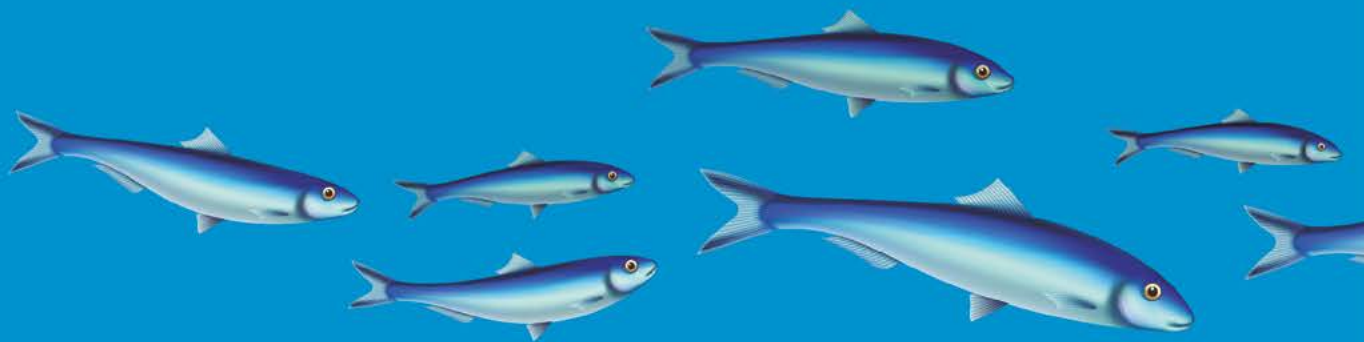


## Fisheries Co-Management in Catalonia





### **Sergi Tudela Casanovas**

General Directorate for Maritime Policy and Sustainable Fishing

Fisheries co-management is a fisheries governance model based on the participation of all the actors in the decision-making process. Catalonia was a pioneer in Europe in establishing a formal regulatory framework through a Decree approved five years ago that establishes that each fishery will be managed at a local level through a Co-Management Committee made up of representatives of the administration, the fishing sector, from the scientific field and environmental organisations. All four groups had equal conditions regarding decision-making. This is a revolutionary situation because it allows decentralised, intelligent and adaptive bioeconomic management. In this context, it is essential that the fishermen themselves assume control of their activity; they are invested in the management measures because they have participated in the definition of the rules and are therefore committed to their application.

Since the publication of the Decree on the governance model of professional fishing in Catalonia, in 2018, eight Fisheries Co-Management Committees have been created involving 55% of the country's small-gear vessels. In addition, the co-management approach has permeated practically the entire Catalan sector, which translates into a new working

dynamic with the full involvement of scientists, the sector and the Generalitat de Catalunya's administration.

On the other hand, the citizen, as a consumer, must also feel a connection with co-management because it provides a local product and contributes to ensuring food sovereignty. Participatory management offers the consumer the possibility of accessing a locally-sourced product, of excellent quality, with a social and also environmental commitment.

We have achieved renewed levels of trust between fishermen and scientists, as well as with NGOs, and we have witnessed situations that were unthinkable just a few years ago, such as fishermen letting go spawning octopuses of great commercial value in the belief that this forms part of applying good management.

We have been pioneers in a highly successful fisheries governance model that in recent years has been recognised by the highest international authorities, most recently the plenary session of the European Parliament. We think, in all modesty, that the work carried out here - including the various lessons learnt - can be of interest at various levels, both inside and outside the country. This is the purpose of this *dossier*.

### **Dossier Tècnic. No. 126**

Fisheries Co-management in Catalonia  
February 2024.

### **Publisher**

General Directorate for Agri-Food Companies, Quality and Gastronomy.

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### **Printed by**

EADOP

### **Legal deposit**

B-16786-05.  
ISSN: 1699-5465.

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### **Department of Climate Action, Food and Rural Agenda.**

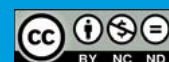
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# FISHERIES MANAGEMENT in Catalonia



**Photo:** General Directorate for Maritime Policy and Sustainable Fishing. DACC.

## 01. From management to co-management

Fishing is a natural, renewable, mobile and common resource, it therefore belongs to a common heritage, and as such requires common rules. The Common Fisheries Policy of the European Union governs all Member States and obviously its fishermen. Common rules with the aim of preserving fish populations, protecting the marine environment, guaranteeing the economic viability of the fishing fleet and

providing consumers with quality fish.

Fisheries management can be defined as making decisions that affect the resource and its environment, guaranteeing long-term profitability and environmental sustainability. It cannot be forgotten that the purpose of fishing is that there is an economic return for the fishing sector by keeping the fish populations and their environment in good condition. It is necessary to understand the importance of framing the regulatory context at European, State and

Autonomous Region level according to the competence assigned, and to have a scientific monitoring of excellence, which allows quality advice in the decisions to be made.

In our country, classic fisheries management, in a simple and schematic way, requires finding the fit within the corresponding fisheries law and launching a scientific evaluation project to determine the biological aspects of the population to be exploited to establish the level of fishing



effort and the conditions under which the modality in question can be authorised. At the end of this preliminary analysis, it is necessary to promote the publication of a regulation of technical management measures that will govern the fishery, with technical measures such as establishing catch quotas, periods of bans, limitation of fishing gear and minimum sizes for capture. Given the long duration necessary for the processing and publication of the regulatory provision, it may be the case that at the end of the process the set of approved technical measures no longer meet the real management needs that fishing requires.

The rigidity of the provisions approved in the traditional management model contrasts with the constant evolution and dynamics of fisheries, this may have been the cause of the failure of a model that has led us in many cases to situations of overexploited fisheries and even to the collapse of some of them. Within the framework of this model, there have been many examples of overexploitation at global level and also at the level of our Mediterranean.

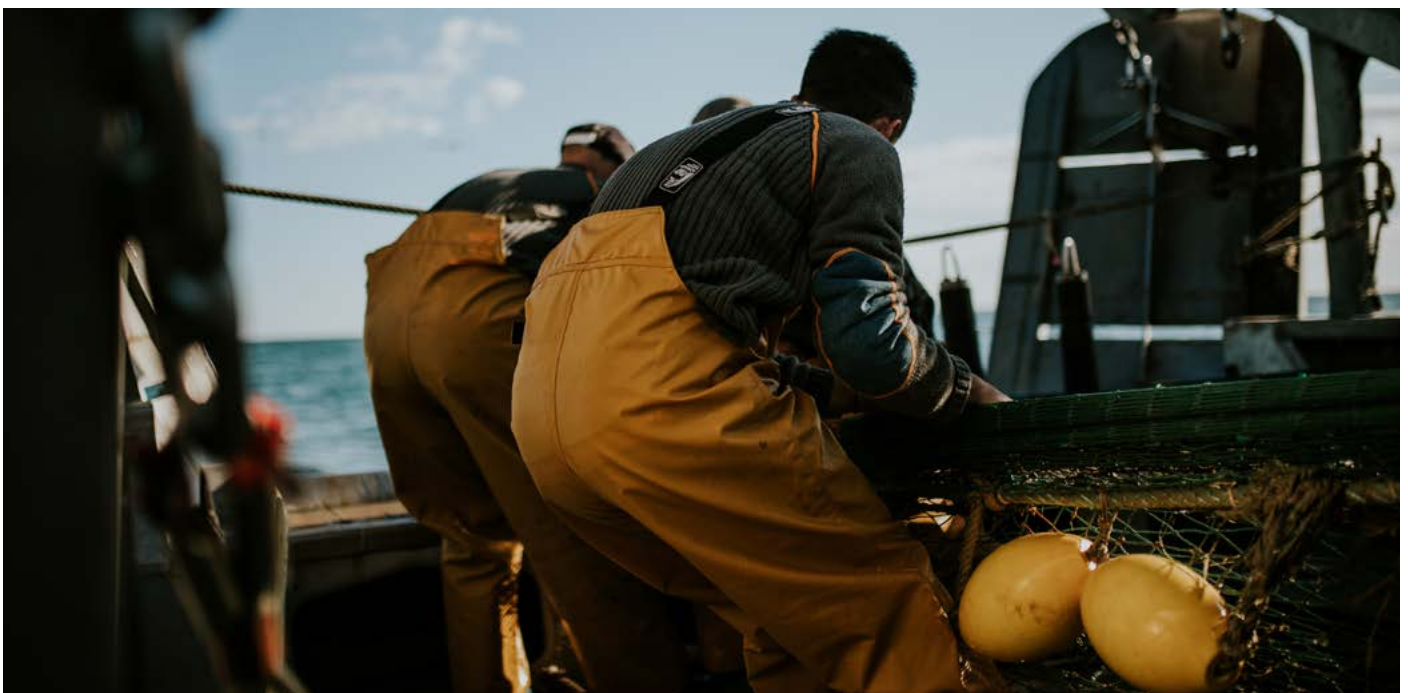
The Catalan Fisheries Administration, after some pilot experiences in participative management, gave very serious consideration to the need to promote an alternative model of fisheries management that today we call “fisheries co-management”.

Among the previous experiences, we cannot forget the so-called “Castellón Plan”, valid between the years 1960-1966, based on a model of close collaboration between fishermen and scientists with the aim of recovering trawl fishing in an area where its fishery had collapsed. Only by imposing strict control over the fishing effort through days of stoppage of fishing activity, the so-called bans, was a remarkable recovery of the resource able to occur in the applied areas which allowed the continuation of the fisheries up until today.

The second of the sources that have helped to create the Catalan model of co-management has been the article by Dr Jordi Lleonart, researcher at the Institute of Marine Sciences ICM-CSIC, published in 1996 on fishing in Catalonia and its management. In the aforementioned publication, in which

he provides a detailed X-ray of fishing in Catalonia, he introduces the concept of “adaptive management” in order to avoid a possible “fishing crisis” and highlights the need for the Administration to plan the management of the fisheries together with the intervention of the fishing sector and the scientific community, understood as the set of biologists, economists and sociologists. In fact, he makes a premonitory proposal that we shall quote here verbatim: “The physical size, which is relatively small, of Catalonia and the characteristics of its fishing, without the presence of large companies, place it in an optimal situation for developing a fishing regulation plan, which did not exist until today, and which could serve as pilot model for other areas of the Mediterranean and even the world.”

The third of the necessary experiences in the evolution and genesis of the co-management model was the experience gained in the management of the red prawn fishery of the Palamós fleet. This monospecific fishery captures almost exclusively red prawns by trawling at depths between 400 and 900 metres. These conditions have



**Photo:** General Directorate for Maritime Policy and Sustainable Fishing. DACC.

made it suitable for specific management. The fishermen in the area of Palamós who depended mostly on the catches of this species promoted during 2005 the creation of a Technical Commission for the improvement of Fishing and together with scientists from the Institute of Marine Sciences (ICM -CSIC) and from the University of Girona and staff from the Administration managed to get the Central State which has the purview of fisheries in external waters to publish in 2013 the rule that governs the red prawn fishery and its fishing grounds and which features continued monitoring by the established Working Group.

The last and definitive of the experiences in management that culminated in the creation of the Catalan model of fisheries co-management was the establishment of the Co-Management Committee of the “Sonsera” Sand Eel Fishing Management Plan (CCPGS). This ancestral fishery, tied to the territory and practiced from the north of Barcelona all the way to Cap de Creus, was technically prohibited by European regulations on 1 June 2010. However, the Regulation in question provided for the possibility of obtaining an exception from having to comply with the technical measures that made fishing impossible. This possibility prompted the affected fishing sector to seek scientists, environmental organisations and the administration itself to work together. In 2012, the CCPGS was formed, made up of representatives of environmental organisations, scientists, the Administration and the fishing sector itself. A request was made to the European Commission regarding the possibility of temporarily authorising the fishery as part of the scientific monitoring necessary for the establishment of a management plan that would later receive the green light from the Scientific, Technical and Economic Committee for Fisheries of the European Commission. This joint work had its fruit with the approval of the management plan of the European Commission itself and

the publication of the Regulation on Exceptions, which has allowed this fishery to continue until today.

The need to develop the instruments that allow the Generalitat of Catalonia to establish its own maritime policy led to the approval in 2016 of the Generalitat's Maritime Action programme with the purpose of responding to the challenges of developing the blue economy in a sustainable and harmonious way through an integrated management of the sectoral activities that have an impact on the Catalan maritime space. The programme had the function of developing the necessary elements to configure a proposed maritime strategy for Catalonia, which included the arrangement of its space. The Catalan Maritime Strategy (EMC from its initials in Catalan) was approved by Government Agreement of 12 June 2018. The principles that have guided the development of the EMC are based on an approach that: integrates the space and the activities that take place there; participative and community; adaptive and knowledge-based; and social economy. The scope of application of the EMC is all the activities that take place in the maritime space of Catalonia, including the different economic sectors, leisure, culture and research, as well as their economic, social and environmental sustainability. With economic development, coastal regions are becoming areas of great economic, tourism-related, ecological and heritage interest, and therefore potential sources of conflicts related to the occupation of space and the exploitation of resources.

Given the experiences described above that had allowed a new way of understanding fisheries management, and the EMC environment, the result could not be other than the publication of Decree 118/2018, of 19 June, on the governance model of professional fishing in Catalonia which has provided the legal structure and operating mechanisms of the new spirit of communal management that has been emerging in the fishing

sector and has at the same time led to the adoption of self-management measures by fishermen. Measures which are appropriate, tending to guarantee the future viability of their activity and consequently of the resources that are extracted from the sea and its habitats.

The deployment of the Management Plans of the new model has been possible within the framework of the autonomous powers:

- **Fishing in inland waters**  
Between the coastline and straight baselines
- **Fishing in continental waters**  
Rivers and lagoons. Basically applicable to the Ebro delta
- **Shellfish-gathering**  
By hand or with fishing gear and equipment directed exclusively and selectively at crustaceans and molluscs



In a more general framework, within the international legal field, the European Union since 2007 has worked on the definition and implementation of the Integrated Maritime Policy (PMI from its initials in Catalan), which aims to provide a more coherent and integrated approach to maritime issues through greater coordination between the different sectoral areas. Otherwise, to contribute to achieving the goals of the Europe 2020 Strategy for smart, sustainable and inclusive growth, the PMI promoted blue growth as a priority in 2012. Thus, emphasis has been

placed on the specific potentialities of the growth of the maritime area in Europe to strengthen the contribution of European policies in its development, while protecting biodiversity and the marine environment in line with the requirements of the Marine Strategy Framework Directive (DMEM).

In parallel, the Conference of Maritime Peripheral Regions (CRPM), of which Catalonia is part, has contributed significantly to the consolidation of the PMI. Through its Inter-Mediterranean Commission (CIM), it has also actively participated in the development of the WestMED Initiative, which has three main objectives: a safer maritime space, a resilient and intelligent blue economy, and better governance of the sea.

However, the EU-led International Ocean Conference in 2017 brought together 112 countries that pledged to strengthen the fight against marine pollution, expand protected areas, strengthen ocean security, boost blue economy initiatives and sustainable fishing and intensify the EU's efforts against climate change, in line with the Paris Agreement and the Sustainable Development Goals of the 2030 Agenda, and to put the financial means to carry it out.

The Catalan Government also wants to be a proactive actor in key strategic processes within the framework of the European Union (EU), such as the application of the Directive on maritime space management or the WestMED initiative to define of a maritime strategy for the western Mediterranean.

Catalonia's Maritime Strategy and its governance system, the Catalan Council for Co-Management (CCCM), represent Catalonia's commitment to the guidelines set at international level.

The maritime policy is structured for the first time as a country policy, and the competences for its development

appear in the structure of the Department of Climate Action, Food and Rural Agenda.

The Administration unit of the Generalitat responsible for matters of Maritime Policy must carry out the coordination of the activities that take place in the maritime space and ensure that an integrated maritime policy that respects the ecosystems is carried out, and must take into account other country policies such as the directly linked port policy and coastal policy. It is not possible to understand a policy that deals with the activities and uses that take place in the maritime space without taking into account and coordinating closely with coastal and port policies and strategies. For this reason, the CCCM must also and prominently take into account the local administration and supra-municipal bodies, such as regional councils and councils through working groups and *ad hoc* groups, and likewise, all the actors and agents of the maritime transport, port and coastal infrastructure sectors that are complementary to those already mentioned.

## 02. Fishery co-management according to the different actors

### 02.01 Vision of the fisheries sector on fisheries co-management

Fishing in Catalonia is coastal. We go fishing daily and return to port every day. This is very important to keep in mind; the fish caught in the morning is being sold in the market in less than twelve hours, indeed fishmongers can sell it the same afternoon. From sea to table on the same day!

The fishing ports of Catalonia have been basic pillars in the economy of the fishing towns since the time of the Greeks, as they were the gateway to the Iberian Peninsula for ships from the Mediterranean. Major fishing ports started as fishing villages, then evolved into other activities until the arrival of tourism which

helped usher us along to where we are today. In distant times, there were plenty of fish and fishermen made a very good living. The pressure of other activities at sea, allied to regulatory pressure and declining catches began to have an impact which meant a reduction in catches and also in the Catalan fishing fleet, we currently have 50% of what was there during the 1980s.

Focusing on co-management, I can affirm that from the sector itself we were among the first to start acting in this way, with the help, of course, of the scientists who followed us; we worked on the "hake recovery plan", a pioneer in the Mediterranean. Speaking as the chief patron of a fishermen's guild, my colleagues and I were worried about the decline we had in fish catches; if there were no catches, there was no income and fixed expenses increased, which was a problem. We also noticed that in one of the most important fishing grounds where we worked, a lot of small hake came out, our experience as fishermen alerted us that this was a hake breeding area. The same experience warned us that, if we fished the juveniles, it would mean that their population would decrease much more; a second problem, since hake was one of the main species of our fishery. We would meet, we would debate, all in intense and heated meetings, where we would decide to take actions, one of which was to undertake to each other not to go fishing in this fishing ground. First this was for 15 days, which we extended to a month, two months, then we extended the non-fishing rule until now, so this fishing ground has been closed for more than 13 years. Scientists have helped us to follow up and to be able to evaluate the results that we were detecting: the fish has a head and a tail and does not stand still; therefore the bigger ones leave the fishing grounds and a strong recovery of hake has been noticed in this area.

This task has been consolidated in other fisheries, with the co-management

system, where fishermen, scientists, the Administration and environmentalists; it is ideal, because we all know what we know, and we can take the opportunity to put it on the same table, because all we want is to work for the resource, the experiences we have had are remarkable, we are satisfied with this work.

In 2010, it was another clear case when fishing with a sand eel snare was banned. It is a trawling net and the European rules set conditions where it was forbidden to fish with fine mesh, such as catching sand eel and goby, which are very small fish even when they are mature; therefore, from one day to the next, some 26 boats were unable to go fishing the way they had traditionally done. The same regulation also establishes that fishing can be authorised under certain conditions and in accordance with a management plan that must be approved by the European Community. A Co-Management Committee was set up made up of fishermen, scientists from the Institute of Marine Sciences, NGO technicians and the Administration for the preparation of this management plan for the sand eel snare, which they needed to work.

We worked together very intensively and in the end, in March 2014, he published the Management Plan for the Swansera Sand Eel Snare on the Catalan coast, with the approval of the European Commission, which was also published in May of the same year. It was not easy, there were many hours of meetings and discussions, but we succeeded, and it has served as an example for the other committees that have been created subsequently.

Years later the Catalan Administration published regulations on how to work in co-management committees, what they are, who is part of them, which figures are there, because there is a chair of the co-management committee, and a secretary. Here I must say that they make it easy for us, because the posi-

tion of secretary is always occupied by a person from the Administration, who does not have a vote but helps us a lot, this is the person who convenes the meetings, takes the minutes and, after that, I understand does everything that is needed in order to publish the management plan. What I can say is that we work a lot in the committee meetings. We debate bravely, we argue, sometimes it seems that we are not making progress, but we are constant and we usually end with a consensus, we reach a good conclusion, by which I mean good agreements.

In this way we have already constituted 8 co-management committees all along the coast, published management plans, apart from the one for sand eel, there are also those for cuttlefish, blue crab and octopus. I consider, as a representative of the fishing sector, of course, that working in this way, taking into account every little aspect and reaching agreements, we improve our resources, as I have said on other occasions, we are interested in catching euros, not fish, so fishing days must be made profitable. Therefore, co-management is an excellent management tool for our fisheries!

#### 02.02 Vision of the Administration on fisheries co-management

The sea, as a public asset that it is, needs a licence, an authorisation or a special permit, whatever one wants to call it, in order to extract any resources from it, in other words, it is necessary to have administrative authorisation, either from the State or the Generalitat of Catalonia depending on who has the relevant powers.

The aim of current fisheries legislation is to make sustainable all fisheries that are exploited, that are caught. This is technically called maximum sustainable yield, in its acronym MSY. What we want to achieve is that the fisheries can be productive in the present and also remain productive and respectful of the

rest of the ecosystem in the future, that the fisheries can pass from parents to their children (and obviously between generations of fishing families).

