STUDY

Requested by the PECH committee

European Parliament

EU fisheries policy – latest developments and future challenges



Policy Department for Structural and Cohesion Policies
Directorate-General for Internal Policies
PE 629.202 – September 2019

EN

RESEARCH FOR PECH COMMITTEE

EU fisheries policy – latest developments and future challenges

Abstract

This study examines the latest developments of the Common Fisheries Policy (CFP) in the fields of fisheries management, Common Market Organisation (CMO) and its external dimension. It also discusses the potential challenges that the EU fisheries policy might be facing in the near future. The present research contains ten case studies and concludes with possible solutions and recommendations to address some of the sector's forthcoming challenges.

This document was requested by the European Parliament's Committee on Fisheries.

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LINGUISTIC VERSIONS

Original: EN

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To contact the Policy Department or to subscribe to updates on our work for the PECH Committee please write to:
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Manuscript completed in September 2019
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This document is available on the internet in summary with option to download the full text at: http://bit.ly/2k6rVSX

This document is available on the internet at:
http://www.europarl.europa.eu/RegData/etudes/STUD/2019/629202/IPOL_STU(2019)629202_EN.pdf

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Please use the following reference to cite this study:
Aranda, M., Ulrich, C., Le Gallic, B., Borges, L., Metz, S., Prellezo, R., Santurtún, M. (2019) Research for PECH Committee — EU fisheries policy – latest developments and future challenges, European Parliament, Policy Department for Structural and Cohesion Policies, Brussels
Please use the following reference for in-text citations:
Aranda, Ulrich, Le Gallic *et al.* (2019).

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LIST OF ABBREVIATIONS

AC	Advisory Council
ABNJ	Areas Beyond National Jurisdictions
BSAC	Baltic Sea Advisory Council
CAP	Common Agriculture Policy
CCP	Cooperating and Contracting Party
CCSAMLR	Convention for the Conservation of Antarctic Marine Living Resources
CCSBT	Commision for the Conservation of Southern Bluefin Tuna
CECAF	Committee for the Eastern Central Atlantic Fishery
CFP	Common Fisheries Policy
CMM	Conservation and Management Measures
CMO	Common Market Organisation
DCF	Data Collection Framework
DWFN	Distant Water Fishing Nation
EBFM	Ecosystem-Based Fisheries Management
EC	European Commission
EEZ	Exclusive Economic Zone
EFCA	European Fisheries Control Agency
EFJ	Extended Fisheries Jurisdiction
EM	Electronic Monitoring
EMFF	European Marine and Fisheries Fund
EP	European Parliament
EU	European Union
EUFA	European Union Fisheries Association
FAO	Food and Agriculture Organisation of the United Nations
F_{MSY}	Maximum Sustainable Yield exploitation rate
FTA	Free Trade Agreements
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GFCM	General Fisheries Commission for the Mediterranean Sea
GVA	Gross Value Added
IATTC	Inter American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas

ICES	International Council for the Exploration of the Sea
ILO	International Labour Organisation
IOTC	Indian Ocean Tuna Commission
IUU	Illegal, Unreported and Unregulated (fishing)
JR	Joint Recommendation
JRC	Joint Research Center
kW	kilowatts
LDAC	Long Distant Advisory Council
MAP	Multi-Annual management Plan
MCS	Monitoring, Control and Surveillance
MSY	Maximum Sustainable Yield
NAFO	North Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organization
NEAFC	North Atlantic Fisheries Commision
NGOs	Non Governmental Organisations
PDO	Protected Designation of Origin
PECH	European Parliament's Committee on Fisheries
PET	Protected Endangered and Threatened Species
PGI	Protected Geographical Indication
PMP	Production and Marketing Plan
RFMO	Regional Fisheries Management Organisations
STECF	Scientific, Technical and Economic Committee for Fisheries
SFPA	Sustianable Partnership Fisheries Agreements
TAC	Total Allowable Catch
UNCLOS	United Nations Convention of the Law of the Seas
UNFSA	United Nations Fish Stocks Agreement
UNGA	United Nations General Agreement
UK	United Kingdom
WCPFC	Western and Central Fisheries Commission
WTO	World Trade Organisation

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EXECUTIVE SUMMARY

Background

Fishing is an economic activity that is intrinsically dependent on the productivity of the marine environment. Maintaining fishing resources at levels that can sustain the fishing activity requires setting long-term goals that may sometimes not be compatible with the short-term interests of the fishing industry. In the EU, the course of the fishing sector is not only influenced by the evolution of the **Common Fisheries Policy** (CFP), and its reforms, but also by market conditions, availability of fish in EU waters, and accessibility to non-EU waters. These factors impose challenges for EU policy-makers.

The **EU fisheries sector** encompasses an economic activity with a relatively low contribution to the EU economy. The sector has, however, high significance in terms of food security, cultural identity, employment and income. EU fleets operate in Western Waters, the North Sea, the Arctic, the Baltic Sea, the Mediterranean, Outermost Regions, third country waters, and areas under the mandate of Regional Fisheries Management Organisations (RFMOs).

The 2013 CFP **reform** reflects the before mentioned complexity. The CFP reform brought about a number of ground-breaking measures in EU fisheries. But, the implementation of regulations on **fisheries management**, **Common Market Organisation** (CMO), and **external dimension** measures have, in many cases, resulted in uneven outcomes, and in some cases failure to achieve the general objectives of the CFP. Much is still needed to overcome recent failures and address the envisaged challenges posed by the evolution of EU fisheries, markets and exploitation of fishing resources beyond EU waters.

Aim

The aim of this study is to inform the European Parliament's Committee on Fisheries (PECH) about the **latest developments** of the CFP and to describe the **future challenges** to be faced by the EU fisheries policy in the near future, and what is required to address the forthcoming challenges.

Results

(I) Fisheries management

Latest developments

There has been some success over the last fifteen years in terms of Fisheries Management. Fishing mortality has decreased and biomass has increased in the North East Atlantic owing to long-term management plans and fishing effort reductions. The economic performance has also improved.

The **landing obligation** has been gradually phased in since 2015, but it has largely failed to achieve its objectives. Discarding has not yet been reduced, enforcement is poor, and the lack of support and compliance is evident. This also undermines the quality of the catch data used in stock assessments.

Maximum Sustainable Yield (MSY) is a key objective. The difficulty to achieve it simultaneously for all stocks, jointly caught in mixed and multispecific fisheries, led to the concept of F_{MSY} ranges, framed in **Multi-Annual management Plans (MAPs),** to allow some flexibility in the annual setting of Total Allowable Catches (TACs). However, the management of bycatch species remains challenging.

Future challenges

Improvements in control and enforcement, and MSY-based decisions on Total Allowable Catches (TACs) decisions may allow the CFP to meet its objectives, but subsidies should not be reintroduced. MAPs have only been in place for a short time, and it is too early to draw conclusions on whether they have enhanced regional cooperation. **Regionalisation** allows Member States to cooperate in formulating joint recommendations. The challenge is to leave some room for regional divergence while maintaining some fundamental CFP principles and objectives applicable to all fisheries. The **Mediterranean and Black Seas** have traditionally been left outside the CFP, and are governed by own regulations and multiple decision layers. The management of fisheries in that region has been largely ineffective until now. New governance is emerging under the umbrella of the "**MedFish4Ever**" Ministerial Declarations.

Without effective **Monitoring, Control and Surveillance** (MCS), the CFP objectives will be undermined. The current revision of the **Control Regulation** will improve the EU control system and harmonise procedures across Member States. Options for using **new monitoring technologies** to increase compliance with the landing obligation are being discussed. In particular, electronic monitoring using cameras and sensors are being extensively debated.

There are limitations due to costs, but the lack of acceptance by the fishing industry is the main barrier. There is a need to better align the CFP, the Marine Strategy Framework Directive and the EU Birds and Habitats directives under an **integrated ecosystem-based fisheries policy**. Current management systems are not well-suited to deal with **climate change**. The "relative stability" allocation keys do not adapt to changes in fish distributions, leading to conflicts and suboptimal exploitation of resources. There is a compelling need to define new and better **ways to share fishing opportunities.**

Three case are described, illustrating situations where fisheries management is particularly difficult and hampered also by other factors, and where the status of stocks is often alarming. The **Baltic Sea** is a case where the marine ecosystem is undergoing large ecological changes and the productivity of the eastern cod stock is plummeting, rendering its recovery uncertain. Small pelagics in the **Adriatic Sea** is a case where the lack of political will and of scientific consensus have left the fishery largely unregulated, with dramatic increases in catches in the recent years. The mixed fisheries in the **Celtic Sea** is a case where zero-TAC regulations enter into conflict with the landing obligation, aggravated by the high risks of so-called "choke species".

(II) Common Market Organisation

Latest developments

The current Regulation on the **Common Market Organisation** (CMO) aims at protecting primary **producers**, improving the competitiveness of the **sector,** and linking **market** considerations to **resource** management issues. The recent period has indeed seen a strong increase in profitability, especially in the fisheries sector, suggesting that some of the developments undertaken have been quite successful:

(i) A better adjustment between fishing **opportunities** and fishing **capacities**, because of an improvement in some stocks and a reduction of the fleet size.

(ii) The end of the so-called **'withdrawal' scheme**, which was considered as biologically and economically harmful, to help to match supply and demand.

(iii) The **Illegal, Unreported and Unregulated Fisheries (IUU) Regulation**, which is considered as a key example of an EU-led initiative to promote sustainable fisheries, by levelling the playing field

between producers. First results show that this could be extended to other socio-economic aspects.

(iv) The systematic development of **production and marketing plans**, which are a move towards a more market-oriented approach. The aim is to improve the match between supply and demand.

Future challenges

In a context of creeping **globalisation** and Free Trade Agreements (FTA), levelling the playing field between EU and non-EU producers is still an issue, both for aquaculture and some globalised fisheries markets (e.g., tuna). Making sure that all the **EU sustainability standards**, such as working conditions or production processes (e.g., feeding), are verified, is essential.

Informing consumers about the origin of seafood products, even for processed commodities, is also needed. This is illustrated in the case of **seabass and seabream aquaculture**, where a non-EU country is increasing its market share in the EU market in a context of a customs union. In the absence of public actions, there is a risk of seeing pressure on international prices, an increase in imports and the potential exclusion of some EU products from the EU market. The seabass and seabream case suggests imposing requirements on **environmental and social aspects** for non-EU producers wishing to export to the EU market.

As one objective of the CMO is to ensure that the **best use is made of each and every species** available in EU waters, finding the routes to the market for less known, local species, can be challenging. This occurs because an increasing number of markets are supplied by a limited, but known, number of species - mostly imported -, especially when specific (private) labels are required. In addition, the **spending on seafood** is still low in some countries, where meat is the preferred food. While informing the consumers is again central, developing public initiatives to enhance the value of every EU product might be an option.

In order to improve the competitiveness of the sector, it is important to ensure that the most efficient **production systems** are encouraged, considering all aspects of sustainability, including the economic performances, e.g. due to the difference in costs and ex-vessel prices obtained from each fishing method. This especially applies in the context of shared fisheries, where management methods and exploitation strategies co-exist, including across different Member States. The two **Western Waters** sub-cases show the importance of considering the question of access regulations in a mixed- shared fishery, which is particularly relevant in the context of ***Brexit***. In turn, the **producer organisations** (POs) have a key role to play in such fisheries, e.g., by facilitating formal or informal cooperation systems among the POs. Future development in mixed-shared fisheries also needs to consider the specificities of **Small-Scale Fisheries** (SSF), especially with regards to Article 17 of the CFP, calling for the inclusion of environmental and social criteria in the definition of fishing opportunities.

(III) External dimension

Latest developments

The EU is a key player in **Regional Fisheries Management Organisations** (RFMOs), and in actively proposing conservation and management measures, and providing financial support. The EU also has many **Sustainable Fisheries Partnership Agreements** (SFPAs) in place, guaranteeing supply to the EU market, and providing sectoral support to coastal states. The EU Regulation on the **Sustainable Management of External Fishing Fleets** (SMEFF) attempts to facilitate a more effective control of operations beyond EU waters. This commitment, however, may not yield good results when other fleets are weakly regulated. The SMEFF establishes common eligibility requirements for EU vessels

operating abroad, including direct agreements between Member States' companies and third countries. **IUU fishing** stands as a challenge requiring cooperative efforts among the diverse countries. The Union's IUU Regulation has deployed diverse mechanisms to restrict access of IUU products to its markets. In turn, **transhipments at sea** is also an issue that boosts IUU fishing. The EU has promoted the ban on transhipment at sea in diverse RFMOs although it has faced opposition by other parties.

Unsustainable fishing practices constitute a threat to targeted and non-targeted resources. The EU has tabled draft proposals to RFMOs on bans on **finning** and large-scale **driftnets**, but they have encountered unequal acceptance. Large fishing **capacity** implies a risk for fish, and a waste of economic resources. Actions to reduce fishing capacity are high on the agenda of many RFMOs. One of the main constraints relates to the legitimate claims of developing States to develop their fisheries. The topic has been proposed by the EU to diverse RFMOs.

Developing nations endure a **lack of institutional capacities** to control the expansion of their fishing effort and monitor activities in their EEZs. The lack of **scientific capacities** also impedes proper data reporting and participation in the scientific process. Concerning SFPAs, coastal states may lack the means to determine surpluses and conduct **Monitoring, Control and Surveillance** (MCS) activities. The EU is currently contributing to **capacity-building initiatives**, for example, training Western African inspectors under the auspices of the European Development Fund (EDF).

Future challenges

New technologies offer promising results to deter IUU fishing. Concerted effort and sound research are required to establish the right **balance** between fishing **capacity** and fishing **opportunities** in **RFMOs**. There is increasing concern about **social sustainability,** e.g., working conditions, health and safety. The RFMOs are well placed to promote this process, which requires coordination with maritime and labour organisations. **Allocation criteria** must be developed to ensure the fair distribution of fishing opportunities amongst parties in RFMOs. Allocation shall not be based solely on historical catches, but it should also include socioeconomic factors, compliance, and ecological impacts, for instance. Within RFMOs, efforts are being made to define allocation criteria but there is still much to do to achieve consensus and operationalise the process.

The SFPA case study informs about the **lack of scientific capacity** in a number of African coastal states which requires urgent attention. In addition, coastal states are not able to define the surplus when catch data from the diverse fleets are not available. The tuna RFMO case informs that there is a need to **ban transhipments at sea** to counteract IUU fishing. The EU tabled a draft proposal for tropical tunas in the Atlantic but it was rejected by some parties. **Destructive fishing practices** should be banned. The EU successfully promoted a **ban on large-scale driftnets** in the Indian Ocean.

The EU is well-placed to lead **international fisheries governance** due to its institutional and economic strengths. There is a need, however, for coordination among EU funds, and with other donors. Large marine areas lack RFMOs, particularly off the coasts of Western Africa, and require international coordination. Finally, ***Brexit*** provides an opportunity for the EU and coastal states to cooperate in setting quotas based on zonal attachment of stocks. Under the Law of the Sea, cooperation is sorely required to manage transboundary shared stocks. Unilateral exploitation may only lead to overfishing.

BACKGROUND AND SCOPE

Since the entry in force of the Treaty of Lisbon in 2009 the European Parliament exercises **co-legislative powers** in the field of fisheries policy i.e. the ordinary procedure. The Parliaments' **Committee on Fisheries** (PECH) is responsible[1] for a number of aspects of this policy field:

(1) the operation and development of the **common fisheries policy** and its management;

(2) the **conservation of fishery resources**, the management of fisheries and fleets exploiting such resources and marine and applied fisheries research;

(3) the **common organisation of the market** in fishery and aquaculture products and the processing and marketing thereof;

(4) **structural policy** in the fisheries and aquaculture sectors, including the financial instruments and funds for fisheries guidance to support these sectors;

(5) the **integrated maritime policy** as regards fishing activities;

(6) sustainable fisheries partnership **agreements,** regional fisheries organisations and the implemen–tation of **international** obligations in the field of fisheries.

This report aims at providing (especially newly elected) Members of the PECH Committee with an **introduction** and **overview** of three selected major elements of the CFP under the Committee's responsibility: (I) **Fisheries management**, (II) **Common Market Organisation**, and (III) **external dimension**. The study might also help to familiarize with the **complexity** and **technicalities** of some aspects of EU fisheries and its policy and should give a first idea of the challenges that will require further policy attention by the co-legislator during the new term.

