



CIHEAM

COASTAL ZONE MANAGEMENT AND FISHERIES

2020-2022

ACTIVITY REPORT



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INTRODUCTION

This Activity Report has been realized by the CIHEAM Corporate working group on Coastal zone Management, Fisheries, and Aquaculture between March and December 2022.

This first part of the report explains in general terms which are the problems and challenges affecting sustainable food systems in the Mediterranean area and shows how CIHEAM develops its strategy and deploys its action in order to meet regional priorities and contribute to the fulfillment of UN sustainable development goals.

The second part (PORTFOLIO) represents a collection of the activities related to Coastal zone Management, Fisheries, and Aquaculture, implemented by the CIHEAM during the last three years.

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1. GENERAL BACKGROUND

1.1. The Mediterranean Sea

The history of the Mediterranean region, its cultures, and its people is linked to the Mediterranean Sea. A sea connected to the Atlantic Ocean, surrounded by the Mediterranean Basin, and almost completely enclosed by land, which bathes 46,000 km of the coastlines of Europe, Africa, and the Middle East. The Mediterranean basin is a melting pot of cultures, languages, and people and one of the most populated regions on the globe with 529 million people, 40% of whom live on the coast.

Since more than 2,000 years ago, the Mediterranean Sea and its unique richness have served as an essential source of food security and populations' well-being as well as a central pathway of transport and trade.



It provides major local opportunities for blue growth and jobs, ranging from fisheries to tourism, driving business development and transit growth along its coastal zones.

Figure 1. Pre-Roman coin ('as') from Gades (Cadiz, Spain (circa 237 BC). Reverse: Two tunny fish.



Figure 2. Banknotes from Malta, the reverse of 10 Lire, 1967 (left), and from Tunisia, the reverse of 1/2 Dinar, 1965 (right)

At the same time, the Mediterranean Sea is known as a key area for marine biodiversity, hosting a wide variety of habitats, species, and ecosystems: twenty-eight percent of its marine species are endemic, the second-highest percentage of endemic species in the world. More than 700 species of fish are found here, 110 of which have commercial value.

However, the Mediterranean Coast and Sea are exposed to multiple pressures derived from human activities. The Mediterranean is also one of the most threatened and degraded marine areas in the world from an environmental point of view. To date, its coastal zones are also among the most vulnerable areas to climate change and natural hazards.

1.2 Problems, and challenges

Ensuring food security for a growing population and tourism in coastal areas represents an issue of utmost priority in the Mediterranean. The increase in seafood demand poses a severe problem of environmental sustainability linked to the excessive exploitation of natural resources. At the same time, fish plays a fundamental role in the Mediterranean diet. Fish (both fresh and preserved), provide precious nutrients such as proteins of high biological value, mineral salts, and omega-3 acids. While there is an increase in seafood consumption in Mediterranean countries, it should be noted that most Mediterranean countries are net importers of seafood, which should encourage them to recover their fish stocks and promote the development of a sustainable aquaculture sector.

According to the report on the State of Mediterranean and Black Sea Fisheries (SoMFi 2020), published by the General Fisheries Commission for the Mediterranean (GFCM), **75% of fish stocks are subject to overfishing**. In this context, reducing overexploitation and improving the sustainability of the fisheries sector have been at the core of the GFCM and EU strategies. Both institutions encourage countries to also promote the development of their sustainable aquaculture sector to satisfy fish demand.

The Mediterranean **environmental vulnerability** is a consequence of unprecedented anthropogenic pressures which are the basis of biodiversity loss, habitat destruction, pollution, as well as conflicts between potential users, and space congestion problems.

Climate change in the Mediterranean is of greater magnitude than the global average, even though greenhouse gas (GHG) emissions in Mediterranean countries are at relatively low levels. Currently, the average annual temperature is about 1.5 °C above late 19th century levels and about 0.4 °C above the global average¹.

The phenomenon of tropicalization expanding westward from the eastern Mediterranean appears to be the main cause of an uncontrolled spread of several **invasive tropical marine species**, most of which enter the region through the Suez Canal. More than 1,000 alien species are recorded in the Mediterranean today, of which more than 600 are now permanently established².

