



## **D2.2 Stakeholder ownership of maritime spatial plans: Perspectives created by web-based solutions**

A web portal to communicate the management plan of the “Mer des Pertuis et Estuaire de la Gironde” Marine Nature Park  
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# 1 Introduction

Maritime Spatial Planning is commonly defined as a public process of allocating space for human activities in marine areas to achieve ecological, economic and social objectives<sup>1</sup>. This process is expected to bring visibility and guidance to maritime uses that support their sustainable development. Stakeholder engagement in the process and decision making is a crucial aspect both for raising their ownership of issues and challenges addressed and for having planning decisions understood, accepted and enforced.

However, the holistic approach of MSP, aiming to address the whole range of interconnected economic and environmental demands through an ecosystem approach, taking land-sea interactions into consideration, brings a high level of complexity that could constitute a strong limitation to stakeholder assimilation and therefore, participation.

Moreover, maritime strategies, objectives and plans often take the form of very large and complex documents. Stakeholders frequently claim that they have neither the competences nor the time to get full understanding and comment on the documents released for consultation. This sentence from a representative of a French industry is quite characteristic: “We have blocks of documents that are huge with environmental objectives, economic objectives, an inventory to share, a diagnosis, etc., and all that happens at the same time and it is very complicated”<sup>2</sup>. This complexity could also be an issue for competent authorities in charge of the licencing or other authorisation processes that need to align with the requirements of the plans.

Therefore, a main challenge for planners is to justify planning decisions (what stake(s) is (are) addressed by each objective or zone set out in the plan?) and provide clear definitions (what are the exact regulations and to whom does it apply?).

Due to the multiple inter-connections between economic and environmental stakes and related objectives or zoning, such a challenge seems difficult to address through the delivery of written documents or reports.

This case study aims to explore perspectives offered by web solutions to deliver complex plans in an intelligible way. This enables us to point at logical relationships between elements of the plan: initial assessment (state of the art, stakes) and related management decisions (objectives, zoning, actions and monitoring). This also enables users to “navigate” through the plan. Web mapping solutions also offer the possibility to clearly spatialize each element of the plan.

We decide to test this web-development, not on a proper French MSP plan (so called “Sea Basin Strategic Document and set for each of the 4 sea basins in mainland France) but on

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<sup>1</sup> Ehler, Charles, and Fanny Douvère. Marine Spatial Planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides no. 53, iCaM Dossier no. 6. Paris: UneSCO. 2009 (English)

<sup>2</sup> Henry, S., Likhacheva, K., Matyas, D., Nys, C., Alloncle, N., Bailly, D. 2019. Potential approaches for stakeholder engagement on MSP and outcomes of pilot testing. EU Project. Grant No: EASME/EMFF/2015/1.2.1.3/03/ SI2.742089. Supporting Implementation of Marine Spatial Planning in the Northern European Atlantic (SIMNORAT). Agence Française pour la Biodiversité – Université de Bretagne Occidentale, UMR 6308 AMURE. 188pp. DOI: 10.5281/zenodo.2597520

the management plan of a Marine Nature Park due to the status of implementation of the MSP plans in France at the beginning of the SIMAtlantic project. Nature Marine Park is French legal MPA category that can be assimilated as multi-objective MPA. Its management objectives concern ecosystem preservation as well as support for the sustainable development of maritime uses and stakeholder awareness-raising<sup>3</sup>. The “Pertuis Sea and Gironde Estuarine Nature Marine Park” (Parc naturel marin de l’estuaire de la Gironde et de la mer des Pertuis), located along the French coast of the Biscay Bay, has been chosen for this case study. It was designated in 2015 and its management plan approved in 2018.

Marine Nature Parks management plans are very similar to a Sea Basin Document in terms of structure. Therefore, the intention is to adapt this kind of tool to French MSP plans and to make it available for any country willing to benefit from this work.

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<sup>3</sup> De Magalhaes, A.V.T., Likhacheva K., Fartaoui, M., and Alloncle, N. 2018. Marine Protected Areas in the Celtic Seas – Analysis of National Frameworks (Deliverable 3A). EU Project Grant No.: EASME/EMFF/2014/1.2.1.5/3/SI2.719473 MSP Lot 3. Supporting Implementation of Maritime Spatial Planning in the Celtic Seas (SIMCelt). French Agency for Biodiversity. 60 pp.

