

PARTICIPATORY APPROACHES TOWARDS THE CO-MANAGEMENT OF NATURAL RESOURCES IN COASTAL AND MARINE AREAS

LESSONS LEARNED & POLICY RECOMMENDATIONS

By the MED Biodiversity Protection Community

Working Group “on the sustainable management of natural resources”

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Table of Contents

1	EXECUTIVE SUMMARY	3
1.1	Lessons Learned	6
1.2	Policy Recommendations	7
2	INTRODUCTION	9
3	PARTICIPATORY MANAGEMENT	12
4	LEGAL FRAMEWORK	15
4.1	Marine Protected Areas (MPAs)	15
4.2	Legal Framework – Small Scale Fishing	17
4.3.	How can SSFs be regulated within MPAs?	19
5	CASE STUDIES	21
5.1	The role of Fisheries Local Action Groups (FLAGS)	21
5.2	Non-take zones and other zoning approaches	21
5.3	The “Spill-Over” effect in Torre Guaceto MPA, Italy	24
6	LESSONS LEARNED	25
6.1	Effective co-management requires solid monitoring	25
6.2	Considerations for the development of co-management plans	26
6.3	Providing added value: the ecolabelling of sustainable SSF products	28
6.4	Education and awareness-raising among consumers	28
6.6	Research and data collection	30
6.7	Governance frameworks	30
7	POLICY RECOMMENDATIONS	32
Annex 1		37
Annex 2		39

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Keywords: Mediterranean, Marine Protected Areas, co-management, fisheries, biodiversity, ecosystems, local authorities, community-led, Best Practices, natural capital, sustainable development, participatory approaches, governance, Blue Economy.

1 EXECUTIVE SUMMARY

Natural resource management issues are inherently complex, as they define the way in which people and natural ecosystems interact. Such management should rely on a scientific and technical understanding of natural resources and ecology, and the life-supporting capacity of those resources. As a consequence, **natural resource management aims to bring together a number of disciplines** (such as Ecology, Biodiversity Conservation, Land Use and Maritime Planning, and the Social Sciences), **sectors** (such as the Economy, Tourism, and Fisheries) **and stakeholders** (such as local authorities, MPA managers, and resource managers (small-scale fishermen, hunters, etc.)).

The Interreg MED Biodiversity Community is developing mechanisms to enhance the socio-ecological resilience of Mediterranean ecosystems and local communities that depend on them by assessing and managing impacts within and beyond MPAs and administrative boundaries. The findings and conclusions that are emerging from projects undertaken by the Community are slowly building a repository of knowledge and solutions, forming a "toolbox" that provides:

- Technical tools and guidance to support progress towards enforced Protected Areas that are individually well managed, while working together as a smart, coherent network across the Mediterranean that takes into consideration ecological sensitivity.
- Policy and governance recommendations to support progress towards working beyond MPAs. These recommendations call for regional governance that enhances the coherence

and connectivity of MPAs; enables truly sustainable development; and uses the ecosystem-based approach to address both the transboundary impacts of the emerging Blue Economy, and land-sea interactions, achieving effective biodiversity protection and the enhanced environmental status of the Mediterranean Sea.

This report aims to synthesize and showcase the contribution of Biodiversity Protection Community projects and other Interreg MED projects related to ecosystems and the co-management of natural resources, with a special emphasis on Mediterranean MPAs, and to propose best practices and evidence-based recommendations to address multi-level policies and structural governance issues.

Small Scale Fisheries (SSFs) make up most of the commercial fishing in the Mediterranean (PHAROS4MPAs, 2019). They are socially important, as they provide employment, and play a significant role for coastal livelihoods (Di Franco et al., 2014), often considered a key part of local culture and identity.

There are three main groups of stakeholders involved in SSF issues:

- **Public authorities**

National public authorities are the most influential actors in coordinating and “translating” top-down policies, such as the RPOA-SSF and EU policies, to the national and local levels (PHAROS4MPAs, 2019).

- **MPA managers**

MPA managers have the opportunity to consider a socio-economic perspective when developing and implementing MPA management plans. Collaboration with local fishers might be beneficial to both, should they pursue a common objective of restoring fish stocks and preserving habitats used by fish at different life stages.

Moreover, given the lack of authority of MPA managers to enforce EU, national and local legislation, co-management schemes can pave the way to more effective, collaborative action frameworks. Such schemes might also prove useful to address conflicts between owners of natural resources (“right-holders”) and users/beneficiaries (“stakeholders”), providing a new, deliberative arena for inclusive discussion and negotiation.

• Small-scale fishers

Composed of local communities that rely on their surrounding natural resources and ecosystems for their food security, economic development and overall well-being. Small-scale fishers have long been asking for their activities to be explicitly recognised and considered in general fishery policies¹ (PHAROS4MPAs, 2019). While the designation of coastal MPAs has placed new constraints on small-scale fishers, they also share many of the same objectives as MPA managers, the most obvious being the recovery of fish stocks.

Present-day Mediterranean fisheries are facing serious challenges, as stocks are fished beyond safe biological limits, resulting in decreasing catches and shrinking regional fleets (SoMFi 2018).

When implemented properly, a recent systematic review (D'Armengol et.al., 2018) shows that **co-management could result in more solid management institutions, as well as positive ecological and social outcomes**, including increased fish abundance and catches, the participation of different actors in resource management, and an increase in the fisheries' adaptive capacity (including to climate change).

Key facts: Five different factors are likely to contribute to successful fishery governance in Mediterranean MPAs:

- High levels of enforcement activity
- Active engagement of fishers in MPA management
- The representation of fishers on the MPA management board
- A clear MPA management plan
- MPA involvement in the promotion of sustainable fishing (e.g., through labelling, awareness campaigns etc)

Source: Di Franco et.al. (2014)

A concise way in which the EU Member States could apply co-management is during the development of Marine Spatial Plans and associated visions and strategies, under the EU Directive on Maritime Spatial Planning (MSP) (DIRECTIVE 2014/89/EU), a process which should be finalised by 2021. **SSF fishing grounds should be carefully considered in MSP processes, particularly in mapping** (PHAROS4MPAs, 2019).

The Biodiversity Protection Community has been established for the purpose of engaging nature conservation stakeholders in the Mediterranean region, by acting as a mainstreaming

¹ Namely under the General Fisheries Commission for the Mediterranean (GFCM), the International Commission for the Conservation of Atlantic Tunas (ICCAT), and the EU Common Fisheries Policy (CFP).

instrument to communicate and capitalise on the efforts carried out by the Interreg MED Community of projects, with a special focus on Marine Protected Areas (MPAs) as sentinels for monitoring environmental impacts in the Mediterranean Sea. Since its inception there have been a number of lessons learned that could be of great benefit to policymakers, planners and local authorities dealing with natural resource management, and, in particular, co-management in the Mediterranean region.

1.1 Lessons Learned

Effective co-management requires solid monitoring

Any management plan is only as effective as the reliability of its monitoring. The SSF sector often lacks such data both inside and outside MPAs (PHAROS4MPAs, 2019).

Considerations for the development of co-management plans

The FISHMPABLUE2 project identified five “enabling conditions” for a successful Small-Scale Fisheries governance system: (1) MPA enforcement (surveillance and monitoring) (2) Fishers’ engagement in MPA decision-making (3) Knowledge and ownership (4) Sustainable fishing (5) Profitable fishing.

Providing added value: the ecolabelling of sustainable SSF products

Ecolabelling can increase the value of key species and/or improve the image of other under-appreciated alternative species (PHAROS4MPAs, 2019).

Education and awareness-raising among consumers

Consumers should be made aware of the environmental and social benefits of buying sustainable seafood products from small-scale fishing communities (PHAROS4MPAs, 2019). This would not only bolster the local economy, but would also empower consumers to make informed choices and be in line with the objectives of the GFCM’s Regional Plan of Action on SSF (RPOA-SSF).

Replicability and upscaling

The replication of experiences is not always directly possible, and is heavily linked to cultural and socio-economic local models, especially in the Mediterranean. This finding requires “enabling mechanisms” that could adapt best practices from our experience to be transferred to other areas in the Mediterranean region.

Research and data collection

Data needs to be adapted to serve its purpose, and be scientifically interpretable. Research needs to provide not only data, but also scientific advice tailored for quick and adapted decision-making. In this regard, MPAs can play a role as “laboratories” to test and fine-tune tools and practices that work best for nature protection and management adapted to local communities.

At the local level, there is a feeling of a mismatch in scope and scale between local and supra-local co-managed plans and the EU’s Data Collection Framework.

Legal and institutional frameworks

The successful, long-term management of natural resources requires an institutional framework capable of balancing the needs and wishes of the different stakeholders with ecosystems’ carrying capacities. Attention should be given to strengthening the institutional and legal frameworks at the appropriate level.

Overcoming conflicts of competences and inconsistencies between legal and institutional frameworks remains a challenge in many countries (PHAROS4MPAs, 2019).

1.2 Policy Recommendations

Recommendation #1 - Biodiversity protection should be “mainstreamed” at the highest level in regional governance initiatives, going beyond mere environmental initiatives and placing conservation and protection objectives at the same levels as economic and social objectives. In addition, all stakeholders, not only those working on biodiversity protection, should be engaged.

Recommendation #2 - The full implementation of existing environmental policies in the EU and the application of viable solutions reached through research on ecosystem health need to be adopted as guiding instruments for the Blue Economy.

Recommendation #3 - Supporting Mediterranean ecosystem-based management requires action on different fronts, from sharing data and assessments, to the design of shared policy objectives and programmes, implementation, capacity building and cooperation.

Recommendation #4 - Engage local communities in the management of protected areas and involve local stakeholders, the private sector, and civil society in the responsible use of natural resources.

