved?</p>	<p>0 or 3</p>	<p>En nuestros casos de estudio a todos le damos los 3 puntos porque todos los planes de gestión están implementados</p>	<ul style="list-style-type: none"> • Municipal Ordinance declaring the MPA for the locally-managed MPAs • Republic Act (for NIPAS)
<p>1.4 Management body formed and functional (11/11) MPA established with the participation of the community based on informed decisions</p>			
<p>1.4.1 Management body determined and identified</p>	<p>0 or 1</p>	<p>Does the management plan describe the organisation of the governance?</p>	<p>1 punto cuando al menos una de las dos es afirmativa.</p>
<p>Have the members of the management body been determined and identified? The management core group should have been identified (e.g., BFARMC, MFARMC, or PAMB)</p>	<p>Q3.1-2.4.1</p>	<p>Does the management plan describe all agreements between administrations for the management of the site?</p>	<p>En el caso de Portugal la organización de la gobernanza está definida pero no en el plan de gestión sino en un documento aparte. Además la estructura es común a todas las AMPs. Por tanto se ha considerado como 1</p> <ul style="list-style-type: none"> • List of members of PAMB or management body; management structure; appointment papers
<p>1.4.2 MANAGEMENT BODY FORMED AND ROLES CLARIFIED *</p>	<p>0 or 3</p>	<p>Does the management plan describe the organisation of the governance?</p>	<p>3 puntos cuando al menos dos de las preguntas con las que comparamos son afirmativas. En el caso de Portugal los roles están definidos pero no en el plan de gestión sino en un documento aparte. Además la estructura es común a todas las AMPs. Por tanto se ha considerado como 3</p>
<p>Has the management body been formed and have their roles been clarified?</p>	<p>Q3.1-2.5.2 Q3.2-2.1.9</p>	<p>Are all the representatives equally important (vote, opinion)? How often does the government body meet?</p>	<ul style="list-style-type: none"> • Minutes showing committees • Organizational chart with clear roles • Enabling documentation (e.g., appointment papers) <p>La pregunta Q3.2-2.1.9 se ha considerado afirmativa cuando indica una determinada frecuencia, es decir, si fija una frecuencia es que se reúnen</p>
<p>1.4.3 BUDGET ALLOCATED FOR AT LEAST ONE YEAR *</p>	<p>0 or 3</p>	<p>Does the management plan provide the global budget, with detail line for human resources, operational costs, equipment?</p>	<ul style="list-style-type: none"> • Approved Work and Financial Plan • Document appropriating funds from the General Appropriations Act (for NIPAS seascapes) or from the LGU (for locally managed MPAs)
<p>Has the budget for at least one (1) year of MPA implementation been allocated?</p>	<p>Q3.1 - 2.3.7 Q3.1 - 2.3.8</p>	<p>Does the management plan provide the budget per activities?</p>	<p>3 puntos cuando al menos una de las preguntas es afirmativa con las que comparamos son afirmativas</p>

<p>1.4.4 IEC activities coordinated by the management body?</p> <p>Have Information, Education, and Communication (IEC) activities been coordinated by the management body? Are signboards / billboards posted along the coastline / shoreline and visible to key stakeholders?</p>	<p>0 or 1</p>	<p>Q3.1-2.2.25</p> <p>Q3.2-1.14</p> <p>Q3.2-1.12</p> <p>Q3.2-1.13</p>	<p>Does the MgP describe the communication plan for stakeholders of the MPA territory?</p> <p>Are any management tools for environment education and awareness raising being used?</p> <p>Is the government body spreading the progresses of the MPA to stakeholder community? If yes, how it is being done? By circular, by periodic meeting, by communication tool (news letter, web site), others (please specify)</p>	<p>Al menos dos tienen que ser positivas para poder considerar la respuesta = 1</p> <ul style="list-style-type: none"> • IEC plan or similar document • Minutes showing IEC activities • Reports on IEC activities • Photographs of billboards / signboards and IEC materials
<p>1.4.5 MPA boundaries delineated</p> <p>Are the MPA's boundaries properly delineated in the most appropriate manner and boundary markers installed? When possible, the MPA boundaries should be marked by anchor buoys made with appropriate and sturdy materials. For large areas like NIPAS seascapes, information materials (e.g. banners, billboards, posters) that clearly show the boundaries of the protected area and zones established should be accessible and visible to key stakeholders.</p>	<p>0 or 1</p>	<p>Q3.2-1.33</p>	<p>Are the different perimeter and sub-perimeters with specific regulations/uses) boundaries signposted?</p> <p>De las posibles contestaciones:</p> <ol style="list-style-type: none"> 1. All perimeter(-sub-and main perimeter) 2. All sub-perimeters 3. Only some sub-perimeters 4. Only the main perimeter 5. None perimeter 	<p>Quando las respuestas son afirmativas para las contestaciones 1 y 4 se ha considerado = 1 Para el resto = 0 Es decir solo damos la puntuación de 1 a la pregunta cuando el perímetro principal está señalizado, independientemente de si los subperímetros están señalizados o no</p> <ul style="list-style-type: none"> • Photograph of marker buoys showing status • Maps on billboards, banners, posters

1.4.6 MPA enforcers identified	0 or 1	Q3.2-1.31	Type of police enforcement within the MPA MPA staff Fishery administration Custom Coast guard Other, please specify	Se considera 1 si tiene algún tipo y 0 si no lo tiene.	<ul style="list-style-type: none"> Document showing names of enforcers (e.g., Bantay Dagat, PNP Maritime Group, Coast Guard, etc.); appointment papers
Have the MPA enforcers already been identified?					
1.4.7 Biophysical monitoring activities coordinated by the management body	0 or 1	Q3.2-1.36	What are the monitoring programme implemented in the MPA? 1. Regular monitoring programme about species 2. Occasional monitoring programme about species 3. Regular monitoring program about habitats 4. Occasional monitoring programme about habitats	Se ha considerado 1 cuando la monitorización es REGULAR tanto para especies como para hábitats	<ul style="list-style-type: none"> Biophysical monitoring report Resolutions approving monitoring activities
Are the biophysical monitoring activities coordinated by the management body?					
TOTAL SCORE FOR LEVEL 1				27	
Thresholds are in BLOCK CAPITALS. Minimum score of 18 points and all Thresholds should have been met to pass this Level.					
LEVEL 2 - MPA MANAGEMENT IS STRENGTHENED (9 Items, 15 Points) At least three years from establishment, all thresholds in levels 1 & 2 achieved and at least 11 points obtained from Level 2					
2.1 The MPA is effectively strengthened (15/15)					
2.1.1 Enforcement plan, or its equivalent, in place	0 or 1	Q3.1-2.2.4	Does the MgP describe an expected level of results? If yes are the objectives details in the action plan? If the objectives are detailed in an action plan, is there linked up to agenda?	Si al menos dos de las tres preguntas son afirmativas entonces =1	<ul style="list-style-type: none"> Enforcement plan (i.e., schedules, SOP, etc)
The MPA should have a clear and feasible enforcement plan		Q3.1-2.2.5 Q3.1-2.2.6			

2.1.2 Marine enforcement group trained	0 or 1	Q3.1- 2.3.4	Does the MgP provide the current and future training needs for the staff?	Does the MgP provide the cost of the current and future staff training needs for the staff? If the MgP provide the current and future training needs for the staff, are they being developed? How is the staff being trained? Attended courses specific for MPA staff; Online courses specific for MPA staff	Tienen que ser las tres al menos dos de las cuatro afirmativas para considerar la pregunta = 1 La última se considera afirmativa si tiene alguna respuesta de las siguientes	<ul style="list-style-type: none"> • Training report with names of participants • Certificate of attendance to training(s) • Deputization ID
Have the marine enforcement team members been trained on enforcement procedures and protocols? (e.g., apprehension, para-legal, use of GPS, safety, etc.)		Q3.1- 2.3.5	Obligatory training Technical training with a national organization involved in protected areas	Training in a national school for waters and forestry: ENGREFF Training with a scientific center for marine mammals, network of coast guards with the Conservatoire du littoral Technical training with ATEN (10 days/ 2 people/ year Cooperatoin network: 5 days/2 people/year Involvement in co-operation network at regional and national level 10 days		
		Q3.2-1.24				
		Q3.2-1.25				

<p>2.1.3 PATROLLING AND SURVEILLANCE CONDUCTED REGULARLY *</p> <p>Are patrolling, surveillance, and other violation detection measures (e.g., watchtowers, radars, community reporting, etc.) being conducted regularly?</p>	<p>Does the MgP provide the MPA control/police budget? Does surveillance exist?</p>	<p>Q3.1-2.3.9</p>	<p>0 or 3</p>	<ul style="list-style-type: none"> • Attendance of patrollers • Patrol logs • Back to office reports (after patrols) • Mission order
<p>2.1.4 VIOLATIONS DOCUMENTED *</p> <p>Are violation reports / apprehensions being documented properly? Even if there are no violations observed, these should be reported as "no observed violations".</p>	<p>Does the police reports made by the MPA staff are followed by a complete legal process?</p>	<p>Q3.2-1.32</p>	<p>0 or 3</p>	<ul style="list-style-type: none"> • Back-to-office report of patrol team • Logbook of apprehensions / report violations • Police blotter
<p>2.1.5 CASES FILED OR VIOLATORS PENALIZED *</p> <p>Are cases filed for apprehended violators or are they penalized (e.g., administrative fines)? Violators are at least required to pay administrative fines or other penalties provided for in the ordinance or any enabling law. Confiscation of gears can also serve as a form of sanction as well as undergoing a seminar for first time violators.</p>	<p>Does the police reports made by the MPA staff are followed by a complete legal process?</p>	<p>Q3.2-1.32</p>	<p>0 or 3</p>	<p>Usamos la misma pregunta para contestar esta pregunta y la anterior. Por tanto, aunque la pregunta 2.1.4 prodría darse sin que se cumpla la pregunta 2.1.5 consideramos basándonos en nuestra experiencia que cuando se da la segunda siempre se da la primera.</p> <ul style="list-style-type: none"> • Case reports • Legal documents • List of violators penalized • Logbooks • Record of fines collected • List / pictures of gears confiscated
<p>2.1.6 Funds accessed and used</p> <p>Allocated funds should have been accessed and used for MPA management. Funds can also come from other sources (e.g., donors, projects, etc.)</p>	<p>How is the action plan implemented being funded?</p>	<p>Q3.2-1.6</p>	<p>0 or 1</p>	<p>Aquí no tenemos en cuenta quien lo financia, si hay algún organismo ya la consideramos positiva e = 1</p> <ul style="list-style-type: none"> • Expenditure reports • Financial statements
<p>2.1.7 Infrastructures maintained</p> <p>Are the MPA billboards, boundary markers, anchor buoys, guardhouse, boats, or other infrastructures for MPA management being maintained?</p>	<p>Does the MgP provide supplies and installation, current and needed? Does the MgP provide the global budget, with detail line for human resources, operational costs, equipment?</p>	<p>Q3.1-2.3.6</p>	<p>0 or 1</p>	<ul style="list-style-type: none"> • Photograph of infrastructures showing their condition • Expenditure reports on maintenance of infrastructures <p>Al menos una de las preguntas debe de ser afirmativa para que sea = 1</p>