## **2 Case study: Mer des Pertuis et Estuaire de la Gironde Marine Nature Park**

### **2.1 Presentation**

The Gironde Estuary and Pertuis Sea Marine Nature Park was created by decree on April 15, 2015. It is the 7th French Marine Nature Park and one of the vastest in the metropolitan area: it covers 6,500 km<sup>2</sup> of marine space on the Atlantic coast, extends over approximately 1,000 km of coastline over three departments (Vendée, Charente-Maritime, Gironde) and borders 114 municipalities. The Park presents a rich and diverse natural heritage. The entire perimeter is a Natura 2000 site. Like any Marine Nature Park, the Gironde Estuary and Pertuis Sea Marine Nature Park aims to contribute to the knowledge and protection of the natural marine heritage and to the sustainable development of maritime activities.

### **2.2 Management plan structure**

The Park management is based on the assessment of what is of interest for the park, what we call stakes. Environmental, social and economic stakes (“enjeu” in French) constitute the core part of the management plan. Each of the identified stakes is defined by evaluations of the initial assessment and localised by a series of maps delivered in the initial assessment as well.

To address these stakes, long term strategic objectives are set. These objectives are called “finalités” in the management plan. Objectives may potentially be refined with sub-objectives (called “sous-finalités”). They express management ambitions in the long term, the targeted situation in a 15-year perspective. Set levels of ambition result from a stakeholder consultation, carried out within the Park management board, during the elaboration of the management plan.

To achieve the objectives, action plans are drawn up for a period of 3 years. These concrete actions can be of different natures: knowledge acquisition, regulation setting, support to sustainable activities, public awareness, etc. Several actions can be carried out in relation to achieve an objective set for a stake. Inversely, an action can assist in achieving several objectives.

Along with the action plans, a monitoring program is elaborated to follow up on progress towards meeting the objectives and support the adaptive management of the Park. This monitoring program is made up of surveys (called “suivi” in French) that evaluate the state of one or several stakes.

Finally, spatial priorities for the Park management are set through a “vocation map” built on a cross-analysis of stakes distribution and related objectives. Rather than a proper maritime plan, this map provides a synthetic vision of the management priorities within the Park perimeter.

### **2.3 Challenges**

The Park management plan is made up of 5 different documents (among them 2 map atlases) that represent over 900 pages. This amount of information is recognised as limiting the ability of stakeholders to understand the plan and its use for Park governance to steer its

management. The main challenge of this SIMAtlantic action is to enhance information availability, particularly for stakeholders (maritime actors, NGOs, scientists and administrations) rather than for the public, for which the concept of the management plan itself remain too specific.

Moreover, descriptions of the stakes and explanations of the objectives/measures can be quite complex in the management plan which also limits understanding of a whole range of stakeholders. A second challenge is to clarify and simplify the explanations provided in the initial management documents.

Moreover, updating management information in real time over the management plan period is also a challenge. Web-based solutions are more adapted to do so than static document release.

Finally, delivering precise spatial information related to each management topic is crucial for implementing management actions adequately towards achievement of the objectives. Web-based solutions offer many more possibilities to explore spatial data than static documents such as reports (even numeric). Taking greater advantage of available spatial information to explain and specify management decisions and actions is the last challenge of this web-based tool.