Recommendation #5 – Support an increase in economic, human and technical resources, and the capacity of MPA managers to address management and monitoring, and be empowered to rise to the challenges entailed by the emerging Blue Economy.

Recommendation #6 – Effective MPA management requires harmonising and standardising data at the local level.

Recommendation #7 – Addressing regional pressures to reduce impacts on Mediterranean ecosystems requires transboundary governance approaches that link regions together.

Recommendation #8 – Periodic and practical face-to-face exchanges are needed to assure the coordination of research and management efforts to protect biodiversity at various levels, in particular, to mainstream Mediterranean biodiversity protection tools into national initiatives.

Recommendation #9 – Secure the sustainability of the Community's achievements by ensuring the creation of a permanent link between Community outcomes and the existing, Mediterranean-wide knowledge platforms.

Recommendation #10 – National public authorities should decentralise governance in fishery management, and encourage a participatory approach, involving local stakeholders in MPA management.

Recommendation #11 – Shared governance and legal rights to support co-management and sustainable use. When local communities are given shared governance and legal rights to protect their own resources, the goals of biodiversity conservation tend to be reconciled with the needs of local communities.

Recommendation #12 – National Authorities: Facilitate funding and financing for research on Biodiversity.

2 INTRODUCTION

People and their livelihoods, particularly local communities, rely on the health and productivity of neighbouring ecosystems. Their actions play a critical role in maintaining this health and productivity,² and, in return, ecosystems play a critical role in the maintenance of the quality of life and resilience of local communities.

Fisheries and aquaculture provide direct and indirect employment to over 500 million people worldwide. It is the world's only major food source harvested from the wild.³ This food source is dependent on the naturally renewable biodiversity resources in oceans and inland waters.

The Mediterranean Sea represents less than 1% of the total area of the Earth's oceans, but is home to 14% of the world's species, including 2,400 that are only found in it. Marine capture fisheries in the Mediterranean produce estimated annual revenue of USD 2.44 billion (SoMFi, 2018). However, in real terms this figure is likely to be higher, as a significant portion of the Mediterranean's fish catch is not sold through regulated markets (PHAROS4MPAs, 2019).

Small Scale Fisheries (SSFs) support employment and livelihoods in coastal communities and contribute significantly to food security and employment (PHAROS4MPAs, 2019). They comprise most of the commercial fishing in the Mediterranean, both in terms of the number of boats (around 80% of the total) and people employed (57% of the total workforce). They brought in 24% (519 million USD) of the commercial fishing revenue in the Mediterranean region in 2017 (SoMFi 2018).

SSFs in the Mediterranean are socially important, play a significant role in coastal livelihoods,⁴ and are often a key part of local culture and identity. **The sector encompasses a wide range of fishing techniques, targets a large number of species, and uses many different landing sites all along the coasts.** SSFs use, overall, over 50 types of fishing rigs, often switching them during a single fishing trip (PHAROS4MPAs, 2019).

Due to the sector's diversity, trying to agree on a workable definition of SSFs has been a recurrent challenge in global, regional and even national policy debates (PHAROS4MPAs, 2019).

²<https://web.archive.org/web/20120208173746/http://www.nrc.nsw.gov.au/content/documents/Brochure%20-%20Resilient%20landscapes.pdf>

³ www.fao.org

⁴ Di Franco, A., Bodilis, P., Piante, C., Di Carlo, G., Thiriet, P., Francour, P., et al. (2014). *Fishermen Engagement in Mediterranean Protected Areas. A key element to the success of artisanal fisheries management*. MedPAN North Project. WWF France., 135pp.

The EU defines "small-scale coastal fishing" as fishing carried out by vessels of an overall length of less than 12 metres, and not using towed fishing gear, including surrounding seines, beams and trawls (as listed in Table 3 of Annex I to Commission Regulation (EC) No 26/2004).⁵

This has caused some challenges for small-scale fishers, who have long been asking for their activities to be explicitly recognised and addressed by general fishery policies.⁶ While some progress has been made in recent years, this issue overall still remains, as policies are usually geared to large-scale industrial fisheries, and in Europe Atlantic fisheries wield disproportionate influence (PHAROS4MPAs, 2019).

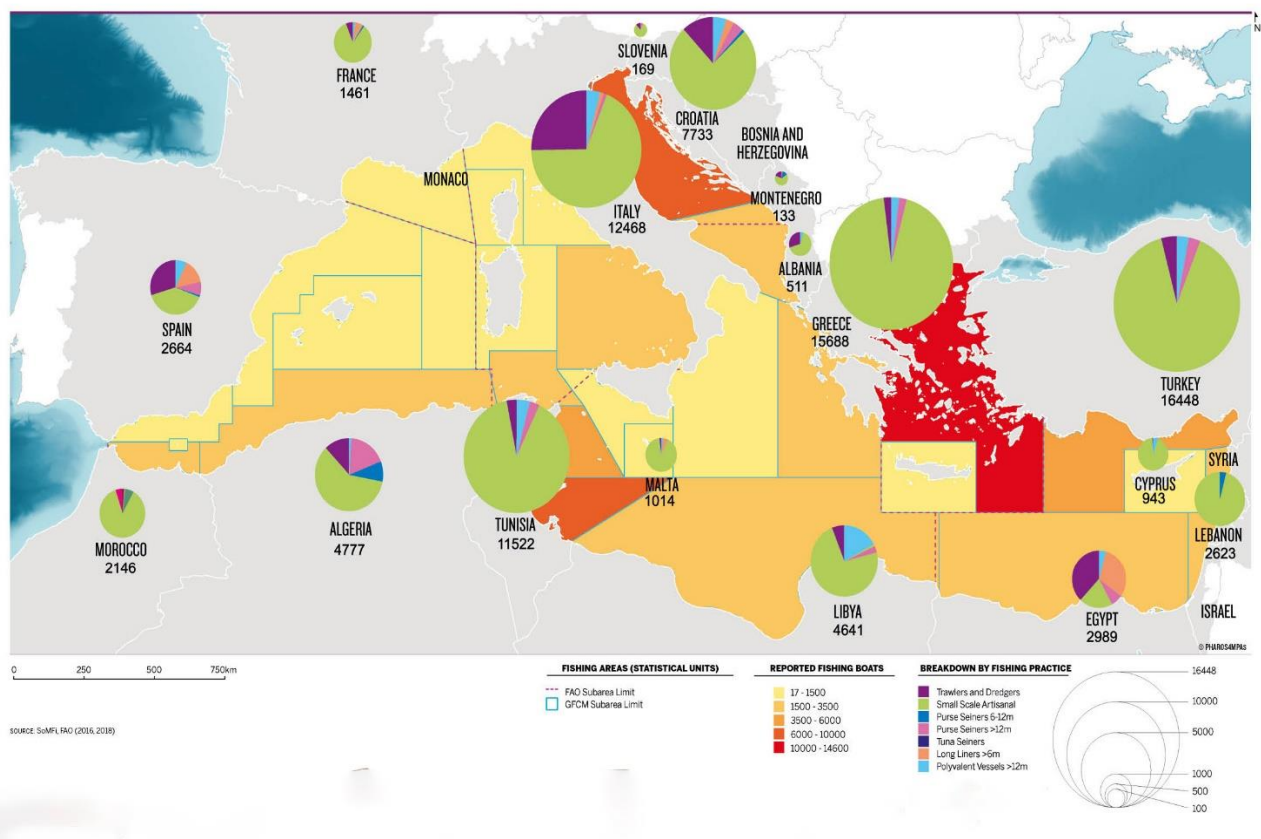


Figure 1. Number of fishing vessels in GFCM sub-areas and breakdown of fishing vessels by fishing practice group and country⁷

⁵ Regulation (EU) No 508/2014.

⁶ Namely, under the General Fisheries Commission for the Mediterranean (GFCM), the International Commission for the Conservation of Atlantic Tunas (ICCAT), and the EU Common Fisheries Policy (CFP).

⁷ Piante C., Kapedani R., Hardy, P.-Y., Gallon S. (2019). *Safeguarding Marine Protected Areas in the Growing Mediterranean Blue Economy. Recommendations for Small-Scale Fisheries*. PHAROS4MPAs project. 60 pages.

Mediterranean fisheries are currently facing serious challenges due to over-exploitation. About 80% of all assessed stocks are fished outside safe biological limits, catches are decreasing, and regional fleets are shrinking (SoMFi 2018).

Further pressure is placed on the remaining fish stocks by environmental degradation, and coastal development and pollution, while climate change is affecting the spatial distribution and productivity of marine species across the Mediterranean (PHAROS4MPAs, 2019).

This is worsened by the constant growth of marine activities in the Mediterranean: from coastal tourism to aquaculture, shipping, oil and gas extraction, marine mining, and new ones, such as offshore wind farms (PHAROS4MPAs, 2019). In parallel, land-based pollution sources, such as agricultural runoff and industrial releases, are having a significant impact on fish stock sustainability.

Professional fishery landings have been declining for the past 20 years (PHAROS4MPAs, 2019). During this period Mediterranean marine protected areas (MPAs) have grown in number and size, although not as much as in other European regions. SSFs are often allowed to operate in a regulated manner within MPAs, while industrial fisheries are not generally permitted (PHAROS4MPAs, 2019).

SSFs are generally considered to have less ecological impact than industrial fisheries, and are usually seen as more sustainable (PHAROS4MPAs, 2019). But they still can have significant impacts of their own, and these need to be addressed.

SSFs can have a significant impact on specific species (mostly carnivores), depending on the fishing gear used and fishing grounds accessed (PHAROS4MPAs, 2019). SSFs may have considerable adverse effects, such as altering biodiversity and the functioning of ecosystems by removing key species (e.g., top predators) or specific size classes.⁸ Key species include regulative ones that help control the proliferation of other species and maintain ecological balance.