The General Directorate for Maritime Policy and Sustainable Fisheries, which is responsible for fisheries regulation, has opted for a highly innovative model at national level, at European level and also at global level, which is the fisheries co-management model as one of the main work strategies with the fishing sector.

The fisheries co-management model means that the Administration, which has traditionally had the capacity to make decisions, establish regulatory provisions and regulate fishing activity, cedes part of this capacity to the rest of the agents directly involved in fisheries management and sea management. In this way, we gather in co-management committees the affected fishermen, the group of fishermen, the scientific community, NGOs, whether environmental or social organisations, and the Administration as a coordinating entity. Also on some occasions we can add other areas, such as other administrations linked to sea use activities, rather than to fishing activity, or recreational fishing groups. This depends, since each committee has its particularities.

In those modalities or those activities that are outside the scope of competence of the General Directorate for Maritime Policy and Sustainable Fishing that depend on the State, we, from the Catalan Administration, promote joint management. That is to say, that in any activity that is regulated by the central government, whether by the European Union, or by supranational bodies such as the General Fisheries Commission for the Mediterranean (GFCM), or the International Commission for the Conservation of the Atlantic Tuna (ICCAT from the acronym in English), promotes the management being carried out in these fisheries as being "joint management", i.e. that the group



of fishermen affected can work in a coordinated manner to carry out and apply these management measures and regulations. Correct management benefits everyone and incorrect management by some of these fishermen is detrimental to the rest. This is the task we have set ourselves as an Administration.

With regard to the examples in which we are working with this joint management, we could talk about the “Multianual Plan” imposed by the EC, which establishes fishing regulations through trawl fishing days, and regulates all demersal fishing activities involving deep sea fish. This regulation in Catalonia has been applied for the last four years, mostly with joint management. Obviously, this way of working has increased the tasks and monitoring that is carried out in the fishermen’s guilds.

With regard to our particular model, that of the co-management committees, in 2018 the regulations were published that protect the operation of the co-management committees, and based on which the Cap de Creus Management Plan has been published for cuttlefish, sand eel, blue crab and octopus. We are proud to be the first to have our own regulation of the operation of fisheries co-management committees. It is an innovative regulation at a global level and we are aware that other countries such as Portugal are starting to follow it.

In fact, in my experience encompassing many years in the Fisheries Administration, it has been in the work meetings held in the co-management committees that I have verified for myself a relationship with the fisheries sector; it is turning out to be a profitable relationship on all sides.

### 02.03 Vision of science in co-management

The Co-Management Committees represent a very useful tool to be able to

manage the fisheries in accordance with the principles of sustainability that we all want for the fishing activity. It is a tool designed for all the actors involved or participating in the fisheries management process (fishing sector, Administration, scientists and society) have an equal voice in making the decisions that affect them. This means that the decisions taken in the Committees comply with democratic and transparency guidelines and at the same time generate trust and easier compliance with the regulations.

In this regard, the participation of science and scientists in these committees provides an ingredient of objectivity and knowledge about the state not only of fishing resources but also of the social and cultural context of fishing activity.

In particular, scientists from the Institute of Marine Sciences (ICM-CSIC), primarily biologists, have participated in most of these committees since their inception, as in the case of the Palamós red prawn committee and the Sonsera sand eel net committee, which were the first functional co-management committees to be created. As biologists, we provide knowledge about the biology of commercial species and how fishing activity affects them.

Later, and already within the Maritime Strategy of Catalonia, and thanks to the creation of the ICATMAR (Catalan Research Institute for the Governance of the Sea), we at the ICM have continued to participate in all the committees, to provide the scientific point of view regarding the sea and the exploitation of fishery resources.

During the technical and plenary sessions of the co-management committees, we were able to show the different actors the scientific results of the study of the populations of organisms of commercial interest from a biological point of view, and for example we contributed knowledge to be able to

design temporary bans and permanent fishing exclusion zones in order to recover exploited populations and ecosystems, and results have also been provided on the application of models and simulations to assess the implementation of technical improvements applied to fishing gear and operations, such as the increase of mesh light (selectivity), the replacement of doors on the bottom with doors in suspension.

The aim, therefore, is that the contributions of science have a relevant impact, and this is the challenge: to move towards the sustainability of exploited marine resources and to achieve the recovery of the populations and ecosystems in the sea in Catalonia.

### 02.04 Vision of environmental associations: a shared responsibility

The coast of Catalonia, like many other regions of the Mediterranean Sea, has been subjected to great anthropogenic pressures such as the dumping of polluting waste, urban growth, tourist exploitation of the coast, as well as heavy pressure from fishing. All these cumulative impacts are further exacerbated by the effect of climate change on the natural balance of marine ecosystems.

Today we are facing a crisis of great environmental degradation that affects the forms of life that are associated with many ecosystems. The sea and fishing are no exception.

Entities interested in conserving marine ecosystems and recovering fishing resources are forced to generate environmental policies and appropriate management measures. These measures that must be based on the best available science, taking into account the socio-economic interests of those sectors that may be affected and with the support of civil society. Mechanisms and tools for inquiry and participation in this process are key.

More than a decade ago, artisanal sand





**Photo:** General Directorate for Maritime Policy and Sustainable Fishing. DACG.

eel fishermen from the provinces of Barcelona and Girona, as well as prawn trawlers from Palamós, promoted and set up the first fisheries co-management committees in Catalonia, with other agents such as the Directorate General for Maritime Affairs and Sustainable Fishing, scientific and academic institutions and some non-governmental organisations, including the WWF, among others. They developed the first co-managed fisheries management plans in Catalonia.

It is important to highlight the strategy of the General Directorate for Maritime Affairs and Sustainable Fishing that has promoted and consolidated a governance model based on co-management and has aimed to achieve the objectives of the European Commission's Common Fisheries Policy.

The fisheries governance model in Catalonia has become an international benchmark that has motivated the initiation and implementation of co-management in other regions of Spain, Portugal and other countries. From WWF we work to promote this

model and give it visibility while driving similar processes in a large part of the coastal countries of the Mediterranean, starting from the Mediterranean Marine Initiative in collaboration with fisheries management organisations such as the General Fisheries Commission for the Mediterranean.

Thanks to the impetus from the co-management committees, a total of 8 fisheries management plans have been developed, in which practically all of the Catalan fishermen's guilds are represented. Recently a co-management board has been put into operation to address technical and social aspects of recreational fishing. In addition, the co-management committees have fostered a culture of participation from all areas and representative entities, which favours understanding and the way management problems or discrepancies are addressed.

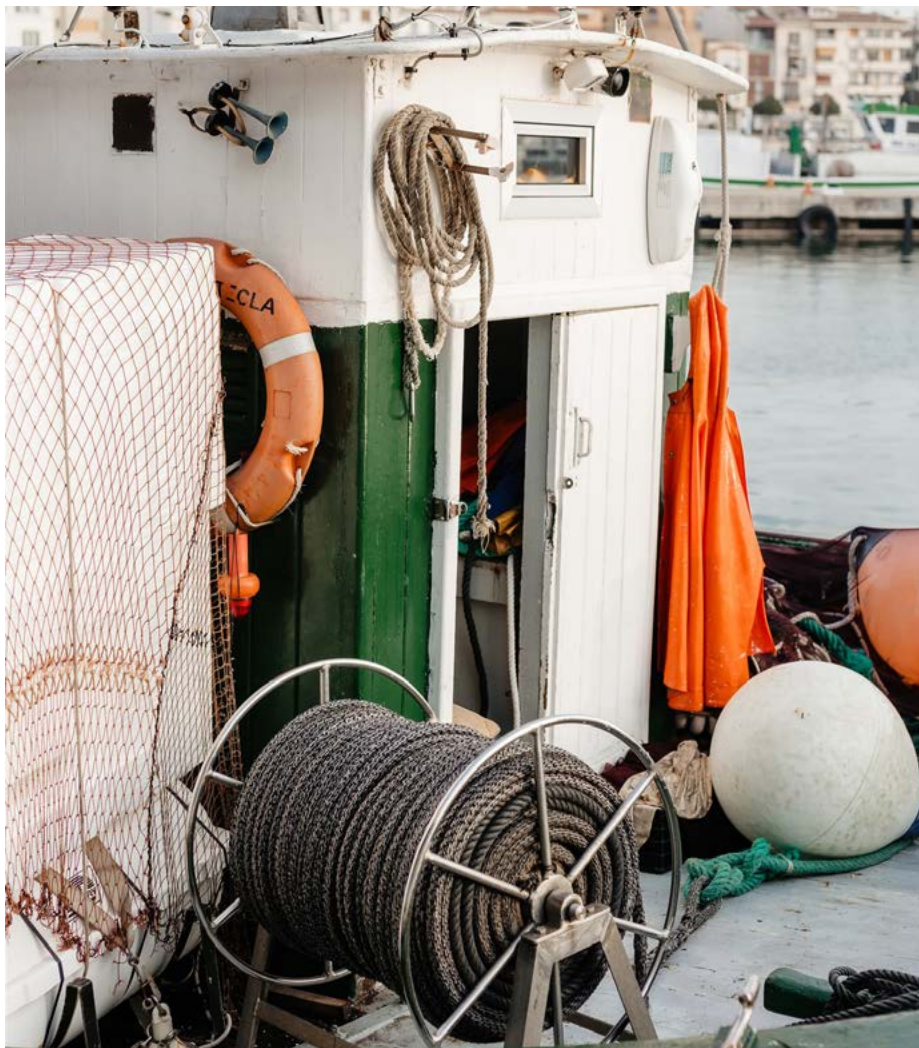
In terms of research, the creation of the Research Institute for the Governance of the Sea (IcatMar) has been promoted, which makes it possible to make progress in the improvement of scien-

tific knowledge, while advising on the appropriate decision-making among all the entities represented in the co-management committees.

The assessment that can be made after these years is very positive. It has been possible to implement management measures to limit or significantly reduce fishing effort, improve the economic performance of certain fishery species, promote compliance with the management measures adopted and minimise the impact on vulnerable ecosystems

Co-management in Catalonia has been revolutionary as a transformation tool that has brought about important changes in the way of perceiving and proceeding in good management, but there are undoubtedly many challenges to be faced in order to ensure environmental and social sustainability.

In order to face these challenges, the co-management committees must be able to set short and long-term goals as a mechanism for progress and learning.



**Photo:** General Directorate for Maritime Policy and Sustainable Fishing. DACC.

The co-management committees must work to achieve fishing sustainability by optimising the fishing effort and improving the selectivity of the fishing gear, relying on bio-economic tools and improving marketing to make our fisheries profitable. In addition, fisheries management must integrate an ecosystem approach in order to preserve biodiversity and marine ecosystems.

Fishery management must give opportunities to the generational relief and more visibility to the already important role of women in each of the activities related to fishing and along the entire value chain of fishery products. Especially in decision-making tasks in the management of the guilds and their relationship with the rest of the entities that are inside and out-

side the co-management committees. The entities that are members of the co-management committees have the responsibility to participate in processes that seek the compatibility of fishing activity with the activities of other sectors of the blue economy within the marine space management plan.

The fishing sector, with the help of other entities, must face the energy transition towards decarbonisation and consider both boats and the operation of port infrastructure.

And finally, the co-management committees must promote the involvement of entities and groups linked to the territory that have an interest in maintaining the natural and cultural heritage of the populations with a fishing

tradition, while facilitating the training for the appropriate participation in the committees including decision-making.

The future of fishing depends on co-management and Catalonia is prepared to establish ambitious objectives for fishing sustainability and the conservation of marine ecosystems, as well as well-defined and measurable socio-economic objectives, which take into account a socially fair distribution of fishing rights. This procedure will undoubtedly pave the way towards the environmental and socio-economic sustainability of fishing in Catalonia.

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# FISHERIES CO-MANAGEMENT

## Fishery co-management: what is it?

This is a governance model through

which the administration, the users of the resources and different agents of society, such as scientists and non-governmental organisations, share the pow-

er and responsibility in making decisions for the management of these resources. (<http://www.fao.org/faoterm/collection/fisheries/en/>)

Co-management instruments	Nature	Purpose
<b>Catalan Council for Maritime Co-Management</b>	<ul style="list-style-type: none"> <li>• Collegiate body, participative governance.</li> <li>• Made up of people representing the administration of the blue economy sectors, research organisations and the third sector.</li> <li>• It allows the participation of actors in the definition, development and execution of the Integrated Maritime Policy in Catalonia.</li> </ul>	<ul style="list-style-type: none"> <li>• Validate, adapt and monitor the Maritime Strategy of Catalonia, their multi-year plans and ensure their application.</li> </ul>
<b>Fisheries Co-Management Committees</b>	<ul style="list-style-type: none"> <li>• Management of the fishing activity to implement the governance model of fishing and professional shellfish-gathering in Catalonia.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish management plans as a tool for regulation, monitoring and control of professional fishing activity</li> <li>• Responsible for the application of management plans and their monitoring and adaptive readjustment.</li> <li>• Design, jointly, the management of resources so that it is sustainable, minimising as far as possible the impact of fishing activity on the environment and the resource and maximising profitability for the sector itself, through a bio-economic management of the activity.</li> </ul>
<b>Monitoring Committees</b>	<ul style="list-style-type: none"> <li>• In the case of management plans aimed at professional fishing activities that affect a small number of extractive units of little economic dimension without significant impacts on habitats and other species.</li> </ul>	<ul style="list-style-type: none"> <li>• Advice on monitoring and adaptive readjustment of technical measures provided for in the Management Plan</li> </ul>
<b>Working Group</b>	<ul style="list-style-type: none"> <li>• Functioning similar to the Co-Management Committees: proposals are worked on and drawn up that will be published as regulations</li> </ul>	<ul style="list-style-type: none"> <li>• Scope of work that exceeds the areas of responsibility of the Generalitat de Catalunya</li> </ul>
<b>Co-Management Tables: Sector TCs Territorial TCs</b>	<ul style="list-style-type: none"> <li>• Multi-actor platforms</li> </ul>	<ul style="list-style-type: none"> <li>• Debate and specify proposals for management and organisation of uses and activities at sea.</li> <li>• They have the will to take consensual decisions between all the agents of the territory or the sector that deal with an area of common interest.</li> <li>• Work together to find an integrated management model that makes uses and activities compatible within sustainability.</li> </ul>

For more information: <https://agricultura.gencat.cat/ca/ambits/pesca/gestio-pesquera/plans-gestio-cogestio/index.html>



**The new co-management model, a paradigm shift. Advantages:**

- Joint vision among members and clear common goals.
- Knowledge and relationships
- Mutual trust.
- Focus on agreements and learning to yield.
- Take responsibility and assume the consensus as your own.
- Become aware of power and how it is used.
- Have the necessary flexibility to adapt to changes.

**In co-management, each area has its role:**

**Economic sectors:**

- Fishermen’s guilds and their Federations
- Fishing sector

It represents the economic interests for the survival of the activity, that is to say, guaranteeing the long-term sustainability of resources and maintaining well-paid, quality jobs. The main challenge is to assume the capacity of representativeness and leadership and empower yourself to play an active role.

**The administration:**

It ensures good management of resources through the application of the new co-management model based on adaptive management and the precautionary principle. Its main challenge is to step aside to facilitate the empowerment and participation of the other members of the co-management instrument.

**Civil society**

It ensures a management that takes into account the relationship between economic activities and the environment in a broad sense (health of ecosystems, landscape and cultural heritage, etc.). One of its challenges has to do with knowing how to differentiate between what is wanted and what is possible or realistic, in order to establish a common goal that can be achieved together with the other areas.

**Scientific group:**

It provides the knowledge, data and information necessary to guarantee the best possible advice for decision-making. One of its challenges could be to internalise the fact that its participation

will be different from what it usually has in other contexts, and that the relationship with the rest of the members of the co-management instrument requires specific skills to value traditional knowledge, to use plain language

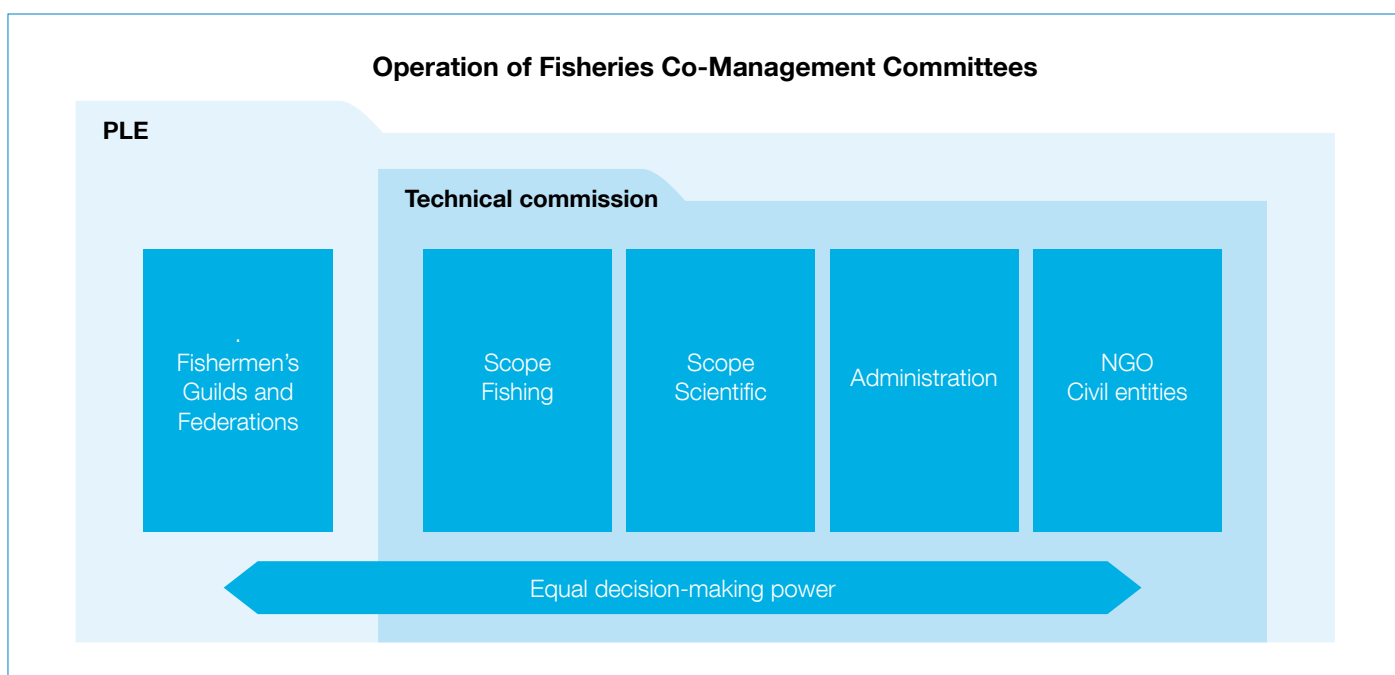
Successful co-management means that taking shared responsibility for management has positive impacts on natural resources and the environment, on co-management participants and on society in general.

How can we evaluate successful co-management?

- Measuring and monitoring impacts is crucial
- The members of the co-management instrument participate in the development and implementation of the evaluation

**Results:**

- There are contrasting benefits in the natural environment
- Stakeholders are satisfied with the social, environmental and economic impacts
- Local communities benefit from the development of the co-management instrument.







**Photo:** General Directorate for Maritime Policy and Sustainable Fishing. DACC.

## 01. The Catalan Council for Maritime Co-Management

The constitution of the Catalan Council for Maritime Co-Management deserves more careful attention, since with its creation a governance model for integrated maritime policy in Catalonia is put into operation based on co-management, the maximum expression of the empowerment that it confers on all the country's maritime actors when it comes to making the public policies of our country's blue economy.

The Council has a very ambitious goal and takes another step forward, bringing together representatives of all the sectors that work and are part of the blue economy, the Administration, scientists and civil society. It will allow the participation of these agents in the definition, development and execution of maritime policies in a co-responsibility regime between all of them.

Co-management has had positive results in the social sphere, in the revitalisation of the territory and the local economy. It has positive results in the environment, in the management of biodiversity. It also has positive results

in the development of the different sectors of the blue economy.

The work will be developed through sectoral committees, listed individually they are blue economy and Bioeconomy, Sustainability and Circular Economy, Integrated Maritime Policy, and Research and Training. These committees will be in charge of drawing up and collegially validating the multi-year plans of the Maritime Strategy of Catalonia. There will also be a permanent committee for cross-cutting issues.

Particularly relevant is the role played by the scientific field when it comes to transferring the knowledge necessary for decision-making. Catalonia has a network of leading scientific centres in the different disciplines linked to research in the marine environment. The Council must provide the framework for collaboration between all of them and must also maintain a stable two-way sector-scientific contact that allows technological transfer to the different economic sectors.