To prepare this study, the team scientists and authors carried out a thorough revision of the scientific and grey **literature** and of the institutional and regulatory framework in place. The study also benefited from interviews with **stakeholders** in the scientific, conservation and private realm. The study team employed a stepwise approach for each of the three selected elements of European fisheries: First, a general **background** description was carried out. Secondly, the **latest developments** were described and their results in terms of achieving their intended objectives were examined. Thirdly, **future challenges** in the respective field were identified and described. Then, for each of the three main chapters*, three* to *four* **case studies** were carried out to discuss forthcoming issues and identify specific factors that require further policy attention. Finally, for each of the three main chapters conclusions and science-based **policy recommendations** are given on this analysis.

The research including *ten* case studies is structured as follows:

Section 1 provides the scene setter and a brief overview of the EU fisheries sector, as well as its regulatory and institutional framework.

Section 2 is devoted to **fisheries management**. This section provides a description of the topic in the EU and examines recent developments and future challenges in this field. It provides an in-depth analysis of **three case studies**: (1) cod in the Baltic Sea, (2) anchovy and sardine in the Adriatic Sea and (3) mixed fisheries in the Celtic Sea.

Section 3 examines the **Common Market Organisation** (CMO). This section offers a description of the situation in this field and elaborates on recent developments and future challenges in the CMO realm.

[1] See: Rules of Procedure of the European Parliament (8th parliamentary term); Annex V: Powers and Responsibilities of Standing Committees; XIV: Committee on Fisheries

Three case studies are included in this section: (4) Seabass and seabream (SBSB) aquaculture in the Mediterranean Sea, (5) Northern EU market and (6) Western waters, including English Channel fisheries.

Section 4 addresses the topic of the **external dimension of the CFP**. This section provides a description of the situation in this field, and discusses recent developments and future challenges for the EU in the international realm. **Four case studies** are provided in this section: (7) Sustainable Fisheries Partnership Agreements (SFPAs), (8) tuna Regional Fisheries Management Organisations (RFMOs), (9) EU cooperation in fisheries governance, and (10) *Brexit* and fisheries.

The final sections provide the **general conclusions** and **recommendations** of this report.

1. INTRODUCTION

KEY FINDINGS

- The **fisheries sector** has a relative low contribution to the overall economy of the EU. Nonetheless, it is highly relevant in terms of food security, cultural values and employment.
- The EU has a comprehensive **regulatory framework** covering scientific, technical and enforcement aspects and the value chain of fisheries and aquaculture.
- A robust **institutional framework** is in place consisting of EU institutions, agencies, expert groups and scientific bodies. Structural funds are also in place to back up the fisheries activity.

1.1. Overview of the fisheries sector

The EU fisheries sector is **large and complex**, encompassing an economic activity with a relatively low contribution to the EU Gross Domestic Product (GDP). Fisheries, including aquaculture, are part of the EU primary sector, which also comprises agriculture and forestry. According to Eurostat data, in 2018 the **primary sector** contributed to the EU GDP by around 1.6%. Nonetheless, the fisheries sector significantly contributes to food security, cultural identity, employment and income.

The **fisheries sector** is scattered along the **littorals of 23 Member States**, and there is **freshwater aquaculture** in landlocked Member States. The **EU fleets operate** in Western Waters, North Sea, Arctic, Baltic Sea, Mediterranean, Outermost Regions, third country waters and areas under the purview of Regional Fisheries Management Organisations (RFMOs). The EU is one of the world's **five largest fish producers**, covering approximately 5.6% of wild capture fisheries (see Figure 1). **Aquaculture**, in turn, represents 1.2% of world production. The EU **consumption** of seafood products is mainly covered by imports, accounting for around 60% of the total supply. The EU is therefore **highly dependent on imported seafood**. The Union stands as the **largest fish market in the world** with transactions of around EUR 30 billion, ahead of China, Japan and the USA (EUMOFA, 2018). It is also one of the largest in fish production, and counts on large institutional and financial capacities. These factors have made the Union one of the **main players** in the **international fisheries** arena and a natural leader in international fisheries governance.

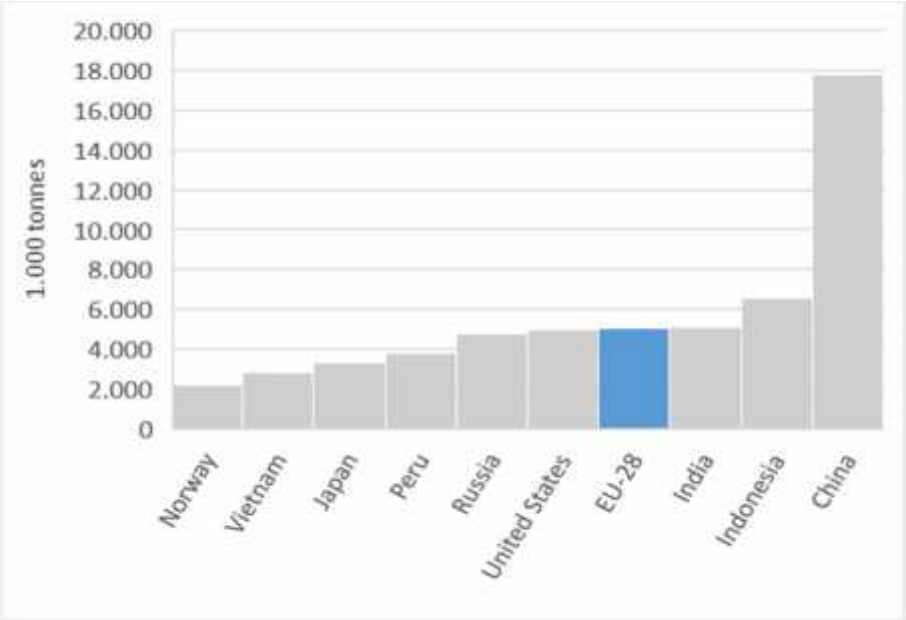
In 2017, the **fishing activity** yielded around 5.2 million tonnes, generating EUR 7.6 billion of value. The **trend** since the beginning of the current CFP is positive in terms of volume and value, with increases of 10% and 7%, respectively, in the period 2013-2018. In 2017, the **Gross Value Added** (GVA) of the fishing activity was estimated at EUR 4.5 billion and the **gross profit** was estimated at almost EUR 2.0 billion. The **fishing fleet** comprises 83 300 vessels, directly **employing** more than 114 000 FTEs[2]. In 2018, the fishing activity generated EUR 26 398 in **wages** on average (STECF, 2018). In turn, the **processing sector** generated a GVA of EUR 6.1 billion, and employed more than 120 000 workers in 2015 (STECF, 2017). As of 2016, the **fisheries sector** employed approximately 250 950 FTEs[3], out of which fishing represents around 46% of employment. The **small-scale coastal fleet** accounted for half

[2] FTE = Full-time equivalent, a unit to measure employed persons in a way that makes them comparable although they may work a different number of hours per week, see Eurostat Glossary.

[3] https://ec.europa.eu/fisheries/3-employment_en

of this employment, the **large-scale fleet** for 45%, and the **distance-waters fishing fleet** for 4%. In turn, **aquaculture** employs 12.5% and **processing** 41.5%.

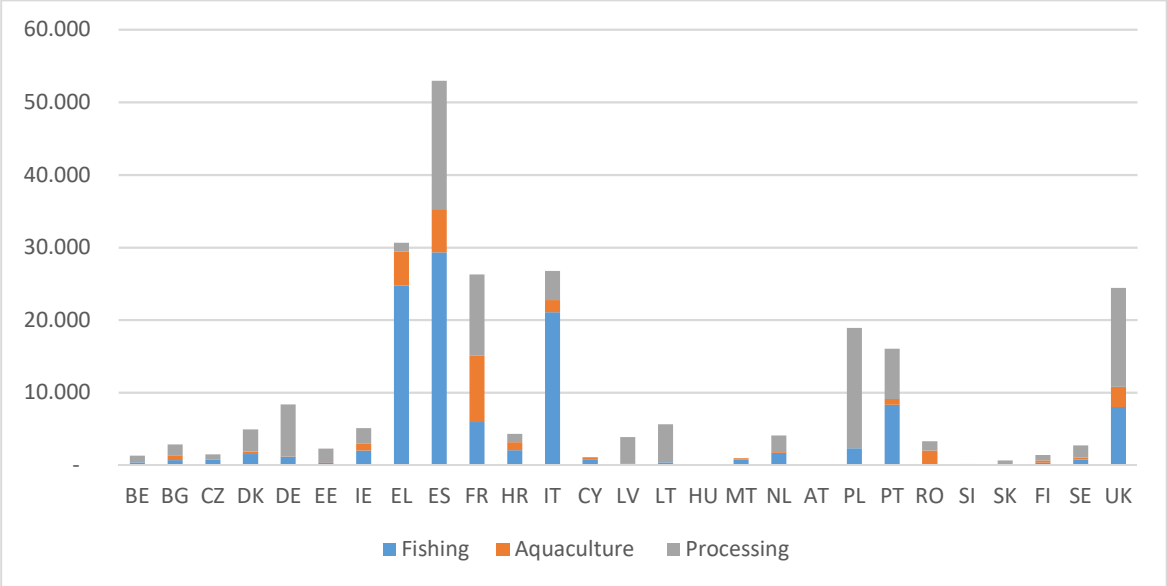
Figure 1: The ten largest fish producers in the world, 2016



Source: Own elaboration, data from EUMOFA (2018)

Figure 2 shows **employment** by subsector and Member States. Notice that Spain, France, Greece, Italy and the UK are the five most relevant countries in absolute terms. The **extractive activity** is relatively larger in Greece and Italy, whose fisheries take place in the Mediterranean Sea. The fishing activity also has high relevance in Spain, but **processing** and **aquaculture** also represent a high proportion of employment in this country.

Figure 2: Employment in fisheries in full-time equivalents (FTEs), 2016



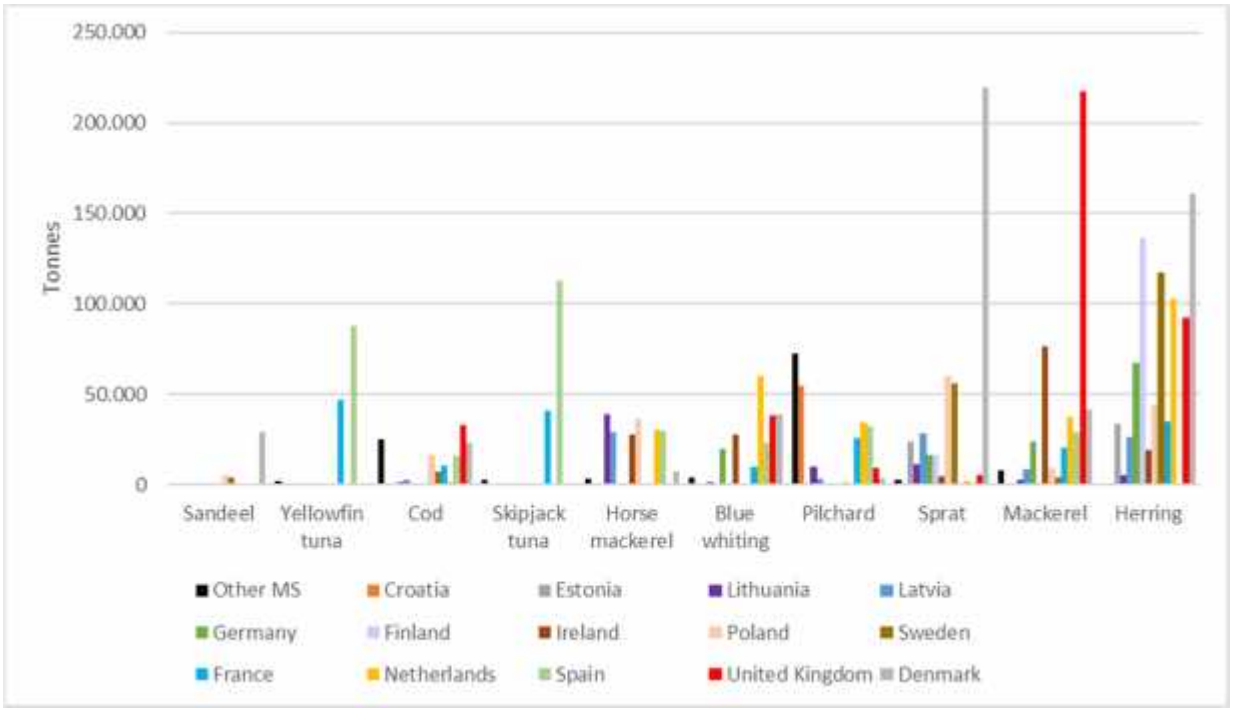
Source: Own elaboration, data from EC[4]

[4] https://ec.europa.eu/fisheries/3-employment_en

France is the country with the largest **aquaculture** sector in absolute terms, while in relative terms, Romania, France and Spain are the most relevant in the EU. Regarding **processing**, Spain, Poland and the UK are the countries providing more employment. In relative terms, the countries where the processing subsector has the greatest importance in employment terms are Poland, the UK, Germany, Denmark and other Baltic countries.

Concerning **fishing resources**, the most relevant species in terms of volume is herring with 840 thousand tonnes (around 16% of the landings), followed by mackerel, sprat, pilchard, and blue whiting with 477, 446, 248 and 223 thousand tonnes, respectively. These **five species represent approximately 42% of the EU landings**. Tuna species are also found amongst the most important in volume, and are mostly caught beyond EU waters; cod is also amongst the main species. The figure below depicts **landings of the ten most important species**, which represent around 60% of the EU landings, according to the main Member States exploiting these resources.

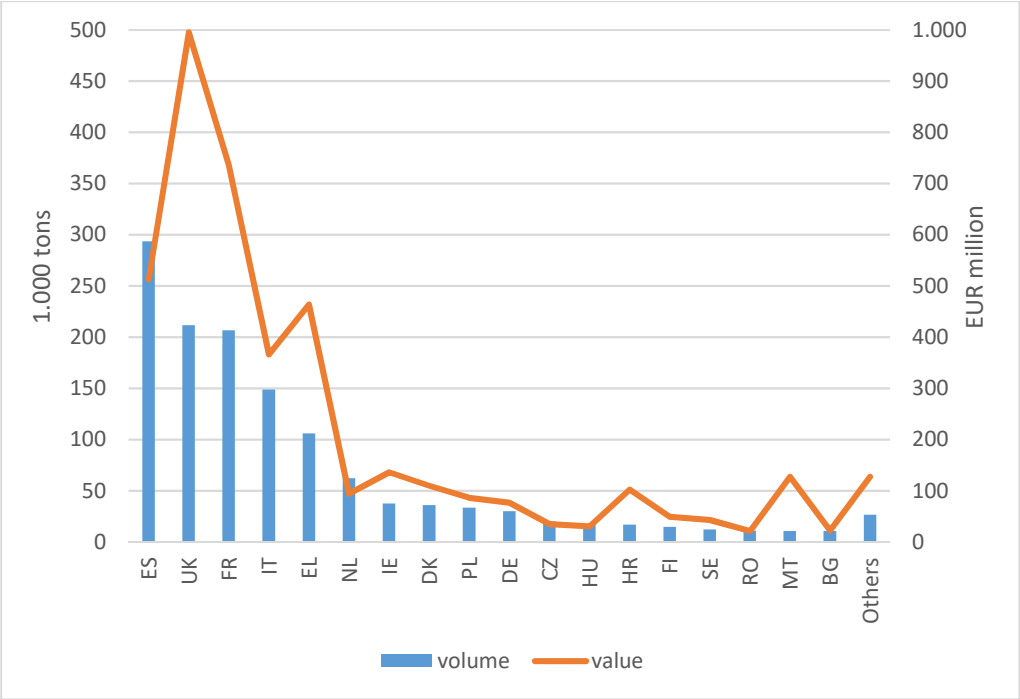
Figure 3: The ten most important species in terms of landing volumes, 2016



Source: Own elaboration, data from EUROSTAT

Aquaculture produced 1.4 million tonnes in sales volume and EUR 4.9 billion in sales value in 2016. It generated a GVA of EUR 1.7 billion and employed 43 700 FTE in 2016 (STECF, 2018). **Spain is the most important** country **in terms of volume** followed by the UK and France, Italy and Greece. **In terms of value, the UK, France, Spain, Greece** and **Italy** are the **most important** (Figure 4). Notice that although Spain ranks first in terms of volume, it ranks third in terms of value. This is because mussel is the predominant species in volume (around 70%), having a relatively low value in comparison to other species of the EU aquaculture. In **Spain** the most important species in value are **seabass and seabream**. In **the UK**, in turn, the predominant species in volume and value is **salmon**, which is one of the species with the highest market value in the Union. In **France**, bivalve culture predominates, **oysters** being the main species in volume and value (STECF, 2018).

