

## **INTERREG MED PROGRAMME**

### ***FISHMPABLUE2 PROJECT***

**WP3**

**Deliv. 3.2.3 Survey on MPA features**

**DEF**

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## 1. INTRODUCTION

FishMPABlue2 project aims to test a 'Governance toolkit' (i.e. a set of governance measures identified as key factors for the successful management of small scale fisheries within and around MPAs) and quantify its effectiveness in achieving expected results in terms of ecological and economic benefits for Small Scale Fisheries (SSF) and social acceptance of management measures by stakeholders (mainly small scale fishermen).

The main objective of FishMPABlue2 is to implement the 'Governance toolkit for small scale fisheries' in a set of selected MPAs (11, from 6 Mediterranean countries), in order to test its effectiveness and produce an upgraded version of the toolkit (this activity falls under WP3). The MPAs management bodies and the relevant stakeholders (e.g. small scale fishermen) will be directly involved in the implementation of each Pilot Project and in the monitoring activities carried out during project implementation.

Almost all the Pilot MPAs include a permanent no-take/no-entry zone (i.e. a zone where all human activities, apart from scientific research, are forbidden), surrounded by one or more buffer zones (i.e. zones where human activities can be done following specific regulations), under different levels of protection and that generally occupy the vast majority of MPA surface.

Just one of the selected MPAs is completely formed by a no-take zone, while few other MPAs have a temporal no-take zone that becomes off-limits during the summer season.

## 2. AIM OF THE SURVEY AND ITS STRUCTURE

The selection of the governance measures to be implemented in the pilot MPAs has to be based on the main fishery-related governance needs of each relevant LGCs (i.e. a coordination platform constituted by the management board of the MPA, the local fishers community and all the other relevant stakeholders).

In this perspective, in order to ease the identification of the main needs and the subsequent selection of the most appropriate governance tools by each LGC, a survey was conducted by UNS (WP3 coordinator) with the aim to obtain all the relevant information about the current status and features of each MPA (i.e. related to fisheries management, environmental, economic and social features of local fisheries).

The survey was firstly aimed to assess the current status of implementation – if any – of existing governance tools (e.g. enforcement, fishing effort, fishermen engagement etc.) in each MPA.

The survey was carried out using mainly the data coming from a standardized tool (questionnaire, annex 1) prepared by WP3 Coordinator (UNS) with the collaboration of four international experts in the field of marine conservation, MPA management, conservation social sciences and analysis of socio-ecological systems: Dr. Nathan Bennett (Fulbright Visiting Scholar at the University of Washington and Liber Ero Postdoctoral Fellow at the University of British Columbia), Dr. David Gill (David H. Smith Post-doctoral Fellow, Conservation International/George Mason University), Prof. Federico Niccolini (Associate Professor at Department of Economics and Management, University of Pisa), Dr. Daniela Marzo (MPAs socio-economic expert, IUCN's WCPA Member). The questionnaire was initially pre-tested on the field by an expert operator in order to evaluate its understandability.

The questionnaires were administered to the management body of each MPA (director and staff) and were filled on the basis of both factual information and expert opinions (when official data were not available). The questionnaire was composed by around 40 questions dealing with the principal management aspects of fishery within an MPA.

A first group of questions concerned the level of fishermen engagement in the MPA management/decision making process and the level of fishers satisfaction with MPA management. The second part of the questionnaire concerned the presence and current implementation of management plans in the MPA. A third group was about employment and budgetary aspects of the MPAs, specifically focusing also on the management activities that are more deficient and would need a better implementation. The last group of questions concerned enforcement (i.e. all the activities carried out to ensure that MPA rules are properly followed) and illegal activities (in particular fishing) carried out in the MPAs. Further information on the general features of each MPA were obtained from the literature and previous project meetings.

The structure of the current Report follows these groups of questions.

Any other relevant information concerning the main characteristics of each MPA were collected from available official documents and directly requested to the MPA management board when needed.

### 3. SURVEY ON MPA FEATURES

In this section the results of the analysis of MPA features of each of the 11 selected MPAs are presented.

#### 3.1. Egadi Islands MPA

Egadi's archipelago is located in the Strait of Sicily, and includes the islands of Favignana, Levanzo, Marettimo and the islets of Formica and Maraone. Egadi MPA is one of the largest marine protected area in Europe (54,000 ha). It was established in 1991 and managed by the Municipality of Favignana.

The MPA is divided into four areas with different protection levels and with different access possibilities and use limitations (Fig. 1). Interestingly, Egadi MPA is one of the few cases in the Mediterranean Sea that has 4 levels of protections, instead of the typical 2 or 3 of other MPAs. In fact, the MPA includes also an area (about half of the total surface) in which trawling is allowed (zone D, blue colour in the map below) and regulated.

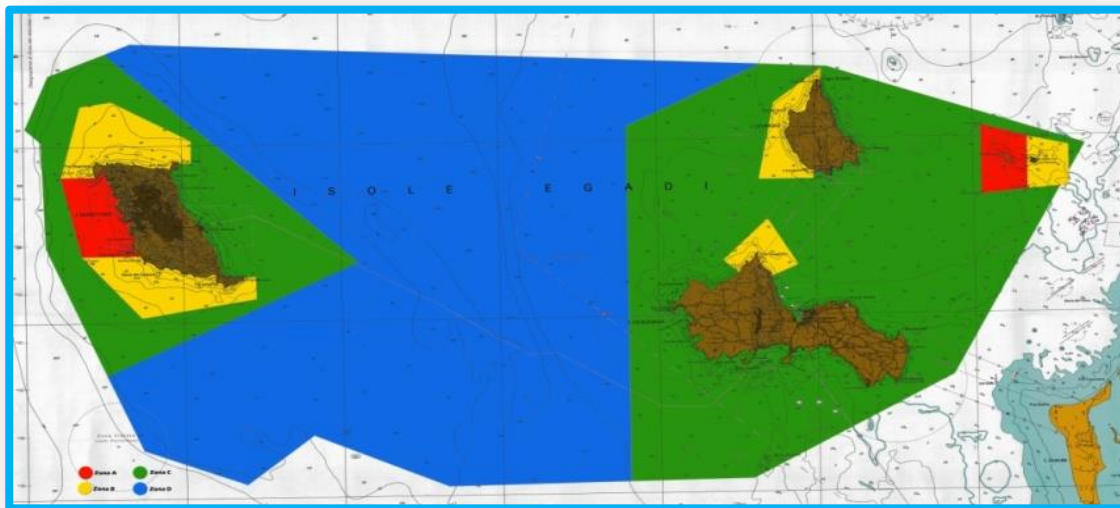


Figure 1. Map of Egadi Islands MPA with the four zones at different levels of protection.

The interaction between fishermen and the MPA management body is considered to be bidirectional, with both fishermen and the MPA management body able to

express their own views and ideas and fishermen viewpoints considered in MPA's decisions.

The MPA hosts an important professional fishing fleet with 40 boats coming from Egadi islands and additional 124 boats from other fleets of the province.

The MPA organizes 1-2 meetings per year with professional fishermen. Few fishermen generally participate to meetings, although fishermen leaders always take part to the meetings.

A MPA management plan (updated every year) and a specific management plan for SSF (approved in 2006) are currently implemented in the MPA, with fishermen involved in drafting both. Management plans do not include quantitative goals.

A total of 49 persons work in the MPA, but only 2 are permanent full-time employees. Staff is generally competent for ecological monitoring, while it lacks in capacities for the assessment of economic and social aspects of the MPA.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 1 million €, mainly coming from public funds and self-financing (e.g. scientific projects).

Surveillance is performed both by MPA staff (capable of both interpretative and legal enforcement) and police authorities resulting in a total amount of more than 6.000 hours of surveillance per year.

Although the acceptable budget, a relatively high level of surveillance and an excellent capacity of staff to enforce MPA rules, enforcement is considered to be the most deficient activity in the MPA. This is a consequence of the high level of poaching in the MPA, mainly due to recreational and industrial fishermen.

### **3.2. Portofino MPA**

Portofino MPA is located in the western part of the Gulf of Tigullio (Liguria, Italy). The MPA was established in 1999 and has a total surface of 346 ha, with 19 ha under total protection (no-take zone). The governance of the MPA is put in charge by a Consortium composed of the Municipalities of S.Margherita Ligure, Camogli and Portofino, the Province of Genoa and the University of Genoa.

The MPA is divided into 3 areas of different protection (Fig. 2).

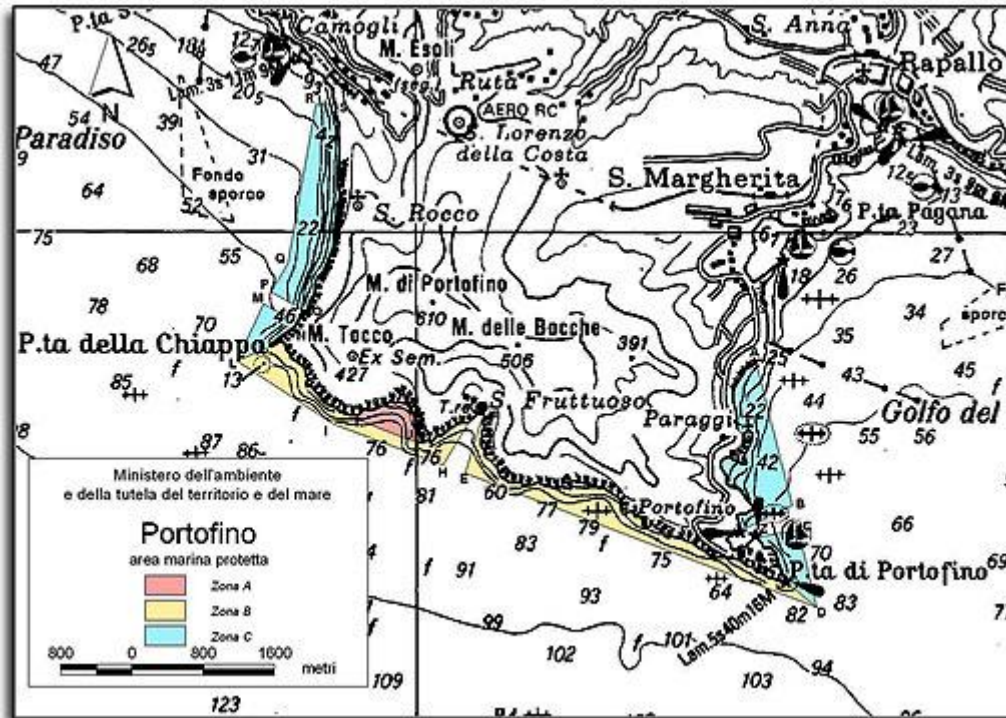


Figure 2. Map of Portofino MPA with the three zones at different levels of protection.