Adaptive management will be the formula to maintain the good state of the sea and at the same time guarantee a

sustainable development of the blue economy in Catalonia to the extent that there is this two-way contact maintained over time.

It is worth noting that the Council's action is part of the European Union's integrated maritime policy, which aims to provide a more coherent and integrated approach to maritime issues through greater coordination between the different sectoral areas. In this regard, in a recent communiqué from the European Commission on a new approach to the sustainable blue economy, the idea was further reinforced that the transition towards the creation of a sustainable blue economy will depend on the fact that there is closer cooperation between all the actors involved.

And, through the National Plan for the implementation of the 2030 Agenda in Catalonia, in compliance with several objectives of the United Nations 2030 Agenda and especially SDG 14 "Conserve and use the seas and oceans in a sustainable manner", the commitment to implement a new sea governance model based on the co-management of the marine and coastal areas is assumed.

## 02. Co-Management committees

### Co-Management Committee of the Sonsera Sand Eel Fishing modality (CCMS)

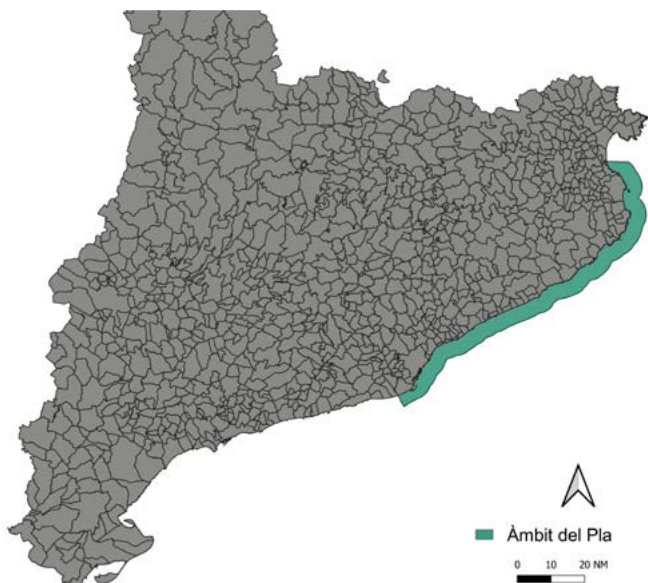
This was the first co-management committee to be created (2012); subsequently, the Sonsera Sand Eel Fishing Management Plan was published in 2014. It is considered the laboratory of Catalan co-management.

The type of fishing with a sand eel snare is made up of a specific and closed census of 26 boats, which go out to fish on alternate weeks (13 boats one week and the other 13 the next).

#### Highlights of the CCMS

- The social aspect is key. The resource is public and must benefit as many actors as possible.
- Establishment of a daily quota per vessel, which cannot be exceeded in order not to affect the market price and the monthly analysis of catches per vessel, since if the daily or monthly quotas are exceeded, then compensatory measures are applied.
- Monthly meetings with the aim of evaluating the evolution of the fishery and adapting it in real time to the variation of the different monitoring parameters.

#### Territorial scope



Fishermen's guilds from Barcelona, Badalona, Arenys de Mar, Blanes, Sant Feliu de Guíxols, Palamós and L'Estartit.

#### Target species



Blue sand eel (*Gymnammodytes cicerelus*)



Red sand eel (*Gymnammodytes semisquamatus*)



Red goby (*Aphia minuta*)

#### Fishing gear



"Sonsera": sand eel fishing gear.



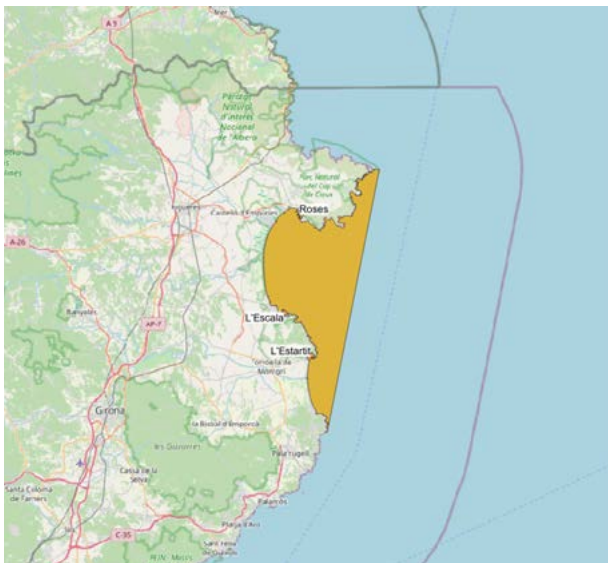
## Cuttlefish Co-Management Committee of the Bays of Pals and Roses (CCSBPR)

The shellfish-gathering of cuttlefish in the bays of Pals and Roses is an activity of great relevance, both in the social and economic aspect. Both the professional and recreational fishing sectors share an interest in this species, which is why a representative of the recreational sector has joined the Co-Management Committee, in order to be able to jointly agree on the measures to be agreed within the scope of action. The main objectives of this Committee are to promote sustainable fishing of the resource by both sectors, improve its marketing and monitor the cuttlefish population in this area to learn about its biology and ecology.

### Main points regarding the Co-Management Committee

- It grants special permits to those boats that demonstrate dedication to cuttlefish, with the possibility of incorporating new ones to promote generational relief.
- Authorises the cuttlefish “tresmall” gillnet and the cuttlefish hook as permitted gear/equipment for professional fishing and the “peixet” or “potera” sinkers for recreational fishing.
- Establish cuttlefish ban periods of at least two months for both commercial and recreational fishing.
- Agree on delimited areas that act as collectors of cuttlefish eggs.
- Limits the number of cuttlefish units authorised for recreational fishing.

### Territorial scope



Inland waters, northern limit: Maça d'Or and southern limit: Cap de Begur

### Target species



Cuttlefish (*Sepia officinalis*)

### Fishing gear and equipment



Gillnets for sepia



Hooks for cuttlefish

## Blue crab co-management committee of the Terres de l'Ebre area

The blue crab (*Callinectes sapidus*) is an allochthonous species native to the Atlantic coasts of America. In 2012, it was detected for the first time in the Ebro delta. But it was from 2017 that it began to have an exponential growth that affected the native species of the delta and, consequently, the artisanal fisheries of the area. In November 2018, the Committee was created, with the aim of managing and being able to control the rapid expansion of the species.

### Highlights of the Committee

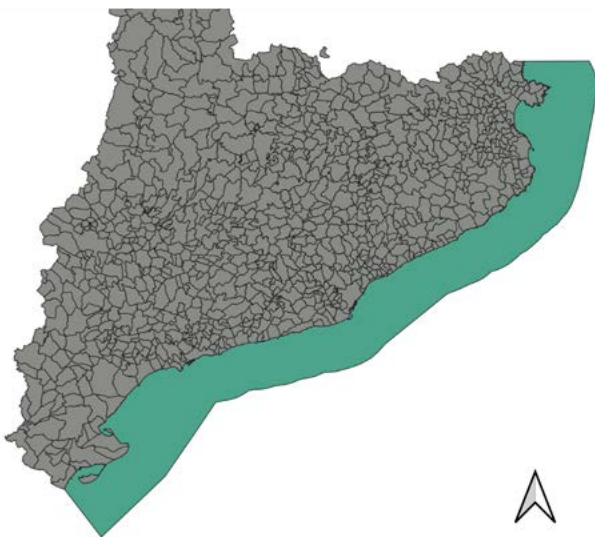
- It promotes and enhances intensive professional fishing to reduce its proliferation and impact on local ecosystems.
- It authorises all professional fishing aimed at catching blue crab.
- Turn a problem into an opportunity for professional fishing.

### Target species



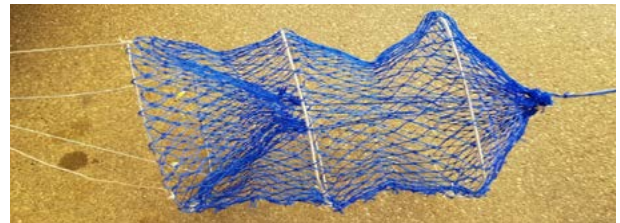
Blue crab (*Callinectes sapidus*)

### Territorial scope



Àmbit del Pla  
0 10 20 NM

### Fishing gear and equipment



"Monet": funnel net



Hooks for blue crab



"Gànguil": funnel fish trap  
Other authorised fishing gear and equipment: the "tresmall" gillnet and "salabre" hand net



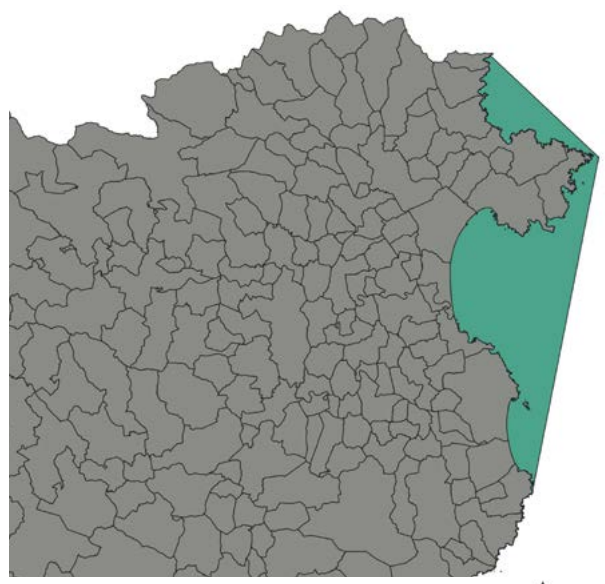
## Bluefish co-management committee of the North Ampurdan area (CCPBEN)

This Committee arises from the need and the opportunity to regulate technical and management measures for the encircling fleet that operates in the internal waters of the Gulf of Pals and Roses. The fishing sector itself promoted the constitution of the Committee, which was born with the aim of establishing effort control measures that can balance landing volumes with the state of exploited populations and market demand.

### Main points regarding the Co-Management Committee

- It reached an agreement to reduce the maximum daily and/or weekly unloading, as well as a time limitation of the activity and the creation of a scientific and technical monitoring programme.
- This Management Plan has been approved by its Committee, but its publication is paralysed due to the changes foreseen in the control and management measures coming from the European Commission and from the State and which have recently taken place.

### Territorial scope



Àmbit del Pla  
0 5 10 NM

Inland waters, northern limit: Maça d'Or and southern limit: Cap de Begur

### Target species



Sardine (*Sardine pilchardus*)



European anchovy (*Engraulis encrasicolus*)

### Fishing modality



Encirclement



Auxiliary light boats

## The Central Catalonia Coast Co-Management Committee for Common Octopus caught with “cadups” (tubular octopus traps) and “nanses” (basket traps)

The common octopus (*Octopus vulgaris*) is a species with high importance in fishing and a high commercial value. The increase in its demand originated the need to regulate the population on the coast of Central Catalonia. For this reason, the Co-Management Committee was created in January 2019.

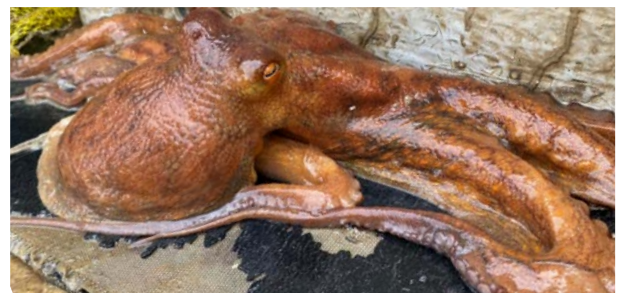
### Main points regarding the Committee:

- In 2019, there was a ban on the fishing of females in the territorial scope of the Vilanova i la Geltrú Fishermen's Guild.
- To improve the marketing of the product, the Management Plan has taken into account the pre-assessment carried out with the Medfish project, which consists of carrying out an analysis of the fishery using MSC standards (*Marine Stewardship Council*). The aim is to achieve more sustainable fishery and higher prices in the market.
- It establishes a minimum period of biological ban of two months (the period in which most females reproduce and which runs from May to September).
- It prohibits the use of any type of acid or acidic solution for the extraction of octopuses caught with “cadups” (tubular octopus traps). It authorises only the use of salt or a hypersaline solution.

### Target species

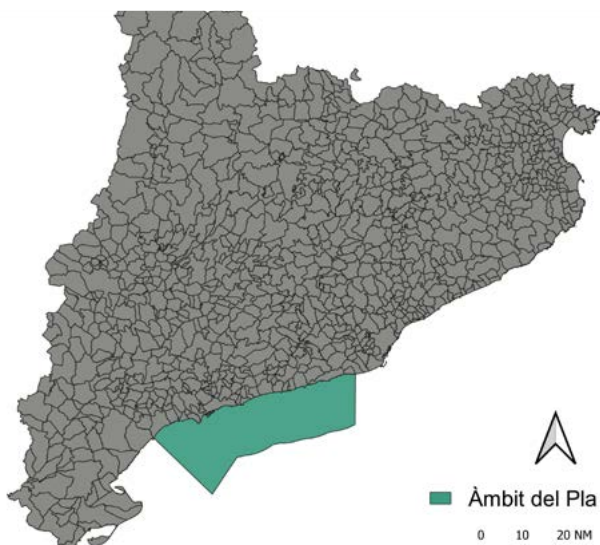


Common octopus (*Octopus vulgaris*)



Common octopus (*Octopus vulgaris*)

### Territorial scope



Fishermen's guilds from Sitges, Vilanova i la Geltrú, Calafell, Torredembarra, Tarragona and Cambrils.

### Fishing gear and equipment



“Cadups”: tubular octopus traps



“Nansa”: Octopus basket trap



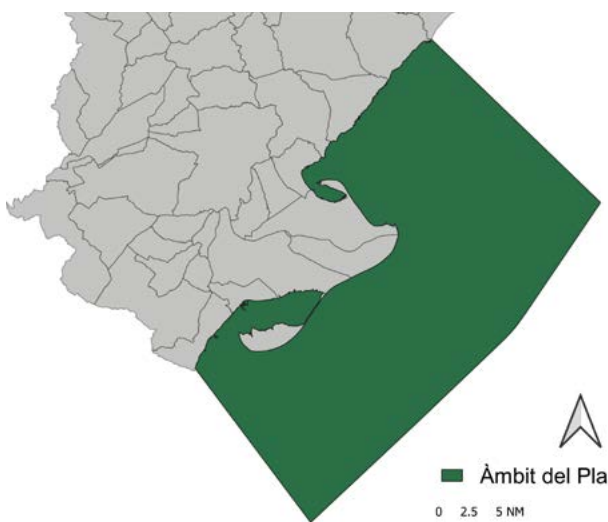
## Common octopus co-management committee in the Terres de l'Ebre area caught with "cadups" (tubular octopus traps) and "nanses" (basket traps) (CCPTTEE)

The previous creation of the Common Octopus Co-management Committee in Central Catalonia, together with the great relevance of the catches of common octopus by small fishing vessels in the Terres de l'Ebre area, prompted the creation of this Committee. Sales data show that common octopus (*Octopus vulgaris*) caught with "cadups" (tubular octopus traps) and "nanses" (basket traps) from small fishing vessels in the Terres de l'Ebre area represents a total of 40% of the octopus landed in Catalonia.

### Main points regarding the Co-Management Committee:

- It grants special permits to those boats that demonstrate dedication to common octopus caught with "nanses" (basket traps) and "cadups" (tubular octopus traps), with the possibility of incorporating new ones to promote the generational handover.
- It defines the technical measurements of the equipment used in accordance with the biological characteristics of the species.
- It establishes a minimum two-month biological banning period, which coincides with the period in which most of the common octopus females in this territorial area spawn.
- Enhances the use of new products intended to facilitate the extraction of octopuses caught with "cadups" (tubular octopus traps).
- It carries out scientific monitoring that allows you to learn about the biology and ecology of the octopus.

### Territorial scope



### Target species



Common octopus (*Octopus vulgaris*)

### Fishing equipment



"Cadups": tubular octopus traps



"Cadups": tubular octopus traps

## Co-Management Committee of Cap de Creus (CCCC)

This Committee arises from the need to manage professional fishing and shellfish-gathering in a protected natural environment, the Cap de Creus Natural Park. Its Co-Management Committee, one of the most dynamic, has worked intensively to establish management measures aimed at reducing the capture of large spawners, at the protection of certain species of crustaceans and molluscs that present a very reduced population status, to the application of a biological ban on common octopus, which can protect the species and promote its reproduction, as well as to the reduction of the general fishing effort through the application of more restrictive technical measures, such as the reduction of the maximum authorised net length.

### Main points regarding the Co-Management Committee:

- This Co-Management Committee, which meets monthly, is made up of the 5 usual areas to which a sixth has been added, which represents the General Directorate with responsibility for Environmental Policies and the Natural Environment, the unit responsible for the development of the PRUG (the Use and Management Plan for Cap de Creus Natural Park).
- This is the first co-management committee whose aim is to regulate professional fishing and shellfish-gathering within a protected natural area.

### Target species



Common octopus: *Octopus vulgaris*



Sea Urchin: *Paracentrotus lividus*



Hake: *Merluccius merluccius*



European conger eel: *Conger congre*

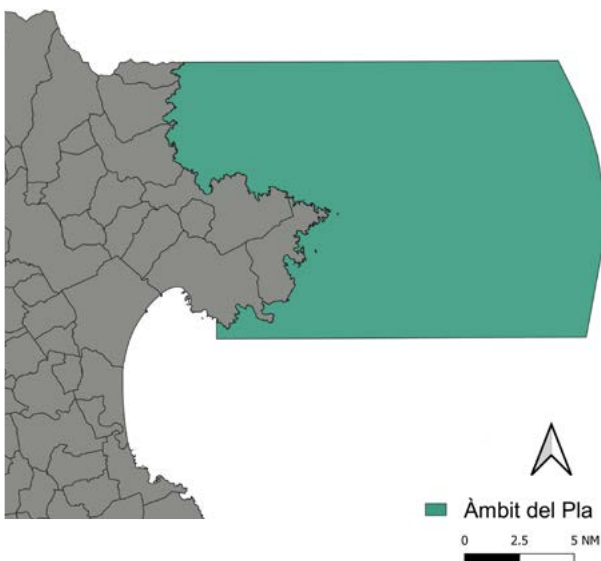


Cuttlefish: *Sepia officinalis*



Bluefin tuna: *Sarda sarda*

### Territorial scope



### Fishing gear and equipment

Tresmall (Trammel net), longline, "fitora" (fishing fork), "joellera" (net for catching jurel), "soltes" (rectangular fishing nets), "bolitxa" (tuna net), "nanses" (basket traps), "cadups" (tubular octopus traps), lobster net and cuttlefish net.



"Nansa": Octopus basket trap



"Cadups": tubular octopus traps



Cuttlefish net



"Tresmall": trammel net



## Fisheries Co-Management Committee for the Ebro Delta (CCPDE)

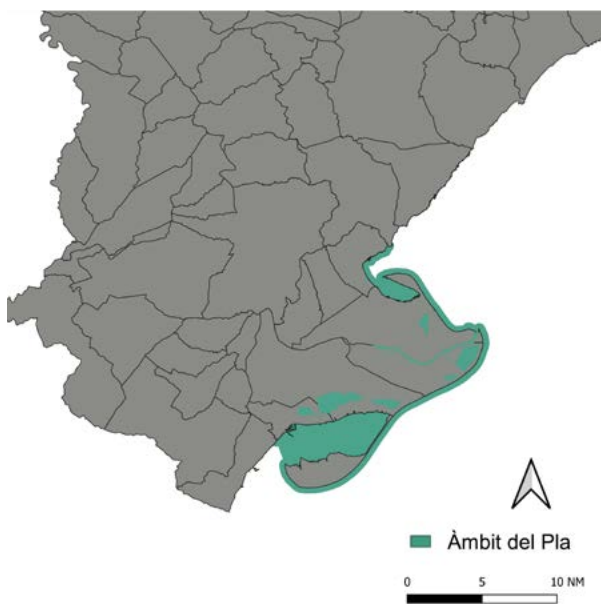
This was the last co-management committee to be established (October 2022). The main objective is to fit all Delta fisheries into a sustainable management framework, based on an ecosystemic and adaptive vision of the professional extractive activities that take place in the area, in addition to working on the recovery and maintenance of ancestral fisheries, such as those of the carp or those carried out in the ponds of the delta lagoons.

### Main points regarding the Committee:

- Publication of a basic order that brings together all fishing and shellfish-gathering activities in the Ebro delta and that applies adaptive real-time and precautionary management.
- It coordinates these professional activities with those already managed by other co-management committees (blue crab and common octopus from the Terres de l'Ebre area) and other management plans (such as the management plan for hand rakes, on foot, in the Ebro delta).