Most of the target species of SSFs in the Mediterranean are classed as vulnerable on the IUCN Mediterranean Red List (PHAROS4MPAs, 2019). In a study carried out in France, Italy and Spain, nearly 50% of the total SSF catch in coastal waters – and 100% in offshore waters – was of species classified as vulnerable.⁹

⁸ Garcia. S.M., Kolding. J., Rice. J., Rochet. M.J., Zhou. S., Arimoto. T. (2012) [Reconsidering the Consequences of Selective Fisheries](#), Fish., Sci. 335 (2012) 1045–1047.

⁹ Lloret. J., Muñoz. M., Casadevall. M. (2012) Threats posed by artisanal fisheries to the reproduction of coastal fish species in a Mediterranean marine protected area, Estuar. Coast. Shelf Sci. 113 (2012) 133–140.

3 PARTICIPATORY MANAGEMENT

Co-management is a form of community or user-based natural resource management that seeks to combine conservation objectives with the generation of economic benefits for communities. It works under the understanding that **when the local people's quality of life is enhanced, their efforts and commitment to ensure the future well-being of the resource are too.**¹⁰ This form of management of marine areas has become a popular approach because of its adaptability to different contexts and its focus on locally-identified objectives, which are negotiated and implemented with and by local stakeholders.

The local stakeholders in this context include Small-Scale Fishers from local communities who rely on the surrounding natural resources and ecosystems for their food security, economic development and overall well-being; and MPA managers, who share many of the same objectives as small-scale fishers, the recovery of fish stocks being the most obvious. Also to be considered are national public authorities, who are the most influential actors in coordinating and "translating" top-down policies to the national and local levels. When active in the area, scientists, civil society and the private sector can also be stakeholders.

A recent systematic review (D'Armengol et.al., 2018) confirms that the co-management of natural resources could be an effective approach, resulting in better governance and positive ecological and social outcomes. When applied to fisheries in MPAs, these include increased fish abundance and catches, the participation of different actors in resource management, and increased adaptive capacity for the fishery.

While co-management, in its strictest sense, is not always possible in MPAs governed by a management board, effective participatory management can still be achieved by establishing fishery committees under a management board in which participants share decisions, responsibility and accountability (PHAROS4MPAs, 2019).

The experiences in PANACeA have also shown that co-management is not limited to MPAs. Wetlands for example, provide significant ecosystem services to human communities. But the multiple interests that coexist around wetlands (flood risk reduction, nature conservation,

¹⁰ Ostrom, E, Schroeder, L and Wynne, S 1993. Institutional incentives and sustainable development: infrastructure policies in perspective. Westview Press. Oxford, UK. 266 pp.



recreational use, productive exploitation, urban development, etc.) often yield management options that are not necessarily integrated or suited to other management objectives, leading to conflict. This sectorial approach causes distinct actors –even belonging to the same sector– to pursue divergent paths, making wetland governance more and more difficult.

The WetNet project combines scientific-environmental aspects and governance concerns in order to address these challenges. By working on 9 pilot sites located in 7 EU countries, the project used site diagnosis and regulatory framework and stakeholder analysis to establish a transnational and multi-stakeholder approach directed at improving wetland management.

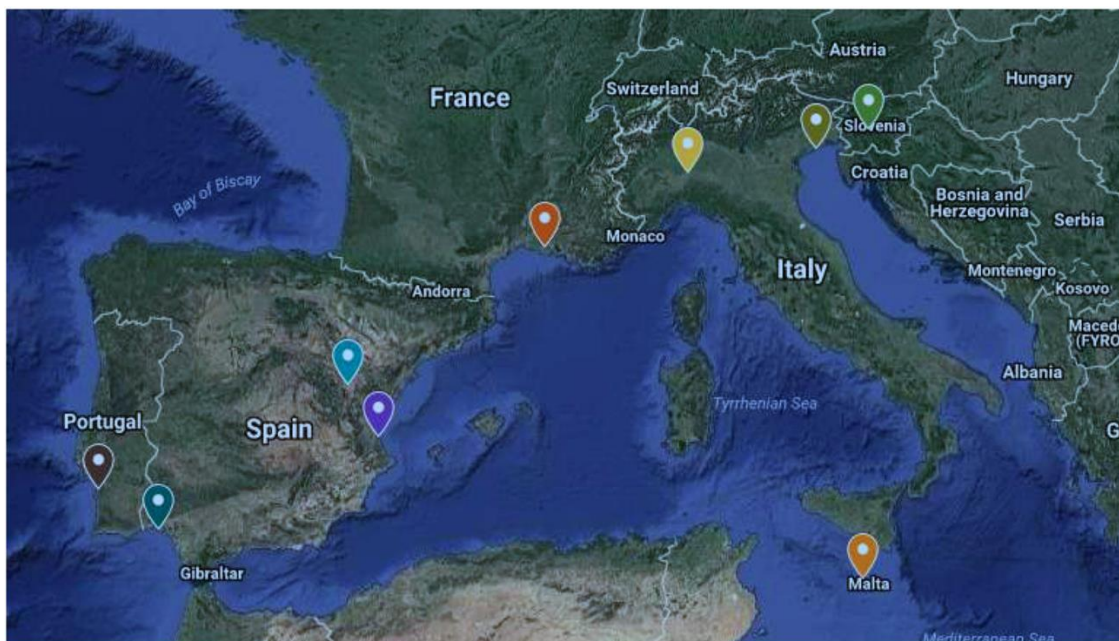


Figure 2. Nine pilot sites of the WetNet Project¹¹

The project analysed, tested and disseminated institutional collaboration and a mechanism for the integration and coordination of the various political plans and initiatives that affected the pilot sites. In parallel, participatory tools were tested in order to actively involve local stakeholders in the conservation, management and sustainable development of ecosystems and wetland landscapes.

One of the main contributions of WetNet to participatory management is the creation of guidelines for the implementation of Wetland Contracts.

¹¹ Source: WetNet Newsletter #2, Dec. 2017, available at https://www.seo.org/wp-content/uploads/2018/10/Newsletter_Wetnet_02.pdf



Wetland Contracts can be defined as voluntary-based commitments undertaken by various public and private entities for the sustainable management of wetland systems. A Wetland Contract is a negotiated agreement between the parties that takes shape through inclusive and deliberative decision-making processes. With a Wetland Contract a local community can identify responsibilities and implementation strategies for the governance and management of their wetlands.

These governance tools were originally introduced in France in the early 80s, and they are currently well established in Belgium and Italy as well, with some isolated experiences in other European countries. The WetNet project tested the Wetland Contract as a governance tool for the sustainable management of protected wetlands, and produced Guidelines for Wetland Contract Implementation, based on the knowledge gained through these experiences.

Having a common vision for many countries sharing a limited space is an important foundation for co-management. Experiences using top-down mechanisms could provide solutions for the transboundary management of natural resources.

In every stakeholder layer, co-management efficiency has to be promoted as a mixed method that makes it possible to switch from a purely one-way, top-down approach to a multilevel governance model integrating both top-down and bottom-up approaches. Complementary systems, rather than a single system, have been shown to work better.

Bottom-up approaches provide opportunities for engagement with local communities in decision-making, these measures having a direct effect on their food security and other economic and non-cash benefits. In addition, they also favour the defence of the cultural identity and heritage (including local traditional environmental knowledge) of these communities in the management of natural resources, creating a win-win scenario and, consequently, securing their cooperation. Through concrete cooperation, such as monitoring and patrolling, the fishing community can take ownership in and responsibility for protection and conservation aspects of a designated area.

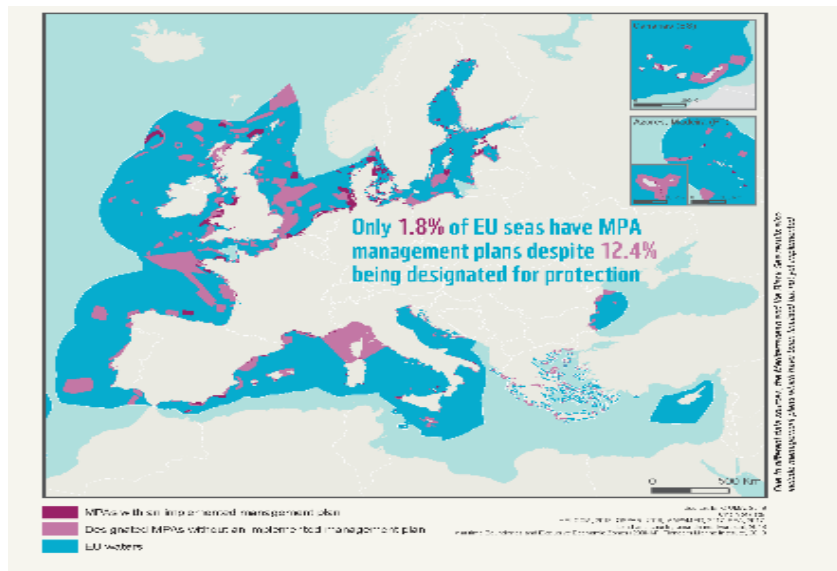
4 LEGAL FRAMEWORK

4.1 Marine Protected Areas (MPAs)

Marine Protected Areas (MPAs) are a globally recognised tool for managing and enhancing marine ecosystems in a way that bolsters the preservation of biodiversity. The EU has specific legislation in place that calls for MPA designation and management. The major driver is the **EU Natura 2000** network, the largest coordinated network of protected areas in the world, which requires targeted conservation action to tackle threats to habitats and species. At the end of 2018 it encompassed over 9.2 % of EU waters (including inland waters).¹² This is complemented by MPAs designated nationally, under the Marine Strategy Framework Directive,¹³ and regional and international conventions. Marine reserves form a subset of MPAs, in which impacts from human activities, such as resource extraction and fisheries, are not permitted.

