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POLICY BRIEF

Sustainable Reform of European Union (EU): Common Fisheries Policy

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Abstract

Context:

Oceans are encountering great loss of biodiversity. Global overfishing and overconsumption of aquatic foods prompted the European Union to create the Common Fishery Policy (CFP) with the intention of supporting sustainability of the environment, economy, and society, and to protect the long-term supply of aquatic foods. The Mediterranean Sea is a vulnerable European region due to fishing at unsustainable levels. Factors exacerbating the situation in this region include socio-economic conditions, weak regulatory power of the EU, poor communication and low levels of consensus among stakeholders.

Policy Options:

Three policy options are highlighted: 1) Fish-restricted areas (FRA) in eight Mediterranean regions to maintain or reverse fish collapse, as a means to recover fish stocks in regions with higher exploitation rates; 2) Supporting and improving small-scale fisheries (SSF) to reduce the impact on marine wildlife and increase selectivity, including standard gear and size restrictions, as well as strict seasonal closures; 3) Integration of Participatory Action Research (PAR) to improve stakeholder compliance with the landing obligation.

Recommendations:

Policy options were assessed by four evaluation criteria (economic feasibility, effectiveness, political feasibility, and equity). Integrating the PAR into the CFP was deemed to be the best option of those examined. A positive impact on the economy, political feasibility, and equity for stakeholders would be expected outcomes of implementation of this alternative. Regular evaluation and continuous improvement would increase the likelihood of policy success.

Keywords: Common Fisheries Policy (CFP), fish-restricted areas (FRA), Mediterranean Sea, Participatory Action Research (PAR), Sustainability.



Introduction

Background

Oceans are encountering a significant loss of biodiversity due to mismanagement, exploitation, and climate change(1). Overfishing depletes stocks faster than they can be replenished. Globally, overfishing has tripled in the last 50 years; one-third of the world's fishing yields exceeding recommended fishing limits (2). In the last few years, consumption of sea foods has reached a peak – approximately 20.2 kg per capita in 2020 – double the consumption level as compared to 50 years ago (3). The European Union (EU) is a major contributor to the decline of fish species worldwide, as a result of member countries' fishing activities in international waters (4). It also represents the largest market in seafood imports (4). There is an urgent need to improve fisheries management to protect the long-term supply of aquatic foods and to re-establish ecosystems to a healthy state.

The EU established in the Treaty of Rome, 1957, a Common Fisheries Policy (CFP) with the primary aim of ensuring sustainable fisheries and securing incomes and stable jobs (5). Over time, the policy has evolved. In the Treaty of Lisbon, 2007, a revised CFP focused on improvements in sustainability for the environment, economy, and society. Scientific evidence and socio-economic data have informed decisions related to the biological state of stocks and fishing catch quotas. In addition, CFP regulates in an accountable, transparent, and fair way, all European fisheries, not only in waters of EU Member States (MS) but also in international waters through agreements and rules, including sanctions for wrongdoers(1-3).

The CFP 2013 had three main pillars: (i) The new CFP (6); (ii) The common organization of the markets in fishery and aquaculture products (7); (iii) The new European Maritime and Fisheries Fund (EMFF) (8) (Appendix 1). However, the full implementation of the CFP remained weak. In the long term, CFP improved



the situation of some fish populations, but its effects remain weak, especially in the Mediterranean Sea. This area comprised 83% of assessed stocks that were overfished. This policy brief will focus on one area, the Mediterranean Sea, as it has historically been a primary European region for fishing at unsustainable levels (4).

Problem Framing

Through the CFP, the EU engaged with many regional fisheries management organizations (RFMOs), which were required to follow provisions of Article XIV of the Constitution of the Food and Agriculture Organization of the United Nations (FAO). One RFMO, the General Fisheries Commission for the Mediterranean (GFCM), regulates Mediterranean fishing activities. To achieve the goal, the GFCM established three primary regulations for marine ecosystems: (i) Gear regulation, (ii) Minimum conservation reference size, and (iii) Selective closure of areas and seasons. Nevertheless,

Mediterranean fish stocks have declined (5). Maximum sustainable yield (MSY) is the maximum catch (in numbers or mass) that can be removed from a population over a definite period, which served as an indicator as well. The exploitation of that limit is believed to have remained above the recommended MSY level (9). Fishing catches have remained stable, however, during the last decade (1).