For more information: <https://agricultura.gencat.cat/ca/ambits/pesca/gestio-pesquera/plans-gestio-cogestio/comites-plans-cogestio/>

### Territorial scope



Fishermen's guilds of Verge del Carmen de la Ràpita, Sant Pere de Tortosa i la Ràpita, Deltebre and L'Ampolla.

### Modalities and professional fishing and shellfish gathering activities and target species

#### Alfacs and Fangar bays

- Shellfish-gathering on foot or with an auxiliary boat: grooved carpet shell, grooved razor shell, sea anemone, goose barnacle, cornetfish and sea urchin.
- Fishing on foot or with an auxiliary boat performed as "paupa" feel fishing, with rod and flywheel and with ganguil nets.
- Fishing from a boat with ganguil nets and "batre" night fishing from a boat.

#### Lagoons and supply channels

- Pantena fishing route.
- Fishing on foot or with an auxiliary boat with "ganguil" net, "monet" funnel net, basket traps, nets and "paupa" feel fishing.

#### River (main course and Migjorn Canal)

- Fishing for eel on foot with an eel elver trap.
- Boat fishing with net, longline, basket traps and ganguil nets.
- Special plan for the management of the carp.

#### Channels, ditches and retention basins

- Fishing on foot or with an auxiliary boat with ganguil nets, "monet" funnel nets and eel traps.

#### Coastal maritime waters up to 1.2 metres deep (outer coast of the Delta)

- Shellfish-gathering on foot with bean clam ("tellerina") hand rake.

### 03. Monitoring committees

#### Committee for monitoring sea urchins

In recent years, sea urchins have experienced an increase in demand in the market, which has caused the capture of this species of growing gastronomic interest to have spread throughout the Catalan coast.

In this regard, the Monitoring Committee's main objective is to manage the special permits that are authorised for the shellfish-gathering of these echinoderms, based on more than 15 years of scientific monitoring carried out in the extraction areas. These studies make it possible to propose control mechanisms adapted to the state of the populations and the balance of the ecosystem. Examples of this adaptive management is to increase the number of special permits to be authorised in the areas where "blancalls" are detected (these are rocky areas free of algal cover caused by the predation of the sea urchins) or, on the contrary, to reduce the number of permits special in areas where the abundance of these echinoderms is scarce.

#### Main points regarding the Monitoring Committee:

- Establishment of a minimum catch size, which guarantees the protection of juvenile sea urchin individuals.
- Establishment of a maximum extraction quota, both for professional and recreational fishing.
- Carrying out scientific monitoring tasks that make it possible to know those areas where intensive fishing is necessary and those others where it is necessary to regulate the extraction of this resource to ensure the preservation of the species at sustainable levels.

#### Target species



Rock urchin (*Paracentrotus lividus*)

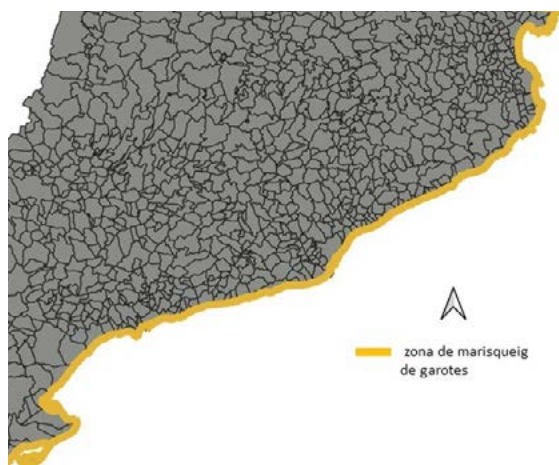


Black sea urchin (*Arbacia lixula*)

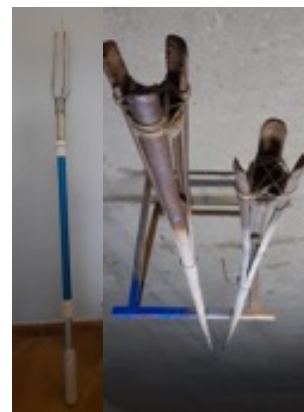


*Sphaerechinus granularis*

#### Territorial scope



#### Fishing equipment



Sea urchin trap used from the boat



Sea urchin trap used in skin diving

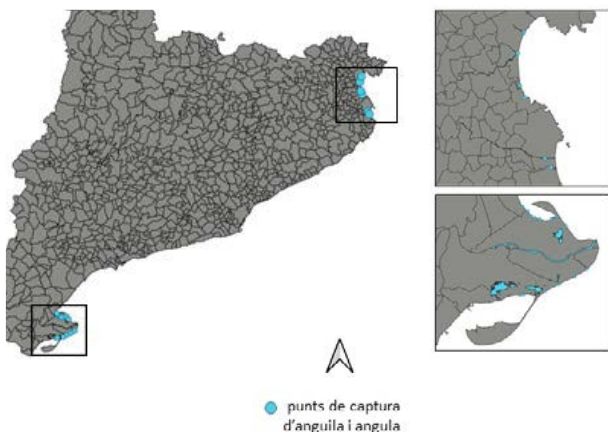
## European eel monitoring committee

The European eel (*Anguilla anguilla*) is a species with a wide range of geographical distribution that is characterised by reproducing in marine waters and growing and developing in the continental area (lagoons, rivers, bays and coastal areas). Its complex biological cycle means that there are many anthropogenic factors that affect the various phases of its development. In this regard, the European Union obliges to establish management plans for each watershed that must guarantee, among others, minimum percentages of escape and repopulation of this species. In Catalonia, since the implementation of the management plans, a reduction of more than 30% has been achieved in the effort made in eel fishery, in conjunction with repopulation campaigns for this species and improvements in connectivity of the bodies of water to allow their migration to the upper parts of the rivers.

### Main points regarding the Monitoring Committee:

- Creation of a working group of the different actors involved, who are responsible for drawing up the management plans, analyse the commitments acquired and coordinate the actions established in the plans.
- It carries out monitoring tasks, both of the eel and elver population in the basins of the Ebro delta and the river basins of the province of Girona.
- Reduction of the period authorised for the capture of eel and elver and the number of points authorised to achieve the reduction in effort in this fishery.
- Establishment of a ban on eels and elvers older than seven months.
- Release of silver eel in the migrating phase.

### Territorial scope



### Target species



Yellow and silver eel phase (size greater than 35 cm)



Glass eel (size less than 12 cm)

### Fishing equipment



Pantena fishing weir (for the eel phase)



"Gànguil": funnel trap (for yellow and silver eel phase)



"Bussó": Fyke net (for the glass eel phase)



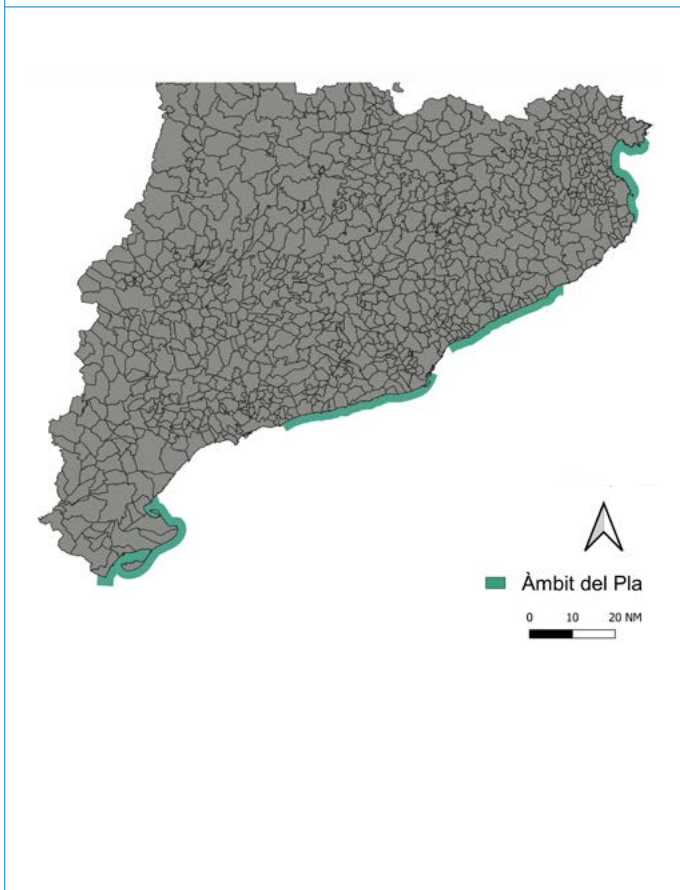
## Committee for monitoring mechanised dredges (cages)

EU regulations require a specific management plan for this traditional activity in Catalonia. Its Monitoring Committee designed the technical measures of the Plan approved by the European Commission, which incorporate daily limits, minimum sizes, delimitations of capture zones and hourly control of the activity. Currently, due to the drop in populations, the Venus clam and smooth clam fishing grounds of the entire Catalan coast remain closed.

### Main points regarding the Monitoring Committee:

- The Monitoring Committee of the Management Plan for mechanised dredges meets quarterly to monitor catches and assess the campaigns by studying sales figures and analysing data from scientific monitoring.
- Recently, the Monitoring Committee has detected the recovery of the natural banks of Venus clam (*Chamelea gallina*) in the fishing grounds near the port of Vilanova i la Geltrú. This has led to the initiation of procedures for the reopening of the bank.

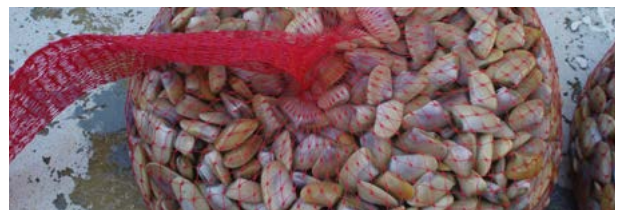
### Territorial scope



### Target species



Venus clam (*Chamelea gallina*)



Bean clam (*Donax* spp.)



Smooth clam (*Callista chione*)

### Fishing gear and utensils



Cage



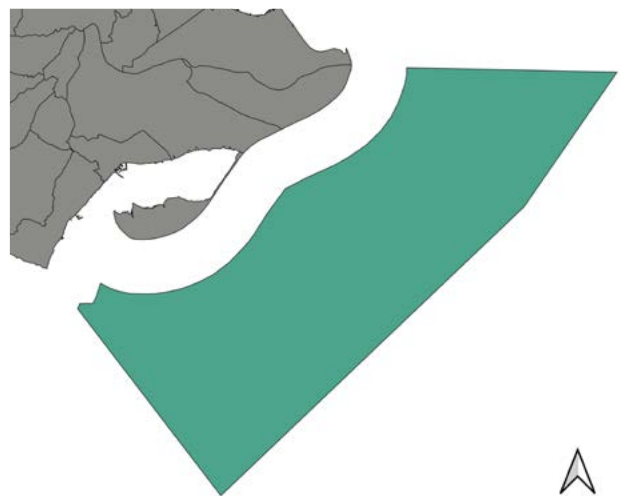
## Monitoring Committee for Dredging with Vessels (PGDE). Chain rake

The modality of shellfish-gathering via dredging with vessels, or “rastell de cadenes” (chain rake) as it is known locally, had to adapt to the requirements established in the EU regulations of the Mediterranean and drew up a management plan in which its Monitoring Committee, composed of scientists, fishermen and the Administration, took part. The current Plan approved by the European Commission incorporates a substantial reduction in fishing effort, with a reduction in special permits, time limits and a maximum number of annual dedicated days.

### Main points regarding the Monitoring Committee:

- The Monitoring Committee for chain raking meets every three months to assess the fleet’s activity. It analyses the first sale data, the days dedicated to the activity and the AIS signals (*Automatic Identification System*), system installed on all the vessels in the Plan.
- Recently, the Monitoring Committee has detected the recovery of the natural banks of Venus clams (*Chamelea gallina*) and has asked the General Directorate for Maritime Policy and Sustainable Fishing to request the opening of the fishing grounds to the European Commission. After a sampling campaign to verify the recovery, the procedures for the reopening of the Venus clam banks have begun.

### Territorial scope



Àmbit del Pla  
0 2.5 5 NM

### Target species



Spiny dye-murex



Prawn



Mantis shrimp



Cuttlefish

### Fishing gear



Chain rake



Net rake

## Monitoring committee of the hand rake management plan, on foot, in the Ebro Delta

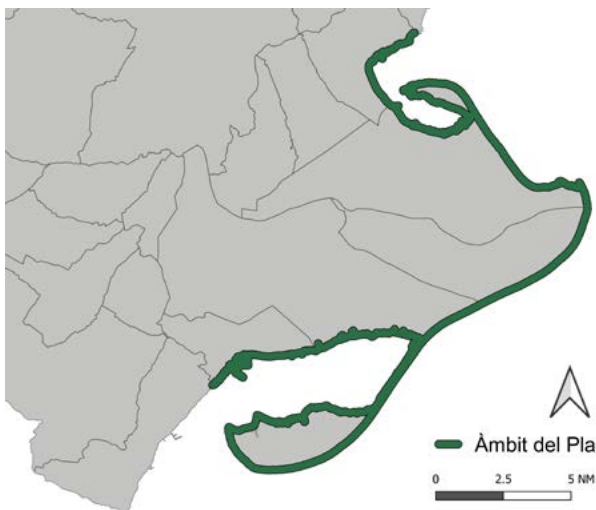
Shellfish-gathering on foot is an exclusively local skill. The Hand Rake Management Plan is a living and dynamic plan thanks to its monitoring committee made up of scientists, NGOs, fishermen and the administration. All four areas involved propose effort control measures based on the abundance of the resource and the size structure detected in the natural bank in real time, advised by the scientific monitoring that has been carried out since 2018. The Monitoring Committee also proposes the basic rules of the exploitation pattern that guarantee a stable and continuous activity during the two annual campaigns that are established.

### Main points regarding the Monitoring Committee:

- It is the body that agrees and proposes the minimum dedication that must be fulfilled to renew the hand rake permit every six months.
- Requests to reduce the authorised timetable whenever there is an abundance of bean clam, to control the population and the price of the product.
- It has also been agreed to propose stiffening the penalties when the type of offence is related to the sale outside the legal circuit, to the capture of individuals below the legal minimum size or to the dedication to the activity without the corresponding permit.

For more information: <https://agricultura.gencat.cat/ca/ambits/pesca/gestio-pesquera/plans-gestio-cogestio/plans-gestio/>

### Territorial scope

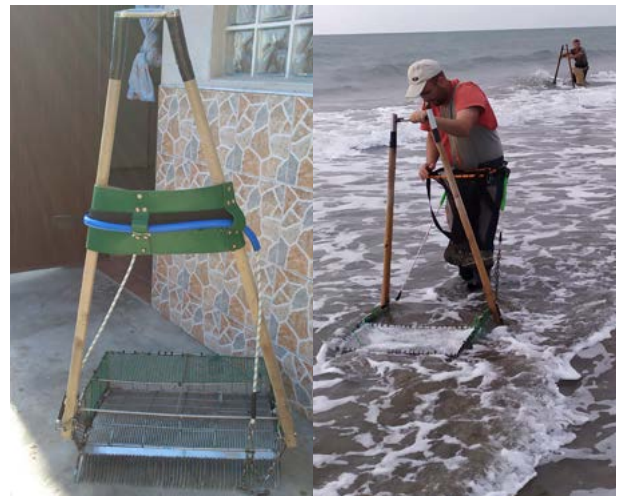


### Target species



Bean clam (*Donax* spp.)

### Fishing gear and utensils



Rake



Sieve



## 04. The working groups

### Palamós Prawn Management Plan Working Group

The red prawn is a highly monospecific fishery that is handled using trawling gear that fishes at great depths. In this case, the fishermen themselves from Palamós sought the support of the Administration to regulate rules that could guarantee a sustainable exploitation of the resource. Since then, the Palamós Prawn Working Group, made up of representatives of the sector, the Catalan Administration and also that of the State, NGOs and scientists, has been setting up a Management Plan that regulates the effort, the selectivity and the impact on the bottom of this fishery.

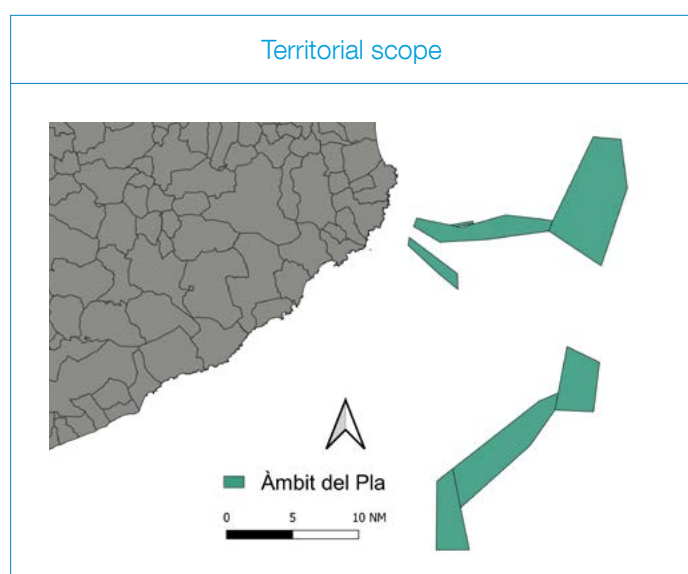
#### Main points regarding the Working Group:

- The Working Group has agreed on relevant measures such as the use of square mesh with a 50 mm opening, the limitation of the dimensions of the doors with the promotion of the use of suspended doors, the control of access to certain stalls or a more restrictive time limit. These measures have already been published in the corresponding regulations.
- During the last few meetings, the Working Group has agreed to renew the Plan with the incorporation of measures that adapt it to the multi-year Plan for demersal fish populations in the Western Mediterranean. The proposal is pending approval following the established procedure.

For more information:

<https://agricultura.gencat.cat/ca/ambits/pesca/gestio-pesquera/plans-gestio-cogestio/comites-plans-cogestio/pla-gestio-gamba-palamos/>

#### Territorial scope



#### Target species



Red prawn (*Aristeus antennatus*)

#### Fishing gear and equipment



Trawling

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## 05. From fisheries co-management to multi-sectoral co-management.

### Maritime Co-Management Board of the Baix Empordà Coast

**Constitution:** May 2017

**Modality:** Territorial, Multisectoral

**Objectives:** Facilitate and ensure the:

- Conservation and improvement of the natural, cultural and landscape heritage of the territory.
- Accounting of the uses and socio-economic activities that take place in the marine area.
- Cooperation of the different actors represented there.



Formed by 4 areas (Public administration, scientific community, blue economy and activities at sea and civil society entities), 13 subareas and nearly 80 entities represented. Despite the effects of Covid-19, the first Plan was approved in 2022 with nearly 30 actions to be jointly promoted during the following years. Specific working groups have been created to deal with specific topics (for example, the one on seasonal use and service plans, the one on underwater recreational fishing competitions or the one on communication).

### Aquaculture Board of Catalonia

**Constitution:** February 2018

**Modality:** Aquaculture sector

In 2018, the Aquaculture Board of the Ebro Delta was created, with the purpose of discussing the actions to be developed in the bays to improve

the activities that take place there.



- In February 2019, work began with the Continental Aquaculture Co-Management Board.
- The needs of aquaculture representation in the Catalan Council for Maritime Co-Management prompted the creation of a Aquaculture Board of Catalonia with the necessary sections to work efficiently with the technical commissions (TC) that pertain to:
  - TC on bivalve molluscs
  - TC on marine fish farming
  - TC on continental fish farming
  - TC on micro and macroalgae aquaculture

### Intersectoral Fish Coordination Board

**Constitution:** February 2021

**Modality:** Intersectoral



**Purpose:**

Debate on all the links in the fishery product chain

**Objectives:**

- Bioeconomy, circular economy and sustainability.
- Packaging solutions.
- Promote the consumption of fish as a healthy and balanced diet.

- Digitalisation of traceability and labelling.
- Minimising food waste.

### Co-management board on recreational maritime fishing in Catalonia

**Constitution:** April 2023

**Modality:** Recreational maritime fishing sector

**Purpose:**

Advance in the implementation of more sustainable management models for recreational marine fishing, using the new governance models based on the involvement of all affected actors.



**Objectives:**

- Drawing up of a new framework for general regulation of the activity both on a technical and general governance level.
- Development of recreational fishing management plans based on specific territorial characteristics.

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# ASSESSMENT OF 5 YEAR PERIOD

## Fisheries Co-Management in Catalonia

### 01. Introduction

More than five years have passed since the publication of an innovative regulation for the management of the marine resources of our coast, the Decree on the governance model of professional fishing in Catalonia. The processing of the provision was an arduous and cumbersome task, but at the same time encouraging for the editorial team. We had all been involved in the deployment of the co-management model in complex fisheries, such as that of sand eel snare fishing or that of Palamós prawn, in which the State or the European Commission itself demanded more from our management than had previously been demanded of any other Mediterranean fishery.