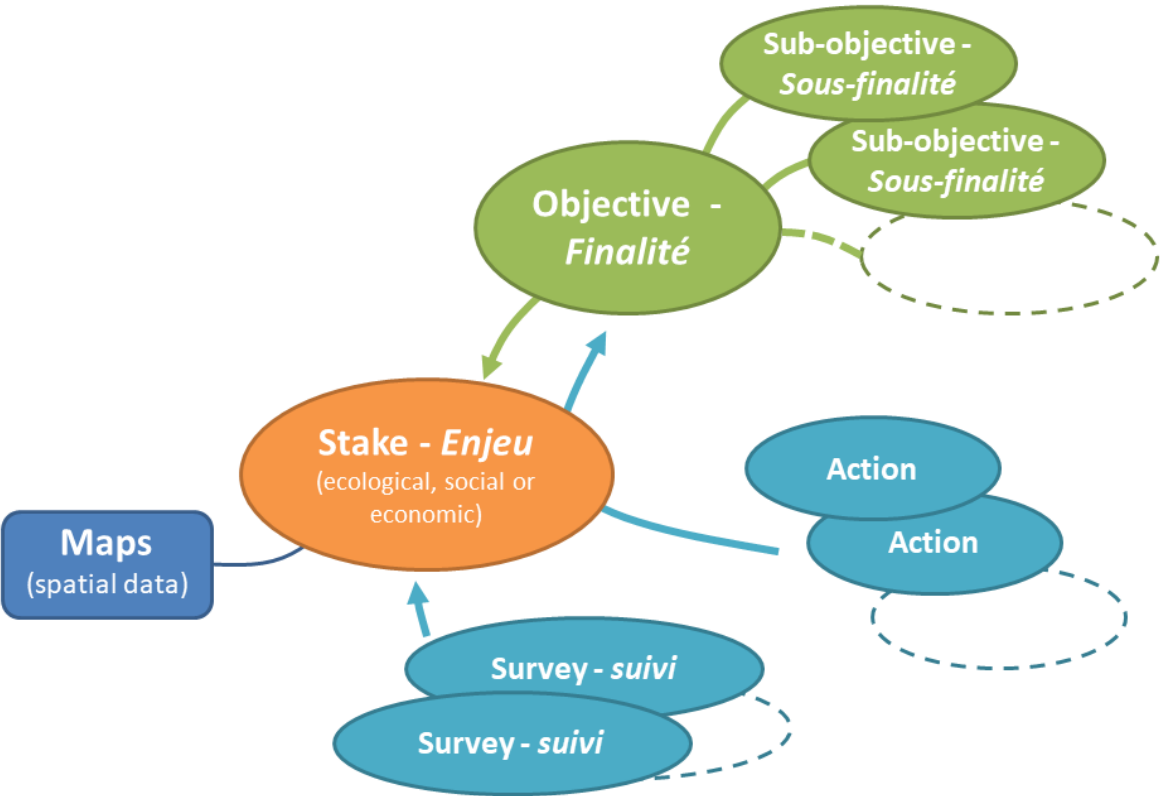


Figure 1: Marine nature park management plan structure

### 3 Communication web portal

The Park management plan web portal, developed thanks to the SIMAtlantic project, is available online at this address: <https://plan-gestion.parc-marin-gironde-pertuis.fr/>

#### 3.1 Concept

With regard to the main challenges detailed above, the Park management plan web portal has been developed with respect to several main perspectives:

- Providing concise, clear and intelligible information for each of the management plan elements (stake, objective, action and survey) through factsheets that can also provide direction to more detailed documentation such as reports, online resources...
- Clarifying relationships between the various elements of the management plan, to justify and explain management objectives and actions. For each identified stake, the objective is to clearly indicate what the adopted management objectives are and what kind of actions are being implemented to achieve them.
- Enabling users to explore maps and spatial data available for each element of the plan by associating a GIS web viewer to the editorial content provided by the factsheets.

#### 3.2 Tour of the portal

To tackle the objective of providing editorial content along with related spatial data, the application is structured with a left part dedicated to a web-GIS module and a right part dedicated to editorial content (Figure 2)



Figure 2: General structure of the management plan web portal



## Home page

Plan de gestion dynamique | Parc naturel marin  
Estuaire de la Gironde et de la mer des Pertuis

1

2

3

Site institutionnel du parc | Contact | Mentions légales

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Figure 3: General structure of the management plan web portal

The application homepage enables users to access the management plan in 3 different ways (Figure 3):

- By exploring available spatial data (1),
- By selecting one of the main management topics of the Park (2) that gives access to a first general factsheet.
- By selecting a specific element of the plan (3): comprehensive lists are proposed for stakes (“enjeux”), objectives (“finalités”), actions (“actions”), surveys (“suivis”) and vocation map (“Les vocations”). This gives access to the dedicated factsheet.