2.1.8 IEC programme conducted to sustain public awareness and compliance Is the IEC programme being implemented to sustain public awareness and compliance?	0 or 1	Q3.2 - 1.14	Are any management tools for environment education and awareness raising being used?	<ul style="list-style-type: none"> • Documentation of IEC activities • IEC materials
2.1.9 Participatory biophysical monitoring in the last 3 years	0 or 1	Q3.2 - 1.36	What are the monitoring programme implemented in the MPA? Regular monitoring programme about species Occasional monitoring programme about species Regular monitoring programme about habitats Occasional monitoring programme about habitats Regular monitoring programme about socio-economics activities Occasional monitoring programme about socio-economics activities	<p>Si se contesta REGULAR tanto para especies como para hábitats y el plan de gestión lleva implementado 3 años entonces = 1</p> <p>• Data or report over the last three years</p>
TOTAL SCORE FOR LEVEL 2			15	
Thresholds are in BLOCK CAPITALS. To achieve Level 2, Level 1 requirements must have been passed and a minimum of 11 points obtained from Level 2 with all Thresholds met.				
LEVEL 3 - MPA MANAGEMENT IS SUSTAINED FOR AT LEAST 5 YEARS (11 Items, 21 Points) All thresholds in levels 1, 2 & 3 achieved and at least 16 points obtained from Level 3				
3.1 The MPA management is effectively sustained for at least 5 years (21/21)				
3.1.1 Management plan and ordinance reviewed and updated Has the MPA management plan reviewed or updated in response to emerging needs and challenges?	0 or 1	Q3.2 - 1.11	How many changes have been made concerning management regulations since the first management plan implemented?	<ul style="list-style-type: none"> • Updated management plan or amendments to the plan • Minutes of meeting that reviewed the plan <p>Si la respuesta afirma que hubo cambios y el plan lleva implementado 5 años entonces = 1</p>

<p>3.1.2 FUNDS GENERATED OR ACCESSED FOR LAST 2 YEARS *</p> <p>Are financial sources generated or accessed for the last 2 or more consecutive years? (e.g., budget from LGU / IPAF or from external sources)</p>	<p>0 or 3</p> <p>Q3.2-1.6</p>	<p>How is the action plan implemented being funded?</p>	<p>Aquí no tenemos en cuenta quien lo financia, si hay algún organismo que lo financie ya la consideramos positiva y el plan lleva dos años implementado = 3</p>	<ul style="list-style-type: none"> • Audited expenditure report for the last 2 years
<p>3.1.3 Management body able to supervise management activities of the MPA and access technical assistance, if necessary</p> <p>Management body is fully functioning and has shown capacity to locate and access technical assistance to improve MPA management and status</p>	<p>0 or 1</p> <p>Q3.2-1.10</p>	<p>How often does the government body request technical reports about the MPA monitoring?</p>	<p>No tenemos en cuenta la periodicidad, solo si se hacen los technical reports</p>	<ul style="list-style-type: none"> • Letters with reply from partner for technical assistance • Reports with other partners • Minutes of meetings w/ action points
<p>3.1.4 ENFORCEMENT SYSTEM FULLY OPERATIONAL IN THE LAST FIVE CONSECUTIVE YEARS *</p> <p>The enforcement plan is fully implemented. Patrolling activities, violations reporting and apprehension, and sanctioning of violators should have been on-going over the last five years.</p>	<p>0 or 3</p> <p>Q3.2-1.27</p> <p>Q3.2-1.28</p> <p>Q3.2-1.30</p>	<p>Does surveillance exist?</p> <p>Is the MPA staff empowered to enforce the MPA regulations?</p> <p>Average number of hours of surveillance per month. Solo tenemos en cuenta que haya horas</p>	<p>La segunda pregunta debe ser afirmativas y la primera o la tercera también y el plan de gestión debe llevar implementado 5 años, entonces se da la puntuación = 3. La tercera se considera afirmativa cuando da un número de horas distinto de 0.</p>	<ul style="list-style-type: none"> • Logbook with records of patrolling apprehensions • Annual enforcement reports (for 5 years)
<p>3.1.5 IEC programme enhanced</p> <p>IEC materials are regularly reproduced or updated and disseminated</p>	<p>0 or 1</p> <p>Q3.2 - 1.14</p>	<p>Are any management tools for environment education and awareness raising being used?</p>	<p>Se considera 1 si se ha contestado afirmativamente y asumimos que se ha realizado durante estos 5 años si el MgP está implementado al menos ese tiempo.</p>	<ul style="list-style-type: none"> • IEC Programmes progress reports (including dissemination details) • Updated IEC materials
<p>3.1.6 PERFORMANCE MONITORING OF THE MANAGEMENT BODY CONDUCTED REGULARLY *</p> <p>Performance monitoring of the management body should be done regularly as defined in the management plan or at least every 2 years. Management evaluation tools such as the MPA MEAT can be used to assess management performance.</p>	<p>0 or 3</p> <p>Q3.1- 2.7.1</p> <p>Q3.2 - 1.34</p> <p>Q3.2 - 1.35</p>	<p>Does the MgP provide a regular monitoring programme that support your MPA objectives?</p> <p>Do any assessments exist to compare the previous situation and the current one?</p> <p>How often are the assessments carried out?</p>	<p>Se dan 3 puntos cuando solo la primera es afirmativa y/o cuando la segunda es afirmativa y la tercera es monthly, semestral, annual, more</p>	<p>Performance evaluation reports for the management body</p>

3.1.7 REGULAR PARTICIPATORY MONITORING CONDUCTED *	0 or 3	Q3.2 - 1.36	What are the monitoring programmes implemented in the MPA?	<p>Regular monitoring programme about species</p> <p>Occasional monitoring programme about species</p> <p>Regular monitoring programme about habitats</p> <p>Occasional monitoring programme about habitats</p> <p>Regular monitoring programme about socio-economics activities</p> <p>Occasional monitoring programme about socio-economics activities</p>	<p>Si se contesta REGULAR tanto para especies como para hábitats y el plan de gestión lleva implementado 5 años entonces =3</p> <p>También se ha dado 3 cuando es REGULAR para hábitats y OCASIONAL para especies y viceversa.</p>	<ul style="list-style-type: none"> Monitoring data showing trends Attendance sheets showing names of locals who participated in monitoring activities
3.1.8 Socioeconomic monitoring conducted regularly	0 or 1	Q3.2 - 1.36	What are the monitoring programmes implemented in the MPA?	<p>Regular monitoring programme about species</p> <p>Occasional monitoring programme about species</p> <p>Regular monitoring programme about habitats</p> <p>Occasional monitoring programme about habitats</p> <p>Regular monitoring programme about socio-economics activities</p> <p>Occasional monitoring programme about socio-economics activities</p>	<p>Si se contesta REGULAR para socio-economic activities y el plan de gestión lleva implementado 5 años entonces = 1</p>	<ul style="list-style-type: none"> Socioeconomic data showing trends

<p>Does the MgP provide global budget, with detail line for human resources, operational costs, and equipment? Does the MgP provide the budget per activities? How is the action plan (described in the MgP) implemented being funded? Local administration, regional administration, national administration, European and international administration, donations, stakeholders, MPA activities and merchandising (e.g. charge for admission), NGO, Other</p>	<p>Q3.1-2.3.7 Q3.1-2.3.8 Q3.2-1.6</p>	<p>0 or 1</p>	<p>Se considera 1 si una de las dos primeras preguntas es afirmativa y si está financiada por al menos una entidad</p> <ul style="list-style-type: none"> • Resolution or ordinance imposing fees • Financial guidelines • Private-public partnership agreements
<p>3.1.9 Sustainable financing strategy established Is there an internally generated revenue scheme?</p>	<p>Q3.1-2.3.7 Q3.1-2.3.8 Q3.2-1.6</p>	<p>0 or 3</p>	<p>Does the police reports made by the MPA staff are followed by a complete legal process? Are these reports being used to improve the management regulations?</p>
<p>3.1.10 VIOLATORS PROSECUTED AND SANCTIONED * Are the prosecution process requirements, if any, satisfied by the MPA management body?</p>	<p>Q3.2-1.32</p>	<p>0 or 1</p>	<p>• Appearance in court or court decision • Other sanctions implemented</p>
<p>3.1.11 Feedback system in place (for monitoring)</p>	<p>Q3.2 - 1.38</p>	<p>0 or 1</p>	<p>• Minutes of public hearings / presentations</p>
<p>Is there a feedback system in place?</p>			
<p>TOTAL SCORE FOR LEVEL 3</p>		<p>21</p>	<p>Thresholds are in BLOCK CAPITALS. To achieve Level 3, Level 1 & 2 requirements must have been passed and a minimum of 16 points obtained from Level 3 with all Thresholds met.</p>
<p>LEVEL 4 - MPA MANAGEMENT IS EFFECTIVELY INSTITUTIONALIZED FOR AT LEAST 7 YEARS (11 Items, 21 Points)</p>			
<p>4.1 MPA management effectively institutionalized for at least 7 years (21/21)</p>			

<p>4.1.1 Political support from the provincial council or LGUs (Local Government Units)</p> <p>The Provincial Council (for locally-managed MPAs) or local governments have committed to give the MPA institutional support to strengthen enforcement and collaboration. Political support = budget, manpower, or technical</p>	<p>0 or 1</p> <p>Q3.2 - 1.6</p>	<p>How is the action plan (described in the MP) implemented being funded?</p> <p>Local administration, regional administration, national administration, European and international administration, donations, stakeholders, MPA activities and merchandising (e.g. charge for admission), NGO, Other, please specify</p>	<p>• Contracts / MOA / MOU</p> <p>• Annual Investment Plan (for NIPAS)</p> <p>• SP Resolution committing/providing support</p> <p>Para contestar esta pregunta solo se ha tenido en cuenta como 1 si la financiación es local o regional. Si es nacional o internacional=0</p>	
<p>4.1.2 MPA MANAGEMENT PLAN INCORPORATED IN BROADER DEVELOPMENT PLANS</p> <p>The MPA seacape is incorporated within the long-term LGU or provincial development plans (e.g., Comprehensive Land Use Plans, Provincial Development Plans, etc.). Higher level plans where the MPA is integrated.</p>	<p>0 or 3</p> <p>Q3.1-2.2.27</p> <p>Q3.1-2.2.29</p>	<p>Is the management plan focused to a regional (broader) scale, so as the MPA may be characterised regarding the ecological Atlantic Arc MPAs for the MPA stakes?</p> <p>Does the MgP describe the action plan for cooperation with other MPA at the Atlantic Arc scale?</p>	<p>Al menos una de las preguntas debe de ser afirmativa para dar la puntuación = 3</p> <p>• Higher level plans where the MPA is integrated</p>	
<p>4.1.3 Management body capable of outsourcing funds</p> <p>Is the management body able to get funds for the MPA from external sources?</p>	<p>0 or 1</p> <p>Q3.2-1.6</p>	<p>How is the action plan (described in the MP) implemented being funded? Local administration, regional administration, national administration, European and international administration, donations, stakeholders, MPA activities and merchandising (e.g. charge for admission), NGO, Other, please specify.</p>	<p>Pero nos quedamos con las contestaciones ONGs, donativos, usuarios y actividades de la AMP e incluso otras = 1. Las financiadas por administración se consideran 0.</p> <p>• Proposals submitted (received copy)</p> <p>• Grant agreements entered into by the management body</p>	