Additionally, socio-economic complexity creates another challenge, due to the large number of small-scale vessels operating in diverse cultural, social, and economic conditions of countries that share fishing resources. Governance with low regulatory power has been a challenge, as well (6). In the Mediterranean Sea, regulatory mechanisms such as MSY (for general estimation), and total allowable catches (TAC) (for most commercial fish stocks) were not introduced, despite being effective in marine system maintenance in the North East Atlantic (2).



In addition to the EU, other 19 Mediterranean states and three Black Sea states were also participants in the GFCM. This limited the value of the CFP, reducing it to only a powerful reference rather than a direct and strong influence. Namely, non-regulatory power and an unfilled scientific knowledge gap, for instance, MSY and TAC, diminished the intended outcome of the CFP. As a result, the EU has given attention to the Mediterranean Sea and, especially, to cooperation with non-EU states.

Stakeholder Analysis

Cooperation and engagement of stakeholders in EU marine policy are key to the success of any management plan. Thus, the participation of all stakeholders in the policy process is crucial. In this case, stakeholders are defined as groups interested in the science and management of fisheries (7). A clear understanding of the interests of these actors is critical to identifying viable policy options and implementation gaps.

The fishery sector and numerous other interest groups have a stake in the CFP. These include players in such sectors as Government Authorities, Scientists, Business and Industry and Others (Table 1). The fishery sector can be subdivided into the catching sector in the EU and the processing sector. Regulators, investors, dependent businesses and communities comprise the Authorities and Industry groups (8). Scientists, consumers, third countries, NGOs, civil society EU-citizens and INGO and ENGOs such as the UN and WHO are additional interested parties. Government authorities include those at the EU level (EU Commission, Parliament and Council), member states and the GFCM (General Fisheries Commission for the Mediterranean) and the MEDAC (Mediterranean Advisory Council).

All of these stakeholders wield different levels of power, though the Member states and EU governmental bodies bear the most power and a high degree of vested interest. The category of scientist encompasses marine and fishery



science and researchers from related areas. Marine and fishery scientists and other researchers, as well as public health professionals, provide information and scientific data to inform policymaking. With relatively low power in decision-making but high interest, this group is nevertheless an important player.

The processing and catching sectors, as well as production and packaging, have high levels of interest and high degrees of power in this case. Lastly, others, including NGOs or ENGOs, as well as EU citizens and consumers, have low levels of power despite medium to high interest in the issue.

Table 1. Stakeholders and their key interests

Stakeholders	Key Interests and focus areas	Estimated Power	Estimated Priority	
(1) Government Authorities	EU Sector regulators European Commission, Council, European Parliament	Compliance with the UN SDGs Regulatory compliance and effectiveness of the CFP	High	High
	Member states	Managerial interest Regulatory compliance Sovereignty Public image and reputation	High	Medium/High
	GFCM (General fisheries Commission of the Mediterranean)	Managerial and advisory interest in the Mediterranean area and the aim to ensure the conservation and the sustainable use of living marine resources (EAA) Harmonizing the collection of aquatic data	High	High
	MEDAC (Mediterranean advisory council)	Sharing knowledge and best practices Productive fisheries, healthy seas, compliance and enforcement and sustainable aquaculture development (FAO)		
(2) Scientists	Marine and fishery science	Sustainability of fishery approaches Eco-system approach Provide information and evidence for policy recommendations	Medium/Low	High
	Researchers	Sustainability Best practice Good governance Provide evidence to ensure proper agenda setting and inclusion of evidence in the policy process	Low	Medium
(3) Industry	Catching and Processing sector	Availability of resources Cost effectiveness Financial & Resource interest Livelihood dependency, personal/direct interest and influence in stock health and aquatic	High	High



		developments		
	Fishery Companies	Financial interests Resource availability Influences in the internal and external market and market control	High	High
(4) Others	WHO, UN, NGOs and ENGOs	SDG Safe consumption of products Planetary Health and well being Public Health and well being	Medium	High
	EU- citizens, EU consumers	Safe consumption regarding Public Health and well being Sustainability & Transparency	Low	Medium