Figure 4: Aquaculture production in volume and value, 2016



Source: Own elaboration, data from EC[5]

1.2. Regulatory framework

The backbone of the EU fisheries policy is **Regulation 1380/2013**[6] on the Common Fisheries Policy (CFP), also known as the **CFP Basic Regulation**, which gives all EU fishing fleets equal access to EU waters and fishing grounds. The CFP is set for managing EU fishing fleets and for conserving fish stocks, with the aim of achieving environmental, social and economic sustainability. In addition to the basic text, a set of other EU regulations make up the Union's fisheries regulatory body, which regulates very diverse aspects of the fisheries activity. The market of fisheries and aquaculture products is regulated by **Regulation 1379/2013**[7] on the **Common Organisation of the Markets** of fishery and aquaculture products (CMO). This regulation defines the roles of the **producer organisations** (POs) and of their associations. The CMO aims to achieve the environmental sustainability and economic viability of the market for fishery and aquaculture products.

Data collection for fishing and aquaculture is regulated by **Regulation 2017/1004**[8], which establishes the Union framework for the **collection, management and use of fisheries data** in support of the scientific process and advice, which was previously termed the **Data Collection Framework** (DCF), now referred to as the **EU multiannual-programme for data collection**. Its main aim is to collect,

5 https://ec.europa.eu › chap4_fisheries_aquaculture

6 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 2004/585/EC

7 Regulation (EU) No 1379/2013 of the European Parliament and of the Council of 11 December 2013 on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000

8 Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008

manage and make available a wide range of fisheries data needed for scientific advice and CFP monitoring. Another important regulation is **Regulation 2019/1241**[9], also known as the **Technical Measures Regulation.** It deals with the conservation of fisheries resources and the protection of marine ecosystems through technical measures, and aims at optimising exploitation patterns to provide protection for juveniles and spawning aggregations of marine biological resources, minimising incidental catches of sensitive species, minimising negative environmental impacts and contributing to achieve a **good environmental status** (GES).

The Union has a control system in place to ensure compliance with the rules of the CFP. The systems comprises **Regulation 1224/2009[10] on Fisheries Control** and its implementing rules (404/2011), Illegal, Unreported and Unregulated (IUU) **Regulation 1005/2008**[11], the European Fisheries Control Agency (EFCA) founding regulation (768/2005[12]), and the Sustainable Management of external fleet (1006/2017[13]), which is of particular relevance for the external dimension of CFP. The system is complemented by other control measures such as the transposition of **Regional Fisheries Management Organisations** (RFMOs) dispositions, multiannual plans and deep-sea regulations.

The **European Maritime and Fisheries Fund** (EMFF) is one of the five structural and financial funds of the EU. It aims is to foster a sustainable activity, covering the whole value chain of fisheries and aquaculture, to support diversification, and to create new jobs and territorial cohesion and fund implementation of the CFP, including data collection. Thus, it provides financial support to the whole policy framework described above.

1.3. Institutional flow

Fisheries policy in the EU follows the ordinary legislative procedure wherein the **Commission** is entrusted to propose new legislation, while the **Parliament** and the **Council** are responsible for the adoption of legislation (Article 43 (1) and 43(2) of the Treaty). This is in place to pursue all CFP objectives, except for fixing fishing opportunities, which are set up by the Council of fisheries ministers according to the Article 43(3) of the Treaty.

The Commission seeks scientific advice from a number of bodies, including the **Scientific, Technical and Economic Committee for Fisheries** (STECF) and the Commission's Joint Research Centre (JRC). The **International Council for the Exploration of the Sea** (ICES) is an independent international body that provides scientific support for the establishment of conservation and management measures. Based on the recommendations provided by these scientific bodies, the Commission prepares the proposals for **Total Allowable Catches** (TAC), which are decided by the Council of fisheries ministers.

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9 Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No 1224/2009 and Regulations (EU) No 1380/2013, (EU) 2016/1139, (EU) 2018/973, (EU) 2019/472 and (EU) 2019/1022 of the European Parliament and of the Council, and repealing Council Regulations (EC) No 894/97, (EC) No 850/98, (EC) No 2549/2000, (EC) No 254/2002, (EC) No 812/2004 and (EC) No 2187/2005

10 Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Community control system for ensuring compliance with the rules of the common fisheries policy, amending Regulations (EC) No 847/96, (EC) No 2371/2002, (EC) No 811/2004, (EC) No 768/2005, (EC) No 2115/2005, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007, (EC) No 676/2007, (EC) No 1098/2007, (EC) No 1300/2008, (EC) No 1342/2008 and repealing Regulations (EEC) No 2847/93, (EC) No 1627/94 and (EC) No 1966/2006

11 Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No 2847/93, (EC) No 1936/2001 and (EC) No 601/2004 and repealing Regulations (EC) No 1093/94 and (EC) No 1447/1999

12 Council Regulation (EC) No 768/2005 of 26 April 2005 establishing a Community Fisheries Control Agency and amending Regulation (EEC) No 2847/93 establishing a control system applicable to the common fisheries policy

13 Regulation (EU) 2017/2403 of the European Parliament and of the Council of 12 December 2017 on the sustainable management of external fishing fleets, and repealing Council Regulation (EC) No 1006/2008

The relative stability in the CFP is the principle by which Member States are allocated a fixed share of these TACs for a given fish stock. Within the CFP framework, Member States are responsible for distributing the quotas among their fleets and for ensuring that these quotas are not overfished. It is also relevant to mention that for **stocks that are shared with non-EU countries**, the quotas are agreed upon with those non-EU countries through **bilateral negotiations,** or at collective level in the framework of **multilateral organisations**. This is an important feature of the **external dimension** of the CFP.

Within EU waters, fishing opportunities should be set in accordance with the **Multi-Annual management Plans** (MAPs) in force. These plans encompass the CFP objective for stocks to be managed according to F_{MSY}[14], in order to be maintained or restored to above levels that can produce the **Maximum Sustainable Yield** (MSY). Some plans also provide for a detailed and tailor-made **roadmap** to achieve the objective. Some MAPs include **fishing effort restrictions** as an additional instrument to TACs, and **specific control rules**. MAPs are adopted by the Parliament and Council based on proposals from the Commission. Member States may also submit **joint recommendations** on fisheries conservation measures that are deemed necessary to achieve EU environmental objectives and discard plans, and to establish fish stock recovery areas. These joint recommendations have to be consulted with the relevant **Advisory Councils** (AC). The ACs are stakeholder-led bodies that provide the Commission and Member States with advice on fisheries management matters. The Commission can then propose regulations that, following the ordinary procedure, will be turned into binding legal instruments. Fisheries control systems are agreed at EU level but implemented by Member States through their national authorities. In addition, the **European Fisheries Control Agency** (EFCA) was created to encourage collaboration and coordination on fisheries control issues.

The EU **aquaculture policy** also has the basic CFP Regulation as a backbone. The CFP encourages the promotion of aquaculture through Member States' **multiannual strategic plans**, which are based on the principles of simplifying administrative procedures, securing sustainable development and growth of aquaculture through coordinated spatial planning, enhancement of competitiveness, and level playing field for EU operators[15]. The productive sector is geared by the **producer organisations** (POs) which are a key element in enhancing the competitiveness of fishing and aquaculture sectors. These are officially recognised organisations in charge of the day-to-day management of the activity, collectively managing the activities of their members, helping them to match supplies to market demands, and to create added value. They can also take the form of PO associations or inter-branch organisations (bringing together producers, processor and marketers). Their main operational instruments are the **production and marketing plans** which can be funded by the **European Maritime Fisheries Fund** (EMFF).

It is worth mentioning that the **CFP implementation and monitoring activities** also benefit from **scientific research projects** (funded through the national scientific plans and the Commission), and are also being funded through a network of research associations such as **EFARO** (European Fisheries and Aquaculture Research Organisations) and **EAFE** (European Association of Fisheries Economists), among others. In turn, **conservation NGOs,** as part of the civil society, also contribute with their own vision of the sector's problems, participating in the diverse fora, for example in the **Advisory Councils**.

[14] Fmsy is the maximum rate of fishing mortality (the amount of fish harvested by the fishing activity) that can be exerted to achieve the MSY. Theoretically, the MSY is the largest average amount of fish that can be exploited from a given stock over an indefinite period under existing environmental conditions.

[15] Communication from the commission to the European parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Strategic Guidelines for the sustainable development of EU aquaculture. COM/2013/0229 final

2. FISHERIES MANAGEMENT

*This section was prepared by Clara ULRICH (*DTU Aqua*) and Lisa BORGES (*FishFix)*

KEY FINDINGS

- There has been some success in EU fisheries management in the last fifteen years, and **fishing mortality** has globally reduced in the North East Atlantic. However, many stocks are still **overexploited**, and the current rate of **progress is too slow** to achieve the CFP objectives by 2020. Levels of overexploitation have remained well above F_{msy} in the **Mediterranean** Sea.
- The **landing obligation**, gradually phased in since 2015, has until now largely **failed** in achieving its objectives. Discarding has not reduced, enforcement is low and there is still a strong lack of support by the fishing industry. This is triggering **new approaches to control and monitoring**, involving new types of technologies. In particular, options for electronic monitoring using cameras and sensors are being extensively discussed.
- Several **regional** Multi-Annual management Plans (**MAPs**) have been agreed and implemented in the recent years, but it is still **too early to evaluate** properly whether they are achieving their objectives and contribute to enhanced regionalisation.
- **More efforts are required** to achieve the CFP and GFCM objectives for the **Mediterranean** Sea. The fight against illegal fishing and the social development of small-scale-fisheries have been considered as high priorities by riparian countries.
- **Climate change** is already affecting European fisheries, changing fish distribution and reducing productivity. Effective fisheries management could offset some of these changes, but there are many significant **institutional, legal, financial and logistical barriers** to successful adaptation.
- The **2013 reform of the CFP was an ambitious shift** in the basic principles underlying fisheries management in Europe. It appears likely that **not all objectives will be fully achieved** as stated, and the relative balance between successes and failures will undoubtedly shape the discussions surrounding the next reform of the CFP.

2.1. Background

Fishing is an economic activity intrinsically dependent on the productivity of the marine environment, which is both variable, sensitive to pressures and still insufficiently understood to be fully predictable. As such, managing fisheries in a sustainable way is particularly challenging, as this requires in the one hand some stability in fishing opportunities to ensure a viable fishery sector with important socio-economic constraints, and on the other hand some flexibility to adapt to the ecological constraints and variability and maintain the functioning of the ecosystem producing these resources. Fisheries represent therefore a textbook example of the "tragedy of the commons" (Hardin, 1968) where the short-term incentives of the individual fishers must be balanced against the long-term protection of the common good.

The European fisheries are very diverse in terms of how they operate, which types of species they exploit, and which challenges they face. There are commonalities in some of the issues generically associated with fisheries management (e.g. overfishing, overcapacity, socio-economic dependency), but they apply differently across fisheries and nations.

A major challenge to manage fisheries is to address not only the main commercial species in a narrow biological and economic perspective, but to integrate them in the broader ecosystem context. This means considering the impact of fisheries on the environment (e.g. bottom impact, food webs, bycatches etc.) but also the impact of the environment on fisheries (e.g. changes in distribution and productivity due to climate change and habitat loss, competition with natural predators such as seals, invasive and alien species etc.). Fisheries and the marine environment have however traditionally been apprehended and managed largely independently from each other, in different EU policies and by different administrations.

Designing policies integrating the various objectives in an unique framework, able to counteract threats and adapt to change, while guaranteeing a sustainable activity from economic, social and environmental perspectives, arises thus as one of the main challenges for policy making. These policies encompass matching fishing possibilities with fishing capacity, incorporating the ecosystem approach, implementing regionalization, improving fisheries governance, and incorporating fisheries into a maritime dimension where fishing is only one element, amongst other factors. These challenges are to be addressed for large geographical areas and a large array of players and are to be faced both by EU policy makers and by national managers implementing policies at Member State level.

This is complicated further by the difficulty to observe the fisheries resources directly, making fisheries management heavily reliant on marine science to provide knowledge. However, this scientific knowledge remains inherently characterised by a high degree of complexity and by a moderate-high degree of uncertainty on the states of nature and on the impact of the various pressures exerted on it, although tremendous scientific progresses have been achieved in this domain in the last decades. Acknowledging this complexity and understanding the limits of the knowledge frame that it imposes is fundamental for managers to make informed decisions on difficult issues.

The current reform (Regulation (EU) 1380/2013) of the Common Fishery Policy (CFP) is the third since its inception in 1983. It was agreed in 2013 and implemented in 2014. Reflecting the complexity of the issues described above, the 2013 CFP is a comprehensive policy document encompassing more aspects than previous reforms (the 2013 reform contains around twice more words than the 2002 CFP, (Pastoors, 2014)), aiming to provide more explicit definitions of the objectives and of the means and time frames to achieve them. In particular, the CFP is now set to follow global Maximum Sustainable Yield (MSY) objectives agreed at international and EU levels. The current CFP also aims to further improve the transparency and stakeholders' engagement initiated in 2002, to enhance the regionalisation of the policy within the limitations of the EU and its founding treaties, and also to tackle the prevalent issue of discards by introducing a landing obligation. The current regulatory and institutional framework of EU fisheries management has been described in detail in the section 1.

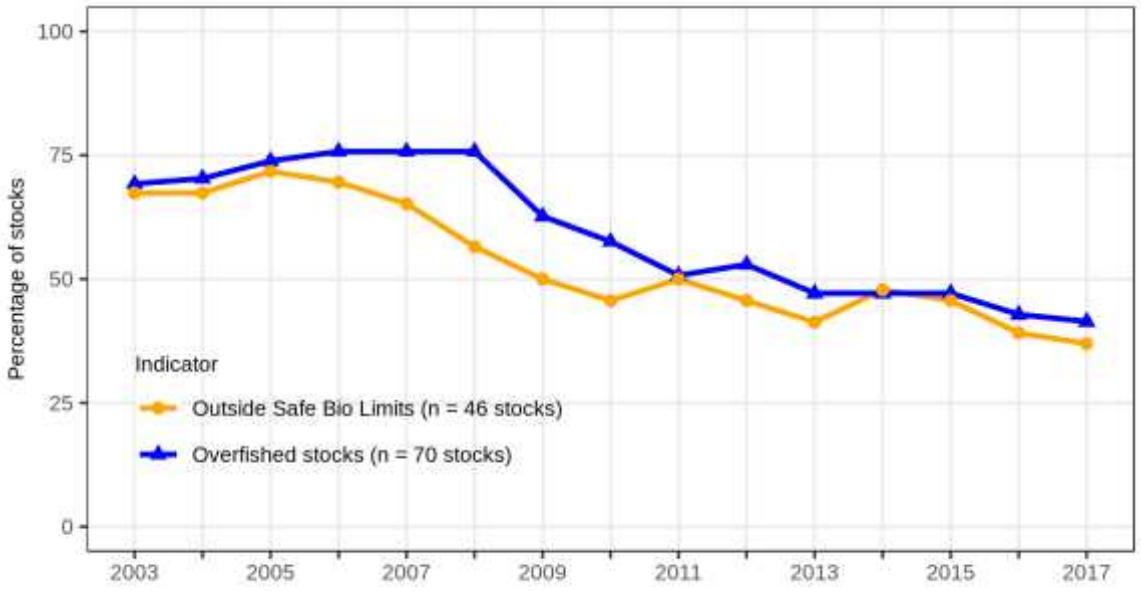
2.2. Latest developments

2.2.1. Slowly improving status of European fisheries

In spite of the shortcomings of the previous CFPs, there has been some success in EU fisheries management in the last fifteen years. Fishing mortality has globally reduced, owing to the implementation of a number of long-term management plans, evaluated and endorsed by scientists, where explicit Harvest Control Rules (HCRs) governed the setting of corresponding Total Allowable Catches (TACs) and precluded short-term and risky decision making. Various structural policies and effort regimes have also contributed to reducing fishing capacity and fishing effort, and fisheries control has improved.