A total of 39 boats are allowed to fish in the MPA, even though only 22 actively fish.

The interaction between fishermen and the MPA management body is considered to be informal. Around 3-5 meetings are organized by the MPA per year, in which professional fishermen are just informed about the management actions taken by the in the MPA. Many fishermen participate to meetings, including their leaders.

A MPA management plan, drafted together with scientists, is currently implemented, but not specific management plan for SSF is available.

A total of 7 persons work in the MPA, divided into 3 permanent full-time and 4 part-time employees. Staff is considered to be below the optimal level for carrying out the management activities foreseen, but overall competent for conducting the monitoring activities in the MPA.



The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 700,000 €, mainly coming from public funds and self-financing.

Surveillance is performed mainly by the staff of the MPA, only capable of an interpretative enforcement. Staff recognizes some deficiencies in its ability to properly enforce MPA's rules, especially considering the high level of illegal fishing activities carried out in the MPA by both professional and recreational fishermen.

### 3.3. Torre Guaceto MPA

Torre Guaceto MPA is located along the southern part of the Italian side of the Adriatic Sea (north-east of Salento peninsula, Puglia, Italy). The MPA was instituted in 1991 with a Ministerial Decree.

From its institution until 2000, the area was under the control of Italian Coast Guard, which protected Torre Guaceto, contrasting first of all the illegal fishing. In 2001 the management of the area, with the institution of the terrestrial protected area, was given to the “Consortium of Torre Guaceto”, composed by the two municipalities with territorial jurisdiction, i.e. Brindisi and Carovigno, and the WWF Italy.

The extension of the MPA is 2,200 ha, subdivided into 3 zones with different levels of protection, including a no-take zone (Fig. 3).



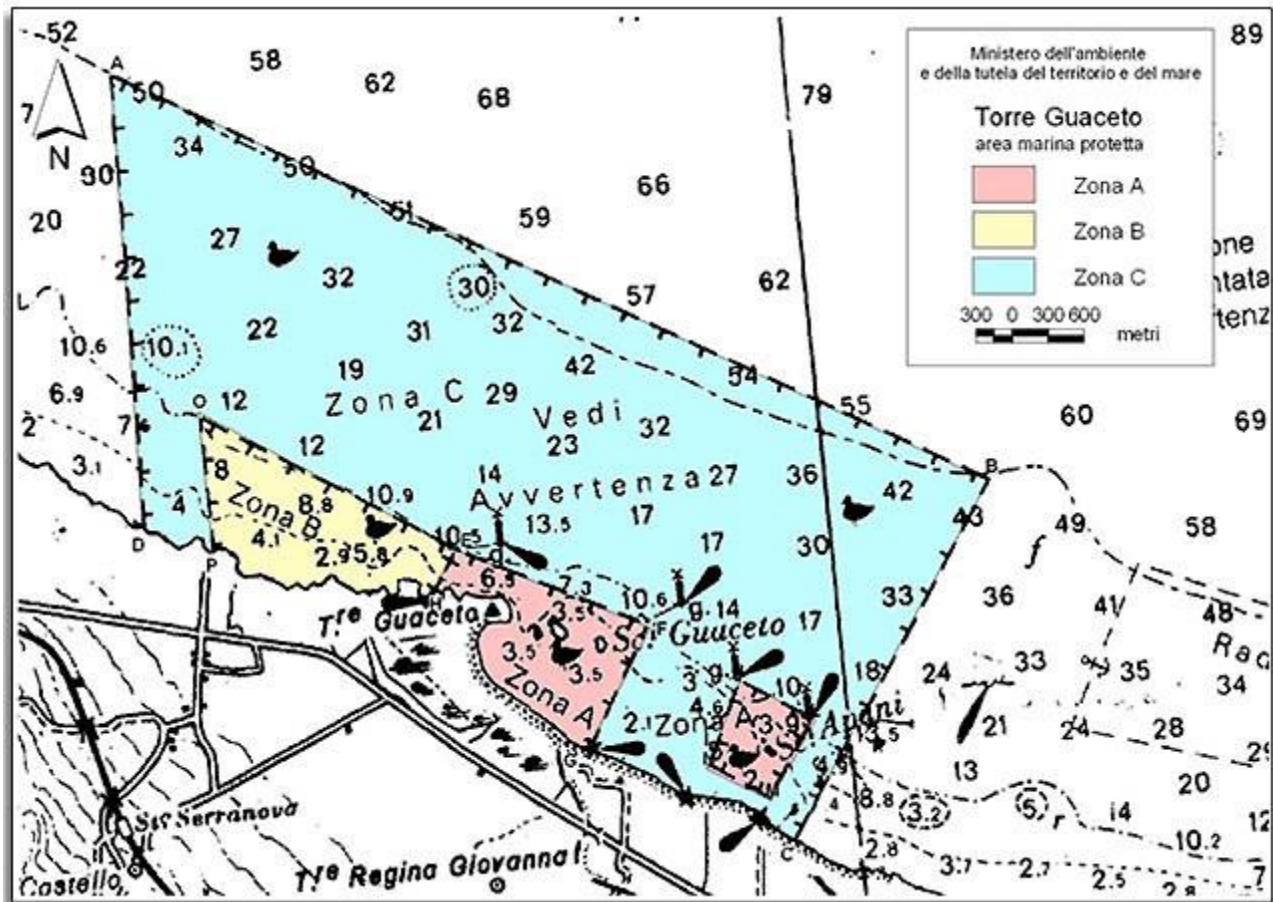


Figure 3. Map of Torre Guaceto MPA with the three zones at different levels of protection.

A total of 5 boats are allowed to fish in the MPA.

The interaction between fishermen and the MPA management body is considered to be bidirectional. The MPA organizes more than 5 meetings each year that the most of professional fishermen and their leaders attend.

A MPA management plan, adopted in its up-to-date version in 2013, is currently implemented. The plan, drafted together with scientists, professional fishermen and other stakeholders, includes a section for the management of SSF with specific quantitative goals that set target values of fish biomass and fish catches increases in the MPA for the next future.

A total of 19 persons work in the MPA, but only 1 is a permanent full-time employee. Permanent full-time staff is consequently considered inadequate to carry out the day by day activities in the MPA. Considering part-time and seasonal

employees, staff lacks of specific competences for performing all the monitoring activities in the MPA.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 1,146,000 €, coming from public funds and self-financing.

Surveillance is performed mainly by the staff of the MPA, also allowed to raise fines in case of illegal actions, generally due to few recreational fishermen.

### 3.4. Cabo de Palos MPA

Cabo de Palos MPA is located in the south-eastern part of the Murcia region (Spain). The MPA was established in 1995. It has a total surface of 1.931 ha, divided into 2 protection zones: a no-take zone of 270 ha surrounded by a buffer zone (Fig. 4). The management is shared between the Ministry of Agriculture and Fishery (national authority) and the Secretariat for Fishery and Aquaculture of the Murcia Region (regional fisheries administration).

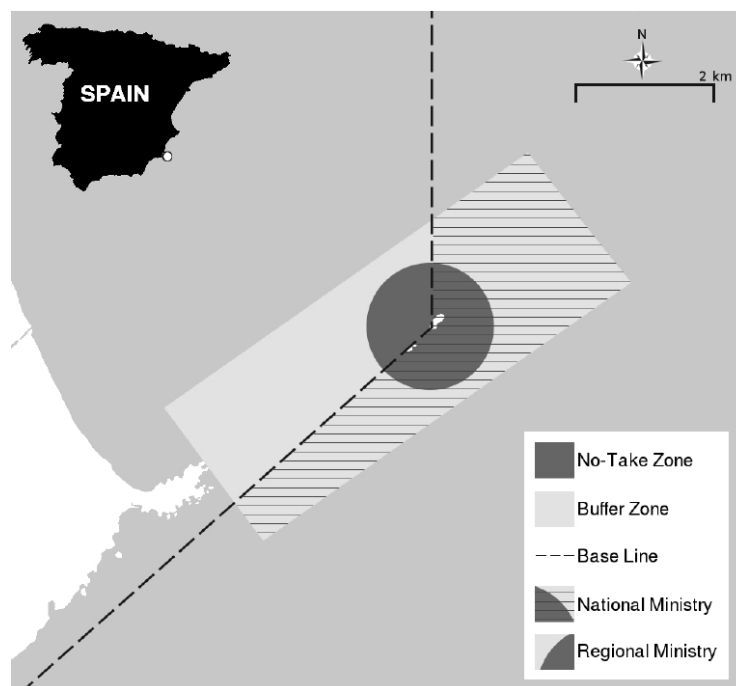


Figure 4. Map of Cabo de Palos MPA with the 2 zones at different levels of protection

A total of 11 boat are allowed to fish in the MPA.

The management body considers the interaction with fishermen to be proactive, i.e. with fishermen actively proposing or organizing meetings (generally 1-2 meetings per year with the MPA).

A general MPA management plan (adopted in 1995 and periodically upgraded) and a specific one for SSF (approved and adopted in 2000) are currently implemented. The Management Plan was drafted together with scientists and professional fishermen.

A total of 8 persons work in the MPA managing body, equally distributed between permanent full-time and part-time employees. Even though current staff is considered to have excellent skills for the management of the MPA, considering all MPA needs, staff is numerically below the optimum level.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 300,000 €, totally coming from public funds and all addressed to the surveillance of the MPA. Although this and a 365 days surveillance carried out by the MPA staff (with additional 150 days from local police authority), enforcement is still considered the most deficient management activity and would need further funds to be improved.

### 3.5. Es Freus MPA

The MPA of Es Freus is located between the island of Ibiza and Formentera in the Balearic archipelago (Spain). The MPA was established in 1999 and is currently managed by the regional government of Balearic Islands.

It has a surface of 15.000 ha subdivided into 3 zones (Fig. 5).