<p>4.1.4 Coordination with LGUs and other groups clearly defined and formalized. Is the coordination with appropriate national & local agencies on CRM / MPA policies and with other LGUs achieved? Are the accountabilities and working relationships among collaborating institutions clearly defined and formalized?</p>	<p>0 or 1</p>	<p>Q3.1-2.5.3</p>	<p>Does the management plan provide agreements with other institutions for control missions in the MPA?</p>	<ul style="list-style-type: none"> • Memorandum of Agreement • Partnership contracts / documents 	
<p>4.1.5 ECOLOGICAL AND SOCIOECONOMIC IMPACT ASSESSMENT CONDUCTED *</p> <p>Assessment of resource status and long-term trends should be conducted together with an assessment of benefits obtained from the MPA by stakeholders. Impacts should also be assessed vis-a-vis the overall objective of the MPA or NIPAS seascape.</p>	<p>0 or 3</p>	<p>Q3.2 - 1.36</p>	<p>What are the monitoring program implemented in the MPA?</p> <p>Regular monitoring programme about species Occasional monitoring programme about species Regular monitoring programme about habitats Occasional monitoring programme about habitats Regular monitoring programme about socio-economics activities Occasional monitoring programme about socio-economics activities Does the creation and implementation of the MPA caused an impact on the income per capita of the area?</p>	<p>Para dar la puntuación de 3, la primera respuesta debe ser afirmativa para la respuesta REGULAR socio-economics actividades y REGULAR por los menos de uno especies o habitats. Además las cuatro últimas preguntas se utilizan como indicador de que hubo un assesment si son contestadas. Resumiendo si alguna de las cuatro últimas preguntas tienen respuesta y además la primera es afirmativa en REGULAR socio-economics y REGULAR especies y/o habitats entonces =3</p>	<ul style="list-style-type: none"> • Trends and temporal assessments of ecological & socio-economic impacts • Impact assessment report
<p>Q3.3-1.7</p>	<p>Q3.3-1.6</p>	<p>Q3.3-1.8</p>	<p>Does the creation and implementation of the MPA caused a higher value of the surrounding properties? Has there been any social impact linked to the creation and implementation of the MPA in terms of empowerment of fishermen? Has there been any social impact linked to the creation and implementation of the MPA in terms of gender impact?</p>		
<p>Q3.3-1.10</p>					

4.1.6 PERFORMANCE MONITORING AND EVALUATION SYSTEM LINKED TO AN INCENTIVE SYSTEM *	0 or 3	Recognition / awards are regularly being given to outstanding members, law enforcers, etc. Incentives can also include granting of available loans or supplementary livelihood opportunities.	Esta información no está recogida en los cuestionarios. Por tanto excluimos la pregunta y nuestros indicadores tendrán potencialmente hasta 3 puntos menos	<ul style="list-style-type: none"> • Awards / Recognition received • Announcement of competition / performance incentives
4.1.7 IEC SUSTAINED OVER SEVEN YEARS *	0 or 3	Are any management tools for environment education and awareness raising being used? If yes please specify which ones	Es = 3 si al menos una de las preguntas es afirmativa, las especificaciones no las tenemos en cuenta. Y el plan de gestión lleva implementado 7 años	<ul style="list-style-type: none"> • IEC programmes progress reports for 7 years • IEC long-term plan
Has the IEC programmes for the MPA been sustained over the past seven years?		Is the government body spreading the progresses of the MPA to stakeholder community? If yes, how often?		
4.1.8 Management body can adjudicate certain cases	0 or 1	Is the MPA staff empowered to enforce the MPA regulations?		<ul style="list-style-type: none"> • Proceedings of adjudications • Letters of complaints
Does the management body adjudicate administrative cases? E.g. Proceedings of adjudications, Letters of complaints				
4.1.9 Expansion strategies or resource enhancement programme initiated MPA coverage or core zones (for local MPAs) expanded. Advance conservation and resource enhancement activities implemented (e.g., coral reef restoration, mangrove reforestation, giant clam restocking, etc.).	0 or 1		Esta información no está recogida en los cuestionarios. Por tanto excluimos la pregunta y nuestros indicadores tendrán otro punto menos	<ul style="list-style-type: none"> • Reports
4.1.10 Support facilities constructed	0 or 1	Does the management plan provide supplies and installation, current and needed?		<ul style="list-style-type: none"> • Photographs of infrastructure
Facilities to support MPA enterprises or improve conservation efforts are constructed (e.g., guard-house, visitors' center, education / training center, watchtowers, etc.)				

<p>4.1.11 MPA FINANCIALLY SELF-SUSTAINING IN THE LAST SEVEN (7) CONSECUTIVE YEARS *</p>	<p>0 or 3</p>	<p>Q3.2-1.7</p>	<p>If the budget is being used, is it being expended accordingly to the action plan? Is the budget enough to cover all the actions of the Mgp?</p>	<p>Si al menos una de las preguntas es afirmativa entonces puedo poner =3 y el plan lleva implementado 7 años</p> <ul style="list-style-type: none"> • Audited financial report for the last seven years
<p>Revenues (internally generated and/or obtained from external sources) should be enough to cover operating expenses of the MPA in the last seven (7) years</p>		<p>Q3.2-1.8</p>		
<p>TOTAL SCORE FOR LEVEL 4</p>		<p>21</p>		
<p>Thresholds are in BLOCK CAPITALS. To achieve Level 4, Levels 1 to 3 requirements must have been passed and a minimum of 16 points obtained from Level 4 with all Thresholds met.</p>				

ANNEX 4.III

Annex 4.III. The questions of the MEAT survey grouped into 8 key categories, the score of each category and how to assess it.

CATEGORIES	ITEM NUMBERS IN MPA MEAT FORM	TOTAL AVAILABLE POINTS	ACTUAL SCORE PER MANAGEMENT FOCUS	ACTUAL SCORE DIVIDE BY TOTAL AVAILABLE POINTS
MANAGEMENT PLAN	1.2.1 + 1.2.2 + 1.2.4 + 3.1.1 + 4.1.2	9		0%
MANAGEMENT BODY	1.2.3 + 1.4.1 + 1.4.2 + 3.1.3 + 3.1.6 + 4.1.1 + 4.1.4	11		0%
LEGAL INSTRUMENT	1.3.1 + 1.3.2 + 1.3.3	5		0%
COMMUNITY PARTICIPATION	1.1.1 + 1.1.2	2		0%
FINANCING	1.4.3 + 2.1.6 + 3.1.2 + 3.1.9 + 4.1.3 + 4.1.11	12		0%
IEC	1.4.4 + 2.1.7 + 2.1.8 + 3.1.5 + 4.1.7	7		0%
ENFORCEMENT	1.4.5 + 1.4.6 + 2.1.1 + 2.1.2 + 2.1.3 + 2.1.4 + 2.1.5 + 3.1.4 + 3.1.10 + 4.1.8	20		0%
MONITORING & EVALUATION	1.1.3 + 1.4.7 + 2.1.9 + 3.1.7 + 3.1.8 + 3.1.11 + 4.1.5	13		0%



ANNEX 4.IV

Annex 4.IV. The scores obtained by applying the MEAT survey adapted for each case study and level

MP ID	Country	Years MPA established	Years MgP implemented	1.1.1	1.1.2	1.1.3T	1.2.1	1.2.2	1.2.3	1.2.4T	1.3.1	1.3.2	1.3.3T	1.4.1	1.4.2T	1.4.3T	1.4.4	1.4.5	1.4.6	1.4.7	lev1	2.1.1	2.1.2	2.1.3T	2.1.4T	2.1.5T	2.1.6	2.1.7	2.1.8
1	France	7	6	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	1	27	1	1	3	0	0	1	0	1
3	France	15	13	1	0	3	1	0	1	3	1	1	3	1	3	0	1	1	1	1	22	1	1	3	0	0	1	0	1
4	France	10	3	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	0	26	1	1	3	3	3	1	0	1
5	France	14	7	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	1	3	3	3	1	1	1
6	France	10	2	1	1	3	1	1	1	3	1	0	3	1	3	0	1	1	1	1	23	1	1	3	0	0	1	0	0
7	France	39	18	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	1	3	3	3	1	1	1
8	France	10	4	1	1	3	1	1	1	3	1	0	3	1	3	3	1	0	0	1	24	1	1	3	0	0	1	0	1
9	France	8	10	1	1	3	1	1	1	3	1	1	3	1	3	3	1	0	1	0	25	0	1	0	3	3	1	0	1
11	France	8	5	1	1	3	1	1	1	3	1	1	3	1	3	0	0	1	1	0	22	1	0	3	0	0	1	0	1
12	France	8	7	1	1	3	1	1	1	3	1	1	3	1	3	3	1	0	0	0	24	1	1	0	0	0	1	0	1
13	France	8	6	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	0	26	1	1	3	0	0	1	0	1
14	France	30	19	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	0	3	0	0	1	1	1
16	France	10	10	1	1	3	1	1	1	3	1	1	3	1	3	3	0	0	1	0	24	1	1	3	0	0	1	1	1
21	France	5	2	1	0	3	1	0	1	3	1	1	3	1	3	0	1	0	1	1	21	1	1	3	3	3	1	0	1
23	France	5	3	1	0	3	1	0	1	3	1	1	3	1	3	0	1	1	1	0	21	0	1	3	0	0	1	1	0
24	France	36	15	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	1	3	3	3	1	1	1
25	France	32	18	1	0	0	1	0	1	3	1	1	3	0	3	0	1	1	1	1	18	0	1	3	3	3	1	1	1
28	France	9	9	1	1	3	1	1	1	3	1	1	3	1	3	3	1	0	1	1	26	1	0	3	3	3	1	1	1
29	France	10	4	1	1	3	1	1	1	3	1	0	3	1	3	3	1	1	1	0	25	1	1	0	3	3	1	0	1
30	France	18	4	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	1	3	3	3	1	0	1
32	France	16	10	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	0	24	1	1	3	3	3	1	1	1
33	France	8	2	1	1	3	1	1	1	3	1	1	3	1	3	3	0	0	1	0	24	1	1	3	0	0	1	0	0
37	France	10	8	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	0	26	1	1	3	3	3	1	0	1
38	France	19	16	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	1	3	3	3	1	0	1
39	France	4	2	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	0	24	1	0	3	3	3	1	0	1
40	France	10	4	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	0	26	1	0	3	0	0	1	0	1
41	France	29	2	1	0	3	1	0	1	3	1	1	3	1	3	3	1	1	1	1	25	1	1	3	3	3	1	1	1
42	France	8	6	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	0	26	1	0	3	0	0	1	0	1
43	France	7	5	1	1	3	1	1	1	3	1	1	3	1	3	3	1	1	1	0	26	1	1	3	0	0	1	0	1
47	France	6	3	1	0	3	1	0	1	3	1	0	3	1	3	3	1	1	1	1	24	1	1	3	0	0	1	1	1
48	France	8	14	1	1	3	1	1	1	3	1	1	3	1	3	3	0	0	1	0	24	0	1	3	0	0	1	1	1
49	England	13	12	1	1	3	1	1	1	3	1	1	3	1	3	0	1	1	1	1	24	1	0	0	0	0	1	0	1
55	England	8	13	1	0	3	1	0	1	3	1	0	3	1	3	0	1	1	1	0	20	1	1	3	3	3	1	0	0
65	England	19	12	1	0	0	1	0	1	3	1	0	3	1	3	0	1	0	1	1	17	1	1	3	0	0	1	0	1
66	England	18	4	1	0	0	1	0	1	3	1	0	3	1	3	0	0	0	1	0	15	0	1	3	0	0	1	0	0
68	England	8	12	1	0	0	1	0	1	3	1	0	3	1	3	0	0	0	1	1	16	1	1	0	0	0	1	0	1
70	Portugal	15	8	1	0	3	1	0	1	3	1	1	3	1	3	0	0	0	1	0	19	0	0	3	3	3	1	0	1
71	Portugal	15	5	1	0	3	1	0	1	3	1	1	3	1	3	3	0	0	1	0	22	1	0	3	3	3	1	1	1
72	Portugal	16	8	1	0	3	1	0	1	3	1	1	3	1	3	0	0	0	1	0	19	0	0	0	3	3	1	0	0
74	Portugal	13	6	1	0	3	1	0	1	3	1	1	3	1	3	3	0	0	1	0	22	1	0	0	3	3	1	1	0
75	Portugal	8	5	1	0	3	1	0	1	3	1	1	3	1	3	3	0	0	1	0	22	1	0	0	3	3	1	1	1
76	Portugal	18	2	1	0	3	1	0	1	3	1	1	3	1	3	3	0	0	1	0	22	1	0	0	3	3	1	1	0
77	Spain	27	7	1	1	3	1	1	1	3	1	0	3	0	0	3	0	0	1	0	19	1	1	3	3	3	1	0	0
82	Spain	18	16	1	1	0	1	1	1	3	1	0	3	0	0	0	1	1	1	1	16	0	1	3	0	0	1	0	0
90	Spain	9	9	1	0	3	1	0	1	3	1	1	3	1	3	3	1	0	1	0	23	1	1	0	3	3	1	0	1
93	Spain	10	7	0	0	3	1	0	0	3	1	0	3	0	3	0	1	0	1	1	17	0	1	3	3	3	1	0	1
98	Spain	15	15	1	1	0	1	1	1	3	1	0	3	0	3	0	0	0	0	0	15	0	0	0	0	0	0	0	0
99	Spain	11	14	1	0	3	1	0	1	3	1	0	3	1	3	3	1	0	1	1	23	1	1	3	3	3	1	1	1
100	Spain	12	12	0	0	3	1	0	0	3	1	0	3	1	3	3	1	1	1	1	22	0	1	3	3	3	1	1	1
101	Spain	18	18	0	0	3	1	0	0	3	1	0	3	1	3	3	1	1	1	1	22	0	1	3	3	3	1	1	0
104	Spain	7	16	1	1	0	1	1	1	3	1	0	3	0	0	0	0	1	1	0	14	0	0	3	3	3	1	0	1
106	Spain	6	3	1	1	0	1	1	1	3	1	1	3	1	3	3	1	1	1	0	23	1	0	3	3	3	1	1	1
109	Spain	17	17	0	0	3	1	0	0	3	1	0	3	1	3	3	1	1	1	1	22	0	1	3	3	3	1	1	0
110	Spain	4	3	1	1	0	1	1	1	3	1	1	3	1	3	3	1	1	1	0	23	1	0	3	3	3	1	1	1
111	Spain	18	15	1	1	0	1	1	1	3	1	0	3	0	3	0	1	1	1	1	19	0	1	3	0	0	1	0	1
120	Spain	4	4	1	1	0	1	1	1	3	1	0	3	0	3	0	1	1	1	0	18	0	0	3	3	3	1	0	1
121	Spain	29	20	1	0	3	1	0	1	3	1	0	3	1	3	3	1	1	1	1	24	1	1	3	3	3	1	1	1