The Mediterranean is also one of the areas in the world most affected by **marine litter**. Plastics account for up to 95-100% of total floating marine litter and more than 50% of seafloor litter. The Mediterranean is particularly affected by microplastics, with concentrations on the sea surface well over 100,000 elements per square kilometer and, at most, more than 64 million floating particles per square kilometer.

Therefore, one of the main challenges we have to face is *decoupling socio-economic development from environmental and ecosystem degradation*. In pursuing this objective, we can find a valid ally in the concept of sustainable **BLUE ECONOMY**, which embraces the complexity of economic, social, cultural, and environmental interconnections and their reciprocal impact. Pursuing a model of sustainable Blue

¹ https://ufmsecretariat.org/wp-content/uploads/2019/10/MedECC-Booklet_EN_WEB.pdf

² https://www.medqsr.org/sites/default/files/inline-files/2017MedQSR_Online_0.pdf

Economy means structuring strategies at parallel and complementary levels, to promote economic growth, social inclusion, and the preservation or improvement of livelihoods while ensuring the sustainable management of marine resources.

Reaching these objectives requires a high degree of collaboration at local, national, and regional levels across administrations, nation-states, and the public-private sectors with the strong involvement of all stakeholders.

The CIHEAM'S action fits into this framework. It moves from an intersectoral and multiplayer approach that regards the complexity of this scenario and tries to address the root causes of the problems affecting the region through a complex set of complementary tools implemented with the direct involvement of different local, national, and regional actors. The objective is to give coherence and effectiveness to the action, assuring an inclusive and sustainable development of the Mediterranean blue economy.

1.3. Actors, Policies, and initiatives implemented

Since the 1970s, the preservation of the Mediterranean's unique environment, biodiversity richness, and precarious equilibrium have gone under increasing attention, seeing the involvement of many international and regional actors. Among these, FAO, the European Union, and the Union for the Mediterranean (UfM), as well as national authorities from both Mediterranean shores, have been very active.

Over the years, different attempts have been made to draft and implement new policies and strategies, promote sustainable and inclusive development, regulate the exploitation of marine and coastal resources, and preserve biodiversity.

The first attempt has been the **UNEP Regional Seas Program**, promoted in 1975 by the United Nations Environment Program (UNEP) to coordinate activities for the protection of the marine environment through a regional approach.

The following year, **The Mediterranean Action Plan** (UNEP/MAP) saw the light. Approved by 21 Mediterranean countries and the European Community, it launched a regional cooperation platform to address common challenges of marine environmental degradation.

In 1995, the same contracting parties adopted the **Barcelona Convention**³ and its Protocols which introduced "*an institutional legal framework for the implementation of concerted actions to protect the marine and coastal environment and to promote sustainable use of their resources in the Mediterranean*".

In 2015, the set-up of the **UN Sustainable Development Agenda 2030**, with its 17 Sustainable Development Goals (SDG) defined a new path and a new integrated approach to follow. In the same year, the "COP 19 Barcelona Convention" adopted the first six-year **MAP Medium-Term Strategy (MTS**

³ Convention on the "*Protection of the Marine Environment and the Coastal Region of the Mediterranean*".

2016-2021) and the **Mediterranean Strategy for Sustainable Development (MSSD) 2016-2025**, providing a strategic policy framework consistent with the SDGs.

In 2019, the COP 21 Barcelona Convention adopted the **Naples Ministerial Declaration**, highlighting the *"need for a systemic change supported by forward-looking and innovative strategies, policies, and behaviors"*.

In 2020, the EU itself has launched its **"Biodiversity strategy for 2030"** and an associated Action Plan, in line with UN AGENDA 2030. As a core part of the **European Green Deal**⁴, this strategy encompasses the concept of a **sustainable blue economy** as a core perspective that provides coherence across the blue economy sectors and facilitates the activation of synergies among them, without damaging the environment. Furthermore, the strategy stresses the need for more investments in research, skills, and innovation.