At the end of 2016 10.8 % of the surface of Europe's seas had been designated as MPAs, although there is a recognition that overall, more MPA coverage is required, especially in the Macaronesia region and the Mediterranean Sea as a whole, especially when considering that approximately 50% of EU MPAs in this region measure less than 30 km², and a high proportion of these are smaller than 5 km².¹⁴

With regards to the effectiveness of MPAs in Europe, the recently published report (WWF, 2019) points out that only 1.8% of EU Seas have MPA management plans, despite 12.4% being designated for protection (as MPAs).¹⁵



¹² <https://www.eea.europa.eu/publications/marine-protected-areas>

¹³ http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm

¹⁴ www.eea.europa.eu/publications/marine-protected-areas

¹⁵ http://d2ouvy59p0dg6k.cloudfront.net/downloads/protecting_our_ocean.pdf

MPAs are a key tool for conservation, but their individual effectiveness is highly dependent on how well they account for and recognise specific local conditions (PHAROS4MPAs, 2019). **Due to the geographical characteristics of the Mediterranean**, dominated by coastal and shallow areas, **many of the Marine Protected Areas (MPAs)**, marine **Natura 2000 sites**, and areas subject to other effective area-based conservation measures (**OECM**) are mostly found in areas where interaction with SSF activities is inevitable. With this in mind, **it is crucial for the benefits and impacts of the SSF sector on MPAs to be assessed**, and that the SSF community, MPA managers and public authorities work together to manage the interaction as carefully as possible (PHAROS4MPAs, 2019).

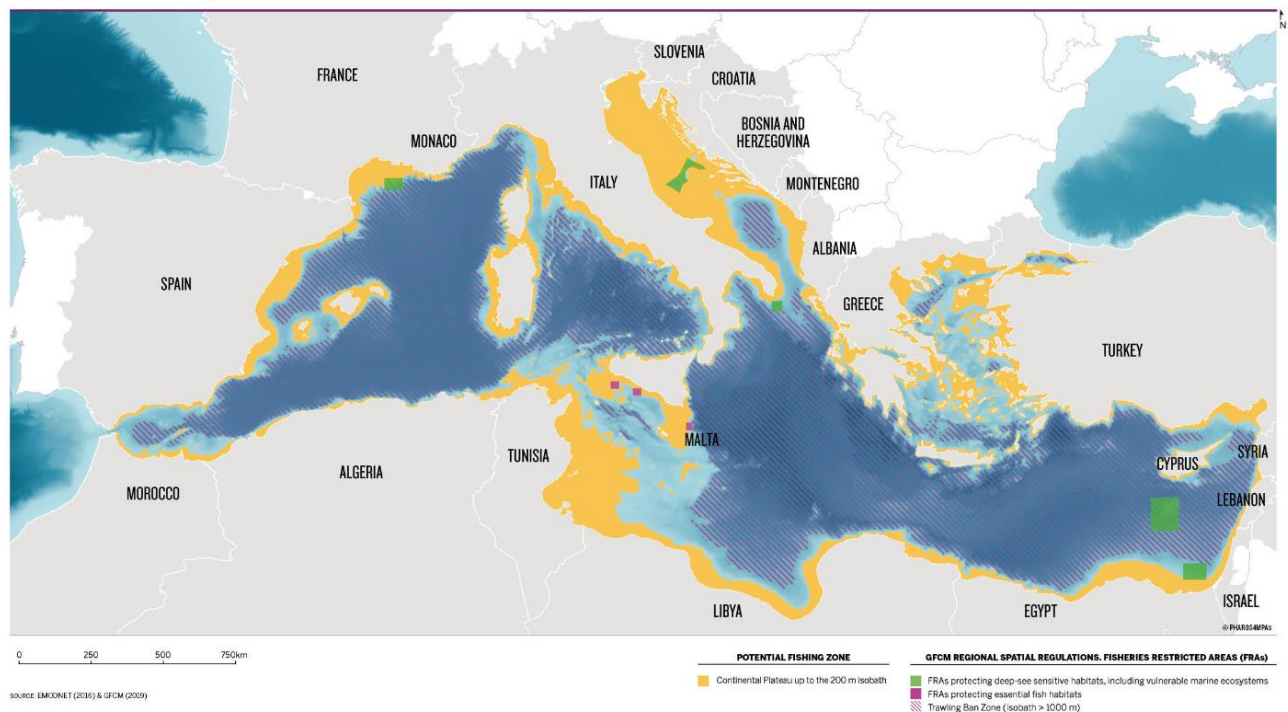


Figure 3. Continental plateau up to the 200m isobath, reflecting major potential fishing areas in the Mediterranean Sea, and spatial regulations adopted by the General Fisheries Commission for the Mediterranean (GFCM) between 2005 and 2018: the deep-sea trawling ban area under 1000m and nine Fisheries Restricted Areas¹⁶

¹⁶ Piante C., Kapedani R., Hardy, P.-Y., Gallon S. (2019). *Safeguarding Marine Protected Areas in the Growing Mediterranean Blue Economy. Recommendations for Small-Scale Fisheries*. PHAROS4MPAs project. 60 pages.

4.2 Legal Framework – Small Scale Fishing

Small-scale fishing in the Mediterranean features different characteristics in different locations, but it also shares common elements across the region. The SSF sector usually operates near the coast, where in many countries bottom and pelagic trawling is banned, so the use of passive gear is particularly important. Traditionally, the profession at this scale is organised into small family-sized businesses (PHAROS4MPAs, 2019).

Over the last decade there have been serious efforts to improve fisheries' regulatory framework in the Mediterranean (PHAROS4MPAs, 2019). These include the FAO-GFCM Regional Plan of Action for Small-Scale Fisheries in the Mediterranean and the Black Sea (RPOA-SSF), and the Malta MedFish4Ever Ministerial Declaration.¹⁷

The Malta MedFish4Ever Ministerial Declaration, signed in 2017, represents a key political turning point for the sustainable use of Mediterranean fishing stocks. Through the MedFish4Ever declaration Mediterranean Member States commit to:

- Enhance data collection and scientific evaluation
- Establish an ecosystem-based fisheries management framework
- Develop a culture of compliance and eliminate illegal, unreported and unregulated fishing
- Support sustainable small-scale fisheries and aquaculture
- Foster solidarity and coordination in the Mediterranean through an on-going network of cooperation and technical assistance with the General Fisheries Commission for the Mediterranean (GFCM) and the FAO.

However, small-scale fishers have historically lacked effective representation at the EU, Mediterranean and Member State levels. At the Mediterranean level, **the implementation of the GFCM's Regional Plan of Action on SSF (RPOA-SSF) by 2028 is critical for the small-scale fisher community** (PHAROS4MPAs, 2019) (see annex 1).

As the EU is a contracting party to the GFCM, EU policies should be in line with the RPOA-SSF. In practice this means that **new CFP regulations, such as the control regulations, should take SSF specificities into account and deliver an approach that they can practically and effectively implement without becoming over-burdened** (PHAROS4MPAs, 2019).

¹⁷ <http://www.fao.org/family-farming/detail/en/c/881636/>

At the European level, the Union has exclusive authorities to manage the exploitation of fish stocks as well as to regulate fishing activities and operations. The EU Common Fisheries Policy (CFP) contains concrete measures geared towards the small-scale sector and its sustainable development (PHAROS4MPAs, 2019). Multiannual plans (MAPs) are the primary tool enabling CFP implementation at the regional level. Under the CFP:

- 1) Member states are encouraged to consider preferential or exclusive access for SSFs along the coast, stressing the selectivity and low impact of the techniques employed.
- 2) Fishing opportunities will not only be allocated according to seniority, but also the basis of environmental and social criteria.

Article 6(3) of the EU Habitats Directive states that in order to prevent significant negative effects on the (marine) environment, an assessment of the impact of potential plans or projects involving Natura 2000 sites (including marine) is required. Certain fishing activities are likely to have an impact on the marine environment, so that they fall under this requirement.

However, all of these policies may not necessarily be reflected on a national scale: regulatory frameworks governing SSFs are very diverse and not always supportive of this highly varied and fragmented activity.¹⁸ A proposal to amend the Control Regulation to better monitor SSFs is under discussion at the European Commission's Directorate General for Maritime Affairs and Fisheries.

Following the EU Directive on Maritime Spatial Planning (MSP) (DIRECTIVE 2014/89/EU), EU Member States are currently developing their Marine Spatial Plans and associated visions and strategies, a process which should be finalised by 2021. The EU MSP Directive requires Member States to apply an ecosystem-based approach and to contribute to the protection, preservation and restoration of the marine environment, as well as consulting stakeholders and the general public (PHAROS4MPAs, 2019).

These plans should identify current human activities and the most effective way to manage them, considering land-sea interactions and establishing appropriate cross-border cooperation. **SSF fishing grounds should be carefully considered in MSP processes, particularly in mapping.** Any new economic development overlapping with or impacting fishing grounds should be thoroughly discussed with fishers. Unless this is taken seriously, fisheries in general and SSFs, in particular, could be significantly affected by the development of other sectors (PHAROS4MPAs, 2019).

¹⁸ Cazalet B., (2013). Integration of Small-Scale Fishing in MPAs. GFCM Study, 84 pp.

The Mediterranean [Ecosystem-based Approaches for Biodiversity Protection and Management Declaration](#) is a consensus-based statement by key partners in the Mediterranean towards understanding and managing transboundary and cumulative impacts on Mediterranean ecosystems. Among its statements, the Declaration includes few major points on the role of local communities in managing their proper resources. It explicitly states that "Local community co-management is a powerful tool for participatory decision-making that needs to be empowered for enhanced decentralised governance of biodiversity and natural resources." The Declaration states the need to implement "Mechanisms to ensure and enhance the socio-ecological resilience of Mediterranean coasts, seas and communities, it being necessary to manage impacts beyond Protected Areas or national boundaries." It specifies, as well, that "such mechanisms must be linked to participatory public consultation and integrated decision-making where key actors –including local communities, regional and national authorities, and civil society, have ownership of natural resources and play a major role in the protection and co-management of their biodiversity and ecosystems."