## Exploring the mapping tool

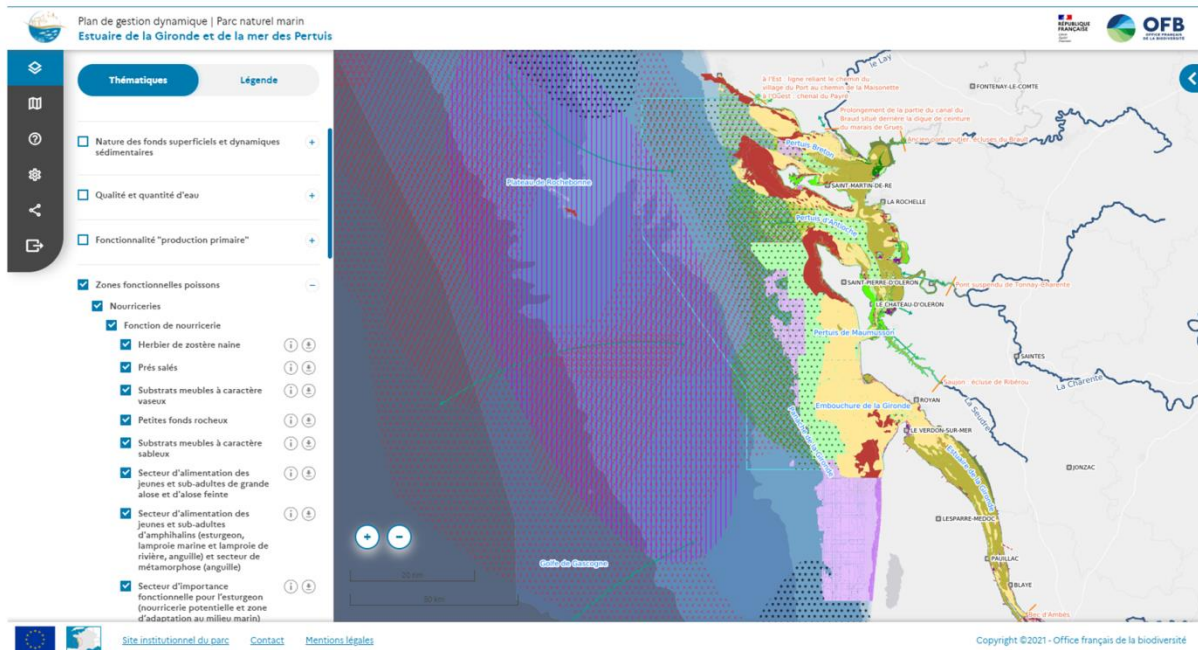


Figure 4: Web-GIS module

From the homepage, the web-GIS tool provides access to all data available for the Park (Figure 4). These data are organised by topics (for example the screenshot above illustrates known functional areas for various fish species) and can be displayed individually or by overlapping several data layers.

Each data layer is described by a metadata sheet available through the dedicated command on the right of the layer title. A large part of the displayed data can also be downloaded thanks to a second command on the right of the layer titles as well.



This mapping tool offers every classical web-GIS functionality (zoom in or out, spatial object questioning...) enabling users to explore the whole Park dataset.

## Exploring the factsheets

When selecting one of the Park's main topics (top right on the homepage) or a particular element (bottom right on the homepage), users access a dedicated factsheet. It is designed to provide synthetic information on the concerned element and to show linked elements.



**Figure 5:** Example of thematic factsheet and related spatial information

Figure 5 shows an example of factsheet, regarding the Park's stake of promoting sustainable leisure activities. On the right part of the screen, the factsheet itself provides written explanations on the various leisure activities occurring within the Park and their interaction with the environment. The text provided through the application has been especially adapted from the initial management plan document to make it shorter and easier to understand by any user. Along with written descriptions, photos and detailed reports can be provided through the factsheet.

On the left part, specific data related to the concerned topic are automatically displayed (in this example, data on sailing areas, water-sport spots or diving sites are shown). Users can select any other data layer of the management plan through the layers menu (see mapping tool description) to overlap it with those already displayed. For example, from this factsheet on leisure activities, users could display data about marine habitats or particular marine species to get an insight of potential spatial interactions with leisure activities.

## Navigating throughout the management plan elements

When scrolling down to the bottom of the factsheet, users access the lists of related elements of the management plan (Figures 6, 7 and 8), organised by type (Stakes/Objectives/Actions/Surveys – Enjeux/Finalités/Actions/Suivis). When clicking on a title of the list, users access its dedicated factsheet.

For example, one of the stakes determined for the Park is about the fishing activity that should be maintained in a sustainable way. From the factsheet on this stake, users have access to the related objectives of the management plan as well as actions and surveys:

- 4 objectives are set for this stake (figure 6): to maintain a diversified activity, to promote the profession of fisherman, to diversify exploited fishing resources, to promote sustainable products from the Park.
- Several actions are carried out to progress the 4 objectives above (Figure 7), among them: knowledge programs about several targeted species and their functional areas, assessment of the exploitation rate for these species, assessment of the environmental risks associated with several types of fishing practices.
- One survey monitoring the status of a fished species is also described (Figure 8).

Each kind of factsheet contains relevant lists of related elements: a stake factsheet details related objectives, actions and surveys, whereas an objective factsheet provides links to related stakes (as well as actions and surveys). This enables users to understand the multiple connections that may exist (actions and surveys can address several stakes and objectives).

This dynamic navigation through the management plan elements is one of the main added values of the web application, compared to the paper version. By making explicit logical interconnections between the different kinds of elements in the management plan, the application enables the Park management team to justify management decisions: what are the stakes addressed by an objective and why are they important? Actions carried out by the Park should benefit what stakes?

The screenshot shows a web application interface for the 'Plan de gestion dynamique | Parc naturel marin Estuaire de la Gironde et de la mer des Pertuis'. The main content area displays a factsheet for 'La pêche professionnelle' (Professional fishing). The title is 'Enjeu : Une pêche professionnelle diversifiée (métiers, espèces) et exploitant une ressource a forte valeur ajoutée'. Below the title, there is a section 'Une pêche professionnelle diversifiée' with a description: 'La variété des navires et des engins utilisés, les différentes espèces ciblées et leur saisonnalité permettent un fonctionnement complémentaire de l'ensemble des flottilles qui se partagent les zones de pêche du Parc. 70% des navires de pêche du secteur mesurent moins de 12 mètres et pratiquent une pêche côtière. Pour la plupart polyvalents, ces navires exercent différents métiers au cours de l'année, tout comme le font certains chalutiers semi-hauturiers. Par ailleurs, les eaux du Parc accueillent des navires de ports extérieurs, notamment des chalutiers pélagiques exploitant la sardine.' Below this, there is a table with four objectives, each with a corresponding action and survey.