The European Commission's Scientific, Technical and Economic Committee for Fisheries (STECF) publishes an annual monitoring of the achievement of the MSY objective of the CFP. In its most recent report (STECF, 2019a), the STECF assessed that the status of fish stocks has significantly improved since 2003 in the North East Atlantic and biomass has generally been increasing; however, many stocks are still overexploited, and the rate of progress has slowed in the last few years (Figure 5). The recent slope of the indicators suggests that progress until 2017 has been too slow to allow all stocks to be maintained or restored to above levels which can produce the maximum sustainable yield, and managed according to F_{MSY} by 2020.

Figure 5: Trends in stock status in the Northeast Atlantic, 2003-2017

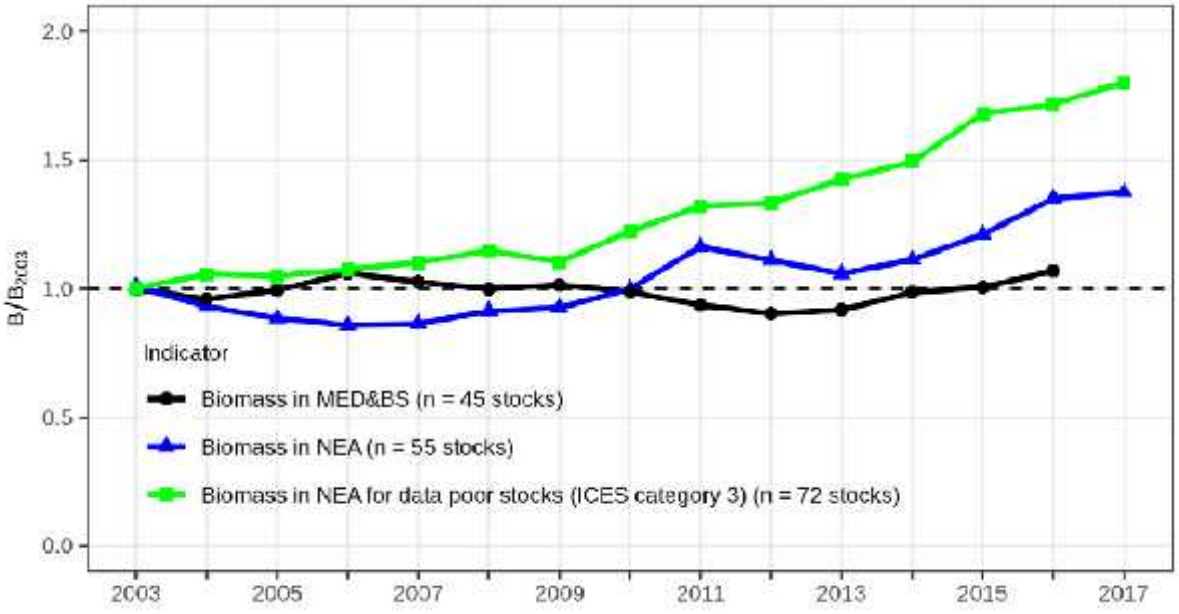


Source: STECF (2019a).
Note: Two indicators are presented: blue line: the proportion of overexploited stocks (F>FMSY) within the sampling frame (64 to 70 stocks fully assessed, depending on year) and orange line: the proportion of stocks outside safe biological limits (F>Fpa or B<Bpa) (out of a total of 46 stocks).

In the Mediterranean and Black Seas, the situation has essentially remained unchanged since the beginning of the 2000s, with very high levels of overexploitation well above the CFP objective, around 2.3 times above F_{MSY} in average for the stocks assessed. A slight increase in average biomass is however being observed since 2012 (Figure 6). Another main challenge for the Mediterranean fisheries lies in the relatively limited number of stocks monitored and assessed compared to the large diversity of species exploited by demersal fisheries.

In parallel with the slow improvement of the status of European fish stocks and the decrease in fishing capacity, the economic performance of the fishing sector has also globally been improving in the recent years. The majority of EU fishing fleets are now profitable, even in the Mediterranean Sea, although there still remain large variations across fisheries and Member States still remain (STECF, 2019b).

Figure 6: Trends in the indicators of stock biomass (median values of the model-based estimates relative to 2003)



Source: STECF (2019a).
Note: Three indicators are presented: one for the NE Atlantic (55 stocks considered, blue line); one for the Mediterranean & Black Seas (45 stocks, black line); and one for data limited stocks (ICES category 3, 72 stocks, green line).

2.2.2. A controversial policy: the landing obligation

Starting in 2015 through 2019, the landing obligation (Article 15 of the 2013 CFP Basic Regulation) has been gradually phased in across species and fisheries. All regulated commercial species must now be landed and counted against the quota. These include TAC regulated species in the Atlantic, and species with minimum size in the Mediterranean and Black Seas. Largely supported by NGOs and the civil society, this policy was introduced in the CFP as a recognition of the large amounts of fisheries resources being continuously caught and wasted, and of the incapacity of the TAC management systems in place to actually control and regulate fishing mortality in mixed fisheries because of over-quota catches being simply thrown overboard (Borges, 2015). This policy represents thus a fundamental paradigm shift in the basic principles underlying fisheries management and a major step towards ecosystem-based fisheries management, aiming to make the fishing industry accountable of its full impact on all species and sizes caught, and not only of the share that can be landed and sold.

Since 2015, fifteen discard plans for the different fishing regions have been agreed through delegated acts[16], detailing the calendar for the gradual phasing-in and the species and fisheries exempted from the landing obligation (prohibited species, high survival, de minimis – difficulties in increasing selectivity and disproportionate costs of handling unwanted catch, and predator-damaged fish). At the same time, several other management measures have been modified: TACs adjustments ("uplifts" increases to account for discards, and/or TACs suppressions to avoid premature closures of fisheries), stocks included in the prohibited species list to be excluded from the landing obligation, and reductions of minimum sizes (Borges *et al.*, 2018).

16 https://ec.europa.eu/fisheries/cfp/fishing_rules/discards_en#Discard-plans

Since its introduction in 2015 the landing obligation has triggered an intense dialogue activity that has raised awareness and understanding on the magnitude and causes of discarding, and on the possible political and technical options to reduce it (Uhlmann *et al.*, 2019). However, the outcomes are severe, and the landing obligation has until now largely failed in achieving its objectives. According to the latest stock assessments published by ICES in 2019[17], discarding has not reduced, with no signs yet of improved selectivity. Levels of enforcement have remained poor and the lack of support and compliance by the fishing industry is strong. This also affects the quality and reliability of the catch data used by scientists to assess the status of the stocks (House of Lords, 2019; STECF, 2019c). The main griefs from the fishing industry against the landing obligation relate to the unpractical and costly obligation to bring low-value catches back to land, the lack of low-cost valorisation alternatives in many harbours, and the general absence of simple and effective technical solutions to make fisheries fully selective without jeopardising its profitability[18]. In many mixed demersal fisheries indeed, existing selective devices or modifications in fishing practices (where and when to fish) can reduce unwanted catches to some extent, but for some species only, and cannot fully eliminate them (STECF, 2018a; Uhlmann *et al.*, 2019).

Another key concern highlighted by the landing obligation is the issue of "choke species", which is the species (or fish stock) for which a given Member State, a given fleet or a given individual vessel has least fishing opportunities (quota) compared to other species. If the landing obligation was fully enforced, that species would not be allowed to be either landed or discarded once its quota would be exhausted, which would imply that the corresponding fishery should be closed ("choked") to avoid illegal catches of that species. The fear of such early closures have undermined the enforcement of the landing obligation; and indeed, while several studies have quantified the risk of these choke issues to occur if the landing obligation was fully enforced (Rihan, 2018; Ulrich, 2018), choke situations have remained difficult to observe and demonstrate in the reality (Calderwood and Reid, 2019).

In a number of cases, the potential choke situations identified in the studies do not occur because of lack of fishing opportunities globally, but because of poor and unequal distributions of fishing rights both across and within Member States. Some fishers have too much quotas and some have too little. While some degree of mismatch between fishing opportunities and fishing rights may always occur due to the natural fluctuations of stocks, the EU fisheries suffer from a persistent structural and historical unbalance. Part of the issue arises from the so-called "relative stability", the fixed quotas sharing keys between Member States painfully agreed in the 70s-80s and never updated since. But quota access within Member States is also often concentrated within few hands (Carpenter and Kleinjans, 2017). Existing mechanisms of redistributions / swaps have proven to be largely insufficient and ineffective at solving that issue, and this unequal access to fishing opportunities undermines other efforts to reduce discards.

2.2.3. Achievement of the MSY objective and Multi-Annual management Plans

The MSY objective introduced with the 2013 CFP reform has led to a corresponding shift from precautionary approach to MSY-based scientific advice on fishing opportunities, with significant changes in the setting of annual fishing opportunities (TACs).

European research projects (e.g. MYFISH[19]) and the International Council for the Exploration of the Seas (ICES) have provided valuable information on specific issues created by the MSY objective. The fluctuations of abundance, the differences in exploitation levels across stocks, and the differences in

17 http://www.ices.dk/community/advisory-process/Pages/Latest-advice.aspx
18 See also http://www.discardless.eu
19 http://www.myfishproject.eu/

catch composition and targeting preferences between fleets make it together difficult to achieve F_{MSY} simultaneously for all species jointly caught in mixed and multispecific fisheries. What this means is that to fully use fishing opportunities of all stocks, some of them will be overexploited; or conversely, if all stocks shall strictly not be exploited above F_{MSY}, then the least exploited stocks will be underutilised, (see e.g. ICES, 2017a). Progresses in understanding and quantifying these so-called "technical interactions" contributed to a fundamental shift in the approach to MSY, introducing the pragmatic concept of F_{MSY} ranges (upper and lower limits on fishing mortality expected to achieve no less than 95% of MSY while still being precautionary, also referred to as "Pretty Good Yield"). This concept has been framed in regional Multi-Annual management Plans (MAPs), the first of which being agreed for the Baltic Sea in 2016. The idea of using F_{MSY} ranges is to allow some flexibility in the annual setting of fishing opportunities, according to pre-determined conditions defined in the MAPs (including in connection to the landing obligation in the management of mixed fisheries).

However, the MAPs only specify F_{MSY} ranges for a few stocks, usually the main commercial species. A major issue remains the difficulty to identify appropriate management objectives and commensurate management measures for bycatch species, and there are extensive discussions about this. For example, the STECF assessed pros and cons of twelve different options for managing skates and rays, but could not point to any specific measure being fully well suited and effective (STECF, 2017).

Noticeably, an observed consequence of the landing obligation that was perhaps not foreseen and intended in the 2013 CFP is an urge to remove TACs as a management measure for a number of bycatch stocks (which practically means excluding them automatically from the obligation to land), if the TAC utility for the conservation of the stock cannot be fully proven.

Finally, for the species and stocks not yet governed by a MAP, the MSY basis for scientific advice to managers has not yet been fully taken up in the annual cycle of TAC decision making, and several TACs are still fixed above scientific recommendations without clear and transparent justifications. These practices have long been opposed by several NGOs, leading to an official complaint to EU ombudsman being lodged against the EU Council in 2019[20]. The case is still open as of today (August 2019).

2.3. Future challenges

2.3.1. Policy challenges

Under the 2013 CFP's MAPs and landing obligation requirements, it is yet to be seen whether the increased flexibility and landing requirements will improve scientific advice and management decision making and lead to more positive outcomes in stock status. This, in combination with the role of the European Parliament in decision making and the CFP regionalization effort, brings new challenges to EU fisheries management, which are discussed below.

It is expected that the developments and progresses achieved along these various topics in the next few years will be determinant in shaping the future reform of the CFP around 2023.

a. Landing obligation

The exemptions contemplated in Article 15 of the 2013 CFP, namely the *de minimis* and high survival, with the additional regulatory changes (such as minimum size reductions, TACs removals and increases, prohibited species listing, among others), associated with a delay in control and a poor level of enforcement, have provided sufficient flexibility for the fishing industry to deal with the landing obligation until now, in the sense that no fishery has yet been forced to an early closure. However, as

[20] https://www.ombudsman.europa.eu/en/press-release/en/109910

noted above, progress towards achieving the objectives of the landing obligation of reducing unwanted catch and changing fishing practices are still imperceptible due to a combination of policy changes and insufficient monitoring and control, and to a strong lack of support from the fishing industry.

In the long term, a significant increase in control and enforcement (see more details below), the generalisation of the landing obligation to all fisheries and the possibility of short term TAC decisions being restricted by multiannual plans, may indeed allow the EU landing obligation to deliver on its own objectives and have a positive effect on the sustainability of European fisheries. Nevertheless, it remains clear that many modalities from the landing obligation are fiercely opposed by the fishing industry, the obligation to bring to land appearing more disputed than the objective of reducing discards *per se*. The fear is that the short-term economic impact on fishing activity will be high compared to the medium- to long-term environmental benefit. The landing obligation remains a complicated and rigid policy, intrinsically difficult to implement. To be fully complied with, it requires a real mind-set change in how fishers conduct their business, which can be slow to occur: Where they until now only aimed to maximise the catch value of what can be sold, they shall now also aim to minimise the catch quantity of what can't be sold.

It is thus certain that discussions around the landing obligation will continue in the next years. Importantly, at present, the landing obligation is raising fundamental questions on the effectiveness of current procedures of fisheries control and surveillance, as discussed further below.

b. Multi-Annual management Plans

As of today, regional MAPs are already in place in the Baltic Sea[21] (2016), North Sea[22] (2018), Western Waters[23] (2019) and Western Mediterranean Sea[24] (2019). Another MAP is in development for the demersal stocks of the Adriatic Sea, while the status of the MAP for the management of the small pelagics in that region is still unresolved (see section 3.5). This recent history means that it is still too early to evaluate the functioning of these MAPs, and to draw lessons on their usefulness. An evaluation performed after three years of implementation means that there is only two years of data to reflect upon, which is insufficient to detect changes and to disentangle true trends from the natural inter-annual variability of the fish populations. For example, the evaluation of the 1342/2008 EU cod plan performed in 2011 highlighted a number of implementation gaps and considered the plan as being largely ineffective (Kraak *et al.*, 2013); whereas it is retrospectively obvious that fishing mortality on North Sea cod reduced significantly after 2011, after some years of functioning of that plan. A rule of thumb would be that a minimum of five years would be necessary to detect and understand the changes induced by a management plan.

In the case of the first two MAPs already in place, this uncertainty on the actual effects of the plan may be further increased by the fact that that their implementation has coincided with dramatic variations

21 Regulation (EU) 2016/1139 of the European Parliament and of the Council of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2187/2005 and repealing Council Regulation (EC) No 1098/2007

22 Regulation (EU) 2018/973 of the European Parliament and of the Council of 4 July 2018 establishing a 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 and repealing Council Regulations (EC) No 676/2007 and (EC) No 1342/2008

23 Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008

24 Regulation (EU) 2019/1022 of the European Parliament and of the Council of 20 June 2019 establishing a multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea and amending Regulation (EU) No 508/2014

in the status of the key cod stocks both in the Baltic Sea (see section 3.4) and in the North Sea, which may confound their effects. While in the first case the changes are largely not imputable to the plan itself, the second case is less clear, since other policy changes occurred concurrently, not least the removal of the restrictions on fishing effort previously in place.

Designing integrated management considering the various species together in their mixed and multispecific fisheries context is an ambitious, innovative and challenging exercise, without easy and simple solutions and requiring trade-offs to be made. As time develops and more MAPs are applied, experience will tell whether these MAPs have been able to provide their expected benefits of being a flexible legal frame, ensuring long-term conservation objectives against short-term decision making, while coping with the annual variability and uncertainty in the abundance of fish populations, and enhancing regional cooperation.

c. Monitoring, Control and Surveillance (MCS)

The CFP requirements for MCS were revised in 2009 and a control regulation (Council Regulation (EC) 1224/2009) came into force on 1 January 2010. The objective was to increase compliance with fisheries rules, by creating a comprehensive and integrated system, based on harmonized control and inspection procedures, simpler rules to foster compliance and full traceability throughout the supply chain. This regulation was established prior to the 2013 CFP reform that introduced the ban on discarding (the landing obligation), and reflects thus the control strategies, methodologies and challenges from more than 10 years ago.

The EC initiated therefore a new revision of the Control Regulation in May 2018. The revision intends to modernise, strengthen and simplify further the EU fisheries control system; to enhance traceability; to reinforce rules on lost fishing gears, and to introduce a revised mandate of the European Fisheries Control Agency (EFCA) in order to fully align its objectives with the CFP[25]. The EC is proposing a number of changes, including the possibility for Electronic Monitoring as a component of MCS for tracking compliance with the landing obligation (see section 2.3.2 on "New monitoring technologies").