In addition, during these years, specific entities have been set up to address the problems affecting the region; among these, we find

- The **BLUE PLAN**, one of the Regional Activity Centers of the MAP/ UNEP, with the task of establishing a multi-stakeholder group and developing a roadmap for the sustainable development of the aquaculture sector in the Mediterranean.
- The **General Fisheries Commission for the Mediterranean** is a regional fisheries management organization (RFMO) established by FAO. With a central role in fisheries governance, it has the authority to make binding recommendations for fisheries conservation, management, and aquaculture development. It also works closely with intergovernmental, non-governmental, and civil society organizations and supports initiatives to enhance scientific cooperation and capacity-building among its contracting parties.

The CIHEAM is currently implementing different activities related to Coastal zone Management, fisheries, and Aquaculture, in the framework of its **Action Plan 2025 for the Mediterranean (CAPMED 2025)** in line, among others, with the several UN Sustainable Development Goals (SDGs).

However, despite the common interest shared by all these organizations for the development of a sustainable Blue Economy in the Mediterranean, their objectives and their tools to achieve them may be different.

CIHEAM can facilitate networking for all those involved in these issues so that various actions in favor of coastal zone development and fisheries in the Mediterranean can be consistent and therefore more successful.

⁴ In order to restore degraded ecosystems and manage them sustainably, while addressing the key drivers of biodiversity loss, the strategy foresees specific commitments and actions to be implemented and introduces measures to enable the necessary transformative change; an example can be the establishment of an EU-wide network of protected areas on land and at sea.

2. CIHEAM STRATEGY

2.1. CIHEAM focus: background

Over the years, the CIHEAM has focused its action and reinforced its expertise toward the development of some sectors and activities of the blue economy that can foster an inclusive and sustainable development of the region. Among these, **Small-scale fisheries (in particular fisheries management and Seafood quality), Aquaculture, Marine Protected Areas, and Tourism**, assume particular importance.

In the economy of the Mediterranean region, **Small-scale fisheries** have always played an important social, economic, and cultural role, representing today a major source of food, jobs, and activities. The term refers to fisheries and aquaculture that use relatively small production units with low input and output, low levels of technology, or capital investment. Usually, many small-scale fishers and fish workers (employed in associated jobs, particularly in fish processing, distribution, and marketing) are self-employed and engaged indirectly in providing food for their households and in commercial fishing, processing, and marketing. Often, the family provides the human capital needed for basic fishery-related activities. Moreover, they tend to be strongly rooted in local communities, reflecting their traditions and values.

The so-called « small fisheries and aquaculture activities» represent 80% of the Mediterranean fishing fleet, 60% of fishing sector jobs, and 23% of total landings, employing over 137 thousand fishers and generating jobs for another 150 thousand.⁵

The socio-economic value generated by Artisanal fishing is evident: it plays an essential role in guaranteeing **food security and contributing to social and environmental sustainability**: it offers consumers varied and quality fish, generates short value chains, has a low impact on the environment, and allows women to play a decisive role through the diversification of fishing activities.

However, the decline of many fish stocks due to illegal, unreported, and overfishing has a heavy impact on subsistence fishing, limiting the capacity of small Fishermen to provide for their livelihood⁶.

Another activity that plays a major role in the economic growth and food security of the region is constituted by **Aquaculture** which helps reduce dependence on overexploited wild stocks.

⁵ <https://www.fao.org/gfcm/news/2020/universitassf/e>

⁶ According to the State of Mediterranean and Black Sea Fisheries (SoMFi 2020) report published in December 2020, 75 percent of fish stocks continue to suffer from overfishing, despite the fact that between 2014 and 2018 this percentage decreased by more than 10 percent.

Aquaculture consists of the farming of aquatic organisms, including fish, mollusks, crustaceans, and aquatic plants⁷. It is among the fastest-growing food production systems in the world, and, in the Mediterranean region, it has developed with an average annual growth rate of 5% between 1994 and 2015. Today, the total production of fish and shellfish from aquaculture amounts to approximately 2.4 million tonnes.