FINALITÉS	ACTIONS	SUIVIS
<b>Maintenir la diversité de la pêche professionnelle</b> La complémentarité des métiers et des pratiques est essentielle à l'activité de pêche dans le Parc.		
<b>Pérenniser le métier de marin</b> L'activité de pêche repose sur l'attractivité du métier de marin pour les jeunes générations.		
<b>Diversifier les ressources halieutiques exploitées</b> La diversification des ressources halieutiques permet d'alléger la pression sur les espèces fortement exploitées.		
<b>Valoriser les produits de pêche durable issus du Parc</b> Le Parc accompagne les professionnels dans la valorisation de pratiques et produits de pêche durable.		

Figure 6: Four objectives related to the fishing activity stake

Plan de gestion dynamique | Parc naturel marin  
Estuaire de la Gironde et de la mer des Pertuis

Accueil > Pêche professionnelle > La pêche professionnelle

Enjeu : Une pêche professionnelle diversifiée (métiers, espèces) et exploitant une ressource a forte valeur ajoutée

La valorisation des pratiques, des métiers et des ressources de la pêche est essentielle à la pérennisation de l'activité professionnelle.

**Une pêche professionnelle diversifiée**

La variété des navires et des engins utilisés, les différentes espèces ciblées et leur saisonnalité permettent un fonctionnement complémentaire de l'ensemble des flottilles qui se partagent les zones de pêche du Parc. 70% des navires de pêche du secteur mesurent moins de 12 mètres et pratiquent une pêche côtière. Pour la plupart polyvalents, ces navires exercent différents métiers au cours de l'année, tout comme le font certains chalutiers semi-autouriers. Par ailleurs, les eaux du Parc accueillent des navires de ports extérieurs, notamment des chaluts pélagiques exploitant la sardine.

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FINALITES ACTIONS SUIVIS

- Amélioration de la connaissance des nurseries côtières**  
Acquisition de données pour caractériser l'état de santé des nurseries, notamment en zone peu profondes.
- Amélioration de la connaissance de la seiche**  
Participation à l'analyse des nurseries et des pondoirs pour mieux connaître la population.
- Amélioration de la connaissance du maigre**  
Amélioration de la connaissance des stocks, évaluation de la pêche de loisir et création d'une charte.
- État des lieux des gisements sauvages d'huîtres plates**  
État des lieux, tests pour l'élevage et réflexion sur leur exploitation par la pêche professionnelle (REFONA).
- Evaluation des niveaux d'exploitation des gisements de palourdes**

**Suivi des gisements de palourdes**  
Évaluation des populations de palourdes présentes dans les sites classés de pêche à pied.

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Figure 7: Several actions relating to the fishing activity stake

Plan de gestion dynamique | Parc naturel marin  
Estuaire de la Gironde et de la mer des Pertuis

Accueil > Pêche professionnelle > La pêche professionnelle

Enjeu : Une pêche professionnelle diversifiée (métiers, espèces) et exploitant une ressource a forte valeur ajoutée

La valorisation des pratiques, des métiers et des ressources de la pêche professionnelle est essentielle à la pérennisation de l'activité.

**Une pêche professionnelle diversifiée**

La variété des navires et des engins utilisés, les différentes espèces ciblées et leur saisonnalité permettent un fonctionnement complémentaire de l'ensemble des flottilles qui se partagent les zones de pêche du Parc. 70% des navires de pêche du secteur mesurent moins de 12 mètres et pratiquent une pêche côtière. Pour la plupart polyvalents, ces navires exercent différents métiers au cours de l'année, tout comme le font certains chalutiers semi-autouriers. Par ailleurs, les eaux du Parc accueillent des navires de ports extérieurs, notamment des chaluts pélagiques exploitant la sardine.

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FINALITES ACTIONS SUIVIS

- Suivi des gisements de palourdes**  
Évaluation des populations de palourdes présentes dans les sites classés de pêche à pied.

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Figure 8: One survey relating to the fishing activity stake

## 4 Work done

### 4.1 Web development

The web application has been developed by [Conjecto](#), a French IT company based in Rennes. It is fully developed with open source solutions in React 17 language. It is composed of several technical elements:

- a Content Management system (CMS) Drupal 9 for the management of editorial content (factsheets), links with geospatial content and links between management plan elements.
- a geospatial database Postgre SQL 13 with Postgis 3.1.1 extension hosting GIS data and enabling the administrator to organise GIS layers by themes and to manage graphical representation (colours, symbols...) via the QGIS application.
- a WMS/WFS server to display GIS layers into interactive maps. This server can also make data layers available for download by users (if decided by the administrator – it can be done only for a part of the data layers).