This revision should reduce the gap between a European fisheries policy that is centralised in one hand, and its monitoring, control and enforcement that is under the responsibility of the Member States' national agencies on the other hand. In this context, increasing the role of EFCA in ensuring cooperation and maintenance of common standards across Member States would add a fundamental step in the harmonisation of national fisheries control, hopefully resulting in increased compliance across the EU. Without effective MCS, the positive impacts of the promising new features of the 2013 CFP (MSY objectives, MAPs, landing obligation and regionalisation) on improving decision making and fisheries sustainability will be undermined.

d. Regionalisation

Increased regionalisation and enhanced regional cooperation for a number of instruments and measures was a fundamental innovation of the 2013 CFP, as a response to a common perception that the CFP was too centralised. It is now possible for Member States having a direct management interest in a fishery to cooperate with one another in formulating joint recommendations. The Commission may then adopt those measures by means of delegated or implementing acts.

Numerous joint recommendations have indeed already been formulated, primarily, but not only, for the establishment of the discard plans and management plans explained above. In the Mediterranean Sea in particular, this form for regional cooperation is creating a new dynamic, previous management

25 http://www.europarl.europa.eu/legislative-train/theme-fisheries/file-revision-of-the-fisheries-control-system

plans having been always defined at the scale of a single Member State or even smaller sub-national scale.

As time develops and experience with regionalisation builds up, a number of challenges have however started to emerge. van Hoof *et al.* (2019) claimed that regionalisation creates another layer of governance, with an unclear functioning. Joint Recommendations are emitted by High-Level Groups (HLG) of Member States, but the processes and discussions underlying decision-making, including the extent of the involvement of stakeholders and scientists, are not transparent. A striking illustration of this is that most, if not all, regional groups (e.g. BALTFISH for the Baltic, Scheveningen Group for the North Sea etc.) do not even have a dedicated public website keeping records of meetings and decisions.

Another challenge is about finding the difficult balance between maintaining some fundamental principles and objectives of the CFP applicable to all European fisheries in the one hand, and leaving some room for regional divergence in the other hand. In essence, the regional groups can diverge on some modalities for the application of CFP elements, but not on the elements themselves. Some of these elements like the landing obligation are described in very prescriptive and detailed ways in the CFP, leaving the regional groups with only a limited range of options to choose in between but no arena to fully discuss the actual need and usefulness of the elements (van Hoof *et al.*, 2018).

Overall, this additional regional layer of governance is thus changing the current relations of power between the other layers (EU, Member States, stakeholders), in a way that is not fully understood yet.

e. Brexit

The *Brexit* issue is described in more detail in the Section 3.7, but here we bring some aspects directly relevant for fisheries management. There is still great uncertainty regarding the UK's withdrawal from the EU (*Brexit*) with regard to fisheries. As the perspective of a "No-Deal" gets closer, the EU published in July 2019 a "Questions and Answers"[26] clarifying what may happen after 31 October 2019. Current CFP rules will only be applicable up to withdrawal date, including access to UK waters and harbours, setting of fishing opportunities, control and access to EMFF funds. What will happen instead is at present still largely unknown.

Fears are growing that a no-deal *Brexit* could lead to serious incidents at sea, with a real risk of violence breaking out between British and EU fishers, many of whom depend on access to UK fishing grounds for their economic survival. Particular hotspots are likely to be in the English Channel, in the Celtic Sea and in the disputed waters between Northern Ireland and the Irish Republic[27].

Experts warn that key aspects of international fishing law are also likely to be perceived in different and contradictory ways by different countries. In particular, the concept of" custom and practice" may be advocated by EU fishing vessels to keep access to UK waters, since this concept features in the United Nations Convention on the Law of the Sea (UNCLOS), the legislation that will ultimately apply in the absence of a deal. Recent headlines have also revealed that this explosive situation may be worsened by the likely insufficient capacity of the UK to patrol and control their fishing waters[28].

Globally, the *Brexit* is a serious threat to the sustainability and cooperation progresses achieved in the last fifteen years. Unilateral decision-making and resentment will only push for short-term protectionist decisions that may increase catches and fishing mortality, with potentially disastrous consequences for

26 https://ec.europa.eu/info/sites/info/files/fisheries-qanda_en.pdf

27 https://www.independent.co.uk/news/uk/politics/brexit-no-deal-fishing-quotas-eu-boris-johnson-violence-scallop-wars-a9050431.html

28 https://www.undercurrentnews.com/2019/08/12/leaked-memo-reveals-uk-concerns-over-ability-to-patrol-its-waters-post-brexit/

the status of shared fish stocks. Every political effort should be made to avoid returning to the situations of uncontrolled and unsustainably high fishing mortalities from the previous decades.

Interestingly, in the broader perspective, the *Brexit* reflects some profound political, historical and cultural elements that are deeply anchored in the relationships between national states and the EU in the topic of fisheries management. The UK fishers voted massively for *Brexit*, claiming regained control on "their fish" and "their waters" in spite of the obvious transboundary distribution of fish populations and of the long history of shared exploitation and share management. Similar feelings and perceptions of ownership are encountered everywhere and in every fishery. More than any other economic sectors, fisheries remain a national heritage in all EU countries. The cultural appeal to the population is much stronger than the actual contribution of that sector to the country's economy, not least because it provides employment and activity in remote coastal regions. Understanding these national and cultural perceptions is important, not only in the case of *Brexit* which dominates the headlines now, but more generally in the differences in CFP's achievements and failures across the different Member States.

f. A new era for the Mediterranean and Black Seas

The Mediterranean and Black Seas has long been left aside by the CFP. They have been governed by their own regulations, with unclear roles and responsibilities of multiple layers of decision: National states, EU and the General Fisheries Commission for the Mediterranean (GFCM) under the Food and Agriculture Organisation of the United Nations (FAO). The management of the fisheries in that region has thus been both complex and largely ineffective, and there are no TACs in place except for Bluefin tuna and swordfish. As a result, there is a general agreement that the vast majority of the stocks in the Mediterranean and Black Seas are strongly overexploited (STECF, 2019a).

In the most recent years though, the area has gained a renewed focus. A number of initiatives have emerged within a global process commonly referred to as « MedFish4Ever »[29] that is transforming the governance in the region. Through a Ministerial Declaration signed in Malta in March 2017, 16 Mediterranean countries and the EU committed to improve the situation of Mediterranean fisheries over the next decade through a series of ambitious targets and activities towards strengthening fisheries management and governance, some of which are described in the GFCM Mid-term strategy (2017-2020) towards the sustainability of Mediterranean and Black Sea fisheries[30]. This was followed by a similar declaration for the Black Sea signed in Sofia in June 2018.

A follow-up conference was organised in June 2019 to review progress made in relation to the declared targets and highlight gaps where continued and additional efforts were needed. Some achievements were highlighted by the EU at this conference[31], but tremendous efforts are still required to achieve the targets. The signing countries renewed their commitments towards this declaration, and defined key priorities, primarily the fight against Illegal, Unreported and Unregulated (IUU) fishing and the social development for small-scale fisheries, promoting decent work and reducing vulnerabilities for fishers in the region's coastal communities.

A major challenge in the coming years will be whether the current initiatives will be sufficient and successful at reducing fishing mortality and recovering the fish stocks, or whether new measures are needed. For example, the MAP agreed in 2019 for the demersal fisheries in the Western Mediterranean (Regulation (EU) 2019/1022) foresees a reduction of fishing effort in the order of 40% in the next five

29 http://www.fao.org/gfcm/meetings/medfish4ever/en/
30 http://www.fao.org/3/a-i7340e.pdf
31 https://ec.europa.eu/fisheries/press/gfcm-high-level-conference-medfish4ever-initiatives-advances-and-renewed-commitments-11-12_bg

years, but the STECF (STECF, 2018b) warned that this will likely not translate in equivalent reductions in fishing mortality due to the inherent shortcomings in managing fisheries with effort limitations rather than with TACs (the main issue being the known incentives for fishing vessels to become more powerful and efficient, in order to maintain unchanged levels of catches and revenue within a shorter period of time).

Appropriate management measures are still to be decided for the small pelagic fisheries (see Section 2.5). Also, sustained investments in science are absolutely needed to increase the number of stocks regularly monitored and assessed. This issue is however particularly challenging, since many of the important commercial species that are currently not assessed are very coastal (and thus out of reach of the established scientific surveys) and/or notoriously difficult to assess because of their biological specificities (such as the cephalopods and the molluscs), so the current limitations are not only of financial origin.

g. EMFF and fisheries subsidies

The European Maritime and Fisheries Fund (EMFF) is the fund for the EU's maritime and fisheries policy of approximately EUR 6 billion designed to promote the objectives of the CFP. In April and June 2019, the EP and Council, respectively, adopted its position on the next EMFF for the period 2021-2027 as the basis for their respective negotiations for trilogue. The two institutions took the unprecedented position of reintroducing subsidies for the construction of new vessels, an option removed in 2004 due to the overwhelming evidence that vessel construction subsidies significantly contributed to undermining the sustainability goals of the CFP, and against recent negotiation at the World Trade Organization. Fishing capacity of the EU fleet will likely rise, not least considering that Member States capacity checks have limitations and that there are considerable gaps in the control of small-scale fisheries (European Court of Auditors, 2017). Resources exploitation will undoubtedly increase with the increase ability to catch fish (European Court of Auditors, 2011). For example, STECF (2018c) highlighted a huge potential for fishing efficiency increase in the Mediterranean. It is therefore no surprise that this decision has been highly contested by several NGOs, scientists and the European Commission, and the well-fondness of this decision might need to be reconsidered.

2.3.2. New monitoring technologies

As explained above, effective fisheries management depends on the level of Monitoring, Control and Surveillance (MCS) and its effectiveness in making sure that management measures are being followed. Monitoring technologies are increasingly becoming a fundamental part of MCS. A whole system of new technologies that complement and communicate with each other are emerging, that can increase trust and transparency in fisheries and can be a game changer in the fight against IUU fishing (OECD, 2017).

New technological advances include among others the increased computing power of handheld devices; the proliferation of user-friendly Global Positioning System (GPS) and Global Navigation Satellites Systems (GNSS) applications; increased capacity for "big data" storage, sharing, and analysis; variety and improved durability of drones and low maintenance radar stations; accessibility and accuracy of satellite imagery; continuous improvements in on-board digital cameras and recorders; expanded use of Automatic Identification Systems (AIS) and Vessel Monitoring Systems (VMS), and the internet at sea (OECD, 2017)[32]. Electronic Monitoring (EM) with cameras is increasingly used worldwide to monitor unwanted catches at sea, and computer vision applications that use machine learning and artificial intelligence is a research area where tremendous technological advancement is currently occurring. Block chain technology could also have promising applications in fisheries, for example for

[32] https://www.oecd.org/greengrowth/GGSD_2017_Issue%20Paper_New%20technologies%20in%20Fisheries_WEB.pdf

the efficient trading of fishing rights / catch shares and the traceability of landings throughout the value chain (Probst, 2019). ICES has recently launched a new working group on Technology Integration for Fishery-Dependent Data (WGTIFD) that aims at gathering best practices for implementing monitoring technologies around the world (ICES, 2019d).

A challenge for European policymakers is now how to integrate these new technologies in the toolbox of management measures and policies already in place.

The recent launch of the CATCH software by the EC[33] is an example of how technology can progress the fight against IUU, by providing a cross-validation tool to paper records (catch certificates), although it still requires Council and EP approval to be mandatory. Another example is the introduction of reporting obligations for the small-scale sector proposed in the revised Control regulation described above, which is based in part on the new possibilities to use technologies that were not available in the last CFP reform, associated to a pressing need to assess and manage the comprehensive impact of small-scale fisheries.

The wider use of these technologies is however still limited by their cost, by their complex data requirements, by the challenges in sharing such data among fisheries management authorities and by the limited numbers of individuals trained to use these tools (OECD, 2017), although continuous technological progress contribute to ever-reducing costs and improved user-friendliness. More importantly though, their use is significantly limited by their lack of acceptance by the fishing industry. At present, the most controversial use of these new monitoring technologies is certainly the implementation of electronic monitoring (cameras associated to other systems) [34] onboard fishing vessels, among others for the control of the landing obligation. Successful trials were conducted in Europe prior to the implementation of the landing obligation, combining voluntary use of cameras to monitor all catches (both the landed ones and the ones discarded at sea) against appropriate incentives in the form of increased quotas or less stringent technical rules (James *et al.*, 2019; Plet-Hansen *et al.*, 2019). However, the landing obligation has been a significant game changer. Noticeably, many of the possible incentives such as quota increases, exemptions, reduced control, have already been given to the fishing industry without additional monitoring requirements (neither compulsory nor voluntary), it is thus not surprising that the acceptance of this MCS approach is still lacking in large parts of the European fishing industry, and changes in mind-sets are slow.

2.3.3. Biological and ecological challenges

a. Ecosystem-based fisheries management

Ecosystem-based fisheries management (EBFM) is a holistic way of managing fisheries and marine resources by taking into account the entire ecosystem of the species being managed. The goal of EBFM is to maintain ecosystems in a healthy, productive, and resilient condition so they can provide the services humans want and need[35].

This broad definition covers many different aspects, and a huge amount of science has been dedicated in the last decades to advance understanding of the marine ecosystems, and to integrate this into useful advice to meet current and emerging conservation, management, and sustainability goals[36]. For

33 https://www.seafoodsource.com/news/supply-trade/eu-launches-catch-software-to-reduce-chance-of-iuu-products-entering-market

34 The use of imagery, sensors, and global positioning systems (GPS) to independently monitor fishing operations, effort, and/or catch

35 https://www.fisheries.noaa.gov/insight/understanding-ecosystem-based-fisheries-management

36 http://www.ices.dk/explore-us/strategicplan/Pages/default.aspx

example, ICES publishes now up-to-date Ecosystem Overviews[37] for the various European regions, describing linkages between human activities, pressures, and states.

A lot of progresses have already been achieved, and it can be said that many of the new policy objectives under the current CFP (MSY, landing obligation and regional MAPs) are attempts to include broader ecosystem considerations into the traditional frame of single-stock fisheries management. However, much more remains to be done. In particular, a major need would be a better alignment of the CFP, of the Marine Strategy Framework Directive (MSFD) and of the EU Birds and Habitats directives under an integrated policy.

Additionally, this move to EBFM requires major commitment and expertise from the scientific community, the availability of which can be challenging. Sustained funding and capacity building is required, not least via the alignment of the EU research framework programs (e.g. the future Horizon Europe) and EMFF with these policy requirements.

b. Climate and environmental changes

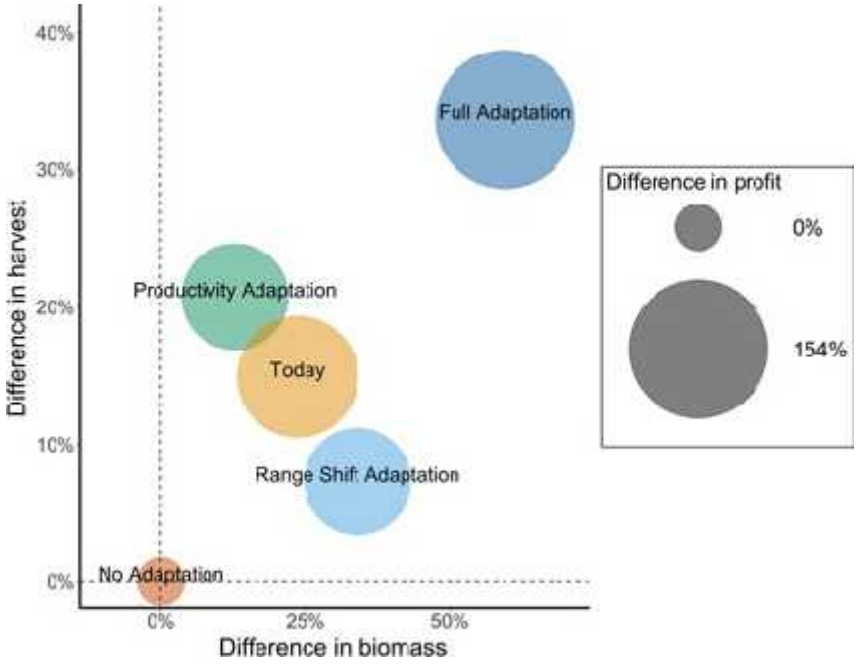
It is increasingly evident that climate change is already having significant impacts on marine ecosystems and on the dependent communities. Recent scientific advances are improving our ability to understand, project, and assess the consequences of different levels of climate change during the 21st century. Cartoons examples of this are popularly illustrated in Link *et al.* (2018). Direct challenges on fisheries include shifts in species distributions, invasive species and productivity losses (in the range of 5% per degree of global warming, (Lotze *et al.*, 2019)). In the medium-term climate change will thus profoundly affect human and animal health and food security worldwide. This happens both through the progressive shifts in the states of nature following water warming and acidification, and reduced oxygenation, and through high-impact adverse extreme events such as heat waves, which are considered by some scientists to be the largest threat to ocean life (Pinsky *et al.*, 2019).