Policy Options

Policy Option I – Fishery Restricted Area

(FRA)

The hake is an important food source in western Europe. The risk of fish collapse has been cited (10) and measures are needed to mitigate this risk (2). The species has some of the highest exploitation rates in the region, followed by blue and red shrimp and Norway lobster, and it is under the highest fishing pressure with a five times higher mortality rate than the target fishery mortality (11). Exploitation arises from a faster fishing rate than replenishment (12); exploitation of juvenile fish is a possible reason (5). Up to 20% of juveniles are accidentally killed and/or

discarded for adult fish, resulting in no economic benefit (13). For species conservation, essential fish habitats must be restored and vulnerable marine ecosystems preserved (14-16). The FAO recommends the establishment of FRAs to recover stocks in exploitation (2, 17). A temporal or permanent fishing closure is imposed in the areas. It protects important habitats for the recruitment process in which high bycatch and discard rates are recorded. Areas with a high discarding rate of fish below the Minimum Conservation Reference Size (MCRS) are identified as critical areas (18).

For the European hake, the following hot zones in the southern European seas were identified

and illustrated in figure 2, which can be assigned to the geographical subareas (GSA) in figure 3. Hot zones include the south of Tarragona area in the Catalan Sea (1A in GSA 6b), the eastern side of the Adventure Bank (1B in GSA16a/b) in the south of Sicily, and the coastal area of Lisbon and Sines Lisbon and Sines (1C in GSA 9. a) in Portuguese waters. Four further zones lie in the

Ligurian and Northern Tyrrhenian Seas, three in the north and one in the south of Elba Island (1D in GSA 9a/b). These areas may be designated as FRAs by politicians. Implementation may be inspired by those already implemented FRAs of the GFCM., such as the best practice example Jabuka Pomo Pit(3, 19).