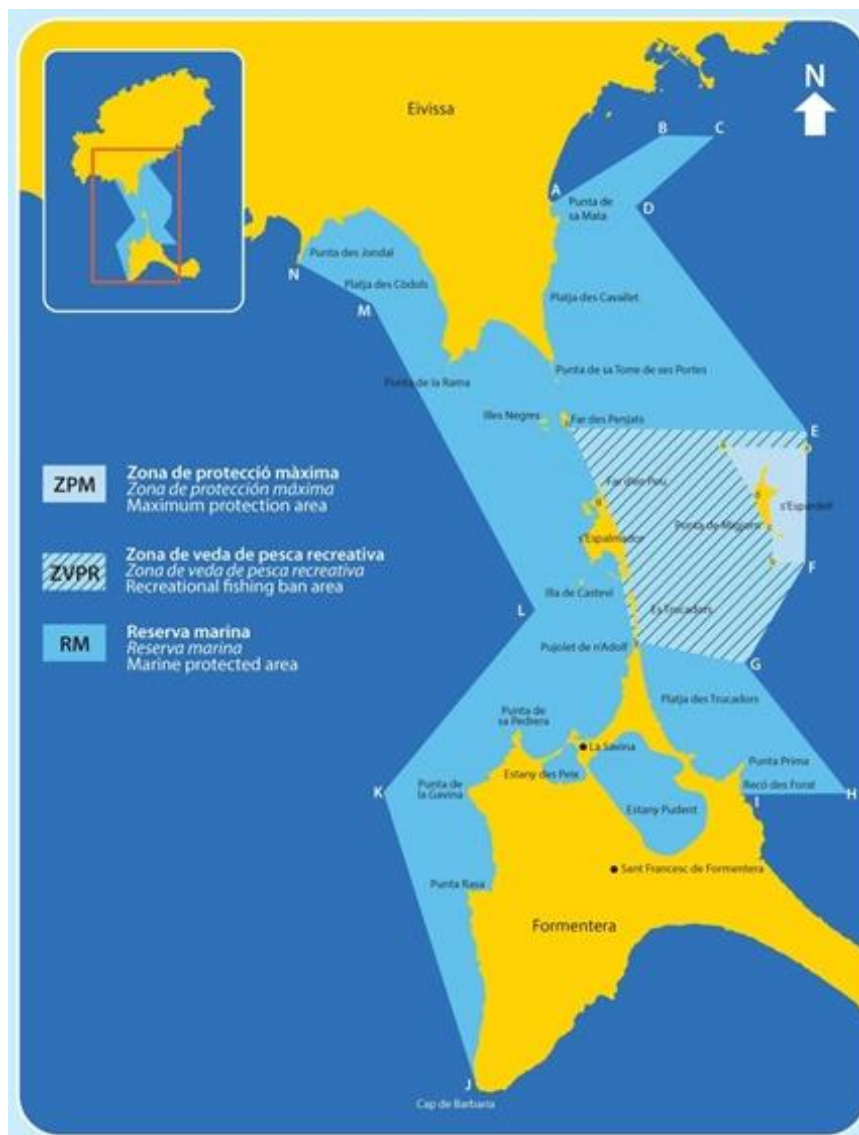


Figure 5. Map of Es Freus MPA with the three zones at different levels of protection.

52 vessels from multiple ports can fish in the MPA. But only between 15 and 20 boats are recorded every year. Fishermen are engaged with management in a unidirectional way. There is only one yearly meeting where results and MPA needs are discussed with the few fishermen that participate.

A general MPA management plan (adopted in 1999) including a section for the management of SSF is currently implemented. The plan was drafted together with scientists and both professional and recreational fishermen.

A total of 4 persons work in the MPA, equally distributed between permanent full-time and part-time employees. The current staff is overall competent in carrying out most of the activities in the MPA. Although this, it is considered numerically inadequate, especially for performing a proper surveillance and outreach programs.



The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 150,000 €, totally coming from public funds and almost all addressed to the surveillance of the MPA.

Surveillance is almost entirely performed by MPA staff, capable of both legal and interpretative enforcement.

### 3.6. Cap Roux MPA

Cap Roux MPA is located in the easternmost part of the Mediterranean coast of France (Provence Alpes-Cote d'Azur region). The MPA of Cap Roux was established in 2003. Officially, it is a '*Cantonnement de pêche*' ("fishery district"), i.e. a zone where the catch of marine species is forbidden or limited.

Cap Roux is one of the first cases in Europe in which the MPA was created from an initiative directly coming from fishermen. The entire surface of the MPA, of around 445 ha, is a no-take zone (Fig. 6).

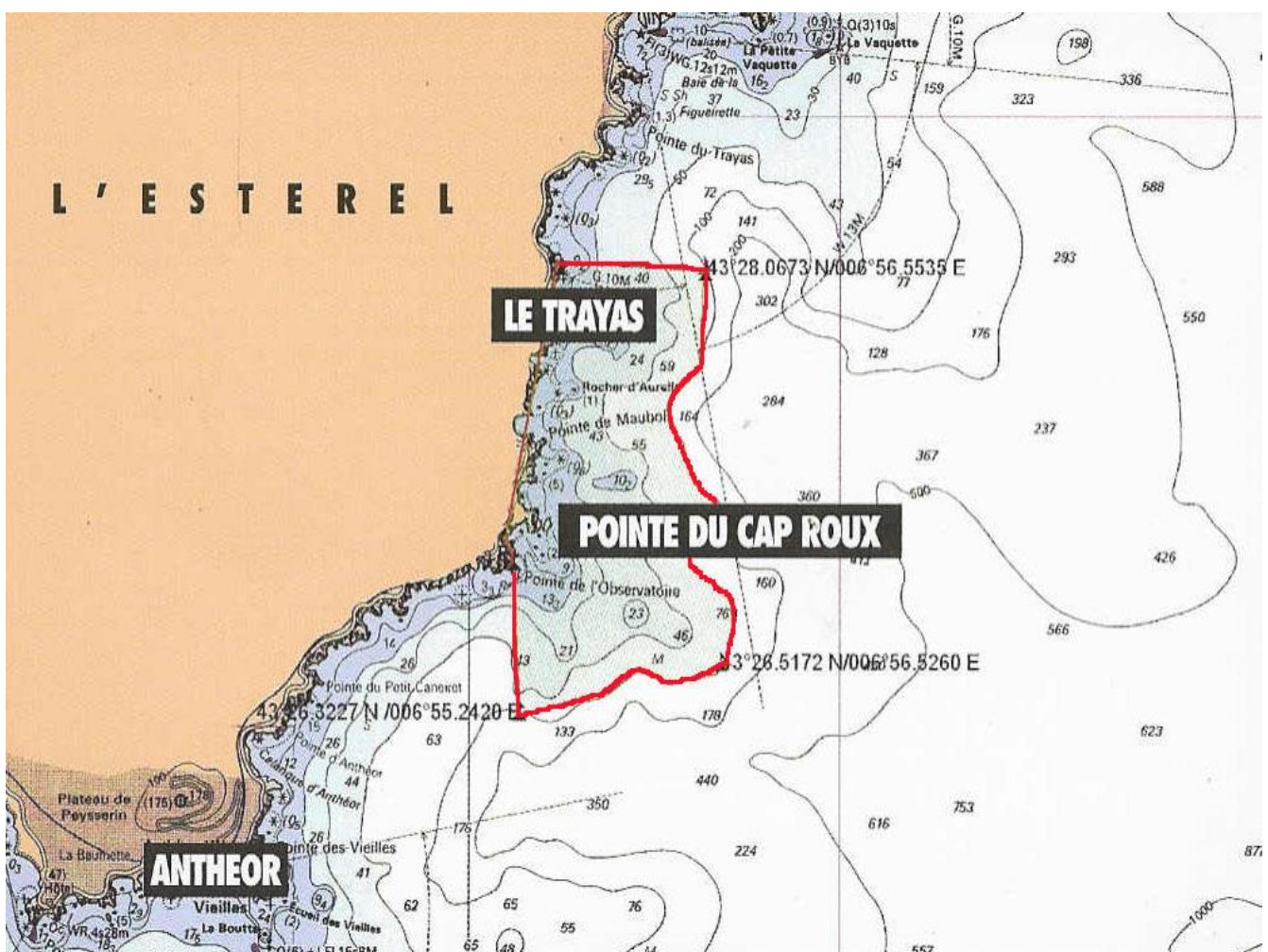


Figure 6. Map of Cap Roux MPA (delimited by the red line).

Given that the entire MPA is a no-take zone, no fishing is allowed in it. Fishermen are engaged with management in a bidirectional way (i.e. fishermen and the MPA management body are able to express their own views and ideas), most of them assisting to 3-5 meetings held each year.

A general MPA management plan has been prepared but not yet implemented, while a fishery management plan (approved in 2010) is already implemented. The two plans were drafted together with scientists and professional fishermen and do not contain quantitative goals.

The MPA has no staff, for this reason most of the management activities cannot be carried out in the proper way. An ecological monitoring is sometimes carried out by external scientists.

The MPA has no budget, so that most of the activity are highly deficient. The absence of a budget cannot permit the presence of a proper surveillance program, this leading to several illegal fishing actions mainly done by recreational fishers.

### 3.7. Cote Bleue MPA

Cote Bleue MPA is located on the east side of the Gulf of Lion, near the city of Marseille (France). The marine park of Cote Bleue was established in 1982. It was created with a «bottom-up» initiative and currently managed by the "Syndicat mixte" Parc Marine de la Côte Bleue (i.e. a French inter-communal cooperation structure) through a local co-management with small scale fishermen. Fishermen are well engaged in SSF management and collaborate closely with the MPA managing body since the establishment. For this reason the interaction between management body and fishers is considered bidirectional, with the MPA organizing 1-2 meetings per year where most of the fishermen community participate. The MPA has a surface of 10,000 ha. It is composed by two no-take zones (that represent the formal MPA) accounting for 295 ha in total, and a large buffer zone represented by a 'Natura 2000' site (Fig. 7).



Figure 7. Map of Cote Bleue MPA indicating the 2 no-take zones and the buffer (Natura 2000 site, delimited by the black line).

29 vessels are allowed to fish in the MPA, even though only 23 actually fish.

A MPA management plan, approved in its up-to-date version in 2016, is currently implemented. The plan, periodically updated, includes a section for the management of SSF and was drafted together with all the main stakeholders of the MPA (professional and recreational fishers, scientists, private sector and others).

A total of 8 persons work in the MPA, mainly composed by permanent full-time employees. The current staff usually carries out most of the activities in the MPA (including ecological, social and governance monitoring) but is considered to be below the optimal level for a proper MPA management.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 350,000 €, coming from public funds and self-funding.