Undoubtedly, changes in productivity will affect differently the various European and world regions, with more winners in the north and losers in the south, since for the high latitude regions, catch potential is projected to increase, or show less of a decrease than in the tropics (Barange *et al.*, 2018).

A key message to managers though is that these estimated catch reductions only compare to the *maximum* catch potential, and not to the *current* levels of catches. What this means is that effective and adaptive management at MSY objective accounting both for changes in fish distribution (denoted "Range Shift" in the figure below) and reduced productivity could offset some of the climate-related loss and maintain productive and profitable fisheries even under a range of warming scenarios (Gaines *et al.*, 2018).

[37] http://www.ices.dk/community/advisory-process/Pages/Ecosystem-overviews.aspx

Figure 7: Differences in harvest, profit, and biomass in the world fisheries, relative to "No Adaptation" for Representative Concentration Pathways RCP 6.0 in 2100 (corresponding to a global mean temperature expected to increase by 2.2°C by 2100)



Source: Gaines *et al.* (2018)

Translating this into appropriate management actions and policies remain however an ongoing challenge. Current management tools are often not well suited for managing the same systems under climate change, and there are many significant institutional, legal, financial and logistical barriers to successful adaptation. Ultimately, the impacts of climate change on the fisheries and aquaculture sector will thus be determined by the sector's ability to adapt, and the FAO published guidance documents on the tools and methods available to facilitate and strengthen such adaptation (Barange *et al.*, 2018).

For European fisheries, one of important policy challenges induced by climate change lies in the fixed "relative stability" allocation keys between Member States. These distribution keys for each TAC were agreed during the 70s-80s and not updated since. As noted above, the issue on "choke species" highlighted by the landing obligation demonstrates already that these keys do not align anymore with today's distribution of fish, with some Member States having no or too little historical quota for species that are now abundant in their waters. For example, (ICES, 2017b) identified eight "great movers" species whose distributional shifts are already affecting TAC management areas such as anchovy (*Engraulis encrasicolus*), cod (*Gadus morhua*), hake (*Merluccius merluccius*), herring (*Clupea harengus*), mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*), sole (*Solea solea*) and plaice (*Pleuronectes platessa*). Another emblematic example is the recent return of Bluefin tuna (*Thunnus thynnus*) in northern Europe.

Existing mechanisms of quotas swaps and trade are already insufficient to compensate for this unbalance today, so this issue will undoubtedly only worsen under climate change scenarios. This will lead to increased conflicts and suboptimal utilization of fishing opportunities at EU level. There is thus an urging need for policy makers to define new ways to better share and fully use fishing opportunities, combining fixed and adaptive features at different scales of time and space that would improve management effectiveness and efficiency (Holsman *et al.*, 2019).

2.4. Case study 1: Cod in the Baltic Sea

2.4.1. Situation

a. Overview

On 23 July 2019, a ban on commercial fishing for cod in most of the Baltic Sea was issued by the European Commission to prevent an 'impending collapse' of the eastern cod stock, following the advice published by ICES on May 29 recommending that there should be zero catch of eastern Baltic cod in 2020. The ban took place with immediate effect, and targeted cod fishing has been prohibited in those areas where eastern Baltic cod is found (ICES areas 24-26), until the end of 2019.

This emergency decision is the culmination of a number of years where the situation of the cod stocks and fisheries in the Baltic has inexorably deteriorated, related to a number of unfavourable changes in the ecosystem. This dramatic situation is in striking contrast with the long history of extensive data collection, research programs and international management that has surrounded that area.

The cod in the Baltic Sea live in brackish water characterized by low salinity and large areas with regular episodes of reduced oxygenation (hypoxia). There are two genetically distinct cod populations inhabiting the area, i.e. eastern (subdivision 24-32) and western (subdivision 22-24) Baltic cod. They are assessed and monitored individually and, as described below, they suffer from widely different types of issues and challenges. However, the two stocks cannot be managed completely independently from each other, because the two stocks mix in the Arkona Basin (Subdivision 24), where both stocks occur simultaneously in the fisheries catches in varying proportions (ICES, 2019b). This means that any regulation aimed at managing one stock has consequences for the other stock. This is also the case for the current ban aimed at protecting the eastern stock, which also implies closing the area 24 even though this has implications for the fishery on western Baltic cod.

b. Eastern Baltic Cod

The eastern stock is at present in a very poor state, primarily due to a number of changes in the Baltic ecosystem which have negatively affected the productivity of the stock (ICES, 2019b). The recruitment in latest years has been declining, fish are small and meagre, spawn at a small size, and are suffering from a high parasite load. Consequently, natural mortality of cod has strongly increased and individual growth declined.

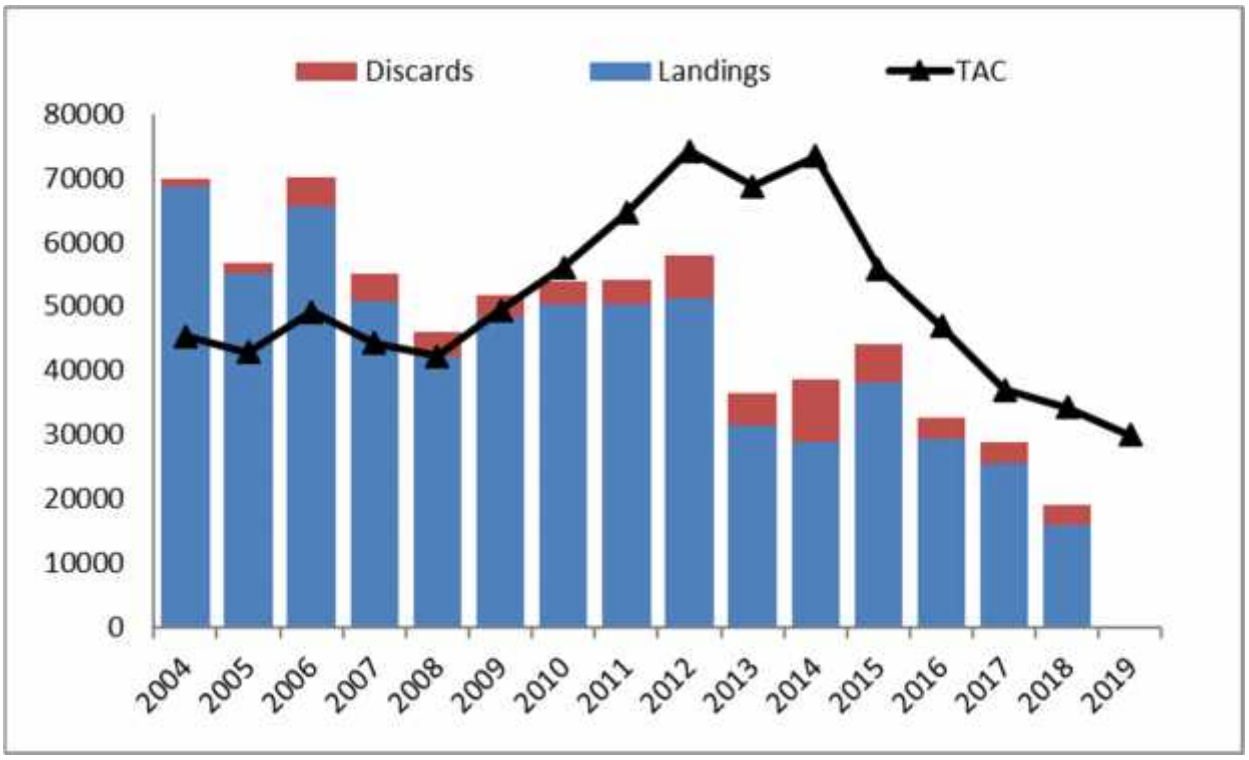
Prior to this, the stock experienced decades of large fluctuations. The stock was thought to have successfully recovered ten years ago, and this positive development was partly assigned to effective management measures after 2008 (Eero, *et al.*, 2012). Since then though, the situation has deteriorated rapidly, with a reduction not only in the number of fish but, more seriously, in their growth and condition (fitness).

The reasons for this deterioration are primarily ecological, and a number of factors have been pointed out (ICES, 2019c): (i) Poor oxygen conditions that affect cod both directly by altering their metabolism, and indirectly by reducing the availability of their benthic prey (small crustaceans); (ii) Low availability of fish prey (herring and sprat) in the main distribution area of adult cod, as the two species are now more northerly distributed and have little overlap with cod; and (iii) high infestation with parasites, which is related to increased abundance of grey seals. These different drivers are interrelated and their relative contribution on the changes in the productivity of the cod stock is unclear.

Beyond these obvious ecological factors, the contributing role of fishing and management in the previous decades remain though in question. The advice and management systems have been unable to react effectively until the cod stock reached a very poor state. It is taking time for science to be able

to understand and quantify the changes that are occurring rapidly, and for some years no robust scientific advice could be provided. On the management side, the TACs in place have historically not been effective at controlling fishing mortality, both prior to the implementation of the first management plan in 2008 where the TACs were poorly enforced, and since 2011 where the actual catches have been significantly lower than the TACs (Figure 8). These annual TACs were also set above scientific advice for seven consecutive years, since 2013. Furthermore, some NGOs consider that the emergency measures recently adopted may not go as further as they should to protect cod.

Figure 8: TAC, discards and landings for eastern Baltic cod in management area 25-32



Source: ICES (2019a)

c. Western Baltic cod

The situation of the western Baltic cod in 2019 has attracted less headlines than the eastern stock, because the status of the stock has improved in the last few years, with a reduction in fishing mortality and increase in biomass. Nevertheless, the situation of this stock remains worrying. ICES (ICES, 2019b) warns that recruitment production of the stock has been historic low in the most recent years. ICES anticipates thus a rapid decline of that stock if no stronger year classes occur in the coming years.

The management challenges for this stock are different from for the eastern stock, and much less related to ecosystem changes. A major concern raised by the fishing industry at present is the large fluctuations in the ICES advice and TAC from one year to the next. Most recently, the implementation of the Baltic Multi-Annual management Plan (MAP) in 2017 (regulation (EU) 2016/1139) coincided with the occurrence of the largest year-class in fifteen years, boosting the stock biomass and resulting in a substantial increase of TAC in 2019. However, since the following year classes are lowest in record, a large reduction in TAC is advised for 2020, and this reduction may continue in 2021. These fluctuations are perceived by the industry as a failure to achieve some stability in the management, as was expected from the MAP. As discussed in section 2.4.2 below, it must be kept in mind that single large year-classes are challenging to manage adequately, and it can be retrospectively questioned whether other decisions could have been made outside of the F_{MSY} ranges provisions of the plan.

Another key challenge for this stock is the large proportion of catches taken by the recreational fisheries (1 600 tonnes in 2018, corresponding to 30% of total catches as estimated by (ICES, 2019b)). The uncertainty around recreational catches is considered higher than in commercial catches, and regulations are more difficult to implement and enforce.

Finally, a key issue is, as mentioned above, the mixing of catches from that stock with catches from the eastern Baltic, leading to the paradoxical situation now in 2019 that the targeted cod fishery is closed in subdivision 24 while the TAC for the combined area 22 to 24 is the highest of the recent years.

2.4.2. Forthcoming scenarios

a. The landing obligation

Baltic Sea cod was the first demersal species with a full implementation of the landing obligation, implemented already in 2015 for all main trawls and nets fisheries. Because of the low diversity of species and fishing gears in the demersal fishery, and because of the long history of both gear selectivity research and discard observers' programmes in the Baltic Sea, it had been foreseen that implementing the landing obligation in this fishery could be fairly straightforward. However, in spite of these many good prerequisites, (Valentinsson *et al.*, 2019) conclude that the introduction of the landing obligation in Baltic cod fisheries has been largely unsuccessful and has failed to deliver any of the expected benefits. Data quality for stock assessments has deteriorated, discarding of cod has not decreased despite a reduced minimum size and there are indications of a decrease in gear selectivity in the fishery. Obviously, it can be argued that part of this failure is due to "bad timing", the introduction of the landing obligation having coincided with the period of negative developments for the larger eastern cod stock described above. The reduced growth and condition and a truncated size distribution without larger cod forced the fishery to target cod around the minimum size, resulting inevitably in the capture of undersize cod due to the limited selectivity of trawls. However, other factors play a role in this, similarly to what is observed in all other demersal fisheries subject to the landing obligation as discussed in Section 2.2.2 .

Incidentally, this situation will certainly worsen in 2019, since the emergency ban implemented by the EU Commission require the vast majority of cod catches to be discarded, which will likely increase the discard rates for both cod stocks.

As such, the implementation of the landing obligation and the approaches to reduce discards should be revisited. Notwithstanding the current emergency situation where discarding is now allowed, effective monitoring and control of the landing obligation is fundamental to increase the implementation of the landing obligation in this fishery and this can only be achieved by adopting new monitoring technologies. These technologies could be installed initially to vessels that wish for increased flexibility in the gear configuration to be used (Valentinsson *et al.*, 2019). This option was particularly discussed in the Baltic Sea, where until recently a specific technical measure regulation for that region alone (Regulation (EC) No 2187/2005) limited considerably the level of gear modifications allowed. With the adoption of the new Technical Measures Regulation in June 2019 (Regulation (EU) 2019/1241) there are now more possibilities to change gear configuration in this region and the opportunity exists to incentivise the uptake of electronic monitoring.

b. The Baltic Multi-Annual management Plan (MAP)

The Baltic Multi-Annual management Plan[38] was adopted in July 2016 (Regulation (EU) 2016/1139), as the first management plan established at the scale of an entire EU sea-basin. The Plan provides that by 21 July 2019, and every five years thereafter, the Commission shall report to the European Parliament and to the Council on the results and impact of the plan on the relevant stocks and fisheries. This Commission report is not yet available, but the evaluation of Baltic MAP by the Baltic Sea Advisory Council (BSAC) reflects a poor result[39]. The MAP is considered to have poorly performed, and this perception is shared both by the industry and the NGOs members, albeit for different reasons. The BSAC can hardly point to any aspect where the MAP has had a positive effect at all. Rather, the MAP is seen to have even been counterproductive sometimes and to have not facilitated the regional cooperation.

Regarding the MAP's objective of promoting ecosystem-based management, ICES (ICES, 2019c) acknowledges the impact of fisheries on the Baltic ecosystem, and the complexity of the multiple biological, environmental and anthropogenic factors affecting the fish stocks, but cannot quantify the relative contribution of these impacts and cannot thus evaluate the role of the MAP itself on the current situation.

The Regulation (EU) 2016/1139 does not contain provisions for a possible revision of the MAP following the evaluation of the plan, and as discussed in 3.1.2 it is too early to evaluate the full impact of a management plan after less than three years when only few data are available. Additionally, it is fair to note that the occurrence of a single large year class in the middle of a period of poor productivity will always lead to abrupt ups and downs in biomass, against which any long-term plan will struggle to maintain short-term stability in the fishery. Nevertheless, it is obvious that regionalisation and EU MAPs are still in their infancy, and it remains to be seen whether they will succeed at delivering their expected benefits of supporting the achievements of the CFP objectives.

2.4.3. Identification of gaps

a. Future states of the ecosystem

In spite of an intense research activity in the Baltic, many knowledge gap remain. The greatest uncertainty for this fishery relies in the current changes experienced by the Baltic Sea ecosystem and its future productivity. Beside the changes directly impacting the productivity of the eastern Baltic cod explained above, there is extensive evidence that the Baltic Sea ecosystem is heavily impacted by multiple other anthropogenic factors such as nutrient and organic enrichment, contaminants, non-indigenous species and substrate loss. Many species and habitats of the Baltic Sea are not in good condition. The ecosystem is currently undergoing a fundamental change under the pressure of these stressing factors, the relative contribution of these being currently impossible to estimate (ICES, 2018a). It is furthermore perceived that this ecosystem has not yet reached an equilibrium state, making it particularly difficult to assess the potential impact of the possible management measures (ICES, 2019c).