Today we can say that the results have been very satisfactory and also that we have taken a giant step towards the sustainability of our fisheries and the sector itself. This was a step aimed, once again, at the maintenance of this pillar of the Catalan blue economy, which is none other than the extractive sector of living marine resources.

Today, after these five years of experience in the deployment of the new structured governance model, we can stop along the way and take stock of the milestones achieved. There have been eight co-management committees set up, each with its particularities and specifics: the Co-Management Committee for Cuttlefish in the Bays of Pals and Roses, the Co-management Committee for the Blue Crab, the Co-Management Committee for the Small Pelagic Fish of the Empordà Nord, the Co-Management Committee of the Sonsera Sand Eel Fishing modality, the Co-Management Committees

of the Common Octopus caught with “cadups” (tubular octopus traps) and “nanses” (basket traps) in Central Catalonia and the Terres de l’Ebre area, the Co-Management Committee for Fishing in Cap de Creus, and lastly, until now, the Co-Management Committee for Fishing in the Ebro Delta.

As provided for in the Governance Decree, the initial task of every committee, from the moment of its constitution, must focus on what will be the foundations and structure of its management mandate, the management plan corresponding to each particular fishery. A management plan that, once sent to the Ministry and published in *Official Journal*, it will constitute the working framework of the Committee’s Technical Commission, at the same time as the tool that must measure the continuous scientific monitoring that must facilitate the much-requested adaptive, bio-economic and ecosystemic management that our model boasts.

Despite our wishes as promoters of this new way of understanding fisheries management, to be able to extend the model to the entirety of Catalan fisheries, it is quite clear that the distribution of competences between the State and the Generalitat in matters of maritime fishing and management of the fishing sector does not make it easy for us. The State, reluctant to apply the co-management model in the main Catalan fisheries for which it is responsible in terms of management, and in favour of maintaining the vertical model of a single fisherman, means that the deployment of co-management is seen unequivocally mutilated outside the realms of our committees. For this reason, the assessment of co-management made exclu-

sively in terms of the volume of catches can give rise to misunderstandings. Unfortunately, the total volume of catches obtained in Catalonia in relation to the volume of co-managed fish catches is not as significant as we would like and the final numbers are modest. However, if we assess the percentage of fishermen and fishermen’s guilds involved in co-management processes, in this new culture of participative management, the situation changes substantially. Thus, we can affirm that 28% of the boats in the Catalan fleet are working in co-management, which represents 55% of the small-gear fleet based in Catalonia. This is already quite a respectable number. Co-management is taking deep root in our ports and is here to stay.

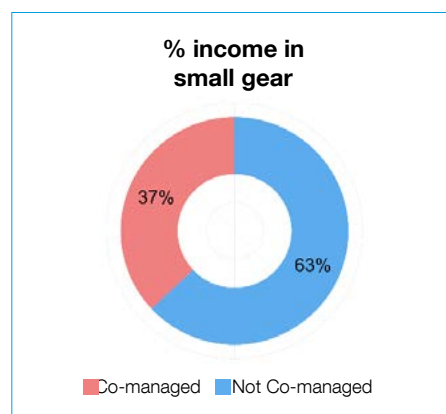
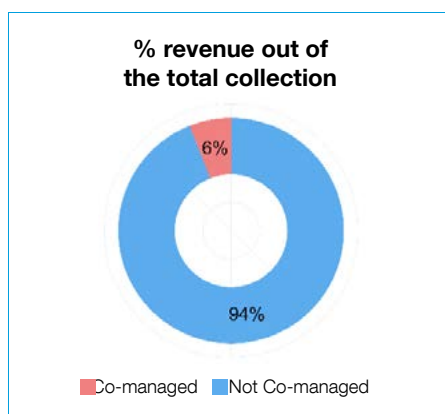
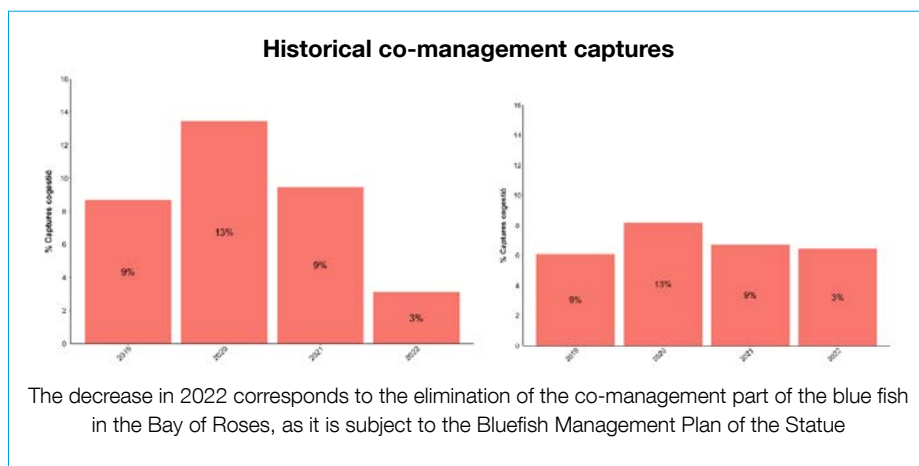
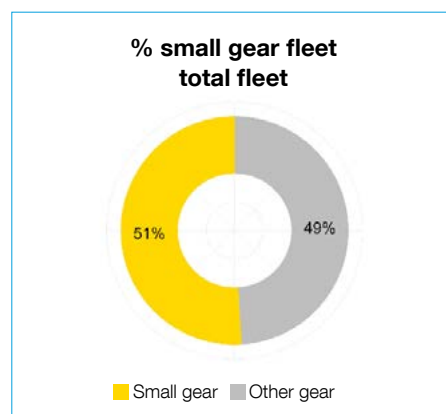
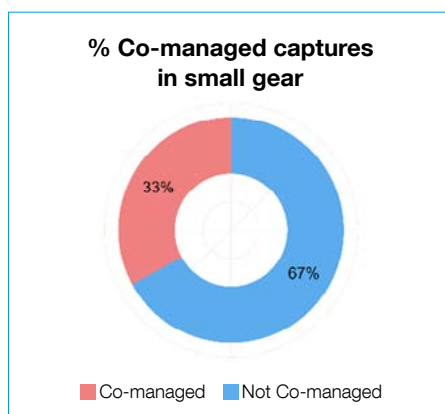
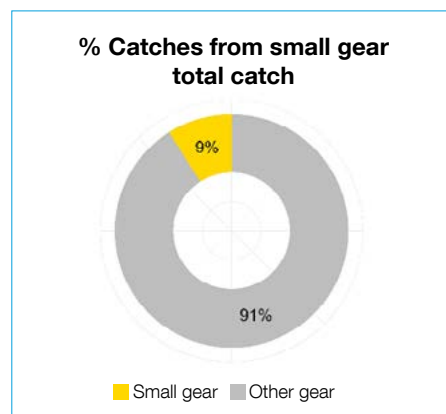
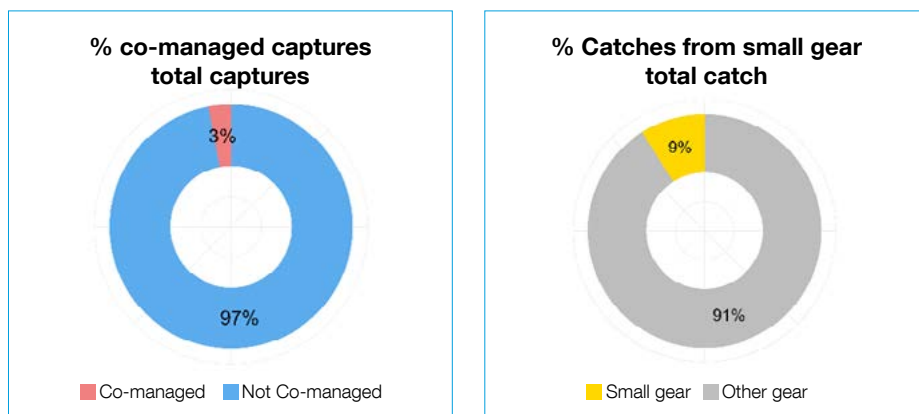
It should be added that this participatory awareness in general, typical of Catalan society, does not end with the formally constituted co-management committees. In those fisheries that are competently dependent on the State Administration, and where it is not possible for us to deploy the co-management model, we apply the same principles of participation, even though it cannot be in an official form. The working groups organised for the management of fisheries such as that of the Palamós prawn function in a similar way to the co-management committees. In these cases, logically, the agreements do not have legal force, but they do have the character of a proposal that, in general, is taken into account when establishing the regulatory provisions of the modality.

The General Directorate for Maritime Policy and Sustainable Fishing has always clearly supported the local management of fisheries, the approach of

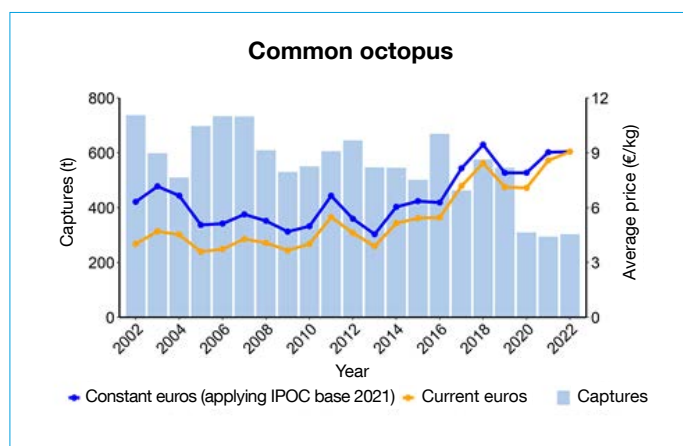
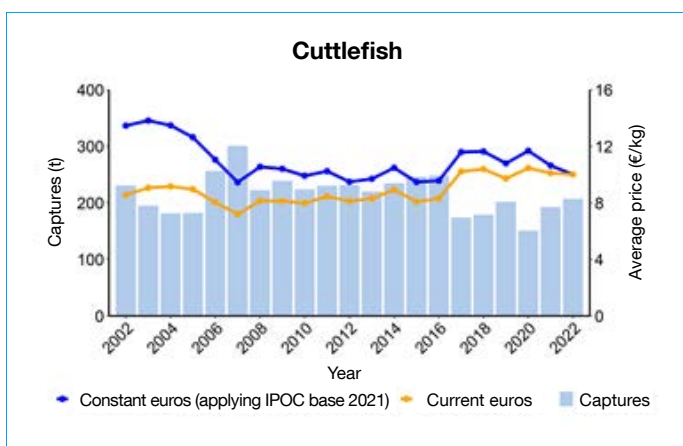
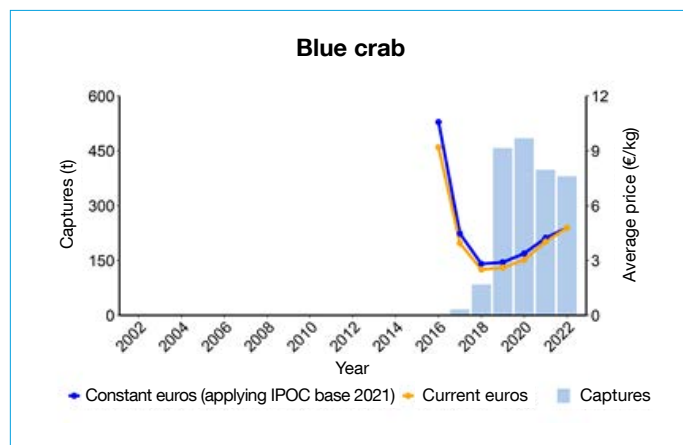
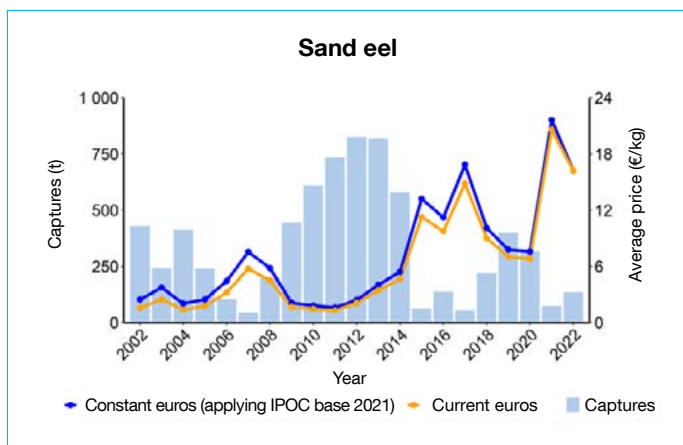
the manager to the territory and the need for decentralisation, understanding the Mediterranean fishery as a set of smaller fisheries that should be able to enjoy territorialised management, taking into account the particularities of each of them. Unfortunately, the policies of the State do not go in this direction, but in the unification of fishing grounds. This situation obliges us as a local fisheries administration to seek synergies with our counterparts in those nearby autonomous communities with which we maintain points in common. With the Catalan Research Institute for the Governance of the Sea (ICATMAR) as the backbone, and entity responsible for the scientific evaluations, we organise meetings with the fishing sector and the technical and political leaders of these neighbouring communities, with the objective of making proposals in these management plans of common affect. The most obvious cases are, without a doubt, those of the negotiations for the deployment of the Multiannual Plan for demersal fishing in the Western Mediterranean, which is affecting very intensively the demersal fisheries or the Management Plan for the encirclement of small pelagic fish, which regulates the management of such emblematic species in our country as the sardine and seiton.

The gains of co-management have been wide-ranging: co-responsibility in the management of fisheries resources, the empowerment of the fisheries sector involved, the generation of a culture of joint work, the improvement in data collection and scientific knowledge and a clear increased compliance and respect for the agreed rules. It is necessary to give special importance to the last of the aspects discussed, which is respect for the rules. If you have participated in their preparation and are aware of the reasons for which they have been agreed, logic tells us, and practice ratifies, that they will be much more respected. On the other hand, working side by side between scientists and fishermen facilitates joint enrichment, while feeding off each other's knowledge and experience.

## 02. Co-management in figures



Source: ICATMAR.



### Cuttlefish

	Captures 2021 (kg)	Income 2021 (€)	€/kg 2021	Captures 2022 (kg)	Income 2022 (€)	€/kg 2022
Total Catalonia	192 536.66	1 946 068.38	10.11	207 144.66	2 073 648.07	10.01
Total co-managed	6 194.70	89 048.05	14.37	8 485.86	105 917.03	12.48
% co-managed	3.22	4.58	-	4.10	5.11	-

### Common octopus management plan for Central Catalonia and Terres de l'Ebre area

	Captures 2021 (kg)	Income 2021 (€)	€/kg 2021	Captures 2022 (kg)	Income 2022 (€)	€/kg 2022
Total Catalonia	294 263.69	2 525 359.37	8.58	303 096.40	2 746 230.48	9.06
Total co-managed	160 620.59	1 427 063.61	8.88	138 531.78	1 277 072.60	9.22
Central Catalonia co-managed	41 071.55	368 859.02	8.98	39 261.75	369 667.38	9.42
Terres de l'Ebre area co-managed	119 549.04	1 058 204.59	8.85	99 270.03	907 405.22	9.14
% Total co-managed vs. Total	54.58	56.51	-	45.71	46.50	-
% Central Catalonia vs. Total co-managed	25.57	25.85	-	28.34	28.95	-
% Terres de l'Ebre area vs. Total co-managed	74.43	74.15	-	71.66	71.05	-

Source: ICATMAR.



Blue crab management plan						
	Captures 2021 (kg)	Income 2021 (€)	€/kg 2021	Captures 2022 (kg)	Income 2022 (€)	€/kg 2022
Total Catalonia 2021	397 524.42	1 603 719.72	4.03	380 184.00	1 818 687.81	4.78
Co-managed 2021	396 572.40	1 602 561.93	4.04	379 841.76	1 817 717.81	4.79
% co-managed 2021	99.76	99.93	-	99.91	99.95	-

Sand eel management plan						
	Captures 2021 (kg)	Income 2021 (€)	€/kg 2021	Captures 2022 (kg)	Income 2022 (€)	€/kg 2022
Sand eel	73 751.02	1 515 041.59	20.54	134 388.35	2 177 680.09	16.20
Red goby	1 384.71	78 334.05	56.57	58.90	3 849.54	65.36
% Sand eel co-managed	100.00	100.00	-	100.00	100.00	-
% Red goby co-managed	100.00	100.00	-	100.00	100.00	-

Source: ICATMAR.

### 03. Co-management forums

#### 3.1. First Fishery Co-Management Forum. Barcelona Boat Show

In this assessment of fisheries co-management, we cannot fail to highlight the events that have been organised in Catalonia regarding the implementation of our model.



To remember the first of the events, we must go back to the year 2019 when the First Catalan Fisheries Co-Management Forum was held as part of the Barcelona Boat Show. This first meeting consisted of a very practical act, aimed at sharing experiences and looking for synergies between the six committees that had been created so far. In a marquee at the Port of Barcelona's Moll d'Espanya, a space was provided to display the weaknesses and strengths of each committee, while future proposals for improvement were collected. During the event, the "Peix de Cogestió" (Co-Management Fish)

badge was presented, which distinguishes the fishery product caught and marketed within the framework of a co-managed management plan.



The Boat Show event concluded with the presentation of the Catalan Research Institute for the Governance of the Sea (ICATMAR) which, among many other objectives and functions, constitutes the scientific advisory body of the co-management committees.

#### 3.2. Second Fisheries Co-Management Forum. Roses

##### Symposium on participatory governance

##### For the sustainability of fisheries

In the framework of the Symposium on Participatory Governance for the Sustainability of Fisheries and the Centenary of the Roses Fishermen's Guild, in 2021 the 2nd Fisheries Co-management Forum of Catalonia was held.

This time, the setting was the Teatre Municipal de Roses. The harsh conditions due to the state of global covid-19 pandemic that was experienced at that time conditioned the complex organisation of mixed, face-to-face and telematic conferences, which allowed the participation of experts from around the world. In 2021, the experience of Catalan co-management already had three years of history, accumulated experiences and published management plans. The seven established co-management committees were presented and the stage of the Teatre de Roses became the centre of debate and contributions from all of them. The perceptions of each of the representatives of the members of the technical commissions on what the implementation of the co-management model entailed were publicly presented, which led to a very enriching final debate with the public.

### 04. Governance day at the International Seafood fair

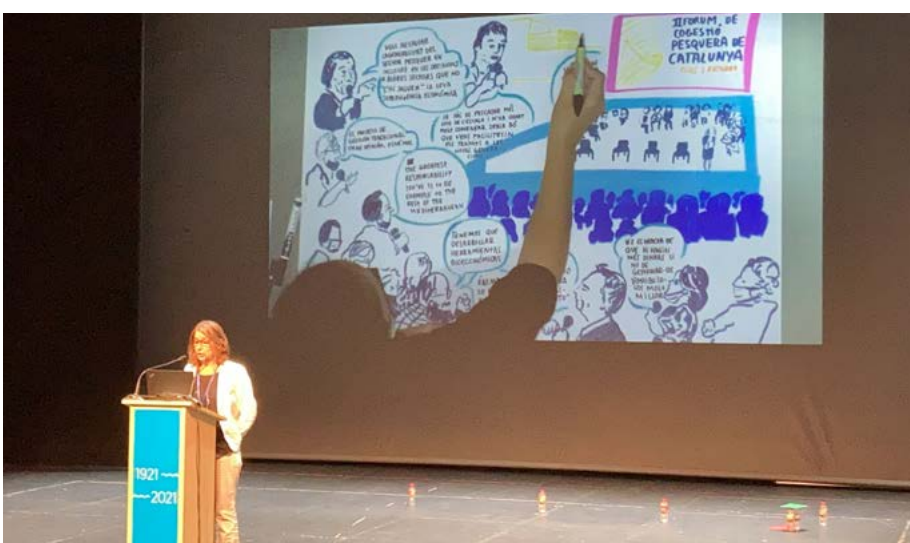
In the programme of events of the General Directorate for Maritime Policy and Sustainable Fishing linked to the



Inauguration of the 1st Fisheries Co-management Forum in Catalonia. Photo: General Directorate for Maritime Policy and Sustainable Fishing. DACC.



Poster of the 2nd Fisheries Co-management Forum in Catalonia. Photo: General Directorate for Maritime Policy and Sustainable Fishing. DACC.



Conclusions of the debates of the 2nd Catalan Fisheries Co-management Forum. Photo: General Directorate for Maritime Policy and Sustainable Fishing. DACC.

celebration of the 29th Seafood Expo Global 2023, held in Barcelona in April, a day was dedicated to participatory fisheries governance.

The Hub Catalonia Seafood 2023 was the setting for the presentation of the act “A new model of participatory fishing governance: 5 years of co-management in Catalonia.”