2.1.9	lev2	3.1.1	3.1.2T	3.1.3	3.1.4T	3.1.5	3.1.6T	3.1.7T	3.1.8	3.1.9	3.1.10T	3.1.11	lev3	4.1.1	4.1.2T	4.1.3	4.1.4	4.1.5T	4.1.6T	4.1.7T	4.1.8	4.1.9	4.1.10	4.1.11T	lev4	Total score	Level achieved MPA	Score achieved Level MPA	Level achieved MgP	Score achieved Level MgP
1	8	1	3	0	0	1	3	3	0	1	0	0	12	1	3	0	1	0	0	0	0	0	0	0	5	52	1	35	1	35
1	8	0	3	1	3	1	3	3	0	1	0	0	15	1	3	0	1	0	0	0	3	1	0	3	12	57	0	22	0	22
0	13	0	3	0	0	1	3	0	0	1	3	0	11	1	3	0	0	0	0	0	0	0	0	0	4	54	2	50	2	50
1	15	1	3	1	3	1	3	3	1	1	3	1	21	1	0	0	1	3	0	0	3	1	1	3	13	74	3	74	3	74
0	6	1	3	1	0	0	3	3	1	1	0	1	14	1	0	0	1	0	0	0	0	0	0	0	2	45	0	23	0	23
1	15	1	3	1	3	1	3	3	1	1	3	1	21	1	3	1	1	3	0	0	3	1	1	3	17	78	4	78	4	78
1	8	0	3	1	0	1	3	3	0	1	0	0	12	1	0	0	0	0	0	0	0	0	0	0	1	45	1	32	1	32
1	10	0	3	1	0	1	3	0	0	1	3	0	12	1	0	0	0	0	0	0	3	0	0	0	4	51	1	35	1	35
0	6	0	3	0	0	1	3	0	1	1	0	0	9	1	0	0	0	0	0	0	0	0	0	0	1	38	0	22	0	22
0	4	0	3	0	0	1	3	0	0	1	0	0	8	0	0	0	0	0	0	0	3	0	0	3	6	42	1	28	1	28
0	7	1	3	1	0	1	3	0	0	1	0	1	11	1	0	0	0	0	0	0	0	0	0	0	1	45	1	33	1	33
1	8	1	3	1	3	1	3	3	0	1	0	0	16	1	3	0	0	0	0	0	3	1	0	3	11	60	1	33	1	33
0	8	0	3	0	0	1	3	3	0	1	0	0	11	1	0	0	0	0	0	0	3	0	0	3	7	50	1	32	1	32
0	13	1	3	0	0	1	3	0	1	1	3	0	13	1	3	0	0	3	0	0	0	1	0	0	8	55	0	21	0	21
0	6	1	3	1	0	0	0	0	1	1	0	0	7	1	0	1	1	0	0	0	0	1	0	5	39	0	21	0	21	
1	15	1	3	1	3	1	3	3	1	1	3	1	21	1	3	1	1	0	0	0	3	1	1	3	14	75	3	75	3	75
1	14	0	3	1	3	1	3	3	0	1	3	0	18	1	3	0	0	0	0	0	3	1	1	0	9	59	0	18	0	18
1	14	0	3	0	0	1	3	3	1	1	3	0	15	1	0	0	0	0	0	0	3	0	0	0	5	60	2	55	2	55
0	10	1	3	0	0	1	3	0	0	1	3	0	12	1	0	0	0	0	0	0	0	1	0	0	2	49	1	35	1	35
1	14	0	3	1	0	1	3	0	1	1	3	0	13	1	0	0	1	0	0	0	0	1	0	0	3	55	2	52	2	52
0	14	1	3	1	3	1	3	3	1	1	3	0	20	1	0	1	0	3	0	0	3	1	1	3	13	71	3	71	3	71
0	6	0	3	1	0	0	3	0	0	1	0	0	8	1	0	0	0	0	0	0	0	0	0	0	1	39	1	30	1	30
0	13	1	3	1	3	1	3	0	0	1	3	0	16	1	0	1	1	0	0	0	3	1	0	3	10	65	2	55	2	55
1	14	0	3	1	3	1	3	3	1	1	3	0	19	0	0	1	1	0	0	0	3	1	0	0	6	64	3	64	3	64
0	12	0	3	1	0	1	3	0	0	1	3	0	12	1	0	1	0	0	0	0	0	1	0	0	3	51	2	48	1	36
0	6	0	3	0	0	1	3	0	0	1	0	0	8	1	0	0	0	0	0	0	0	0	0	0	1	41	1	32	1	32
0	14	0	3	1	0	1	3	0	0	1	3	0	12	1	0	1	1	0	0	0	0	1	0	5	56	2	51	1	39	
0	6	0	3	0	0	1	3	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	40	1	32	1	32
0	7	1	3	0	3	1	3	3	0	1	0	0	15	1	0	1	1	0	0	0	0	1	0	0	4	52	1	33	1	33
1	9	0	3	1	0	1	3	0	0	1	0	0	9	1	3	1	0	0	0	0	0	1	0	7	49	1	33	1	33	
0	7	1	3	1	0	1	3	0	0	1	0	0	10	0	0	0	0	0	0	0	3	0	1	0	4	45	1	31	1	31
1	4	1	3	1	0	1	3	3	0	1	0	1	14	1	0	1	0	0	0	0	3	0	0	3	8	50	0	24	0	24
0	12	1	3	1	3	0	3	0	0	1	3	1	16	1	0	1	0	3	0	0	3	1	0	3	12	60	0	20	0	20
1	8	1	3	1	3	1	3	0	0	1	0	1	14	1	0	1	0	0	0	0	3	1	0	3	9	48	0	17	0	17
0	5	0	3	1	0	0	3	0	0	1	0	1	9	1	0	1	0	0	0	0	0	0	0	0	2	31	0	15	0	15
1	5	0	3	1	0	1	3	3	0	1	0	1	13	1	0	1	0	3	0	0	3	0	0	3	11	45	0	16	0	16
0	11	0	3	1	3	1	3	0	0	1	3	0	15	0	0	1	0	0	0	0	3	1	0	0	5	50	0	19	0	19
0	13	0	3	1	3	1	3	0	0	1	3	0	15	0	0	1	0	0	0	0	0	1	0	0	2	52	2	50	2	50
0	7	0	3	1	0	0	0	0	0	1	3	0	8	0	0	1	0	0	0	0	0	0	0	1	35	0	19	0	19	
0	9	0	3	1	0	0	0	0	0	1	3	0	8	0	0	1	0	0	0	0	0	0	0	1	40	1	31	1	31	
0	10	0	3	1	0	1	0	0	0	1	3	0	9	0	0	1	0	0	0	0	0	0	0	1	42	1	32	1	32	
0	9	0	3	1	0	0	0	0	0	1	3	0	8	0	0	0	1	0	0	0	0	0	0	1	40	1	31	1	31	
0	12	0	3	0	3	0	0	0	0	1	3	0	10	1	0	1	0	0	0	0	0	1	0	3	6	47	0	19	0	19
1	6	1	3	1	3	0	0	3	0	1	0	1	13	1	0	0	1	0	0	0	3	1	0	0	6	41	0	16	0	16
0	10	1	3	1	0	1	3	0	1	1	3	1	15	1	0	0	1	3	0	0	3	0	0	3	11	59	1	33	1	33
1	13	1	3	1	3	1	3	3	0	1	3	1	20	1	0	0	0	0	0	0	3	1	0	3	8	58	0	17	0	17
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	15	0	15	
1	15	0	3	1	3	1	3	3	0	1	3	1	19	0	3	0	0	3	0	0	3	1	1	3	14	71	4	71	4	71
1	14	1	3	1	3	1	3	3	0	1	3	1	20	0	3	0	0	0	0	0	3	1	0	3	10	66	3	66	3	66
1	13	1	3	1	3	0	3	3	0	1	3	1	19	1	3	0	1	0	0	0	3	1	0	3	12	66	3	66	3	66
0	11	1	3	1	0	1	0	0	0	0	3	1	10	0	0	0	0	0	0	0	3	0	0	3	3	38	0	14	0	14
0	13	0	3	1	0	1	3	0	0	1	3	1	13	1	0	1	1	0	0	0	0	1	0	5	54	0	23	0	23	
1	13	1	3	1	3	0	3	3	0	1	3	1	19	1	3	0	1	0	0	0	3	1	0	3	12	66	3	66	3	66
0	13	0	3	1	0	1	3	0	0	1	3	1	13	1	3	0	1	3	0	0	0	1	0	10	59	0	23	0	23	
1	7	1	3	1	3	1	0	3	0	1	0	1	14	1	0	0	1	3	0	0	3	1	0	9	49	0	19	0	19	
0	11	0	3	1	0	1	0	0	0	1	3	0	9	1	0	0	0	0	0	0	0	1	0	2	40	0	18	0	18	
1	15	1	3	1	3	1	3	3	1	1	3	1	21	1	0	0	1	3	0	0	3	1	1	3	13	73	3	73	3	73