Nevertheless, the needed aquaculture development poses numerous and complex sustainability challenges that must be addressed by public policies. Its growth puts localized and relatively strong pressure depending on the site and raises questions in terms of its impact on the environment, fisheries, and the associated stocks of raw materials required to feed the fish.

Figure 3. Postage stamp from Algeria, 2013.

Aquaculture accounts for more than 50 percent of total fish production and contributes to socio-economic development and employment (more than 120,000 direct jobs and 750,000 indirect jobs (UNEP). At the economical level, fishing in the Mediterranean generates 227,000 jobs and a direct and indirect economic impact of about \$6.35 billion annually.

Both small-scale artisanal fisheries and aquaculture workers face problems such as power imbalances in value chains, lack of appropriate skills, and unnecessary trade barriers that prevent them from accessing markets with healthy products at a fair price.

Furthermore, the sector's capacities are limited in terms of:

- Human capital (aging fishermen, difficulties in attracting young people, difficult access to adequate training, poor working conditions, safety rules on board).
- Investments (access to credit).
- Innovation.

Moreover, in some countries, artisanal fisheries stakeholders are not sufficiently involved in relevant decision-making processes, and this results in a persistent lack of recognition and representation within the sector. Additionally, fishers, fish farmers, fish workers, and their communities still lack proper social services (such as healthcare, education, housing, and financial and legal services) and recognition and respect for women's role remain another core, cross-cutting issue.

⁷ Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated. (Source: FAO (1988)/ Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997).

Over the past few years, another tool has gained momentum: Marine Protected Areas (MPAs). They are slices of sea and coast placed under protection because of their ecological importance and have been gradually recognized as an effective management and conservation tool, able to keep under control the unprecedented alteration of marine ecosystems and mitigate its effects. Today, they are also being increasingly recognized as a fisheries management tool.

Like the other sectors, **Marine Protected Areas in the Mediterranean** face development challenges, in particular, regarding problems of **management effectiveness**: despite the high number of MPAs established in the region, most of them still present critical problems in ensuring effective marine conservation. To perform efficiently, Mediterranean MPAs would need **more financial resources**, investments in human capacities and skills, and the adoption of an ecosystemic approach that takes into account also the management of Small-Scale Fisheries in MPAs, conservation of mobile species, and the development of sustainable financing mechanisms for MPAs.

Despite the efforts and the progress made by national and regional policymakers over the last years, the **geopolitical complexity** of the region may represent a constraint and hinder the deployment of coordinated interventions to foster the development of blue economic growth. In this view, the implementation of **joint programs** and actions is essential to address common challenges and pursue safe, secure, and sustainable development for all by considering national and local specificities and priorities.

2.2. Regional Priorities

The CIHEAM strategy for the Mediterranean finds its anchor in the **UN 2030 Agenda for Sustainable Development** and its **17 SDGs**. Specifically, SDG 8 and SDG 14⁸ assume relevance in shaping the direction of CIHEAM activities in the field of the blue economy.

Over the years, in the frame of its Agenda 2016-2025 (**CAPMED 2025**⁹), the CIHEAM has worked to accelerate progress and support the transition toward a sustainable blue economy in the Mediterranean. In pursuing this objective, the CIHEAM has actively promoted the Implementation of multilateral initiatives, structuring, and adapting its lines of action to the consolidated and emerging challenges and priorities of the region.

⁸ **SDG 8** “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”.

SDG 14 “Conserve and sustainably use the oceans, seas and marine resources for sustainable development”.

⁹ The CIHEAM Strategic Agenda 2025 is aimed at better supporting the transition to sustainable food systems, encouraging multilateral initiatives able to bring countries, private and public stakeholders to work together around themes that are at the core of SDGs and to decouple economic growth and natural resources use in the Mediterranean region. It is structured around 4 pillars: Protecting the Planet; Food Security and Nutrition; Inclusive Development; Crises and Resilience

In 2021, some of these priorities have been identified and stressed during the Food Systems Summit Dialogues (FSSDs), convened by Mediterranean countries and other regional stakeholders, to identify integrated and coordinated actions to undertake shortly.

