# Marine Protected Areas
# Management plan tutorial

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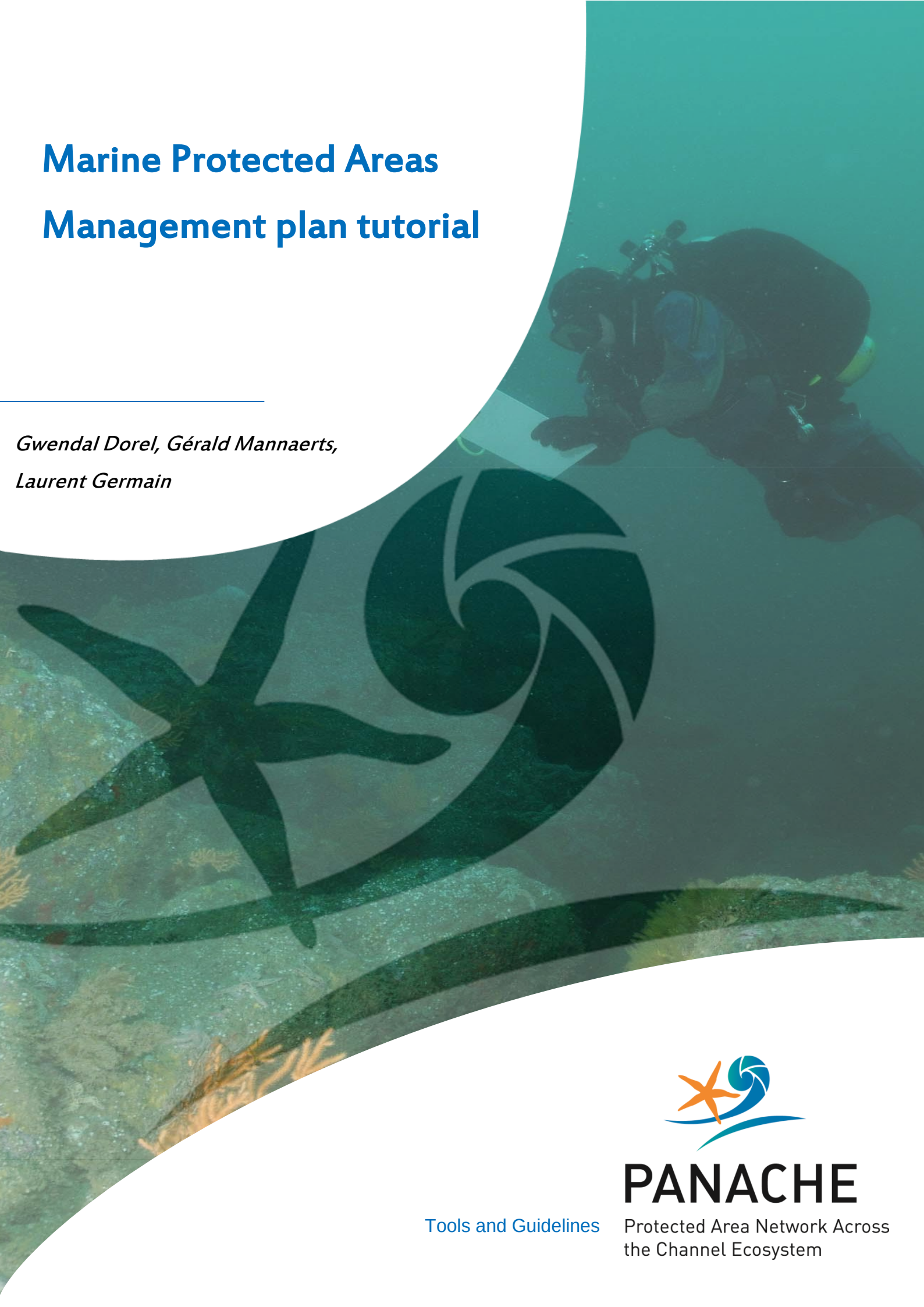

Tools and Guidelines

PANACHE
Protected Area Network Across the Channel Ecosystem

# Marine Protected AreasManagement plan tutorial

## Tools and Guidelines

Prepared on behalf of / Etabli par l'

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# Management plan tutorial

Tutoriel d'un plan de gestion


## ABSTRACT

The aim of this tutorial is to provide a structured guide to develop a management plan document, whether it is an update to an existing version or a first edition.

It was produced during the PANACHE project, Protected Area Network Across the Channel Ecosystem, which aims for a coherent approach to marine protected areas (MPA) on both sides of the Channel. So this document aims to be adapted to the context of two nations, France and the United Kingdom, with their management particularities, but also with the common desire to address MPAs in a coherent and effective way.

The plan which we will be following is built around two reference elements: the Conservation Advice Packages[1], in the United Kingdom, and the MPAs toolbox in France. Regarding the different MPAs, we shall focus here on the Natural heritage features.


**KEYWORDS:** Conservation Advice Packages, MPA, management plan/scheme, features, Natural heritage


## RÉSUMÉ

Ce tutoriel vise à présenter de manière structuré les différentes étapes essentielles à l'élaboration d'un document de gestion d'une aire marine protégée, qu'il s'agisse d'une mise à jour ou de la première rédaction de celui-ci.

Il a été élaboré au cours du projet PANACHE, Protected Area Network Across the Channel Ecosystem, qui vise une approche cohérente des aires marines protégées (AMP) de part et d'autre de la Manche. Ainsi ce document se veut adapté au contexte de deux nations, la France et le Royaume-Uni, avec leurs particularités de gestion, mais aussi avec une volonté commune de traiter les AMPs de manière cohérente et efficace.

Le plan qui est proposé dans ce guide est construit autour de deux éléments références: les Conservation Advice Packages[1], au Royaume-Uni, et les Boites à Outils AMP en France. Nous nous focalisons ici sur les enjeux de Patrimoine naturel.


**MOTS-CLÉS :** Conservation Advice Packages, AMP, plan de gestion, enjeux, Patrimoine naturel

[1] References such as "Conservation Advice Packages" refer to the Glossary, where these terms are defined.

# Contents

# I. Introduction

## 1.1 Regulatory instruments governing MPAs

Depending on the MPA considered, it must meet precise objectives set by law.

The table below summarises the objectives of MPAs. It contains information provided by Crozet S., Ed. MEDD-ATEN, 2005.

| MPA | Objectives |
|---|---|
| **Arrêté préfectoral de protection de biotope (APPB, biotope protection by-law)** | -**Prevent the extinction of protected species** (non-domestic animal species or non-cultivated plant species) by establishing measures to protect the biotopes necessary for their feeding, breeding, rest or survival, *Relevant biotopes:* ponds, marshes, swamps, hedges, groves, moors, dunes, lawns or any other natural formations little used by man<br>- **Prohibit all action** that is indirectly detrimental to the biological equilibrium of environments |
| **Domaine Public Maritime (DPM) du Conservatoire du littoral** | **- Land-use policy**, to safeguard the coast and maintain natural sites and the ecological equilibrium through the acquisition of fragile or threatened sites in order to permanently protect them |
| **Marine Conservation Zone (MCZ)** | The aim is to **preserve**: marine fauna and flora, marine habitats, and geological and geomorphologic interests. |
| **Natura 2000**<br>**FR and UK** | **For the wild fauna and flora that justified the site's designation:**<br>- Maintain or restore natural habitats and the populations of these species at/to a favourable status for their long-term conservation<br>-Avoid deterioration of natural habitats and disturbance liable to significantly affect these species |
| **Parc national (PN, national park)** | -**Preserve natural environments and areas**, their appearance, composition and evolution<br><br>-**Economic, social and cultural development of the geographic area** comprising the PN |
| **Parc naturel marin (PNM, marine nature park)** | -**Knowledge of marine heritage**<br><br>**-Protection and sustainable development of the marine environment** |
| **Réserve naturelle nationale (RNN, national nature reserve)** | *RNN classification ➔ ensure conservation of elements of the natural environment of national interest, or ensure implementation of Community regulations or an obligation arising under an international convention. RNNs tasked with implementing the national strategy on biodiversity:*<br>-**Protection of protected species** under-represented in the ecological network<br>-**Conservation of priority habitats** that are given insufficient consideration in order to heighten their diversity in the current network<br>-Continue the programme to protect natural areas in French overseas regions |

| | |
|---|---|
| **RAMSAR Site** | **Curb** the tendency of wetlands to disappear, foster their conservation and that of their flora and fauna and promote and foster their rational use. |
| **Sites of Special Scientific Interest (SSSI) [UK]** | **Special interest** for the flora, fauna, geology or physical geography of the site |

*Table 1: Objectives and goals of French MPAs*

- The table below contains the legal provisions covering the various categories of MPA.

| MPA | Reference provisions (the most significant) | Establishing legal instrument |
|---|---|---|
| **Arrêté préfectoral de protection de biotope** | Code de l'environnement (French Environment Code): Articles L. 411-1 and L. 411-2, Articles R. 411-15 to R. 411-17, and Article R. 415-1<br><br>Circular no. 90-95 of 27 July 1990 relative to the protection of biotopes necessary to species living in aquatic environments. | Arrêté préfectoral (Prefectoral by-law)<br><br>If measures (public maritime property): arrêté ministériel (ministerial order) |
| **Domaine Public Maritime (DPM) du Conservatoire du Littoral** | Code de l'environnement: Article L. 322-6<br><br>French law no. 2002-276 of 27 February 2002 on grassroots democracy (1) | Order of award by regional government services:<br>Award limited to 30 years |
| **Natura 2000** | • <u>European directives:</u> 79/409/EC of 2 April 1979 "Birds") and 92/43/EC of 21 May 1992 ("Habitats").<br><br>• <u>French provisions:</u><br>-Code de l'environnement (Articles L. 414-1 to L. 414-7, R. 414-1 to R. 414-24).<br>-Decree no. 2001-1031 of 8 April 2001 (site designation procedure).<br>-Two by-laws of 16 November 2001: the first establishing the list of wild bird species justifying the designation of SPAs; the second (amended by the by-law of 13 July 2005) listing the natural habitats and species of wild fauna and flora justifying the designation of SPAs.<br>-Two circulars:<br>Circular of 24 December 2004 (DNP/SDEN no. 2004-3) relative to the management of Natura 2000 sites<br>Circular of 5 October 2004 (DNP/SDEN no. 2004-1) relative to the evaluation of effects of programmes and projects for work, structures or developments liable to significantly affect Natura 2000 sites | Order by the relevant ministers |

| | | |
|---|---|---|
| **Parc national (PN)** | Code de l'environnement: Articles L.331-2 to L.331-7, R.331-1 to R.331-12 and Articles R.331-15 to R.331-17<br><br>French law no. 2006-436 of 14 April 2006 on national parks, marine nature parks and regional nature parks (JORF 15 April 2006)<br><br>Implementing decrees 2006-943 and 2006-944 of 28 July 2006 (JORF 29 July 2006) | Council of State decree |
| **Parc naturel marin (PNM)** | Code de l'environnement:<br>Articles L. 334-3 to L. 334-8 and Articles R. 334-27 to R. 334-38 | Simple decree |
| **Réserve naturelle nationale (RNN)** | Code de l'environnement :<br>Articles L. 332-1 to L. 332-27 and R. 332- 1 to R. 332-29 and R.332-68 to R. 332-81.<br><br>Circulars:<br>95-47 of 28 March 1995 on the ecological management plans of nature reserves<br>97-93 of 7 October 1997 relative to the appointment and missions of nature reserve management organisations<br>2006-3 of 13 March 2006 on the procedure for creating and managing national and regional nature reserves. | Simple decree (with owners consent)<br><br>Otherwise, Council of State decree |
| **RAMSAR Site** | International provisions:<br>• Ramsar Convention (Iran) of 2 February 1971 on wetlands of international importance particularly as habitats of water birds<br>• Protocol of the extraordinary Conference held in Paris on 3 December 1982;<br>• Amendments of the extraordinary Conference of Regina (Canada) of 28 May 1987;<br><br>French provisions:<br>• Law 94-480 of 10 June 1994 approving amendments to the Convention of 2 February 1971 adopted by the extraordinary conference held in Regina, Canada, on 28 May 1987;<br>• Decree 95-143 of 6 February 1995 publishing amendments to the Convention of 2 February 1971 adopted by the Conference held in Regina;<br>• Circular of 24 December 2009 on the implementation of the Ramsar Convention in France | Instrument ratifying the Convention: Paris Protocol (FR) |

*Table 2: Reference legislation and basic legal instrument of French and English MPAs*

## 1.2 Roles of the various MPA players

A brief description is provided below of the various players you may encounter.

