

# FAIRSEA PROJECT ID 10046951

## “Fisheries in the Adriatic Region - a Shared Ecosystem Approach”

### D 3.1.1 - Context analysis on institutional and technical aspects

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# Deliverable 3.1.1

## Context analysis on institutional and technical aspects

**FAIRSEA – Fisheries in the Adriatic Region – a shared Ecosystem Approach**

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## LIST OF ABBREVIATIONS & DISCLAIMER

<b>AC</b>	Advisory Council
<b>CCRF</b>	Code of Conduct for Responsible Fisheries
<b>BT</b>	Bottom Trawl
<b>EAF</b>	Ecosystem Based Approach to Fisheries
<b>EAFM</b>	Ecosystem Based Approach to Fisheries Management
<b>EC</b>	European Commission
<b>EMFF</b>	European Maritime and Fisheries Fund
<b>ERDF</b>	European Regional Development Fund
<b>EU</b>	European Union
<b>EUSAIR</b>	EU Strategy for the Adriatic and Ionian Region
<b>FAO</b>	Food and Agriculture Organization
<b>FLAG</b>	Fisheries Local Action Group
<b>FRA</b>	Fishery Restricted Area
<b>GES</b>	Good Environmental Status
<b>GFCM</b>	General Fisheries Commission for the Mediterranean
<b>GSA</b>	Geographical Subareas
<b>IMP</b>	Integrated Maritime Policy
<b>ICES</b>	International Council for the Exploration of the Sea
<b>JRC</b>	Joint Research Center
<b>LP</b>	Lead Partner
<b>MPA</b>	Marine Protected Area
<b>MSY</b>	Maximum Sustainable Yield
<b>MSP</b>	Marine Spatial Planning
<b>PP</b>	Project Partner
<b>RFMO</b>	regional fisheries management Organization
<b>STEFC</b>	Scientific, Technical and Economic Committee for Fisheries
<b>TAC</b>	Total allowable catch
<b>TL</b>	Total Length
<b>WP</b>	Working Package

## TERMS AND DEFINITIONS

**Ecosystem approach** - The Convention on Biological Diversity has defined the ecosystem approach “a strategy for integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”. IUCN adds to that description the idea that the ecosystem approach “places human needs at the centre of biodiversity management. It aims to manage the ecosystem, based on the multiple functions that ecosystems perform and the multiple uses that are made of these functions. The ecosystem approach does not aim for short-term economic gains, but aims to optimize the use of an ecosystem without damaging it”.

**Ecosystem approach to fisheries** - EAF is defined as “an extension of conventional fisheries management recognizing more explicitly the interdependence between human well-being and ecosystem health and the need to maintain and degradation, minimizing waste, protecting endangered species”( Garcia et al., 2005). The Reykjavik FAO Expert Consultation agreed that the “purpose of an ecosystem approach to fisheries is to plan, develop and manage fisheries in a manner that addresses the multiplicity of societal needs and desires, without jeopardizing the options for future generations to benefit from a full range of goods and services provided by marine ecosystems” (FAO, 2003). Therefore, “an ecosystem approach to fisheries strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries” (FAO,2003<sup>1</sup>)

**Fisheries management** - “The integrated process of information gathering, analysis, planning, decision-making, allocation of resources and formulation and enforcement of fishery regulations by which the fisheries management authority controls the present and future behaviours of the interested parties in the fishery, in order to ensure the continued productivity of the living resources” (FAO, 1995).

**Integrated management** - The concept of integrated management involves comprehensive planning and regulation of human activities towards a complex set of interacting objectives and aims at minimizing user conflicts while ensuring long-term sustainability. It implies the use of a collaborative/participative approach involving the main stakeholders in a flexible, responsible and transparent planning process, respectful of existing rights and duties. It recognizes the need to protect the ecosystem and the implications of multiple uses and aims at sustainable development. Taking account of uncertainty, it complies with the precautionary approach. It takes account of natural and economic areas and not only administrative or political ones. It specifically identifies ecosystem-oriented objectives and indicators. It acknowledges the fragmentation of the sectoral approaches and the linkages between inland, coastal and ocean uses. It integrates data collection, information and research (assessment) and recognizes traditional knowledge. It develops processes for stakeholders’ interaction, particularly in objective setting, planning and implementation, including conflict resolution. It explicitly considers the cumulative effects of human activities, and its implementation is based on *integrated management plans* and measures (FAO,2003<sup>2</sup>)

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<sup>1</sup> The ecosystem approach to fisheries (2003). FAO Fisheries Technical paper ISSN 0429-9345.

<sup>2</sup> The ecosystem approach to fisheries (2003). FAO Fisheries Technical paper ISSN 0429-9345.

## THE FAIRSEA PROJECT TOWARDS THE ECOSYSTEM BASED APPROACH TO FISHERIES

FAIRSEA is a European Territory Cooperation project, financed under the priority 1 “Blue innovation “, Specific Objective 1.1”Enhance the framework conditions for innovation in the relevant sectors of the blue economy within the cooperation area” of the INTERREG VA Italy – Croatia Programme 2014-2020 (<https://www.italy-croatia.eu/>).

The project focuses on the fisheries sector - key driver for the blue growth of the Adriatic communities – towards a sustainable co-management of resources and marine ecosystem protection. Given the transboundary nature of marine resources, cross-border cooperation and a shared “Vision” are essential to properly tackle and address the different socio-economic and environmental challenges related to fisheries activities management.

In this context, FAIRSEA aims at enhancing transnational capacity and cooperation in the field of an ecosystem approach to fisheries in the Adriatic region by exchanging knowledge and sharing good practices between regional and transnational key actors.

Coordinated by the OGS of Trieste (IT), the project involves a consortium of 12 strategic and operational partners from Italy and Croatia that will make to best use of their complementary expertise to address and support the application of the ecosystem approach to fisheries, ensuring a strong and interactive engagement of institutional, technical and socio-economic stakeholder in project activities.

### THE FAIRSEA PARTNERSHIP



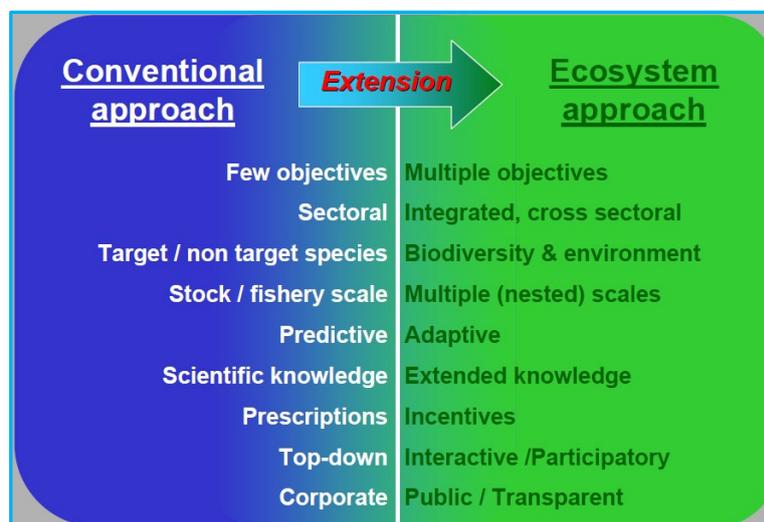
(Italy-Croatia Programme, 2014)

By merging partners' competences and stakeholder feedbacks, the project is expected to firstly deliver a strategic and operational Roadmap for EAF application in Adriatic to be further translated into technical and institutional recommendations and shared operational tool for EAF management. The project core activity is in fact the development of an integrated platform that will serve as spatially explicit dynamic tool to support the shift from a conventional management of fisheries towards an integrated management of this sector. In this context, the FAIRSEA platform is particularly innovative and extremely useful since it integrates in a unique tool the cornerstone elements for an ecosystem approach to fisheries: water masses circulation and connectivity (module HYDRO), biogeochemical planktonic processes (BGC), distribution of resources (BSTAT), catch and fleet statistics (FSTAT), effort distribution (EFFORT), bio economic responses (BIOECO) and food web dynamics (FWM). The shared integrated platform will be concretely used as planning tool into demonstrative testing of applicable fisheries policies both at local (subareas) and whole Adriatic scales. It will help policy makers in decision-making based on solid scientific shared evidence that comes from a range of marine disciplines integrated across boundaries.



## INTRODUCTION

Fisheries activities are recognized as one of the oldest and principal factors modifying marine ecosystems (Jackson et al. 2001), especially when not properly addressed and managed. The impact of fisheries on ecosystems is in fact widely documented in several studies and publications focusing on the variety of direct and indirect effects on marine ecosystems, including complex and potentially cascading effects. Given these evidences, it is essential a shift from the conventional fisheries management towards an ecosystem approach to fisheries management (hereafter EAFM) that is expecting to tackle in a single and comprehensive frame all the direct and indirect factors that can affect marine ecosystems.



(Garcia, Global Ocean Forum 2006)

According to the FAO Fisheries Technical paper, the description of the fishers' interaction within the ecosystem requires identification of four main ecosystem compartments:

1. The biotic compartment, including target fish resources, associated and dependent species and the living habitat (seagrass, algal beds...)
2. The abiotic compartment, characterized by its topography, bottom types, water quality and local weather/climate
3. The fishery compartment, in which harvesting and processing activities take place, with a strong technological character
4. The institutional compartment, comprising laws, regulations and organizations needed for fisheries governance. Humans are part of the biotic component of the ecosystem

from which they draw resources, food, services and livelihood as well as part of the fishery component that they drive

These components interact and are affected by:

- non-fishing activities
- the global climate
- other ecosystems, usually adjacent, with which they exchange matter and information
- the socio-economic environment as reflected in the market, relevant policies and societal values

Under these premises, the analysis of the mentioned compartments is needed to detect gaps and obstacles hindering the application of ecosystem approach to fisheries since the activity is the starting point for designing and planning technical and institutional management measures.

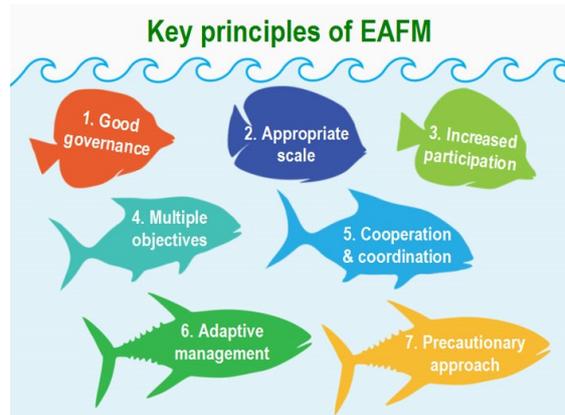
The present Report focuses on the analysis of the institutional compartment of the Northern and Central Adriatic Regions, resulting from desk survey and key actors consultation carried out by ASSAM for the Italian area of the project and by MofA or the Croatian side, in cooperation with the project partners. The Report aims at defining the framework conditions for setting-up and testing of the FAIRSEA integrated platform as planning tool for EAF management measures.

## A GENERAL OVERVIEW ON THE ECOSYSTEM APPROACH TO FISHERIES

### The EAF Key principles

The FAO Code of Conduct for Responsible Fisheries (CCRF) set implicitly 7 principles for the EAMF:

1. Good Governance
2. Appropriate scale
3. Increased participation
4. Multiple objectives
5. Cooperation and coordination
6. Adaptive management
7. Precautionary approach



(EAFM learn, 2019)

**Good governance:** governance that includes:

- Consensus
- Participation
- Accountability
- Transparency
- Compliance with law
- Responsive, equitable and inclusive
- efficient and effective

Good governance is closely related with the appropriate scale and cooperation and coordination principles.

**Appropriate scale:** appropriate scale takes into account connections within and across ecosystems and social systems. Scaling can be considered in four dimensions, three of which align to the three components of EAFM:

1. Ecological scales
2. Socio-economic scales
3. Political/governance scales
4. Temporal scales

*Increased participation:* EAFM is participatory and this means stakeholders are a central part of the management process. Stakeholders and resource users include people, households and communities who interact with and care about the fishery and the associated ecosystem. This will include a diverse number of users, some of whom are fishers, tour operators, coastal developers, shipping industry, conservationists, etc.

*Multiple objectives:* the success of EAFM depends on reaching a balance between conservation and sustainable use of fishery resources within the limits of ecosystem functioning and between ecological, economic and social objectives within specific geographical areas.

*Cooperation and coordination:* EAFM requires institutional cooperation and coordination because it more explicitly deals with the interactions of the fisheries sector with other sectors. To allow good interactions between sectors, institutional coordination and cooperation should be ensured firstly within the fisheries sector and its key actors. Examples of institutional cooperation and coordination activities are data and information sharing, harmonization of workplans, alignment of funds. These also by means of cross-sectoral cooperation agreements between different actors.

*Adaptive management:* Adaptive management involves managing and learning from what has been done by evaluating the outcome of the management action. Management actions can be put in place and providing they are monitored and evaluated, they can be modified based on the lessons learnt from their implementation. The adaptive management is closely linked to the precautionary approach.

*Precautionary approach:* precautionary approach is an underlying element of the broader framework of sustainable development. “States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as reason for postponing or failing to take conservation and management measures” is the UN definition articulated on 1995. This means that lack of data and information should not be used as an excuse for not taking action and where there is uncertainty, management actions should be more risk averse. Precautionary approach is closely linked to the adaptive management (FAO, 2014<sup>3</sup>).

The mentioned principles - taken from the “Ecosystem Approach to Fisheries Management Handbook” - can be used to track the EAMF implementation.

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<sup>3</sup> Staples D., Brainard R., Capezzuoli S., Funge-Smith S., Grose C., Heenan A., Hermes R., Maurin P., Moews M., O’Brien C. and Pomeroy R. (2014); Essential EAFM. Ecosystem Approach to Fisheries Management Training Course; RAP Publication 2014/13.

### The EAF key actors

Engaging stakeholders in research and decision-making on European marine issues is endorsed at high levels because agreement of stakeholders is believed to be essential for any management plan to succeed. The principal desired outcome of stakeholder participation in research is to improve the scientific data and knowledge required for management and governance (Mackinson et al., 2010<sup>4</sup>).

Since the stakeholder interactive engagement is the bulk on which the FAIRSEA builds up its activities, the key players of EAF have been identified and categorized by the project partners according to their influence and interest in the topic at hand and in the project goals as well as according to their geographical coverage.

Institutional and scientific stakeholders together with sectoral associations dealing with fisheries and environmental management can in fact play their full role in meeting the EAF principles contributing to EAF mainstreaming in fisheries governance at European, national, regional and local dimensions.

1. Institutional stakeholder includes policy makers, decision-makers and technical officers dealing with marine and maritime governance at different levels: national, regional and local authorities
2. Socio-economic stakeholders includes fisheries and aquaculture enterprises, trade associations and business associations, networks, advisory councils and all types of stakeholder-led organizations
3. Technical and scientific stakeholder includes academia, public and private research institutions, high education centers, advisories, practitioners



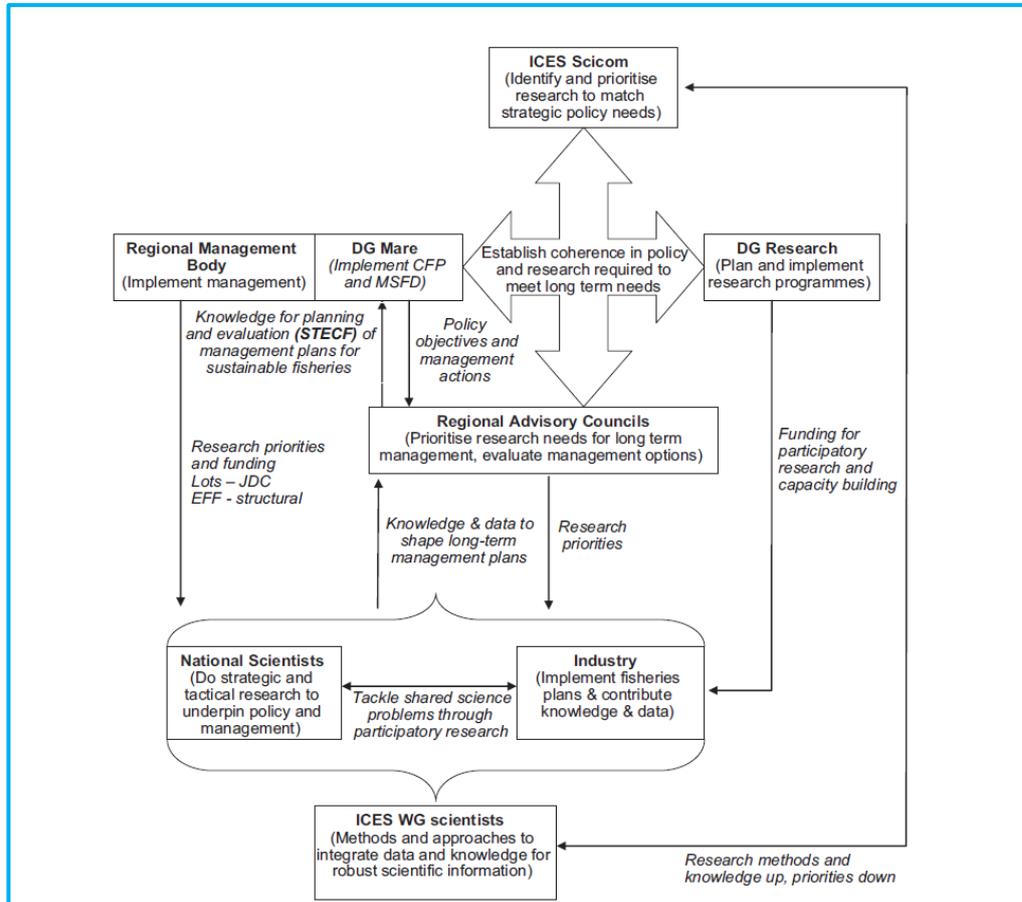
(EAFM learn, 2019)

Moreover, environmental associations and NGOs can actively contribute to the EAF application since they can interface between the fishers and the government, as well as with society at large (FAO, 2002) they can also help improve the coherence and coupling between the action taken in the environmental and fisheries authorities.