4.3. How can SSFs be regulated within MPAs?

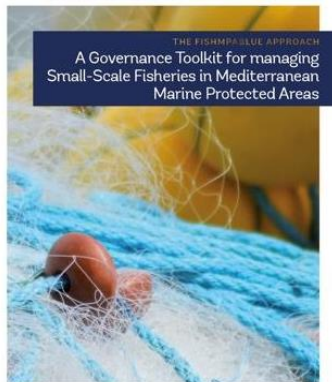
In the context of the co-management of natural resources for fisheries within MPAs in the Mediterranean, co-management means the sharing of powers and a balanced responsibility between fishers and MPA managing bodies. A high level of effective participation is key in order to build trust between fishers and MPA managers.

Collaboration with the SSF community is, in fact, very much needed to manage, monitor and protect MPAs more generally – and likewise to benefit SSFs by strengthening stocks and improving returns on landings (PHAROS4MPAs, 2019). This is particularly important as we see an increasing trend globally in interactions between MPAs and SSFs, which is also happening in the Mediterranean.

While the designation of coastal MPAs has created new constraints for fishers, they also share many of the same objectives as MPA managers, the recovery of fish stocks being the most obvious. Their common aim, ultimately, is to help achieve the long-term, sustainable use of marine resources. Collaboration between them offers real possibilities for success (PHAROS4MPAs, 2019). To facilitate this collaboration, **public authorities should decentralise governance in fishery management, and encourage a participatory approach to MPA management**, while at the same time MPAs and local fishing communities work closely on the governance and management of SSFs. Initiatives such as **Fish4Ever**¹⁹ are already in place, providing a valuable insight into ways forward on this issue, and which consider the land, the sea and the people.

¹⁹ <https://fish4ever.blog/sustainability/>

The establishment of MPAs in the Mediterranean is relatively recent, relative to the existence of SSFs. While other spatial managing tools, such as Fisheries Restricted Areas (FRAs), can support an ecosystem-based approach to fisheries management, if effectively used, the designation of coastal MPAs has the potential –at least in the first stage– to create conflicts with fishers, particularly when No Take Zones are set without consultation with local communities.



By bringing SSF and MPAs together, one is, in fact, mixing two different types of management approaches: Resource Management and Area Management. This gives rise to some governance challenges, as currently there are no defined rules or best practices in place on how to involve fishers in the process of establishing a small-scale fishery co-management system in an MPA. To address this gap in knowledge, the **FishMPABlue2** project has produced a governance tool directed at MPA managers.

Based on case-studies from 11 different MPAs, **FishMPABlue2** produced a **Small-Scale Fisheries Governance Toolkit**, in which 12 tested management measures are described in detail, including the lessons learnt from their implementation.

The **Toolkit** produced by the **FishMPABlue2** project helps MPA managers navigate the varied tools available to improve MPA effectiveness in SSF management, with a particular focus on increased stakeholder engagement and co-management. This Toolkit provides practical support for those developing co-management approaches with the long-term goal of improving the overall governance of natural resource management in the Mediterranean²⁰.

There are a number of pre-requisites for the co-management model to be successful, and although the principles are generally valid, not all practices are equally transferable across the Mediterranean. One must also be aware that the regulations for SSF fishing are not always compatible with the objectives of MPAs, meaning that there can be competition in terms of rights and obligations.

Given the lack of authority of PA managers to enforce either EU, national or local legislation, co-management schemes can pave the way to more effective, collaborative action frameworks. Such schemes might also prove useful to address conflicts between owners of natural resources ("right-holders") and users/beneficiaries ("stakeholders"), providing a new, deliberative arena for inclusive discussion and negotiation. The Interreg MED Biodiversity Protection Community, in the framework of PANACeA, has gathered case studies of natural resource co-management in coastal and marine areas of the Mediterranean, which are presented below.

²⁰ <https://fishmpablue-2.interreg-med.eu/>

5 CASE STUDIES

5.1 The role of Fisheries Local Action Groups (FLAGS)

FLAGS bring together actors such as fishers, managers, scientists and civil society (to name but a few), and are thus well situated to play their part in developing local co-management models. FLAGS can play a vital role in setting up local fisheries' co-management arrangements, by:

- Strengthening users' involvement
- Acting as a unifying force and as a facilitator.
- Taking part in research involving users ("participatory research")
- Strengthening inshore fishery management organisations
- Getting users involved in monitoring their fisheries' areas to strengthen compliance
- Ensuring a bottom-up approach at each step

FLAGS can play a key role in developing a structured dialogue amongst fishing stakeholders and MPA representatives, and provides the necessary conditions for collaboration to start up pilot co-management initiatives.

5.2 Non-take zones and other zoning approaches

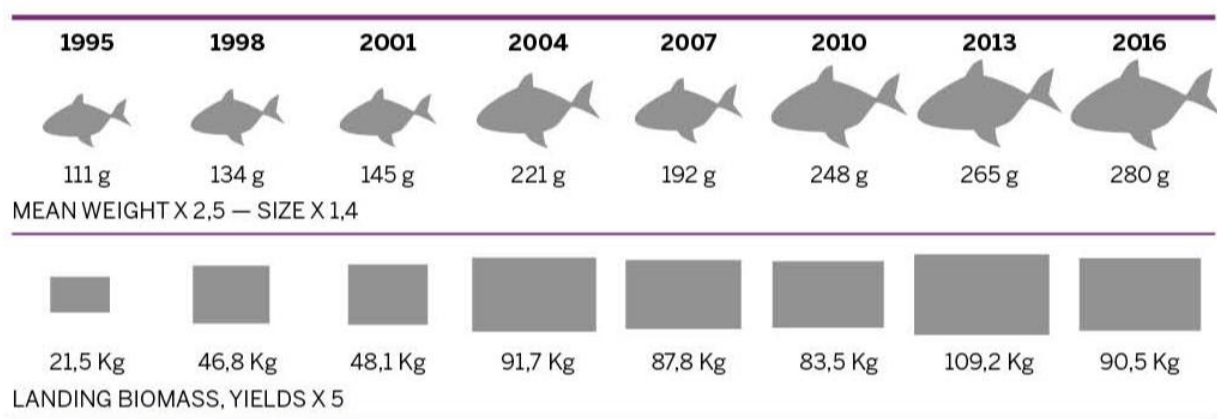
In the Mediterranean, 38% of national MPAs include one or more no-take zones, sometimes surrounded by 'buffer zones' where fishing is restricted compared with adjacent fished areas (MedPAN database). Permanent no-take zones are recognised as an effective management tool both for biodiversity conservation and for the regeneration of fish stocks (PHAROS4MPAs, 2019).

The zoning of an MPA can be a key tool in the sustainable management of SSFs. In some countries, the zoning of an MPA is determined upon its designation, and the MPA manager cannot subsequently change it. In other countries new zoning schemes can be implemented even after designation (PHAROS4MPAs, 2019).

Zoning must consider the results of previous monitoring studies, as well as other criteria (PHAROS4MPAs, 2019):

- The surface area of the MPA
- The cartography and the vulnerability of marine habitats
- The presence, protection status and vulnerability of the species inhabiting and/or using the area within their life cycle
- Interactions with other sectors (e.g., recreational fisheries, scuba divers, leisure boating)

The Côte Bleue Marine Park in France contains two no-take zones (Cap-Couronne: 2.1 km² and Carry-le-Rouet: 0.85 km²) where all fishing is forbidden, as are dredging, anchoring and diving. In the rest of the park, all activities are authorised and subject to the general regulations at sea. Figure 4 shows the increase in mean fish size and biomass landed inside the reserves between 1995 and 2016, demonstrating their effect (PHAROS4MPAs, 2019).



Biomass landed: yields nearly quintuple

Figure 4. Results from the long-term monitoring of fish assemblage carried out with experimental fishing (4x500 meters trammel net) at the Cap-Couronne reserve in the Côte Bleue Marine Park (France)²¹

Spatial zoning helps not only mitigate conflicts between individual users and different sectors, but also contributes to diversifying captures (PHAROS4MPAs, 2019).

²¹ Source: Piante C., Kapedani R., Hardy, P.-Y., Gallon S. (2019). *Safeguarding Marine Protected Areas in the Growing Mediterranean Blue Economy. Recommendations for Small-Scale Fisheries*. PHAROS4MPAs project. 60 pages.

The Straits of Bonifacio Natural Reserve (France) provides another example of spatial zoning, where enhanced protection zones have been established for small-scale fishers close to the no-take zones. In these zones, spearfishing is forbidden, and recreational fishing is limited to hand-held gear, while SSFs are authorised under the same conditions as in the open exploitation areas. As a result of this zoning, small-scale fishers' Catch Per Unit Effort (CPUE) has increased, more than 2.3 times greater than in the MPA's open exploitation zone where all types of recreational fisheries are allowed (PHAROS4MPAs, 2019).