**Management oversight**

**The French Agence des aires marines protégées (AAMP, MPA Agency),** established in 2006 by the law of 14 April "on national parks, marine nature parks and regional nature parks", is a national public administrative organisation operating under the authority of the French Ministry for Ecology, Sustainable Development and Energy (MEDDE).

Pursuant to the law of 14 April 2006, it is tasked with establishing and leading "a French marine protected areas network and contributing to France's participation in the creation and management of marine protected areas decided internationally". In addition to this wide-ranging role, the Agency works to achieve four more precise goals: supporting public policies for the creation and management of marine protected areas, coordinating a network of MPA managers, and understanding and monitoring French waters and MPAs. Its role in supporting management is materialised through the assistance it provides to task forces for marine nature parks. Furthermore, once established, it provides PNMs with human and financial resources. Its coordinating role may involve providing technical and financial resources, liaising with other government services on MPAs and conducting specific actions.

The French Ministry for Ecology, Sustainable Development and Energy (MEDDE) has decentralised services across the whole of France. These include **the Directions régionales de l'Environnement, de l'Aménagement et du Logement (DREAL** (Regional Directorates for the Environment, Planning and Housing)**, or DEAL for Overseas regions)** at regional level, which encompass the former Directions régionales de l'équipement (DRE, Regional Directorates for Community Facilities), Directions régionales de l'industrie, de la recherche et de l'environnement (DRIRE, Regional Directorates for Industry, Research and the Environment) and the Directions régionales de l'environnement (DIREN, Regional Environmental Directorates).

They are under the authority of the Regional Prefect and are responsible for sustainable development policies. They implement the Government's environmental and sustainable development policies.

The **Directions Départementales des Territoires et de la Mer (DDTM,** Departmental Directorates for the Territories and the Sea**)** "implement public planning and sustainable development policies for the territories and the sea. In coastal regions, the DDTM encompass most of the DDE (departmental directorates for community facilities), the DDAF (departmental directorate for agriculture and forests), the DDAM or DIDAM (maritime affairs directorates) and part of the Prefecture services."[2]

[2] http://www.developpement-durable.gouv.fr/Les-DDTM-directions,12618.html, 14/10/2014

The **Directions Interrégionales de la mer (DIRM,** Interregional directorates for the sea**)** were created in 2010. The PANACHE area includes two DIRMs: "North Atlantic-Western Channel" in Nantes and "Eastern Channel-North Sea" in Le Havre. The latter "consists of the former regional directorates for maritime affairs (DRAM), the Lighthouse and Buoys services and the Polmar regional storage centres, the five Centres de Sécurité des Navires (CSN, vessel security centres), the two Centres Régionaux Opérationnels de Surveillance et de Sauvetage en mer (CROSS, regional sea surveillance and rescue centres) and the department of mariner health." They carry out various tasks: coordinating sea policy, sustainable development of marine activities and maritime security.

There are three **Maritime Prefectures, or Premar,** along the Metropolitan seaboards. Maritime prefects are Government representatives for the sea: from the coast to the high seas. Each Maritime Prefect reports directly to the French Prime Minister and represents each Minister having sea-related responsibilities.

One of their main missions is protecting human life at sea. They are also responsible for navigation safety and for regulating coastal uses to guarantee marine environment quality, such as the erection of wind turbines at sea or fishing.

The **Atelier technique des espaces naturels (ATEN)** is a public interest grouping established in 1997 by the French Environment Ministry. "Aten shall contribute to the protection of natural areas and heritage through stakeholder networking and professionalization. It now comprises 21 organisations responsible for nature management and the conservation of biodiversity. Aten's action mainly targets France (mainland and overseas), but it also participates in assessments and exchanges as a representative on a European and international scale (particularly within the framework of Natura 2000)."[3]

"The **Forum des gestionnaires d'aires marines protégées françaises (MPA Forum)** is an informal network for technical interaction between MPA managers in both mainland and overseas France. Developed around a membership charter and bringing together all kinds of MPA managers and project leaders, it aims to share and capitalise on manager experience."[4]

**In the UK**

The **Department for Environment, Food & Rural Affairs (DEFRA)** is the UK government department responsible for policy and regulations on environmental, food and rural issues. It is managed directly by the Minister for Environment, Food and Rural Affairs. It has various entities to support these policies: executive agencies, key delivery partners, and regional organisations. DEFRA is one of the 35 public agencies and bodies, responsible for policy and regulations in its area of intervention. It works directly in England and with devolved administrations in Scotland, Wales and Northern Ireland. It has both executive agencies, particularly in food and rural affairs, and key delivery partners upon which some of DEFRA's attributions are devolved.[5]

The **Marine Management Organisation** (MMO) is an executive non-departmental public body established in 2009 by the Marine and Coastal Access Act 2009. The MMO licenses, regulates and plans marine activities. Responsibilities include managing fishing beyond six nautical miles, licensed marine activities, recreational activities (between 0-12 NM) and developing marine planning.

[3] ATEN website, 31/10/2014
[4] Forum des AMP website, http://www.forum-aires-marines.fr/Le-Forum, 05/11/2014
[5] DEFRA website

**(NE)** is also an executive, non-departmental public body established in 2006 by the Natural Environment and Rural Communities Act 2006. Its purpose is "to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development" (DEFRA, 2013). It gives advice (conservation goals and operations), to authorities and developers on the effects of plans/projects in MPAs, conducts assessments on the conditions of MPAs and provides opinions on both local and national policies. England is its scope of action: land and up to the twelve NM limit ([6] and DEFRA, 2013a).

The **Joint Nature Conservation Committee (JNCC)** is a public body that was reconstituted in 2006 by the same Act as NE. The JNCC advises the UK Government and devolved administrations on nature conservation. It thus has the same purposes as NE but in its area of responsibility: beyond 12 nautical miles (exclusive economic zone). JNCC provides advice for the whole of the UK to inform policy formulation and ensure that policies are applied. It further supports nature conservation in the UK's overseas territories ([7] and DEFRA, 2013b).

The **Inshore Fisheries & Conservation Authorities (IFCA)** are committees based in the various counties of England. Their purpose is to defend and manage sustainable coastal and sea fishing while protecting the environment, between 0 and 6 nautical miles. This involves securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.

Just like the MMO and NE, the **Environment Agency (EA)** is a non-departmental public body for England. It is responsible for the management of fisheries of migratory species, for the Water Framework Director in estuaries and coastal waters (up to 1 nautical mile for ecological statuses and 12 NM for chemical statuses). It is also responsible for the environment, permits for activities up to 12 NM where necessary, pollution management up to 3 NM (contaminated land and pollution) and for managing the risk of flooding.

[6] NE website
[7] JNCC website

# II. Features

## 2.1 Definition of a feature

Before beginning to draft a management plan (or scheme), it is interesting to focus on the definition of features. In the UK, the term "features" encompasses all of the principal characteristics of a site. They are what give the site its importance and its **responsibility** for protection. In France, the term used is "**enjeu**" (more generally translated by "issue" or "stake"). The Larousse dictionary (Larousse website[8]) defines "**enjeu**" as "What can be won or lost in any undertaking".

In the field of MPAs, features or *enjeux* relate to several concepts including conservation, knowledge of heritage, education and socio-cultural aspects.
Here, we are addressing the topic of natural heritage. The important notion in the French term **enjeu** is indeed that of gain and loss, which ties up with the reasons behind an MPA's designation: the **enjeux/features** are the reason why sites are designated.

We therefore propose the following definition of **enjeu/feature** here; that of a **natural heritage conservation feature**:

> A feature is a species or habitat that should be integrated into the founding concerns of the MPA in which it is identified.

More generally, a feature is a focus of your MPA's **responsibility**.

Key points

- Pre-identified features are often found in documents creating or designating MPAs
- They result from the completion of the site inventory
- Features provide the "link between the context and the responsibility"[9] of the marine protected area

*Example:*

My MPA accommodates a lot of wintering birds.
↳ Feature: "Significant accommodation of wintering birds"

My MPA is an important place for porpoise breeding.
↳ Feature: "Significant porpoise breeding"

[8] http://www.larousse.fr/dictionnaires/francais/enjeu/29621, 05/11/2014
[9] ATEN Guide, 2014

## 2.2 Species

To choose the relevant species, it is important to have an overall view of the MPA's **responsibility** for each species.

Several criteria are therefore necessary to be able to identify the 'species' **features**.

**The choice of species to be managed**

One of the main criteria for selecting species is their status. There are currently several statuses: international and Community statuses, as well as national and more local statuses.
A score must be established to determine which species are priority features.

Internationally, we have:

- The IUCN red list: http://www.iucnredlist.org/. It contains the status of global species.
- The list of OSPAR threatened and/or declining species and habitats
- Berne Convention: "to conserve wild fauna and flora and their natural habitats"
- Bonn Convention on the Conservation of Migratory Species of Wild Animals (CMS)

At European level:

- the Annexes to the European Directives

Here, the annexes to the Directives forming the Natura 2000 network must be taken into consideration. Thus, the "Birds" and "Habitats" Directives each contain Annexes specifying species concerned by more or less intensive protection. The "Birds" Directive has 5: Annex I (INPN website, 28/07/2014[10]). The "Habitats" Directive has 3: Annex II.
The MNHN website lists each species datasheet for each Annex (http://inpn.mnhn.fr/reglementation/protection/listeProtections/communautaire). The species chosen for English MPAs are given on the CAPs: http://publications.naturalengland.org.uk/category/3229185.

At national level

- The red list of species from the French IUCN Committee and the French Muséum national d'Histoire naturelle (MNHN/SPN) http://www.uicn.fr/liste-rouge-france.html
- The project to assess the status of species has been conducted by the JNCC since 1999[11]. It is carried out in cooperation with other conservation agencies in order to give a conservation status of UK species.