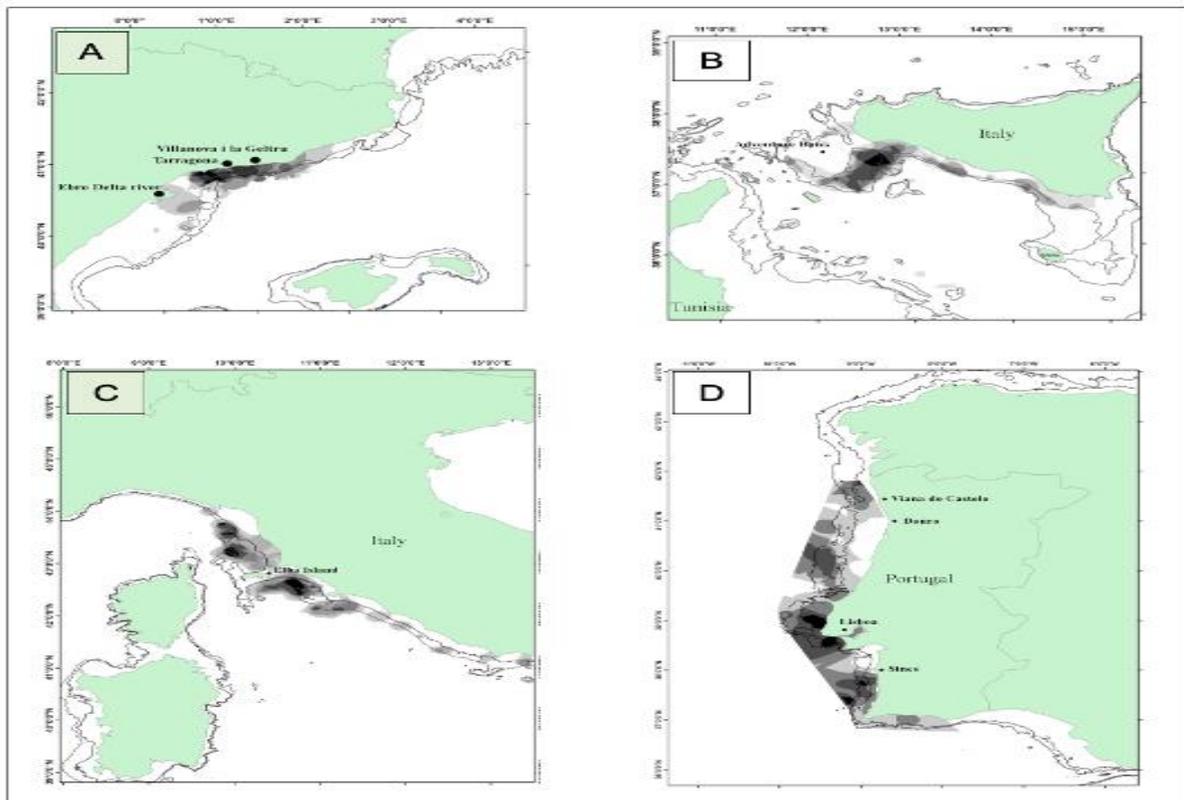


Figure 2. Hot spots for discarding with the highest densities of individuals below the Minimum Conservation Reference Size (MCRS)(18)



Figure 3. Geographical Subareas (GSA) delimited by the GFCM (20)

Policy Option II – Embracing and improving small-scale fisheries (SSF)

The Commission Regulation (EC) No 26/2004 defines small-scale fishing (SSF) as fishing activities conducted by ships of less than 12 meters and not using trawling techniques. Bottom trawling, an active fishing technique, is deleterious to marine life by destroying the seafloor, bringing debris into the water, and releasing captured CO₂ into the atmosphere(20). Small-scale fisheries on the other hand require less fuel and rely on different techniques than trawling. Compared to bottom/beam trawling or longline fishing of large vessels, SSF has lower discards (<15%) and therefore a lesser impact on

vulnerable bycatch (21). Small-scale fisheries are also, in many countries, important aspects of cultural heritage and provide as many as 134,300 jobs (22). However, 27 species caught as bycatch by French, Italian, and Spanish SSF boats are considered vulnerable, which calls for adaptation of fishing techniques(23). To further reduce SSF impact on marine wildlife and increase selectivity, concrete gear and size restrictions for fishing gear and strict seasonal closures must be developed and implemented (22).

Many countries, primarily Spain and Italy, still employ trawlers and dredgers among the



registered SSF boats. To further alleviate pressure from their destructive practices, trawling must be stopped for good and a focus on passive fishing techniques must grow. No fishing practice is perfect, but gillnets, pots and traps are more selective and do not destroy crucial Mediterranean marine habitats like seagrass meadows, rocky seabeds, or coral reef structures (22). Lastly, close monitoring of SSF activities is crucial. This includes a comprehensive understanding of the Mediterranean fleet and their practices, the integration of knowledge of local fishermen to develop best practices, and quantitative data on caught species, bycatch/discards, and landing value.(24). These aspects can be included in the already established MedPAN network, which until now has exclusively focused on marine protected areas. However, it is an important, science-based monitoring protocol guide which yields great potential in improving SSF in the Mediterranean Sea (25).

The proposed policy option is further in line with article 29 (26) to promote human capital, job creation and social dialogue in small-scale fisheries. It includes professional training, joint projects, and the exchange of experiences of best practices between stakeholders.

Policy Option III – Participatory Action Research (PAR)

One factor contributing to the lack of environmental sustainability is noncompliance with the CFP(27). For example, the lack of acceptance by the fishing industry is the main barrier to compliance with the landing obligation (27a). Fishermen tend to have negative perceptions of limitations on fishing activities and new restrictive management measures (28). Control rules such as capacity, selectivity, and effort limitation are the main measurement in fisheries management that may lead to low compliance (29). To nurture a culture of compliance, transparent management plans with cross-sector and multi-stakeholder coordination



must be developed. Involving stakeholders with different backgrounds in a cooperative approach can help to increase collective awareness about the issues (29) and the inclusion of fishermen's attitudes and knowledge is essential for successful implementation (30, 31). Even if the CFP (32) promotes a bottom-up approach through a more interactive governance system, a more transparent procedure for decision-making was suggested to facilitate stakeholders' compliance (33).