<sup>4</sup> Mackinson S. et al. Engaging stakeholders in fisheries and marine research. Marine Policy (2010), doi:10.1016/j.marpol.2010.07.003

The key stakeholders of the fisheries governance at European Union policy framework level are shown in the table below:

<b>Institutional stakeholders</b>	<ul style="list-style-type: none"> <li>• European Commission – DG MARE</li> <li>• European Commission – DG Research</li> <li>• National Authorities</li> </ul>
<b>Scientific Stakeholders</b>	<ul style="list-style-type: none"> <li>• ICES (International Council for the Exploration of the Sea)</li> <li>• STECF (Scientific, Technical and Economic Committee for Fisheries)</li> <li>• JRC (Joint Research Center)</li> <li>• GFCM (General Fisheries Commission for the Mediterranean)</li> </ul>
<b>Stakeholder-led organizations (including industry and other interest groups)</b>	<ul style="list-style-type: none"> <li>• Advisory Councils: <ul style="list-style-type: none"> <li>⇒ Aquaculture AC</li> <li>⇒ Baltic Sea AC</li> <li>⇒ Black Sea AC</li> <li>⇒ Long Distance AC</li> <li>⇒ Market AC</li> <li>⇒ Mediterranean Sea AC</li> <li>⇒ North Sea AC</li> <li>⇒ North-western waters AC</li> <li>⇒ Outermost regions AC (not set up)</li> <li>⇒ Pelagic stocks AC</li> <li>⇒ South-western waters AC</li> </ul> </li> </ul>



In Europe, stakeholder participation in the fishery management has been encouraged at regional and local levels by a network of Regional Advisory Councils (now known as Advisory Councils) and Fisheries Local Action Groups (Linke and Bruckmeier, 2015<sup>5</sup>; Phillipson and Symes, 2015<sup>6</sup>).

<sup>5</sup>Linke S, Bruckmeier K. (2015) Co-management in fisheries -experiences and changing approaches in Europe. *Ocean Coast Manag* 104:170–181

<sup>6</sup> Phillipson J, Symes D. (2015) Finding a middle way to develop Europe’s fisheries dependent areas: the role of fisheries local action groups. *Sociol Rural* 55:343–359

### The EAF Key actors in Adriatic

The identification and categorization of the key stakeholder of ecosystem approach to fisheries in Central and Northern Adriatic is one of the compulsory start-up activity of the FAIRSEA project. Given the main EU stakeholder listed in the previous paragraph, the project partnership worked to map stakeholder within the project area according the following three main categories:

1. Institutional stakeholder
2. Socio-economic stakeholder (including stakeholder-led organizations)
3. Technical/Scientific stakeholder (Academia)

In addition those shown in the table according the mentioned categories, the following stakeholder play a cross-cutting role in Adriatic area:

- ⇒ *FAO-AdriaMed* - Scientific Cooperation to Support Responsible Fisheries in the Adriatic Sea
- ⇒ *AdriaPAN* - Adriatic Protected Areas Network
- ⇒ *EUSAIR- Adriatic Key implementers*: regional and national authorities acting as regional focal points and coordinators of the EUSAIR Pillar 1 "Blue Growth" and Pillar 2 "Environmental quality"

## INSTITUTIONAL STAKEHOLDER OF CENTRAL AND NORTHERN ADRIATIC (ITALY AND CROATIA)

ITALY	
Name	Geographical scope
Ministry of Agricultural, Food and Forestry Policies and Tourism	National
Ministry of Transport and Infrastructure	National
Ministry of the Environment and Protection of Land and Sea	National
Regional Authorities of: <ul style="list-style-type: none"> <li>- Marche</li> <li>- Emilia-Romagna</li> <li>- Veneto</li> <li>- Friuli-Venezia- Giulia</li> </ul>	Regional
FLAGs: <ul style="list-style-type: none"> <li>- FLAG Marche Nord</li> <li>- FLAG Marche Centro</li> <li>- FLAG Marche Sud</li> <li>- Emilia-Romagna Coast FLAG</li> <li>- Friuli Venezia Giulia FLAG</li> <li>- FLAG Venetian – VeGal</li> <li>- Chioggia and Delta del Po FLAG</li> </ul>	Local
Sectoral Agencies: <ul style="list-style-type: none"> <li>- Veneto Agricoltura</li> <li>- ASSAM Marche</li> <li>- Agency for environmental protection of Marche, Emilia-Romagna, Veneto, Friuli- Venezia- Giulia</li> </ul>	Regional
Harbours' Masters of the maritime districts of Marche, Emilia-Romagna, Veneto, Friuli-Venezia- Giulia	Local

CROATIA	
Name	Geographical scope
Ministry of Agriculture	National
Ministry of the Sea, Transport and Infrastructure	National
Ministry of Environment	National
HOK Croatian Chamber of Trade and Crafts	National
HGK Croatian Chamber of Economy	National
HGK Croatian Chamber of Economy	National
Istrian County	Regional
Split Dalmatia County	Regional
Zadar County	Regional
Dubrovnik Neretva Region	Regional
RERA SD	Regional
MPAs	Regional

## TECHNICAL/SCIENTIFIC STAKEHOLDERS OF CENTRAL AND NORTHERN ADRIATIC (ITALY AND CROATIA)

ITALY	
Name	Geographical scope
OGS	National
ISPRA	National
CNR-IRBIM	National
COISPA	National
CONISMA	National
Università Cà Foscari	Regional
University of Bologna- Laboratory of Marine Biology and Fisheries resources	Regional
Polytechnic University of Marche – Marine Biology Department	Regional
University of Camerino	Regional
UNIMAR	National

CROATIA	
Name	Geographical scope
University of Split: -Faculty of Maritime Studies -Department of Marine Studies -Faculty of Economics	National
University of Zadar	National
University of Dubrovnik – Department for Aquaculture	National
Institute of Oceanography and Fisheries (IOF)	National
Maritime School Split	National

## SOCIO-ECONOMIC STAKEHOLDERS OF CENTRAL AND NORTHERN ADRIATIC (ITALY AND CROATIA)

ITALY	
Name	Geographical scope
Blu Marine Service	National
Legacoop Agroalimentare Dip Pesca	National
Confcooperative Fedagri Pesca – ACI	National
Soc. Coop S. Marco	Regional
Federpesca	Local
Coldiretti Impresa Pesca	Regional
Co.Ge.Pa. Consorzio Gestione pesca artigianale	Local
MEDAC	National/International
Cooperativa Pescatori di Portonovo	Local
BIVI srl	Local
Civitacozza	Local
Cooperativa MISA	Local
Sena Gallica Società cooperativa	Local
CO.PE.MO	Local

CROATIA	
Name	Geographical scope
FLAGS: -Pinna Nobilis FLAG -Istarski Svoj FLAG -Alba FLAG -Tunera FLAG -Vela Vrata FLAG -Tramuntana FLAG -Tri Mora FLAG - Plodovi Mora FLAG -Lostura FLAG	Local
Association of fisherman – HGK	Local
Association of fisherman / CEH SDŽ	Local
Association of fisherman / CEH PGŽ	Local
Trawlers Association of Croatia	National
Koordinacija Kocara Hrvatska	
SUNCE- Association for Nature, Environment and Sustainable Development	

## POLICIES AND GOVERNANCE FRAMEWORK

The governance of the fisheries policy is particularly complex and to date has yet to be effectively and comprehensively defined. Fishery activities have repercussions on common and shared resources, the correct management calls for the involvement of different areas of expertise and different interpretative criteria in order to create a connection between the different dimensions that characterise the subject of fisheries (Abate, 2013<sup>7</sup>). Many efforts have been made towards a more comprehensive and holistic policy framework which takes into account and addresses the multiplicity of socio-economic needs, preserving the marine health ecosystem. Moreover, transnational cooperation between institutional, scientific and socio-economic stakeholder is already recognized as a strength - and in the meantime a key challenge - to jointly manage the common marine resources. The institutional compartment analysis comprises the main laws, regulations and instruments that are currently in place at European and Adriatic level and it helps a better understanding of the framework conditions and the current dynamics for EAF application in Adriatic Regions involved in the project.

### The ecosystem approach to fisheries in the European Union Policy Framework

The marine environment protection and sustainable use of marine resources have been progressively addressed and implemented by the EU policies in the attempt to tackle the all needs and challenges from different sectors in a single framework.

The main EU tool to ensure the sustainable exploitation of marine resources exploited by European fishing fleets is the **Common Fisheries Policy** (hereafter CFP) which includes – within its operational objectives – the *progressive implementation of an ecosystem approach to fisheries management*. This to ensure that negative impacts of fishing activities on the marine ecosystem are minimised, endeavouring that aquaculture and fisheries activities avoid the degradation of the marine environment. The review of the Common Fisheries Policy started on 2002 (Reg. (EC) No 2371/2002) redefined the fisheries management towards the ecosystem-based approach to help implementing a more joined-up approach to protect the ecological balance of oceans as a sustainable source of wealth and well-being for future generations (EC, 2008). The COM (2008) 87 on the role of the CFP in implementing an ecosystem approach to marine management

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<sup>7</sup>Abate F.S. (2013). The state of Italian marine fisheries and aquaculture; Chapter 9 The institutions and laws governing Italian fisheries. 9.1 The sea and institutions: the difficulty of governance in fisheries. Ministero delle Politiche Agricole, Alimentari e Forestali (MiPAAF), Rome (Italy).

outlined the tasks of fisheries management within an ecosystem approach in a EU context as follows:

- To keep direct and indirect impacts of fisheries on marine ecosystems within bounds in relation to healthy marine ecosystems and ecologically viable fish populations by including all the knowledge we have about the interactions between fisheries and marine ecosystems in decisions under the CFP
- To ensure that actions taken in fisheries are consistent with and supportive of actions taken under the cross-sectoral Marine Strategy and Habitats Directives

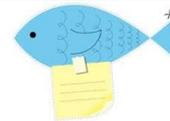
The Habitats Directive (Council Directive 92/43/EC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora), with its requirement to establish networks of protected areas in the marine domain, provides some important tools for an ecosystem approach. The CFP provides the instruments required to regulate fisheries so that the objectives of such protected areas are achieved.

Within the CFP reform, the 2009 public consultation launched by the EC, led to three main pillar

1. The new CFP (Reg. (EU) No 1380/2013)
2. The common organisation of the markets in fishery and aquaculture products (Reg. (EU) No 1379/2013)
3. The new European Maritime and Fisheries Fund (EMFF) (Reg. (EU) No 508/2014)

#### The key issues relevant to EAF of the 2013 CFP Reform

- Multiannual ecosystem-based management to reinforce the role that in the previous reform had been given to multiannual plans, but also taking a more ecosystem-oriented approach, with multi-species and fisheries plans, in the regional framework of European geographical areas
- Maximum Sustainable Yield (MSY): taking into account international commitments, such as those made at the 2002 Johannesburg Summit on Sustainable Development, the new CFP sets the MSY as the main target for all fisheries



Fisheries management – within the CFP - takes the form of input control, output control, or a combination of both.

*Input controls* include:

- Rules on access to waters – to control which vessels have access to which waters and areas
- Fishing effort controls – to limit fishing capacity and vessel usage (Council Regulation (EC) No 754/2009)
- Technical measures - to regulate gear usage and where and when fishermen can fish (Reg. (EU) 2019/1241; Reg. (EU) 2016/2336; Reg. (EU) No 227/2013)

*Output controls* mainly consist of limiting the amount of fish from a particular fishery, in particular through total allowable catches (Reg. (EU) 2019/124 of 30 January 2019). Catch limits are set for the most commercial species and are based on the scientific advice of ICES and STECF.

In addition, the new regulation on the European Maritime and Fisheries Fund 2014 -2020 recalls the rules for ecosystem approach to Mediterranean fisheries that are set in the Council Reg. (EC) No 1967/2006, also known as the '**Mediterranean Regulation**', in force since January 2007. The Mediterranean Regulation goals are:

- to protect juvenile fish, which are mostly concentrated in coastal zones
- to improve species and size selectivity, in particular for trawlers
- to establish maximum dimensions for certain fishing gears, to curb the fishing effort
- to prevent conflicts between fishermen, with special attention given to small-scale coastal fishermen. This is to be achieved by banning more active gears, such as trawlers and purse seines, from coastal areas
- to establish minimum landing size for several important species
- to enlarge the network of marine protected areas

The Regulation contains two sets of measures

1. *management measures and obligations* intended to protect sensitive habitats from the impact of fishing activities, to enlarge the network of marine protected areas and to prohibit destructive fishing practices
2. *technical measures* on the dimension, number and selectivity of the fishing gears allowed in the various fisheries, such as minimum mesh size, twine thickness and other technical requirements

Moreover, this Regulation foresees the decentralised management of multiannual management plans that are established first at national level through the adoption of compulsory national management plans. These plans may, in particular, include (Art.18):

- a) fishing effort management measures
- b) specific technical measures including where appropriate temporary derogations to the rules of this Regulation when such derogations are necessary for the operation of the fisheries and provided that the sustainable exploitation of the concerned resources is ensured by the management plan
- c) the extension of compulsory use of vessel monitoring systems or similar systems for vessels between 10 m and 15 m in length overall
- d) temporary or permanent restrictions to zones, reserved to certain gears or to vessels having undertaken obligations in the framework of the management plan.

EU countries must develop more detailed rules through long-term management plans for fisheries in their territorial waters. There are currently no EU plans in force in the Mediterranean, but two are in preparation:

- one on small pelagic species in the Adriatic Sea;
- one on demersal species in the western Mediterranean

Thus, new CFP intends to promote regionalisation and co-decision as a new governance approach to introduce simplification of the rules set by the legislator and particularly relevant for the future use of technical measures as management tools, since part of the problem of the effectiveness of the technical measures is related to the governance structure they operate in. Regionalisation could allow the development of technical measures at regional level (i.e. ultimately under the umbrella of multiannual plans or in the short-term through other Union measures). Regionalisation also aims to limit the need for detailed technical measures adopted by the European Parliament and the Council of Ministers under co-decision. Within a simplified legal framework defined by the legislator, measures can be regionally devised and tailor-made to the specificities of different fisheries. Regionalisation also provides an opportunity to utilise technical measures much more as a driver for the achievement of sustainable fisheries rather than simply as restrictive and coercive measures complementing fishing opportunities and effort restrictions. Regionalised decision-making also avoids having to make frequent changes to the substance of technical measures contained in co-decided acts (EP, 2014).

The reorientation of fisheries management required the clarification of objectives for protecting marine ecosystems that are scientifically sound, economically viable and administratively feasible. The revised CFP includes a reduction in effort; discard ban, greater stakeholder

involvement; an ecosystem approach; regional management and multi annual management as well as the integration of fisheries policy in a broader maritime policies context.

Since the fisheries sector interacts closely with other maritime sectors, the EC launched on 2007 the **Integrated Maritime Policy** (COM (2007) 575 final and SEC (2007) 1278) which addresses interactions between all EU policies and maritime. The Integrated Maritime Policy constitutes the overall framework for integrated action in the maritime field, and its environmental pillar, the *Marine Strategy Framework Directive* (Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008) constitutes the general basis for implementing an ecosystem approach to the marine environment. The Marine Strategy Framework Directive (it is the first EU legislative instrument related to the protection of marine biodiversity, as it contains the explicit regulatory objective "biodiversity is maintained by 2020", as the cornerstone for achieving GES. The Commission also produced a set of detailed criteria and methodological standards to help Member States implement the Marine Strategy Framework Directive. The Directive enshrines in a legislative framework the ecosystem approach to the management of human activities having an impact on the marine environment, integrating the concepts of environmental protection and sustainable use. ([http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index\\_en.htm](http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/marine-strategy-framework-directive/index_en.htm)).



Built further on the principles and elements set out in the Council Recommendation on Integrated Coastal Zone Management (2002) and the Protocol to the Barcelona Convention on Integrated Coastal zone Management( 2010), on 2014 EU adopted the Marine Spatial Planning Directive (Directive 2014/89/EU of the European parliament and of the council of 23 July 2014), establishing a framework for maritime spatial planning in Union waters. The IMP, in fact, identifies maritime spatial planning as a cross-cutting policy tool enabling public authorities and stakeholders to apply a coordinated, integrated and trans-boundary approach.