[10] http://inpn.mnhn.fr/reglementation/protection/listeProtections/communautaire
[11] http://jncc.defra.gov.uk/page-1773

At site level

- The creation and designation documents provide initial information that can be used as a basis. However, the site may change, so a critical review must be carried out to ensure that species continue to be in line with the site's features.

Furthermore, it is important to stay in touch with the reality on the ground, as regards this aspect at site level. A species may have justified the designation, but subsequent knowledge, scientific campaigns, etc. may or may not have proved the species' presence in the protected area. The management document will therefore validate the species as a feature or not.

**Does its presence at my site justify the feature?**

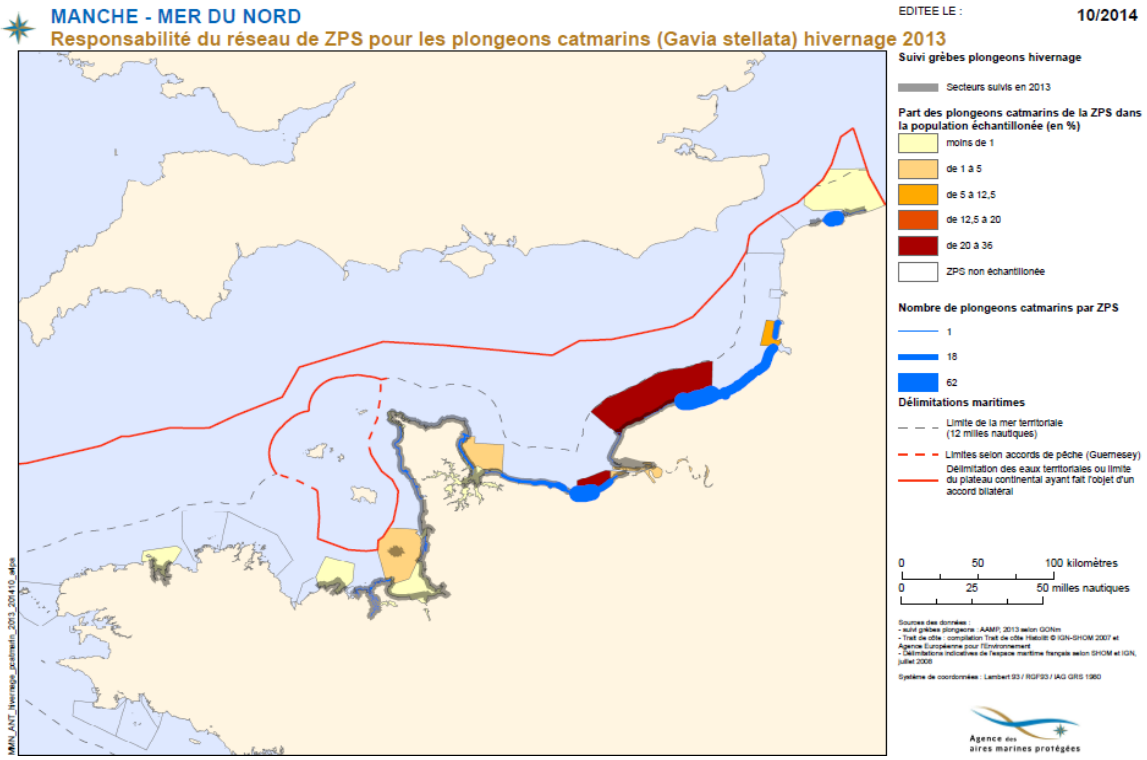
After determining the 'species' features, their statuses must be examined to determine their importance in the MPA. This means the **representativeness** of the species which thus determines the MPA's **responsibility**. These two notions, along with those mentioned above (status) and others (pressure, threats), allow the species features to be **prioritized**, to clearly define the priority actions to be taken.

The idea is to identify how the MPA is positioned in relation to other MPAs in the network which may feature the same species. The relevant scale will vary depending on the species: its distribution range, biology, etc. **Responsibility** may therefore be global, European, national, regional (here the Channel).

How do I determine my responsibility?

Reports and references are drafted per coastline and marine sub-region, for example by Offices of the French *Agence des aires marines protégées*, and are regularly updated with input from the different partners, such as marine bird societies and observatories.

*Example: Map of responsibility for red-throated loons (Gravia stellata)*




Here, data from monitoring done by the Groupe Ornithologique Normand (GONm) for red-throated loon in the SPAs on the Channel - North Sea coast, during winter 2013, is used. With this data, the importance of red-throated loons in MPAs can be put into perspective. This kind of map thus allows us to position our MPA in the network to identify our **responsibility** for important species.

**In brief**

1- Check the presence and status of important species in the MPA

2- Study the MPA's responsibility and representativeness as regards those species

## 2.3 Habitats

The same steps are necessary to select the habitat features.

Initially, therefore, the habitats that will be classed as **features** of the MPA must be defined. Literature on habitats (surveys, management documents, etc.) contains several concepts that may be worth considering: remarkable habitats (for habitats of Community importance), priority habitats, habitats important for conservation. Remember to compare the proportion of habitats present with the designation to check that decisions concerning features will be made based on the right information.

Then examine the MPA's **representativeness** on the appropriate scale, to obtain the **responsibility**.

**In brief**

3- Check the presence and status of important habitats in the MPA

4- Study the MPA's responsibility and representativeness as regards those habitats

*Example: Réserve Naturelle Nationale de la Baie de Canche*

This nature reserve uses a method to prioritise habitat features. Different items of Natura 2000 information are compared on different scales, along with MPA-specific data (here a national nature reserve, RNN).

**B-I. / EVALUATION OF HERITAGE VALUE.**

B-I.1. / Evaluation of habitats and species

B.I.1.a / Evaluation of Habitats

The Reserve possesses a great diversity of natural habitats. Many of those habitats are listed in Annex I of the Habitats Directive, thus placing the emphasis on the site's importance at European level. The following habitats, listed in the Habitats Directive (1992) can be considered to have heritage value:

The table below uses the following criteria:

Column 1: Name of the habitat in French and Latin according to the sigmatist phytosociology nomenclature.

Column 2: Code of the habitat according to the CORINE biotopes typology

Column 3: Inclusion of the habitat in Annex I of the Habitats Directive (93/43; OJ Eur. Comm. 22 July 1992) (Natura 2000 Code).

Columns 4, 6, 8 and 10: Rarity of the habitat in the Nature Reserve, and at Regional, National and European level

- E: exceptional habitat
- RR: very rare habitat
- R: rare habitat
- AR: quite rare habitat
- PC: quite uncommon habitat
- AC: quite common habitat
- C: common habitat
- CC: very common habitat
- ?: habitat whose rarity cannot be assessed based on current knowledge.
- /: Rarity criterion not applicable

Column 5, 7, 9 and 11: Threats in the Nature Reserve, and at Regional, National and European level.

- CR: critically endangered habitat
- EN: endangered habitat
- VU: vulnerable habitat
- NT: near threatened habitat
- LC: low-concern habitat
- DD: data deficient habitat
- /: Threat criterion not applicable

Column 12: The flora of heritage value associated with these habitats.

| Habitats | CORINE Biotopes Code | Natura 2000 Code | Rarity at study site | Threat at study site | R. N./P.C. | T. N./P.C. | R. Nat. | T. Nat. | R. Eur. | T. Eur. | Flora of heritage value | Habitat of heritage value in the NPC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vegetation on salt marshes, dune-estuary contacts and water lines | | | | | | | | | | | | |
| **Prairie halophile à Jonc de Gérard et Agrostide maritime (Halophilic meadow of Black Grass and Velvet Bent) [*Junco gerardii-Agrostietum albae* Tüxen (1937) 1950 = *Agrostio maritimi-Caricetum vitingensis* Géhu 1979 (syn. synt.]** | cf. 15.33 (not really described) | 1330 (1330-?) | E | CR | RR | EN | R | EN | R? | DD | *Carex distans* var *vikingenis* (Distant sedge), *Juncus gerardii* ((Black Grass), *Agrostis stolonifera* var. *marina or* var. *pseudopungens* (Creeping Bent), *Lotus corniculatus* subsp. *tenuis* (Bird's-foot-trefoil), *Festuca rubra* subsp. Littoralis (Red fescue) | X |
| **Végétations des amas de matériaux organiques en limite supérieure des prés salés (Vegetation of mounds of organic materials on the upper bound of salt pastures [*Atriplicion littoralis* Nordh. 1940]** | 17.2* | 1210 | E? | DD | RR | EN | R | VU? | R? | DD | *Beta vulgaris* subsp. *Maritima (*Sea beet*), Elymus athericus (*Sea couch*), Atriplex littoralis (*Grassleaf orache*)* | X |
| Végétations denses des stations fortement enrichies en matières organiques des laisses de mer, des bordures estuariennes en particulier (Dense vegetations of highly organic enriched wave line sites, particularly estuarine edges) [*Agropyrion pungentis* Géhu1968] | 15.35 | 1330 [1330-5] | E? | DD | RR | NT | R | NT? | ? | DD | *Elymus athericus* (Sea couch) | X |
| Prairie littorale halo-nitrophile à Arroche hastée et Élyme piquant des laisses de mer (Halo-nitrophilous coastal meadows of Halberd-leaved orache and Sea couch on sealines) [*Atriplici hastatae-Agropyretum pungentis* Beeftink and Westhoff 1962] | 15.3 | 1330 [1330-5] | E? | DD | RR | VU | RR | NT? | R? | DD | *Elymus athericus* (Sea couch) | X |

*Figure 4 and Figure 5: Excerpts from the 2007-2011 management plan of the Natural Reserve of de la Baie de Canche, Source: F. DUHAMEL, CRP/CBNBL, 2005*

## 2.4 Functions

According to the species defined in the features, but also the habitats, **ecosystem functions** will be included in the features. There are several types, including ecological, hydrological, physical, and bio-physico-chemical.

For the species and habitats **functions**, insight for management plans is provided in the technical document no. 79 – Plan de gestion de réserves naturelles (Management plan for nature reserves).

"Species move as adults, larva, eggs, seeds or pollen within [the MPA], between different and unconnected habitats, or to complementary habitats located outside. They exchange their genes, find food, breed and hibernate. Describe the flows recorded (anatidae feeding /resting ground alternation, spring migration of toads, butterfly genetic interaction with neighbouring population, etc.).
Highlight the areas of ecological dependency and the corridors on the appropriate scale.
Schematic map showing the nature reserve in its zone of ecological dependency, with arrows showing the direction of the species flows and the location of areas complementary to the reserve."

For habitats, a summary text is necessary to explain "links between the habitats and cyclic or random factors: natural flow or restriction of water, river dynamics (e.g. mobile habitats of sandy beaches, periodical flooding), tides, groundwater, water rise and fall (silt vegetation emerged during dry summer periods), cyclones, heat waves, etc." It is also necessary to provide a "summary diagram of the previous analyses, illustrating with arrows and symbols the different factors at work in [the MPA]."