Surveillance is almost entirely performed by MPA staff, capable of both legal and interpretative enforcement. Staff is overall competent to carry out the most of activities related to MPA management, although a further development of skills and competences related to economic aspects would be suitable. The enforcement in the MPA is acceptable, also considering the low level of illegal fishing activities in the MPA. In this context, the activities that would need a better development are outreach and capacity building programs for fishermen.



### 3.8. Bonifacio MPA

The MPA of Bonifacio is located in the Strait of Bonifacio along the coast of Corsica island (France). The marine park of Bonifacio was established in 1999. The MPA has a surface of 80,000 ha. It is composed by a no-take zone of 4,000 ha and a buffer zone of 16,000 ha. The rest of the area is part of a natural reserve, but not formally an MPA (Fig. 7).

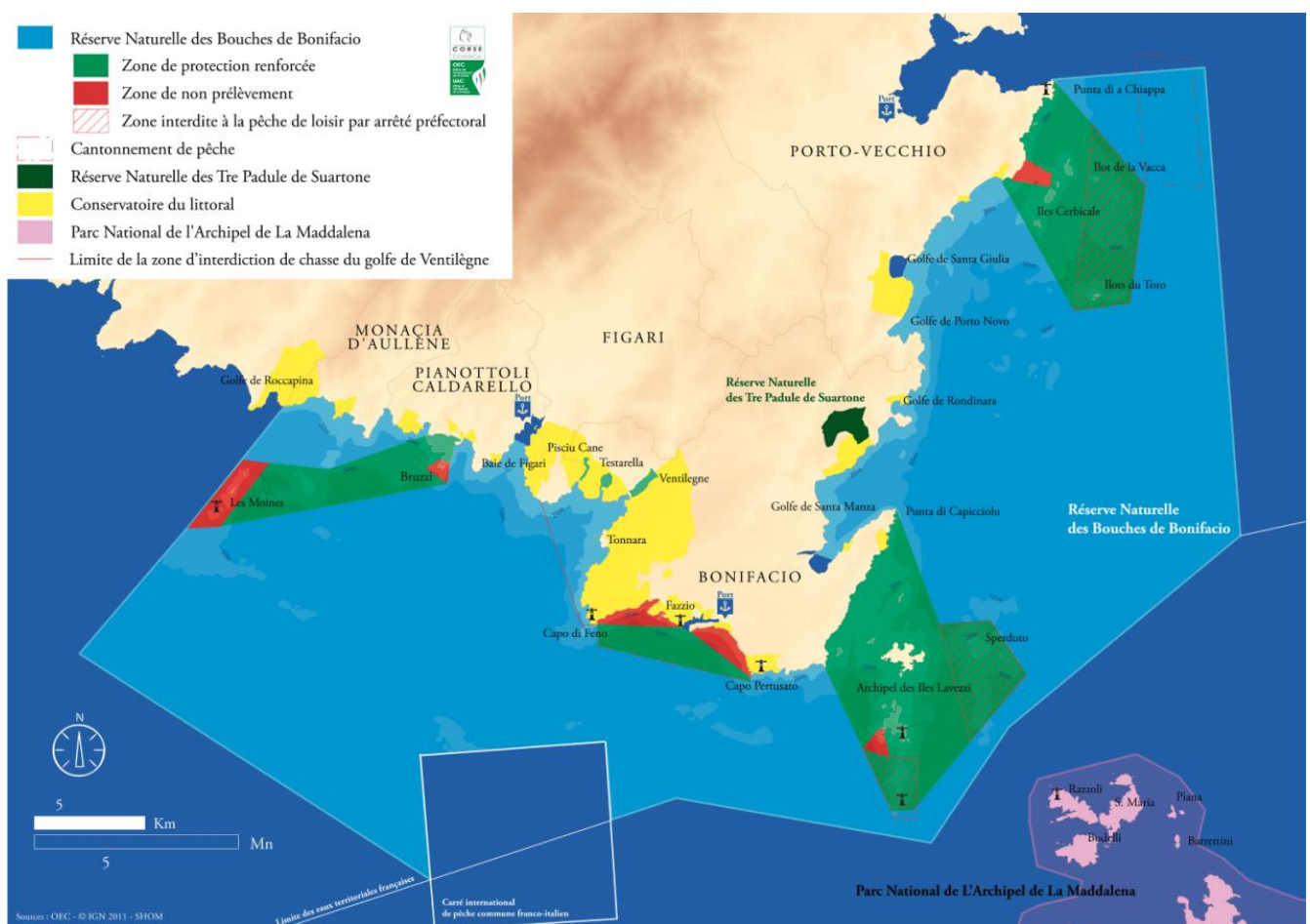


Figure 8. Map of Bonifacio MPA with the zones at different levels of protection.

39 vessels are allowed to fish in the MPA.

The interaction between fishermen and the MPA management body is considered to be bidirectional (i.e. fishermen and the MPA management body are able to express their own views and ideas). The MPA organizes 1-2 meetings per year with few

professionals attending, although fishermen leaders always take part to the meetings.

A MPA management plan including a section for the management of SSF is currently implemented. The plan, that is not periodically updated, was drafted together with all the main stakeholders of the MPA (professional and recreational fishers, scientists, private sector and others).

A total of 35 permanent full-time employees work in the MPA, this number considered inadequate from the management body. The current staff usually carries out most of the activities in the MPA (including ecological, social and governance monitoring), while an activity for developing specific skills for monitoring economic aspects would be suitable.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 630,000 €, coming from public funds and self-funding. No specific management aspects are considered to be deficient by the management body, even though staff recognizes some deficiencies in enforcing MPA rules.

Surveillance is almost entirely performed by MPA staff, capable of both legal and interpretative enforcement. A low level of illegal fishing is present in the MPA.

### **3.9. Strunjan MPA**

Strunjan MPA is located in the middle of Slovenia coast (North Adriatic Sea). The MPA of Strunjan was established in 1990. It has a surface of 90 ha, 33 of which are inside a no-take zone that is closed to fishing only 4 month per year (during summer) (Fig. 9). The park is managed by the Ministry of Environment of Slovenia (national authority) and co-financed by the State and the MPA itself through self-funding.



Figure 9. Map of Strunjan MPA indicating the no-take zone (dark blue) and the buffer zone (light blue).

There is no limit to the number of fishers that can fish in the MPA, but usually only 10 fishermen use to fish within the MPA during the year.

The interaction between fishermen and the MPA management body is considered to be informal and no official meetings are organized during the year, although several informal ones occur.

An MPA management plan and a specific plan for SSF have been prepared in 2017 and scheduled to be approved by the Ministry of Environment in 2018. Professional fishermen and scientists were involved in drafting the plans.

A total of 6 persons work for the MPA, 5 of which are permanent full-time employees. The number of staff members is considered to be below the optimal limit to conduct all the management activities. Although staff is overall competent in all the aspect related to MPA monitoring (ecological, social and economic), no monitoring is currently carried out in the MPA. For this reason this is one of the management activities considered more deficient.

The MPA counts on annual budget considered inadequate by the management body and that in 2016 was about 188,000 €, coming from public funds, self-funding and donations.

Illegal fishing is not frequent, but enforcement is very low and MPA staff is not able to enforce MPA rules. From this perspective, enforcement is considered a major need of the MPA.

### 3.10. Telascica MPA

Telascica MPA is located on the island of Dugi Otok in Croatia, in front of Zara. The MPA was declared in 1980 as part of the National Park of Kornati, but officially established only in 1988. It is managed by a public institution under the coordination of the Ministry of environment and energy. The MPA has a surface of 7,000 ha, subdivided into 4 zones (no-take zone, diving only zone, a zone where fishing is regulated and an “all purposes” zone) (Fig. 10).

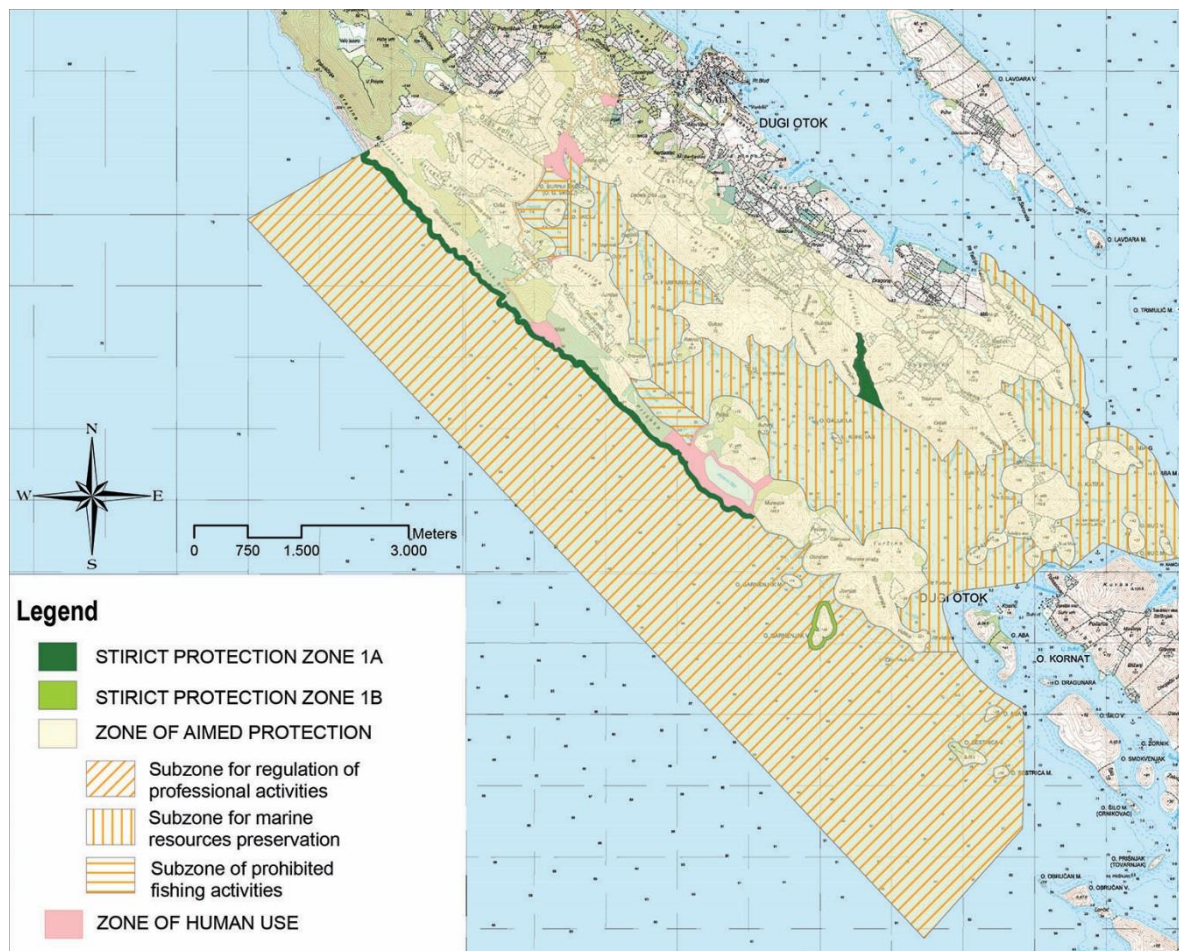


Figure 10. Map of Telascica MPA with the zones at different levels of protection.