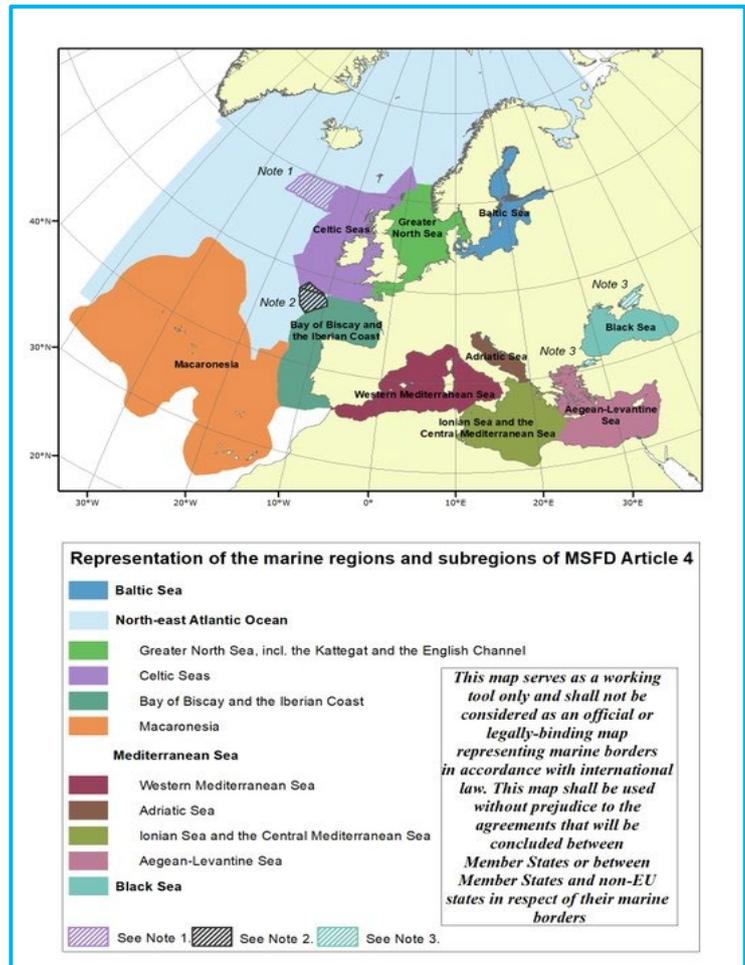
The Marine Spatial Planning Directive (hereafter MSP Directive) indicates that to promote sustainable development, blue growth, and the sustainable use of the marine and coastal resources; MSP should be based on ecosystem based approach (Borja et al., 2013; Directive

2014/89/EU). Ecosystem-based approach plays a vital role in MSP because it has the potential to “set boundaries for a management approach” (Schernewskli et al., 2018) as it bases the planning on the best available scientific data and other principles. At the same time, implementing MSP can contribute to the achievement of Good Environmental Status (GES) (Suárez de Vivero et al., 2012) since MSP approaches implemented by Member States need to be based on ecosystem based approach (HELCOM, 2016).

Since the management of marine areas is complex and involves different levels of authorities, economic operators and other stakeholder, Member States shall ensure a participatory approach in preparing their maritime spatial plans which identify the spatial and temporal distribution of relevant existing and future activities and uses in their marine waters. Member States shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem based approach, and to promote the coexistence of relevant activities. To this, the Directive establishes European marine regions and sub-regions on the basis of geographical and environmental criteria.

The Directive lists four European marine regions:

1. THE BALTIC SEA
2. THE NORTH-EAST ATLANTIC OCEAN
3. THE MEDITERRANEAN SEA
4. THE BLACK SEA



Fisheries management must rely on data and scientific advice, and control measures to ensure that rules are applied fairly to and complied with by all fishermen. On 2000, the EU established a framework for the data collection (Reg. (EC) No.1543/2000) and its 2008 (Reg.(EC) No 199/2008) reform led to a significant step in the field the fisheries sector and for the collection of ecosystem-wide data. From 2017 on-wards, the data collection framework has been subject to a recast (Reg. (EU) 2017/1004) in the establishment of the Union framework for the collection, management and use of data in the fisheries sector to provide support for robust scientific advice. The main recast changes concerns:

- Sustainable aquaculture, socio-economic data for impact assessment
- Strengthened Regional Cooperation
- Enhanced Data Availability Simplified structure (DG MARE, 2017. <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=13190>).

**The new EU map for Data Collection** (A new Framework for Fisheries Data Collection, DG MARE, 2017)

Categories	Types of variables	Sector covered	Categories	Types of variables	Sector covered
1. Fisheries - Biological data	A) Stocks: species x area	A) Commercial and recreational fish stocks –Length, age, weight, sex, maturity, fecundity of individual fish.	2. Fisheries - Metier categories	Biological and fishing activity data should be aggregated but not necessarily sampled by metier	Commercial catches
	B) RFMO and SFPA Stocks: species x area	B) Idem			
4, Impact of fisheries in the marine ecosystem	C) Unintended incidental non-commercial by-catch: by species	C) All areas: frequency of occurrence in commercial and recreational catches: birds mammals turtles, fish and other organisms (on red lists IUCN, EU lists)	3. Fisheries - Fishing activity	Capacity, effort, landings specifications for data collected under CR or otherwise	All commercial catches in all areas
	D) Diadromous species	D) Inland waters			
5. Fisheries - Socio-economic data	A) Incidental by-catches	A) In all commercial catches in all areas	6. Aquaculture –Economic, social and environmental data	Different categories of income and of costs, employment, size of the fleet or sector, energy, social indicators, environmental performance data	Data not covered by ESTAT (everything but production volume). Data already recorded elsewhere that could serve to evaluate environmental performance. Data on freshwater aquaculture voluntary and if above a certain threshold
	B) Impact on Marine Habitats	B & C) Through pilot studies			
5. Fisheries - Socio-economic data	Different categories of income and of costs, employment, size of the fleet or sector, energy, social indicators	Commercial fisheries fleet	7. List of research surveys at sea	List with the names and description of the surveys, time of year, species, life stage, area, number of days at sea	Fish stocks-fisheries independent data
					Same list as before (to be reviewed by STECF)

The data collection recast recalls the Multiannual Union Plan - based on a participatory approach - to achieve the objectives and principles set out in Articles 2 and 25 of Reg. (EU) No 1380/2013 and which combine different management tools. Member States should implement the Multiannual Union programme at national level by setting out their main data collection activities in the form of a section of the operational programme referred to Reg. (EU) No 508/2014, supplemented by a work plan for data collection in accordance with Article 21 of that Regulation. Regional coordination groups may also draft regional workplans to replace or supplement the relevant parts of the national work plans of each of the Member States concerned. The National and draft regional work plans are evaluated by STECF.

### **Multiannual plan for small pelagic in Adriatic Sea: main elements**

- ⇒ Managing fisheries for anchovy and sardine stocks, based on defined conservation reference points, namely target fishing mortality ranges (in line with the MSY objective by 2020) to serve for the setting of fishing opportunities and levels of spawning stocks biomass, under which safeguard measures must be taken to reduce fishing mortality.
- ⇒ Setting provisions for regional cooperation between Member States and delegating powers to the Commission to adopt any joint recommendation by concerned Member States for fisheries technical measures, for the conservation of anchovy and sardine when spawning stocks is too low as well as for the conservation of mackerel and horse mackerel when remedial action is required.
- ⇒ Further delegating powers to the Commission to adopt exemptions or some other provisions related to the landing obligation for these four small pelagic species, when recommended jointly at regional level by the Member States concerned.
- ⇒ Setting some additional measures to reinforce control: these include specific requirements concerning landings (prior arrival notification and use of designated ports), but also extending the requirements for vessel monitoring system (VMS) and electronic registration and reporting of catches (electronic logbooks) to all fishing vessels over eight metres in length (under the general control regulation, these measures only apply to fishing vessels as from 12 metres long).

The PECH committee adopted its report on the plan on 9 October 2018, the Council is now awaited to establish its first-reading position on the future plan (EP, 2018). <http://www.europarl.europa.eu/legislative-train/theme-fisheries/file-multiannual-plan-for-small-pelagic-fisheries-in-the-adriatic-sea>

### **Panorama of EU Multiannual Plans**

#### **Adriatic Sea**

In February 2017 the Commission proposed a multi-annual plan for **small pelagic stocks in the Adriatic Sea**.

#### **Baltic Sea**

Multiannual plan for the stocks of **cod, herring and sprat** in the Baltic Sea and the fisheries exploiting those stocks (Council regulation (EU) 2016/1139)

#### **North Sea**

Multiannual plan for **demersal stocks** in the North Sea and the fisheries exploiting those stocks, specifying details of the implementation of the landing obligation in the North Sea (Council regulation (EU) 2018/973 of 4 July 2018)

#### **Western Mediterranean Sea**

Multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea and amending Regulation (EU) No 508/2014. (Council regulation (EU) 2019/1022 of 20 June 2019)

#### **European eel**

Measures for the recovery of the stock of European eel (Council Regulation (EC) No 1100/2007 of 18 September 2007)

List of national eel management plans

#### **Greenland halibut**

Recovery plan for Greenland halibut in the framework of the Northwest Atlantic Fisheries Organisation (Council Regulation (EC) No 2115/2005 of 20 December 2005)

#### **Bluefin tuna**

Multiannual recovery plan for bluefin tuna in the **eastern Atlantic and the Mediterranean** (Council Regulation (EU) No 2016/1627 of 14 September 2016)

EU has taken important steps towards a comprehensive strategy for managing its marine territories, requiring a rethink on the current governance structure of policies technical measures to allow for more flexibility to ensure that fishing activities are consistent with wider. National institutions, called upon to implement the CFP and achieve its objectives, must maintain a close working relationship with the offices of the EU, both during the drawing up of the regulatory and

tools as well as the operational stages for implementing the same. CFP cannot act as stand alone policy.

## Main regulations at IT level

### *General framework*

In Italy the general responsibility for the fishing sector is entrusted to the [Ministry of Agricultural, Food and Forestry Policies and Tourism](#) (hereafter MIPAAFT) through its Directorate General for Fisheries and Aquaculture. However, there are other ministries overseeing certain public activities related to monitoring and control of fishing, including the [Ministry of Defence](#), through the Coast Guard, the Italian Navy and the Carabinieri; the [Ministry of the Interior](#), through the State Police; the [Ministry of Economy and Finance](#), through the Guardia di Finanza; and the [Ministry of Health](#), responsible for public health and veterinary services. Administrative obligations are carried out at regional and local level by the coastal administration (Capitanerie di Porto and Guardia costiera), according to a hierarchical organization. Since 1997, administrative decentralization is under way, aimed at consolidating the autonomy of local authorities. The MIPAAFT is responsible for central administration, fleet management and national fisheries resources, as well as for management, coordination and planning. Local authorities are responsible for several issues previously administered by the Directorate-General for Fisheries and Agriculture, including the development and protection of resources, aquaculture, the maintenance of fishing ports, processing, trade and fishing in inland waters. The Ministry is the National Managing Authority of the EMFF and it carries out the functions assigned to it by art. 125 of the Reg. (UE) 1303/2013 and art. 97 of the Reg. (EU) 508/2014; it is responsible for the effectiveness and regularity of the implementation of the Operational Programme as a whole and, in this sense, indicates the common procedures to be followed by all the subjects, in order to harmonize their implementation. The [Regions](#) have been identified as Intermediary Bodies (Art. 123 of Regulation (EU) no. 1303/2013) for the delegation of precise functions of the Managing Authority, regarding the implementation of the delegated measures. The tasks, functions and responsibilities of Intermediate Bodies, as well as their relations with the Managing Authority or with the Certifying Authority, are regulated by means of a formal agreement between the parties concerning the procedures, criteria and responsibilities connected with the implementation of the delegated tasks. The Intermediate Body formally delegated to carry out the activities provided for in the agreement entered into with the MA and/or CA, operates on the basis of the provisions contained in Community and national legislations as well as on the basis of the provisions of the Manual of Procedures and Controls of the delegating Authority.

Regional regulations on marine fisheries are highly diversified as regards the matters to be regulated – this can be ascribed in part to issues to be resolved concerning State-Regions relationships. Over and beyond sector-specific regulations, Regions intervene in a series of other activities, including the following: preparing their own research and development programmes, enhancing local products in relation to local traditions, providing support for safeguarding biodiversity, contributing to defining locally-applicable national management plans, adopting local management plans and defining rules for setting up fishery and aquaculture districts.

### Fishing licences system

Italy is subject to the EU Council regulations mentioned. Council Regulation (EC) No. 3760/92 of 20 December 1992, as modified by Council Regulation (EC) 2371/2002, establishes a Community system for fisheries and aquaculture which states that “all Community fishing vessels shall be required to have a fishing licence, which is attached to the vessel” (Article 5.1). It further specifies that “the licensing system shall apply to all Community fishing vessels in the Community fishing waters or operating in the waters of third countries or on the high seas” (Article 5.2).

As a result, no Italian fishing vessel is allowed to operate within or outside Italian waters without license to do so. This rule is endorsed nationally by Italian laws No. 963/1965 and No. 41/1982 and now, according to the EU Regulation, it has been confirmed by the Italian Legislative Decrees adopted during the year 2004: n. 153/2004 (Article 4) and n. 154/2004 (Article 12, p. 5).

Access to fishery resources in EU waters by third country vessels may be granted in the framework of a fisheries access agreement concluded between the EU and other States (that are not EU members). The Legislative Decrees mentioned, n. 153/2004 and n. 154/2004, came into force in June 2004 and represent the new basis for the reform of the Italian fishery system. The Italian fishing vessel license is granted by the Director General for Fisheries and Aquaculture. Information to be mentioned in the license includes the vessel’s technical features, the owner’s personal details and types of fishing gear that can be carried on board and used from the vessel. Any change in vessel’s ownership, any modification in vessel’s technical features or any variation in the type of fishing gear to be used from the vessel is subject to prior approval from the Directorate General of Fisheries and Aquaculture.

All data on the Italian fishing fleet are reported in national informative archives, in the European Community archives exist to monitor fishing capacity and fishing effort Italian Legislative Decree 153/2004 confirms the EC rule that in order to fish commercially it is necessary first to have been granted a licence; furthermore Legislative Decree 154/2004 specifies that the possession of a

vessels is not a sufficient criterion to grant the license, the conditions mentioned under Article 13 of Reg. 2371/2002 must be satisfied (FAOAdriaMed, 2007)<sup>8</sup>.

### Fishing zones

Italian fishing vessels are divided into four categories corresponding to their area of operation:

1. coastal fishing vessels (operating within 3 to 6 nautical miles from the coastline)
2. offshore ('ravvicinata') fishing vessels (authorized to operate up to the 12 nautical miles limit but within the waters of their maritime district of pertinence and in the two neighbouring maritime districts)
3. Mediterranean fishing vessels (operating throughout Italian territorial waters as well as in the high seas areas of the Mediterranean, unless a bilateral or multilateral agreement to which Italy is a party dictates otherwise)
4. High seas fishing vessels (authorized to fish throughout Italian territorial waters as well as in areas of high seas both in the Mediterranean and elsewhere) (FAOAdriaMed, 2007).<sup>8</sup>

### Spatial planning and management plans

Council Regulation (EC) 1198/2006, concerning the European Fisheries Fund (EFF) in the programming period 2007-2013, provided for improving management and monitoring of the conditions of access to fishing areas via Local Management Plans approved by the competent national authorities. (Art. 37, letter m). The plans were produced by associated groups of fishermen, by consortia and Producers Organisations (OPs) and must be in harmony with the principles of protecting and conserving the biological resources listed in chapter II of Council Regulation (EC) 2371/2002 for a gradual reduction in fishing effort that shall be scientifically quantified and demonstrable. The plans included any measures aimed at regulating fishing activity that impose more restrictive regulatory obligations compared to those indicated in EU legislation. Regional administrations were identified as Intermediate Bodies for promoting the implementation of plans by fishermen, carrying out initial assessment of the plans, which will then have to be approved at a later stage by the Managing Authority. In the Programming period 2007-2014, 10 Local Management Plans submitted by the Regions and approved by national government.

The Italian coastal planning is, actually, characterized by an extreme fragmentation between public, regional and local authorities. Besides, the lack of national regulations is, partially, offset

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<sup>8</sup> FAO AdriaMed (2007). Technical Document N°14 Rev2 "General outline of marine capture fisheries legislation and regulations in the Adriatic Sea Countries"

by the presence of many regional laws that establish programs for an integrated management of coastal areas (ISPRA 2015). In Italy, different plans for the management of Italian coasts have been realized in thirteen Italian regions, based on local/regional initiatives<sup>9</sup>.

The EU MSP Directive was transposed in Italian legislation with the Legislative Decree 17 October 2016, n. 2016. According to the Legislative Decree (art. 8) functions of MSP Competent Authority are in charge of the Ministry of Infrastructure and Transport. Indeed, MSP competences are shared among different institutions. An Inter-ministerial Coordination Table and a Technical Committee with defined scopes are established. Under the EU Directive on Maritime Spatial Planning Italy will be required to implement a maritime spatial plan by 2021.

#### Regulation for limiting or prohibiting fishing operations

Italian fisheries legislation (Art. 98 of Presidential Decree 1639/1968) set out the possibility of limiting or prohibiting fishing operations in certain marine areas that have been recognised as spawning or nursery areas for economically important marine species or in areas that have been depleted due to over-exploitation. This law establishes the setting up of Fisheries restricted areas specifically for fishing activities and predates by about 15 years the legislation on Marine Protected Areas (1982). Italy has currently established a considerable number of MPAs under the responsibility of the Ministry of Environment, Protection of the Territory and the Sea. The management of the different MPAs is delegated to local management bodies such as public bodies, scientific institutions or environmental associations. Italy counts 22 Marine Protected Areas and 11 Biological Conservation Zones. There are many provisions that directly or indirectly limit the areas where fishing is permitted, but establishing Fisheries restricted areas remains the most rapid and suitable tool for protecting commercial fish species. The temporary closure of fishing activities for bottom and pelagic trawlers is regulated by the MIPAAT that annually sets out the closure periods each <sup>10</sup> (See *Temporary fishing ban in Italy*)

#### Regulation on fishing gear

Each professional fishing vessels can only be authorized to use a closed and restricted number of listed gears that are reported on license; no fishing gear or tools other than those mentioned in

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<sup>9</sup> Cantasano N, Pelliconi G., letto Fabio (2016). Integrated coastal zone management in Italy: a gap between science and policy. *J Coast Conserv* (2017) 21:317–325 DOI 10.1007/s11852-016-0479-z

<sup>10</sup> Cataudella S., Spagnolo S. (2011). Lo stato della pesca e dell'acquacoltura nei mari italiani. Ministero Politiche Agricole, Alimentari e Forestali

the license must be carried on board the authorized vessel. Italian legislation recognizes only 12 separate categories of fishing gears that have been classified in the Ministerial Decree of 26 July 1995 according to international and European standards for sustainable fishery practices.