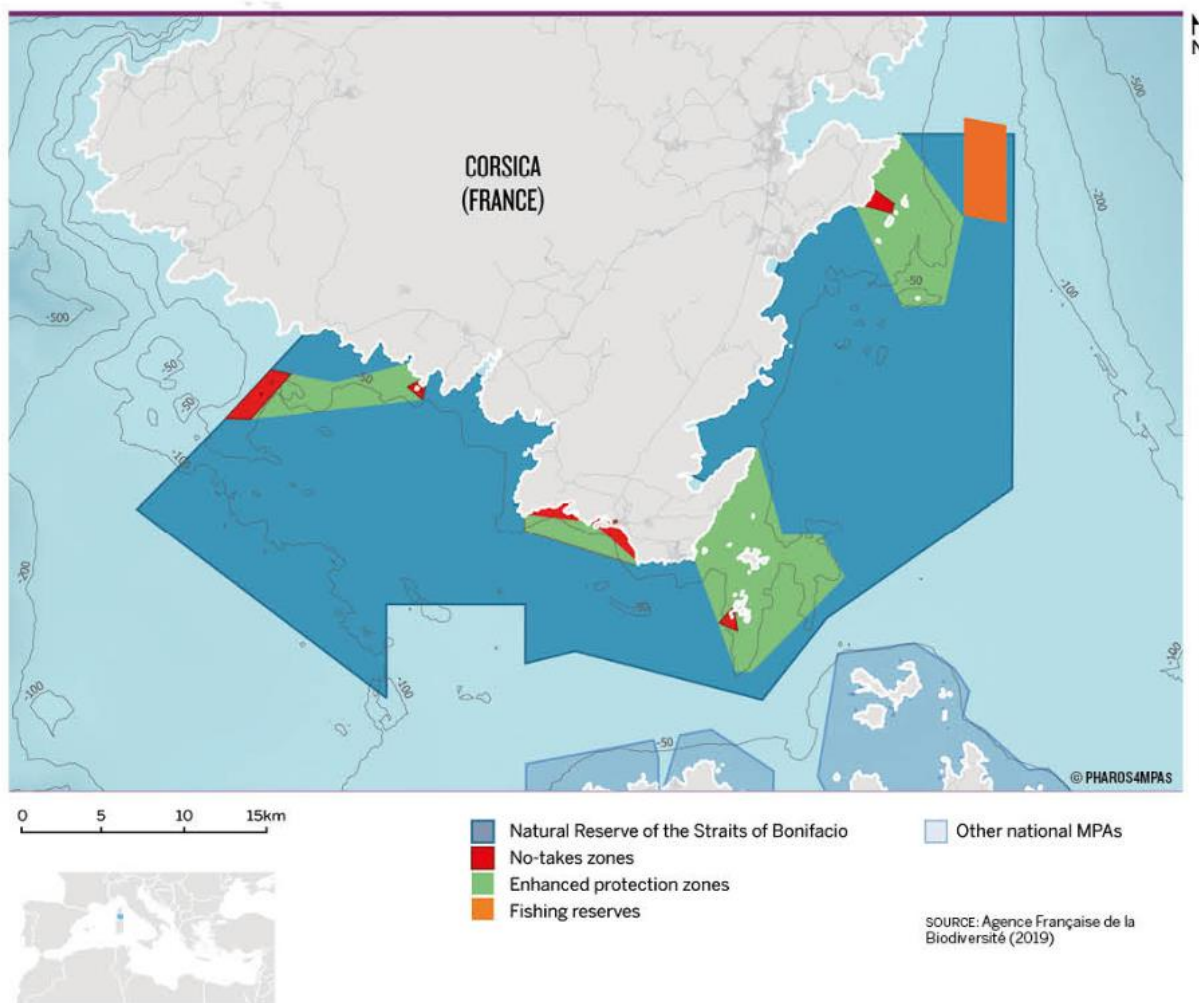


Figure 5. Map of the Natural Reserve of the Straits of Bonifacio, France, showing the different protection zones²²

²² Source: Piante C., Kapedani R., Hardy, P.-Y., Gallon S. (2019). *Safeguarding Marine Protected Areas in the Growing Mediterranean Blue Economy. Recommendations for Small-Scale Fisheries*. PHAROS4MPAs project. 60 pages.

5.3 The "Spill-Over" effect in Torre Guaceto MPA, Italy

Fully protected areas can support marine populations outside MPAs when eggs and larvae drift, or adults migrate beyond MPA borders, in what is known as the "Spill-Over" effect. Scientists studying the Torre Guaceto MPA found that the high number of large sea bream that inhabit the MPA produce enough eggs and larvae to replenish both the MPA and areas outside it. As Figure 6 shows, the benefits are felt more than 100 km beyond the MPA's boundaries.²³

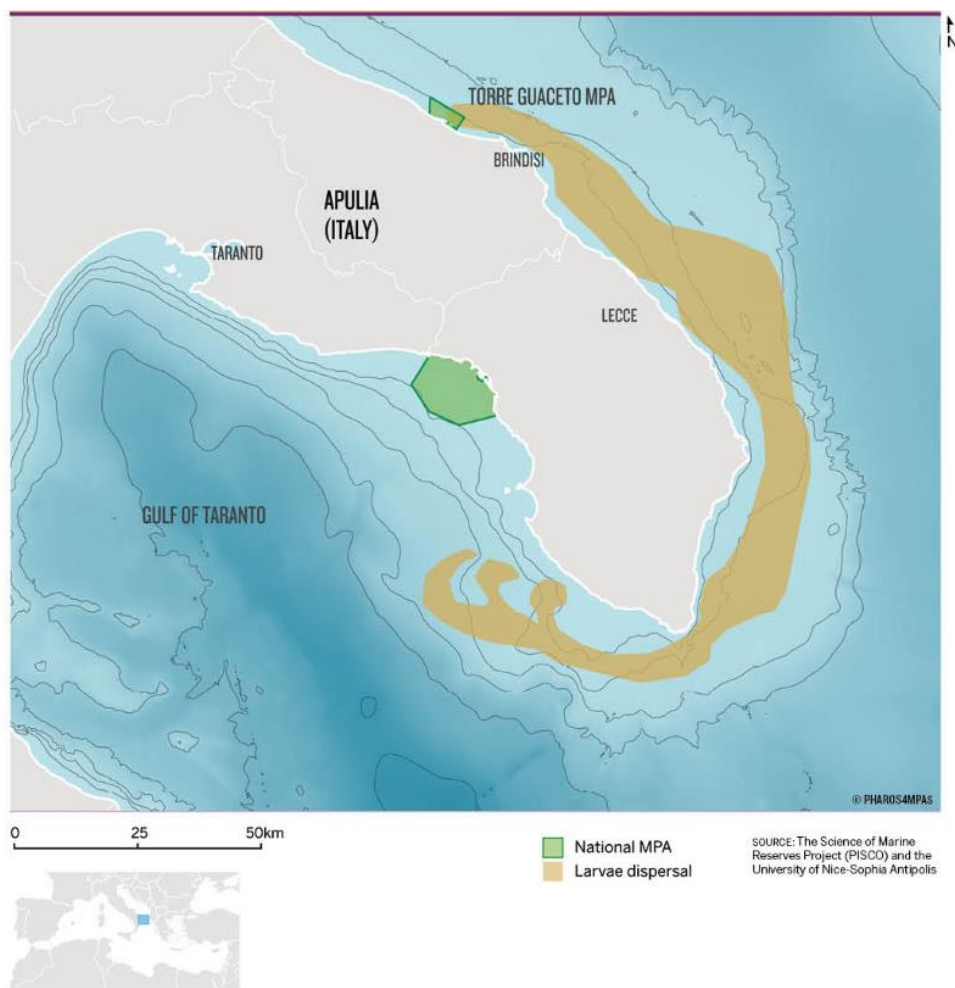


Figure 6. Ref: PISCO Science of Marine Reserves (2012). Torre Guaceto egg & larvae dispersal.
Online: <http://www.piscoweb.org/gallery/torre-guaceto-egg-larvae-dispersal>

²³ Di Franco A, Gillanders BM, De Benedetto G, Pennetta A, De Leo GA, et al. (2012) Dispersal Patterns of Coastal Fish: Implications for Designing Networks of Marine Protected Areas. PLOS ONE 7(2): e31681.

6 LESSONS LEARNED

From the case studies above, but also from a number of interactive meetings (Rome, Nov. 2018 and May 2019) in which different case studies were presented and discussed, there are a number of lessons learned that could be of great utility to policy-makers, planners and local authorities dealing with natural resource management, and, in particular, co-management in the Mediterranean region.

6.1 Effective co-management requires solid monitoring

Any management plan is only as effective as the reliability of its data. Unfortunately, the SSF sector often lacks such data both inside and outside MPAs. Moreover, **there is a mismatch in the scope and scale of local and supra-local co-managed plans** with respect to the EU's Data Collection Framework. To overcome this challenge, an **EMFF-funded Data Collection Programme in Support of Fisheries Management** was established in Catalonia to support the co-management of fisheries.

In the Egadi Islands monitoring is funded through an agreement between the MPA management body and associations with which the local fishing cooperatives are registered, with a small fee being paid to fishers (PHAROS4MPAs, 2019).

The SSF monitoring protocol guide produced by the **MedPAN** network is a key resource in this respect (MedPAN, 2018). It advocates for SSF monitoring in MPAs to be science-based while integrating the fishers' traditional ecological knowledge.

The use of technology to support the real-time monitoring of local and transboundary conditions can provide benefits in terms of early warning systems to act before situations escalate. The **EcoSustain** project has successfully tested real-time tools to monitor water pollution. These tested tools could be applied to other indicators in addition to water quality. The **Integrated Monitoring and Assessment Programme (IMAP)** and its related assessment criteria is an opportunity to make possible, for the first time, a quantitative, integrated analysis of the state of the marine and coastal environment in the Mediterranean, covering pollution and marine litter, biodiversity, non-indigenous species, the coast, and hydrography; based on

common regional indicators, targets and Good Environmental Status descriptions. Advancing this effort will require educational tools and training programmes, especially to move towards the long-term vision of facilitating cumulative impact assessments.