The number of fishing licenses is not limited, but only 6 professional boats actually use to fish in the MPA.



The interaction between fishermen and the MPA management body is considered to be bidirectional (i.e. fishermen and the MPA management body are able to express their own views and ideas). The MPA organizes 1-2 meetings per year with most of professionals attending the meeting.

A MPA management plan, adopted in 2012, is currently implemented, but it does not contain any section about the management of SSF. The plan, that is not periodically updated, was drafted together with all the main stakeholders of the MPA (professional and recreational fishers, scientists, private sector and others).

A total of 38 persons work in the MPA evenly divided in permanent full-time employees and seasonal ones. The two categories of employees are considered to be below the optimal level for the MPA and would need to develop most of their abilities in the different aspects of MPA management.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 1 million €, coming from public funds, donations and self-funding. No specific management aspects are considered to be deficient by the management body, even though staff recognizes some deficiencies in enforcing MPA rules, outreach activities and capacity building programs for fishers.

Surveillance is performed by MPA staff and police authorities for a total of 340 days per year. Although this high level of surveillance, illegal fishing operations seem to be performed by a lot of SSF, recreational and industrial fishermen.

### 3.11. Zakynthos MPA

The MPA of Zakynthos is located in the southern part of Zakynthos island (Greece). The MPA was instituted in 1999, and covers a surface of 8,330 ha. It has a no-take zone of about 800 ha (red area, Fig. 11) that is closed to all human activities for 6 months/year (i.e. during summer) in order to protect the nesting sites of the loggerhead sea turtle *Caretta caretta*. In other 2 buffer zones (violet and light blue areas, Fig. 11) different human activities (fishing, scuba-diving, sailing, etc.) are allowed but strictly regulated.

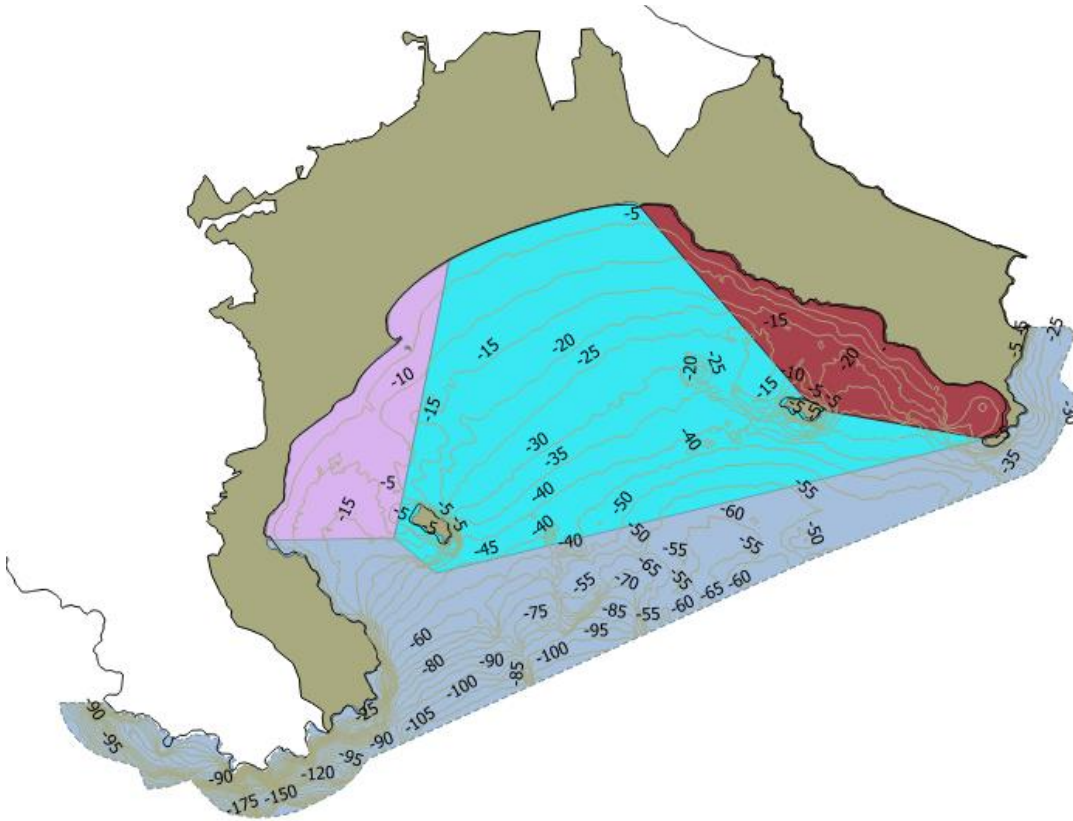


Fig.11. Map of Zakynthos MPA with the three zones at different levels of protection.

All small scale fishermen can fish in the MPA (without any authorization). Around 35 artisanal boats are fishing within the MPA during Spring, Summer, Autumn, and just around 15 during the Winter.

The interaction between fishers and MPA management body is considered 'unidirectional', with fishermen only informed about the management actions implemented in the MPA, in 1-2 meetings per year.

A MPA management plan has been prepared in 2016, but not yet implemented. The plan, that is not periodically updated, was drafted together with professional fishers and scientists.

A total of 32 permanent full-time employees work for the MPA, this number considered inadequate for the current need of the MPA.

The MPA can count on annual budget considered acceptable by the management body and that in 2016 was about 600,000 €, coming from public funds, donations and self-funding. Enforcement and monitoring are considered to be the most deficient activities in the reserve.

Surveillance is performed by MPA staff and police authorities for a total of 360 days per year. Although this high level of surveillance, illegal fishing operations are performed by many SSF and recreational fishermen.



## 4. COMPARATIVE RESULTS

In the following section a comparative overview of the survey results, considering all the 11 MPAs, is presented, following the main structure and categories of the questionnaire.

### 4.1. Fishermen engagement in MPA management

A first group of questions concerned the current level of engagement of fishers in the management of the each MPA.

Regarding the type of interaction between small scale fishermen (SSF) and the management body, it is worth mentioning that an actual interaction is always present in each MPA. In the most of the cases a 'bidirectional' (i.e. fishermen and the MPA management body are able to express their own views and ideas) interaction occurs (Fig 12). Just in 1 case (Cabo de Palos MPA) a 'proactive' interaction is present with fishermen actively proposing or organizing meetings. In remaining few cases an 'informal' or 'unidirectional' interaction is declared, with fishermen only informed about the management actions implemented in the MPA.

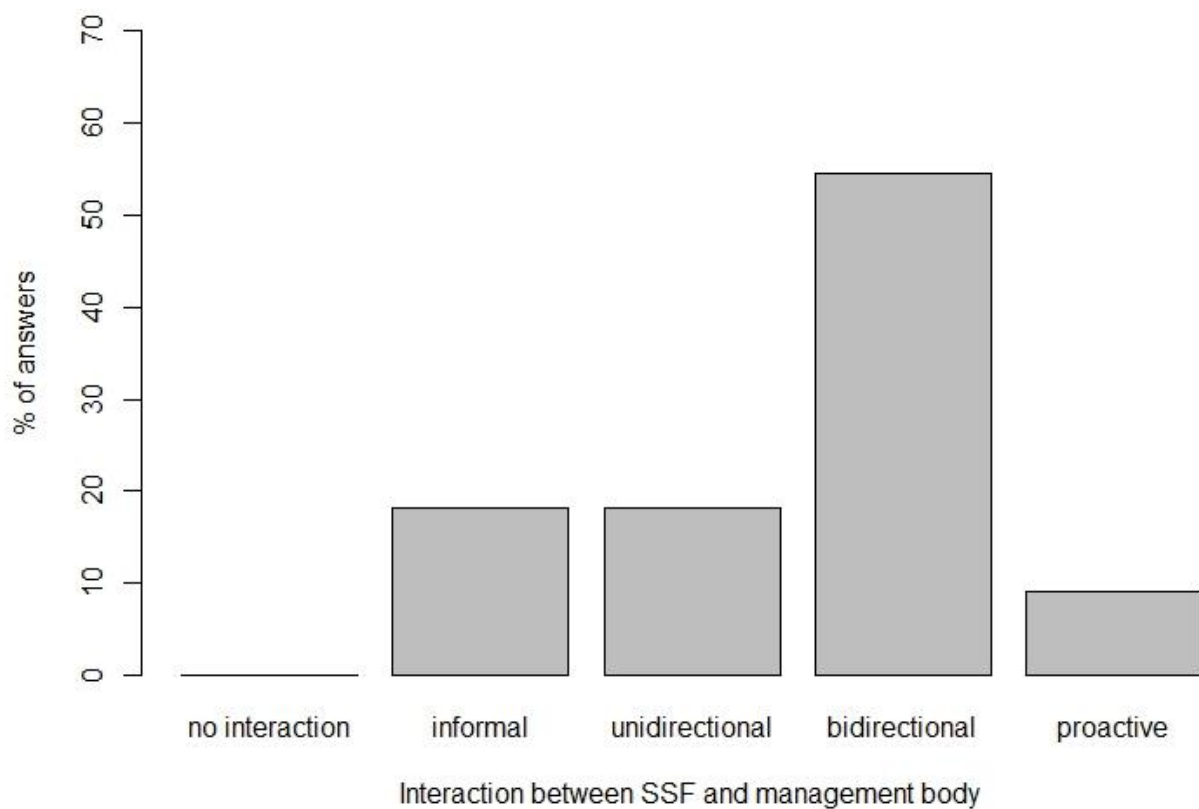


Figure 12. interaction between SSF and management body

The level of fishermen engagement was assessed through a series of questions concerning the number of meetings and participation to them by fishers: in the most of the cases 1 or 2 meetings per year are organized by the MPA management body to discuss or inform fishers (Fig. 13 left). Participation to meetings seems to vary a lot - from few fishermen per meeting to most of the fishermen community participating - but fishermen leaders, when present in the community, always attend the meetings organized (Fig. 13 right).