ANNEX 5.I

Annex 5.I The three complete questionnaires used in this study

QUESTIONNAIRE Q1	HOW TO ANSWER?	
DATE	dd/mm/yyyy	State the date of your answer to the questionnaire
COUNTRY	FRA ESP PRT GBR	State the country for which you answer the questionnaire
DATA PROVIDER		State your last and first name
ORGANSATION		State the complete name of your organization in its original language
General feature of the management plan		
MPA official name	Please state the official name of the MPA in its original language	
Designation	Please state the designation of your MPA	
Designation in English	Please state the designation of the MPA translated into English	
Does the management plan follow the OSPAR guidelines for MPA management (2003-18)?	_not at all _a little _by its majority	Please select one item
MPA objectives	_To maintain/conserves/restore biodiversity, natural heritage of habitats, species, landscapes under protection status _To maintain/conserves/restore biodiversity, natural heritage of habitats, species, landscapes with no protection status _To maintain key ecological functions (spawning areas, nursery, feeding areas, resting areas, productivity areas, etc.) _To protect, conserve, restore Cultural heritage _Sustainable management/development of socio-economic activities _Management of exploited natural resources _To improve the governance of the MPA territory _To improve water quality _To improve environmental education and public awareness _For scientific research _To create socio-economic added value _Other, specify	Please select one or several items
If you select : _Sustainable management:development of socio economic activities, please specify whiche ones		
If you select : __Management of exploited naturalsresources	Please specify which ones in detail	

Management plan structure		
Site's description and its characteristics		
Does the management plan describe the location of the MPA?	yes no	Is there are general information about its location?
Is there an atlas (map set) of the MPA?	yes no	
Is there a GIS:	yes no	
with physical shapes?	yes no	
biological shapes?	yes no	
cultural building shapes?	yes no	
recreational uses shapes?	yes no	
commercial uses shapes?	yes no	
traditional uses shapes?	yes no	
Is the GIS used for management?	yes no	
Does the management plan describe the conservation value of the MPA ?	yes no	
Does the managemeny plan describe the legal framework ?	yes no	
Does the management plan give a threat analysis ?	yes no	
If the answer to the previous question is YES, please select on which topics from the following list If the answer to the previous question is NO, please continue in question n° 39	_on overfishing issues _on exploited stocks _on alien marine animal species _on alien marine plant species _on marine pollution threats/solid waste issue _on marine pollution threats/oil or diesel degassing/oil spills _on marine pollution threats/noise pollution affecting marine species _on marine pollution threats/agricultural waste _on marine pollution threats/runoff waters _on marine pollution threats/industrial waste _on marine habitat destruction _on climate change threats _others (please specify)	Please select one or several items
Does the management plan provide a conflict analysis?	Yes No	
Does the management plan provide an analysis about current knowledge gaps?	Yes No	
Management		
Does the management plan describe the previous situation and previous results?	Yes No	
Does the management plan describe quantitative objectives?	Yes No	
Does the management plan describe qualitative objectives?	Yes No	

Does it describe an expected level of results?	Yes No	
If yes, are the objectives detailed in an action plan?	Yes No	
If the objectives are detailed in an action plan, is there a linked up agenda?	Yes No	
If the objectives are detailed in an action plan, is there a budget for each action?	Yes No	
Does the management plan describe the governance organisation?	Yes No	
Does the management plan describe all the agreements between administrations for the management of the site?	Yes No	
Does the management plan describe the boundaries?	Yes No	
Does the management plan describe the zoning plan?	Yes No	For example areas within the MPA where the regulation is different/ more restricted (like no take areas, etc.)
Does the management plan describe the regulations specific to the MPA?	Yes No	
Does the management plan describe the study action plan?	Yes No	
Does the management plan describe the management tools for biodiversity conservation ?	Yes No	
Does the management plan describe the management tools for biodiversity restoration ?	Yes No	
Does the management plan describe the management tools for cultural heritage support ?	Yes No	
Does the management plan describe the management tools for natural resource exploitations ?	Yes No	
Does the management plan describe the management tools for water quality monitoring and improvement ?	Yes No	
Does the management plan describe the management tools for commercial fisheries ?	Yes No	
Does the management plan describe the management tools for leisure fishing ?	Yes No	
Does the management plan describe the management tools for sailing/ anchoring ?	Yes No	
Does the management plan describe the management tools for scuba diving ?	Yes No	
Does the management plan describe the management tools for other economic activities?	Yes - please specify No	
Does the management plan describe the action plan for governance?	Yes No	

Does the management plan describe a communication plan for stakeholders of the MPA territory ?	Yes No	
Does the management plan describe the management tools for environment education an awareness raising?	Yes No	
Is the management plan focused on a regional (broader) scale, so that the MPA may be characterised regarding the ecological atlantic arc MPAs for its MPA stakes ?	Yes No	
Existence of monitoring between sites/ harmonisation/ team work between different sites		
Does the management plan describe an action plan for cooperation with other MPAs at the Atlantic arc scale ?	Yes no	
If yes, specify for what :	Study Management tools for biodiversity conservation and restoration Management tools for cultural heritage Management tools for natural resource exploitation Management tools for water quality Management tools for commercial fisheries Management tools for leisure fishing Management tools for sailing Management tools for scuba diving Management tools for other economic activities - please specify For governance For environment education an awareness raising Other - please specify	Please select one or several items
Administration		
Does the management plan provide MPA manager contact details (full adress)?	Yes No	
Does the management plan provide the current staff?	Yes No	
Does the management plan provide future staff needs?	Yes No	
Does the management plan provide current and future training needs for the staff?	Yes No	
Does the management plan provide the cost of the current and future training needs for the staff?	Yes No	
Does the management plan provide supplies and facilities, both current and needed?	Yes No	
Does the management plan provide the global budget with a detailed line for human resources, operational costs, equipment?	Yes No	
Does the management plan provide the budget per activity?	Yes No	
Does the management plan provide the MPA control/police budget?	Yes No	
Governance		

Does the management plan describe the organisation of the governance?	yes no	
Are all the representatives equally important (vote, opinion)?	Yes No - please specify how is distributed	
Control and enforcement		
Does the management plan provide a control action plan?	Yes No	
Does the management plan provide enforcement tools (warning, fine, etc.)?	Yes No	
Does the management plan provide agreements with other institutions for control missions in the MPA?	Yes No	
How is the management plan developed ?		
Is there a specific process for management plan development?	Yes No	
If yes, please describe it:		
Is there a specific process for management plan validation?	Yes No	
If yes, please describe it:		
Is there a specific process for stakeholder involvement?	Yes No	
Who is in charge of management plan development ?	_Management organisation _Service supplier _Other - specify	Please select one or several items
Is the management plan prepared only by the structure in charge?	Yes No	
If no, who has it been prepared by?	_Public administrations _Local representatives _Scientists _Professional fishermen and shellfishermen _Organisations from other users _NGOs _Management and advisory committee _Other stakeholders - please specify	Please select one or several items
By whom is the management plan approved?	_Scientific committee _Management committee _The governing body (board) _The relevant administration	Select one or several items
Monitoring and evaluation of the management plan according to the MPA objectives		
Does the management plan provide a regular monitoring programme that support your MPA objectives?	Yes No	
Does the management plan provide indicators to monitor each of the MPA objectives?	Yes No	
If yes, please specify which ones		
Does the management plan provide specific indicators to monitor the effectiveness of the MPA at the atlantic arc scale?	Yes No	
Specific regulation about activities, species and habitats		

Is the regulation of activities described in the Management Plan?	Swimming	
	Walking	
	Gathering	
	Mooring, anchoring	
	Navigation, sailing	
	Leisure shellfishing	
	Onboard recreational fishing	
	Spearfishing	
	Water sports (kayaking, motor yachting, jet skiing, wind-surf, kite surf)	
	Scuba diving	
	Scientific research	
	Extraction of non-living resources (e.g. aggregates, oil and gas, etc.)	
	Extraction of living resources (apart from professional fishing – algae, maerl)	
	Energy production (e.g. wind turbines)	
	Man-made structure (e.g. cables, pipeline)	
	Waste disposal	
	Pisciculture (fish farming)	
	Shellfish farming (oysters, mussels)	
	Military activities	
	Shipping traffic	
	Professional pelagic trawling	
	Professional bottom trawling	
	Professional bivalve dredging	
	Professional shoreline shellfishing	
	Professional gillnet fishing	
	Professional trammel net (tangle net) fishing	
	Professional long line fishing (pelagic)	
	Professional bottom long line fishing	
	Professional jigging fishing (active gear with one or many hooks)	
	Professional potting (lobster/octopus)	
	Professional purse seine fishing	
	Professional pole and line fishing	
	Destruction of habitat under protection status	
	Destruction of habitat with no protection status	
	Destruction of species under protection status	
	Destruction of species with no protection status	
	Harassment of species under protection status	
	Harassment of species with no protection status	
	Other - please specify	
Further information's		
Every document, remark, experience you think is interesting for this study please feel free to add any of those.		

QUESTIONNAIRE Q2	HOW TO ANSWER?
General feature	
MPA official name	
Designation	
Designation in English	
What is the marine part of the MPA?	
Management plan implementation assessment (from now on, the “management plan” means any kind of regulation specified at the beginning of the questionnaire)	
Are the qualitative objectives defined in the management plan being achieved , if they exist?	Yes No
Please describe one positive example	
Please describe one negative example	
Are the quantitative objectives defined in the management plan being achieved , if they exist?	Yes No
Please describe one positive example	
Please describe one negative example	
Are any objectives being achieved other than these included in the management plan?	Yes No
If yes, please specify which ones	
If yes, are some actions (outside the MP) being carried out?	
If ‘in part or incomplete’, please specify approximate percentage of achievement (%)	
How is the action plan (described in the MP) implemented being funded? (please answer only those for which the answer is “yes”)	Local administration Regional administration National administration European and international administration Donations Stakeholders MPA activities and merchandising (e.g. charge for admission) NGO Others - please specify
If the budget is being used, is it being expended accordingly to the action plan?	Yes No
Remarks about budget uses	
Is the budget sufficient to cover all the actions of the management plan?	Yes No
How often does the government body meet?	
Other - specify	
How often does the government body request technical reports about MPA monitoring? (in months)	
Other - specify	
How many changes have been made concerning management regulations since the first management plan implemented ? (in months)	
Please describe them	
Is the government body spreading the progresses of the MPA to the stakeholder community?	Yes No
If yes, how is it being done?	By memos By periodic meeting By communication tool (newsletter, website) Others (please specify)

If yes, how often? (in months)	
Are any management tools for environment education and awareness raising being used?	Yes No
If yes, please specify which ones	
What are the management measures being implemented according to MPA objectives?	Yes No
Which are the ones working as expected and the ones that are not?	
Is there any effective collaboration with other MPAs?	Yes No
If yes, which type of collaboration is it?	
Staff display	
Does the MPA currently have any staff?	Yes No
if yes, please state the number of people and their functions	
Number of permanent staff	
Number of seasonal staff	
Number of full-time equivalents over the year	
Is there enough staff?	Yes No
If the management plan provides the future staff needed, have new employees been hired?	Yes No
If the management plan provides the current and future training needs for the staff, are they being developed?	Yes No
How is the staff being trained?	Attendin specific courses for MPA staff Online courses specific for MPA staff Obligatory training Other - please specify
How often is the staff being trained? (number of days by year)	
Control and enforcement	
Does surveillance exist?	Yes No
Is the MPA staff empowered to enforce MPA regulations?	Yes No
How many members of the MPA staff are empowered to enforce MPA regulations?	
Average number of hours of surveillance per month	
Type of police enforcement within the MPA	MPA staff Fishery administration Custom Coast guard Other - please specify :
Are police reports made by the MPA staff followed by a complete legal process?	Yes No
Are boundaries of the different perimeters (MPA main perimeter and sub-perimeters with specific regulations/ uses) signposted?	All perimeters (sub- and main perimeters) All sub-perimeters Only some sub-perimeters Only the main perimeter None perimeter
Monitoring and evaluation of the management plan according to the MPA objectives	
Do any assessments exist to compare the previous situation and the current one?	