There were several presentations linked to the model of co-management and, in general, participatory governance, where the online contribution of MEP Clara Aguilera stood out, echoing the approval by the European Parliament of her Report-proposal on a fisheries co-management model to be implemented by the European Commission.

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# OTHER MODELS

## of fisheries co-management

### 01. Fisheries co-management in the Mediterranean

*A perspective from the Mediterranean and Black Sea region: the experience of the General Fisheries Commission for the Mediterranean (GFCM) in promoting co-management and participatory management in the region*

#### Introduction to regional policy frameworks

In the area of application of the General Fisheries Commission for the Mediterranean (GFCM) – the Mediterranean and Black Sea region – participatory fisheries management has been increasingly recognised as best practice for the governance of fishing, especially for small-scale fishing. Participatory management in the region spans a wide range of governance structures, ranging from strict co-management arrangements to a broader ecosystem approach to fisheries management (EAF), in addition to various other participatory frameworks of stakeholders that reflect the very diverse characteristics of fisheries in the region.

In particular, in the context of the GFCM, the development and governance of small-scale fisheries is guided by the Regional Action Plan for Small-Scale Fisheries in the Mediterranean and the Black Sea (RPOA-SSF), which signed as a Ministerial Declaration in September 2018 by high-level representatives of the Mediterranean and Black Sea countries and the European Union. The RPOA-SSF is based on the Voluntary Guidelines for ensuring the sustainability of small-scale fisheries in the context of food security and poverty eradication (SSF Guidelines)<sup>1</sup>

and provides a region-specific ten-year road map towards the long-term environmental, economic and social sustainability of the small-scale fisheries sector. The RPOA-SSF strongly encourages the participation of small-scale fisheries actors in decision-making processes, including through paragraph 32, which states the need for *promote participatory management systems, such as co-management bodies, in which fisheries management measures and accompanying socio-economic programmes can be established and applied*. Participation is therefore a cross-cutting principle throughout the RPOA-SSF that is based on strong partnerships between fishermen, scientists and decision-makers.

The RPOA-SSF approach was further supported by the adoption in 2021 of the GFCM 2030 Strategy for Sustainable Fisheries and Aquaculture in the Mediterranean and the Black Sea, which further contributes to the partic-

ipatory approach defended and calls for the full implementation of the RPOA-SSF. The GFCM 2030 Strategy includes the cross-cutting issue of empowering stakeholders and involving them in decision-making processes. In objective 4: *Livelihoods: decent employment and fishermen committed to profitable fishing, with specific reference to promoting the participation of fishermen in participatory management processes, facilitating their role as guardians of the sea*. Consequently, support for improving the capacity of producer organisations, particularly in small-scale fisheries, to become active collaborators in management is mentioned.

In a high-level event, held online in June 2021, the implementation of the RPOA-SSF was discussed and it was noted that there is a need to "enhance the development of participation mechanisms and co-management plans at the local level".<sup>2</sup> Consequently, in the follow-up questionnaire survey distributed to GFCM Contracting Parties and

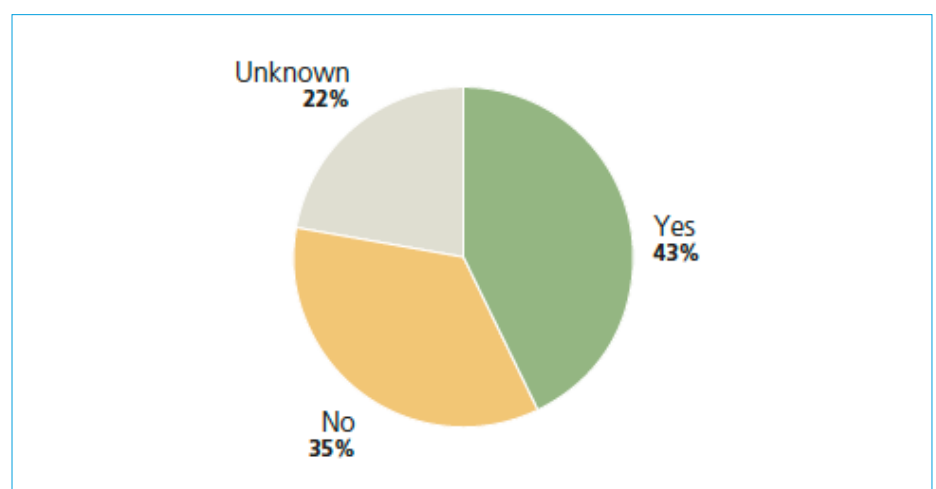


Figure 1: Percentage of GFCM Contracting Parties and Non-Contracting Parties cooperating with existing co-management or similar participatory management arrangements. Source: Page 112 to FAO. 2022. *State of Mediterranean and Black Sea fisheries 2022*. General Fisheries Commission for the Mediterranean. Rome.



Cooperating Non-Contracting Parties (CPCs) in 2022, based on a similar baseline survey conducted in 2020, included additional questions about whether co-management mechanisms or other participatory management mechanisms had been implemented.

The responses received showed that ten CPCs (43% of all CPCs) have instituted co-management agreements or similar participatory management systems since 2020 (Fig. 1).

### Participatory and co-management experiences in the Mediterranean

As already said, there are close links between co-management and EAF and both approaches are complementary. Although co-management is a system of governance, the EAF provides a process for developing and implementing a fisheries management plan through a participatory approach. A review of EAF implementation by Regional Fisheries Management Organisations (RFMOs) by FAO in 2020<sup>3</sup>, concluded that most of the different components of the EAF had been implemented in the Mediterranean and Black Sea region. It was also noted that the GFCM was the only RFMO, of those reviewed, that included social and economic objectives, but that support is needed to develop national strategies for small-scale fisheries and to continue investing in co-management as a means to contribute to the sustainability of fishing.

Without a doubt, the Catalan model is a model of co-management in the region and, in fact, it was recognised as a good practice in the Mediterranean

region at the 2018 GFCM high-level conference, where it was also signed the RPOA-SSF.<sup>4</sup> However, the diversity of the region means that participatory management takes different forms depending on the location and the different types of fisheries. There are many other examples of co-management in the Mediterranean, usually combined with EAF approaches. Case studies of the Blue Swimmer Crab in Tunisia, the Gökova MPA in Turkey and the co-management pilots in Croatia, Greece, Italy and Turkey facilitated by WWF are summarised below.

### Blue crab fishing in Tunisia<sup>5</sup>

Two non-native blue crab species have recently become established in the Mediterranean (American blue crab, *Callinectes sapidus*, and blue swimming crab, *Portunus segnis*). They have commercial value, but specific fishing techniques are needed, as blue crabs interfere with other fisheries and gear causing destruction of nets and injury to fishermen. By removing them, the crabs that have ended up as bycatch in the nets are usually damaged and therefore of low quality. Fishermen in the Gulf of Gabes, Tunisia, first saw the blue swimming crab in 2014 and soon saw that it posed a threat to their fishing activity. To solve the situation, a collaborative approach was adopted to help fishermen through the support of the Interprofessional Group of Fishery Products (GIPP from its initials in Catalan), a sectoral organisation overseen by the Ministry of Agriculture and Water Resources. Crab collection points were established, grants were awarded to encourage

crab fishing, transport and storage, and traps were manufactured and tested; all together, in close collaboration with the fishermen. Projects have also been carried out for scientific research, promotion of the use of traps, marketing of crabs and incentives for processing plants and exporters to participate in the support.

Based on the experience, the FAO developed a guide to good fishing practices for blue crabs with multipurpose traps. They were distributed to fishermen, who were also trained in making crab traps. The GFCM has also established a regional research programme for the sustainable exploitation of blue crab in the Mediterranean, with the aim of guaranteeing socio-economic sustainability.

### Gökova Marine Protected Area, Turkey<sup>6</sup>

Traditional small-scale multi-gear and multi-species fishing is a major economic activity in Gökova Bay, Turkey. In the area, the level of biodiversity is high, and in 1988 a Marine Protected Area (MPA) was established there. Three main communities in the area have created their own fishing cooperatives: Akçapınar, Akyaka and Sarıç- Akbük.

In 2010, through a participatory process with researchers, NGOs and fishermen's cooperatives, six no-take zones were established. In 2016, a pilot case study was initiated to develop an EAF management plan for the MPA. Among the partners involved were the General Directorate for Fisheries and Aquaculture (DG-Fisheries) of the Ministry of Ag-

<sup>1</sup> FAO. 2015. *Voluntary guidelines for ensuring the sustainability of small-scale fisheries in the context of food security and poverty eradication*. Rome. See <https://www.fao.org/voluntary-guidelines-small-scale-fisheries/en/>. <sup>2</sup> Page 109 to FAO. 2022. *State of Mediterranean and Black Sea fisheries 2022*. General Fisheries Commission for the Mediterranean. Rome. <sup>3</sup> Fletcher, W.J. 2020. *A review of the application of FAO's ecosystem approach to fisheries management (EAF) in areas beyond national jurisdiction (ABNJ)*. Rome, FAO. <https://doi.org/10.4060/cb1509en>. <sup>4</sup> The award "Best practice for the co-management of small-scale fisheries: The Catalan model of fisheries co-management with multiple stakeholders" was presented to the Catalan National Federation of Fishermen's Guilds, the Department of Agriculture, Livestock, Fishing and Food, Generalitat de Catalunya and the General Secretariat of Fisheries of the Ministry of Agriculture, Fishing and Food of the Government of Spain at the conference. <sup>5</sup> Text based on Baggi Guide. 2022. *Mongabay Series: Oceans. Love 'em and loathe 'em: Mediterranean grapples with tasty, voracious invasive crabs*. 10 August 2022 (<https://news.mongabay.com/2022/08/love-em-and-loathe-em-mediterranean-grapples-with-tasty-voracious-invasive-crabs/>) and presented by INSTM, Tunisia, Ministère de l'Agriculture, des Ressources Hydrauliques et de la Pêche, Tunisia, and FAO/GGPM at the Symposium on Participatory Fisheries Governance for Sustainability, on 1 October 2021, in Roses, Girona (Spain). <sup>6</sup> Based on Vasconcellos, M. and Ünal, V., eds. 2022. *Transition towards an ecosystem approach to fisheries in the Mediterranean Sea: lessons learned from selected case studies*. FAO fisheries and aquaculture technical document no. 681. Rome, FAO.

riculture and Forestry, fishing cooperatives, the NGO *Mediterranean Conservation Society* (AKD), the Turkish Coast Guard Command, universities and the FAO EastMed Project, with AKD and Akyaka Fishery Cooperative as the most active stakeholders. The process took approximately two years. It included EAF training, a comprehensive background study of the socio-economic, environmental and institutional aspects of fisheries and stakeholder consultation workshops. The fisheries management plan was unanimously approved in 2018 and it was agreed to create a Fisheries Management Advisory Committee.

However, there have been delays in the government's formal implementation of the fisheries management plan. However, increases in the income and socio-economic status of fishermen have been observed. With the support of AKD, there have been advances in fisheries management with improved MSY, including stricter enforcement of no-take zones and increased compliance management measures, leading to a improvement of fish populations. The Akyaka cooperative collects data and monitors surveillance and patrol activities. The collaboration between the stakeholders – fishermen and AKD – is based on trust, sincerity, solidarity and the concrete benefits created with the help of the projects that support the consultative process that was carried out and the subsequent management efforts. However, key challenges remain, such as sustaining data collection by the Akyaka cooperative and convincing the other two cooperatives to do the same, as well as the ongoing successful activities of MSY. To make real sustainable changes, it is also necessary for official institutions to act and for the agreed fisheries management plan for the MPA to be fully implemented.

### WWF co-management pilot plans in the Mediterranean: Croatia, Greece, Italy and Turkey<sup>7</sup>

In 2017, the WWF started a project with pilot plans in a total of 13 sites in Croatia, Greece, Italy and Turkey to promote EAF principles and establish co-management at both local and regional levels. In Albania, Algeria, France, Slovenia, Spain and Tunisia there were already similar efforts. The fisheries where the pilot schemes were promoted tended to be carried out by small multi-purpose vessels that mostly used nets and longlines and were crewed by only one or two fishermen. The objectives of the different fisheries are between three and eleven main species (with the exception of a selective trap fishery that is carried out at one site in Croatia). The most common species caught everywhere is sea bream (*Diplodus sargus*). Management varied from place to place, but was mainly centralised: either based on national rules that were aligned with regional frameworks or on rules established by MPA management bodies belonging to centralised environmental authorities.

The project facilitated the creation of co-management systems in most of the places where pilot schemes were promoted, either through agreements signed between partners or through legally recognised co-management agreements. Where fisheries management plans have been developed – through EAF processes – they include no-take zones, the use of sustainable fish aggregation devices, fishing effort limits and changes towards more selective fishing gear. At a site in Italy, there is also collaboration with the national research institute regarding interactions between fishermen and dolphins trying to catch fish from nets. Some of the challenges facing the project include the delimitation of

co-managed resources, conflicts with recreational fishing, the lack of mechanisms to limit the increase in small-scale fishing effort when trawling bans are in place, and the absence of rights-based management solutions.

As the project's objective was to improve the income and well-being of coastal communities while reducing fishing effort and improving the sustainable use of fishery resources, support also included identifying opportunities for means of alternative lives, the development of associations, access to credits and the promotion of investments. Therefore, the focus included activities outside the fishing sector, such as the production of other products (wine, oil) and sustainable tourism in the form of fishing. Exchange visits proved to be a useful activity for finding solutions. Other learnings are the need for a commitment from the relevant government administrations for co-management to be successful. The best results were obtained when there was effective involvement of fishermen, administrations, researchers and NGOs, but legal and institutional structures are needed for the long-term sustainability of co-management arrangements. Having a facilitator to help address conflict situations was found to be useful when coupled with the committed involvement of fishermen at all stages of the EAF process and to establish co-management arrangements.

### Final remarks

The GFCM supports the biological, socially, economically and environmentally sustainable use of living marine resources and the long-term viability of fisheries in its area of application. Based on global experiences and international policy frameworks, EAF and participatory management,

<sup>7</sup> Communiqué COM/2023/103: Communiqué from the Commission to the European Parliament and the Council. The common fisheries policy of today and tomorrow: a Fisheries and Oceans Pact for sustainable, science-based, innovative and inclusive fisheries management.

such as co-management, have been identified as best practices in the region to guide fisheries governance and management. To this end, the GFCM has advanced exchanges among fishermen in the region, in the context of its SSF Forum initiative, to share experiences and best practices on stakeholder engagement in management. In addition, the Scientific Advisory Committee on Fisheries (SAC) of the GFCM has recently highlighted the importance of advancing in EAF in the region. However, there are no “one-size-fits-all” solutions and approaches must be tailored to the specific circumstances of different sites, fisheries and communities through consultation, co-produced knowledge and shared decision-making. According to the GFCM, moving towards holistic and participatory processes and agreements requires capacity building, research and multi-stakeholder debates, involving fishermen and fish workers (men and women and youth) along the entire length of the value chains in fishing.

## 02. Vision of Fisheries Co-Management from the Mediterranean Advisory Council (MEDAC).

The Advisory Councils were created, by virtue of the Common Fisheries Policy (CFP), through a Council Decision of July 2004, based on Regulation (EC) no. 2371/2002, on the conservation and sustainable exploitation of fishing resources, which provided for a new form of participation of stakeholders in the PPC through the regional Advisory Councils.

The creation of these Advisory Councils required that they be based on management units and biological criteria, and it was anticipated that their number would, in any case, be limited. In the same way, its size remained limited, with the intention of ensuring that they integrate all the interests affected by the PPC, with a balanced rep-

resentation of them but, at the same time, recognising the primacy of fishing interests over the rest.

These are organisations directed by the stakeholders themselves, requiring that their structure be adapted to the characteristics of the fishing areas and regions in question.

The composition of the Advisory Councils obeys the specific criteria of Co-Management and Governance. In this regard, they are made up of the organisations that represent the Fishing and Aquaculture Sector, as well as the processing and marketing sectors and, also, the so-called “other stakeholders affected by the PPC”, such as environmental organisations, consumer groups, Recreational Fishing, unions, etc.

On the other hand, from the beginning, it was foreseen that the EC could adopt delegated acts in order to establish the detailed rules for the operation of the Advisory Councils with the intention of guaranteeing, at all times, a balanced composition and a transparent operation. A total of three acts or delegated regulations have been published in 2015, 2017 and 2022.

The Councils must carry out internal audits to guarantee transparent and democratic functioning and processes. And they are required, at least every 5 years, to undergo an independent examination on their performance, with the aim of determining best practices and deficiencies, collecting recommendations to improve their operation and evaluating their overall contribution to the objectives of the PPC. The results of these examinations are made public and, in the event that deficiencies are detected, they are accompanied by an action plan in which concrete measures are established and a specific calendar for their application.

Its function is to inform and give advice to the European Commission (EC)

and the Member States (MS), through recommendations and suggestions on issues that have to do with the management of Fisheries and Aquaculture, as well as its socio-economic aspects and those related to the conservation of resources. They must contribute, in close collaboration with scientists, to the collection, supply and analysis of the data necessary for the development of conservation measures.

Finally, the Advisory Councils can coordinate to deal with common issues that affect them.

If we specify the Mediterranean Advisory Council (MEDAC <https://www.med-ac.eu>), we must say that its operation is recognised, by the services of the EC, as the most effective and the most efficient of all existing Councils (a total of 11: Aquaculture, Baltic Sea, Black Sea, Long Distance, Markets, North Sea, Northwest Waters, Southwest Waters, Outermost Regions, Pelagic Fish Stocks, and Mediterranean Sea).

However, it is important to highlight that it is the one that makes the greatest efforts to have interpretation in all the languages used (MEDAC has representation from Cyprus, Malta, Greece, Croatia, Slovenia, Italy, France and Spain. And, in the latter case, it should be noted that Catalonia, the Balearic Islands, Valencia and Andalusia are represented) and to guarantee the availability of any documentation in each of the working languages.

This means a major financial effort to which, for years, MEDAC has added that of carrying out work with all the scientific teams of each of the countries that make it up, in order to ensure the best and most effective advice in every moment, and on any matter related to the management of marine resources.

So, we can see that the Advisory Coun-



cils, their structure and their operation on the one hand obey, line by line, the criteria of Co-management as a work policy involving the Administrations, the Fishing and Aquaculture Sector, the scientific teams, and civil society (through Non-Governmental Organisations, representatives of Recreational Fishing, consumer groups, unions, etc.) and, on the other hand, with those of Governance understood, this, in the sense established by Decree 118/2018 of the Generalitat, that is to say, as decision-making through the active participation of the agents involved.

They are, however, a clear expression of what Regionalisation is (or should be), a model that aims to decentralize decision-making and bring this capacity closer, at every moment, to territories, groups and activities, while achieving a true *“adaptation to the socio-economic realities of each territory”*.

If we talk about Co-Management, Governance and Regionalisation in each of the countries that make up our Advisory Council, then we will find different levels of achievement of this “way of doing things” which, in any case, constitutes the reality in each of them.

A clear example can be found in the neighbouring country, France, where a co-management approach has been applied to Red Tuna Fishery (*Thunnus thynnus*) using a handline.

The SATHOAN Cooperative ([www.sathoan.fr](http://www.sathoan.fr)), located in Sète, and a member of the Mediterranean Advisory Council (MEDAC), has 115 fishing boats, of which 80 are dedicated to fishing for Red Tuna. This organisation manages more than 60% of the quotas for this species in France, including more than 75% of those corresponding to the small-gear fleet in the French Mediterranean. It is traditional fishing with rod and longline, with a sustainable and respectful approach to the resource.

They have created their own collective brand (*Thon Rouge de Ligne*) which guarantees compliance with a set of rigorous criteria in terms of sustainability, traceability and quality by its members.

In this way, in July 2019, SHATOAN obtained the first public “Ecolabel” in France, a certification that testifies to compliance with strict environmental standards. Shortly afterwards, this commitment was reinforced by obtaining another sustainability label, that of the Marine Stewardship Council (MSC).

The key element of SATHOAN’s strategy is in its Co-management system, consisting of a collaborative approach that involves Fishermen, Scientists, national authorities and other stakeholders, such as NGOs, etc.

In this way, the Cooperative works very closely with scientific institutions (such as IFREMER, CNRS, the MARBEC research unit, or the Universities of Montpellier and Exeter), and with NGOs such as WWF France, allowing the Cooperative to remain at the forefront of science and technology while, at the same time, complying with the most demanding environmental regulations.

In its commitment to Sustainable Fishing, the SATHOAN Cooperative implements innovative research projects (such as RAYVIVAL and POBLEU), and the data collected are integrated into information systems on fisheries, such as ECHOSEA (a tool developed by the same Cooperative) and HALIOP, which provide real-time monitoring of fishing activities.