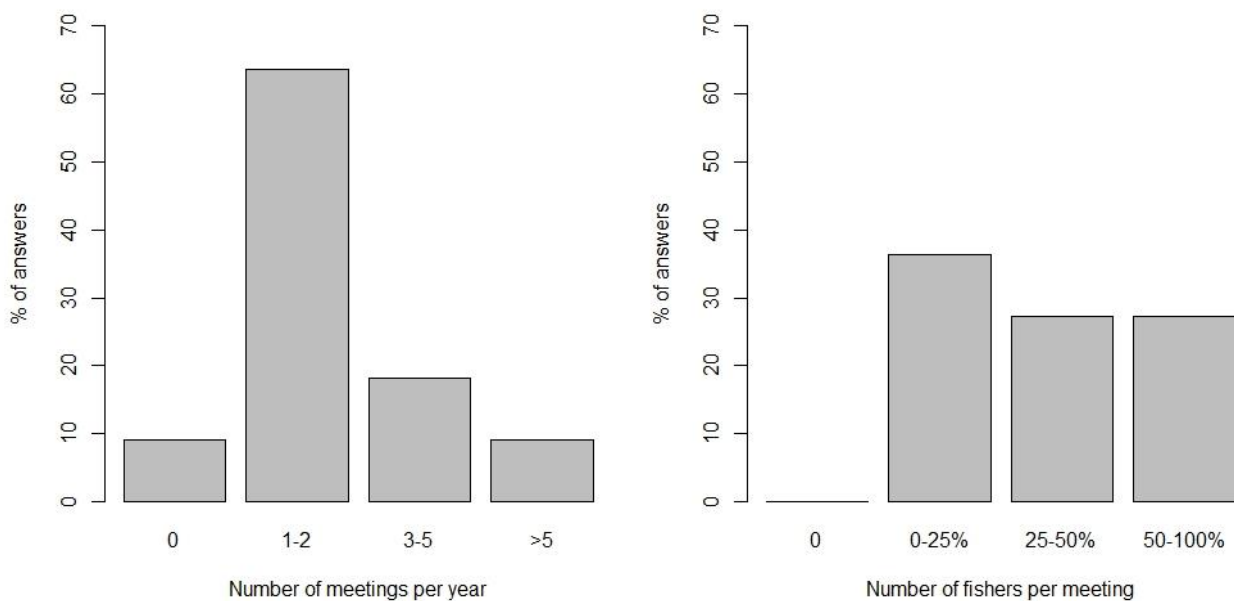


Figure 13. Left: number of meetings organized by MPAs per year. Right: percentage of SSF participating to meetings.

#### 4.2. Management plans and monitoring activity

In the most of MPAs a management plan is currently existing and implemented (8 out of 11) while in the other 3 MPAs a management plan is being prepared but not yet adopted. The drafting of the management plan has almost always involved both professional fishermen and scientists with an occasional participation of other stakeholders in few MPAs (i.e. recreational fishermen, private sector operators and others). When officially existing and currently implemented, management plan is periodically reviewed and updated on the basis of the main needs of each MPA.

Only 3 MPAs have a specific management plan dedicated to SSF, while in the most (6 out of 11) of the cases, the MPA management plan directly includes a section for the regulation and management of SSF in the MPA. In few cases no mention of SSF is

present in the management plan (2 out of 11). When present, SSF management plans have been generally drafted involving fishermen (Fig. 14).

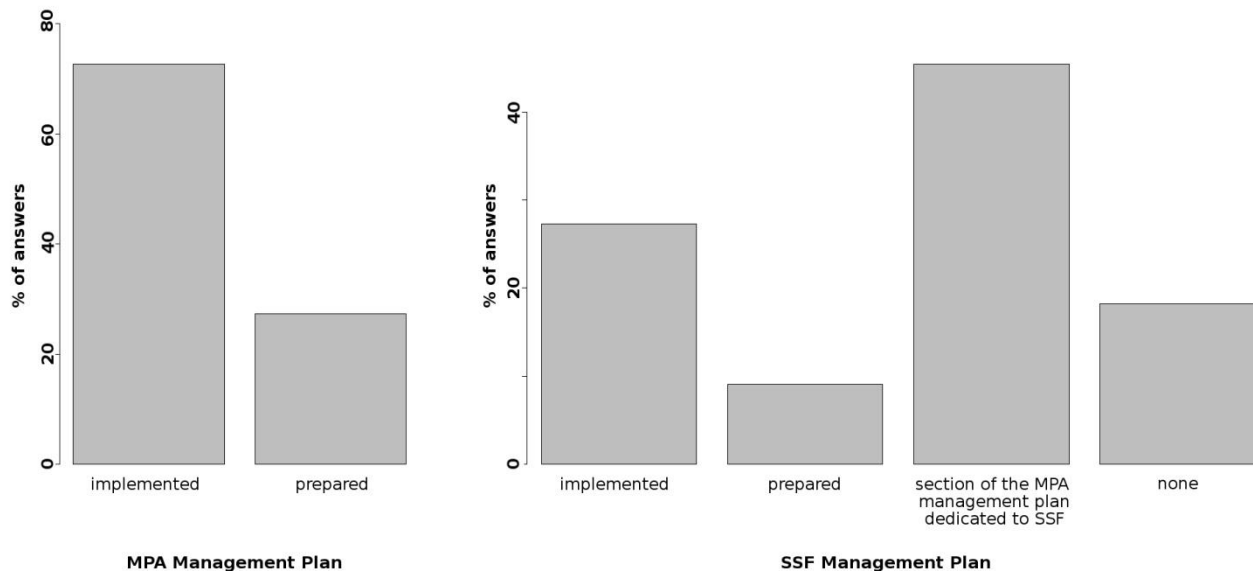


Fig. 14. MPA management plan and SSF management plan in the MPAs

In almost all the MPAs an ecological monitoring is periodically carried out for the assessment of the ecological status of the MPA.

Governance and social monitoring are usually performed as well, while economic monitoring is conducted only in few of the selected MPAs.

#### 4.3. MPA staff, capacity and budget source

The total number of staff members varies considerably among the selected MPAs, passing from a complete absence of staff (only 1 case) to up to 50 persons working, including both permanent full-time, part-time and seasonal staff.

On average, permanent full-time employees represent more than 50% of the entire staff (Fig. 15). In general, the number of persons employed seems to be proportionally related to the total surface of the MPA with bigger MPAs employing a higher number of persons. Staff number is generally considered by the management bodies to be inadequate or below optimum levels in almost all the MPAs.

Based on management body representatives' opinions, staff is generally considered competent in ecological monitoring, while further skills development would be

suitable for social aspects. On the contrary, in most of the cases, competences in economic monitoring should be completely developed.

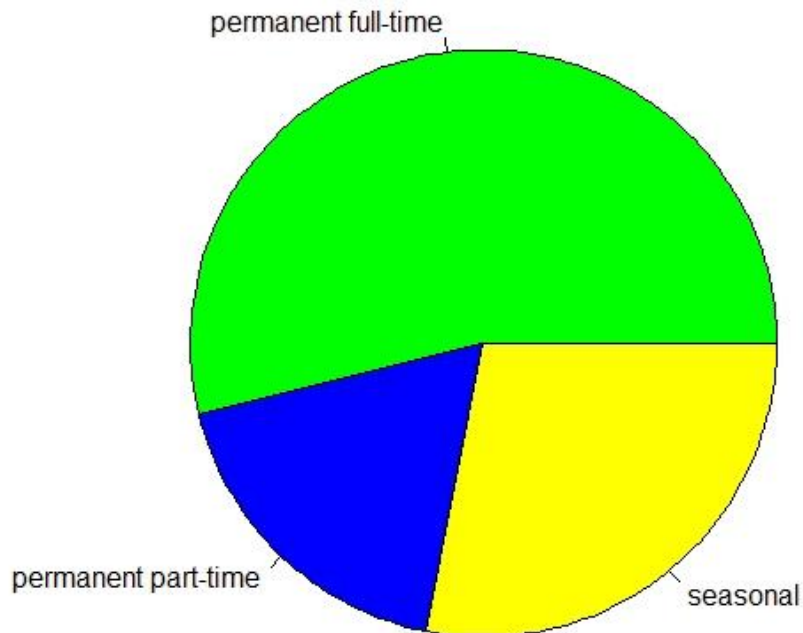


Figure 15. employees distribution in the MPAs

Concerning the annual available budget of each MPA, funds mainly come from public subsidies for most of the MPAs and to a smaller extent from sponsors, donations and self-funding (Fig. 16), and it is generally considered to be acceptable for carrying out the planned management activities. In some cases self-funding (mainly coming from scientific projects) represent the principal funding source. Only one MPA (Cap Roux) does not have an annual stable budget, and it must rely only on spot-funds.

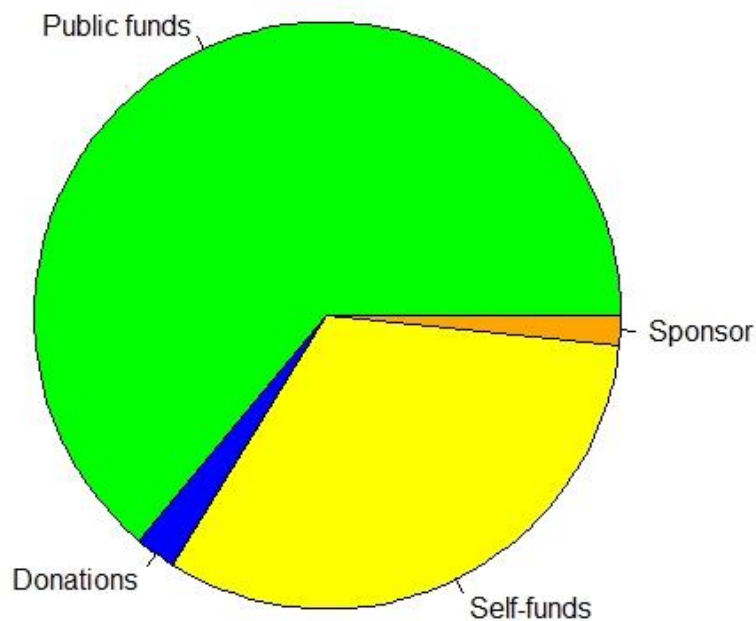


Figure 16. Funds source in the MPAs

Enforcement and outreach programs (very limited or absent in most of the cases) are amongst the main activities considered to be more deficient and that would necessitate specific funding.