How often are assessments carried out?	None Monthly Biannual Annual More
What are the monitoring programmes implemented in the MPA ?	Regular monitoring programme about species Occasional monitoring programme about species Regular monitoring programme about habitats Regular monitoring programme about socio-economic activities Occasional monitoring programme about socio-economic activities
Who produces the technical reports?	MPA staff University/research center Technical and scientific contractors Other - please specify :
Are these reports being used to improve management regulations?	Yes No
If the management plan provide indicators, are they all implemented/filled in?	Yes No
Detail about indicators : _ if yes, please detail which indicators are filled in _ if no, please detail why :	
Perception assessment by the MPA manager	
Does your management plan allow you to manage your MPA well?	Yes No
Are there any lacks/gaps in the management plan?	Yes No
If yes, please specify which ones	
List of habitats and species regularly monitored	
Is this species/habitat regularly monitored?	Fish
	Molluscs
	Crustaceans
	Marine mammals
	Marine birds
	Seaweeds, algae, maerl
	Phanerogams
	1110: Sandbanks which are slightly covered by sea water all the time
	1130: Estuaries
	1140: Mudflats and sandflats not covered by seawater at low tide
	1150: Coastal lagoons
	1160: Large shallow inlets and bays
	1170: Reefs
	1180: Submarine structures made by leaking gases
	1210: Annual vegetation of drift lines
	1220: Perennial vegetation of stony banks
	1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts
	1240: Vegetated sea cliffs of the Mediterranean coasts with endemic <i>Limonium</i> spp.

	1250: Vegetated sea cliffs with endemic flora of the Macaronesian coasts
	1310: Salicornia and other annuals colonizing mud and sand
	1320: Spartina swards (<i>Spartinion maritimae</i>)
	1330: Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
	1340: Inland salt meadows
	1410: Mediterranean salt meadows (<i>Juncetalia maritimi</i>)
	1420: Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>)
	1430: Halo-nitrophilous scrubs (<i>Pegano-Salsoletea</i>)
	1510: Mediterranean salt steppes (<i>Limonietalia</i>)
	8330: Submerged or partially submerged sea caves
	OSPAR: <i>Lophelia pertusa</i> reefs
	OSPAR: Littoral chalk communities
	OSPAR: <i>Modiolus modiolus</i> beds
	OSPAR: <i>Zostera</i> beds
	OSPAR: Intertidal mudflats
	OSPAR: <i>Ostrea edulis</i> beds
	OSPAR: Sea-pen and burrowing megafauna communities
	OSPAR: Coral Gardens
	OSPAR: <i>Cymodocea</i> meadows
	OSPAR: Carbonate mounds
	OSPAR: Oceanic ridges with hydrothermal vents/fields
	OSPAR: Maerl beds
	OSPAR: Seamounts
	OSPAR: Deep-sea sponge aggregations
	OSPAR: Intertidal <i>Mytilus edulis</i> beds on mixed and sandy sediments
	OSPAR: <i>Sabellaria spinulosa</i> reefs

QUESTIONNAIRE Q3	HOW TO ANSWER?	REMARKS
DATE	automatic	
COUNTRY	_FRA _ESP _GRB _PRT	
DATA PROVIDER		
POSITION		
ORGANISATION		State the complete name of your organisation in its original language
MARINE PROTECTED AREA		
MPA official name	Please state the official name of the MPA in its original language	Official name from the designation/foundation text, without the designation in front
Designation		Please state the designation of the MPA. Designation is the type of protected area as legally established or recognized by the country [for instance : SACs(EN, FR, ES, PT), SSSi (EN), National park (ES, PT, FR), marine reserve (ES) etc..]
Designation (In English)		Please give the designation of the MPA translated into English. Designation is the type of protected area as legally established or recognized by the country.
What is the marine proportion of the MPA?	_ 100% _ > 50% _ <50%	Please select one item
ADDED VALUES OF THE MPA		
New income-generating activities developed thanks to the MPA implementation		
Did the setting up or actual running of the MPA generate any new source of socio-economic benefits or income-generating activity or diversification activity?	_Yes _No	Any activity developed in the area which generates income.
If yes, please fill the following items		
What type of income-generating activity has been set up ?	_ 'Nature'-based tourism _ Brand or quality certification for seafood products linked to the MPA _ Brand or quality certification for other products linked to the MPA _ Other	Please select one or several answers (ctrl + click for multiple selection)
If 'nature'-based tourism activities has been set up, please specify which type	_Eco-tourism _Pescaturism (touristic activity developed by professional fishermen) _Gastronomic tourism _Sport/leisure fishing _Scientific tourism _Diving tourism _Sun&beach tourism _Birdwatching/nature watching _other	Please select one or several answers (ctrl + click for multiple selection)
If brand or quality certification for products linked to the MPA has been developed, please specify which type	_certificate of origin _quality _ecological _other	Please select one or several answers (ctrl + click for multiple selection)

Please indicate the name(s) of the brand/label	_Name of the brand	If there are several initiatives please list them all
Socio-economic impact related to the MPA implementation		
Has the creation and implementation of the MPA resulted in a higher value of the surrounding properties?	_Yes _No	Several examples underline that properties near protected areas have increased their economic value. Does this situation apply to your case?
Has the creation and implementation of the MPA caused an impact on the income per capita in the area?	_Yes _No _We do not know	The people who live in the MPA earn more money now than before thanks to the MPA.
If the answer is yes, please specify		
Socio-economic impact related to the MPA implementation - Focus on fisheries		
Has there been any social impact linked to the creation and implementation of the MPA in terms of empowerment of fishermen?	_Yes _No	Empowerment is related to reinforcing key stakeholder (i.e. fishermen) position within MPA
If the answer is yes, please specify		For example: increasing their self-confidence, trust, social capital, identity, renewal of fishermen, etc.
Since the MPA was implemented, has the number of fishermen (of the area) :	_remain stable _increase _decrease _we do not know	
If the answer is yes, please specify which rate	_Higher rate _Lower rate	
Has there been any social impact linked to the creation and implementation of the MPA in terms of gender?	_Yes _No _Not applicable/not available information	For example, If there are more women
If the answer is yes, please specify		
Detailed one example of a new income-generating activity implemented in the MPA		
Please select one new income-generating activity implemented in the MPA and answer the following questions for this selected case		
Objectives of the activity	Please describe the objectives of the new activity developed	
Date of launching	Please give the date when the activity was launched	
Who set up this activity ?	_Management body of the MPA _Local population _Specific stakeholder (please specify below) _Local authorities _NGO (please include the name below) _Others (please specify below)	Please select one or several items; specify if necessary (ctrl + click for multiple selection)
Stakeholder details		
NGO name		
Other (please specify)		
What is the impact expected on natural resources?	_Positive impact (please specify below) _Negative impact (please specify below) _No impact on natural resources _We do not know	
Please specify impact if known		
Did you have any technical assistance (external) to develop this new activity ?	_Yes _No	Has the organisation had any assistance to develop the activity?

How much did the implementation of the activity effectively cost ?		In euros
Please specify if the stated cost is	_estimated _real	
What are the sources of funding for this activity?	_private fund _public fund _no source of funding _other	Please select one or several answers (ctrl + click for multiple selection)
If there is more than one source of funding, please specify the names and the percentage of funding (%)		
What methodology was followed to launch the activity?	_Feasibility study _Market research _Survey _Others (please specify below)	Please select one or several answers (ctrl + click for multiple selection)
_Others (please specify)		
Is the local population trained for implementing this new activity?	_Yes _No	
What types of benefits have been produced by this activity?	_Economic benefits _Reduction of human pressure on natural resources (please specify below) _Others (social/cultural/etc.)	Please select one or several answers (ctrl + click for multiple selection)
Reduction of human pressure on natural resources (please specify)		
Who are the beneficiaries?		
Is there any kind of promotion/communication or dissemination of this new activity?	_Radio _TV _Newspaper _Others (please specify)	Please select one or several answers (ctrl + click for multiple selection)
_Others (please specify)		
Is this activity economically sustainable and operational?	_Yes _No	
Can it become a long-term activity?	_Yes _No	
Further information/Please feel free to add any document, remark, experience you think is interesting for this study		
Please feel free to add any documents you think may be interesting for this study		
Please feel free to add any remark or experience you think may be interesting for this study		



ANNEX 5.II

Annex 5.II. This annex shows 126 marine protected areas (MPAs) grouped in 57 management plans. The main MPA of each study case is in bold and the MPAs underneath correspond to the same case.