Fishermen, scientists and fisheries managers support proactive and adaptive fisheries management rather than biologically-based management, which is perceived only as a

Recommendations

The three policy options were evaluated by four assessment criteria. 'Economic feasibility' is related to the profitability of the fishery sector after the establishment of the measures. For 'Effectiveness,' the ecologically sustainable

restriction on fishing activities and inefficient for decreasing catches and improving the efficacy of vessels (28). Participatory Action Research is an opportunity to extend the CFP (28). It is "a realistic method for testing and informing EU and national management plans against local concerns, needs and alternatives that fishermen can develop to meet the challenges of fisheries" (28) and should be considered in policy development. Article 18 (32) for regional cooperation on conservation measures is not sufficient to involve stakeholders appropriately in Article 3(32). An extension of Article 18 to include mandatory Participatory Action Research is conceivable.

impact, such as the contribution to the recovery of fish stocks, was estimated. 'Political feasibility' refers to stakeholder compliance and willingness to support the option. The last criterion, 'Equity,' refers to social and ethical aspects. The assessment was based on literature-based estimations. Likely outcomes were rated from 1 (+) low to 5 (+++++) high, shown in



Table 2. The explication of the results is further described in Appendix 2.

We recommend the integration of the Participatory Research Approach into Article 18 (32). In the evaluation, it achieved the highest score of 16 out of 20 points. Compared to the other two options, PAR has the great advantage of being a more comprehensive approach that involves stakeholders and can be applied to any fisheries measure. The PAR alone does not bring about more sustainable fishing practice, but the integration of stakeholders in the entire research

process is associated with positive effects on economic and political feasibility. A single intervention is not enough to tackle this complicated situation; however, it is possible to improve the condition only when multiple approaches are introduced. Fish populations and the overall ecological state of marine habitats are undergoing constant changes due to a variety of influencing factors. Therefore, related policies and potential alternatives should be re-evaluated regularly and modified when necessary to ensure they achieve their intended goals.

Table 2. The assessment policy options

Policy Alternatives	Economic feasibility	Effectiveness	Political feasibility	Equity
I. Fishery Restricted Area (FRA)	+++	+++++	+++	+++
II. Embracing and improving small-scale fisheries (SSF)	++	+++++	+++	++++
III. Participatory Action Research (PAR)	++++	+++	++++	+++++

Conclusion

This policy brief explored reform of the Common Fisheries Policy (CFP) in the EU. Applying four evaluation criteria (economic feasibility, effectiveness, political feasibility,

and equity). Integration of the PAR into the CFP was deemed the best option of those examined. However, the policy options and recommendations may have limited impact, given the nature of the problem they are meant



to solve. A cycle of regular evaluation and continuous, evidence-based policy improvement will be necessary for long-term effectiveness.

Conflicts of interest

The authors declare no conflict of interest.

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Appendices

Appendix 1. The influence of past reforms of CFP

(1) The new CFP

The new CFP introduced practical approaches to maximize fishers' catches without endangering the fish stocks. Firstly, the maximum sustainable yield (MSY) was introduced to tackle ambiguity, which was one of the reasons for ineffective fishing regulation. Based on the MSY, the committee of ministries of fish or related departments could evaluate total allowable catches (TAC) for most commercial fish stocks. Secondly, EU Member States must collect, and manage biological, environmental, and socioeconomic data for scientific advice, which might help estimate MSY and modify future regulations. Thirdly, landing obligations were brought to address the wasteful practice of fish discarding, which means returning unwanted catches to the sea. To achieve the above goals, furthermore, financial support and technical measures were also mentioned and implemented in the new reform.

(2) The common organization of the markets in fishery and aquaculture products

The market plays an important role in fishing practices and policy compliance. For the fish industry, a fisheries control system was introduced to ensure members' compliance. This included the aim to fight against illegal, unreported, and unregulated fishing (IUUF). For consumers, new marketing standards concerning labelling, quality, and traceability allow better and clearer information about the origin, mode of production, and processing of the fish.