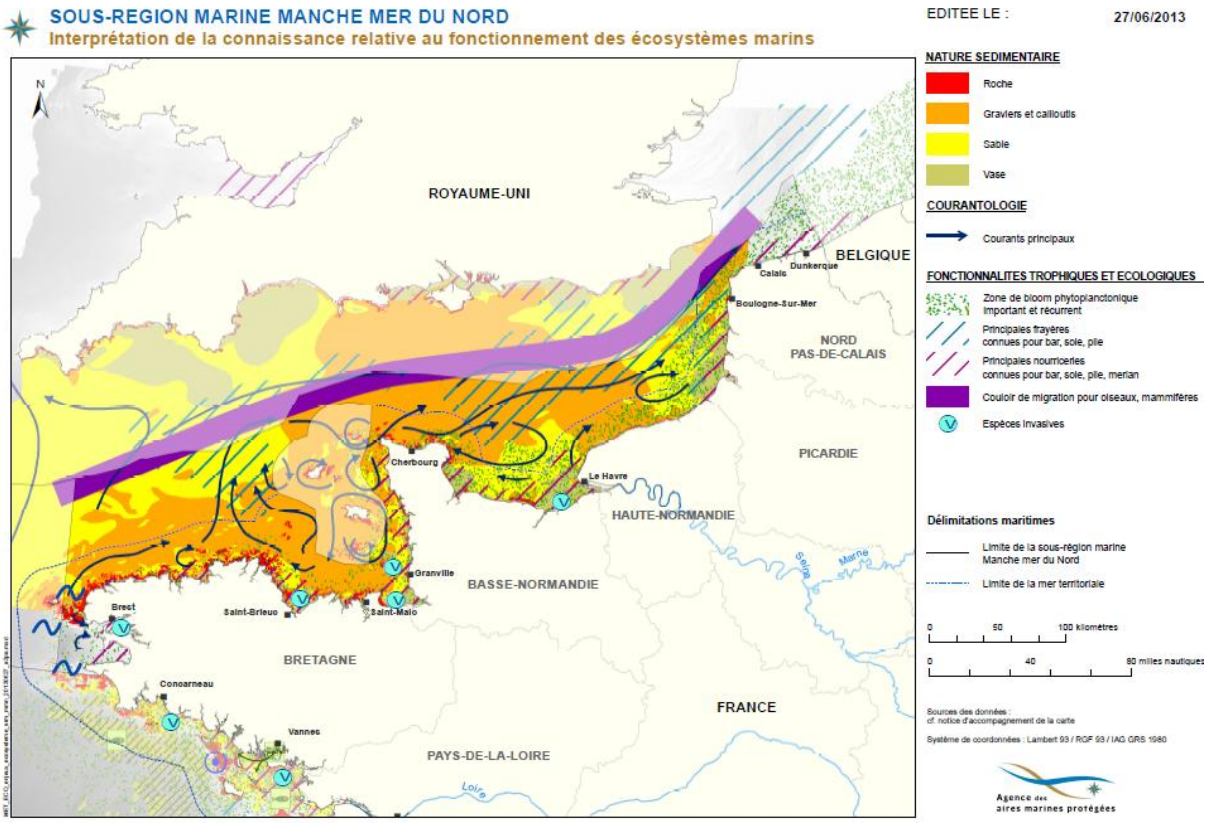
*Example:*

In this map, different types of data are used:

| Key | Data | Sources |
|---|---|---|
| Sediment type | | |
| Rock, gravel | Spatialised | Physical habitats in the Eunis typology resulting from the comparison of three physical variables on a 100 metre resolution grid: nature of the substratum, biological zone, shear stress on the bottom. Coasts of Metropolitan France. Ifremer report "Hamdi Anouar, Vasquez Mickael, Populus Jacques (2010). **Cartographie des habitats physiques Eunis - Côtes de France**. Convention Ifremer/AAMP n° 09/12177764/FY." http://archimer.ifremer.fr/doc/00026/13751/ Estimation: SHOM Larsonneur 2008 |
| Study of currents | | |
| Main currents | *Interpreted*[12] | Multi-source summary based on SHOM data and IFREMER expert opinions (PAMM/DCSMM) |
| Bathymetry | Spatialised | Global bathymetry GEBCO (General Bathymetric Chart of the Oceans) with resolution of 1 nautical mile http://www.gebco.net/ |
| Nutritional and ecological functions | | |
| Phytoplankton blooms | *Interpreted*[10] | According to a map of the 90 percentile range of chlorophyll a in Gohin, Saulquin - L'observation de la température de |

[12] According to the Agence des aires marines protégées and various scientific experts contacted

| | | |
|---|---|---|
| | | surface et de la biomasse du phytoplancton sur le plateau continental ouest-européen. Bilan de respectivement 20 et 10 ans d'observation de l'espace. |
| Nurseries and/or spawning grounds | Spatialised | According to Abbès 1991 IFREMER, digitalized by AAMP<br>According to *Zones de frayères en Manche*, IFREMER/MAAF/CEFAS |
| Invasive species | *Interpreted*[10] | According to the regional analysis (ASR) "Bretagne nord ouest Cotentin" and knowledge from the task force for the creation of the Normano-Breton Gulf marine nature park |
| Migration corridor | *Interpreted*[10] | Mapping AAMP/Channel-North Sea office |



# III. Description of the MPA – Site inventory

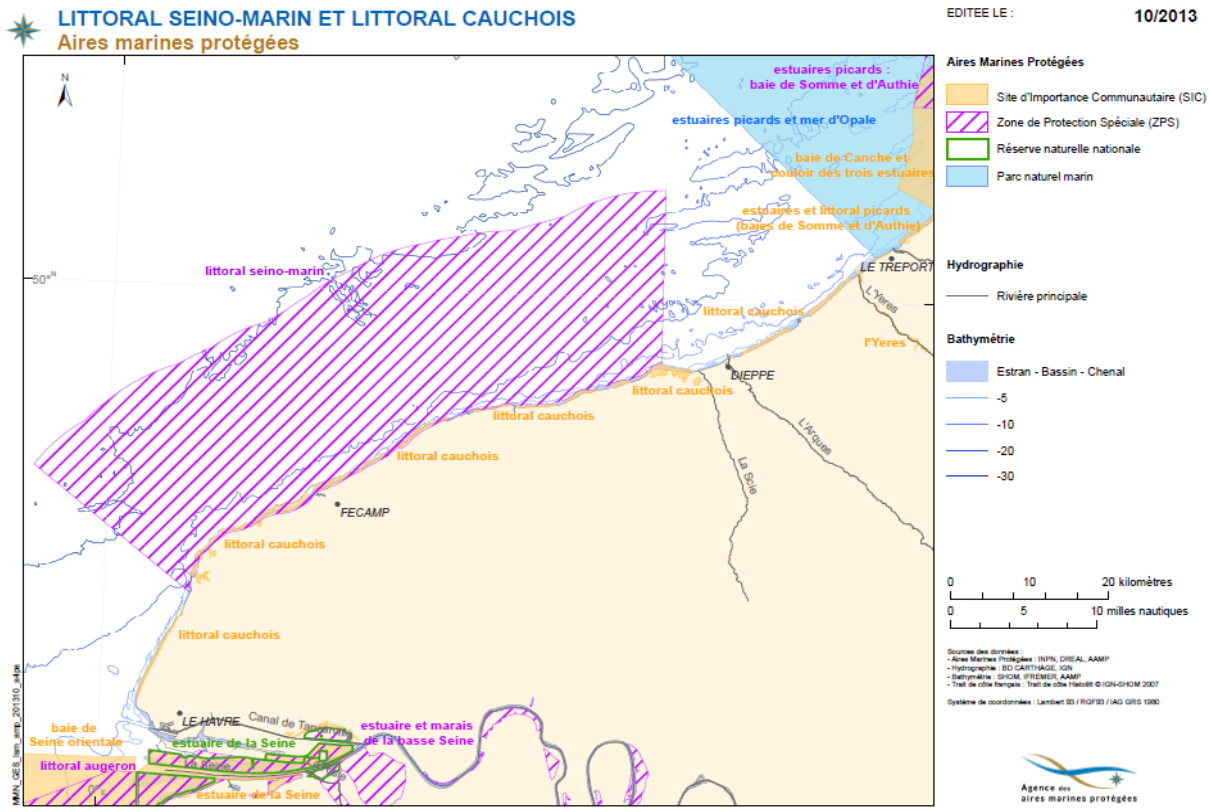
This part of the management document must be brief and provide key information in order to understand the site's positioning in the coastal MPA network (region, etc.).

## 3.1 The MPA's general situation

This point should mainly explain the reasons for the designation. It should include a location map which situates the site on the scale of an ecosystem, for example the Channel. A zoom may be done to show the size of the site compared to the surroundings, possibly a big city, or to see the adjacent MPA network.

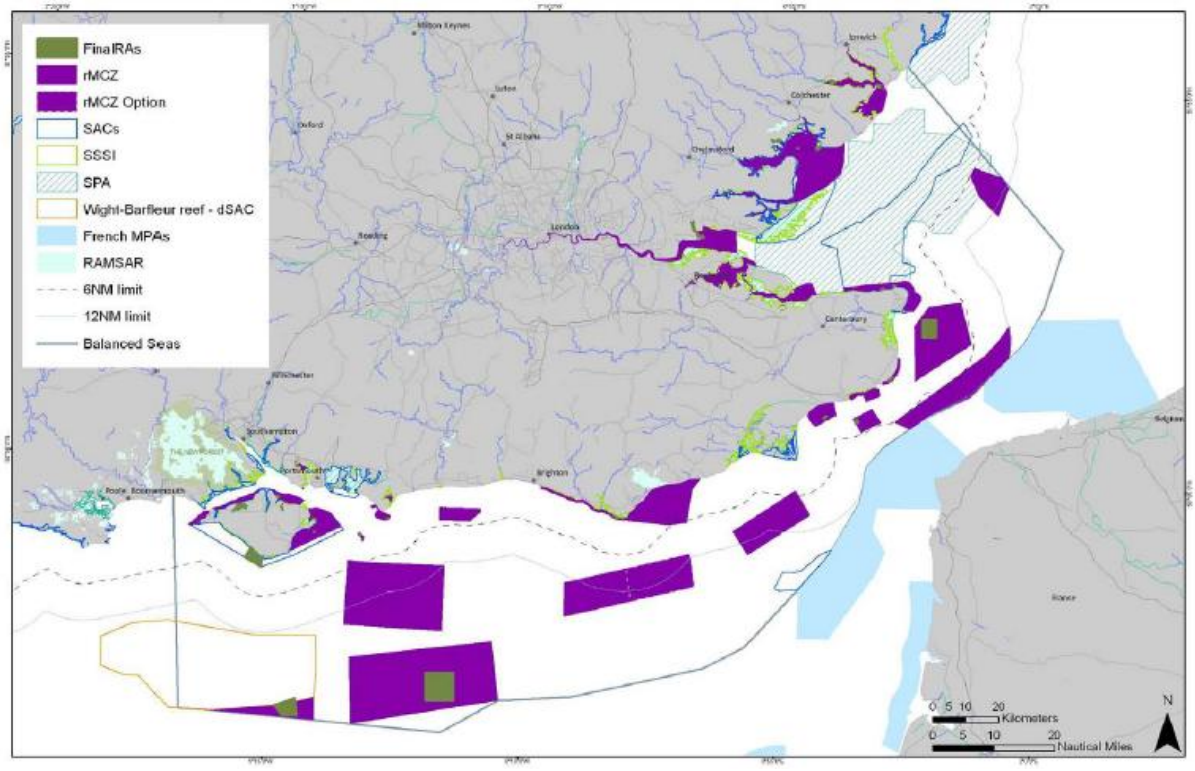
*Examples:*

- *Marine protected areas on the littoral seino-marin and littoral cauchois*




***Source:*** Agence des aires marines protégées

- *Marine protected areas planned in England, plus existing MPAs on both sides of the Channel*




***Source: Balanced Seas (Note: the Parc naturel marin des Estuaires Picards et Mer d'Opale is not shown here)***

In addition, it is important to include the general characteristics of the site taking into account the recommendations made in the Toolbox or the Conservation advice packages (CAP).