Key aspects of an SSF monitoring approach include (PHAROS4MPAs, 2019):

- Adopting a systemic approach that considers fishing activities inside and outside the MPA.
- Using comprehensive and reliable data for habitat mapping.
- Using genetic tools to define stocks' identity, status, distribution borders and connectivity.
- Building a more detailed understanding of the SSF fishing fleet operating in and near the MPA. Data should not be limited to the number of fishing vessels, but should also include fishing effort, gear, number of fishers, target species, bycatch, landing value etc.
- Regular monitoring of fishing effort. Captures Per Unit Effort (CPUE) needs to be measured in areas of different protection status) to assess the effectiveness of the zoning.
- Monitoring SSF socio-economic parameters.

A basic prerequisite for engaging fishers in MPA management is that the MPA be able to ensure an acceptable level of oversight over the territory. Fishers will expect the MPA to contribute effectively to the proper use and enforcement of the fishing area. The MPA must, therefore, have a specific strategy to address illegal fishing practices, such as trawling in the coastal zone, poaching, the illegal sale of catches etc (PHAROS4MPAs, 2019).

6.2 Considerations for the development of co-management plans

As part of any co-participatory approach to the management of natural resources, there is a need to include a participatory planning process that fosters an inclusive, on-going, community-led dialogue on resource management issues, and enhance awareness and engagement for more effective management planning, compliance and enforcement processes.

Each MPA should have its own fisheries management plan, encompassing (PHAROS4MPAs, 2019):

- A description of the fishery, especially its current status and any established user rights.
- The management objectives.
- How these objectives are to be achieved.
- How the plan is to be reviewed and/or appealed, and the consultation process for reviews and appeals.

Proactively establishing a permanent and close dialogue with the SSF sector is crucial to implementing management actions aimed at avoiding and minimising the impact on target and non-target species and habitats, reducing conflicts with other sectors (e.g., recreational fisheries) and maximising the economic benefits for professional fishers (PHAROS4MPAs, 2019).

Five “enabling conditions” for a successful governance system of Small-Scale Fisheries, as identified by FISHMPABLUE2:

1. MPA enforcement (surveillance and monitoring)
2. Fishers’ engagement in MPA decision-making
3. Knowledge and ownership
4. Sustainable fishing
5. Profitable fishing

The **CONFISH** project provides a good example of **scientists and local communities working together** to define and identify a common vision for a sustainable community and successful management of the marine ecosystem. The results of this project are very important for fishery management plans, as it recognises that the welfare of local communities and ecosystems goes hand in hand.

Specific management measures may include (PHAROS4MPAs, 2019):

- Reducing fishing effort through, for instance, seasonal or temporary closures in adjacent zones; gear restrictions; or time limitations on fishing (maximum 24 h).
- Improving the selectivity of fishing gear.
- Reducing the incidental catch of elasmobranchs, seabirds, turtles and marine mammals through mitigation measures.
- Minimising bycatch and reducing discards through regulations or economic incentives.
- Minimising the impacts of SSFs on vulnerable marine species through gear, size or seasonal restrictions.
- Reducing ghost fishing catch by collecting lost fishing gear.
- Implementing waste collection plans at landing sites.

6.3 Providing added value: the ecolabelling of sustainable SSF products

Ecolabelling can increase the value of key species and/or improve the image of other under-appreciated alternative species. For example, the Es Freus Marine Reserve in the Balearic Islands supports the local fishers' PEIX SI certification: this guarantees that labelled products come from local SSFs, and ensures their traceability from boat to plate. After a trial period, the certification procedure is now the preferred standard (PHAROS4MPAs, 2019). Likewise, the Catalan model proposes new legislation on fish commercialisation to provide for a specific **"fish from locally co-managed fisheries"** label.

6.4 Education and awareness-raising among consumers

It is important that consumers be made aware of the environmental and social benefits of buying sustainable seafood products from small-scale fishing communities (PHAROS4MPAs, 2019). This not only will promote the local economy, but will also empower consumers to make informed choices.



6.5 Replicability and upscaling

The analysis of case studies shows that replication is not always directly possible, and is heavily linked to local cultural and socio-economic models, especially in the Mediterranean. Involving multi-stakeholders in co-management models is not a simple "cut & paste" recipe, but requires local adaptation.

In order to identify and absorb the key results and messages from the community of projects by the participating countries, and foster regional cooperation the **Mediterranean Biodiversity Protection Knowledge Platform**:

- Publicises effective methodologies, key project results, and actions for biodiversity protection. By bringing together scientific evidence, practice and policy, this platform aims to become an entry point for all the results from the Inter Reg Med Programme, and a knowledge base to support regional environmental decision-making in Mediterranean Protected Areas and beyond.
- Provides an overview of the projects in the PANACeA community, allowing users to easily project details, such as partners and pilot sites involved.
- Is a capitalisation tool including key results and information about our community of projects, together with access to relevant environmental and biodiversity data from external sources.

Furthermore, the issue of scale should not be overlooked, and building bridges that span the ecological and administrative scales must also be considered.

Networking is a key aspect to facilitate transferability. The Interreg MED Biodiversity Protection Community, in the framework of PANACeA, and other types of networks, such as FLAGs, play an important role in this sense, and are needed.

At the ecological level, the issue of scale is also of importance as larger areas are naturally more resilient to (human) impact. More MPA coverage is required, especially in the Mediterranean Sea, where approximately 50 % of all EU MPAs measure less than 30 km², and a high proportion of these are below 5 km².²⁴

²⁴ www.eea.europa.eu/publications/marine-protected-areas

6.6 Research and data collection

Tailor-made data collection schemes provide sound, evidence-based insights into spatial and temporal patterns, and the status and functionality of the marine ecosystem. For these reasons, data needs to be adapted to fulfil its purposes, and suitable for scientific interpretation.

The sharing of findings can help familiarise people with the importance of protecting fish stocks and key marine habitats. Used in this way, research and data can be used not only to monitor the status of ecosystems and species, but also to enhance the capacities of local managers and communities. In order to achieve this, it is essential to find the right language and translate the "scientific" language into a comprehensive, easy-to-understand pedagogical one.

However, research needs to provide not only data, but also scientific advice tailored for quick and adapted decision-making. In this regard MPAs can play a role as "laboratories" to test and fine-tune tools and practices that work best for nature protection and management adapted to local communities.

Due to this transversal nature, a multi-disciplinary approach is needed, as there is a need to engage and involve more socio-economists in the analysis of fishery co-management activities.

At the local level, there is a perception of a mismatch between the scope and scale of co-managed local and supra-local plans relative to the EU's Data Collection Framework.

6.7 Governance frameworks

The successful, long-term management of natural resources requires an institutional framework capable of balancing the needs and wishes of the different stakeholders with ecosystems' carrying capacities. Attention should be given to strengthening the institutional framework at the appropriate level. The same applies to the legal framework.

Overcoming conflicts of competences and inconsistencies between legal and institutional frameworks remains a challenging issue in many countries (e.g., how the conservation authority relates to the fisheries department). The establishment of supervisory, advisory or oversight bodies, coordinating commissions, cooperation protocols, joint policy statements

and prearranged agreements between various government departments and other stakeholders, or specific MPA authorities, are needed to overcome these issues (PHAROS4MPAs, 2019).

The case study of the Calanques National Park in France is a good example of a working group at the local scale which has helped to establish effective coordination between all the actors concerned in MPA control and surveillance.

Fighting poaching in Calanques MPA

The Marseille public prosecutor's office has set up a body –the Calanques Operational Group (GOC)– comprised of the control authorities, the prosecutor's office, the managing team and rangers at the Calanques National Park. The group meets twice a year, sets priorities and strategies for control, discusses on-going legal procedures, and draws up an annual report on the actions carried out.

Thanks to this collaboration, in 2018 four men were convicted of a major poaching operation²⁵ in the Calanques National Park. These poachers had illegally caught more than 24,000 sea urchins, and hundreds of kilograms of fish, including protected and vulnerable species, including the dusky grouper (*E. marginatus*), and molluscs, with experts estimating total ecological losses at €166,000. The men were given suspended prison sentences of up to 18 months and were banned from the Calanques National Park. The Park also brought a civil case in which the court will issue the first judgment ever as to how much money in "environmental damages" those found guilty must pay a park in restitution.²⁶

Source: PHAROS4MPAs Recommendations for Small Scale Fisheries.

²⁵ <http://medpan.org/poaching-in-the-calanques-national-park-a-historical-trial-in-marseille/>

²⁶ www.theguardian.com/world/2018/oct/13/pirates-of-mediterranean-divers-plunder-endangered-fish-marseille-calanques-national-park

7 POLICY RECOMMENDATIONS

Recommendation #1 – Biodiversity protection should be “mainstreamed” at the highest level in regional governance initiatives, going beyond mere environmental initiatives and placing conservation and protection objectives at the same levels as economic and social objectives. In addition, all stakeholders, not only those working on biodiversity protection, should be engaged.

An efficient ecosystem-based method for managing natural resources must rely on managing all the human activities that exploit these resources. Therefore, biodiversity protection should be addressed at the highest level in all regional governance initiatives, not just “environmental” ones, placing the conservation of natural resources and ecologically important units at the same level as economic and social objectives, and engaging the private sector. Ecosystem-based management should be an integral component of regional sustainable development policies, strategies, plans, projects and activities.

Recommendation #2 – The full implementation of existing environmental policies in the EU and the application of viable solutions reached through research into ecosystem health need to be established as guiding instruments for the Blue Economy.

The full implementation of existing environmental policies (Birds and Habitat Directives, Water Framework Directive, Marine Strategy Framework Directive) is a pre-condition for blue growth, as these policies are the foundation to our seas’ Good Environmental Status (GES).

Recommendation #3 – Supporting Mediterranean ecosystem-based management requires action on different fronts, from sharing data and assessments, to the design of shared policy objectives and programmes, implementation, capacity building and cooperation.

Action at the EU level must be coupled with action across the whole Mediterranean basin. Initiatives such as the Union for the Mediterranean, BlueMed and WestMed are key to facilitating cooperation between Northern and Southern Mediterranean countries, advancing joint governance. Such governance should be broadened to include the private sector, and not only those stakeholders working on biodiversity protection.