#### **Restrictions on the use of fishing gear**

The use of encircling and towed nets from a boat or operated from the shore is prohibited ([Article 2.3 of Council Regulation \(EC\) No. 1626/94 of 27 June 1994](#)). The use of trawls, seines or similar nets is prohibited within three nautical miles of the coast or within the 50 m isobath where that depth is reached at a shorter distance ([Article 3.1 of Council Regulation \(EC\) No. 1626/94 of 27th June 1994](#)). However, the use of dredges for catching shellfish may be authorized irrespective of the distance from the coast and depth, provided that the catch of species other than shellfish does not exceed 10% of the total weight of the whole catch ([Article 3.2 of Council Regulation \(EC\) No. 1626/94 of 27 June 1994](#)). Fishing by means of bottom trawls, seines or similar nets above Posidonian beds (*Posidonia oceanica*) or other marine phanerogams is strictly prohibited ([Article 3.3 of Council Regulation \(EC\) No. 1626/94 of 27th June 1994](#)). It is prohibited to set any type of encircling net within 300 m of the coast or within the 30 m isobath where that depth is reached at a shorter distance ([Article 3.4 of Council Regulation \(EC\) No. 1626/94 of 27th June 1994](#)).

#### **Gear restrictions**

Minimum mesh sizes are:

- 40 mm for towed nets (bottom trawls, surface trawls<sup>[9]</sup>, anchored seines, etc.) and
- 14 mm for encircling nets.

#### **Trawls**

The use of any device to cover the cod end, on the inside or the outside, is restricted to the devices authorized by [Commission Regulation \(EEC\) No. 3440/84 of 1984](#).

#### **Dredges**

The maximum authorized breadth for dredges is 4 m, except in the case of dredges for sponge fishing (gagava).

#### **Encircling nets (seines and lampara nets)**

The length of netting must not exceed 800 m and the drop is restricted to 120 m, except in the case of tuna seines.

#### **Bottom seine nets (gillnets and entangling nets) and trammel nets**

The maximum drop of bottom-set nets is restricted to 4 m. It is prohibited to carry on board and set more than 5000 m of bottom-set nets per vessel.

#### **Bottom-set longline**

It is prohibited carry on board and set more than 7000 m of longline per vessel.

#### **Surface-set longline (floating)**

It is prohibited to carry on board and set more than 60 km of longline per vessel (FAOAdriaMed, 2007)

LEGISLATION BOX - ITALY	
Legislation	No. of Official Gazette/Gazzetta Ufficiale (GU)
Presidential Decree no. 1639/1968 - Governing maritime fisheries	GU No.188 of 25/7/1969
Law No. 41/1992 - Multiannual Plan for maritime fisheries and aquaculture (three years Plan)	GU No.53 of 24/2/1982
Legislative Decree No. 153/2004 – Maritime fisheries	GU No. 145 of 23/6/2004
Legislative Decree No. 154/2004 – Fisheries and aquaculture modernization	GU No.146 of 24/6/2004
Decree - Law No. 225/2010– National operations for marine ecosystem preservation and fisheries enterprises competitiveness	GU No.303 of 29/12/2010
Legislative Decree No. 4/2012– Measures governing fisheries and aquaculture activities and penalty system	GU No.26 of 1/2/2012

## Main regulations at HR level

### *General framework*

**Ministry of Agriculture** is the main institution managing the fisheries sector. Within it there are several Directorates involved, the most important being the Directorate of fisheries, responsible for implementing EU regulations regarding the common fisheries policy. Directorate of veterinary and Food Safety manages legal framework regarding food safety, animal by-products, disease control and veterinary inspection. Directorate for Professional Support for the Development of Agriculture and Fisheries is involved in educating fishermen and helping them with legal framework related to the sector. Directorate of Fisheries has regional offices in all coastal counties. The regional offices issue recreational and commercial fishing permits, collect catch data and administer documents related to fishing. There are other institutions supervising maritime laws. **Ministry of Maritime Affairs, Transport and Communications** manages register of vessels, safety of navigation, protection of the sea from pollution from ships, seaports, maritime domain and the establishment of maritime domain boundaries. Harbour Master's Offices operate under this Ministry and issue the navigation licenses. The maritime domain is managed, taken care of and protected by the Republic of Croatia either directly or through the units of regional self-government or local self-government units. Port authorities are established by the Republic of Croatia for the purpose of managing, constructing and using a port open to public traffic that is of particular (international) economic interest to the Republic of Croatia. **Ministry of Environment Protection and Energetics** manages protected areas and species, hunting areas and collection of wild native species. **Ministry of Tourism** provides a legal framework regarding tourism services, nautical tourism and categorization of tourist vessel. Ministry of Health conducts sanitary inspection and food safety. Public Health Institutes control the production areas for shellfish aquaculture and fishing.

**Ministry of Internal Affairs** with their maritime police controls the sea and border together with the Ministry of Defence. Military pilots are working with fisheries inspectors and piloting drones used for controlling fishing activities.

**Ministry of Economy, Entrepreneurship and Crafts** defines laws regarding entrepreneurship and employment. Customs Administration performs the tasks of the Customs Service as an administrative organization within the Ministry of Finance of the Republic of Croatia whose basic task is the application of customs, excise, tax and other regulations.

**Counties, townships and municipalities** are local authorities that are involved in managing the maritime domain and in governing the port authorities. There are 7 coastal counties in Croatia:

Istrian County, Primorje-Gorski Kotar County, Lika-Senj County, Zadar County, Šibenik-Knin County, Split County and Dubrovnik County.

The Ministry of Agriculture and the Directorate of fisheries rely on scientific data offered mostly by Institute of oceanography and fisheries from Split. The Institute of Oceanography and Fisheries is a scientific institution established for the investigation of the sea. The scientific activity conducted encompasses virtually all aspects concerned with sea exploration: physical, chemical, geological, biological and fisheries.

Other scientific institutions in Croatia that research marine ecosystem and fisheries are Center for Marine Research in Rovinj, Ruđer Bošković Institute in Zagreb, Juraj Dobrila University of Pula, Museum of Natural History in Rijeka, Museum of Natural History in Zagreb, Faculty of Food Technology and Biotechnology in Zagreb, Faculty of Agriculture in Zagreb, Faculty of Science in Zagreb, Faculty of Veterinary Medicine, University of Zadar, University of Split, University of Dubrovnik and Dubrovnik Sea and Coast Institute.

There are also some NGOs that do educational and research activities and get involved in scientific projects regarding Adriatic Sea and fisheries. The most important are WWF Adria, Association for Nature, Environment and Sustainable Development Sunce, Blue World Institute for Marine Research and Conservation, D.I.I.V. Ltd., for the ecology of the sea, water and underground and Marine Research Society 20000 miles.

#### Relations within institutional and technical participants

For setting the conditions for cooperation arising and for successful participation in a shared EAF it is important to know all the existing relations within institutional and technical participants. The most important institutional stakeholders are the Ministries and Croatian Parliament who are passing legal acts and regulations.

The two ministries that most overlap in their management regarding fisheries are the Ministry of Agriculture and the Ministry of Environment Protection and Energetics as the Ministry of Agriculture manages the use of biological marine resources, and the Ministry of Environment is protecting them. The Ministry of Environment Protection and Energetics also implements Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora which specifies species whose taking in the wild and exploitation may be subject to management measures (Annex V that mentions *Corallium rubrum* and *Scyllarides latus*). The Ministry of Environment based on this Directive established of a system of permits for taking certain species of Echinoderms, even though fishing permits are in general under the authority of the Ministry of Agriculture. The Nature Protection Act (Nature Protection Act NN 80/13, 15/18,

14/19) prohibits the collection of strictly protected species, however the Marine Fisheries Act and associated regulations allow the collection of certain amounts *Corallium rubrum* by commercial fishermen with special permits. The overlapping of these two Ministries' authorities goes further regarding the proclamation of marine protected areas. The Ministry of Environment Protection and Energetics does not know the specific category of "marine protected area ", but within the national categories of the network of protected areas parts of the sea are protected. In the parts of the sea that are protected in the categories of special reserve, national park and nature park, restrictions on fishing are laid down by the minister responsible for fisheries (minister of agriculture) by an ordinance with the prior opinion of the minister responsible for nature protection. Marine Fisheries Act provides the option of selling special licences for recreational fishing in these protected areas of the sea. In Croatia, 612.39km<sup>2</sup> of marine area is protected, which is 1.94% of the total territorial sea surface, in the categories of national park (216.52km<sup>2</sup>), Nature Park (189.01km<sup>2</sup>), special reserve (114.96km<sup>2</sup>) and significant landscape (97.14km<sup>2</sup>). The Natura 2000 ecological network additionally protects 15.45% of the territory of the territorial sea of Croatia, with a total area of 25.691,98 km<sup>2</sup>. In some of these protected areas commercial and recreational fisheries are forbidden, but in some aren't (National park Kornati), and this depends on special regulation for each area, brought by the Ministry of Environment protection and energetics. In fact, in most marine protected areas (national parks, special reserves and nature parks) recreational fisheries are allowed with special licenses for fishing and are sold by the competent public institution (this is regulated by the Marine Fisheries Act).

Next important relationship is between the Ministry of Agriculture and Ministry of Maritime Affairs, Transport and Communications that issues navigation licenses for fishing boats and also Port authorities manage the construction and using of ports, including fishing ports. Communication between these two ministries is very important to cover all the specificities of fishing boats, fishing trips and unloading the catch.

The Operational Programme for Maritime Affairs and Fisheries of the Republic of Croatia for the programming period 2014-2020 is brought by the Ministry of Agriculture. The scientific institutions, universities, NGOs, port authorities, municipalities and counties can all apply to some of the tenders offered by the Operational Programme for support from the European Maritime and Fisheries Fund (for innovations, partnerships between scientists and fishermen, protecting marine biodiversity, fishing ports and so on). Some of these measures directly promote partnerships between stakeholders that can lead to a broader approach to management.

#### National and Local management plans

Croatian fleet is managed through the capacity and effort limitations, as well as through time and spatial restrictions. Effort regulation is related to restrictions on issuing fishing licences and

transfer of fishing rights from one license to other in terms of permitted fishing gears or fishing zones as well as through issuing additional authorisations for fisheries under management plans. This system is preventing increase of fishing effort related to fishing gear or fishing zone, or even subzone. Capacity limitation is related to increase of vessel power and length in terms of total national fleet capacity and total capacity for specific fisheries. Besides that, there are restrictions related to transfer of effort between fishing zones of inner and outer fishing sea preventing increase of effort in the most vulnerable areas of inner sea. Spatial and temporal closures have been used in the past years for management of purse seine and trawling fishery. In the recent period this has become the most effective measure in preventing catch of smaller categories of small pelagic fish and protecting areas important for recruitment of target species. In addition to the aforementioned, from 2014 GFCM management plan for small pelagic fish in GSA 17 has been in force. By the provisions of this plan maximum number of fishing days for targeting sardine and anchovy has been set, as well as temporal closure period. Given the full implementation of these measures and additional national restrictions implemented for protection of small pelagic, the total number of days-at-sea will probably decrease further in the future. In 2015, Italy and Croatia adopted joint management measures at the national level establishing no-take zone for bottom trawls in the area of Jabuka/Pomo pit. This regime was introduced from July 2015 to October 2016 after which regime was modified and more stringent regime has been established for the three-year period. On the top of national legislations this new regime was also transposed into GFCM Recommendation 41/2017/3 on the establishment of a fisheries restricted area in the Jabuka/Pomo Pit in the Adriatic Sea. Based on Article 19 from the Council Regulation (EC) No 1967/2006, Croatia has adopted Management plans for fisheries conducted by trawl nets, purse seines shore seines.

#### Management plan for bottom trawl fishery

All bottoms trawlers need to have authorizations for using this gear. Authorizations were based on fishing activity with this specific gear in the past 5 years. All vessels need to have VMS (vessel monitoring system) tracking and electronic reporting of catch.

Monitoring the implementation of measures and monitoring the state of resources include:

- Monitoring of the implementation of measures to reduce the intensity of exploitation is planned within the data collection framework (DCF), and in accordance with the European Union 's multi - annual program for the collection, management and use of marine fisheries data; and through VMS and electronic catch reports;
- Monitoring of the state of resources is planned through standardized scientific monitoring (MEDITS);
- Control of implementation and efficiency of measures on an annual basis;

- A three-year evaluation of the state of resources and when appropriate redefining the objectives of the Management Plan as well as measures for its implementation.

Fishing regulation for bottom trawlers includes prohibition of inland fishing for vessels of engine power exceeding 184 kW.

#### Management plan for purse-seiners targeting sardine and anchovy

Purse seiners are the most important Croatian fleet segment in terms of landing percentage with over 91% of total landings. This Plan applies to all fishing vessels using the surrounding purse seine nets targeting sardine and therefore called “srdelara”. This latest management plan was defined in 2017 and must be revised after a period of three to five years. In 2014, the authorization procedure for vessels participating in fishing “srdelara” nets was carried out and special permits were granted as a prerequisite for fishing with this gear. All vessels, regardless of length, have to be equipped with a Vessel Satellite Monitoring System (VMS) and an electronic logbook. Thanks to this system, it is possible to monitor the movements and catches of all vessels in real time, and to do cross-checks to control catching, landing and selling of fish. Currently there are 203 authorizations for “srdelara” nets (out of 432 total licences). Most of the authorizations were issued in Zadar County, Split-Dalmatia County and Istria County. The ordinance on fishing opportunities in commercial fishing at sea by surrounding purse-seine nets (“srdelara”) (Narodne novine-Official Gazette 18/2019, 101/2019, 115/2019) sets all the limitations and measures for managing fishing effort with this gear. Maximum fleet capacity for this gear is 16.151,25 GT and 66.523,33 kW. Total catch of small pelagic fish is limited to: 95% of 2014 catch for 2019, 95% of the 2019 catch for 2020 and 95% of the 2020 catch for 2021. Fishing effort per vessel is limited to 20 fishing days a month and a total of 180 days in a year. Out of these, only 144 days can be used to target sardine or anchovy (it is not allowed to use all 180 days to target only one species). There is closed season for whole Croatian fishing sea between 24<sup>th</sup> of December and 31<sup>th</sup> of January, 1<sup>st</sup> to 15<sup>th</sup> of February and from 1<sup>st</sup> to 30<sup>th</sup> of May. There is a permanent spatial ban on fishing in the part of the Jabuka/Pomo pit, and a ban for vessels longer than 18 meters in 5 coastal/channel areas for the protection of younger fish classes.

#### Management plan for small purse seines

The fishing vessels referred to in this Management Plan can have one or more of the surrounding purse seine nets (“lokardara”, “palamidara”, “igličara”, “ciplarica” and “oližnica”). The fishing vessels need to be equipped with VMS and electronic reporting of catch. The length of these nets is limited to 200-800 meters. The mesh size is also defined. “Palamidara” net can be used for catching Atlantic bonito *Sarda sarda*, bullet tuna *Auxis rochei*, little tunny *Euthunnus alletteratus* and greater amberjack *Seriola dumerilli*, so the minimum mesh size is 68mm and maximum mesh

size on the sac 79mm. “Ciplarica” net can be used for catching mullet (*Mugilidae* spp.) and the minimum mash size is 52mm and maximum mash size on the sac 67mm. “Lokardara” net can be used for catching chub mackerel *Scomber japonicus* and the minimum mash size is 20mm and maximum mash size on the sac 30mm. “Igličara” net can be used for catching garfish *Belone belone* and the minimum mash size is 20mm and maximum mash size on the sac 30mm. “Oližnica” net can be used for catching big-scale sand smelt *Atherina boyeri* and the minimum mash size is 14mm. By-catch is limited to a maximum of 30% on landing. The use of artificial lighting to attract fish is only permitted when fishing with “oližnica” purse-seine. Preliminary numbers of authorizations for these nets are: 17 for “ciplarica”, 5 for “igličara”, 10 for “oližnica”, 20 for “palamidara” and no more than 250 for “lokardara”. Authorizations are valid for 3 years and will be revised in 2021. This management plan allows a derogation from the Council Regulation (EC) 1967/2006 article 13 (5) which allows fishing at a distance of less than 300 m from the shore for vessels under 15m. This derogation is not allowed for “lokardara” nets.

#### Management plan for shore seines

Vessels with shore seines have to be authorized. Maximum number of authorized vessels is 87. By-catch is limited to a maximum of 30% on landing. The fishing vessels need to be equipped with VMS and electronic reporting of catch. Shore seines can be used only for catching picarel (*Spicara smaris*), big-scale sand smelt (*Atherina boyeri*), greater amberjack (*Seriola dumerilli*) and mullet (*Mugilidae* spp.).