#### 4.4. Enforcement of MPA regulation

A certain level of enforcement is carried out in all the MPAs involved, with the exclusion of just one MPA (Cap Roux). The amount dedicated to patrolling greatly varies among the selected MPAs from about 1% of the total available budget up to 100% (i.e. the annual budget completely dedicated to the surveillance).

In all the MPAs where staff is present, the latter actively participates to the surveillance activity in a cooperative way (i.e. informing legal authorities or other stakeholders of illegal activities occurring in the MPA) or, in few cases, having the legal authority to directly raise fines. In some MPAs national or local police

authorities collaborate with MPA staff in the enforcement activities, even though the contribution of police entities to the surveillance is seldom quantifiable.

Considering the total amount of patrolling hours (i.e. both from MPA and police authorities), surveillance is unequally distributed over the entire year, being the summer season (i.e. from June to September) the period of major enforcement, followed by the shoulder season (i.e. April, May and October) and the low season (from November to March) (Fig. 17).

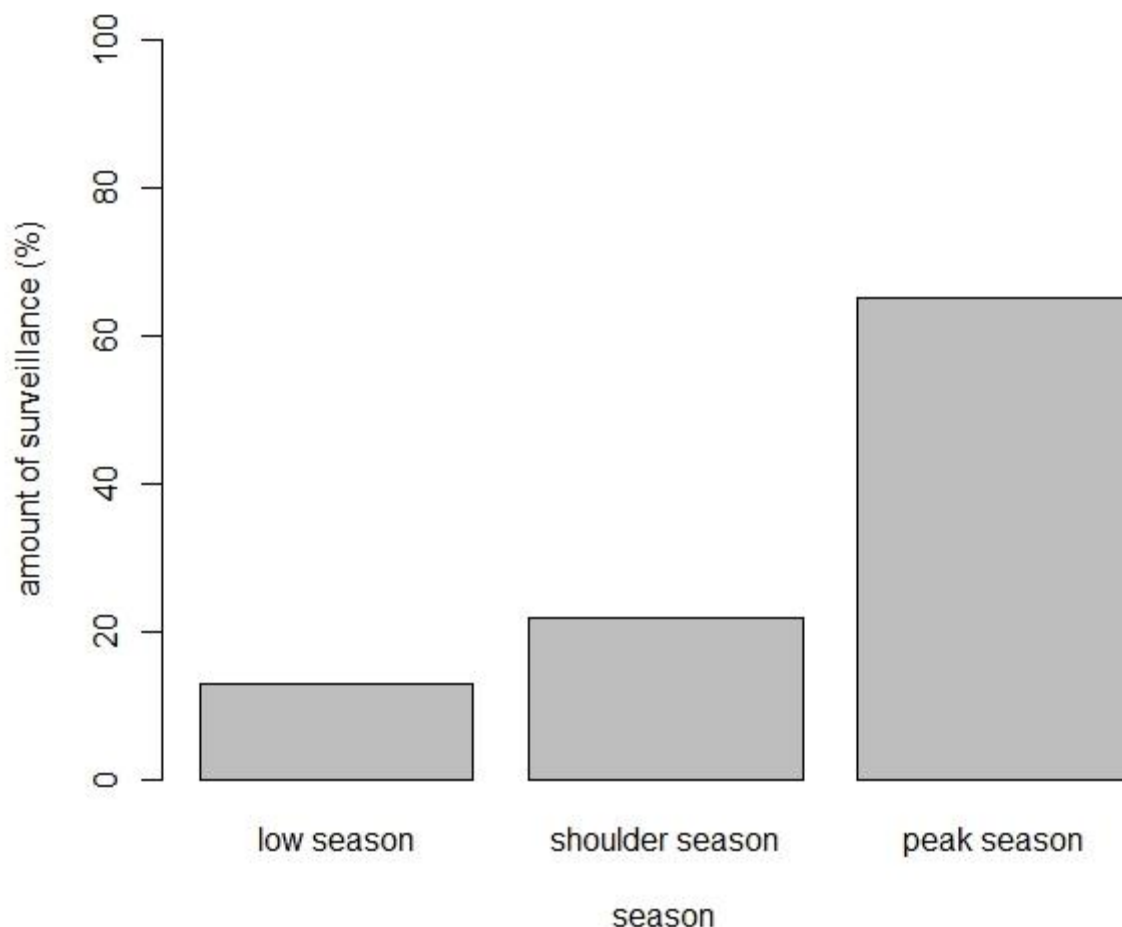


Figure 17. surveillance effort distribution among the 3 main time window of a year.

#### 4.5. Illegal fishing activities

A group of questions concerned the occurrence of illegal fishing activities in the MPAs, as perceived by the management bodies or effectively attested by the amount of fines raised.

Overall, none or only few local professional fishermen are thought to practice illegal fishing within the analyzed MPAs, while in all the cases MPA management bodies

considered that a relevant proportion of recreational fishermen use to fish illegally in the MPAs. The total number of raised fines per year greatly vary among the MPAs from 0 up to tens of fines, but this datum is likely depending on the amount of surveillance hours and the possibility of MPA staff to raise fines. In other words, a low number of fines is not necessarily a consequence of a low number of illegal actions carried out, but it could be related to a very low or null amount of surveillance in the MPA.



## 5. CONCLUSIONS

From a preliminary analysis of survey responses, it can be noticed that the set of 11 MPAs selected include a wide range of management realities. MPAs differ a lot in terms of surface, type and structure of the management authority, interaction with stakeholders (especially fishermen) and management needs and activities.

This confirms the selection of such Pilot MPAs carried out during the previous FishMPABlue 2014-2015 project, where the goal was on one side to identify the Mediterranean MPAs where activities of cooperation between MPA management bodies and local artisanal fishers were already existing, and on the other side to have a “representative” sample of the variety of MPAs existing in the Med region.

The aim of this survey was to identify the main management features of the 11 MPAs, highlighting their current needs in terms of small scale fishery management. From this perspective it is clear that almost all the MPAs currently lack of a proper enforcement.

This is due to different reasons as numerically inadequate/not competent staff, impossibility for the staff to legally enforce MPA rules, a low budget that can be addressed for the surveillance, or a natural high level of illegal activities in some areas.

In this context it seems clear that currently most/all of the Pilot MPAs could benefit from an increased level of surveillance. For this reason, all governance measures that would lead to a proper level of enforcement in the selected MPAs are recommended.

Some MPAs also show deficient communication and outreach programs often due to a lack in staff competences and skills. From this perspective, the selection of measures that would improve the current status of communication and outreach programs in the MPAs is desirable in drafting the PPIPs.

Additionally, in some MPAs a scarce or null involvement of fishermen in the MPA management was highlighted. In other cases, although the availability of the MPA management body to organize meetings for discussing the main MPA issues, a low interest of fishermen to participate to meetings was pointed out. In both cases, it would be suitable the adoption of a series of initiatives aimed to increase fishers engagement and participation.

## RESEARCH ON MEDITERRANEAN MPAs MANAGERIAL FEATURES

Questionnaire ° \_\_\_\_\_

In the framework of the project FishMPABlue 2, the University of Nice is collecting information about governance and management features of Mediterranean MPAs, in order to highlight which circumstances can determine a successful management of small scale fisheries within MPAs.

Thank you for taking the time to participate in this survey. Response to this request is voluntary and information will be published respecting the anonymity of the respondent. The survey should take around 50 minutes.

If you have any questions, please do not hesitate to contact the researchers by phone or e-mail.

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### FISHERMEN ENGAGEMENT IN MANAGEMENT

1) How do you evaluate the current interaction between small scale fishermen and management body in your MPA:

- ☐ No interaction at all
- ☐ Informal interaction (e.g. discussion on the dock), but no regular meetings are organized
- ☐ Unidirectional from the MPA management body toward fishermen (e.g. the MPA informs fishermen about regulations, ongoing projects and results, etc.)
- ☐ Bidirectional (both fishermen and the MPA management body are able to express their own views and ideas) and fishermen viewpoints are then considered in MPA's decisions
- ☐ Proactive (fishermen actively propose or organize meetings) with shared decision making

2) Does MPA staff have skills and resources to facilitate stakeholder engagement and participatory processes?

- ☐ The staff have no effective skills/resources to facilitate stakeholder engagement and participatory processes

- ☐ There are major deficiencies in staff skills/resources
- ☐ The staff have acceptable skills/resources
- ☐ The staff have excellent skills/resources to facilitate stakeholder engagement and participatory processes

3) How many meetings with small scale fishermen do you have on average per year?:

- ☐ 0
- ☐ 1-2
- ☐ 3-5
- ☐ >5

4) How many fishermen operating within the MPA, on average, attend each meeting?:

- ☐ Nobody
- ☐ A few fishermen (0-25%)
- ☐ Many of the fishermen (25-50%)
- ☐ Most of the fishermen (50-100%)

5) Are fishermen leaders or representative present among the fishermen attending the meetings?

- ☐ Yes ☐ No

6) Meetings 'minutes are:

- ☐ not available (not compiled, classified)
- ☐ available to fishermen upon request
- ☐ freely available to fishermen (directly sent to fishermen attending the meeting or hard/digital copy available in MPA's office/website)
- ☐ freely available to everyone (hard copy at MPA's office, digital copy on MPA's website)

7) Please, indicate to what extent you agree with this statements:

	Fully agree	Rather agree	Neither agree nor disagree	Fully disagree	Don't know
There is a good relationship between MPA managers and small-scales fishermen					
It is hard to reach the consensus					
Most of the small scale fishermen agree on conservation strategies implemented by MPA managers					

## MPA MANAGEMENT PLAN

8) Does the MPA have a management plan?

- ☐ There is no management plan  
☐ A management plan is being prepared or has been prepared but is not being implemented  
☐ An approved management plan exists but it is only partially implemented  
☐ An approved management plan exists and is implemented

9) Does the MPA have a management plan for Small Scale Fisheries (SSF)?