In this context, an observed ecosystem change that has a major impact on the eastern cod stock is the increased abundance of seals. Seals occur throughout the Baltic Sea and the populations have grown rapidly since early 2000s. While seal predation alone does not explain all the high natural mortality of

[38] Regulation (EU) 2016/1139 of the European Parliament and of the Council of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2187/2005 and repealing Council Regulation (EC) No 1098/2007

[39] http://www.bsac.dk/getattachment/BSAC-Resources/BSAC-Statements-and-recommendations/BSAC-reply-to-Commission-consultation-on-the-Balti/BSACreplytoCOMonMAPTOCOM030719.pdf.aspx?lang=en-GB

the eastern Baltic cod stock (Eero *et al.*, 2019), seals' consumption of cod can be high in the south Central and Western Baltic (above a tonne of cod per seal per year). Additionally, one of the greatest biological concerns for cod remains the high level of infestation by seal parasites which are transmitted to cod liver. This is expected to strongly affect the health and growth of the cod population, critically jeopardising its recovery. A critical societal question therefore remains regarding the full protection of specific components of the food-web (such as top-predators like seals, fish-eating birds and harbour porpoises, these latest critically endangered in this area) against other trophic components, and the levels of populations that can be sustained by a changing and fragile environment.

Many management measures are already being discussed and implemented under several frameworks other than the Common Fishery Policy to restore the good ecological status of the marine environment, not least under the Baltic Sea Action Plan (BSAP)[40] adopted by HELCOM, the Convention on the Protection of the Marine Environment in the Baltic Sea (the Helsinki Convention). Nevertheless, it remains unclear whether these will be successful at restoring the healthy status of the ecosystem and whether the eastern cod stock will be able to recover even in the absence of fishing.

b. Recreational fisheries

The recreational sector in the Baltic is large, but information about this is often patchy and incomplete. Important efforts have been conducted in the past years to fill knowledge gaps, leading among others to the establishment of special working groups or dedicated studies within ICES and HELCOM, and regular discussions at the regional fisheries management fora BSAC and BALTFISH. (Coalition Clean Baltic, 2017) provides a global overview of recreational fishing for the various regions, highlighting a great diversity of types, regulations, and levels of monitoring and control among the various countries. Most of the information about catches comes from surveys (by telephone or via questionnaires), and efforts are continuously made to improve their coverage and their standardisation. Nevertheless, many gaps remain, even for the species covered by the EU Data Collection Framework, such as cod, salmon and eel.

There is thus great scope for improvement, both regarding data collection and regarding control and enforcement. (Coalition Clean Baltic, 2017) encourages collaboration between authorities and anglers' organisations, where volunteers help patrol areas and control illegal fishing activity. Such volunteer systems have shown to help reduce illegal fishing but also fosters a culture of compliance among anglers, should be expanded and used in more countries.

2.5. Case study 2: Anchovy and sardine in the Adriatic Sea

2.5.1. Situation

a. Overview

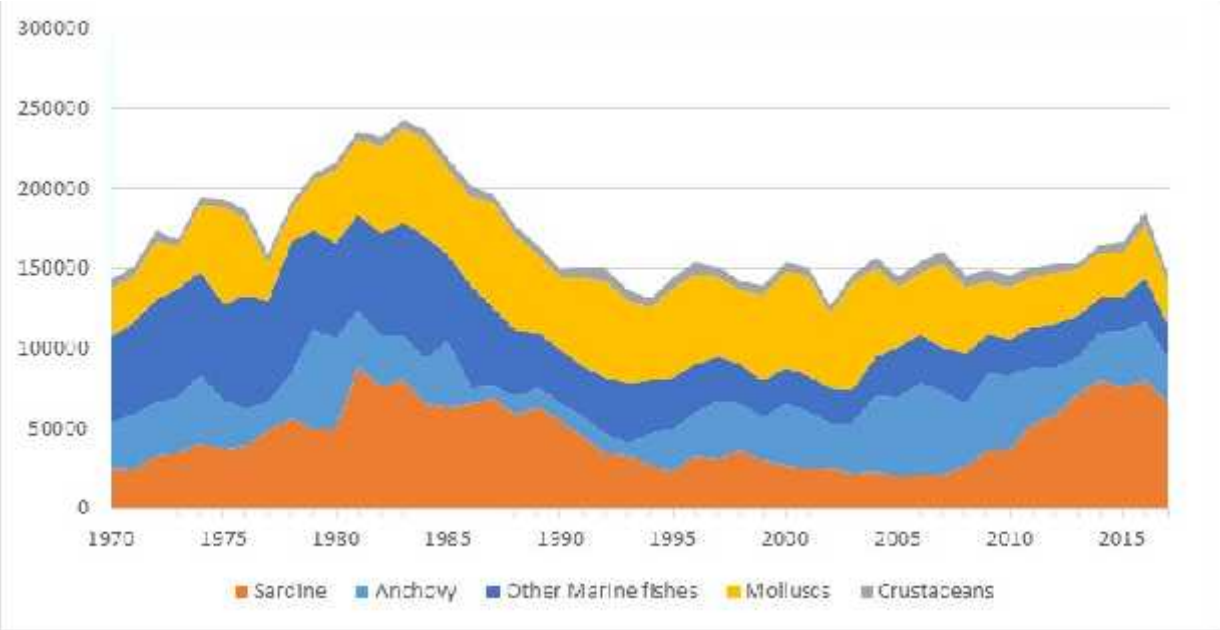
The Adriatic Sea (Mediterranean stock area GSA 17 and 18) is a semi-enclosed basin, extending over 138 000 square kilometres and is characterised by the largest shelf area of the Mediterranean, which extends over the Northern and Central parts where the bottom depth is no more than about 75 and 100 metres respectively, with the exception of the Pomo/Jabuka Pit (200 to 260 metres) in the Central Adriatic. The Southern Adriatic has a relatively narrow continental shelf and a marked, steep slope; it reaches the maximum depth of 1 223 metres. The hydrography of the region is characterized by water inflow from the Eastern Mediterranean and freshwater runoff from Italian rivers. These features

[40] http://www.helcom.fi/baltic-sea-action-plan

seasonally produce both latitudinal and longitudinal gradients in hydrographic characteristics along the basin. The Adriatic Sea is also one of the largest areas of occurrence of demersal and small pelagic shared stocks in the Mediterranean (UNEP, 2014)[41].

The Adriatic supports several fisheries: purse seine and pelagic pair-trawling targeting small pelagic species (mainly sardine and anchovy), demersal trawl targeting several species (red mullet, hake, anglerfish, flatfish, octopus, and cuttlefish) and dredges for Venus clam. However, sardine and anchovy are the main fisheries resource in the Adriatic Sea. Historically, they have accounted for around 40-50% of the total catches in the region, but since 2009, this share has increased to around 60-65% of the total, owing mainly to major increase in sardine catches (Figure 9). The majority of catches are made by Italy and Croatia, in the northern part of the Adriatic.

Figure 9: Total catches by marine species group in the Adriatic Sea



Source: FAO regional capture Statistical Collections[42]

b. State of the stocks

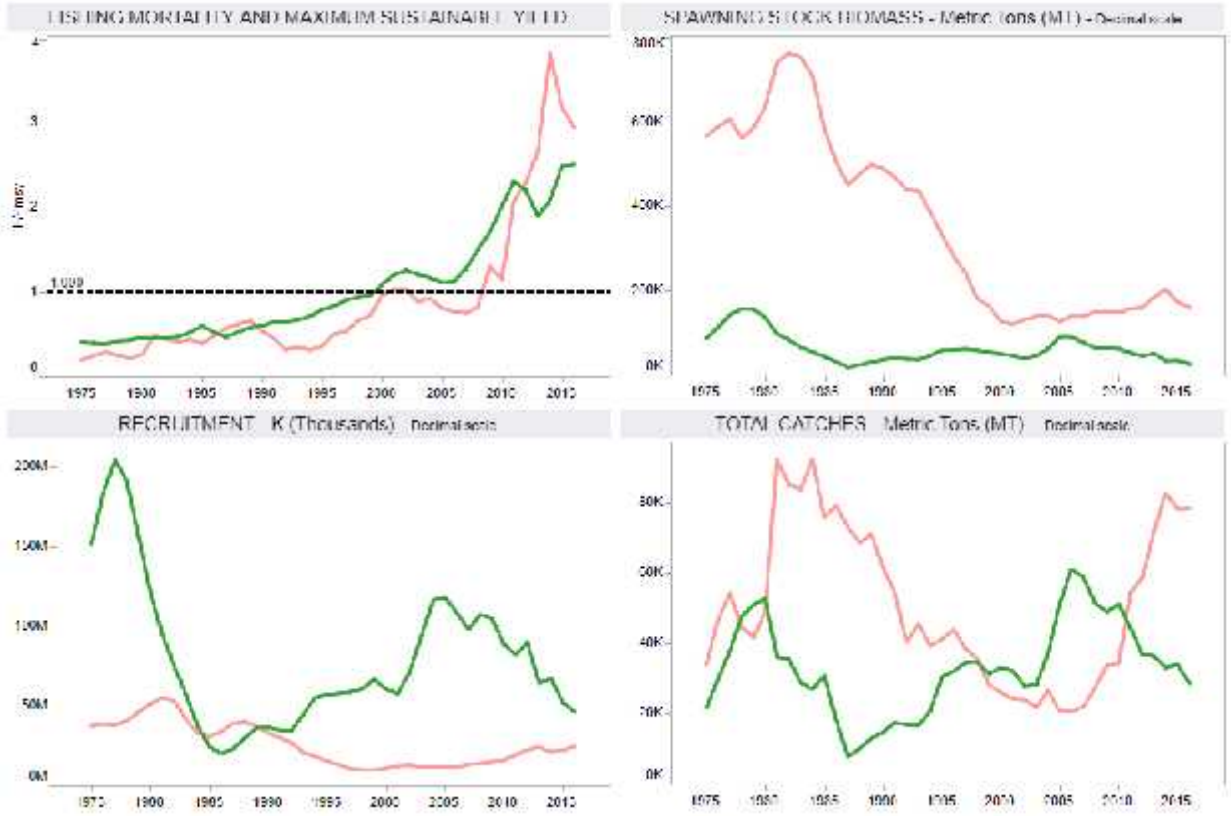
There is now a general agreement in the perception that the stocks of both anchovy and sardine are overexploited. Nevertheless, it has been historically difficult for the scientific community to come up with robust and universally-agreed estimates of biomass and fishing mortality, and to evaluate the status of the stocks in relation to the MSY objective. The reasons for this are both biological and institutional. These two stocks are notoriously difficult to assess, because of their biological characteristics against which usual stock assessment methods are less robust than for demersal fish species: Both species have a short life span (the theoretical longevity would be around about 5 to 6 years for anchovy and 7 to 8 years for sardine, but most of the commercial catches is now constituted of very small individuals, aged 0 to 2 years). They mature early and gather in schools. It is unquestionable that environmental variables play an important role for the stock dynamics of these pelagic species, but it difficult to disentangle the environmental effects from the fisheries effects. This means that the estimation of what level of fishing corresponds to the MSY objective (F_{MSY}) is not very robust but is highly sensitive to the biological assumptions made. In addition to this biological

41 https://www.cbd.int/doc/meetings/mar/ebsaws-2014-03/other/ebsaws-2014-03-submission-rac-spa-sr-02-en.pdf
42 http://www.fao.org/fishery/statistics/gfcm-capture-production/en

complexity, a number of scientific and institutional challenges have historically complicated the stock assessment process further, including e.g. access to and sharing of time series of scientific data, statistical modelling capacity building, agreement on international protocols for biological sampling etc. As a result of these challenges, and in spite of rather well-funded sampling and monitoring programs and numerous scientific meetings, this uncertainty about the actual state of the stocks has left a vacuum that contributed to delaying the urge for action, resulting in the absence of any effective management framework until the most recent years (Carpi *et al.*, 2017).

As of today (August 2019), no updated stock assessment for these two stocks has lately been published by the scientific bodies. The most recent assessments publicly available date back to the year 2017 (based on data up to 2016), both by the General Commission for the Fisheries in the Mediterranean GFCM[43] and by the EU STECF[44]. The STECF assessment (STECF 17-15)[45] show a large increase of fishing mortality for both stocks after 2005, and low spawning stock biomass (see figure below).

Figure 10: 2017 STECF (17-15) stock assessment of Adriatic small pelagics (anchovy in green, sardine in pale red)



Source: STECF (2017)

In May 2019, a benchmark workshop was convened by GFCM to improve the quality of the stock assessment for the two stocks[46], but neither the outcomes of this workshop nor the updated stock assessment presented to the GFCM Scientific Advisory Committee on Fisheries in June 2019 are yet available, so the current status of the stocks remain unknown.

43 http://www.fao.org/gfcm/data/safs/en/
44 https://stecf.jrc.ec.europa.eu/c/document_library/get_file?uuid=a9ef4466-4fd8-4859-9ad6-a45623d9fb83&groupId=43805
45 https://stecf.jrc.ec.europa.eu/web/stecf/dd/medbs/sambs
46 http://www.fao.org/gfcm/meetings/info/en/c/1186173/

c. Management and Multi-Annual management Plans (MAPs)

Until 2017, management at EU and national level complemented by international measures adopted by GFCM, has been evaluated as complex and ineffective[47]. To contravene the poor management results and stock status, in February 2017 the EU proposed a MAP following the provisions of previously agreed MAPs for other geographical areas, setting fishing opportunities for target stocks within ranges of F_{MSY} under certain conditions. This was the first MAP proposed in the Mediterranean Sea and introduced for the first time the idea of TAC and quotas in the region (with the exception of Bluefin tuna and swordfish). It was assumed that reducing fishing mortality would be more effectively achieved on introducing TAC rather than with the current measures based on fishing closures in space or time and limited reduction of effort, that are clearly not limiting exploitation.

However, this proposal was not well received, and several voices refused the introduction of TACs, including the Mediterranean Advisory Council (MEDAC)[48] and the European Economic and Social Committee[49]. The European Parliament in November 2018 then agreed on a revised MAP, but with several significant modifications to the EC proposal. Mainly, the EP rejected the introduction of TACs, although it requested that catches limits for small pelagics in 2019 must be set at the level of the 2014 and should be reduced by 4 % annually between 2020 and 2022. Upper limits of fishing effort were also proposed. The EP report also requires using reference points based on stock biomass, instead of target fishing mortality ranges, although a management approach fully based on biomass (biomass escapement strategy) was also rejected. The Council did not adopt any joint position yet.

The positions adopted by the Parliament are closely aligned to the 2019-2021 emergency measures adopted by the GFCM (recommendation GFCM/42/2018/8), stating that catches should reduce by 5% by year compared to the 2014 level.

2.5.2. Forthcoming scenarios

a. Multi-Annual management Plans (MAPs)

The removal of output controls from the pelagic Mediterranean MAP by the EP has significantly limited the effectiveness of the MAP to control fishing mortality and follow the annual fluctuations of the stocks. It is yet to be seen if the Council agrees with these provisions being removed from the MAP, although it is likely. It leaves the EC with a choice of accepting a MAP in the Mediterranean Sea that will not contribute to any significant reductions in fishing mortality in the short term and work for future legislative proposals and amendments that would correct for it, or the EC can remove the proposal from the negotiations.

b. Catch limits

Noticeably though, the emergency measures adopted by the GFCM include provisions for catch limits, and it remains to be seen how these limits will be enforced, since these require *de facto* a control of the catches and some decisions to be made when these limits are reached (unless the poor state of stocks would mean that the catch limits are not reached even in the absence of control). This need for catch control constitutes undeniably a step toward management based on, at least partly, some output control, which could potentially lead to a mixed approach with effort reductions supporting catch limits as a preferred management scenario. Such a combined approach has previously been in place in

47 http://www.europarl.europa.eu/legislative-train/theme-fisheries/file-multiannual-plan-for-small-pelagic-fisheries-in-the-adriatic-sea
48 http://en.med-ac.eu/files/documentazione_pareri_lettere/2016/03/94_medac_advice_ltmp_small_pelagics_gsa17.pdf
49 https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1565266464328&uri=CELEX:52017AE1086

other fisheries in the EU, e.g. in the cod plan Council Regulation (EC) No 1342/2008 and the flatfish management Council Regulation (EC) No. 676/2007.