MPA OFFICIAL NAME	MPA CODE	COUNTRY	DESIGNATION	DESIGNATION IN ENGLISH	SPA	RAMSAR	OSPAR MPA	OTHERS
ARCHIPEL DES GLENAN	AG	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X			
BAIE DE L'AIGUILLON (Vendée)	BLA_V	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE			X	
BAIE DE L'AIGUILLON (Charente-Maritime)		FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE				
BAIE DE SAINT BRIEUC	BSA_SCI	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X			
BAIE DE SAINT BRIEUC	BSA_NINA	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE				
BAIE DU MONT SAINT-MICHEL	BMSM	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X			
BANC D'ARGUIN	BDA	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE			X	
BELLE ILE EN MER	BIM	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)				
CAP D'ERQUY CAP FREHEL	CECF	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X			
COTES DE GRANIT ROSE LES SEPT ILES	CGRLS	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X			
DUNES DE LA SAUZAIE - MARAIS DU JAUNAY	DS_MJ	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)				
DUNES ET COTES DE TRÉVIGNON	DCT	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X			
FRANCOIS LE BAIL DE L'ILE DE GROIX	FBLG	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE				
GUISSENY	G	FRANCE	ZONE SPÉCIALE DE CONSERVATION (ZSC)	SPECIAL AREA OF CONSERVATION (SAC)				
IROISE	I	FRANCE	PARC NATUREL MARIN	MARINE NATURE PARK			X	

CAMARET		FRANCE	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)		
CHAUSSEE DE SEIN		FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
COTES DE CROZON		FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
OUessant MOLENE		FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X	
LES ILES CHAUSEY	LJC	FRANCE	DOMAINE PUBLIC MARITIME DU CONSERVATOIRE DU LITTORAL	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL		
LES SEPT ILES	LS	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE		
LILLEAU DES NIGES	LDN	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE		
MARais BRETON, BAIE DE BOURGNEUF, ILE DE NOIR-MOUTIER ET FORET DE MONTS	MB_BB_ IFFM	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
MARais DE MOUSTERLIN	MMO	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
MARais DE MULLEMBOURG	MMU	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE		
MARais DE SÉNÉ	MS	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE		
MARais DE TALMONT ET ZONES LITTORALES ENTRE LES SABLES ET JARD	MTZL_LSJ	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
MASSIF DUNAIRE GÁVRES QUIBERON ET ZONES HUMIDES	MDGQ_ZH	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
BAIE DE QUIBERON		FRANCE	ZONE PROTECTION SPÉCIALE (ZPS)	SPECIAL PROTECTION AREA (SPA)		
MOEZE OLERON	MO	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE		

DUNES ET FORETS LITTORALES DE L'ILE D'OLERON		FRANCE	ZONE SPÉCIALE DE CONSERVATION (ZSC)	SPECIAL AREA OF CONSERVATION (SAC)		
MARAIS DE BROUAGE (ET MARAIS NORD D'OLERON)		FRANCE	ZONE SPÉCIALE DE CONSERVATION (ZSC)	SPECIAL AREA OF CONSERVATION (SAC)		
MARAIS DE BROUAGE-OLERON		FRANCE	ZONE PROTECTION SPÉCIALE (ZPS)	SPECIAL PROTECTION AREA (SPA)		
MARAIS DE MOEZE		FRANCE	MPA OSPAR	MPA OSPAR		
POINTE D'ARCAV	PA	FRANCE	DOMAINE PUBLIC MARITIME DU CONSERVATOIRE DU LITTORAL	MARINE STATE PROPERTY MANAGED BY CONSERVATOIRE DU LITTORAL		
POINTE DE CORSEN, LE CONQUET	PCC	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
PRES SALES D'ARES ET DE LEGE CAP FERRET	PSA_LCF	FRANCE	RÉSERVE NATURELLE NATIONALE	NATIONAL NATURE RESERVE		
PRESQU'ILE DE GROZON	PDC	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
RADE DE LORIENT	RL	FRANCE	ZONE PROTECTION SPÉCIALE (ZPS)	SPECIAL PROTECTION AREA (SPA)		
SILLON DE TALBERT	ST	FRANCE	RESERVE NATURELLE RÉGIONALE	REGIONAL NATURE RESERVE		
TREGOR GOELO	TG	FRANCE	SITE D'INTÉRÊT COMMUNAUTAIRE (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X	
BERWICKSHIRE & NORTH NORTHUMBERLAND COAST	BNNC	ENGLAND	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)	X	AREA OF OUTSTANDING NATURAL BEAUTY
LINDISFARNE		ENGLAND	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	X	
FLAMBOROUGH HEAD	FH	ENGLAND	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)	X	
STOUR AND ORWELL ESTUARIES	SOE	ENGLAND	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	X	

TEESMOUTH AND CLEVELAND COAST	TCC	ENGLAND	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	X	
THE WASH AND NORTH NORFOLK COAST	WNNC	ENGLAND	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)	SPECIAL AREA OF CONSERVATION (SAC)		
THE WASH		ENGLAND	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	X	
NORTH NORFOLK COAST		ENGLAND	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	X	
GIBRALTAR POINT		ENGLAND	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)	SPECIAL PROTECTION AREA (SPA)		
ARRÁBIDA	A	PORTUGAL	PARQUE NATURAL	PARQUE NATURAL	NATURAL PARK		
ARRÁBIDA/ESPICHEL		PORTUGAL	SÍTIOS DE IMPORTÂNCIA COMUNITÁRIA (SIC)	SÍTIOS DE IMPORTÂNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
CABO ESPICHEL		PORTUGAL	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)	X	
BERLENGAS	BE	PORTUGAL	RESERVA NATURAL	RESERVA NATURAL	NATURE RESERVE		BIOSPHERE RESERVE
DUNAS S. JACINTO	DSJ	PORTUGAL	RESERVA NATURAL	RESERVA NATURAL	NATURE RESERVE		
LAGOAS ST. ANDRÉ E SANCHA	LSAS	PORTUGAL	RESERVA NATURAL	RESERVA NATURAL	NATURE RESERVE		
LAGOA DA SANCHA		PORTUGAL	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)		
LAGOA SANTO ANDRÉ		PORTUGAL	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	ZONA DE PROTECÇÃO ESPECIAL (ZPE)	SPECIAL PROTECTION AREA (SPA)		
LITORAL NORTE	LN	PORTUGAL	PARQUE NATURAL	PARQUE NATURAL	NATURAL PARK		SCI
SW ALENTEJANO E COSTA VICENTINA	SA_CV	PORTUGAL	PARQUE NATURAL	PARQUE NATURAL	NATURAL PARK		
COSTA SUDOESTE		PORTUGAL	SÍTIOS DE IMPORTÂNCIA COMUNITÁRIA (SIC)	SÍTIOS DE IMPORTÂNCIA COMUNITÁRIA (SIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X	
ARCHIPIÉLAGO CHINIJO	AC	SPAIN	PARQUE NATURAL	PARQUE NATURAL	NATURAL PARK		

ISLOTES DEL NORTE DE LANZAROTE Y RISCOS DE FAMARA			SPAIN	ZONAS DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)		
BARAYO	BA		SPAIN	RESERVA NATURAL PARCIAL	PARTIAL NATURE RESERVE		
PEÑARONDA-BARAYO			SPAIN	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X	
DESEMBOCADURA DEL RÍO GUADALQUIVIR	DRG		SPAIN	RESERVA DE PESCA	MARINE RESERVE OF FISHING INTEREST		
DOÑANA			SPAIN	HUMEDAL RAMSAR	RAMSAR SITE		
DOÑANA			SPAIN	PARQUE NACIONAL	NATIONAL PARK		
DOÑANA			SPAIN	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE		
DOÑANA			SPAIN	ZONA DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)		
DOÑANA			SPAIN	ZONA ESPECIAL DE CONSERVACIÓN (ZEC)	SPECIAL AREA OF CONSERVATION (SAC)		
DOÑANA			SPAIN	PARQUE NATURAL	NATURAL PARK		
ESTRECHO	E		SPAIN	PARQUE NATURAL	NATURAL PARK	X	SAC
GAZTELUGATXE	GA		SPAIN	BOITOPROTEGIDO	PROTECTED BIOTOPE		
ISLAS ATLÁNTICAS DE GALICIA	IA		SPAIN	PARQUE NACIONAL MARÍTIMO TERRESTRE	NATIONAL PARK		X
ILLA DE ONS			SPAIN	ZONAS DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)		
ILLAS CÍES			SPAIN	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)	X	
ILLA DE CORTEGADA			SPAIN	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)		
ISLA DE LA PALMA	IP		SPAIN	RESERVA MARINA	MARINE RESERVE		

LA PALMA		SPAIN	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE			
ISLA GRACIOSA E ISLOTES DEL NORTE DE LANZAROTE	IG_INL	SPAIN	RESERVA MARINA	MARINE RESERVE			
LANZAROTE		SPAIN	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE			
MARISMAS DE SANTOÑA, VICTORIA Y JOYEL	MSVJ	SPAIN	PARQUE NATURAL	NATURAL PARK	X		SCI
MARISMAS DE SANTOÑA Y NOJA		SPAIN	ZONAS DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)			
OS MIÑARZOS	OM	SPAIN	RESERVA MARINA DE INTERÉS PESQUERO	MARINE RESERVE OF FISHING INTEREST			
PUNTA DE LA RESTINGA - MAR DE LAS CALMAS	PRMC	SPAIN	RESERVA MARINA	MARINE RESERVE			
EL HIERRO		SPAIN	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE			
RÍA DE CEDEIRA	RC	SPAIN	RESERVA MARINA DE INTERÉS PESQUERO	MARINE RESERVE OF FISHING INTEREST			
RÍA DE VILLAVICIOSA	RV	SPAIN	RESERVA NATURAL PARCIAL	PARTIAL NATURE RESERVE	X	X	SCI
TRAMO LITORAL DEBA ZUMAIA	TLDZ	SPAIN	BIOTOPO PROTEGIDO	PROTECTED BIOTOPE			
URDAIBAI	UR	SPAIN	RESERVA DE LA BIOSFERA	BIOSPHERE RESERVE			
RÍA DE MUNDAKA- GUERNICA		SPAIN	ZONA RAMSAR	RAMSAR SITE			
RÍA DE URDAIBAI		SPAIN	ZONAS DE ESPECIAL PROTECCIÓN PARA LAS AVES (ZEPA)	SPECIAL PROTECTION AREA (SPA)			
ZONAS LITORALES Y MARISMAS DE URDAIBAI		SPAIN	LUGAR DE IMPORTANCIA COMUNITARIA (LIC)	SITE OF COMMUNITY IMPORTANCE (SCI)			



ANEXO 5.III

Annex 5.III Numbers of the categories used in the analysis

CODE	CATEGORIES OF VARIABLES
1A	There was no specific process for management plan development
2A	There was no specific process for management plan validation
3A	Scuba diving activity is regulated
4A	Professional gillnet fishing activity is regulated
5A	Professional trammel net (tangle net) fishing activity is regulated
6A	Professional longline (pelagic) fishing activity is regulated
7A	Professional bottom longline fishing activity is regulated
8A	Professional jigging (active gear with one or many hooks) fishing activity is regulated
9A	Professional pole and line fishing activity is regulated
10A	Gathering activity is forbidden
1B	Professional longline (pelagic) fishing activity is forbidden
2B	Professional bottom longline fishing activity is forbidden
3B	Professional jigging (active gear with one or many hooks) fishing activity is forbidden
4B	Professional potting (lobster/octopus) activity is forbidden
5B	Professional pole and line fishing activity is forbidden
6B	Professional tuna fishing activity is forbidden
7B	Professional elver (eels) sieve fishing activity is forbidden
8B	Leisure activities outside authorized groups are forbidden
9B	Mooring and anchoring activities are forbidden
10B	Professional bivalve dredging activity is regulated
11B	Professional bottom trawling activity is regulated
12B	Professional pelagic trawling activity is regulated

13B	Shipping traffic activity is forbidden
14B	Energy production activities are regulated
1	Gathering activities are regulated/monitored
2	Extraction of living resources (apart from professional fishing, e.g. algae, maerl) activities are regulated/monitored
3	The staff is being trained/attended local training
4	Spearfishing activities are regularly monitored
5	Shipping traffic activities are regularly monitored
6	25% of actions performed outside the MgP are achieved
7	Extraction of non-living resources (e.g. aggregates, oil and gas, etc.) activities are regularly monitored
8	Professional bivalve dredging activities are regularly monitored
9	The MPA's government body informs the stakeholder community about progresses through memos
10	Scuba diving activities are regularly monitored
11	Boundaries of all sub-perimeters with specific regulations/uses were signposted
12	There is a website for environment education and awareness raising
13	Technical reports were used to improve management regulations
14	Socio-economic activities are occasionally monitored
15	The MPA's government body informs the stakeholder community about progresses through notifications on the reserve's notice board
16	Technical reports were produced by technical and scientific contractors
17	Seaweeds, algae and maerl are regularly monitored
18	1230: Vegetated sea cliffs of the Atlantic and Baltic Coasts are regularly monitored
19	OSPAR: Littoral chalk communities are regularly monitored
20	Aquaculture (fish farming) activities are regularly monitored
21	1250: Vegetated sea cliffs with endemic flora of the Macaronesian coasts are regularly monitored
22	1510: Mediterranean salt steppes (Limonietalia) are regularly monitored
23	OSPAR: Coral gardens are regularly monitored
24	OSPAR: Deep-sea sponge aggregations are regularly monitored
25	Destruction of species with no protection status is regularly monitored
26	Harassment of species under protection status is regularly monitored
27	75% of actions performed outside the MgP are achieved