The principal features that make the site important will also be given:

- Habitats
- Species
- Cultural heritage

In this site inventory, the **responsibility** defined for these features of the MPA will also be specified.

In future, CAPs in the UK will include an online map (link in the CAPs) on "Magic", showing all MPAs to date. At present, the JNCC proposes an interactive map of MPAs: http://jncc.defra.gov.uk/page-5201. You can also find maps on the Cartomer website, for France: http://cartographie.aires-marines.fr/.

**In brief**

1- Location of the MPA on different scales: better understanding of the site and its context
2- Characteristics of the site: landscapes, morphology, etc.
3- Species and habitats that led to MPA designation

## 3.2 Socio-economic activities

The activities that have the biggest impact on the site's features should be described, rather than all the activities carried out.

Several documents are available in France.

- Technical economic references for the management of offshore Natura 2000 sites.
- The management documents of the various MPAs.
- Charts of activities that generate pressure and impacts per ecosystem component of the Plan d'action pour le milieu marin (PAMM) within the framework of the Marine Strategy Framework Directive.
- Maps of risks for habitats of Natura 2000 sites according to each fishing activity.

In the UK, fishing is one of the most commonly studied activities. The various Inshore Fisheries and Conservation Authorities (IFCA) must provide appropriate management in Natura 2000 sites with a risks matrix. This matrix has been defined by the Marine Management Organisation (MMO). Furthermore, the future CAPs will include "advice on operations" of socio-economic players. This section will indicate the activities that may impact the features of MPAs.

Marine protected areas (MPAs): MMO strategic management table

| | Marine area | Location | Site name | MPA type | Advice available from statutory nature conservation bodies (SNCB) on conservation objectives and operations | Interest features | Interest feature information | Overall risk rating | MMO risk rating | Action status | Further information | Next action |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Eastern | Inshore (0 to 6 nautical miles) | Alde, Ore and Butley Estuaries | SAC | Regulation 33 of The Conservation (Natural Habitats &c.) Regulations 1994 | Estuaries<br>Mudflats and Sandflats<br>Atlantic Salt Meadows | | Low | Low | No Action taking place | | January 2016<br>To be reassessed annually, or as necessary if information is received about potentially damaging activities. |
| 2 | Eastern | Inshore (0 to 6 nautical miles) | Alde Ore Estuary | SPA | Regulation 33 of The Conservation (Natural Habitats &c.) Regulations 1994 | Birds and supporting habitat | Birds highly vulnerable to recreational noise and visual disturbance. Birds also highly vulnerable to entanglement in static nets. | High | Medium | Evidence gathering | Recreational disturbance including recreational boating as high risk to the site. Management by National Trust and current EU funded project to look at recreational activities. | January 2016<br>To be reassessed annually, or as necessary if information is received about potentially damaging activities. |
| 3 | Offshore | Offshore (12 to 200 nautical miles) | Bassurelle Sandbank | SCI | Regulation 18 of the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 | Sandbanks | Sandbanks impacted by bottom trawling as the south-west of the site is situated in a region of demersal fishing activity | Medium | Medium | Evidence gathering | | July 2014<br>Defra, JNCC and MMO are currently planning production of management proposals for all English offshore European marine sites over 2014 and 2015.<br>Management proposals will be developed in collaboration with other Member States with a direct management interest in the sites, and will be submitted to the European Commission.<br>The European Commission will then decide whether to bring the measures into force through a Commission Regulation.<br>Screening for likely significant effects of amber gear types on interest features. |
| 4 | Eastern | Inshore (0 to 6 nautical miles) | Benacre to Easton Bavents | SPA | Regulation 33 of The Conservation (Natural Habitats &c.) Regulations 1994 | Birds and supporting habitat | Birds highly vulnerable to recreational noise and visual disturbance. Birds also highly vulnerable to entanglement in static nets. | High | Medium | Evidence gathering | Recreational disturbance including recreational boating as high risk to the site. The NNR has Shoreline Protection Areas to offer areas with lessened public pressure<br>Concerns of potential impact of low flying aircraft from both military and civilian sources. The impacts of sea fisheries on the SPA interests remains undetermined. | July 2014<br>Engage with NE and request update on site including any existing management measures in place.<br>To work with partners and stakeholders to assess evidence and effectiveness of current management measures.<br>Screening for likely significant effects of amber gear types on interest features. |
| 5 | Eastern/South Eastern | Inshore (0 to 6 nautical miles) | Benfleet and Southend Marshes | SPA | Regulation 33 of The Conservation (Natural Habitats &c.) Regulations 1994 | Birds and supporting habitat | Birds highly vulnerable to recreational noise and visual disturbance. Birds also highly vulnerable to entanglement in static nets. | Medium | Medium | Evidence gathering | Recreational disturbance including recreational boating as high risk to the site. Managed by Thames Estuary Partnership. | July 2014<br>Screening for likely significant effects of amber gear types on interest features. |
| 6 | Northern | Inshore (0 to 6 nautical miles) | Berwickshire and North Northumberland Coast | SAC | Regulation 33 of The Conservation (Natural Habitats &c.) Regulations 1994 | Mudflats and sandflats<br>Shallow Inlets and Bays<br>Reefs<br>Sea Caves<br>Grey Seals | Reefs vulnerable to physical disturbance from demersal trawling. | High | Medium | Management measures in place | Local IFCA byelaws in place - one prohibiting the use of mobile gear on reefs and the other to protect seagrass. Further information can be found here: http://www.nifca.gov.uk/byelaws/new-ems-byelaw/<br>New EMS management plan to be in place in 2014. | July 2014<br>Screening for likely significant effects of amber gear types on interest features.<br>Ongoing work: Take forward actions in line with the EMS and fisheries project. For further information, including our work on assessing ambers in 2014, visit: www.marinemanagement.org.uk/protecting/conservation/ems_fisheries.htm |

*Figure 6: Matrix of risks and actions of English Natura 2000 MPAs (EMS), Source: MMO*

**In brief**

Prepare an inventory of activities taking place in the MPA

Assess potential impacts for management

## 3.3 Factors influencing changes to habitats and species

It is important to identify the factors of influence that can arise in an MPA. Changes to species and habitats may depend on them and they therefore need to be integrated into the management actions. Management will therefore be more consistent with the features, and with future expectations as regards those features.

The different factors can be classified into various categories which influence the habitats and species either directly or indirectly, both in and around the MPA and throughout the entire network of MPAs concerned by the species and/or habitat. Furthermore, several terms relate to these factors: threats, pressure, activities impacting the site, etc.

- Natural factors, namely: overall changes, erosion, invasive species, currents and sedimentation, etc.

- Human factors, which depend on activities carried out and uses: physical and chemical impacts, disturbance, harvesting, etc. and public policies.

Note that these factors can have both positive and negative impacts.

*Example:*

- The management documents show different ways of presenting them:

| 4.3 Threats, pressure and activities having an impact on the site<br>These are the main impacts and activities having significant consequences on the site | | | | |
|---|---|---|---|---|
| Negative impacts | | | | |
| Importance | Threats and pressure [code] | Threats and pressure [name] | Pollution [code] | Inside / outside [i\|o\|b] |
| L | F02.03 | Recreational fishing | | I |
| L | G01.03 | Motor vehicles | | I |
| Positive impacts | | | | |
| Importance | Threats and pressure [code] | Threats and pressure [name] | Pollution [code] | Inside / outside [i\|o\|b] |
| L | A04 | Grazing | | I |
| M | B | Silviculture and forestry operations | | I |

- Importance: H = high, M = moderate, L = low
- Pollution: N = nitrogen, P = phosphorus/phosphate, A = acid/acidification, T = toxic inorganic chemical substances, O = toxic organic chemical substances, X = mixed pollution
- Inside / Outside: I = inside the site, O = outside the site, B = both

*Figure 7: Factors influencing a Natura 2000 site, here for the SCI "Littoral Cauchois"*
*Source: Standard Data Sheet (FSD) SCI "Littoral cauchois"*

B-III. / Facteurs pouvant avoir une influence sur la gestion.

B-III.1. / Tendances naturelles

| Facteur écologique | Conséquence |
|---|---|
| Fermeture des milieux ouverts du fait de la dynamique naturelle | Disparition des espèces inféodées aux milieux ouverts. |
| La dynamique naturelle de certaines espèces végétales colonisatrices, ou invasives (Argousier, Ailanthe, Erable sycomore…) | Disparition de milieux ouverts intéressant, ainsi que de la disparition d'espèces indigènes moins compétitives |
| La perte du caractère oligotrophe de certains milieux (pannes, pelouses sèches…) due à la pédogenèse, ou au mode d'alimentation en eau (nappe de la craie) | Homogénéisation de la végétation, et donc d'une perte de diversité.<br><br>Perte d'espéce patrimoniale |
| La présence d'une ressource en eau fluctuante d'une année sur l'autre | Facteur important conditionnant la préservation d'un grand nombre d'espèces.<br><br>Le substrat sableux ne permet pas une gestion efficace des niveaux d'eau. |
| La fluctuation des écoulements du Ruisseau de Camiers, liée à son mode d'alimentation, provoque un atterrissement de son cours, ainsi que des mares qu'il alimente. | Facteur influant la préservation de la flore et la faune associées. |
| La présence ou absence de certaines espèces animales ayant un impact sur l'évolution naturelle du site | Rôle important du lapin dans l'entretien des pelouses |

*Figure 8: Factors that can have an influence in the Réserve naturelle nationale de la Baie de Canche*
*Source: Management plan of the Réserve naturelle nationale de la Baie de Canche*

- General recommendations in marine protected areas[13]

- Restoration of disturbed environments

- Creation of no-take zones to avoid destabilizing habitats and making them vulnerable,

[13] ATEN Guide, 2015

- The English site MarLIN which gives the sensitivity per habitat and per species, on various factors (link). The matrix results from a collaborative initiative via a French-English workshop. The example below is for *Sabellaria alveolata* reefs.