Regarding the development of a sustainable Blue Economy in the Mediterranean, stakeholders have highlighted the necessity to define a set of actions to address stocks and biodiversity protection, environmental degradation, and climate change. Among these, the role of **research and innovation** has emerged along with the necessity to **improve and digitalize the regional data collection** on fisheries and aquaculture, and to improve **traceability** and recognition **systems** for seafood products integrating all sustainability dimensions.

Another critical aspect is represented by **employability and access to innovation** in the sector, especially for **women and young people**. In this sense, the implementation of **targeted social security systems** and **capacity-building pathways** for small-scale fishers and aquaculture operators assume particular relevance.

In addition, the promotion of regional **recommendations** to improve national legislative frameworks on marine litter collection has been identified as a further priority.

2.3. CIHEAM Methodological Approaches

The CIHEAM's action has evolved throughout the years, adapting to the evolution of the Mediterranean context and its emerging priorities. It has refined a science-based and multisectoral approach that encompasses the different dimensions of coastal and maritime development (political, economic, environmental, social, and health) to better respond to the main challenges faced by the region with coordinated, efficient, and tailored solutions.

The CIHEAM contributes to the development of coastal areas through a holistic and integrated approach, based on Blue Economy principles³⁰, and mainly addressed to the "coastal communities", considered as the reference territorial unit capable of identifying the interests, ideas, research, and innovation needs, while actively contributing to the achievement of the Blue Growth strategic objectives through new sustainable development processes and models.

In this regard, the CIHEAM is working to define a more comprehensive Mediterranean "Smart blue economy" model ("**Smart blue community**") able to trigger the growth of territories through the

³⁰ In particular, there are two, so-called, "ecosystem approaches" that CIHEAM refers to, in implementing its strategy on Coastal zone management fisheries and aquaculture; these are the "**Integrated coastal management approach**" and the EU's **Integrated Maritime Policy (IMP)**. The first provides the theoretical and methodological tools to coordinate the different policies affecting the coastal zone and related activities concerning natural resources and ecosystem limits. The second establishes a policy framework to foster the sustainable development of all sea-based activities and coastal regions by improving policy coordination and by developing cross-cutting tools. Both of them highlight the importance of involving the different stakeholders to strengthen and guarantee their agency.

[Integrated Maritime Policy of the European Union | Fact Sheets on the European Union | European Parliament \(europa.eu\)](#)

participation of communities and their stakeholders, creation of jobs, and added value with the wider spreading of the benefits, proper management of capitals thanks to technological innovations and zero waste, enhancement of local resources, capacity building initiatives, the sharing of knowledge and best practices.

Particular attention is dedicated to

- Coastal management
- Sustainable Fisheries Management
- Aquaculture Development
- Seafood quality, processing, and marketing
- Coastal Tourism
- Marine Environment

2.4. Our strengths

The CIHEAM adopts a bottom-up, inclusive, and multilateral perspective, promoting the active involvement of different stakeholders, which are bearers of particular interests but, at the same time, direct observers of national and local dynamics relevant to the definition of policy frames. The aim is to define a common path to address the urgent challenges that we are called to face, identifying common objectives and harmonizing policies and actions, always paying attention to emerging needs and context-related specificities.

The implementation of territorial development actions on the coastal zones is therefore pursued through the consolidation of inter-territorial partnerships, associating European coastal territories and coastal territories in the South of the Mediterranean.

Essentially, the CIHEAM strategy embraces all the phases and components of the food chain, aiming at strengthening the sustainability of production and consumption patterns in the region. It can provide a comprehensive analysis of the impact these activities have, not only at the environmental level, but also on other dimensions of sustainability, including market distortions, income generation, well-being, and employment. Its interventions are structured around the results of these analyses, in order to have a solid scientific base.

At an operational level, the CIHEAM combines different tools, namely cooperation projects, education, and capacity building, research activities, policy dialogue, and institutional strengthening. Thanks to this combination and its cross-cutting expertise, the CIHEAM can offer Mediterranean countries and policymakers a network of interconnected, interdependent initiatives and services within an environment usually very fragmented, with a wide range of instruments and opportunities coming from all shores of the Mediterranean.