#### Regulation for limiting or prohibiting fishing operations

National regulation for management is set by Marine Fisheries Act (Narodne novine – Official Gazette 62/2017, 14/2019). Fishing in the Republic of Croatia is allowed for:

- Commercial fishing
- Small-scale coastal fishing
- Sport and recreational fishing
- Fishing for scientific, scientific and aquarium purposes
- Fishing tourism

#### Measures for management of marine biological resources:

Technical measures are described in the article 12 of the Marine Fisheries Act. For the sake of sustainable management of biological resources, the Minister can define by special ordinance act, the following management measures:

1. space and time limitations of fishing

2. the structural and technical characteristics, marking, method of use and intended use of certain types of fishing gears and fishing gear (including lighting fixtures in purse-seine fisheries) and the conditions and methods of fishing
3. a minimum reference size for the conservation of certain species of fish and other marine organisms
4. closing season for certain species of fish and other marine organisms
5. the prohibition of all or certain species or methods of fishing
6. ban on issuing or limiting the number of commercial fishing licences, small-scale coastal fishing licences and fishing tourism authorizations
7. the maximum amount of catch in the fishing sea of the Republic of Croatia in a given fishing zone, fishing subzone or area, by fishing gear, by licence, by authorization or by group of vessels fishing together
8. maximum fishing effort in the fishing sea of the Republic of Croatia in a given fishing zone, fishing subzone or area and for an individual licence
9. the method of allocating and managing the allowable catches
10. recovery plans for fish stocks and shellfish populations
11. special measures needed to reduce the impact of fishing activities on the marine ecosystem
12. protected areas and methods of fishing in them for the protection of habitats, fish and other marine organisms - For the protection of ecosystems in the parts of the sea that are protected in the categories of special reserve, national park and nature park, restrictions are prescribed by the Minister of Agriculture with the prior opinion of the minister responsible for nature protection
13. areas with special management regime

The ordinances referred to items 10 and 11 of this Article shall be laid down by the Minister with the prior opinion of the Minister responsible for nature protection. Prior to the adoption of the ordinance referred to items 3, 4 and 5 of this Article, it is necessary to obtain the scientific and professional opinion of a legal person registered for marine research, as well as from professional associations and fishermen's associations, chambers and the ministry competent for nature conservation activities and associations for nature protection.

#### Regulation on fishing gear

Fishing in the Adriatic Sea is characterized by multispecies fisheries. More than 45% of Croatia's fishing vessels are registered as multipurpose vessels that use different gear over the course of the year. There are 31 different fishing gears recognized by the Croatian law. Each fishing licence has fishing gear written in it and the fisherman can use only those gear. All different gear

combinations are possible and fishing licence can be sold either with the vessel or separately, but with certain limitations, especially for fishing gear that are included in management plans. Each type of gear has different spatial and temporal restrictions for use.

### Market organization

Market organization of fisheries products in Republic of Croatia is based on cooperatives, buy-off stations and registered first buyers. The first sales in accordance with the Marine Fisheries Act may only be done to the registered first buyers. Capture fisheries products may be placed on the market for the first time in accordance with the regulation governing marketing standards (presentation, preservation, freshness and size). Market chains and the organization of the market itself differ between demersal and pelagic species. A large percentage of high-quality demersal fish (bottom trawl fishery, beach seine fishery etc.) is exported after the first sale, while small pelagic species form the backbone of processing industry, salting and marinating industry as well as fish feed for tuna farms. Market is mostly domestic, with an important influence of the Italian market on domestic prices. In 2017, out of the top six commercially most important species Norway lobster and Common sole have the highest prices (respectively 14.6 and 7.9 EUR/kg), while European pilchard and European anchovy are sold at relatively low prices (respectively 0.4 and 0.9 EUR /kg). The domestic market is still slow to adapt to the EU market in terms of competitiveness and prices, however higher prices are achieved in direct sales activities in local markets. A high influence on fish prices of small pelagic species has the product destination. As Croatia is a bluefin tuna farming country, meaning that all bluefin tuna caught by purse seiners is transferred to cages for farming, and a large quantity of small pelagic fish landed on the landing sites is designated for tuna feeding. The small pelagics intended for tuna feeding are declared with low prices in the sales notes. These low prices have a minimizing effect on the average price of small pelagic fish. For the purpose of tuna feeding Croatia has a pronounced import of herring from other countries. In accordance with the Act on structural support and market organization in fisheries, marketing standards are adopted for certain fisheries products, and are applied on their first sales. Marketing standards involve size categories and freshness categories, and form the basic element of the market intervention mechanism. Market interventions may be implemented only through recognized producers' organizations. Republic of Croatia is in the process of setting up of producer's organizations (only 2 have been recognized so far), in order to be able to activate all available mechanisms of market organization.

Given the organizational setup of the sector and the lack of producer's organizations as they are defined in Europe, Croatia actually has a long tradition of organization into cooperatives in the fisheries sector. Ministry of Agriculture has adopted a series of ordinances which govern these issues and provide the framework for recognition of cooperatives.

LEGISLATION BOX - CROATIA	
Legislation	No. of Official Gazette/Narodne novine
Marine Fisheries Act	62/2017, 14/2019
Ordinance on boundaries regarding fishing in the Republic of Croatia	5/2011
Ordinance on licence for commercial fishing at sea and the Register of issued licences	116/2017, 29/2018, 75/2018, 38/2019
Ordinance on the Fleet Register of the Republic of Croatia	23/2017, 5/2019
Ordinance on the form, content and method of keeping and submitting data on catches in commercial fishing at sea	38/2018, 48/2018, 64/2018
Ordinance on conducting commercial fishing at sea with purse seine net type "srdelara"	105/2017, 37/2018, 20/2019
Ordinance on fishing opportunities in commercial fishing at sea with purse-seine net type "srdelara"	18/2019
Ordinance on conducting commercial fishing at sea by surrounding purse-seine nets type "palamidara", "ciplarica", "lokardara", "igličara" and "oližnica"	30/2018, 49/2018, 62/2018, 78/2018, 87/2018
Ordinance on commercial fishing at sea by pelagic trawl	104/2015, 89/2016
Ordinance on commercial fishing at sea with the bottom trawl	102/2017, 74/2018, 20/2019
Regulations on commercial fishing at sea with dredges	48/2015, 55/2015, 12/2016
Ordinance on fishing commercial fishing at sea with beach seines	30/2018, 49/2018, 78/2018, 54/2019
Ordinance on commercial fishing at sea with passive nets, traps, hooks and piercing fishing gear and special fishing methods	84/2015, 94/2015, 107/2015, 61/2017, 64/2017
Ordinance on the catch, aquaculture and marketing of bluefin tuna ( <i>Thunnus thynnus</i> )	4/2017, 15/2017
Ordinance on fishing for bluefin tuna ( <i>Thunnus thynnus</i> ) with hooks and the conditions and criteria for the right to an individual fishing quota	20/2019, 46/2019, 77/2019
Ordinance on fishing opportunities and allocation of the national quota for 2019 for bluefin tuna ( <i>Thunnus thynnus</i> )	13/2019, 56/2019, 77/2019
Ordinance on the recreational fishery for trophy tuna ( <i>Thunnus thynnus</i> )	61/2018
Ordinance on catches and marketing of swordfish ( <i>Xiphias gladius</i> )	4/2017, 51/2017
Ordinance on closed season for swordfish ( <i>Xiphias gladius</i> )	3/2018
Ordinance on fishing opportunities and fishing for swordfish ( <i>Xiphias gladius</i> )	39/2018, 35/2019
Ordinance on the specific habitats of fish and other marine organisms and the regulation of fisheries in the Velebit Channel, Novigrad and Karin Sea, Prokljan Lake, Marin Bay and the Neretva Sea	148/2004, 152/2004, 55/2005, 96/2006, 123/2009
Decision banning the harvesting of bivalve molluscs (Bivalvia), snails (Gastropoda), sponges (Spongia) and echinoderms (Echinodermata) in the Bay of Pag	101/2019
Ordinance on fishing in a special habitat in the waters of the mouth of the Rasa River in 2019 and 2020	98/2019
Ordinance on the special regime for fisheries management in the waters of the Jabuka Pit	106/2019
Ordinance on the protection of fish and other marine organisms	42/2016
Ordinance on working Hours, vacations and leave of workers on marine fishing vessels	3/2016, 109/2019
Ordinance on the registration procedure and content of the register of contracts for the work of seaman and workers on marine fishing vessels	32/2015, 109/2019
Ordinance on the contents and format of the sales document and the contents of the register of first buyers	113/2019

Ordinance on the weighing procedure for fishery products, weighing records and the procedure and conditions for the approval of weighing on fishing vessels and approved facilities	50/2019
Ordinance on traceability records for fishery products and live bivalve molluscs	68/2018
Ordinance on the content, form and method of delivery of the transport document	140/2015
Ordinance on traceability regulation for bluefin tuna and swordfish	82/2019

## CURRENT INSTRUMENTS RELATED TO EAF

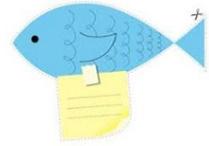
### Policy instruments

The EU offers several financial opportunities to support the sustainable fisheries sector management through direct and indirect funds. The main financial instrument for the CFP implementation in the period 2014-2020 is the [European Maritime and Fisheries Fund \(REGULATION \(EU\) No 508/201\)](#).

The EMFF works in favour of fisheries and the marine environment, on the one hand with limitations on the impact of fishing on the marine environment and on the other with specific financial instruments to boost fishing companies respecting, at the same time, environmental protection. Among the fund's priorities there are a set of interventions ranging from the reduction of fishing effort through incentive measures, financial support for permanent or temporary cessation, for the promotion of increased selectivity, or for the diversification of forms of income. The EMFF also grants incentives for the enhancement of small-scale fishing, to mitigate the effects of climate change and protect fish stocks through specific monitoring to assess the state of resources. The EMFF also includes the financing of the Plan for the collection of data for monitoring the state of the stocks and the implementation of the control, inspection and execution procedures to combat illegal fishing and ensure compliance with the rules. Support also concerns aspects connected to SMEs aimed at achieving Integrated Maritime Surveillance (IMS) in order to facilitate information sharing. Moreover, the EMFF promotes measures aimed at improving knowledge on the state of the marine environment and at protecting the environment in favour of a sustainable exploitation of resources. The fund also promotes the establishment of sustainability limits for human activities through the integrated management of the coasts respecting the framework regulations on the strategy for marine environment. The financial instruments co-financed by the EMFF Operational Programme constitute a sustainable and efficient way to invest resources in the objectives of growth and development of the Europe 2020 Strategy for the fishing and aquaculture sector. In addition, the EMFF provides important support for the development of the Integrated Maritime Policy, for the benefit of a wide range of recipients.

### **A focus on EMFF in Italy**

Thanks to EMFF, Italy has set up measures to adapt progressively the fishing capacity of its fleet by allocating fishing opportunities in relation to fishing resources, by implementing fishing effort adjustment plans, which take the form of national disarmament plans differentiated between different fishing areas and between fishing segments within the same area. In accordance with the guidelines of the common fisheries policy, Italy will continue to analyse and evaluate the balance between its fleet and the resources it exploits, according to the methods described by art. 22 of the EU Reg. N. 1380/2013. These measures are effective as well as appreciated by fishermen.



A significant component of the EMFF OP is dedicated to interventions that include:

- limitation of unwanted catches, even through on-board interventions intended for equipment
- innovation related to the conservation of biological resources
- protection of aquatic biodiversity and ecosystems and adaptation of fishing to species protection
- conversion to organic aquaculture
- reduction of the impact of aquaculture on the use and quality of water.

The following are the additional EMFF measures that affect the sustainable development of fisheries through a strong focus on environmental protection.

- Article 36 - Support for the systems of allocation of fishing opportunities;
- Article 37 - Support for the design and implementation of conservation measures;
- Article 38 – Limitation of the impact of fishing on the marine environment and adaptation of fishing to the protection of species;
- Article 39 - Innovation linked to the conservation of marine biological resources;
- Article 40 - Protection and restoration of marine biodiversity through removal of lost fishing gear and marine litter; contribution to better management and conservation of fish resources through the construction and installation of fixed or mobile elements, for the protection of fish species; monitoring and updating of protection and management plans for activities related to fishing in particular areas or habitats

Improved knowledge of the ecological status of the common marine environment and circulation of information already acquired are significant challenges

To this, it is necessary to activate the measure through which action monitoring programs will be developed pursuant to Directive 2008/56 / EC, which aim at increasing the activities offered by "blue growth", the environmental protection directed at mitigating the consequences of climate change, increasing protected areas, combating the spread of alien species, suppressing illegal fishing and managing sporting or recreational fishing.

## FINANCIAL ALLOCATION

### Italy's EMFF Operational Programme



**Budget**

**Total (EU + national):**  
€978 107 682

**EU contribution:**  
€537 262 559

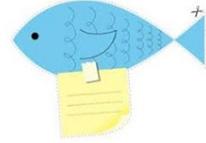
The Operational Programme (OP) covers the six 'Union Priorities' defined in the EMFF, namely:

1. promoting environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based fisheries;
2. fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture;
3. implementation of the Common Fisheries Policy (CFP);
4. increasing employment and territorial cohesion;
5. fostering marketing and processing;
6. fostering the implementation of the Integrated Maritime Policy (IMP).

MARCHE REGION: EMFF Measures towards Ecosystem Approach to Fisheries (EAF) and financial allocation		
Activated Measure	Total budget allocated for the measure (EUR)	Budget spent to date (EUR)
1.38 Limitation of the impact of fishing on the marine environment and adaptation of fishing to the protection of species	258.929,00 €	22.400,00 €
1.40 Protection and restoration of marine biodiversity and ecosystems and compensation regimes in the framework of sustainable fishing activities	1.099.286,00 €	436.000,00 €
2.48 - TO6 Productive investments in aquaculture	1.882.303,76 €	78.602,40 €
2.51 Increasing the potential of aquaculture sites	435.433,00 €	0,00 €

### **A focus on EMFF in Croatia**

The main objectives of the Programme are related to enhancing the competitiveness of the fisheries and aquaculture sector as well as of the sustainability of sea fisheries and the protection of natural resources. To improve the overall situation of the fisheries, Croatia intends to first increase the added-value of catches, support financially the fishermen for temporary ceasing their activity and to modernise the fishing infrastructure. Secondly, Croatia intends to stimulate the environmental protection and resources conservation. The Programme also aims at improving the market organisation of fisheries products by establishing the first producers' organisations in Croatia and by organising promotional and communication campaigns.



The Croatian OP will focus on the following priorities:

- 86,827,381.00 EUR, thus 34.3% of the total OP allocation aims at the viability and the sustainable development of the Croatian fisheries sector as well as at the protection of the fishing/marine resources. The OP foresees investments for the modernization of fishing shelters and landing sites, for better health and safety, for the promotion of innovation and partnerships between fishermen and scientists, for the development of complementary activities /new forms of income for fishermen and for investments allowing fishermen to use and add value in unwanted catches (Union Priority 1). Moreover, innovation, improvement of energy efficiency and mitigation of climate change have also been identified as key measures. Permanent cessation of fishing activities and on board-investments to increase gear selectivity are also provided on the condition that the need for this will be confirmed in the conclusions of the Annual Fleet Report based on scientifically based fisheries and economic data.
- 55,261,186.00 EUR, thus 22% of the total OP allocation is aimed at fostering environmentally sustainable, resource efficient, innovative, competitive and knowledge based aquaculture (Union Priority 2). Under this priority axis, the EMFF will support productive investments in aquaculture as well as investments aiming at enhancing competitiveness of the aquaculture sector.
- 34,824,000.00 EUR, thus 13.8 % of the total OP resources are allocated to promoting the implementation of the Common Fisheries Policy CFP (Union Priority 3) for the collection and management of data as well as for supporting monitoring, control and enforcement of fishing activities.
- 18,954,045.00 EUR, thus 7.5% of the total OP resources are allocated to promoting the maintenance of the economic and social sustainability of the Croatian fisheries and aquaculture areas, the creation of jobs and the diversification within and/or outside fisheries and aquaculture sectors and the sustainable exploitation of related products (Union Priority 4) through the implementation of comprehensive local development strategies.
- 40,617,938.00 EUR, thus 16% of the OP allocation will be spent on the measures dedicated to fostering marketing, processing, and storage aid (Union Priority 5).
- 1,000,000.00 EUR, thus 0.4% of the OP allocation will be spent on measures under integrated maritime policy (Union Priority 6) aiming at improving knowledge on the marine environment, with particular focus on the development of part of CISE (Common Information Sharing Environment).
- 15,158.588.00 EUR, thus 6% of the OP resources are allocated to technical assistance in order to ensure efficient administration of the EU funding, including support to publicity and information measures as well as evaluations.

## FINANCIAL ALLOCATION

### Croatia's Operational Programme



**Budget**

**Total (EU + national):**  
**€348 759 346**

**EU contribution:**  
**€252 643 138**

The Operational Programme (OP) covers the six 'Union Priorities' defined in the EMFF, namely:

1.  promoting environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based fisheries;
2.  fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture;
3.  fostering the implementation of the Common Fisheries Policy (CFP);
4.  increasing employment and territorial cohesion;
5.  fostering marketing and processing;
6.  fostering the implementation of the Integrated Maritime Policy (IMP).