(3) The new European Maritime and Fisheries Fund (EMFF)

The EMFF was a fund for the EU's maritime and fisheries policies for 2014-2020 **(34)** Over one quarter (26.26%) of the budget went to sustainable fisheries, which aims at reducing unintended catches. In 2021, a new European Maritime, Fisheries, and Aquaculture Fund (EMFAF) were adopted to ensure the sustainable use of aquatic and maritime resources. This not only supported sustainable fisheries but also conserved marine biological resources. Most importantly, this also helped achieve the UN's Sustainable Development Goal (SDG) 14 (conserve and sustainably use the oceans, seas and marine resources)



Appendix 2. The explication of the policy option assessment

Policy Alternatives	Economic feasibility	Effectiveness	Political feasibility	Equity
I. Fishery Restricted Area (FRA)	Approximately 10 % increase in revenue between 2016 and 2020 in the Adriatic Sea. The region is generally the “only subregion where the share of revenue is significantly greater than the share of employment” Feld (2), which advertises economic efficiency. No data could be found for economic benefit from the specific FRA but based on the general data it can be assumed that the FRA don’t have a negative impact on economic benefit.	Since the implementation in 2017 of the Jabuka/Pomo Pit, a higher abundance and densities of main commercial species such as the European hake and juvenile European hake, Norway lobster, and deep-water rose shrimp were measured inside the FRA. Also, outside in the general northern Adriatic Sea the FRA contributed to the recovery of stocks. In addition, a lower exploitation rate and a slight increase in biomass of the European hake is reveal(2).	The Jabuka/Pomo Pit is a best-practice example of transnational cooperation and is accompanied by a comprehensive scientific monitoring plan (3, 19). If stakeholders are not involved in the process, the measurement can simply fail, because fishermen react often with noncompliance to restrictive management measurements (29).	The views of fishers and stakeholders were integrated into the implementation process of the Jabuka/Pomo Pit FRA (2). In the Adriatic Sea “benefits from fisheries are not equally distributed between SFF [Small-scale Fisheries] and industrial fisheries” (2, 17). Industry fisheries generate 71% of revenue. The share of employment is significantly smaller than the share of revenue, justified by a lower percentage of small-scale vessels. No data are available for the specific FRA. The European hake (and thus the recovery of this species) play a decisive role in supporting livelihood of the employees onboard fishing vessels (2).
II. Embracing and improving SSF	The depletion of fish stocks in the Mediterranean has resulted in shrinking fleets and a loss of jobs (23). While more regulations might first result in lower landings, it is a crucial step in long-term thinking. We as societies must be	All presented steps are based on scientifically proven effectiveness. However, the authors must acknowledge that even though the proposed actions will have a positive impact, they will not single-handedly solve the issue of overfishing.	Even though it is hard to predict how political leaders will perceive it, they must acknowledge that the CFP has not reached its intended goals. Furthermore, the EU and European countries have committed to environmental	SSF in the Mediterranean make up 80 % of the fishing (1). As the name suggests, those boats belong to fishers and small companies, who are important to the local culture and economy.



willing to accept moderate catch rates to secure a long-term food source. If the Mediterranean Sea won't protect more, fish stocks are likely to be fully depleted for the whole economic sector to collapse.

protection and tackling climate change. Moreover, the approach could positively impact the local businesses and guarantee job security.

Empowering SSF is certainly equitable, as some communities have long-standing histories as fishermen and certainly require more support than large-scale commercial vessels.

III. Participatory Action Research (PAR)

No data on the economics could be found. High expenditure can be expected for the process, as stakeholders are to be involved in the whole research process (29). However, compliance achieved in this way can avoid later costs.

The small-scale fishery is based on cultural values transmitted through generations (29). The cultural hesitate is seen as a vehicle for sustainable fishing and as a guarantor of marine custody (29). However, the integration of the PAR into the CFP alone cannot contribute to sustainability. Based on the approach, specific measures need to be implemented.

The PAR follows a community-based approach and aims to survey local interests and concerns to improve stakeholders' well-being and is understood as and process of knowledge exchange between stakeholders and scientists (29).

The PAR is focused on the sociocultural integration in the implementation and decision-making processes of fisheries policies. Stakeholder needs and concerns are included by inquiring their knowledge and perception (29).

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