And if we turn our eyes to Catalonia, it is worth saying that talking about Fisheries Co-Management has become a common issue and, in this regard, it is the most advanced EU region in the application of a model that is proving to be optimal for managing the resource, guaranteeing the best possible results in each of the three pillars

on which the Common Fisheries Policy rests: the Environmental, the Economic and, the most important of all, the Social.

5 years have passed since the publication of Decree 118/2018 on the Professional Fishing Governance model in Catalonia.

From here, and bearing in mind that Council Regulation 1967/2006, relating to management measures for the sustainable exploitation of fisheries resources in the Mediterranean Sea, came to establish a change in management model of Fisheries, and instituted the so-called Multiannual Management Plans, the Fisheries Governance model in Catalonia has been based on two key aspects:

- the regulation of fishing resources through Management Plans, with a comprehensive and long-term approach to environmental, social and economic sustainability.
- a Co-management model that requires the participation and involvement of the Sector, scientific teams, NGOs and Administrations with responsibilities.

At the time when this Decree was published, Catalonia had long since begun the path towards a fisheries management that is built from the base upwards, making the Community objective of Regionalisation a reality, a model that, as we said, aims to decentralise decision-making.

In our country this way of doing things has found the best tools to make it a reality: the Fishermen’s Guilds which, in France, have their counterparts in the Prud’Homie or, in Italy, in the powerful cooperative movement.

The Fishermen’s Guilds, authentic bodies with a parity structure and democratic participation, are the backbone institutions of the Fishing Sector, and of dialogue with the Ad-

ministration, of which they are collaborating entities, and of which they receive tutelage. They organise the production systems of their affiliates, and are the owners of the fishing lodges under an administrative concession regime.

They are, therefore, the entities that, historically, develop a true Governance and exercise, together with the Administration, scientific teams, NGOs, etc. a formidable Co-management.

However, the regulatory framework in which the Decree on the Governance model is published is characterised by the creation, two years earlier, of the Maritime Action Programme with the aim of establishing its own Maritime Policy, which conforms to through an Integrated Management of the sectoral activities that take place in the Maritime Space and, this, through the definition of a Governance system that must allow the development of an adequate Blue Economy, which is Sustain-

able and Harmonious. Thus, the Maritime Strategy of Catalonia was born.

Our country in the last 20 years has thus been able to provide an adequate regulatory framework, with a Law on Guilds of 2002, a Law of Fishing and Maritime Action of 2010, the aforementioned Decree of Governance, all converging in the Maritime Strategy and, very soon, with a Law of the Sea that, from a zenithal vision, will contemplate each and every one of the realities that affect the marine environment.

In recent years, the Generalitat has taken the last and definitive step that should allow the exercise of the best of governance, the most efficient co-management and constitute the greatest expression of regionalisation, and it has done so with the constitution of a total of 5 Local Fishing Action Groups along the entire coastline of our territory, from Les Cases d'Alcanar to Llançà, true precision

tools with which to apply the Maritime Strategy.

This social and regulatory reality constitutes the perfect basis for achieving the objectives of a sustainable, integrated and harmonious development of all the productive activities that take place in the maritime space, as well as guaranteeing resilient and fully functional ecosystems, improving the quality of life of its citizens, in a leading governance framework that has fully developed and consolidated innovative participatory mechanisms of co-management, which must allow the use of our sea and marine resources as true economic engines of prosperity.

This reality is transferred, by the sectoral representatives of Catalan Fishing, to the rest of the State and at EU level, making it known, for years, to the Mediterranean Advisory Council (<https://www.med-ac.eu>), documenting the existence of the most advanced model in the management of fishing resources, a model that has known and knows how to take advantage of each and every one of the possibilities offered by the EU regulatory framework, overcoming, on many occasions, the obstacles that, on quite a few occasions, they are generated by the Member States themselves, who show off, very often, the defects of top-down policy and management.

### 03. Co-management in Portugal: inspired by Catalonia

#### Historical framework of co-management in Portugal

Fisheries co-management is a recent legal concept in Portugal but has been promoted and developed informally for more than 8 years. This article aims to describe and contextualise the management of common resources on a national scale, specifically, the co-management of fisheries, addressing the



Joint work in participatory meetings with a view to co-management. Photo by Ana Aresta/ANP|WWF.



Barnacle caught in the Berlengas Natural Reserve. Photos: by Diogo Ventura/Público.

different phases of development of the legal framework of co-management and the way in which it has been formalised and put into operation.

The principles of participation and co-responsibility have been taken into account in the field of resource management informally for years and were applied, first through the Sardine Support Commission, created in 2010, with all the essential elements to debate the management of this important resource, and subsequently through other informal forms of consultation for the exchange of knowledge and consultation between the Administration, research and the productive sector, for certain fisheries, for example, dredge, chávêga, or areas such as the Aveiro estuary or the Óbidos lagoon, or even species, as well as for the annual debate on harmonised ban periods for diadromous fish, in this case with the scientific support of a team from the University of Évora.

In 2014, the Associação Natureza Portugal, in collaboration with WWF (ANP|WWF), started the Co-Pesca project, a process of analysing the potential of applying fisheries co-management in Portugal, which takes as a reference small-scale fishing in the Mediterranean, in which experience and learning in Catalonia were crucial. In 2015, the barnacle (*Pollicipes pollicipes*) catch in the Berlengas Natural Reserve (BNR) (Figure 2) was identified among 6 local fisheries as an ideal candidate for a pilot project, following all the work developed by the University of Évora (the current MARE- UÉ) together with the shellfishers and that sparked interest in co-management.

However, several opportunities for knowledge exchange between Portuguese stakeholders had already emerged and very positive examples of shared management in neighbouring Spain, with protected marine areas of fishing interest or the shared

management of the Galician barnacle or with the co-management of the sand eel, a fishery in Catalonia.

At the same time, in the scope of a project led by the Environmental Defence Fund (EDF), financed by the Fundação Oceano Azul (OA) and with the participation of the ANP|WWF, other fisheries were identified in relation with its potential to apply co-management. This process provided the opportunity to develop a legislative proposal for the legal framework for co-management of fisheries at national level, when the review of general fisheries legislation was carried out. This proposal was submitted to the competent fisheries body in 2018 and was published in September 2020.

This initiative aimed to ensure the participation of stakeholders in planning and management decisions, the scientific basis to ensure sustainability, increased value and profitability



of the fishery product and was developed from the legal framework for co-management applied in Catalonia, both in the first Maritime Strategy of Catalonia of 2018, and in the operation of the Co-Management Committee of Sand Eel Fishing in Catalonia.

The definition that was included states that “by co-management is meant the regime of shared management of living resources and the means necessary for their capture and economic use, the objective of which is the sustainable management of resources and the realisation of the principle of maximum mutual collaboration”.

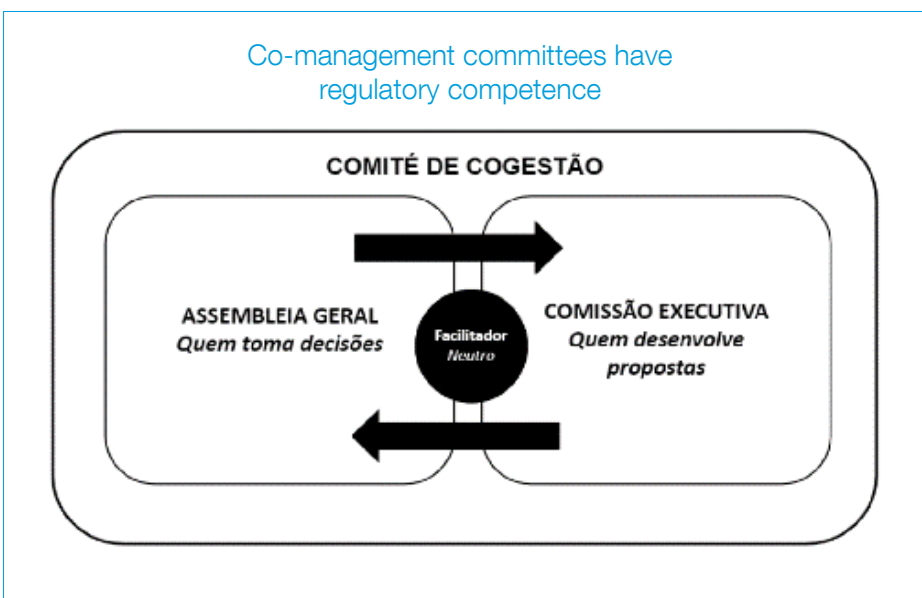
Meanwhile, in 2020, the Co-Pesca 2 project was reaching its final phase and had already gone through several ups and downs, particularly as a result of the confinement following the COVID-19 pandemic and the resulting closure of restaurants, the main buyers of barnacles. In this context, a voluntary moratorium on the part of the collectors was taken into account, applied on the basis of a “gentleman’s agreement” between all parties (fishermen, the Administration, scientists and environmentalists), made which demonstrates the ability to take management decisions in a responsible manner.

At the beginning of 2021, and after the publication of the legal co-management framework, the tasks for the legal constitution of the Co-Management Committee for the BNR Barnacle Catch began. The final result of this work, which had the participation and legal support of the Cabinet of the Secretary of State for Fisheries, was the preparation of a proposed ordinance, which was approved by all parties involved and submitted to the consideration of the members of the Government responsible for the sector in September. In December, the legal regulations were published and the BNR barnacle catch became the

**CO-MANAGEMENT: concepts**

Co-management is a system of shared management of a fishery or fishing area, defined in Decree-Law no. 73/2020, of 23 September. Co-management is a new paradigm in the management of fisheries resources that is based on a participatory process that must be integrative, transparent, informed, accessible and based on science and in which everyone has a voice and decision on the future of the activity.

Co-management can be carried out through the creation of a co-management committee whose objectives are the sustainable management and monitoring of the respective fishery or area, in accordance with scientific knowledge, evaluating the available data and coordinating the various activities in question, approving and supporting the execution of management plans.



Organisational model of the co-management committee. Source: own work.

first fisheries co-management committee in Portugal, which was formally established in March 2022.

Since the establishment of the Co-management Committee for the BNR Barnacle Catch, which the group developed together, the first management plan for the fishery was delivered to the competent body at the beginning of August 2022. The year 2023 began with the publication of the aforementioned management plan, the application of which has been debated, mainly within

the executive commission of the Co-Management Committee and, at this time, with great emphasis on harmonisation of the regulations on catches with the new co-management framework.

At the same time, in 2020, with the precedent of the *Tertúlias do Polvo* (“Discussions on the Octopus”), which took place in the scope of a project promoted by the University of the Algarve (from 2014 to 2016), and identified as a result of the EDF’s analysis, the process of co-man-

agement of fishing of the common octopus (*Octopus vulgaris*) of the Algarve took the first steps with the ParticiPESCA project, financed by Mar2020 and co-financed by the OA, led by the ANP|WWF in collaboration with the Centre for Marine Sciences of the University of the Algarve (CCMAR), the Portuguese Institute of the Sea and the Atmosphere (IPMA) and the EDF. The project has the participation of 15 fishermen's associations, which represent more than 700 licences for fishing gear aimed at this species on the southern coast of the continent, in addition to other entities that participate in fishing, such as the Administration, the scientific community and civil society.

Although the beginning of the process for the co-management of octopus fishing on the Algarve was conditioned by the limitations in the participatory process following the restrictions imposed by the pandemic crisis, in 2022, with the possibility of carrying out face-to-face meetings, the process became more fluid, which made it possible to progress in the preparation of the proposals for the ordinance creating the commission and the management plan, after 11 face-to-face meetings, which took place during 10 months (from March to December 2022). With the work developed during these months, in December 2022, a group of approximately 40 representatives, delivered several recommendations to the Secretary of State for Fisheries for:

- The Future Co-Management Committee for Octopus Fishing in the Algarve
- The proposed management plan of the Future Co-Management Committee for Octopus Fishing in the Algarve, with the joint definition of a vision for the fishery, as well as its management objectives.

For octopus fishing in the Algarve, the year 2023 has been dedicated

to planning and surveying on the ground the interest of licensees in terms of co-management. This process has progressed through the participation of the 15 fishermen's

associations representing the fishing industry on the Algarve coast which, so far, have collected the 51% of positive responses necessary for the co-management process to begin.



Acácio Grandela, president of the Berlengas Shellfish Gatherers Association in the constitution of the Co-Management Committee for the Barnacle Catch in the Berlengas Natural Reserve. Photo: Ana Aresta/ANP|WWF.




A fisherman in Santa Luzia repairs basket traps for octopus fishing. Photo: Gabriel Mendes/ANP|WWF.





Final meeting of the ParticiPESCA project with the delivery of the jointly developed recommendations to the Secretary of State for Fisheries. Photo: Ana Aresta/ANP|WWF.



## Visão e Objetivos de Gestão

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**Visão:**  
Em 2035, uma pesca rentável e sustentável, socialmente justa, contribuindo para um ecossistema equilibrado, atrativa para os jovens, melhore a condição socioeconómica do pescador e salvaguardar segurança alimentar

**Objetivos de gestão:**

1. **Regras e controlo:** Assegurar o cumprimento das regras com o controlo efetivo do número de artes aumentando a fiscalização
2. **Sustentabilidade:** Assegurar a proteção dos juvenis e garantir stocks
3. **Valorização:** Valorizar o polvo, apresentando/promovendo o polvo como um produto de excelência e capturado de forma sustentável

Vision and management objectives defined together by the stakeholders of the ParticiPESCA project for octopus fishing in the Algarve.

### Future perspectives and next steps of co-management in Portugal

#### Opportunities and challenges

The processes of formalising the co-management of fisheries required work from several fronts: joint and very close work with those responsible for the Administration, the push and support of those responsible for the Gov-

ernment, as well as the clear will and fishers, supported by credible scientists with a track record of scientifically recognised data, all facilitated by elements of environmental non-governmental organisations (NGOs) that ensure transparent, informed, science-based and fair processes.

Co-management models aim at the sustainability of resources, not only

from an environmental perspective, but also from an economic and social perspective. With a view to working collaboratively to achieve objectives of common interest, co-management allows for a more transparent exchange of knowledge and perspectives between different actors, which, at the same time, promotes an increase in trust between the various stakeholders, compliance and understanding of established rules and, in general, a more sustainable and flexible system.

It is essential to break paradigms and involve all stakeholders in the management of fishing activity.

The ongoing processes identified above are considerably different and allow participants in the processes to now be aware of the myriad challenges they pose.

In the case of the Berlengas barnacle, it is about 40 collectors who have exclusive access to an isolated fishery and in which recreational fishing is not authorised, with their own regulations and a history of scientific support for the activity.

In contrast, the octopus fishing in the Algarve is an open system in which, in addition to the coastal fishing communities, with more than 700 fishing licences for this fishery, a large set of vessels can catch octopus and in which professional fishing coexists with recreational fishing. The number of participating fishing communities, sometimes with conflicting interests and using different gear, makes conflict management and resolution a permanent challenge.

One of the main current concerns is securing the necessary funding to guarantee the various tasks necessary for the functioning of the committees and to apply the measures of scientific support, monitoring and guarantee of compliance.



Political support for co-management initiatives, essential for this to be effective, has been a constant during this process. Very recently, on 31 March 2023, the Assembly of the Republic approved a Recommendation to the Government for the “Co-Management Committee of the Barnacle Catch in the Berlengas Natural Reserve to receive financial resources and to create and finance the Co-Management Committee for Octopus Fishing in the Algarve”.

#### 04. Co-management of fisheries at the international level

##### A global perspective

Interest in fisheries co-management has increased in response to the need to find more efficient ways for fisheries management to deal with overfishing, as centralised management with a top-down approach has not been able to in many cases to guarantee sustainability. Sustainable and productive fisheries improve food security and nutrition, increase incomes, support livelihoods and foster economic growth. Co-management is based on the decentralisation of decision-making and participation, and as a result it can contribute to equitable governance outcomes.

##### Examples of fisheries co-management around the world

###### Mozambique

In Mozambique, fisheries co-management has been encouraged and put into practice for more than three decades. The Institute for the Development of Small-Scale Fishing (IDPPE, *National Institute for the Development of Small Scale Fisheries*) was established in 1990-91 specifically to support the development of the artisanal fishing sub-sector. In the late 1990s, the IDPPE launched a pilot community awareness-raising programme and created the first community fisheries councils (CCPs) in the provinces of Inhambane (Inhassoro and Vilanculos)

and Nampula (Angoche and Moma). CCPs are co-management entities whose aim is to encourage the participation of local communities in the management of marine and coastal resources, both inside and outside marine protected areas (MPAs). However, the institutional identity, rights and roles of CCPs were imprecisely defined. In 2003, the Government of Mozambique enacted new legislation allowing fisheries co-management under the General Marine Fisheries Regulations (Decree no. 43/2003). The 2003 Regulations established the functions or powers of a CCP. During the last decade, the government has run several artisanal fisheries projects. There has been a shift from an approach firmly focused on increasing production and added value from fisheries to recognising that fisheries resources are limited and under great pressure, and therefore recognising the importance of engaging communities in rights-based fisheries management, and the wider livelihood context in which these fishing communities operate. The Fisheries Law of 2013 provided for the creation of “zones for the conservation of fishery resources”.

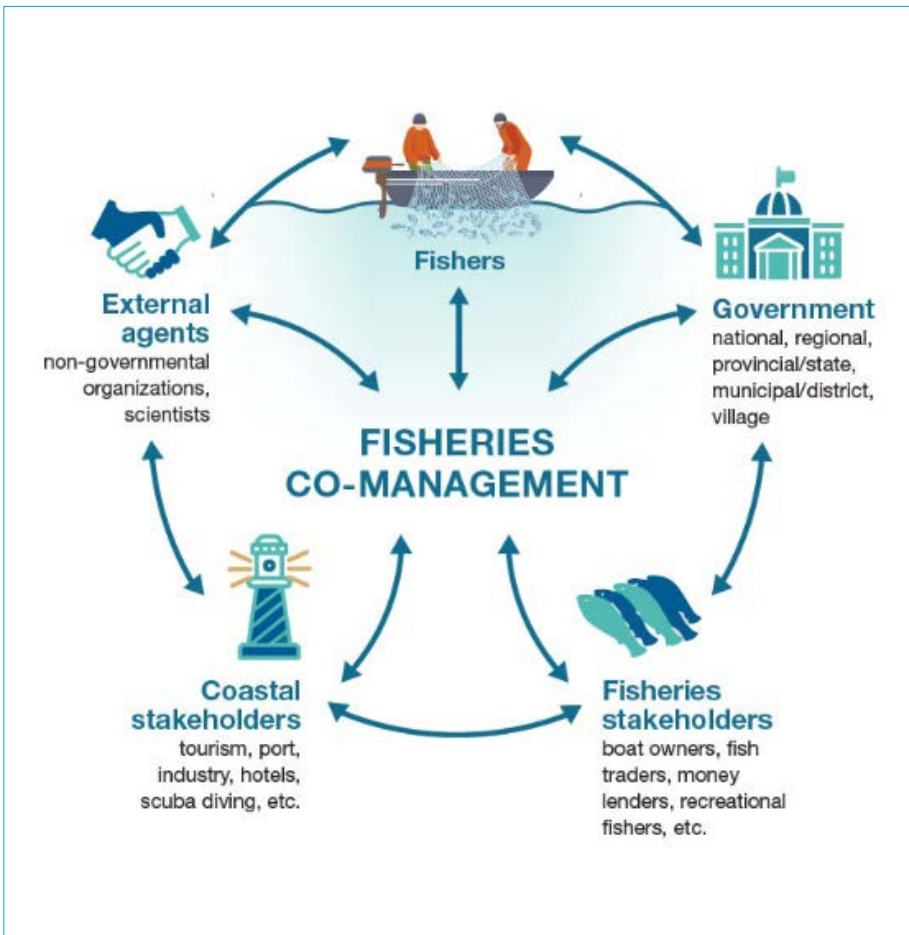
The new Maritime Fishing Regulations (REPMAR, Decree no. 89/2020) contemplates several specific provisions for fisheries co-management. The revision of the REPMAR regulation clarifies how CCPs, the main bodies in charge of local fisheries management, can become legally recognised entities. Under the new legislation, local fishermen can decide what kind of fishing gear can be used, define areas closed to fishing or impose temporary closures, among other measures. The new 2020 REPMAR regulation will not only apply to designated conservation areas, but to all coastal activities, including Mozambique’s exclusive economic zone (EEZ). The new REPMAR regulation strengthens participatory fisheries management and access rights to

artisanal fisheries by recognising and empowering Community Fisheries Councils (CCPs) as the community organisations responsible for representing the local fishing community in relation to fisheries management and in co-management forums at all administrative, subnational and national levels. CCPs were first legally recognised in 2004 and their roles and responsibilities are currently better defined in the 2020 REPMAR regulation.