CROATIA: EMFF Measures towards Ecosystem Approach to Fisheries (EAF) and financial allocation		
Measure	Financial allocation/millions Euro	State of play/millions Euro
Measure I.1. Innovations (Art. 26)	3,3	0,2
Measure I.10. Permanent cessation of fishing activities (Art. 34)	15,3	14,9
Measure I.20. Energy efficiency and climate change mitigation (Art. 41/1)	2,6	0,34
Measure I.22. Added value, product quality and the use of unwanted catches (Art. 42)	3,3	0,53
Measure I.23 / I.24. Fishing ports, landing places, fish markets and shelters (Art. 43)	41,4	17,2
Measure I.3. Partnerships between scientists and fishermen (Art. 28)	3,3	3,3
Measure I.6. Diversification and new forms of revenue (Art. 30)	7,6	0,017
Measure I.8. Health protection and safety (Art. 32)	9	2,17
Measure I.9. Temporary cessation of fishing activities (Art. 33)	26,4	19,1
Measure II.1. Innovations (Art. 47)	8	2,15
Measure II.13. Aquaculture stock insurance (Art. 57)	11,3	1,4
Measure II.2. / II.3./ II.4. Productive investments in aquaculture (Art. 48)	37	30,99
Measure III.1. Preparatory support (Art. 62)	2,4	1,3

Measure III.2. / III.3. Implementation of local development strategies in fisheries (Art. 63)	26,7	28,1
Measure IV.1. Plans for production and marketing (Art. 67)	6,2	0,26
Measure IV.3. Placing on the market of fishery and aquaculture products (Art. 68)	18	11
Measure IV.4. Processing of fishery and aquaculture products (Art. 69)	29,3	18,4
Measure VI.1. Control and enforcement (Art. 76)	37	27,3
Measure VI.2. Data collection (Art. 77)	6	6,5
Measure VII.1. Technical assistance	20,2	7
Measure VIII.2./ VIII.3. Protecting the marine environment, using resources sustainably and enhancing knowledge (Art. 80)	0,67	0,4

In addition to the EMFF, the panorama of EU funding comprises several resources for supporting the sustainable management and growth of the fisheries sector and promotes the setting-up of interregional and multi-actors partnership towards blue economy initiatives.

- ⇒ The *Executive Agency for Small and Medium-sized Enterprises* (EASME) has been set-up by the European Commission to manage on its behalf several EU programmes in the fields of SME support & innovation, environment, climate action, energy and maritime affairs.
- ⇒ The *INTERREG Programmes* support transnational cooperation in the field of blue growth and marine protection, given the key role of fisheries and aquaculture in coastal communities' socio-economic development. Supports and grants may concerns a wide range of operations: from infrastructure works to setting up and application of decision support tools as well as training and capacity building actions. The INTERREG ADRION and INTERREG Italy-Croatia Programmes specifically cover the Adriatic territories.
- ⇒ *Horizon 2020* is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Blue growth is addressed in the Societal Challenges Workplan 2018-2020.

In the last two programming period, several transnational calls for projects dealing with sea resources protection, blue growth have been launched for the Adriatic area. In this framework, a number of projects specifically focuses on sustainable fisheries development and management and involving quadruple helix stakeholders have been financed.

### Technical and management instruments

Technical measures – in the EU framework - are tools to support the implementation of the CFP policy towards conservation and sustainable exploitation of fisheries resources. In addition to the facilitation of the attainment to MSY, technical measures aims at contributing to the gradual elimination of discards and minimisation of unwanted catches as well as the to the attainment of good environmental status with respect to 4 out of the 11 descriptors included under Directive 2008/56/EC. Technical measures are the across all Union sea basins and non-Union waters in which Union vessels operate there are more than 30 regulations which contain technical measures. According to the Regulation on “the conservation of fishery resources and the protection of marine ecosystems through technical measures”<sup>11</sup>, technical measures can be grouped into:

- measures that regulate the operation of the gears
- measures that regulate the design characteristics of the gears that are deployed
- minimum sizes below which fish must be returned to the sea
- measures that set spatial and temporal controls (e.g. closed/limited entry areas and seasonal closures) to protect aggregations of juvenile or spawning fish
- measures that mitigate the impacts of fishing gears on sensitive species (e.g. marine mammals, seabirds and turtles) or closed areas to protect sensitive habitats

Currently there are three detailed technical measures regulations enacted under the ordinary legislative procedure covering the main sea basins in Union waters:

1. Council Regulation (EC) No 850/98 of 30 March 1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms covering the North-east Atlantic (and the Black Sea since 2012)
2. Council Regulation (EC) No 1967/2006 of 21 December 2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) No 2847/93 and repealing Regulation (EC) No 1626/94
3. Council Regulation (EC) No 2187/2005 of 21 December 2005 for the conservation of fishery resources through technical measures in the Baltic Sea, the Belts and the Sound, amending Regulation (EC) No 1434/98 and repealing Regulation (EC) No 88/98

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<sup>11</sup> Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 204/585/EC sets the general framework for the CFP

The Regulation of the European Parliament and of the Council of 20 June 2019 lays down technical measures concerning the taking and landing of fisheries resources, as well as the operation of fishing gears and the interaction of fishing activities with marine ecosystems. It aims at optimizing the contribution of technical measures to achieving the key objectives of the CFP in order to make them more flexible by facilitating regionalized approaches and to simplify the existing rules. The Regulation also establishes baseline standards for each sea basin derived from existing technical measures, STECF advice and the stakeholder's point of view. Those standards should consist of baseline mesh sizes for towed gear and static nets, minimum conservation reference sizes, closed or restricted areas, as well as nature conservation measures to mitigate against catches of sensitive species in certain areas and any other existing regionally specific technical measures. The main instrument for establishing regional technical measures should be through multiannual plans as defined in the CFP. Under such multiannual plans the baseline standards may be amended, new measures established to supplement or replace the baseline standards or derogate from these measures where it can be demonstrated they have no conservation benefit or that alternative measures have been put in place that ensure the objectives and targets continue to be met. In accordance with Article 10 of Regulation (EU) No 1380/2013, multiannual plans may also contain other nature conservation measures to minimise the negative impact of fishing on the ecosystem.

Input and output controls are highly relevant but they should be considered in a broader context. This means recognizing that the range of measures chosen should not only address a series of target species concerns, but should also enhance ecosystem health and integrity. Managers should consider as far as possible a coherent mix of approaches that takes account of the interdependencies and functioning of the ecosystem. Apart from managing the direct effects of fishing activity, fishery managers will need to be aware of other measures that are available for managing populations (e.g. restocking and culling). Similarly, habitats may be modified to enhance the populations of target species or to restore degraded areas (FAO, 2003<sup>12</sup>).

According to the FAO report "Putting into practice the ecosystem approach to fisheries" (FAO, 2005)<sup>13</sup>, the following measures address the EAF management:

⇒ **Spatial and temporary restriction measures**

Spatial and temporary restricting of fishing activities are the main tools applied in Mediterranean are for managing fish stock (Colloca et al, 2013). The role of habitat protection on fisheries

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<sup>12</sup> FAO (2003). Fisheries Management: The ecosystem approach to fisheries. Pag. 29

<sup>13</sup>Attwood C., Cochrane K. and Caroline Hanks C. (2005). FAO Fisheries Technical Guidelines No. 4, Suppl. 2, Fisheries management. 2. The ecosystem approach to fisheries

recovery has been demonstrated in several cases and involve several different and usually accumulative benefiting factors. To a lesser degree, such spatio-temporal management measures have been used to reduce by-catch of finfish or protected species. However, as ecosystem-based management approaches are employed and more fisheries are managed through multispecies, multi-objective models, the management of by-catch is becoming increasingly important (Dunn et al.2011)<sup>14</sup>.

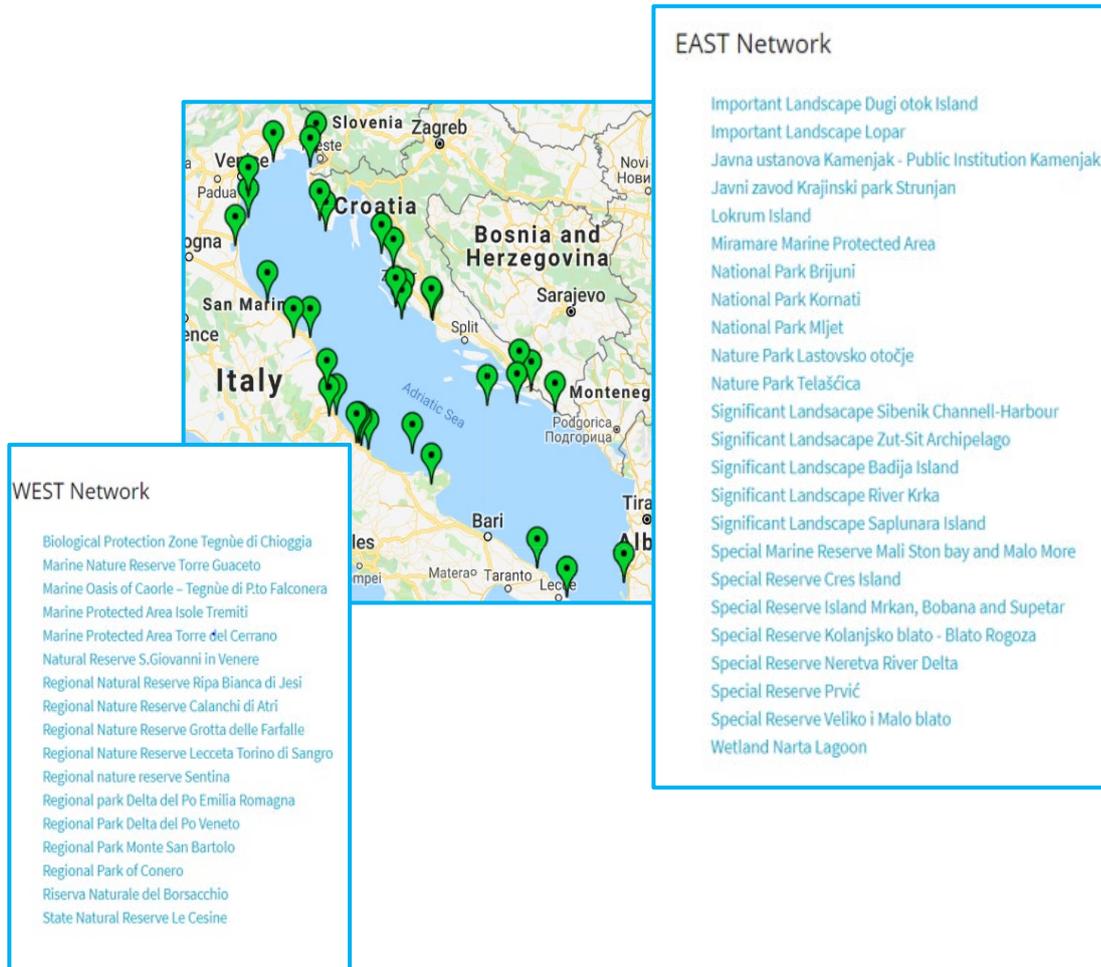
Restriction to fisheries may involve different degrees from temporary closures to different fishing gears, definitive ones to specific gears and permanent banning of fishing (no-take areas). Further degree of protection are Marine Protected Areas (hereafter MPAs) where other concrete protection measures related to habitat and non-exploited species are considered, considered by many as a useful tool for fisheries management. MPAs are generally designated with biodiversity conservation objectives, to protect fishery resource species or habitat, or with a broader ecosystem purpose within the framework of EAF (). MPAs may favour the recovery of fish populations among others by: increasing size and abundance of individuals; allowing fish to reach older age, which in many species may exponentially increase their fecundity; preserving a more diverse genetic pool. Restoring the population structure, helping specially species which change sex; helping the recovery of depleted stocks, especially when spawning aggregations, migration stopovers or nursery grounds are embraced; spill over effect, which restocks with larvae and .fish adjacent and other areas. MPAs usually include a spatial zoning where different measures in addition to fishery related ones apply. Spatial measures (e.g. no-take zones in Marine Protected Areas) proposed by the authorities can be a strong source of conflict since they impact both on biological environment and people. Fishers often object to such proposals, given that they might imply relocating to less productive fishing grounds, further from the fishing port, or changes of fishing gear, all implying additional costs. In EU Member States with small sea spaces spatial measures may imply the total loss of fishing areas rather than merely relocation<sup>15</sup>.

It was also noted that today there is a convergence of objectives in establishing MPAs, following a more holistic approach to management, where protection of biodiversity and sustainability of fishery resources are dealt with simultaneously.

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<sup>14</sup>Dunn, D.C., Boustany, A.M., and Halpin, P.N. (2011) Spatio-temporal management of fisheries to reduce by-catch and increase fishing selectivity. *Fish and Fisheries* 12(1): 110–119. doi:10.1111/j.1467-2979.2010.00388.x.

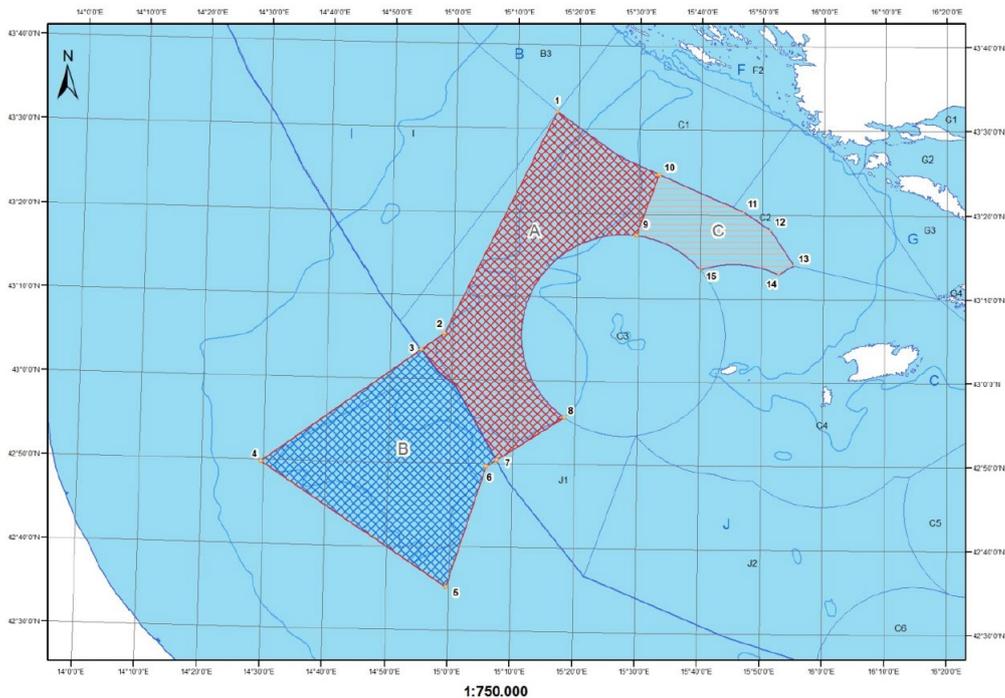
<sup>15</sup>European MSP Platform. Conflict Fiche 9: Commercial fisheries and area-based marine conservation



The *Fisheries Restricted Areas* (hereafter FRAs) are geographically distinct areas where fishing is regulated through temporary or permanent closures and bans of certain fishing gears, such as bottom trawls, purse-seines and other gears. FRAs can contribute to biodiversity conservation as complementary structures to conventional Marine Protected Areas (MPAs), even though their primary target might not be conservational *per se* (i.e. conserving ecosystems as a whole, protecting species from extinction, maintaining their habitats as natural and undisturbed as possible, and preserving population structures as well as genetic diversity) but rather focus on maintaining or improving the status of particular stocks and enhancing the respective fisheries. The permanent closure of marine areas to fishing, especially in the coastal zone where spawning and nursery habitats of many species are located, is a practice widely applied for the protection and recovery of fish stocks and has significant positive effects on spawning stock biomass and

recruitment. Besides ecosystem and habitat protection, any spatial fishing restrictions that protect part of the commercial fish and invertebrate populations have been proven to be beneficial because they may lead to biomass and reproductive potential increases inside the protected area, but may also profit adjacent areas through the emigration of juveniles and adults. Apart from the potential effect on target species, fishing refuges can also have a positive impact on community ecology through the protection of species diversity, habitat structure and community stability (Dimarchopoulou et al, 2018)<sup>16</sup>

**Geographical coordinates of the Jabuka/Pomo Pit FRA (Adriatic Sea)**



**Fisheries Restricted area in Pomo/Jabuka Pit, from GFCM/41/2017/3**

<sup>16</sup>Dimarchopoulou D., Dogrammatzi A., P. K. Karachle, Tsikliras A.C. (2018). Spatial fishing restrictions benefit demersal stocks in the northeastern Mediterranean Sea; Sci Rep. 2018; 8: 5967. Published online 2018 Apr 13.

⇒ *Permanent and Temporary cessation of fishing activities*

Temporary cessation is addressed in the Art.33 of the EMFF in the following cases:

- the implementation of Commission measures or Member States emergency measures or conservation measures referred to Reg. (EU) No 1380/2013
- where the temporary cessation is provided for in a management plan adopted in accordance with Reg. (EC) No 1967/2006 (1) or in a multiannual plan adopted under Reg. (EU) No 1380/2013
- where, based on scientific advice, a reduction of fishing effort is needed in order to achieve the objectives referred to Reg. (EU) No 1380/2013

According to the “Retrospective Evaluation of scrapping and temporary cessation measures in the EFF”, in the programming period 2007- 2013 the EMFF has been used to compensate for unexpected loss of fishing opportunities (as applied in the Baltic during the cod fishery closure or as applied in France for pollution events) or to freeze capacity at certain times of the year (as applied in Italy during the Fermo Biologico). Temporary cessation is therefore not attempting to reduce fishing capacity in the European fleet; rather it aims to maintain fleet viability during unexpected periods when fishing opportunities are drastically reduced. Arguably, this counters the permanent cessation objective of adjusting capacity in the fleet. Given the fact that temporary cessation schemes are implemented due a compulsory stop to fishing activity, the evaluation concludes that public funding has been more useful in rendering the measures politically acceptable than in actually reducing the amount of fishing. For temporary cessation, industry and managing authorities interviewed state that without funding some of the regulatory restructuring would not have been accepted by the sector (MRAG, 2013<sup>17</sup>).