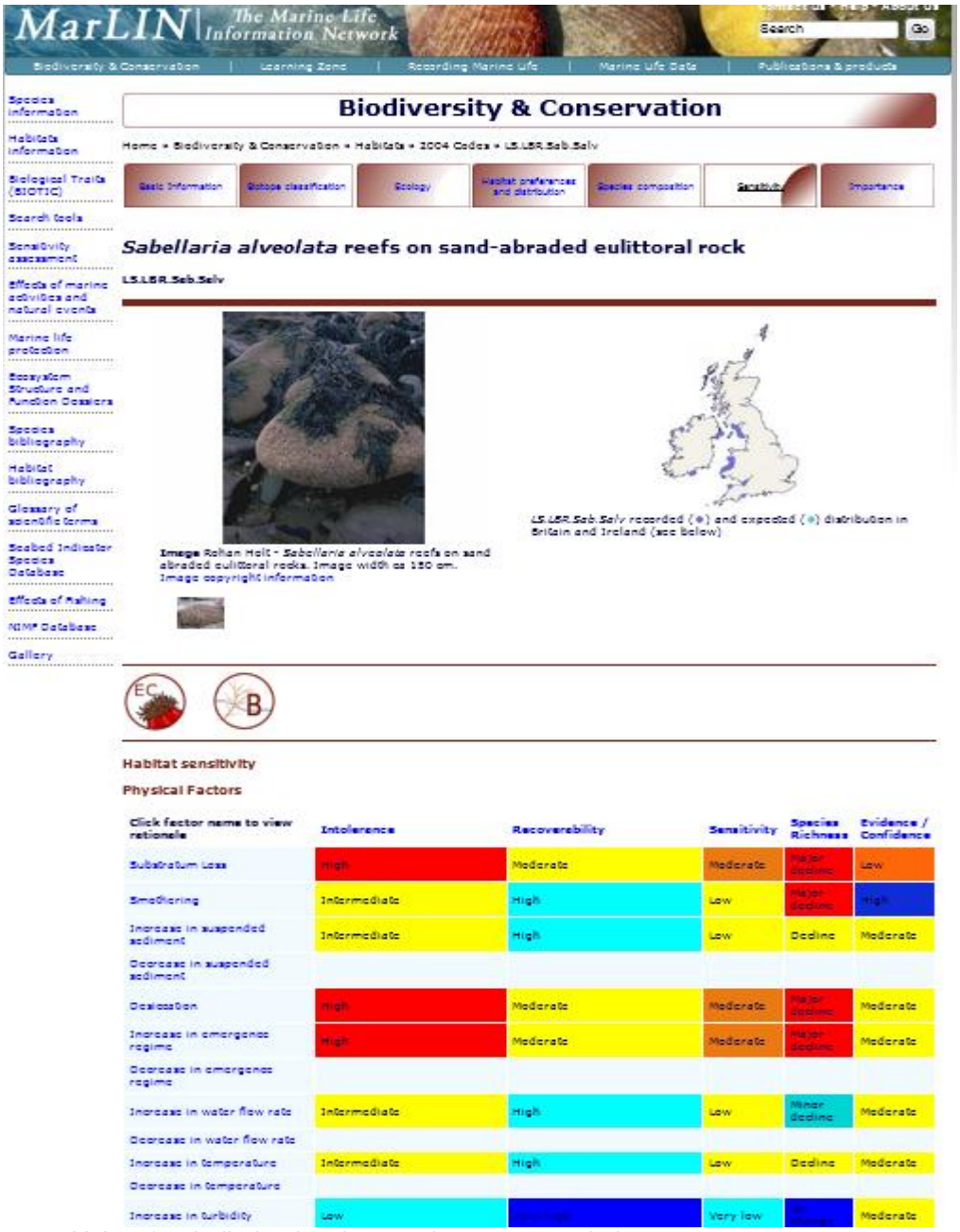



*Figure 9: Sensitivity of Sabellaria alveolata on the MarLIN website*
*Source: MarLIN website (http://www.marlin.ac.uk/habitatsensitivity.php?habitatid=351&code=2004)*

**In brief**

Have regard for natural and human factors that interact with the species and habitats, in the MPA but also nearby. It is important to adopt a simple but complete presentation to avoid overlooking certain factors.

# IV. Conservation objectives – Long-term objectives

## 4.1 Definition of a Conservation (LT) Objective

**Conservation (long-term) objectives,** or goals (name used for French marine nature parks), are:

> Objectives aiming to "achieve or maintain a status considered desirable for [an MPA] (a good conservation status for all habitats and species)"
> (ATEN, 2006)

Conservation objectives must be in keeping with the features previously defined. They may correspond to one or more features.

*Examples:*

- Conservation (LT) objective (goal) in a management plan of a French marine nature park, here the Iroise PNM:

MAERL I-07-IDMAERL

| | |
|---|---|
| **Chapter** | Protection of remarkable natural heritage |
| **Management focus** | Maintain populations of protected, rare or threatened species and their habitats at a good conservation status |
| **Goal** | Guarantee the ecological functions of remarkable habitats |
| **Sub-goal** | Protect specific marine habitats |

- Long-term objective in a French national nature reserve, here the Réserve Naturelle Nationale de la Baie de Saint-Brieuc:

| | Priority number | |
|---|---|---|
| **Feature** | **B** | **Numerous habitats of Community importance** |
| **LTO** | 2 | ➔ Maintain the good conservation status of foreshore Community habitats |

- Conservation objectives in England, here for the reefs in the Lyme Bay and Torbay Natura 2000 site (European Marine Site):

3.2.5 Conservation objectives for Lyme Bay and Torbay Annex 1 Reefs:

Subject to natural changes[1], maintain[2] or restore[3] reefs in/to favourable conditions[4], particularly the following features:

- Bedrock reef communities
- Stony reef communities
- Biogenic reef communities

[1] **Natural change** refers to changes in the habitat which are not a result of human influences. Human influence on the interest features is acceptable provided that it is proved to be/can be established to be compatible with the achievement of the conditions set out under the definition of favourable condition for each interest feature. A failure to meet these conditions, which is entirely a result of natural process will not constitute unfavourable condition, but may trigger a review of the definition of favourable condition. Features should not necessarily be considered in unfavourable condition when caused by the short term disappearance of a particular community due to natural processes.

[2] **Maintain** implies that existing evidence suggests the feature to be in favourable condition and will, subject to natural change, remain at its condition at designation. Existing activities are therefore generally considered to be sustainable and be unlikely to adversely affect the condition of the feature *if current practices are continued at current levels.* However, it must be borne in mind that gradually damaging activities can take time to show their effects. If evidence later shows an activity to be negatively affecting the conservation objectives of the site, then the site will be deemed to be in unfavourable condition and restorative action will needed.

[3] **Restore** implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment generally refers to natural recovery through the removal of unsustainable physical, chemical and biological pressures, rather than intervention (as is possible with terrestrial features). **Restore** implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment generally refers to natural recovery through the removal of unsustainable physical, chemical and biological pressures, rather than intervention (as is possible with terrestrial features).

[4] **Favourable condition** relates to the maintenance of the structure, function, and typical species for that feature within the site. Areas of the infralittoral, such as the kelp forests, are currently believed to be in favourable condition and will therefore have a conservation objective of „maintain", whereas some areas of circalittoral bedrock are known to have experienced damage through towed demersal fishing gear (Royal Haskoning, 2008). Where damage is known to have occurred, then a conservation objective of "restore" will be applied.

The manager must therefore quantitatively define what it expects of the Conservation or Long-Term Objective. It is important to know **the conservation status** to be able to set the **requirement level** of the results it wishes to achieve.

## 4.2 Conservation status

After determining the features and the conservation objectives, the **conservation status** to be achieved, and thus **the effort** necessary to achieve the objective must be defined.

**Conservation status** "means the sum of the influences acting on a habitat and its typical species, that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the European territory" (Article 1, Habitats Directive).

To assess it, various parameters are used. Each one thus obtains a score (from green to grey), which, when added up, give the conservation status for the species (same approach for habitats).

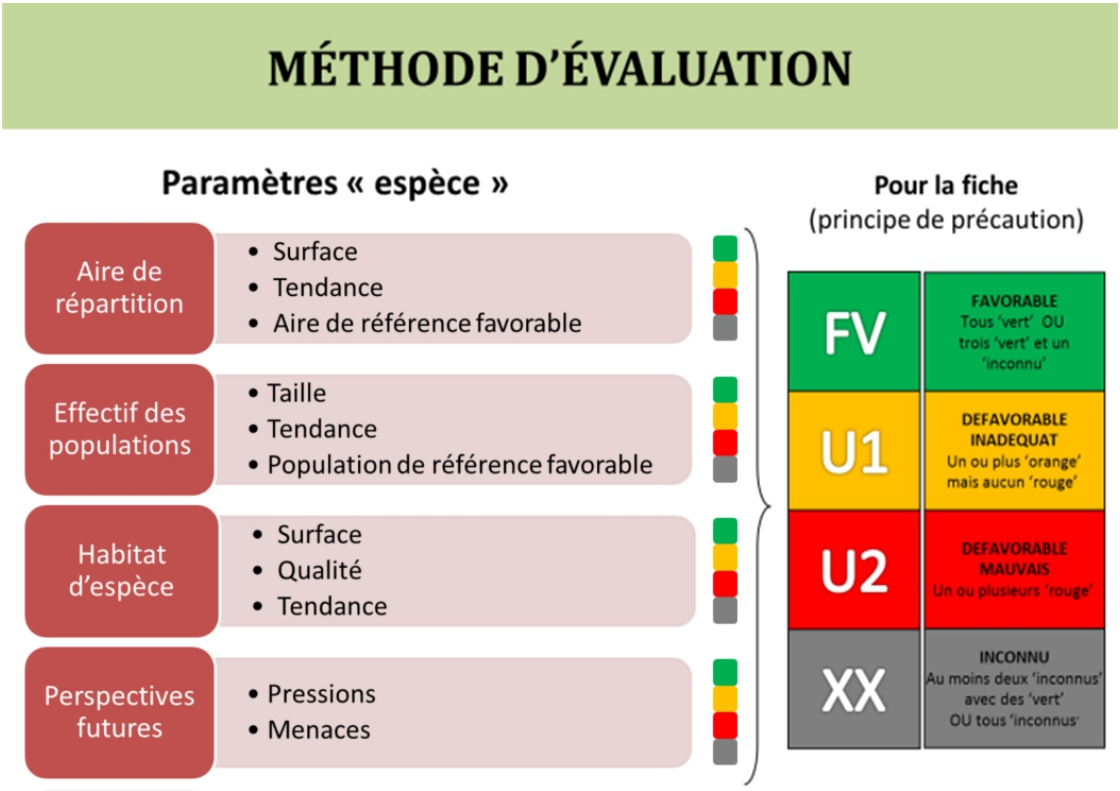



*Figure 10: Criteria and assessment parameters of the conservation status of species and habitats of Community importance*
*Source: INPN*

When updating the management document, a trend for the conservation status is added. There are four trends between each reporting period: = for stability, - for deterioration, + for improvement and x for an unknown trend.

***Example: Grey seal and Common dolphin***

| | | | | | | | | MARIN ATLANTIQUE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nom d'espèce valide** | Nom vernaculaire | Code | Nom DHFF | Annexe II | Prioritaire | Annexe IV | Annexe V | Aire de répartition | Population | Habitat d'espèce | Perspectives futures | **Conclusion Etat de conservation** |
| Faune vertébrée | | | | | | | | | | | | |
| Mammifères marins | | | | | | | | | | | | |
| ***Halichoerus grypus*** | Phoque gris | 1364 | Halichoerus grypus | X | | | X | FV | FV | XX | FV | FV (x) |
| ***Tursiops truncatus*** | Grand dauphin commun | 1349 | Tursiops truncatus | X | | X | | U1 | XX | XX | XX | U1 (x) |

*Table 3: Extraction from the conservation status of two species of marine mammal*
*Source: MNHN, 2013.*

As examples, we will take the grey seal and the common dolphin, for the Atlantic (also occurring in the Channel - North Sea):

For the two example species taken in this table, we find:

- The grey seal has a favourable conservation status and the trend, in brackets in the table, is unknown between the two reporting periods. Only one parameter, the habitat conservation status, is unknown.