- ☐ There is no management plan for SSF  
☐ A section of the MPA management plan is dedicated to SSF (or specific actions for SSF are included in the management plan)  
☐ A management plan for SSF is being prepared  
☐ An approved management plan for SSF exists  
☐ The MPA SSF plan is a part of an official broader plan of SSF

9b) (Only If in question 8 one of the last 4 options was selected). Were fishermen involved in setting up the management plan for SSF?

- ☐ Yes      ☐ No

10) (If there is a management plan for SSF or a section of the MPA management plan is dedicated to SSF): do they contain quantitative goals (e.g. threshold for acceptable ratio fish biomass inside MPA/outside MPA, small scale fisheries catches inside MPA/outside MPA)?

☐ **YES** ☐ **NO**

If you replied “yes”, please specify the main 1/2 goals:

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11) What types of restrictions/regulations on small-scale fisheries are applied by the MPA management?

- ☐ Limited entry
- ☐ Gear restrictions
- ☐ Time restrictions
- ☐ Total allowable catch
- ☐ Size limits
- ☐ Quotas
- ☐ Territorial use rights
- ☐ Permanent spatial closure
- ☐ Time-area closure
- ☐ None of the previous

12) Who was involved in the creation of the MPA management plan?

- ☐ Professional Fishermen
- ☐ Recreational Fishermen
- ☐ Scientists
- ☐ Private sector operators (e.g. diving centres)
- ☐ other stakeholders (please specify...)
- ☐ None of these stakeholders

13) Which of the following types of data are collected in the monitoring and evaluation program?

- ☐ Ecological information/data
- ☐ Social information/data
- ☐ Governance/management information/data
- ☐ Economic information/data
- ☐ None of the previous

14) Is there an established process to communicate and use the results from scientific monitoring (biological, social or management) to inform MPA management (and eventually modify/revise your management plan)?

☐ YES ☐ NO

15) Is there an established schedule and process for periodic review and updating of the MPA management plan?

☐ YES ☐ NO

16) Is the MPA part of a larger broader integrated coastal planning and management process?

- ☐ There is no broader coastal planning and management process
- ☐ There is no discussion about the integration of the MPA in the existing coastal planning and management process
- ☐ There have been some initiatives for the integration of the MPA into the existing coastal planning and management process but the process has not yet begun
- ☐ The marine protected area is in the process of being integrated into a larger coastal planning and management process plan but the process is still incomplete
- ☐ The marine protected area is part of a larger coastal planning and management process.

17) Is there an established conflict resolution mechanism to resolve conflicts between diverse interest groups and users in the area?

- ☐ YES
- ☐ NO

17b) If you reply “yes”, please shortly define this conflict resolution mechanism:

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## MPA BUDGET AND STAFF

18) How many employees (FTE) worked for the MPA in the last year (2016)? \_\_\_\_\_, divided in:

Permanent full time \_\_\_\_\_, Permanent part time \_\_\_\_\_; Seasonal \_\_\_\_\_

19) Are there enough human resources employed to manage the MPA? (Please chose only one option for each column, considering before only the permanent staff and after the overall staff recruited with all the other means (projects, collaborations...))

	Permanent Staff	Total Staff (permanent + other)
There is no staff	<input type="checkbox"/>	<input type="checkbox"/>
The staff is certainly numerically inadequate to manage critical activities	<input type="checkbox"/>	<input type="checkbox"/>
The staff is numerically slightly below optimum level to manage critical activities	<input type="checkbox"/>	<input type="checkbox"/>
Staff numbers are adequate for the management needs of the site	<input type="checkbox"/>	<input type="checkbox"/>

20) Is there a secure budget for the MPA and its management needs on a multi-year basis?

☐ **YES** ☐ **NO**

21) How much was the MPA budget last year (in €, including all funding sources)? \_\_\_\_\_, divided in:

Public funds \_\_\_\_\_; Donations \_\_\_\_\_; self-financing; \_\_\_\_\_; sponsorships \_\_\_\_\_)

22) In 2016 was the budget sufficient to carry out all the activities (surveillance, monitoring, stakeholder engagement)?



- ☐ There was no budget for the MPA  
☐ The available budget was inadequate for basic management needs  
☐ The available budget was acceptable, but should be further improved to fully achieve effective management  
☐ The available budget was sufficient and fully meets the management needs of the MPA

23) If the budget is not sufficient to meets all the needs, please indicate the main 1-2 most deficient following activities:

- ☐ enforcement  
☐ scientific monitoring  
☐ outreach and communication  
☐ stakeholders capacity building  
☐ collaboration in management/decision-making  
☐ Other (please specify): \_\_\_\_\_

24) Considering the overall competences/skills of the current MPA staff, please select for each aspect (ecological, economic and social) the statement that best describes the situation. Practically for each of the 3 rows, you should place an X in the column that best describe your situation.

	The staff does not need further competences/skills	The staff is overall competent, but further specific skills would be suitable	The staff lacks of some skills/competences that would cover specific MPA needs	The staff needs to go through a major capacities/skills development
Ecological aspects (e.g. reserve effect assessment)				
Economic aspects (e.g. quantification ecosystem services)				
Social aspects (e.g. community participation)				

### **Communication and outreach:**

25) Are the MPA boundaries known and demarcated?

☐ The boundaries of the MPA are not well-known by the management authority or other stakeholders

☐ The boundaries of the MPA are known by authorities but are not well-known by stakeholders

☐ The boundaries of the MPA are known by both the management authority and stakeholders but are not appropriately demarcated

☐ The boundaries of the MPA are known by the management authority and stakeholders and are appropriately demarcated

26) Is there a program of outreach, education and awareness building, addressed to stakeholders (mainly small scale fishermen), to ensure they are aware of and knowledgeable about the MPA rationale, objectives and rules?

☐ There is no outreach, education and awareness building program

☐ There is a limited and ad hoc outreach, education and awareness building program, but no overall planning for this aspect

☐ There is a planned outreach, education and awareness building program but there are still serious gaps

☐ There is a planned and effective outreach, education and awareness building program fully linked to the objectives and needs of the MPA

If there is a program, please provide more information:

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### **AUTHORIZED FISHING TYPES AND EFFORT**

27) Please indicate how many vessels (and persons) are allowed to carry on artisanal fishing within your MPA: \_\_\_\_\_

28) Please provide a measure of artisanal fishing effort within your MPA (e.g. in meters of authorized net per day):  
\_\_\_\_\_

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### **SOCIAL EQUITY CONSIDERATIONS**

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29) Are there mechanisms to ensure that the economic costs are minimized and benefits are maximized for fishers and other local groups (e.g., compensation mechanisms, preferential access, etc)?

☐ **YES** ☐ **NO**

If you replied “yes”, please provide few more information:

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30) Does the MPA have developed capacity building programs for fishermen?

☐ **YES** ☐ **NO**

30b) If you replied “yes”, what kind of this programs your MPA are promoting?

- ☐ Diversify livelihoods to increase income and reduce fishing-pressure (e.g. incentivizing pescatourism)
- ☐ promote a quality brand of local fish
- ☐ facilitate the participation of fishermen in the MPA management
- ☐ Other kind of programs (please specify)

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## **MPA ENFORCEMENT**

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31) What kind of enforcement is adopted by the MPA staff?

- ☐ none
- ☐ interpretative/educational enforcement (informing stakeholders)
- ☐ legal enforcement (legal power to raise fines)
- ☐ both (legal and interpretative)

32) Does MPA involve small scales fishermen in enforcement activities?

☐ **YES** ☐ **NO**

32b) If yes, what kind of enforcement activities involve small scales fishermen?

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33) Please, try to quantify the number of days (or hours) spent by only the MPA staff for the surveillance last year

days: \_\_\_\_\_, (hours): \_\_\_\_\_

34) Please, try to quantify the number of days (or hours) spent by the police bodies for the surveillance last year

days: \_\_\_\_\_, hours: \_\_\_\_\_

35) Considering the overall surveillance effort (MPA staff + police bodies), please try to quantify its percentage distribution over the 3 time windows proposed (the total should sum up to 100%):

Low season (November to March):

Shoulder seasons (April, May, October):

Peak Season (June to September):

36) Which is the amount of funds dedicated to surveillance and patrolling in your MPA? (in thousands of euros)

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37) Can MPA staff sufficiently enforce MPA rules?

☐ The staff have no effective skills/resources to enforce marine protected area legislation and regulations

☐ There are major deficiencies in staff skills/resources to enforce marine protected area legislation and regulations (e.g. lack of skills no patrol budget)

☐ The staff have acceptable skills/resources to enforce marine protected area legislation and regulations but some deficiencies remain

☐ The staff have excellent skills/resources to enforce marine protected area legislation and regulations

#### OVERALL SATISFACTION OF FISHERS WITH MPA AND COMPLIANCE:

40) Please read through the following statements and rate your opinion about the level of satisfaction or dissatisfaction of fishers

	Very satisfied	Satisfied	Neither	Dissatisfied	Very dissatisfied
Fishers are satisfied with the ecological outcomes of the MPA					
Fishers are satisfied with the social or economic impacts of the MPA					
Fishers are satisfied with the governance and decision-making processes of the MPA					

41) In your opinion, what proportion of fishers per category do you think have performed illegal fishing (i.e. fished in a no-fishing zone, used non-authorized gears etc.) in the last 12 months in the MPA?

Professional small scale fishermen:

- ☐ None  
☐ Few of them (e.g. 0-10%)  
☐ Many of them (e.g. 10-50%)  
☐ Most of them (e.g. more than 50%)  
☐ I don't know

Recreational fishermen:

- ☐ None  
☐ Few of them (e.g. 0-10%)  
☐ Many of them (e.g. 10-50%)  
☐ Most of them (e.g. more than 50%)  
☐ I don't know

Industrial fishermen:

- ☐ None

- ☐ Few of them (e.g. 0-10%)
- ☐ Many of them (e.g. 10-50%)
- ☐ Most of them (e.g. more than 50%)
- ☐ I don't know

42) Please provide the data about the number of fines (or infractions)/year for illegal fishing within your MPA since the fishing regulation was implemented

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43) If some infractions for illegal fishing occurred, which percentage of fines was related to illegal fishing by professional fishermen regularly operating within your MPA?

- ☐ 0-25%
- ☐ 25-50%
- ☐ 50-75%
- ☐ 75-100%
- ☐ No data available