### 4.2 Feeding the tool with editorial content

#### Structure of the factsheets

The summarised information sheets have been structured in the following way:

- For major topics and stakes: Title, Introduction phrase, 2 or 3 paragraphs with subtitles, an average of 1500 symbols.
- For actions and monitoring: Title, Description and practical information sections:
  - actions: Implementation period, Project leader, Operational implementation of the project, Funding.
  - surveys: Goals, Protocol, Frequency, Location, Coordinators, Technical operators.

#### Factsheet content adapted to the web

To ensure clear understanding of the information, the factsheet content was produced using writing techniques for the web such as the use of subject-verb-object construction, logical connectors, cause-effect relationships and simplified vocabulary whenever possible.

The writing aims to popularise scientific information by adopting the target audience group's point of view and anticipating the variety of interrogations of the heterogeneous panel of users regarding the content of the management plan.

The information is kept practical, bearing in mind that the objective is to positively evolve practices, to facilitate the appropriation of the Park and its challenges by users and local stakeholders and to make them aware of the challenges of the marine environment.

#### Role of complementary content

The use of header illustrations facilitates content appropriation and provides the reader with direct sight of the topic developed in the sheet.

In the action and monitoring sheets, the image gallery and downloadable documents are a practical way for interested users to access detailed information.

### **Work done with Park experts for each topic**

The writing has been conducted under the supervision of the Park staff that were involved in proof-reading content and illustration validation and provided advice on logical linking between the sheets. The Park experts were also consulted for practical issues such as the selection of GIS data to be displayed in each factsheet.

### **Results**

A total of 150 factsheets were created, of which:

- 10 major topic sheets
- 28 stake sheets
- 50 objective sheets
- 47 action sheets
- 15 survey sheets

## **4.3 Feeding the tool with geographic data**

An objective of the project was to set up a web-GIS to display for each thematic factsheet relevant data, synthetic enough to be understood by stakeholders. This tool is also designed to enable data downloading and metadata sharing.

The management plan data is banked in the OFB database. To improve the web-GIS performance, a specific database was created for the application. A daily synchronization is carried out to retrieve the data from the OFB database to that of the project. This database is managed through QGIS software.

The stakes and objectives of the management plan are illustrated by a set of GIS data. Indeed, about 60 maps sorted by 20 themes illustrate the stakes and objectives of the management plan, from a data set of 173 layers. 3 types of data layer formats are used: polyline, polygon and point. The thematic information shown by the data uploaded in the application is of a different nature: habitat maps, species occurrences from various surveys, bio-physical model outputs, areas of ecological interest defined by expert knowledge, main areas exploited by maritime uses, location diverse facilities such as ports, regulations such as MPA perimeters, etc.

Moreover, comprehensive metadata were produced during the project for each of the layers uploaded in the application.

Layers are structured according to topics addressed in the management plan (Table 1) with 3 levels of classification (Figure 9). This structure has been designed to clarify the nature and significance of each data layer displayed by the application. Moreover, the administration module of the application allows changing the GIS layer names shown in the data selection module of the application. Therefore, each data layer has been renamed to change from a technical database title to a simple and understandable title.

For some topics, lots of data are available and are critical to providing more comprehensive understanding. This makes it difficult to display all data layers at the same time. To tackle this issue, the most representative data have been selected with the Park's experts to be displayed by default when accessing every factsheet. The other data are still available and can be selected by users.

Finally, symbology for each data layer has been specifically considered and adapted to a web-mapping application. Most of the data layers provided were initially used, and for lot of them produced, to be displayed in static maps (printed version or electronic pdf) in the context of the management plan elaboration. Several layer symbols had to be adapted to remain understandable at different visualisation scales. Technical prescriptions of the web GIS solution also made it necessary to adapt some symbols. A legend module is available (Figure 10) in the same place as the data layer list. Users can switch between both thanks to 2 tabs at the top of the module.