###### Cambodia

Since 2000, a continuous fisheries reform has been taking place in Cambodia. This reform stands out for the partial cancellation of commercial fishing bans in the years 2000/2001, for the creation of fisheries co-management programmes through community fisheries (CFi) in 2005 and because, in 2012, the Government of Cambodia revoked the granting of inland fishing licences (fishing bans) to the private sector and allocated them to community fisheries organisations.

Artisanal fishing rights in Cambodia are contained in the Royal Decree on the Creation of Community Fisheries (2005), the Fisheries Law (2006), the Sub-Decree on Community Fisheries Management (2007) and the Ministerial Order on Community Fisheries Guidelines (*Prakas*) (2007), which consists of ordinances, internal regulations, agreements and a management plan. As established in the Sub-Decree, a community fishery “is a group of natural persons with Khmer nationality who reside in a fishing area or its surroundings, who have settled there voluntarily and who want to improve their living conditions through the use and processing of fishery resources in a sustainable manner in order to contribute to economic and social improvement and the reduction of poverty”. The Sub-Decree also details the rights, roles and responsibilities of CFi in fisheries management. Co-management takes place between the CFi and the Fisheries



Administration, the Provincial Fisheries Office, the Provincial/Municipal Departments of Agriculture, as well as the local authorities or commune councils/*sangkat*. The *Prakas* guidelines provide a nine-step guide to the CFI creation process.

CFIs fulfil a role in the management and conservation of fishery resources in accordance with CFI ordinances, in the management of fishing areas and in ensuring equitable access of CFI members to the resource. A CFI is led by an elected member of the Community Fisheries Committee (CFC). The CFC signs an agreement regarding the community fishing area with the Provincial Fisheries Office which includes a map of the area, a list of members, internal ordinances and regulations, as well as objectives. Once the community fishing agreement has been signed, the Head of the Fishing Cantons issues a request

to the Ministry of Agriculture, Forestry and Fisheries through the Fisheries Administration (FIA) in order to register the community fisheries and announce their recognition

#### United States

The state of Maine, in the northeastern region of the US, has supported the co-management of many fisheries, including shellfish, scallop, alewife and American lobster. Maine municipalities can form local shellfish committees and manage their intertidal zones using local knowledge to sustain the resources in their environment. Although the Maine Department of Marine Resources (DMR) oversees this work, municipalities need help organising and carrying out this form of collaborative management. More than 70 municipalities have developed an ordinance on the shellfish catch and have decided to manage their shellfish resources within their towns.

The recovery and co-management of Maine's important scallop fishery illustrates a multifaceted approach to integrating fishermen's knowledge into science and policy. In 2012, the Maine DMR asked for cooperation in creating a viable management plan to restore the long-closed scallop fishery. More than 100 meetings were held across the state, where the DMR spoke with nearly 50% of scallop fishermen from all over coastal Maine. The fishermen identified three distinct ecological and socio-economic areas. The DMR agreed to manage each area with a slightly different approach. When the fishermen preferred rotating areas, they could define most management lines that were directly implemented. Low daily catch limits were designed to fit fishermen's values in relation to the fishery. Close collaboration during the early years between fishermen and DMR staff resulted in a real-time process that allowed the DMR to close fisheries based on information transmitted by fishermen about catch rates. The scientific approach used by the DMR evolves to support the programme, including in-season surveys that produce new information about the fishery.

Fishing of the alewife (*Alosa pseudoharengus*) is managed at the federal and state levels, but in the state of Maine cities and towns can form alewife fishing committees as part of municipal government and manage recreational and commercial fishing within their community. The fact that alewife return (or migrate) every year to their river courses and natural ponds offers the possibility of monitoring the status of migratory movements over time and managing them in a sustainable and efficient way. Unfortunately, state and federal governments lack the capacity to work at this community level. Fortunately, the municipalities not only have this capacity, but also have the cultural and economic connections to these ponds and fish migration routes,

in addition to immensely valuable local knowledge to carry out collaborative management. Co-management programmes have been established with several neighbouring municipalities along the Bagaduce River, where the Brooksville, Sedgwick and Penobscot Alewife Committee was created, made up of these three towns.

In Maine, the American lobster co-management system, created in 1995, divides the coast into seven zones. It allows licence holders in each area to recommend to the commissioner of the Department of Marine Resources (DMR) regulations regarding access, total trap limits, number of traps in series and number of fishing trips.

### Good practices of fisheries co-management

Experiences around the world and review articles have shown that co-management systems that work well are those that are based on comprehensive cooperation and where management authority has been delegated. Several success factors and good practices for fisheries co-management have been identified (Pomeroy *et al.*, 1997; Pomeroy, Katon, & Harkes, 2001; Pomeroy, Cinner, & Nielsen, 2011; Evans, Cherrett, & Pemsli, 2011; Gutiérrez, Hilborn and Defeo, 2011; of Armengol *et al.*, 2018.) These good practices can be considered a basis for achieving successful co-management that brings benefits and contributes to sustainable development and good governance. They can be classified according to their reference to the favourable external environment, to the internal attributes of the co-management system itself and to the individual participants of the co-management. In summary, some of the most frequently mentioned factors and best practices, sorted by general categories, are:

1. Best practices for a favourable environment (external to the fishery co-management system):

- Legislation and policies favourable to fisheries co-management: existing legislation, policies, rights and authority structures that support co-management.
  - Tenure rights over the resources of the co-managed fishery: formal and recognised rights over the fishery resources are guaranteed in the co-management unit and there are defined mechanisms (economic, administrative and collective) and the necessary structures to allocate rights use among co-management participants.
  - Government authority with the right to organise and create management regulations: users of the resource have the legal right to organise and establish regulations.
  - Support from government and political/economic elites: active cooperation and power sharing with resource users.
2. Best practices of the co-management system (within the co-management system):
- a. Accountability and transparency:
    - Membership and rights clearly defined: the fishermen, households or companies entitled to fish in a restricted fishing area, to participate in the management and to belong to the organisation are clearly defined.
    - Conflict management mechanisms: existence of a mechanism to resolve conflicts.
    - Accountability: Co-management is carried out in an equitable, open and transparent manner.
    - Leadership: presence of a specific individual with business skills, highly motivated, legitimate and respected as a leader in the community environment.
  - b. Feasibility and performance:
    - Appropriate scale: The scale can vary, but should be appropriate to the ecology of the area, the people and the level of management.
    - Defined limits of the co-management system.
  - c. Participation and equity:
    - Participation of affected people: the majority of individuals affected by co-management arrangements are included in the decision-making group and can change the arrangements.
    - Group/social cohesion: similar characteristics in terms of kinship, norms, trust, types of fishing gear, etc. among the users of the resource.
    - Empowerment, development of capacities and social preparation: activities for the empowerment and development of skills of individuals and groups of users of the resource in order to participate actively in co-management.
    - Coordination: forums (meetings or assemblies) for cooperation be-
- Regular interaction: Regular, active and participatory meetings of co-management partners that serve as forums for debate, power-sharing and trust-building.
  - Adequate financial resources/budget: existence of a financial sustainability mechanism.
  - Co-management plan: existence of a co-management plan drawn up and agreed upon by resource user groups/co-management participants through a participation mechanism.
  - Clear goals and objectives of a well-defined set of issues: clarity and simplicity of goals and objectives to guide co-management.
  - Knowledge of the resource: stakeholders have a good knowledge of the resource and it is a recognised traditional knowledge.
  - Monitoring and evaluation system: participatory system, indicators, objectives and reference values.
  - Adaptive management: Focus on systematic learning through practice.
  - Mutually beneficial alliances and networks: communication and connectivity between the various groups of resource users and stakeholders.



tween the government and the users of the resource.

- Community organisations: existence of a legitimate community (recognised by the local population) or popular organisation to represent the users of the resource and other stakeholders in decision-making.
- Equity: equal opportunities and equitable access to fishing between the various users of the resource and between the different groups of users.
- Inclusiveness: recognition and participation of diverse resource users and community members, including young people, women, indigenous peoples and other stakeholders in the future of fisheries.

#### d. Principle of legality:

- Congruence: the extent and scope of regulations are appropriate to local conditions.
- Compliance with management regulations: system of self-fulfillment of penalties imposed by robust operational regulations designed, applied and controlled by local users.
- Progressive penalties: penalties increase with the number or severity of violations.

#### 3. Good practices in the individual and collective sphere (involvement in the co-management of individuals and collectives):

- Structure of individual incentives: structure of economic, social and political incentives that encourages the participation of people in co-management.

### To find out more

BERKES, F., MAHON, R., McCONNERY, P., POLLNAC, R.C., P. and POMEROY, R.S. 2001. Managing small-scale fisheries: Alternative directions and methods. Ottawa, Canada, International Development Research Centre. [www.idrc.ca/books](http://www.idrc.ca/books)

D'ARMENGOL, L., CASTILLO M.P., RUIZ-

MALLÉN, I., AND CORBERA, E., 2018. A systematic review of co-managed small-scale fisheries: Social diversity and adaptive management improve outcomes. *Global Environmental Change*, 52:212–225.

EVANS, L., CHERRETT, N. Evans, L. and PEMSL, D. 2011. Assessing the impact of fisheries comanagement interventions in developing countries: a meta-analysis. *Journal of Environmental Management*, 92(8): 1938–1949.

FAO. 1997. Fisheries management. FAO Technical Guidelines for Responsible Fisheries. No. 4. Rome.

GUTIERREZ, N.L., HILBORN, R. and DEFEQ, O. 2011. Leadership, social capital and incentives promote successful fisheries. *Nature*, 470: 386–389.

POMEROY, R.S. and RIVERA-GUIEB, R. 2006. Fisheries co-management: a practical handbook. Rome and Ottawa, Canada, CAB International and International Development Research Centre.

POMEROY, R.S., POLLNAC, R.B., KATON, B.M. and PREDQ, C.D. 1997. Evaluating factors contributing to the success of community-based coastal resource management: the Central Visayas Regional Project –1, Philippines. *Ocean and Coastal Management*, 36(1–3): 97–120.

POMEROY, R.S., CINER, J and NIELSEN, J.R. 2011. Chapter 7: Conditions for successful co-management: lessons learned in Asia, Africa, the Pacific and the wider Caribbean. A: R.S. POMEROY, and N. ANDREW, eds. *Small-scale fisheries management: frameworks and approaches for the developing world*. Oxfordshire, UK and Cambridge, USA, CABI Publishing.

POMEROY, R.S., KATON, B.M. and HARK-ESS, I. 2001. Conditions affecting the success of fisheries co-management: Lessons from Asia. *Marine Policy*, 25(3): 197–208.

SEN, S. and NEILSEN, J.R. 1996. Fisheries co-management: a comparative analysis. *Marine Policy*, 20(5): 405–418.

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# GUIDELINES FOR IDEAL CO-MANAGEMENT



Fisheries co-management implemented in Catalonia is a governance model in which power and responsibility in decision-making for the management of marine resources is shared, between the Administration, the fishing sector, scientists and government organisations. The

classic top-down model is changed in that the Administration implements rules for the management of fisheries. There are five areas that vote to establish the rules that affect everyone, each from their perspective. The fishing sector also has two visions, that of the fishery being

managed, and the vision of the rest of the fisheries. We try to work so that decisions are taken by consensus; if a vote is required, each area has one vote. Below are some guidelines in the form of a decalogue, to be kept in mind to achieve excellence in fisheries co-management.

## Decalogue for a good one fisheries co-management

### 01 Creation of the Committee

The key is an adequate and balanced composition of the Plenary Session of the Co-Management Committee (CC), so that it brings together the most representative members of each of the areas involved: the fishing sector, science, civil society and the Administration. They will have to be committed people with a lot of responsibility.

### 02 Operation of the Technical Commission

For its correct operation, the working body of the CC is the Technical Commission (TC). A high degree of technical preparation and awareness of the acquired responsibility among the representatives appointed by the Plenary Session is important. It is also necessary to look for synergies between its components. Mutual trust among all to understand that everyone is doing the best for the common good.

### 03 Training of representatives

In order to be able to exercise a balanced management of the powers that the Catalan governance model grants to the members of the committees, it is essential to establish training mechanisms aimed at knowledge of the operation of the model and at the empowerment and training of representatives in decision-making. It is necessary to establish the joint vision and clear objectives to be assumed.

### 04 Training for the Secretariat of the Committee

The figure of the Secretariat is essential for a good result of the work carried out in the Co-Management Committees.

The functions must be professionalised, in the Catalan model they fall to civil servants. It is essential that the Secretariat maintains a careful preparation and follow-up of the convocations of sessions, of the acts raised, of the agreements reached and that it has the capacity and predisposition for a dynamic and correct conduct of the meetings as well as for the management of disagreements.

### 05 Quality of the sessions

Success in the agreement-making process lies firstly in the achievement of the fourth principle (training for the Secretariat) and then in the balance in the capacity for dialogue, negotiation and empathy of the representatives of the different members.

### 06 Capacity for communication

The quality of the management work within the Technical Commissions and in the Plenary Sessions of the Co-Management Committees is directly linked to the ability to communicate: the issues raised and the agreements made, as well as the ability to transmit information between groups (members) and their representatives in decision-making bodies.

### 07 Adaptability

Governance regulations call for adaptive management. Once the Management Plan has been approved, which is the regulatory starting point for the fishery, the management work, with the necessary scientific support, must be aimed at allowing a continued adaptability of the technical measures applied to the real needs of the fishery.

### 08 Deployment of the Socioeconomic Programme

Every Management Plan must have an associated Socio-Economic Programme

aimed at monitoring the economic and social conditions of the fishing sector affected by the Plan. The socio-economic programme must be aimed at recognising the product of this co-management, both in terms of the sustainability of the fishery and in terms of the food and gastronomic quality of the exploited resource and consequently achieve an improvement in the initial sale price. It will be necessary to establish the financing mechanisms necessary for the financing of the Programme.

### 09 Ongoing research for the Objectives of the Committee

In order to avoid relaxation in management once the Management Plan and the related socio-economic programme have been launched, it is necessary to imagine formulas to promote among the members of the Committees the search for short, medium and long-term objectives. They can be effective tools for this purpose, the organisation of periodic workshops or sharing sessions, between the different Territorial Committees and even those that have been created based on different co-management frameworks in other Autonomous Committees or countries.

### 10 Evaluation of the process of Co-management

Finally, as a final objective, the Fishery Co-Management model must be able to find a set of indicators that serve to validate the effectiveness of the technical measures both from the point of view of the biology of the species exploited by the Plan, as well as the conservation of the affected ecosystems, as well as the economic performance achieved.





## We talk to MIGUEL BERNAL

Executive Secretary of the General Fisheries Commission for the Mediterranean (FAO)

Miguel Angel Bernal Ilarri is executive secretary of the General Fisheries Commission for the Mediterranean (GFCM) of the Food and Agriculture Organization of the United Nations (FAO). A scientist of recognised prestige, he started at the Spanish Institute of Oceanography (IEO), has collaborated in well-known universities, to continue in different positions at the FAO, specifically at the General Fisheries Commission for the Mediterranean, in which he holds the position of executive secretary from December 2022.

The GFCM is an organisation created within the framework of the UN (FAO) in 1949, it is made up of the European Union and a total of 22 countries on the shores of the Mediterranean and the Black Sea, and also has the cooperation of six countries most interested in the work of the Commission. Its objective is to guarantee the conservation and sustainable use of living marine resources and also the sustainable development of aquaculture in the area of application.

The Mediterranean is an extremely diverse sea, where multiple activities that we call the blue economy come together. What are the main benefits that co-management could bring to fisheries in the Mediterranean?

Fishing in the Mediterranean has been a pillar of our coastal communities for millennia, with strong cultural and social roots and a great presence in the day-to-day life of our societies. It is impossible to imagine a Mediterranean sea without fishermen and without fishing products on our menus, both at home and in the gastronomic sector. The great demand for fish requires effective management of these resources, which at the same time requires a strong involvement of everyone, fishermen, scientists, administration and consumers. In this context, co-management is a tool that facilitates this connection between the elements of the value chain, the flow and effective use of available information and the involvement of fishers in the use of resources and the identification and application of management measures.

The limitations on fishing can be a brake for people who want to work in this sector. In your opinion and from the GFCM, what actions should be promoted to make fishing more attractive for young people and promote generational succession? For example, could co-management help?

In recent decades, the Mediterranean fishing sector has been subjected to various crises and adjustments to try to adapt the productivity of resources and the demand for fishing products. This process is not yet over, since on the one hand we know that a large part of the resources is exploited beyond what is considered sustainable, and on the other hand the necessary adjustments mean that fishing has small profit margins and that the sector fails to be attractive in many cases for investments or new generations. Our goal from the GFCM is to ensure the continuity of this crucial sector, both as a source of employment and for food security, and therefore we work with governments, administrations and the sector to identify needs to make the sector more profitable and attractive, and ensure the renewal of workers and the long-term sustainability of resources. A change in the social perception of this sector is important, and in this context co-management also plays an important role, involving fishermen as guarantors of this sustainability, making them participate in decisions and their implementation and putting at your disposal all possible information to manage your activity. Fishermen who are more actively involved in participatory management processes (such as co-management) tend to be better organised, maintain more open and fluid communication with fisheries administrations, and are therefore usually better able to request support for to the future.

The GFCM is working with fishermen to strengthen their organisations and identify basic needs to make the sector more attractive, such as improving social benefits, work insurance, safety on board, etc. In this context, the GFCM regularly organises meetings with the sector to identify problems and needs, as well as best practices in the sector, and organises field activities such as for example to maintain artisanal fishing facilities or the implementation of space tracking systems with small scale ships. Another aspect asked by the fishermen is how to facilitate the training of new workers, including internships on board, to ensure generational succession.

The fishing sector is very male-dominated, what mechanisms are being promoted by the GFCM for the inclusion of women in the fishing sector? Could a greater involvement of women contribute to better management, within the co-management itself?

As a first step, the GFCM has for some time been collecting detailed social and economic information that has revealed how standard national data collection programmes may not fully capture the role of women in the sector. The GFCM has been working with member countries to address these gaps in data collection, as better data on women working throughout the sector's value chain allows visibility of this gendered problem, exacerbated by job opportunities on board, where there is very little female presence. This work results in greater consideration of the needs of fisherwomen by policy makers and administrators and, therefore, hopefully, a more attractive sector for women. The proposed activities in this field include discussion with the sector itself to identify the reasons for this bias, and activities aimed at training female personnel, involving women's organisations and making the sector more attractive, both economically and area of safety at sea and working conditions. Little by little we can see the appearance of new fisherwomen on our coasts, but there is still much to do.

Sustainability is a word that is currently included in most activities, what measures should be established for optimal sustainability in fishing? Can co-management help in this regard?

What is clear is that the only solution to ensure sustainability is an effective management of the activity, and we have more and more examples of fisheries that thanks to this effective management are sustainable, in some cases coming from very bad initial conditions, for example with significant overexploitation. Coastal species such as sardine, sole or turbot now maintain sustainable fisheries in several places in the Mediterranean, although in others there is still room for improvement in management. Effective management requires a good knowledge of the main elements of

a fishery, an identification of effective and applicable measures, and an effective and flexible implementation of these measures, as well as continuous monitoring of results. As I mentioned earlier, co-management is one of the tools to ensure this effective management, with the advantage in some cases of also facilitating an improvement in profitability and in the perception of fishermen and the Administration towards the consumer.

Could a more hopeful future be observed if the fisherman changes the concept of "imposing rules" to co-managing the management measures to be applied to fishing? Do you think that the member states would be ready for this change?

A paradigm shift is essential where fishermen are seen as an integral part of the management, as part of the solution and not the problem, just as it is also essential that it is seen that effective management needs clear and at the same time dynamic rules. We have long known that resources are not inexhaustible and without this effective management it is impossible to ensure their sustainability. The change in mentality in fishermen and managers is clear in my opinion, and it is important that this translates into a change in the perception of the sector, which generates a positive loop that makes it easier for us to move forward more effectively. The data are clear, management is becoming more effective every day and overexploitation in the Mediterranean is decreasing; what is essential now is that this is accompanied by social sustainability and economic profitability that make the sector more attractive. For all this, it is important that there is an acceptance of norms and rules, and that these are identified taking into account the different sectors and points of view. I do believe that there is progress in this direction, including those related to the effective application of co-management measures.

Finally, to your knowledge, what are the main challenges facing fisheries co-management in the Mediterranean?

We have many challenges ahead of us to ensure a sustainable and attractive future for the sector. Both internal challenges, such as the need to improve legislative frameworks and working conditions in the sector, as well as external challenges such as pollution, the appearance and expansion of non-native species or, more generally, the effects of climate change, as well as the ever-increasing competition for the use of the coast and the marine environment. However, with a better involvement of all actors related to the sector, even with actions now such as the implementation of co-management mechanisms, I am optimistic, and I hope that the situation in the sector will improve in the coming years.