Current efforts in support of the development of a coherent network of Protected Areas in the Mediterranean should be sustained, capitalising on existing initiatives, such as the network of MPA managers in the Mediterranean (MedPAN). Protected Areas are not only regulatory boundaries, but also social areas of negotiation and consensus. They need to be expanded as a step forward towards working within ecoregions, and their management should fit into the actions of wider management schemes in coastal and marine areas.

Recommendation #4 – Engage local communities in the management of protected areas and involve local stakeholders, the private sector and civil society.

Experience has shown that the perceived challenges or threats associated with the ownership of natural resources, and the social and economic drivers that shape actions to manage such resources, vary greatly from one community to the other. Co-management schemes can provide a way to identify drivers, bring traditional and scientific knowledge together to direct better decision-making, and reach consensus on effective actions.

There is a need to further strengthen the connection of future projects with society at the local level by implementing actions that raise awareness in local communities and involve local authorities, and by developing participatory science initiatives on co-management, like the ones implemented in the context of the **FishMPABlue2** project, which provide tools and methodologies to guide co-management models in MPAs. Moreover, strategies tested by the **WETNET** project provide guiding tools and methodologies to support stakeholder consultation and participatory processes.

Recommendation #5 – Support an increase in economic, human and technical resources and the capacity of MPA managers to undertake management and monitoring, and be empowered to rise to the challenges entailed by the emerging Blue Economy.

Train personnel on using the geospatial tools developed by the Biodiversity Protection Community (i.e., the **Knowledge Platform**) and ensure that funding mechanisms require the development of geospatial tools that are user- friendly and can be easily used in an effective manner by MPA managers.

The emerging Blue Economy is increasing the need for space for economic activities at sea, which will require greater conservation efforts to maintain the ecological balance of MPAs. The **PHAROS4MPAS'** project, an integrated framework of recommendations on practical

collaboration between Mediterranean MPAs and key maritime sectors, can help to address this emerging need, transferring such practices to other MPAs across the Mediterranean and supporting relevant policy frameworks.

By encouraging international collaboration across MPA networks and cooperation between the State, industry and other actors, **PHAROS4MPAs** aims to enhance the effectiveness of MPA management and improve the conservation of marine ecosystems across the whole of the Mediterranean (Piante, 2019). To this end, it provides a set of practical recommendations (which have been incorporated into this report, as appropriate) for regional stakeholders on how the environmental impacts of key sectors can be prevented or minimised.

Recommendation #6 – Effective MPA management requires harmonising and standardising data at the local scale.

Effective ecosystem-based management requires local data for large-scale assessments. The availability of long-term data is very scarce, and MPAs are not really engaged in gathering long-term monitoring data, which adds to the difficulty of understanding the bigger picture. To address this challenge, the **AMAre** project has delivered a spatial geo-portal where local data is stored, managed and shared within each MPA, and between others.

Recommendation #7 – Addressing regional pressures to reduce impacts on Mediterranean ecosystems requires transboundary governance approaches that link regions together.

In recognising the Mediterranean as a shared ecosystem, there is also a recognition that the governance and management of resources needs to be approached in a transboundary way in order to unite regions and work towards common goals.

Recommendation #8 – Periodic and practical face-to-face exchanges are needed to ensure the coordination of research and management efforts to protect biodiversity at various levels; in particular, to mainstream Mediterranean biodiversity protection tools into national initiatives.

This was one of the conclusions of an interactive workshop hosted by Spain's **Ministry for the Ecological Transition (MITECO)**, organised by ETC-UMA and MedCities in July 2019. It brought together over 40 key national actors to address the results of Interreg MED Biodiversity Protection Community projects.

Recommendation #9 – Secure the sustainability of the Community's achievements.

By ensuring the creation of a permanent link between Community outcomes and existing, Mediterranean-wide knowledge platforms, in order to promote the accessibility of available resources, the transferability of the knowledge and tools generated, and the replicability of the solutions tested.

Initiatives such as **BlueMed**, **WestMed** and **PANORAMED**, which allow for a permanent dialogue between national and regional public authorities and stakeholders and defining shared approaches, policies and strategic projects, are key, and will be targeted as recipients of the results and findings of projects by the Interreg MED Biodiversity Protection Community.

Such initiatives support the process of strengthening and developing multilateral cooperation frameworks in the Mediterranean region for joint responses to common challenges and opportunities.

The Mediterranean [Ecosystem-based Approaches for Biodiversity Protection and Management](#) declaration, for example, should be considered with a view to upcoming actions slated for the future (2019-2022) in the framework of PANACeA's extension.

Recommendation #10 – National Public authorities should decentralise governance in fishery management, and encourage a participatory approach engaging local stakeholders in MPA management.

The participation of fishers in MPA designation, planning and management, through co-management, or other processes, is essential. For this to be successful, small-scale fishers need to come together to ensure their voices are heard within European, national, regional and local institutions (PHAROS4MPAs, 2019).

The Catalan model showcases the use of legislation to ensure the place of fisheries as a cornerstone of the Blue Economy. It identifies the rights and responsibilities of the different actors identified, contributing, in this way, to the sustainable use of fisheries.

Recommendation #11 – Shared governance and rights to support co-management and sustainable use.

When local communities are given shared governance and legal rights to protect their own resources, a valuable sense of ownership provides the incentive to sustainably govern and

manage the surrounding natural resources, allowing for the goals of biodiversity conservation to be reconciled with the needs of local communities.

Recreational fishing places are a major pressure on resources within MPAs, as compared to small-scale fisheries (PHAROS4MPAs, 2019). Co-management models oriented towards small-scale fisheries should take into consideration the pressure from recreational fishing by, for example, giving local fishers specific rights favouring local and artisanal fisheries.

Recommendation #12 – National authorities: facilitate funding and financing for research on biodiversity.

National authorities should both contribute to financing fundamental research on marine ecology and conservation, as well on fishery sciences; and influence future financing frameworks, such as **Horizon Europe**, to include support for innovative biodiversity protection solutions to ensure progress towards a truly sustainable Blue Economy.

National authorities should be targeted to ensure that they contribute to financing basic research on biodiversity, and that they influence forthcoming financing frameworks, such as **Horizon Europe**, to include support for innovative biodiversity protection solutions to ensure progress towards a truly sustainable Blue Economy. The European Commission only manages 10-15% of funds for marine research in Europe, while 85%-90% is managed by National Authorities, even if they come from the EU.

Annex 1

Key objectives and actions of the Regional Plan of Action for SSFs include:

- Recognise the status of small-scale fisheries in the Mediterranean and the Black Sea, considering their regional specificities, experience, knowledge and contribution to the cultural heritage of local communities
- Recognise the socio-economic specificities of small-scale fisheries, such as the seasonality of their activities and the variability of their income
- Support livelihoods for coastal communities, especially in remote/rural areas, through sustainable small-scale fisheries
- Ensure fishers are aware of the need to reconcile economic and social objectives with environmental objectives, and held accountable in this regard
- When relevant, encourage the creation of bodies/associations to better structure, organise and represent the sector in a specific way in all decision-making processes. Strengthen and recognise existing small-scale fisher organisations and platforms, including associations of women, as stakeholders to be considered
- Improve the ability to collect relevant data on small-scale fisheries and benefit from small-scale fishers' traditional knowledge of the marine environment
- Provide equitable access to fishery resources for small-scale fishers by considering the socio-economic and cultural role of their activity in local communities
- Facilitate direct access to markets and public services for small-scale fishery communities, and take action to promote and uphold local and fresh fish
- Give adequate attention and financial support to small-scale fisheries without unduly favouring large-scale operators
- Ensure the proper establishment of monitoring, control and surveillance systems appropriate for small-scale fisheries
- Promote access to and the use of new technologies within small-scale fisheries, with a view to improving safety, as well as monitoring, control and surveillance
- Promote fishing practices that minimise bycatch and impacts on the marine environment
- Prevent any practice that would contribute to an underground economy and illegal, unreported or unregulated (IUU) fishing activities

- Avoid any policies that may contribute to overcapacity or may negatively affect small-scale fishing communities
- Reinforce support for and promotion of the sector; specifically, for locally caught fish, in order to maximise the economic benefits of small-scale fisheries
- Support the diversification of activities to ensure the sustainable development of the sector and coastal communities
- Promote the diversification of catches and quality over quantity so as to provide an advantage to small-scale fisheries with benefits for consumers, fishers and the environment
- Promote the improvement of fishers' qualification levels and skills
- Ensure that the establishment of MPAs is carried out in a participatory manner, taking into consideration the reality of small-scale fisheries' livelihoods
- Take due account of small-scale fisheries in marine spatial planning, including their interactions with other sectors, such as other commercial fishing sectors, recreational fishing, aquaculture, renewable marine energies, oil drilling, transport and tourism
- Encourage high-profile participation by small-scale fisheries' representatives in national and local decision-making and advisory processes when devising fishery-related and other relevant policies affecting the environment, transport, tourism and infrastructure
- Promote decent work and working conditions throughout the entire value chain for small-scale fisheries
- Consider the particular role of women in the economy of small-scale fisheries and coastal communities
- Recognise and consider the impact of natural and human-induced disasters and climate change on small-scale fisheries.

Annex 2

- AMAre: <https://amare.interreg-med.eu>
- CONFISH: <https://confish.interreg-med.eu>
- EcoSustain: <https://ecosustain.interreg-med.eu>
- FISHMPABLUE2: <https://fishmpablue-2.interreg-med.eu>
- PANACeA: <http://panaceaweb.adabyron.uma.es>
- PHAROS4MPAs: <https://pharos4mpas.interreg-med.eu>
- WetNet: <https://wetnet.interreg-med.eu>



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