**Table 1:** Number of data layers classified in each topic of the management plan

Thematic	Number of data
Basemap	6
Marine Protected Areas	11
Nature of surface bottoms and sedimentary dynamics	7
Water quality and quantity	13
Primary production functionality	8
Fish functional areas	23
Seabirds	8
Rays and sharks	6
Marine mammals	4
Turtle	6
Marine habitats	15
Shellfish farming	11
Professional fishing	11
Extraction of marine aggregates	4
Ports	11
Marine traffic	2
Dredging and sediment management	2
Leisure activities	18
Followed	1
Vocations	6
<b>Total</b>	<b>173</b>



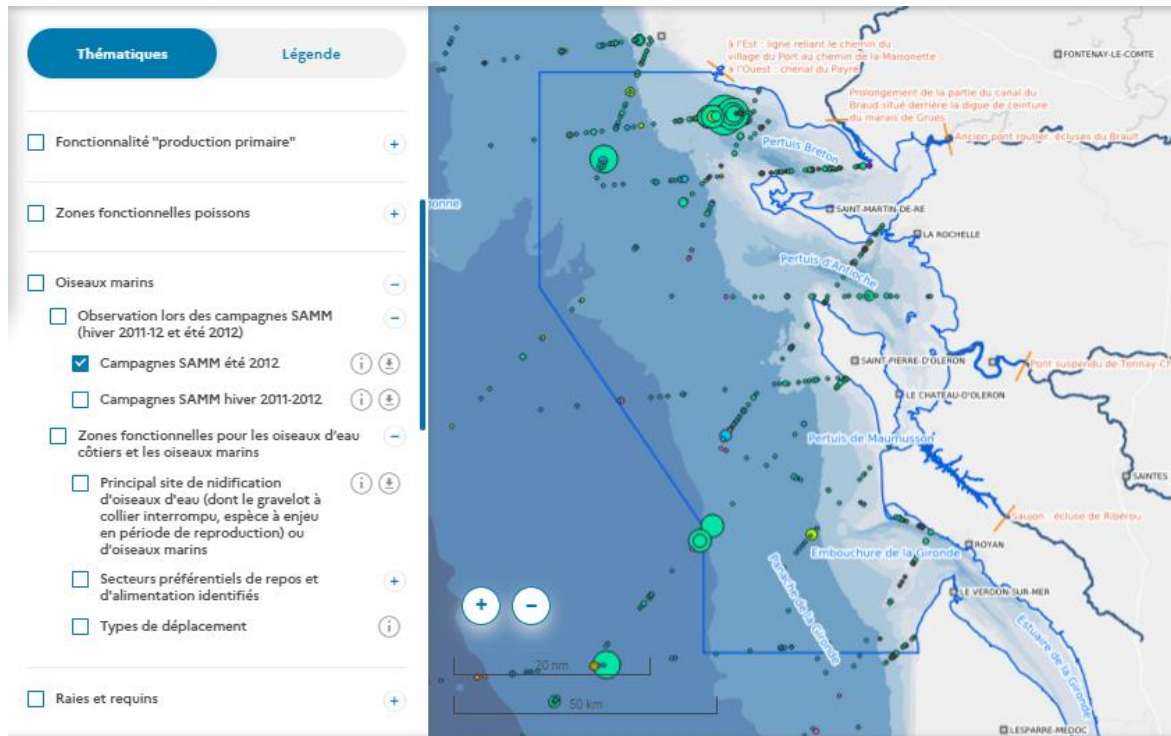


Figure 9: Example of the 3-level data structure for marine birds

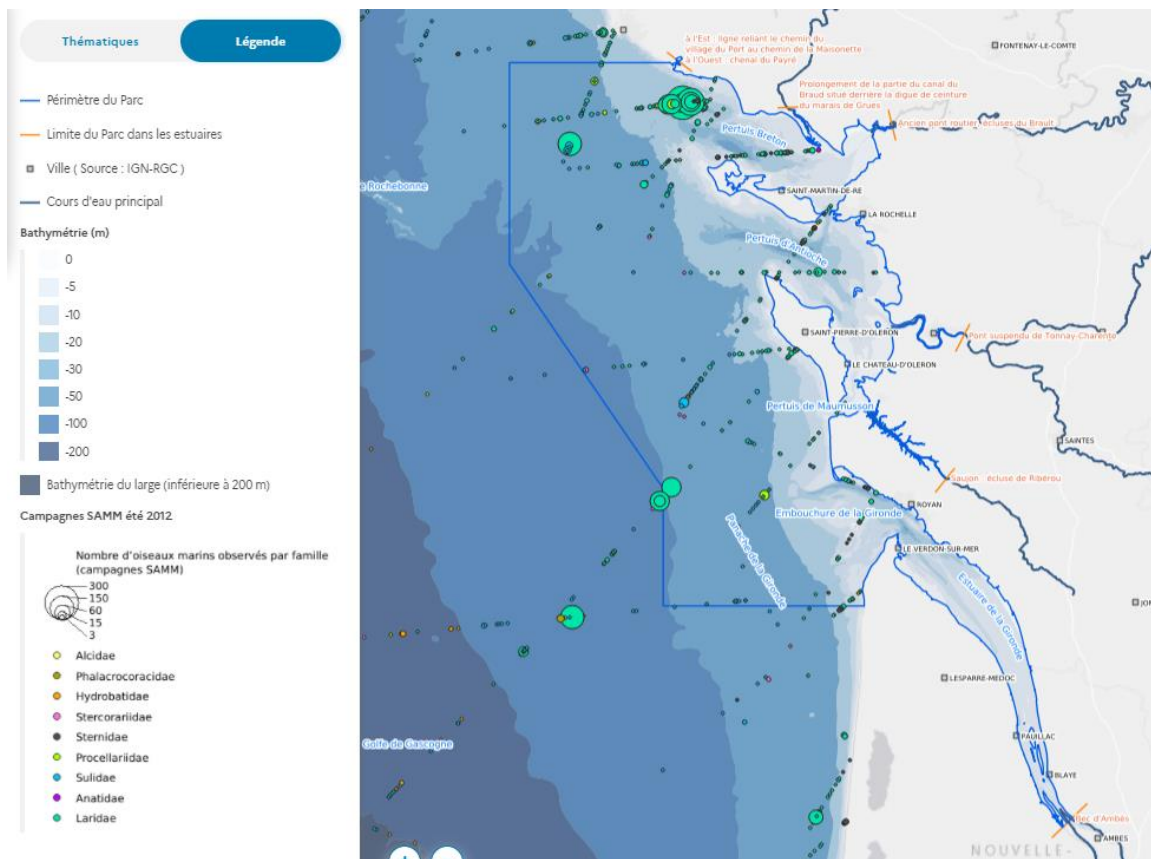


Figure 10: Legend of the spatial data displayed

## **4.4 Creating logical links between factsheets**

Stakes are the key information to link the management plan elements to their related factsheets. When creating an objective, action or monitoring factsheet, the administrator has to specify the stake or stakes (there can be several) to which that element refers. Links to these related elements are automatically re-created in the concerned factsheet.

## 5 Perspectives

### 5.1 Regarding the Park

The management plan application has different audiences. Appropriation of the tool by each of them is a major challenge.

The main target is the Park management board, composed of state representatives as well as stakeholder representatives (economic stakeholders, local governments, NGOs...). The management board is the Park's governance body, responsible for the direction of the Park's management. Its members validate projects and actions undertaken by the management team as well as the annual budget. They can propose new regulations and have the competence to give notices on maritime and coastal licencing requests. Given the complexity of the management plan, decisions taken by the management board are not always taken with close connection to the plan objectives. Hence, the application is expected to be a guiding tool for board members when taking management decisions, at an individual level for each member as well as during management board meetings as an animation tool.

The management plan application could also be a tool to inform project developers when planning their activities, often leading to a licencing request. The management plan web application fosters their understanding of the Park's objectives in places where projects are foreseen, regarding ecological components that projects could impact or, bearing in mind that the Marine Nature Park also pursues sustainable development objectives, regarding their own activity. Moreover, thanks to the GIS data download function, the web application could be a tool to deliver data to project developers, enabling them to adapt their licencing application to the Park's objectives and prescriptions.