*Temporary fishing ban in Italy* Temporary suspension of bottom and mid-water trawl nets. Fishing by means of bottom and mid-water trawl nets has for a long time been subject to annual, temporary suspensions during recruitment and reproduction season of commercial marine species so as to allow fish stocks to recover. In the Adriatic Sea, bottom and mid-water trawlers cannot operate on Fridays, Saturdays, and Sundays and during holidays all year round. In addition, during summer time, bottom and mid water trawl nets suspend fishery for a minimum of 30 days to a maximum of 45 days. This type of suspension is applied under Article 12, par. 6, Reg. EC 2792/1999 as modified by Reg. EC 2369/2002 (FAOAdriamed, 2007<sup>8</sup>). In the Ministerial

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<sup>17</sup>MRAG (2013).Retrospective Evaluation of scrapping and temporary cessation measures in the EFF.

Decree of 17 April 2019 identifies criteria and resources for the provision of subsidies to fishing entrepreneurs as foreseen by Reg. (EU) No 508/2014 and by EU delegation act. No. 288/2015.

For example the last Ministerial Decree of 30 April 2019 lays down the provisions for the temporary fishing ban for the year 2019.

NORTHERN AND CENTRAL ADRIATIC MARITIME DISTRICTS	PERIOD OF FISHING BAN
From Trieste to Ancona	30 consecutive days :from 29 July to 27 August 2019
From San Benedetto del Tronto to Termoli	30 consecutive days: from 15 August to 13 September 2019

For the following vessels operating in GSA 17 and GSA 18, additional days of fishing ban are also foreseen according to the table below.

GSA	CLASS OF FISHING VESSEL LENGTH	N. OF ADDITIONAL DAYS OF FISHING BAN
GSA 17 and GSA 18	LFT≤12	7
	12<LFT≤24	10
	LFT>24	13

Since 2012, the following temporary spatial restrictions have been included:

- vessels enabled to coastal fisheries (< 6 nm from the coast) or having LOA <15 m cannot operated inside the 4 nm from the beginning of the temporary closure to 31th October)
- vessels having LOA <15 m cannot operate inside the 6 nm from the beginning of temporary closure until 31th October

This is not applicable to the Marine Departments of Monfalcone and Trieste because due to the peculiar geo-morphology of the Northern Adriatic, the fishing grounds of such areas have a limited spatial extension. Currently the Italian small-scale trawlers (e.g IV category fishing licence “coastal fishery”) operates between the 3 and 6 nm. Large –scale OBT generally exploit off-shore fishing grounds, with the exception of large scale TBB, usually operating in shallows water fishing grounds (depth < 5 m).

*Temporary cessation in Croatia* Measure I.9. Temporary cessation of fishing activities has separate tenders that are opened for each gear, area and period. So far (starting in 2015) there have been 14 tenders, 5 for bottom trawlers and 9 for purse-seine nets targeting sardine and anchovy (“srdelara” nets). Regulation on conditions, criteria and method of granting aid under measure I.9. "Temporary cessation of fishing activities" (encircling nets) for 2019. This Regulation

provides for necessary conditions, criteria and method of granting the aid under Measure I.9. "Temporary cessation of fishing activities" within the framework of the European Union's priorities "Encouraging environmentally sustainable, resource efficient, innovative, competitive and knowledge-based fisheries" in the implementation of the Republic of Croatia Operational Programme for the Programming Period 2014-2020, also in full accordance with the provisions of Regulation (EU) No. 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulation (EC) 2328/2003, (EC) No 861/2006, (EC) No. 1198/2006, (EC) No. 791/2007 and Regulation (EU) No. (EU) No 1255/2011 of the European Parliament and of the Council; Regulation (EU) No. 1303/2013 of the European Parliament and of the Council of 17 December 2013 on the establishment of common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Fund for Maritime Affairs and Fisheries, and laying down general provisions on European the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Fund for Maritime Affairs and Fisheries and the Council Regulation (EC) No. 1083/2006, and delegated and implementing regulations resulting there from the purpose of the above mentioned aid is to compensate the privileges of vessel for which the benefit has been granted, and includes one-time non-repayable funds for temporary suspension in accordance with the Decision on Adoption of the Fishery Management Plan for small blue fish by encircling or swamp fishing nets/fishing method (<http://www.fao.org/3/a0191e/A0191E05.htm>)

⇒ **Fishing gears regulations**

Most fishing gear affects marine ecosystem. It mainly depends on physical characteristics of the fishing gear and of their operating mode but also of the fishing practices and market demand. Taking account of all these features, selectivity can be an efficient tool for the EAF with selectivity parameters which can be considering both as ecosystemic indicators and reference points. According to Reg. (EU) 1241/2019. Technical measures should also minimise the impacts of fishing gear on marine ecosystems and in particular on sensitive species and habitats, including where appropriate by using incentives. This Regulation also establishes baseline standards for each sea basin deriving from existing technical measures, taking account of STECF advice and the opinions of stakeholders.

Within the EAF framework, FAO identifies the following measures

- *Mesh size restrictions* are a useful way of avoiding the capture of immature individuals of the target species and small individuals of bycatch species. Selectivity can be improved through the use of square mesh, sorting grids and other devices which enable the unwanted portion of the catch to escape

- *Bycatch reduction devices* (BRDs) are tools that reduce the capture of non-target species. They include turtle excluder devices (TEDs), sorting grids that allow the unwanted bycatch to escape and acoustic “pingers” that distract marine mammals and prevent them from becoming entangled in nets
- *Lost gear measures* can limit the impact that gillnets or traps and pots have on the ecosystem when they are lost. By introducing biodegradable material or some disabling measure, lost fishing gear can be prevented from continuing to capture fish. The quick recovery of lost nets and periodical “sweeping” for lost gear is another way of preventing so-called “ghost fishing”.
- *Precautionary approach in the use of high impact fishing methods*. Fishing gear that touches or scrapes the sea floor during fishing operations is likely to have a negative impact on both living and non-living habitats. Given that knowledge about the long-term effects of such impacts is limited, a precautionary approach is recommended in critical habitats essential to ecosystem productivity. Use of towed gear with reduced bottom contact is an option in such areas. Prohibition of certain gear (such as trawling in seagrass habitats) is another option. A further option is to replace high-impact fishing methods with those that have less impact on the seabed, e.g. trapping, longlining or gillnetting
- *Adjustments to fishing operations and methods*. Ecosystem impacts can frequently be reduced by relatively simple adjustments to standard fishing practices.

⇒ **Input and output management measures**

**Input controls** can be used to regulate fishing capacity (the total effort achieved if the entire fleet were to fish full time), and to control fishing effort (the actual fishing pressure that is exerted). Fishing effort management is a combination of limitations to the fleet capacity and the amount of time that can be spent at sea by that fleet. At EU level, fishing effort restrictions have been introduced in a number of situations: under multiannual plans for the management of a specific stock or group of stocks, and more generally area-based. Examples of fishing effort restrictions can be found in for instance the plan for management of the sole and plaice stocks in the North Sea (Reg. (EC) No 676/2007), and in the rules on fishing in the western waters (Reg. (EC) No 1954/2003). Management plans in the Mediterranean are sometimes centred on effort restrictions (Reg. (EC) No 754/2009 Reg. (EC) No 1342/2008 of 18 December 2008 establishing a long-term plan for cod stocks and the fisheries exploiting those stocks and repealing Regulation (EC) No 423/2004)

*Capacity limitation* seeks to limit the *total size* of the fishing fleet. This has the advantage of reducing the pressure that frequently arises from an overgrown industry to allow higher fishing

effort than would otherwise be permitted. Appropriate capacity controls can lead to reductions in fishing mortality on the target species, as well as a wide range of associated species.

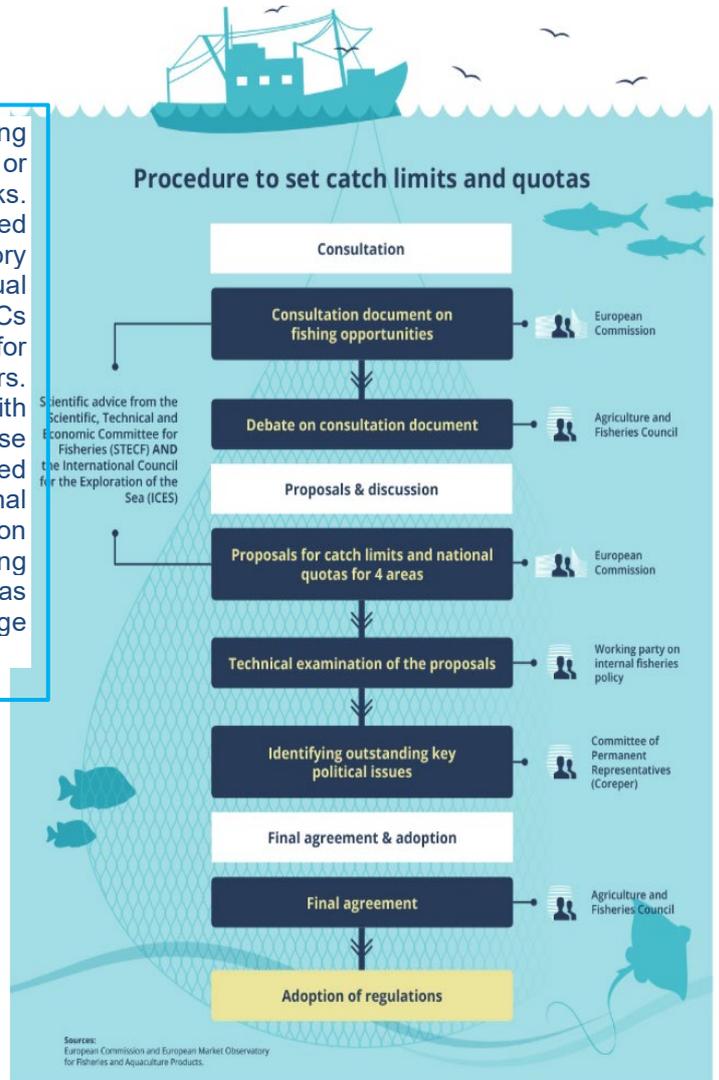
*Effort limitation* seeks to restrict the *fishing activity* of fleets and thereby limit or reduce fishing mortality. This will usually be an effective measure in multispecies fisheries as the reduction in fishing effort will lead to reductions in fishing mortality for all species caught. There is a danger that effort and capacity excluded from one fishery or area may simply be transferred to other ecosystems and resources that are already fully fished. Where effort reduction is being implemented, steps must be taken to prevent this happening. Controlling effort in a context of excessive capacity (e.g. fleet size) is often difficult.

INPUT CONTROL: REGULATIONS BOX – ITALY	
REGULATIONS	ISSUES ADDRESSED
Ministerial Decree No. 25/2016	Management measures for small pelagics in Mediterranean Sea and specific measures for the Adriatic Sea (GSA 17 and GSA 18)
Ministerial Decree No 172/2019	Spatial and temporary restriction and fishing effort limitation
Ministerial Decree No 407/2019	Management measures, closure areas and technical ban in GSA 17 and GSA18
Ministerial Decree of 7 December 2016	Management and restrictions measures related to Pomo Pit
Ministerial Decree 22 December 2000	TURF - Territorial Use Rights for Fishing Programs, time closure according to the state of resource fishing (for example in the management of clam <i>Chamalea gallina</i> for Fishermen Consortia of Ancona).

**Output controls** can be used to regulate the catch of a species or group of species directly in a certain fisheries, fishing period/season. Output controls also involve the definition of minimum landing size of fish, limits in number and amount in a day, generally used for the management of recreational fisheries.

*Catch controls* are aimed at directly reducing fishing mortality on target species. If complemented with bycatch controls (such as bycatch quotas) they have the potential to protect associated species.

Total allowable catches (TACs) or fishing opportunities, are **catch limits** (expressed in tonnes or numbers) that are set for most commercial fish stocks. The Commission prepares the proposals, based on scientific advice on the stock status from advisory bodies such as **ICES** and **STECF**. Some multi-annual plans contain rules for the setting of the TACs. TACs are **set annually for most stocks** (every two years for deep-sea stocks) by the Council of fisheries ministers. For stocks that are shared and jointly managed with non-EU countries, the TACs are agreed with those (groups of) non-EU countries. TACs are shared between EU countries in the form of national quotas. For each stock a different allocation percentage per EU country is applied for the sharing out of the quotas. This fixed percentage is known as the **relative stability** key. EU countries can exchange quotas with other EU countries.



Catch controls can lead to undesirable outcomes such as discarding of lower value species or smaller size classes. When implementing EAF in a mixed-species fishery, consideration needs to be given to the different characteristics of the various species when catch controls are set. Otherwise, more vulnerable and less productive species may be overexploited as vessels attempt to fill their quotas of the more valuable and productive species. Catch limits for target species may therefore need to be modified to control catches of more vulnerable species. The catch limits should also address the ecosystem related objectives, such as maintaining food webs (FAO, 2005).

OUTPUT CONTROL: REGULATIONS BOX – ITALY	
REGULATIONS	ISSUES ADDRESSED
ICCAT Recommendations n. 18-02.	Adoption of a multi-annual management plan for bluefin tuna in the Eastern Atlantic and the Mediterranean sea
Ministerial Decree No 210/2019, modified by Ministerial Decree No. 405 of 25 July 2019	Detailing the Small coastal fisheries
Directorate Decree No 920 of 3 June 2019	TAC and bycatch for bluefin tuna
ICCAT Recommendations No. 13-04	Management measures for Mediterranean swordfish
Directorate Decree No. 05453 of 3 June 2015	Implementation of Action programmes measures 14, 15 e 16 «Piano di Azione» related to swordfish fishery in Mediterranean. e

### Ecosystem manipulation

- *Preventing habitat degradation*
- *Rehabilitating or creating additional (artificial) habitat -Artificial reefs*
- *Restocking*

## Good practices and case studies on institutional co-ordination and collaboration for EAFM implementation

Several national and transnational projects have been carried out to promote and improve marine ecosystem approach within the fisheries sector since EAF is becoming the main reference framework for managing fisheries and implementing the principles of sustainable development. Most of research bodies cooperate to develop and test tools and models combining different variables in the perspective of supporting good governance of the fisheries compartment and decision-makers for science based policies.

National and transnational projects, models, tools and approaches providing tangible and measurable results in promoting/achieving EAF may serve as good practices for EAF management in the Adriatic area.

**Type of good practice:** Transnational projects and tools

**Management issue:** fisheries spatial planning and common management in the Adriatic Sea

### Projects:

- *ECOSEA project* – co-financed by IPA Adriatic Programme 2007-2014- aimed to promote the protection and enhancement of sea and coastal environment by implementing innovative approach to manage in coordinated manner the fishery activities in 3 Adriatic Countries.
- *ECOAST project* – co-financed by COFASP-ERAnet - aimed to identify, develop and test new methodologies for spatial and temporal management of fisheries and aquaculture in coastal areas. The overall approach assessed the impact of fisheries and aquaculture on coastal ecosystems, as well as synergies and conflicts between human activities. Building on previous methodologies and experiences the project evaluated marine spatial planning in seven coastal case study areas with different ecological and socio-economic characteristics including the Adriatic Sea.
- *DORY project* – co-financed by INTERREG Italy-Croatia 2014-2020 – aimed to. aimed to enhance protection and restoration of marine resources and ecosystems in the Adriatic Region by strengthening the institutional dialogue and promoting: the adoption of management measures for the reduction of impacts derived from economic activities on fishing stocks; the adoption of management strategies to improve biodiversity conservation (e.g. protection of spawning and nursery areas) and to reduce the ecological impact of aquaculture. The project promoted a fisheries resources science-based management as part of a coordinated development of MSP process, addressing the ecosystem based management objectives.

### Tools: **DISPLACE**

Within the mentioned projects the DISPLACE modelling platform for spatial fishery planning and effort displacement – developed by the Technical University of Denmark, Institute for Aquatic Resources (DTU-Aqua) - has been adopted and tested in Adriatic Sea on the Italian & Croatian demersal fisheries. The model is spatial explicit and can be adapted to the spatial and temporal scales that matter to policy makers. DISPLACE is a spatial impact assessment tool that can be used to evaluate the consequences of spatial fisheries plans on the sustainability and the economy of fisheries. By analysing fishers' decision making consequences and predicting likely responses of fisheries to spatial management options, the DISPLACE modelling approach is assessing whether actual fishing opportunities and technical management measures (e.g. regulation of gears, spatial restriction for fishing, etc.) perform well by ensuring sustainable fishing and food provision to the value chain without affecting important fisheries economics. In this context DISPLACE now provides scenario-based assessment and projections of the amount of income generated by national fishing fleets (or other finer fleet segments level economics and fishing harbour communities) over months, quarters and years as long as national input data are available. The model use available information into a form that reflects the dynamic of the commercial harvested stocks and the associated fisheries, and allows the yield and the response of the populations of fish to different harvesting strategies and spatial plans to be estimated. DISPLACE allows contributing to marine spatial planning for evaluating the effects on exploited stocks and fisheries by conducting impact assessment on stocks and fisheries of marine management measures, and ultimately incorporating other utilization of the sea such as energy production, transport, or recreational use e.g. offshore windmill farms, large marine constructions, NATURA 2000 areas, transport routes of commercial shipping, pipelines, cables. The objectives of the model is to provide input to:

- Impact on economic returns from traditional fisheries;
- Effect on EU MSFD indicators (e.g. spatial fishing pressure, fishing impact and footprint defined as amount of fish caught over the unit of pressure) and their economic value;
- Impact assessment of Maritime Spatial Planning (MSP) on the fishery economy.