- For the common dolphin, its conservation status is unfavourable / inadequate. Only one parameter is known, its distribution range, which has an unfavourable / inadequate status. Like the grey seal, the trend is not known.

In the final interpretation, the trend of the parameter – overall status must be addressed. For example, the common dolphin is a very mobile species, which is why little is known about its population.

Currently, the conservation statuses of Community species (and habitats), on a biogeographic scale, are found in an Excel file prepared by the Natural Heritage department of the MNHN (available at: http://inpn.mnhn.fr/docs/N2000_EC/Resultats_synthetique-Rapportage_2013_DHFF.xlsx, 25/07/2014).

To define the **conservation status** to be achieved, it is important to take some other criteria into account, which differ from the analysis concerning the natural heritage features (species and habitats):

- Surface area of the habitats considered
- Physical and biological characteristics of the habitats
- Natural range
- Surface area of covering habitats
- Physical and biological characteristics (structure and specific function)
- Future prospects

Efforts must be made in years ahead to provide a more reliable conservation status, as knowledge is gradually acquired or consolidated.

## 4.3 Requirement level

The **requirement level** defines the efforts that must be made to achieve the conservation (long-term) objectives via the management plan.[14] A requirement scale can be defined: high, moderate, low. This will deliver effective management.

To give an objective a **requirement level**, it is important to focus on the responsibility of our site, but also the resources available (financial, human) to achieve the required status. It is therefore important to prioritize the features.

**In brief**

- Prioritize the conservation (long-term) objectives and features in the MPA
- List all the available resources
- Define the requirement level on each conservation (long-term) objective

[14] Find out more

"The reference status is the basis of any comparative analysis […] The reference status is often associated with indicator research"[1.] More generally, it provides a state of play, whether initial or after a given period. http://www.espaces-naturels.info/node/703, 20/10/2014

## 4.4 Strategy for action

The strategy for action defines the sequence of actions to be taken in time and space, by the manager or the organisations involved in management, the levers on which action must be taken having regard for the identified factors of influence, etc. so that the operational targets and the annual action plan can be clearly understood.

It is defined over the long term for a site or a set of sites having the same features.

Thus, like the UK with the Conservation Advice Package, a strategy for action aims to result in an action plan on a relevant MPA scale, with coherent actions throughout the Channel-North Sea.

To be widely shared with managers, stakeholders and experts, it must be based on strategic focuses developed by a recognised institution, on the appropriate spatial scale.

*Example*: in the UK, there are two entities (forming the Statutory Nature Conservation Body [SNCB]): Natural England and the Joint Nature Conservation Committee [JNCC]). In France, one steering committee per seaboard, under the authority of the Maritime Prefect, brings together the following Government services: *DIRM, DREAL/Direction Départementale des Territoires et de la Mer* and the *Agence des aires marines protégées*.

Specific aims are set for each strategic focus so that the document is easy to assess at the end of the allotted period.

# V. Management measures – Operational targets

## 5.1 Operational targets

These are targets relating to a factor of influence of a conservation objective. They are defined over the medium term (5-10 years) to result in actions: raising awareness, regulation, experimentation, etc.

*Example:* Reduce pressure caused by mooring over 10 years.

## 5.2 Relevant measures

Relevance is the condition of being relevant to or connected with the matter at hand.

To define relevant measures for an MPA (and for the strategy for action), several considerations must be taken into account:

- Feedback and effectiveness: has this measure already been taken elsewhere? How did it work? Does it really meet long-term objectives? Is it suited to the site?
- Adaptability: does the measure correspond to the MPA's environment (physical, geographic, etc.)?
- Cost-effectiveness ratio: a measure taken in a different category of MPA may have different human and financial resources.

## 5.3 Action sheets

**Action sheets** detail each action planned, with the aim of meeting **one or more conservation (long-term) objectives.** They illustrate the relevance of the action and its influence on the **long-term objective**. The action is part of an action plan, which covers a shorter timeframe than the management plan.

Each sheet contains the key information necessary to understand the action:

- (1) name of the action: use standardised terms
- (2) operational target to which it is linked: the connected and guiding aim
- (3) type of action: *Examples:* Maintain, restore, control, etc.
- (4) time scale: spreads the effort over the management plan timeframe and defines its priority

- (5) area of application: this may be the entire MPA, or a precise area if necessary for a given species/habitat.

- (6) indicator of achievement

**In brief:** example of an action sheet

| | | | |
|---|---|---|---|
| Operational target (2) | Name of action (1) | | Priority |
| | Type of action (3) | Time scale (4) | |
| Conservation objectives | Managers | Cost(s) | |

| | |
|---|---|
| Aim | |
| Principle | |
| Related measure | |
| Area of application (5) | Indicator of achievement (6) |

# VI. Dashboard

The dashboard approach is a Government initiative in France, conducted through the *Agence des aires marines protégées*. It consists in evaluating the effectiveness of each MPA's management. It provides more dynamic and efficient management.

## 6.1 Status indicators

> **The evaluation** of management effectiveness is generally achieved by the assessment of a set of criteria (represented by carefully selected **indicators**) having regard for recognised objectives or standards.
>
> (Hockings M. et *al.*, 2006)

Building the indicators

- Conservation (long-term) objectives (*Example:* restored habitat conservation status) and a requirement level (*Example:* on 30% of the site) must first be defined
- Define the indicators: response to the objective to be assessed (*Example:* fragmentation level of a grass bed)
- Define the measurable data or information (metrics) to define the indicator (*Example:* bare surface area, total surface area, number of patches, etc.)
- Define the metrics interpretation framework (use of thresholds) (*Example:* above 20% of bare surface area, above X patches per km² = the indicator is average)

To facilitate sharing

The Agence des aires marines protégées (AAMP) is developing a catalogue of indicators that are adapted to and usable by MPAs. Here is an example of a protocol sheet.

**Indicator name**

- **Context of the indicator**

Scope: the indicator's thematic field. *Example:* conservation status indicator

Purpose of creating MPAs: refer to *Table 1*. *Example:* good conservation status of species and habitats having specific status (F1) [NB: There may be several purposes]

- **Definition and main characteristics of the indicator**

Definition: meaning of the indicator and related goals

DPSIR[15]: the indicator is classified according to five criteria: Driving forces / Pressure (directly on the environment) / State (diagnosis of environmental degradation caused by identified pressure)/ Impact (diagnosis of environmental impact) / Response (description of public or private measures) *Example:* State.

Geographic scale: the relevant scale for the indicator. *Example:* MPA, coast X, coast Y, etc.

Unit of measurement: if the indicator metrics can be calculated, the unit is given. *Example:* *Number of individuals in the area*

Qualification: is the indicator analysis method done in values or trend? *Example:* *Values (here > number)*

Interpretation framework: define here the indicator's threshold values and positioning. *Example:* *Value for the metrics "Very poor", "Poor", etc.*

- **Interpretation of the indicator – Analysis of the indicator**

This section provides an interpretation-analysis of the indicator which gives its context / cause(s)/ factor(s) of evolution in time and space.

*Example:* *water quality, invasive species, etc.*

- **References**

Two sections in this References point:

- The first indicating the parties who created the indicator
- The second indicating the articles, etc. in which the indicator is mentioned

The examples below illustrate the items presented above:

*Example (following pages p.34 to p.39):*

- example of the subtidal grass bed indicator

[15] DELACHE X., 2002. Les indicateurs environnementaux : contexte, pratiques et questions soulevées pour l'évaluation des politiques publiques. In: *Revue d'économie financière*. N°66, 2002. Johannesburg 2002 : écologie et finance. pp. 269-282.

**In brief:** status indicator

- Status indicators are useful for adaptive MPA management. They provide signals about progress made in achievement of long-term objectives.
- To define the indicators:
  - AAMP Catalogue
- The following examples will serve as guidance and illustration.

**Annual review**

Presenting an annual review to the governing body for implementation is recommended. An educational presentation of the different indicators provides a yearly assessment of the results of the MPA's management. This not only contributes to adaptive and responsible management, it also provides material for communicating about the MPA's health to the various bodies and the general public. We recommend presenting an illustrated, easily understandable version of the dashboard.

# CATIND079: Subtidal grass bed indicator for the Iroise marine nature park

| Indicator context |
|---|
| Scope:<br>Conservation status of subtidal Zostera beds |
| Aim of creating MPAs:<br>Favourable conservation status of protected species (F1) |

| Definition and main characteristics of the indicator | |
|---|---|
| Definition:<br>The indicator assesses the conservation status of reference subtidal *Zostera marina* beds located in the Parc naturel marin d'Iroise based on monitoring of ecological parameters and the characterisation of human impacts.<br>The three reference beds are:<br>The black rock beds in Béniguet for the Molène islands group of beds<br>The grass bed at the tip of Illien in the Blancs Sablons for the north coast group of beds<br>The grass bed in Saint Nicolas or Saint Hernot cove at Cap de la Chèvre for the Douarnenez bay group of beds. | |
| DPSIR: ☐ driving force ■ pressure ■ state ☐ impact ☐ response | |
| Geographic scale(s):<br>Scale of the grass bed, Channel-Atlantic seaboard | Unit of measurement (if the metrics can be calculated):<br>N/A |

Qualification: ■ values ☐ trends

The "subtidal grass bed" indicator is based on a combination of eight parameters:

Ecological parameters: Change in the total area, fragmentation, foliar surface area, biomass (foliar and root) and related megafauna.

Human parameters: green algae (cover rate and biomass), mooring and fishing.