Finally, this web application could be used for raising public awareness of the Park's objectives. Any user interested in an environmental component or an activity within the Park's perimeter can easily access its dedicated factsheet, including an understandable explanation and links to further detailed documents, and understand, through the logical link between factsheets, what objectives the Park expects to achieve and what actions are carried out to do so. Moreover, the web GIS module enables users interested in a particular area of the Park to know what kind of natural heritage or maritime uses are occurring and then, enter the management plan according to their particular interest.

### 5.2 Transposition to MSP plan

MSP plans share the same ownership challenges as the Marine Nature Park management plans. They are complex and address a very broad range of interconnected topics in such a way that is difficult for stakeholders to have a global understanding of decisions made and resulting regulations.

In France, MSP plans have the same structure as Marine Nature Park management plans (interlinked stakes, objectives, actions and surveys). Therefore, the web application developed through the SIMAtlantic project could serve as a demonstration tool for a further application of the Sea Basin Documents (French MSP plans).

This kind of online tool also offers the possibility to be continuously updated and to keep stakeholders as well as decision makers informed on the implementation of the plan (actions can be added all during the implementation process) and results achieved (monitoring

information is continuously updated and it is possible to mention when an objective is achieved). French plans at a basin scale are intended to be reviewed every 6 years. This period is long enough to make continuous communication on the implementation process relevant, which could help with the reviewing process.

Finally, competent authorities could circulate regulations coming from the planning process, through the GIS module for spatial regulation or through factsheets for global ones. More than a simple delivery, the tool offers the possibility to explain regulations by linking them to related stakes and objectives set by the plan. This better understanding is a way of enhancing stakeholder ownership which in turn could lead to better implementation and more effective management.