ANNEX 6.I

Annex 6.1. Results of using the quasi-likelihood criterion (QAIC) for the following model

FIXED TERM IS “(INTERCEPT)”													
Global model call: glm(formula = MPA_Performance ~ MgP Objectives + MgP Stakeholder + MgP Implementation and Renewal + Management effort + Adjusted Governance level + MPA Monitoring + MPA Resources, family = “x.quasibinomial”, data = ad, na.action = na.fail)													
Model selection table													
ID model	Intercept	Management effort	MgP Stakeholder	MgP Implementation and Renewal	MPA Resources	MPA Monitoring	MgP Objectives	Adjusted Governance Level	df	logLik	QAIC	delta	weight
65	-0,467							-1,932	2	-28,458	60,9	0	0,09
69	-0,381			0,075				-2,156	3	-27,8	61,6	0,68	0,064
67	-0,252		-0,052					-2,044	3	-28,149	62,3	1,38	0,045
1	-0,454								1	-30,261	62,5	1,61	0,04
97	-0,459						-0,008	-1,926	3	-28,423	62,8	1,93	0,034
81	-0,464					0,017		-1,871	3	-28,498	63	2,08	0,032
71	-0,173		-0,051	0,072				-2,259	4	-27,526	63,1	2,14	0,031
73	-0,300				0,063			-2,276	3	-28,568	63,1	2,22	0,03
101	-0,385			0,077			0,006	-2,166	4	-27,805	63,6	2,69	0,023
77	-0,193			0,087	0,066			-2,543	4	-27,813	63,6	2,71	0,023
85	-0,379			0,074		0,017		-2,095	4	-27,844	63,7	2,77	0,023
66	-0,708	0,412						-1,934	3	-28,862	63,7	2,81	0,022
5	-0,409			0,039					2	-30,021	64	3,13	0,019
70	-0,637	0,493		0,103				-2,256	4	-28,038	64,1	3,16	0,019
3	-0,270		-0,045						2	-30,048	64,1	3,18	0,018
99	-0,253		-0,052				0,002	-2,046	4	-28,157	64,3	3,4	0,017
83	-0,242		-0,054			0,021		-1,973	4	-28,184	64,4	3,45	0,016
33	-0,443						-0,012		2	-30,2	64,4	3,48	0,016
17	-0,450					0,025			2	-30,234	64,5	3,55	0,015
75	-0,123		-0,045		0,060			-2,335	4	-28,308	64,6	3,7	0,014

105	-0,248				0,069					-0,039	-2,286	4	-28,413	64,8	3,91	0,013
113	-0,45							0,019		-0,014	-1,856	4	-28,441	64,9	3,96	0,012
68	-0,498	0,365	-0,044								-2,041	4	-28,523	65	4,13	0,011
103	-0,176		-0,052	0,078					0,016		-2,286	5	-27,536	65,1	4,16	0,011
87	-0,164		-0,052	0,072				0,021			-2,186	5	-27,568	65,1	4,22	0,011
89	-0,300				0,063			0,012			-2,227	4	-28,601	65,2	4,28	0,011
79	-0,026		-0,043	0,084							-2,594	5	-27,601	65,2	4,29	0,011
9	-0,316				0,051							2	-30,602	65,2	4,29	0,011
2	-0,694	0,408										2	-30,639	65,3	4,36	0,01
98	-0,703	0,462							-0,036		-1,925	4	-28,751	65,5	4,59	0,009
72	-0,445	0,444	-0,041	0,097							-2,337	5	-27,784	65,6	4,65	0,009
109	-0,168			0,079	0,070				-0,025		-2,531	5	-27,795	65,6	4,67	0,009
74	-0,481	0,260			0,053						-2,204	4	-28,824	65,6	4,73	0,008
7	-0,234		-0,044	0,034								3	-29,84	65,7	4,76	0,008
93	-0,192			0,088	0,065			0,013			-2,493	5	-27,842	65,7	4,77	0,008
117	-0,379			0,074				0,017	0,000		-2,095	5	-27,844	65,7	4,77	0,008
82	-0,777	0,523						-0,025			-2,021	4	-28,91	65,8	4,9	0,008
21	-0,404			0,040				0,026				3	-29,984	66	5,05	0,007
78	-0,408	0,348		0,106	0,053						-2,527	5	-27,997	66	5,08	0,007
19	-0,255		-0,047					0,029				3	-30,003	66	5,09	0,007
37	-0,406			0,037					-0,006			3	-30,003	66	5,09	0,007
102	-0,638	0,517		0,097					-0,021		-2,235	5	-28,034	66,1	5,15	0,007
35	-0,269		-0,044						-0,003			3	-30,037	66,1	5,16	0,007
86	-0,729	0,658		0,112					-0,035		-2,416	5	-28,046	66,1	5,17	0,007
49	-0,431							0,028	-0,021			3	-30,125	66,2	5,33	0,006
115	-0,240		-0,053					0,022	-0,004		-1,969	5	-28,169	66,3	5,42	0,006
107	-0,097		-0,042		0,064				-0,029		-2,341	5	-28,211	66,4	5,51	0,006
6	-0,649	0,456		0,064								3	-30,28	66,6	5,64	0,005

94	-0,482	0,464	0,112	0,050	-0,023	-2,614	6	-28,008	68	7,1	0,003
118	-0,727	0,675	0,107		-0,034	-2,397	6	-28,039	68,1	7,16	0,003
8	-0,489	0,413	-0,034				4	-30,128	68,3	7,34	0,002
15	-0,114		-0,039	0,049			4	-30,197	68,4	7,48	0,002
38	-0,649	0,489	0,056		-0,030		4	-30,216	68,4	7,52	0,002
123	-0,087		-0,042	0,063	0,019	-2,262	6	-28,244	68,5	7,57	0,002
45	-0,232		0,034	0,057		-0,031	4	-30,277	68,6	7,64	0,002
29	-0,259		0,046	0,051	0,023		4	-30,286	68,6	7,66	0,002
43	-0,131		-0,037	0,053		-0,028	4	-30,334	68,7	7,75	0,002
36	-0,53	0,409	-0,033			-0,028	4	-30,337	68,7	7,76	0,002
22	-0,688	0,524		0,067	-0,015		4	-30,342	68,7	7,77	0,002
57	-0,253			0,057	0,028	-0,046	4	-30,387	68,8	7,86	0,002
27	-0,147		-0,042	0,047	0,026		4	-30,39	68,8	7,86	0,002
20	-0,521	0,372	-0,037		-0,001		4	-30,433	68,9	7,95	0,002
108	-0,291	0,273	-0,036	0,055		-2,276	6	-28,452	68,9	7,99	0,002
14	-0,478	0,346		0,063			4	-30,454	68,9	7,99	0,002
116	-0,564	0,473	-0,039		-0,015	-2,083	6	-28,513	69	8,11	0,002
50	-0,713	0,498			-0,009	-0,038	4	-30,54	69,1	8,16	0,002
92	-0,309	0,241	-0,041	0,050	-0,005	-2,288	6	-28,547	69,1	8,18	0,002
12	-0,355	0,260	-0,035	0,039			4	-30,626	69,3	8,34	0,001
127	-0,010		-0,042	0,064	0,017	-2,51	7	-27,641	69,3	8,36	0,001
42	-0,487	0,349		0,045		-0,052	4	-30,645	69,3	8,37	0,001
122	-0,484	0,369		0,056	-0,010	-2,245	6	-28,693	69,4	8,47	0,001
55	-0,217		-0,046		0,030	-0,006	5	-29,771	69,5	8,62	0,001
26	-0,521	0,297		0,040	-0,000		4	-30,803	69,6	8,69	0,001
96	-0,296	0,381	-0,035	0,049	-0,015	-2,632	7	-27,811	69,6	8,71	0,001
112	-0,241	0,334	-0,034	0,054		-2,563	7	-27,812	69,6	8,71	0,001
120	-0,539	0,583	-0,035		-0,026	-2,441	7	-27,818	69,6	8,72	0,001

126	-0,455	0,483	0,101	0,054	-0,020	-0,037	-2,599	7	-28,007	70	9,1	0,001
40	-0,500	0,440	-0,032	0,052		-0,021		5	-30,09	70,2	9,26	0,001
31	-0,102	-0,041	0,041	0,048	0,026			5	-30,146	70,3	9,38	0,001
24	-0,509	0,441	-0,033	0,059	-0,006			5	-30,157	70,3	9,4	0,001
47	-0,101	-0,036	0,033	0,053	0,028	-0,022		5	-30,165	70,3	9,41	0,001
61	-0,220		0,034	0,057	0,030	-0,040		5	-30,212	70,4	9,51	0,001
59	-0,112	-0,039		0,053	-0,013	-0,037		5	-30,266	70,5	9,62	0,001
54	-0,684	0,549	0,059		-0,001	-0,029		5	-30,273	70,5	9,63	0,001
16	-0,330	0,307	0,056	0,038				5	-30,338	70,7	9,76	0,001
52	-0,534	0,414	-0,033		-0,004	-0,028		5	-30,343	70,7	9,77	0,001
46	-0,458	0,381	0,050	0,044	-0,003	-0,044		5	-30,403	70,8	9,89	0,001
124	-0,305	0,289	-0,035	0,055	-0,004	-0,043	-2,287	7	-28,46	70,9	10	0,001
30	-0,492	0,367	0,064	0,039				5	-30,47	70,9	10,02	0,001
44	-0,353	0,310	-0,030	0,043		-0,043		5	-30,528	71,1	10,14	0,001
28	-0,317	0,214	-0,037	0,040	0,009			5	-30,579	71,2	10,24	0,001
58	-0,475	0,334		0,046	0,003	-0,053		5	-30,63	71,3	10,34	0,001
128	-0,293	0,403	-0,032	0,053	-0,014	-0,029	-2,617	8	-27,824	71,6	10,73	0
63	-0,082		0,032	0,052	0,030	-0,031		6	-30,101	72,2	11,29	0
56	-0,519	0,465	-0,031	0,054	-0,005	-0,021		6	-30,117	72,2	11,32	0
48	-0,332	0,341	-0,028	0,047	0,005	-0,036		6	-30,31	72,6	11,7	0
32	-0,311	0,282	-0,033	0,039				6	-30,318	72,6	11,72	0
62	-0,460	0,383	0,050	0,044	-0,001	-0,044		6	-30,405	72,8	11,89	0
60	-0,309	0,258	-0,032	0,045	0,010	-0,044		6	-30,474	72,9	12,03	0
64	-0,305	0,307	-0,030	0,043	0,007	-0,037		7	-30,282	74,6	13,65	0
Models ranked by QAIC(x, chat = 0.235652913822949)												