Interpretation framework:

| *Metrics* | *Not determined* | *Very poor (score=1)* | *Poor (score=2)* | *Average (score=3)* | *Good (score=4)* | *Very good (score=5)* | *Weighting factor* |
|---|---|---|---|---|---|---|---|
| **Subtidal grass bed indicator (Hily, Lejart, 2010)** | | **5 to 4.33** | **4.33 to 3.49** | **3.49 to 2.66** | **2.66 to 1.83** | **1.83 to 1** | **1** |

| *Thresholds of parameters used to obtain the indicator* | | | | | | | |
|---|---|---|---|---|---|---|---|
| Increase in total area % | | -25 to -10 | -10 to -1 | 0 | +0.1 to +10 | +10 to +25 | |
| Fragmentation % | | 100 to 80 | 80 to 60 | 60 to 40 | 40 to 20 | 20 to 0 | |
| Plant density /m² | | 100 to 150 | 150 to 200 | 200 to 250 | 250 to 300 | 300 to 350 | |
| Foliar area m²/m² | | 0 to 1 | 1 to 2 | 2 to 3 | 3 to 4 | >4 | |
| Biomass g | | 0 to 100 | 100to 200 | 200 to 300 | 300 to 400 | >400 | |
| Megafauna % of species present in the bed / diversity in all beds | | 0 to 20 | 20 to 40 | 46 to 60 | 60 to 80 | 80 to 100 | |
| Green algae | | Very dense | Dense | Moderately dense | Not very dense | None | |
| Mooring | | Intensive | Frequent | Moderate | Occasional | None | |
| Fishing | | Intensive | Frequent | Moderate | Occasional | None | |
| **Total average** | | **5 to 4.33** | **4.33 to 3.49** | **3.49 to 2.66** | **2.66 to 1.83** | **1.83 to 1** | |

| **References** | |
|---|---|
| Institutional frameworks:<br>Dashboard of the Parc Naturel Marin d'Iroise | For more information:<br>• Besnier-Maugard M., 2013. Recueil des protocoles pour les indicateurs du tableau de bord du Parc naturel marin d'Iroise - Protection du patrimoine naturel remarquable.149 p.<br>• Lejart M., Larzillière A., Hily C., 2010. Etude des herbiers et des champs de blocs du Parc naturel marin d'Iroise: cartographie et caractérisation de l'état de conservation. 184 p. |

| Indicator Production |
| --- |
| Source and description of data used or to be collected (*observer, data availability, updating frequency, etc.)*:<br>Cf. M. Besnier-Maugard, 2013<br><br>• *Data management (acquisition, analysis, databases, storage)*<br>Data acquisition and analysis and database input by the MPA, storage as Excel data files and geo-referenced data.<br><br>• *Temporal strategy*<br>Ecological parameters and green algae: June-July-August, annual periodicity.<br>Human parameters: protocol to be defined, annual periodicity.<br><br>• *Protocol and sampling method*<br>All surveys are done by dives. The survey protocol comprises two parts (For diagrams and grids of results cf. M. Besnier-Maugard, 2013)<br>I – Biological parameter monitoring:<br>1. Overall covering<br>The survey is done by diving from the anchors installed in the grass bed, along radials directed according to a course.<br>Results are analysed in terms of % of increase in the total area.<br><br>2. Fragmentation<br>Fragmentation of the grass bed is characterised by diving along a 100 m transect starting at an anchor point in a central part of the bed.<br>Fragmentation of the grass bed = proportion of patches of sand within the grass bed cover. Three classes have been defined:<br>- Homogeneous bed: uniform grass bed with no patch<br>- Fragmented bed: patchy grass bed with less sand than grass bed compared to the overall cover (some patches of sand within the bed);<br>- Very fragmented bed: patchy grass bed with more sand than grass bed compared to the overall cover;<br>The rate of fragmentation is the ratio of the surface area of fragmented and very fragmented beds to the total grass bed surface area.<br><br>3. Monitoring of megafauna and biodiversity<br>Characterisation of species present in the grass bed and their abundance.<br>A 10 m radial is plotted in the central part of the grass bed or between two grass bed boundary marks.<br>Along this radial, five 1m² quadrats are made: the species present and their abundance are marked on an analysis grid. |

A grid of the different species present across all the grass beds in the MPA is drawn up at the end of the sampling process. This grid is used to define the full diversity which will serve as the reference to calculate the percentage of species present in each grass bed monitored.

II – Monitoring of human parameters:

1. Monitoring of density of green algae present in the grass beds

An evaluation of the grass bed green algae coverage is done by diving.

A 10 m-long radial is plotted on each bed at the same time as the radial used to characterise biodiversity. Green algae abundance is assessed using gauges.

*N.B. Measurements for the surveys of megafauna, biodiversity and green algae cover are done at the same time.*

2. Monitoring of the impact of non-protected mooring} **Protocol not stabilised in 2013**
3. Monitoring of the fishing effort on the grass beds. } **Protocol not stabilised in 2013**

- *Equipment/human resources*

**Equipment:**

- 8m semi-rigid inflatable boat
- GPS
- hammer
- 12 boundary marks per grass bed
- tape decametre
- 1m² quadrat
- plastic gauges (1%, 2%, 5%, 10%, 20% of 0.1 m²) to measure green algae abundance

**Staff:**

4 divers

Indicator assessment (calculation method):

Cf. "interpretation framework" box on this sheet

Only the most downgrading result of the three grass beds considered is taken into account and will give the state of the measurement.

| Indicator interpretation |
| --- |
| Cf. p 58 to 60 of the reference *M. Lejart, A. Larzillière, C. Hily (2010*) for the analysis of the indicator results and the range of values of the grass bed indicator.<br><br>Cause(s) of indicator changes over time:<br>The sources of subtidal grass bed indicator variability are*:*<br>• Visitor use (picking/harvesting, mooring, litter, etc.)<br>• Fishing with dragged gear (dredges, trawls) and some fixed gear (basket traps)<br>• Recreational on-shore fishing<br>• Extractions<br>• Water quality<br>• Modification of the hydrodynamics caused by coastal developments<br>• Piling |

| Indicator strengths / weaknesses |
| --- |
| Main limits and leads for improvement:<br><br>For the moment, the protocols for monitoring human parameters are only stabilised for green algae. Stabilisation of the protocols for monitoring impacts of non-protected mooring and fishing effort on the grass beds is pending. |
| Leads for improvement: |
| Main advantages:<br>The surveys (except human parameters) are done simultaneously once a year. Cost: 24 man-days/year, €1,086 for fixed costs and €5,000 every three years for purchases and subcontracting (cf. estimation of costs for the PNMI in the compilation of protocols). Possibility of obtaining a local subsidy (DCE), example of the Iroise marine nature park. |

# HERBIER SUBTIDAL

# I-06-HERBSUB

## Contexte dans lequel s'inscrit l'indicateur

| | |
|---|---|
| **Chapitre** | Protection du patrimoine naturel remarquable |
| **Orientation de gestion** | Maintien en bon état de conservation des populations des espèces protégées, rares ou menacées et de leurs habitats |
| **Finalité** | Garantir les fonctionnalités écologiques des habitats remarquables |
| **Sous-finalité** | Préserver les habitats marins particuliers |
| **Nom de l'indicateur** | Herbier subtidal |

## Objet de l'indicateur

L'indicateur estime l'état de conservation des herbiers de zostère (*Zostera marina*) subtidaux de référence situés dans le Parc naturel marin d'Iroise à partir du suivi de paramètres écologiques et de la caractérisation des impacts anthropiques.
Les trois herbiers de référence sont :
L'herbier des rochers noirs à Béniguet pour le groupe d'herbiers de l'archipel de Molène
L'herbier de la pointe d'Illien aux Blancs Sablons pour le groupe d'herbiers de la côte nord
L'herbier de l'anse Saint Nicolas ou de Saint Hernot au Cap de la Chèvre pour le groupe d'herbiers de la baie de Douarnenez.

## Composition de l'indicateur

L'indicateur est établi à partir d'une métrique unique :

| Métrique | Définition | Producteurs de données |
|---|---|---|
| Indice herbier subtidal (Hily, Lejart, 2010) | Indice de l'état de conservation des herbiers de zostères du Parc naturel marin d'Iroise basé sur une combinaison de huit paramètres :<br>→ Paramètres écologiques : Evolution de la surface totale, fragmentation, surface foliaire, biomasse (foliaire et racinaire) et mégafaune associée.<br>→ Paramètres anthropiques : Algues vertes (taux de recouvrement et biomasse), mouillages et pêche | IUEM, PNMI |

## Grille de lecture

À chaque valeur de métrique correspond un score prédéfini :

| Métrique | indéterminé | très mauvais (score=1) | mauvais (score=2) | moyen (score=3) | bon (score=4) | très bon (score=5) | coefficient de pondération |
|---|---|---|---|---|---|---|---|
| Indice herbier subtidal (Hily, Lejart, 2010) | | 5 | 4 | 3 | 2 | 1 | 1 |

La valeur de l'indicateur est obtenue à partir de la moyenne pondérée des scores de chaque métrique :

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Herbier subtidal | | 1 | 2 | 3 | 4 | 5 | / |

## Analyse de l'indicateur

| | | |
|---|---|---|
| **Sources de variabilité de l'indicateur** | → Fréquentation (prélèvements, mouillages, macrodéchets, etc.)<br>→ Pêche aux engins trainants (dragages, chalutages) et certains engins dormants (filières de casiers)<br>→ Pêche à pied de loisirs | → Extractions<br>→ Qualité des eaux<br>→ Modification de l'hydrodynamisme lié aux aménagements côtiers<br>→ Clapages |
| **Autres indicateurs du plan de gestion à considérer** | → Indicateur « qualité générale de l'eau » III-01-QUALEAU<br>→ Indicateur « bioindicateurs de la qualité générale de l'eau » III-03-BIOINDI<br>→ Indicateur « sédiments de dragage » III-12-SEDDRAG | → Indicateur extraction en « zones protégées » II-21-PROTECT<br>→ Indicateur « niveau de respect des écosystèmes » IV-07-RESPECO |
| **Prospective** | Paramètre sédimentation | |

# VII. Review

The frequency of management plan review is the time by which it must be applied, give rise to monitoring actions and, during the last year, result in an assessment of the MPA's management. This review enables the management plan to be adapted to changes occurring.

There are currently different timescales for the various types of English and French MPAs: from six years at the least, to 15 years at the most, but a harmonisation process is underway to draw a better distinction between long-term (15 years for conservation (long-term) objectives) and short-term (five years – operational targets and actions) periods.

The 15-year period is appropriate to be able to respond to changes in society: new tools, practices, behaviours, etc. and to integrate natural inter-annual variations. It shall be noted that a management plan, or any other shorter management document, often leads to an assessment that will focus more on actions than **long-term objectives**, hence the need for a better distinction between long-term objectives, operational targets/actions and the corresponding time scales for all types of protected natural areas.

**In brief:**

It is important to have a sufficiently long management plan for your MPA to be able to define **long-term objectives** and, at the end of that period, to report on management rather than simply providing an inventory of the actions taken.

➔ The action plan is the appropriate tool to respond to the different changes affecting your **features and responsibility**. It must be easily adaptable to the changes inherent in a natural area. It is drawn up on a yearly basis.

The recommended timescale for a management plan is fifteen years. This allows a state to be described and action to be taken on it. It is the result of the various successive (yearly) action plans.

# PANACHE

Protected Area Network Across the Channel Ecosystem

PANACHE is a project in collaboration between France and Britain. It aims at a **better protection** of the Channel marine environment through the **networking** of existing marine protected areas.

The project's five objectives:

- Assess the existing marine protected areas network for its ecological coherence.
- Mutualise knowledge on monitoring techniques, share positive experiences.
- Build greater coherence and foster dialogue for a better management of marine protected areas.
- Increase general awareness of marine protected areas: build common ownership and stewardship, through engagement in joint citizen science programmes.
- Develop a public GIS database.

France and Great Britain are facing similar challenges to protect the marine biodiversity in their shared marine territory: PANACHE aims at providing **a common, coherent and efficient reaction**.

PANACHE est un projet franco-britannique, visant à une **meilleure protection** de l'environnement marin de la Manche par la **mise en réseau** des aires marines protégées existantes.

Les cinq objectifs du projet :

- Étudier la cohérence écologique du réseau des aires marines protégées.
- Mutualiser les acquis en matière de suivi de ces espaces, partager les expériences positives.
- Consolider la cohérence et encourager la concertation pour une meilleure gestion des aires marines protégées.
- Accroître la sensibilisation générale aux aires marines protégées : instaurer un sentiment d'appartenance et des attentes communes en développant des programmes de sciences participatives.
- Instaurer une base de données SIG publique.

France et Royaume-Uni sont confrontés à des défis analogues pour protéger la biodiversité marine de l'espace marin qu'ils partagent : PANACHE vise à apporter **une réponse commune, cohérente et efficace**.

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