3. CIHEAM WORKING GROUP ON CZMF

3.1. Creation

In 2019 the CIHEAM decided to create a **Corporate Group on Coastal Zone Management and Fisheries (CIHEAM CG-CZMF)**, with the participation of experts from the four Institutes (Bari, Chania, Montpellier, and Zaragoza) working in these areas of knowledge.

This group represents an important place for reflection, exchange, and collaboration. Based on the infrastructures and resources of the four CIHEAM Institutes, it pursues the mission of **coordinating Institutes' work, increasing synergies** among the four Institutes and the General Secretariat in Paris, and providing a **stronger corporate vision**.

Capitalizing on the skills and resources of each institute and putting them into a system defining at the same time a common direction for our future actions, will strengthen our role in the Mediterranean region in providing concrete solutions, capacity-building, and policy recommendations, in line with priorities defined by national and international organizations.

3.2. Our tools and activities

The CIHEAM's major asset is represented by the integrated approach and methodology on which its strategy relies.

The action, with whom the CIHEAM responds to current major challenges affecting the Mediterranean region, is structured around **4 specific and complementary tools**:

EDUCATION

- Postgraduate education in Coastal Zone Management, Fisheries, and Aquaculture for students and young professionals (Postgraduate courses, Master of Science, PhDs, etc.).
- Continuous education for professionals (Advanced Courses, Workshops, Seminars. Summer Schools, research stays, internships, etc.) from the public and private sectors.
- Capacity building, coaching, and training on leadership, decision-making, and entrepreneurship.

RESEARCH

- Participation and Coordination of European Projects (H2020, Horizon Europe, Prima, etc.)
- Participation and Coordination of National Projects
- Field Research Initiative (establish closer links between research and the needs of coastal communities and vice versa).

COOPERATION

- Monitoring of marine and coastal natural resources and elaboration of management plans
- Socio-economic analysis of coastal community's development drivers.
- Marine litter monitoring and management.
- Development of projects for enhancing the coastal community's heritage.
- Promotion and support for the diversification of economic activities in fishery and aquaculture.
- Development of traceability systems and creation of quality systems (e.g., quality scheme).
- Valorization of local products (e.g., brands).
- Development of projects proposing a support/development of SMEs dealing with waste management according to the principles of the circular economy.
- Empowerment of youth and women and their entrepreneurship in fishery, aquaculture, and coastal tourism.

INSTITUTIONAL AND POLICY DIALOGUES

- Awareness-raising through conferences, workshops, and publications.
- Development and animation of networks and coordination of programs.
- Awareness-raising campaign across the Mediterranean addressed to youth and women in coastal zones to enhance the attractiveness of the fishing sector.
- Participation in and organisation of high-level meetings (Ministerial meetings, side-events...).

In 2021- 2022 the group has conducted an analysis of the priorities and needs for coastal zone management and aquaculture in the Mediterranean with the aim to have a clear and updated picture of what are the sector's problems and priorities and understand what type of actions the CIHEAM can undertake and implement to provide solutions and answers in the future in collaboration with the national administrations and international institutions working in the same fields.

. The analysis is structured around 4 topics:

- Sustainable coastal management
- Marine protected areas
- Sustainable fisheries management
- Sustainable development of aquaculture.

On the 14th of October 2022, CIHEAM Zaragoza, with the support of the CZMF-group and the General Secretariat held in Alicante an international conference on the "Sustainable development of coastal areas and fisheries in the Mediterranean" in the frame of the CIHEAM 60th anniversary.

The event also included two thematic working meetings to analyse the **situation of women in the fisheries sector** and **the Port Museum model**. The workshops have been held with the aim of creating new Mediterranean networks to facilitate the mutual efforts of different stakeholders and explore the potential for future common projects.

A collection of the activities related to Coastal zone Management, Fisheries, and Aquaculture, implemented by the CIHEAM during the last three years can be found in the Portfolio.



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