The model contributes to the coordination and integration of different spatial activities in marine areas with the purpose of reducing potential inefficient management and detrimental use of space in accordance with the aims of the EU Marine Spatial Planning Directive (MSPD; regulate uses of the marine environment), the EU Common Fishery Policy (CFP; apply MSY-approach and

minimizing effect of fishing on the marine ecosystem), and the EU Marine strategy Framework Directive (MSFD; achieve Good Environmental Status for fish and shellfish stocks in EU waters).

Scenarios tested by DISPLACE in GSA17 (ECOAST project)	Recommendations to policy-makers
<p><u>Target species: Solea solea</u></p> <ul style="list-style-type: none"> <li>⇒ <u>Baseline scenario:</u> 4 nm closed from the beginning of the seasonal stop until 31 October for vessels using trawling and rapido with LOA&lt;15m, seasonal closure 40 days; the same for 6 nm for vessels with LOA&gt;15m. The seasonal stop is assumed to be 40 days from 1st August. Ban of bottom otter trawling and rapido all year inside the 4 nm (or 6 nm for larger vessels) and in the Italian side only, except Friuli-Venezia-Giulia Region (where national waters are really limited).</li> <li>⇒ <u>Effort reduction scenario:</u> Ban all the year along within a coastal strip (4nm for vessel with LOA&lt;15 m or 6nm otherwise) and reduce the effort (10% reduction in fleet capacity each year and/or 10% a year in fishing effort allowed).</li> <li>⇒ <u>Pomo Pit GFCM Regulation scenario:</u> Baseline scenario + Zone A closed for all activities all year, zone B closed for trawl (sept-oct) while the rest of the year it is open 2 days at week for OTB_it_pomo, zone C closed for trawl (September to October) while the rest of the year it is open 2 days at week for OTB_hr_pomo and open 4 days at week for GNS_hr (all year for GNS_hr)</li> <li>⇒ <u>Sole selectivity change scenario:</u> Sole sanctuary scenario + Increase the gillnet mesh size to 72 mm stretched + Increase the minimum landing size for sole to 25 cm TL (knowing that the current one is 20 cm, but the size at first sexual maturity is 25 cm)</li> </ul>	<p>Added to an effort reduction regime, managers might be tempted to design some more restrictive spatial plans to influence where the fishing effort will be applied, especially avoiding excessive pressure on the coastal components of the harvested populations or at vulnerable times in the species' life histories. Managers might also include set netters in the area restrictions or, alternatively, deploy more stringent management of the total amount of deployed fishing effort per vessel to let the stock rebuild and, ultimately, to improve the catch rates and therefore increase the economic performance of different fleet-segments. The model thus provides support to policy makers to estimate the ecological, socioeconomic and environmental consequences of restricting specific areas to certain fishing practices in addition to already existing effort control regime.</p>

Preliminary DISPLACE findings indicated that excluding the trawlers from the coast for the Northern Adriatic Sea redistribute a part of the earnings gained from the fishing opportunities of the Italian fleet operating in the area from the trawling activity to the set netter activity when new grounds and larger fish become accessible to the latter. The trawler fishery was, however, still profitable over the entire five-year period projected, given the costs for fishing at the magnitude tested. Along this line, the tested spatial or non-spatial mitigation plans were also shown to slightly improve the underlying stock status by reducing the fishing pressure, especially reducing the pressure on the coastal components of the harvested populations or on the vulnerable times of

the species' life histories (Scarcella et al. 2014), especially for the common sole stock in GSA 17 that is currently overfished.

Scenarios tested by DISPLACE in GSA17 (DORY project)	Recommendations' to policy makers
<ul style="list-style-type: none"> <li>⇒ Baseline scenario: Status quo- recent fisheries regulation in Italy, Croatia and Slovenia</li> <li>⇒ Scenario 6nm trawling ban</li> <li>⇒ Increase of gillnet mesh size (72 nm) MLS of 25 cm</li> <li>⇒ Sole Sanctuary- a permanent closure of the Sole Sanctuary area</li> </ul>	<p>The spatial management measure for the sole sanctuary is strongly recommended. To date, in fact, the closure avoid many conflicts because the fishing effort exerted in this area, especially the trawling fishery one, is very low compared to rest of GSA17, due to the distance from the ports and the type of seabed habitat which is characterized by species that may obstruct the net meshes and others that can affect the catches making these less suitable for market. The exclusion of rapid trawlers from the Sole Sanctuary would decrease the total fishing effort, the catch per unit effort (CPUE) and landings of common sole, and the discards rates of this species.</p> <p>About the minimum landing size, the management measure suggested is to increase the size to 25 cm TL. Shifting the target to adult portion of sole population. It could also be useful to make changes in the mesh size of small-scale fisheries.</p> <p>The increase of gillnet mesh size to 72 nm (stretched) could help to avoid the common sole target by catch and then all juveniles.</p> <p>About the ban of trawlers activities (TBD or OTB9 up to 6 nm from the coast, the implementation of the spatial management measures currently in force (3 nautical miles) with an extension to 6 nautical miles would have the potential to substantially improve the current fisheries exploitation patterns.</p>

Type of good practice: Model

Management issue: landing obligations

**Model: NEAS: a calibrated ecosystem model for the North-Eastern Adriatic Sea**

NEAS is an ecosystem model describing the time course of state variables based on the assumptions commonly made using the Ecopath with Ecosim software was used to exemplify the effects of landing obligations on a Mediterranean coastal system. With the calibrated model it was simulated the gradual application of the landing obligations from 2015 to the full application in 2019, as required by the regulation (EU, 2013), comparing results between scenarios with and without the landing obligations. The model was also used to evaluate the effects of alternative management scenarios that could be implemented to contrast the landing obligations effects such as: (i) introduction of quotas for small pelagic fish; (ii) reduction of trawlers’ fishing effort that are the main source of unwanted catches; (iii) increase of fishing gears’ selectivity; (iv) the combination of (i) and (iii).

Scenarios tested by NEAS in North-Eastern Adriatic Sea	Recommendations to policy-makers
<p>Four scenarios were applied for representing gradual introduction from 2020 to 2021 of alternative fisheries management measures to simulate fishermen’s short-term mitigation response to landing obligations.</p> <ul style="list-style-type: none"> <li>⇒ Scenario A: Introducing effects of quotas for small pelagic fish by opportunely decreasing the fishing effort of the PTM and PS in order to have that the sum of marketable catches and unwanted catches obligatory landed in the future equal to the actual small pelagic marketable catches.</li> <li>⇒ Scenario B: Halving the fishing effort of bottom otter trawl fisheries</li> <li>⇒ Scenario C: Improving selectivity of OTB and TBB fisheries equivalent to change the cod end from a 50-mm diamond mesh to a 40-mm square mesh; effects were represented by modifying OTB’s and TBB’s functional groups’ landed and discarded quantities on the basis of documented selectivity data (Sala et al., 2015)</li> <li>⇒ Scenario D: Application of both quotas for small pelagic fish and improving selectivity for OTB and TBB fisheries as a combination of scenarios A and C.</li> </ul>	<p>The ensemble of calibrated ecosystem model simulations allowed identifying the strengths and downfalls of the application of the landing obligations in the multi-gear fishery of the NEAS. The approach exemplifies the ecological and economic consequences of the regulation when applied to fishing system characterized by no quotas and mixed fisheries, like the Mediterranean Sea. The implementation of the LO in such conditions will have negative consequences by reducing the ecosystems biomasses, reducing the catches of commercially valuable species, increasing workload for fishermen, and reducing the fisheries economic revenues. The negative effects of the LO implementation cannot be removed by the adoption of realistic adaptive strategies here considered that include, effort reduction for trawlers, introduction of quotas for small pelagics and increase selectivity. Among those, the improvement of the gear’s selectivity and introduction of quotas are the best adaptive solutions to cope with the regulation in Mediterranean Sea</p>

## CHALLENGES AND OPPORTUNITIES IN ADRIATIC

### Priority issues in Adriatic area

The review of the Italian and Croatian regulations towards EAF and from the institutional stakeholder consultation carried out within the project led to the identification of strengths, weaknesses, threats as well as opportunities related the EAF current state of the art in the Adriatic governances. These information have been gathered together in the following simplified SWOT tables for Italian and Croatian side.

### Simplified SWOT table Adriatic (Italy)

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>⇒ Presence and relevance of small-scale fisheries compartment</li> <li>⇒ Presence of Consortia, Cooperatives and associations facilitate the cooperation with public administrations and the regulations acceptance</li> <li>⇒ <u>Temporary fishing ban</u> <ul style="list-style-type: none"> <li>• Fishing temporary ban contributes to the biodiversity protection of fisheries resources</li> </ul> </li> <li>⇒ <u>Spatial restrictions and spatial planning</u> <ul style="list-style-type: none"> <li>• Marine ecosystem preservation</li> <li>• Bycatch reduction</li> <li>• Protection of spawning areas for commercially exploited fish stock</li> <li>• Adoption of maritime concessions plan for aquaculture and scientific research activities (e.g. since 2005 in Marche Region - Regional Council Decree n 1707 of 28/12/2005 before the Reg. EU 508/2014 art.51)</li> </ul> </li> <li>⇒ <u>Fishing gears selectivity</u> <ul style="list-style-type: none"> <li>• Good acceptance and use of novel or modified gears by fishers</li> </ul> </li> <li>⇒ <u>Quotas</u> <ul style="list-style-type: none"> <li>• A more stringent management plan to sustainably manage the <i>Chamelea gallina</i> fishery. It includes measures for gear selectivity and closure periods, establishment of management committees by areas, repeal of licenses</li> </ul> </li> <li>• Presence of Consortia e.g. COGEVO</li> </ul>	<ul style="list-style-type: none"> <li>⇒ The protection of marine environment translates into restrictions and bans that affected the fisheries compartment economy</li> <li>⇒ Scarce administrative flexibility</li> <li>⇒ Lack of data and regulations for the recreational fisheries</li> <li>⇒ <u>Temporary fishing ban</u> <ul style="list-style-type: none"> <li>• Fishing temporary ban implies the impossibility of preserving all the species at once</li> <li>• Multi-species fisheries</li> <li>• Income loss for fisheries enterprises since the fishing ban usually fall in the tourism season</li> <li>• Subsidies granted limited the interest and attitude of operators in implementing the diversification of income through e. g. fisheries related tourism</li> <li>• Subsidies have become entrenched and incorporated into yearly payments to cover vessel owners' fixed costs during periods where they would be inactive anyway or fishing with other gear</li> </ul> </li> <li>⇒ <u>Spatial restrictions and spatial planning</u> <ul style="list-style-type: none"> <li>• Scarce engagement of local socio-economic stakeholder into decision and planning processes</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Gaps in maritime surveillance and control of compliance with fishing prohibitions</li> <li>• Different authorities and institutions are involved in spatial planning and monitoring with the level of cooperation is often poor</li> <li>• Policies impacting on marine and maritime issues are still scarcely integrated</li> <li>• Often the spatial planning is a top-down process</li> <li>⇒ <u>Fishing gears selectivity</u></li> <li>• SMEs with limited capacity to develop fishing technology and practices and to maintain and improve skills levels</li> <li>⇒ <u>Quotas</u></li> <li>• Quotas are a strong constraint in the economic strategy implemented by fishers to optimize their landings</li> <li>• Lack of real time monitoring</li> </ul>
<b>OPPORTUNITIES</b>	<b>THREATS</b>
<ul style="list-style-type: none"> <li>⇒ Financial instruments can support the shift from conventional fisheries management towards EAF</li> <li>⇒ CFP regionalization can provide an opportunity to utilize technical measures much more as a driver for the achievement of sustainable fisheries rather than simply as restrictive and coercive measures complementing fishing opportunities and effort restrictions</li> <li>⇒ Fishing temporary ban could promote the diversification of fishermen activities if properly addressed</li> <li>⇒ Dynamic assessment of the impacts of temporal fishery closures through dynamic data collection and analysis can contribute to more informed planning and more optimal solutions</li> <li>⇒ Participatory and co-decision approach in management measures planning is an opportunity to prevent and reduce conflicts</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Gradual loss of income for fishermen due to progressive restrictions</li> <li>⇒ <u>Temporary fishing ban:</u></li> <li>• Public funding has been more useful in rendering the measures politically acceptable than in actually reducing the amount of fishing</li> <li>⇒ <u>Spatial and temporary restrictions:</u></li> <li>• Spatial management approaches in fisheries tend to be linked to static boundaries and coarse temporal scales, although the dynamic of interactions between fish and their environments has long been recognized.</li> <li>• Spatial and temporal restrictions proposals can be often refused by local communities</li> <li>⇒ <u>Fishing gears selectivity</u></li> <li>• Catch utilization further depends on markets</li> </ul>

- ⇒ Improving labelling towards quality and sustainability
- ⇒ Establishing MPAs with more holistic approach to management, where protection of biodiversity and sustainability of fishery resources are dealt with simultaneously
- ⇒ Using models to estimate the socio-economic effects of fishery closure is a useful way to assess the utility of this management measure and its socio-economic impacts
- ⇒ MSP process could be a useful platform for discussing the more technical measures of fisheries management, which could help to reduce conflicts between fishery and area-based marine conservation.
- ⇒ Communicate the value of MPAs to fishermen
- ⇒ Cross-border cooperation could encourage coherence through shared understanding of terminology and technical requirements for implementing policy shared governance
- ⇒ Stock recovery through continued development of local management plans
- ⇒ Catch utilization can be managed through selectivity
- ⇒ Further valorisation of artisanal fisheries
- ⇒ Promoting market innovation for artisanal fisheries products

### Simplified SWOT table Adriatic (Croatia)

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>⇒ Fishermen can predict their investment in equipment, tools or vessels because the model can calculate the payoff. This is applicable on processing plants for planning production and making sure that supply of raw material will be available in years to come.</li> <li>⇒ Department of fishery can get information about the results of decisions and management actions they are about to make, in advance.</li> <li>⇒ Scientists can use the model for testing their theories about the marine ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>⇒ The model is only as good as the data and we don't have enough data for some parameters (illegal fishing, recreational fishing that has a big influence on some species like octopus).</li> <li>⇒ The time needed to get the results from the model.</li> <li>⇒ Unknown factors and processes can't be incorporated in the model therefore the model may give incorrect results. The system can change over time due to unpredictable climatic changes or new introduced species. Social parameters like the attractiveness of the fisherman's profession to young people can influence the long-term trends.</li> <li>⇒ The price and availability of the model for general use.</li> <li>⇒ The answer that the model gives is only as good as the question asked.</li> <li>⇒ The model can be more easily used for large scale fishing (purse-seine) than for small-scale.</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>⇒ EAF model can predict future events and reduce the time needed for making decisions.</li> <li>⇒ Fisheries are one of the best indicators of the state of marine environment and can sometimes be the first to show some changes that are missed in other types of monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>⇒ Manipulation with this tool. The model can be adjusted to show the results we need or want.</li> <li>⇒ If the outcome of the model turns out wrong, then the management decisions based on it may worsen the state of the stock and/or ecosystem.</li> <li>⇒ The EAF may be too focused on the ecosystem and not include the tradition of the coastal communities.</li> </ul>

## TECHNICAL AND POLICIES RECCOMENDATIONS FOR ADRIATIC REGIONS

### **A Roadmap for EAF in Adriatic: from priority issues and policy goals to technical actions**

There is an evident ambition in policies and programmes towards the effective application of EAF principles in the EU and, despite the lack of a comprehensive framework, several steps have been made in this sense. Within the CFP, regionalisation can provide an opportunity to utilise technical measures much more as a driver for the achievement of sustainable fisheries rather than simply as restrictive and coercive measures complementing fishing opportunities and effort restrictions. The effectiveness of management and technical measures depends on the level of stakeholder awareness and involvement in the decision making process. Intuitional stakeholder recognize the opportunity deriving from the application of models and tools to support and facilitate decision- making and implementation of EAF, however a strong cooperation with scientific bodies shall be ensured as well as socio-economic stakeholder consultation to guarantee a more efficient co-decision and co-management of sea resource. Cross-border and transnational cooperation projects contribute to testing new cooperation schemes and common tools for protecting marine resources while preserving fisheries income. Institutions should also increase the aggregation of fisheries operators at local/regional level. Moreover, cross-sectoral dialogue between the national and regional authorities in charge if fisheries management, maritime planning and surveillance, environmental protection should be improved to ensure a more effective and operational alignment. Given the transboundary nature of sea resources, cross-border management plans should be encouraged between the Adriatic Regions. Technical measures should take into account the Adriatic multispecies fisheries. The decision support systems development and application are identified as opportunities, however economic and technical feasibility for potential users shall be carefully evaluated.

EAF may also offer market opportunities since consumers recognize the added value of sustainable seafood products. Consortia and producers are adopting eco-friendly certification and in some regions, such as the Marche, quality and sustainability of seafood products have been encouraged by the institutions that are working on the development of traceability schemes (e.g. seafood products under the umbrella brand “QM- Quality from Marche”).

Build upon the challenges arisen from the institutional and socio-economic analyses, a cross-border Roadmap for EAF implementation in Adriatic will be develop by the FAIRSEA partners to address needs and opportunities of different stakeholders.