In the meantime, discussions are still going on within GFCM on future management measures for the stocks after 2021. Not least, biomass escapement strategy is still to be further discussed and evaluated (GFCM/42/2018/8). Biomass escapement strategies are used in a number of other small pelagic fisheries, not least for anchovies in the Bay of Biscay. STECF 18-01[50] investigated options on how this could be implemented.

2.5.3. Identification of gaps

a. Effort limitations

In all fisheries, effort (time spent fishing) does not have a linear relationship with total catches, and moderate reductions in fishing effort do not necessarily translate into significant reductions in fishing mortality. This is even truer in pelagic fisheries, due to the nature of searching for shoals in opposition to bottom trawling and to setting the gear and wait for catches. As such, the reductions in effort that have been agreed will do little to reduce fishing mortality. Therefore, the management measures must ensure that catches, and not only effort, are reduced. Either TACs are finally introduced by a compromised agreement between European institutions or through a revised proposal of the EC after 2022, or there has to be a drastic reduction in fishing effort over the next years to have any meaningful impact on fishing mortality and in the future recovery of the sardine and anchovy stocks in the Adriatic.

b. Timing of advice and management

The general time frame of scientific advice and resulting management actions is a lengthy process, but in the case of anchovy and sardine in the Adriatic, which are so short lived, this is a particularly acute issue. A normal schedule as for e.g. the EU stocks in the North-East Atlantic (ICES stocks) is that stock assessment is performed during a year Y (e.g. 2019), with fisheries data collected up to year Y-1 (e.g. 2018), and providing advice for fishing opportunities to be applied in year Y+1 (e.g. 2020). There is thus a two-year time lag between the last fisheries observations (data) and the management actions undertaken on them, and assumptions must be made on how the populations evolve during this time lag. For long-lived fish species like those exploited in demersal fisheries, this is not so problematic and the mathematical procedures to do so are well established. For short-lived species this is much more difficult, since most of the fish that will be exploited in year Y+1 are not yet born in year Y-1, and are thus not observed neither in the fishery nor in the scientific data when performing stock assessment (as noted above, most of the catches of anchovy and sardine in the Adriatic are aged 0 and 1 year old, i.e. year-classes born in year Y and Y+1). Conversely, the fish observed in year Y-1, and on which the diagnostics of over-or under-exploitation are performed, are already all dead when remedial management actions can be undertaken to protect them.

Incidentally, this issue is even more problematic in the case of these two particular stocks, because the calendar of publications of scientific advice by the GFCM is one year longer than what is described above – i.e. the stock assessment performed in year Y is only reviewed and published by the Scientific Advisory Committee (SAC) some months later, in year Y+1, so management actions would only apply from end of the year Y+1 or beginning of year Y+2. Given the large annual fluctuations in yearclass strength (bottom-left panel of figure 6) and fishing mortality (upper-left panel), it is very difficult to make robust assumptions on the development of the stocks between Y-1 and Y+2, and the scientific basis to inform and evaluate management decisions is highly uncertain.

[50] https://stecf.jrc.ec.europa.eu/documents/43805/2024214/STECF+18-01+-+Small+pelagis+Adriatic.pdf/

This issue of advice time-lag is well known, but the scientific, methodological and institutional requirements to improve this are important and difficult to overcome.

c. Climate change

Fishing activities in the Adriatic are quite vulnerable to increasing water temperature, as almost all target species show cold/temperate thermal affinity. Temperature rise could exceed the optimal levels for cold species, leading to a decreasing of abundances until a complete collapse of their populations. There is also increasing presence of thermophilic non-indigenous species in the area, and for some non-indigenous species, exploitation activities have commenced, but it is unclear as to whether it would substitute losses due to the decrease of target species (CLIMEFISH project)[51].

Possible adaptation strategies for the fishery in the Northern Adriatic Sea should pass through adopting some actions at industry and policy level. On the one hand, it would be necessary to increase resilience of the ecological processes by reducing fishing pressure on the marine ecosystem; on the other, to prepare fishermen to change, increasing their awareness and opening new markets opportunities for the new species (although this may apply more for the demersal fisheries than for the pelagics).

2.6. Case study 3: Mixed fisheries in the Celtic Sea

2.6.1. Situation

a. Overview

The Celtic Sea is an extremely important area in terms of fish and invertebrate biodiversity, and it supports a large community of apex predators in the form of seabirds and marine mammals (Lauria *et al.*, 2012). The Celtic Sea is also an intensively fished ecosystem, with demersal and pelagic fisheries occurring in most parts of the region, and constituting one of the human activity with the highest impact in the ecosystem (ICES, 2018b).

Significant changes in the structure of fish communities and fishery landings have occurred in the Celtic Sea since the 50s, and these have coincided with a period of considerable fishery expansion (Pinnegar *et al.*, 2002). Yet, overall fishing mortality for shellfish, demersal, and pelagic fish stocks has reduced since the late 1990s. Of 45 stocks fully evaluated, 30 stocks are now fished at or below MSY. The relative spawning-stock biomass has also increased since the late 1990s and is now above the biomass reference points (ICES, 2018b). Furthermore, the impacts of climate change on the Celtic Sea ecosystem are deemed to be weak so far, with only herring abundance (0- and 1-group) showing a negative relationship with increasing spring Sea Surface Temperature (Lauria *et al.*, 2012).

However, a number of stocks have still very low stock biomasses, namely cod in divisions 7e–k, plaice in 7h–k and herring in 7a South of 52°30'N, 7g–h, and 7j–k, all with zero catch advice (ICES, 2019). Several other fish species have been depleted by fishing in the past and are now on the OSPAR list of threatened and declining species, including spurdog (*Squallus acanthias)*, the common skate complex *Dipturus* spp., angel shark (*Squatina squatina)*, porbeagle *(Lamna nasus)*, and some deep-water sharks. Although there are zero TACs or prohibited listings for these species, several of them remain vulnerable to existing fisheries (ICES, 2018b).

[51] https://climefish.eu/2019/04/10/adriatic-sea-fisheries/

b. Choke species

As several species in the Celtic Sea are severely depleted, with scientific recommendation for zero or very low catches, but are caught in mixed and multispecific fisheries, the question remains how to manage these fisheries to allow for a continuation of catches of stocks where quota is available and maintain economic activities, while at the same time protect vulnerable species and stocks? This issue is exacerbated with an enforced landing obligation, as the presence of zero TAC species in the catch will immediately close the fishery.

A major problem in the Celtic Sea is that due to quota allocation rules as well as stock status, all Member States encounter choke issues (Rihan, 2018; Calderwood and Reid, 2019). The North Western Waters Advisory Council (NWW AC) identified in 2017 the following five "stocks" as high risk of choke: haddock 7b-k, sharks & rays 7 & 8, whiting 7b-k, plaice 7fg, and sole 7fg. High risk of choke was defined as catches well in excess of current fishing opportunities and even with all the available mitigation tools applied there is a high risk of choke for multiple Member States (NWW AC, 2017).

Noticeably in 2017, all three stocks listed above (cod in divisions 7e–k, plaice 7h–k and herring 7a South of 52°30'N, 7g–h & 7j–k) did not had a zero-catch advice and as such were not identified as high risk choke stocks.

2.6.2. Forthcoming scenarios

a. Multi-Annual management Plans (MAPs)

The demersal fisheries in the Celtic Sea are now managed under the newly agreed Western Waters Multi-Annual management Plan (WWMAP, Regulation (EU) 2019/472). The WWMAP includes provisions to set fishing opportunities for target stocks within ranges of F_{MSY} under certain conditions to deal with choke situations. Three of the high choke risk stocks identified by the NWW AC (haddock 7b-k, whiting 7b-k and sole 7fg) are also considered target stocks in the WWMAP, and thus their respective fishing opportunities can be set within ranges of F_{MSY}.

For non-targeted or bycatch stocks, no reference points are defined in the MAP or are specifically referred to be used to set fishing limits. Instead, it is stated that bycatch stocks "shall be managed under the precautionary approach to fisheries management when no adequate scientific information is available". The definition under United Nations (UN) for the precautionary approach to management states that the absence of adequate scientific information should not be used as a reason for postponing management measures[52]. ICES interpretation is that the less we know the more precautionary we should be, and follows it when uses an uncertainty cap to reduce fishing opportunities advised for data poor stocks (ICES, 2018b). The MAP however also states that in case of mixed fisheries, the difficulty of fishing all stocks at MSY at the same time shall be taken into account, especially in situations where that leads to a premature closure of the fishery. This may provide an opportunity for legislators to set TACs above MSY levels, or even against scientific advice for zero catches for severely depleted stocks, when choke situations are present.

b. Bycatch TACS

In 2019, to resolve potential choke situations the so-called "bycatch" TACs for stocks with zero catch advice were introduced, with the condition that fishing mortality should not increase. The main Member States involved in Celtic Sea fisheries: France, Ireland, the UK, Spain, The Netherlands and Belgium, should implement a bycatch reduction plan for the fisheries concerned, while a quota

[52] Article 6 of the 1995 United Nations Straddling Fish Stocks Agreement

exchange pool was established to make quotas available to Member States without a quota. Non-zero TACs were therefore agreed in the Celtic Sea for cod in 7b-k and plaice 7hjk, divided by Member States applying the usual quota allocation key.

Bycatch TACs were originally proposed by NGOs to counter premature closure of fisheries while advocating for the full implementation of the landing obligation, but only if 100% at-sea monitoring of the fisheries was guaranteed[53]. These MCS requirement were not agreed by Member States and no specific additional measures were added to the bycatch TACs or reduction plans.

Furthermore, some of stocks concerned have low economic interest for fishers (e.g. plaice and whiting) and without effective implementation of the landing obligation will continue to be discarded, while other species with higher commercial value such as cod will not be avoided.

Finally, even with the adoption of bycatch TACs and increases in several TACs to account for discards, different level of choke situations are still likely to occur due to the mixed and multispecific nature of the fishery and the impossibility of having perfectly matched fishing opportunities to the catch (Rihan, 2018; STECF, 2018a). This, associated to the lack of effective enforcement of the landing obligation, results that discarding continues in Celtic Sea fisheries.

c. Landing obligation

The mixed nature of the species targeted by demersal fisheries in the Celtic Sea results in numerous challenges with the introduction of the landing obligation. It is a multinational fishery that catches several species together, and as explained above has a number of potential choke species that can lead to high discarding. It is likely that a combination of improved gear selectivity and the adoption of alternative fishing strategies will be required to avoid some of the unwanted catches, and to maximise on fishing opportunities under the landing obligation. Increased flexibility when a TAC can be used might help reduce the overall discarding bulk in some fisheries, and particularly whiting in the Celtic Sea. For those more quota restricted species, changes in gear selectivity and fishing strategies are also likely to be required to overcome quota restrictions. However, gear and behaviour adaptations will mitigate some, but not all problems with choke species and under minimum size fish (STECF, 2018a; Calderwood and Reid, 2019).

2.6.3. Identification of gaps

a. Multi-Annual management Plans (MAPs)

How strict are the rules to set fishing opportunities in the MAPs to deal with choke effects? On one hand target species TACs are bound by F_{MSY} ranges to provide flexibility to deal with choke effects, but to a certain limit. On the other, if fishing opportunities are always set at the F_{MSY} upper range the objective of the CFP will not be achieved, while depleted stocks will never recover. So, there will always be a trade-off to deal with in mixed and multispecific fisheries management. However, while stocks continue to recover and reach MSY levels, the impact of chokes effects are likely to be less significant.

b. Relative stability

Nevertheless, due to its economic impact, mixed demersal fisheries are not likely to be closed due to bycatch of vulnerable species, and thus increases and non-zero TACs will continue to be set in some specific cases. However, these fishing opportunities, which are directly linked to discarded catch, should reflect the discarded proportion of the catch in opposition to the landed catch as it is presently.

[53] https://www.documents.clientearth.org/wp-content/uploads/library/2018-11-27-joint-ngo-position-recovering-fish-stocks-and-fully-implementing-the-landing-obligation-managing-fishing-mortality-to-meet-cfp-objectives-coll-en.pdf

For this to become a reality, the mechanism of relative stability would need to be adapted to different catch shares between wanted and unwanted part of the catch and needs to be flexible to allow for fisheries to evolve over time.

c. Monitoring, Control and Surveillance (MCS)

The landing obligation will not be implemented to any significant degree without effective enforcement, as positive incentives such as higher quotas and exemptions were given without any compulsory monitoring requirements. The present review of the control regulation presents itself as a legislative opportunity to not only start tackling this issue, but also to update and modernize the fisheries control reporting provisions, and at the same time strengthen EFCA role in harmonizing and providing a level playing field in control across fisheries in Europe.

2.7. Conclusions

The 2002 reform of the CFP initiated a number of significant improvements, in the form of long-term management plans and stakeholders' involvement. The 2013 reform aimed to build further on these changes in the form of **MSY objective, multi-annual plans** and **regionalisation**. But most importantly, the reform aimed to be the basis for a **profound change** in the way fisheries management is conducted in Europe. The **landing obligation** is turning the basic underlying principles upside down by aiming to make the fishing industry accountable for its impact on all species and sizes caught, and not only on the share that can be landed and sold. This was a **major step** towards ecosystem-based fisheries management.

Implementing such a **paradigm shift** does not, however, occur overnight, and many issues are still unresolved. There are numerous historical, structural and institutional **barriers** that are difficult to overcome. This section reviewed a number of these **issues and challenges**, focussing on the key objectives stated in the 2013 CFP and in particular, i) the too slow progresses to **achieve MSY** in EU fisheries especially in mixed and multi-specific fisheries, and ii) the persistent issue of **discards** in EU fisheries, which the landing obligation has so far failed to improve.

In addition, new challenges like ***Brexit*** and **climate change** jeopardise the outcomes of policy decisions. These two issues relate to a large extent to the **sharing of fishing opportunities** among (but also within) Member States, as is also the case for the central issue of **"choke species"** for the landing obligation: These issues reveal the obsolescence of the current **relative stability** allocation keys, agreed during the 70s-80s but never updated since. This leads to conflicts and to the **suboptimal** exploitation of resources. There is a compelling need to **define new and better ways of sharing** fishing opportunities.

The **current reform** of the CFP has already entered its second half. Given the current rates of progress, several **objectives may thus not be attained** as stated in the CFP, and the relative balance between successes and failures will undoubtedly shape the discussions surrounding the **next reform** of the CFP.

2.8. Recommendations

Based on this **review of the fisheries management** in the EU, the following recommendations are appropriate:

- Fisheries management must be governed by **long-term** objectives and in an **ecosystem-based** approach.

- Fisheries should be made accountable for all their catches and not only for the share that is landed and sold. TAC adjustments (**uplifts**) and **exemptions** from the landing obligation should be supported by adequate catch **reporting** and at-sea **monitoring**.
- In addition, to allow for the effective implementation of the landing obligation, options for using electronic monitoring and other new **monitoring technologies** should be included in the current revision of the Control Regulation, which will improve the EU control system and harmonise procedures across Member States.
- Future and present **Multi-Annual Plans** should remain in line with the MSY objective of the 2013 CFP reform, and while providing flexibility to set fishing opportunities, should also have clear rules for **bycatch** species.
- In the **Mediterranean and Black Seas**, the management of fisheries in this region has been largely **ineffective** until now. There is an urgent need to address unregulated fisheries and overexploitation, which could be addressed by effective regional MAPs.
- The TACs **"relative stability"** allocation keys do not adapt to changes in fish distributions due in part to climate change. There is a compelling need to **define new and better ways of sharing** fishing opportunities.
- There is a need to better **align the CFP**, the Marine Strategy Framework Directive (MSFD), and the EU Birds and Habitats directives under an **integrated ecosystem-based fisheries policy**.
- In case of a no-deal *Brexit*, every political effort should be made to **avoid short-term protectionist decisions** and unilateral TACs increases that will increase fishing mortality.

3. COMMON MARKET ORGANISATION

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KEY FINDINGS

- The **Common Market Organisation** (CMO), created in 1976 as part of the CAP, can be considered as the first separate seafood-based body of laws.
- While focussing in the first place only on market issues, it has evolved since the last reform of the CFP in 2013 towards a more integrated role, by strongly **linking market considerations** with **management strategies**.
- While this development, together with progress in resources management (see section 2), as well as some key Regulations enacted to **level the competitive playing field** between EU and non-EU producers (e.g., the 'IUU Regulation'), generates some positive developments in the profitability of the sector, some challenges remain.
- In some cases, the competition between EU and non-EU producers is still perceived as 'unfair', due to the differences in **environmental and social standards**. Such a situation might call for **tailored trade measures**, such as facilitating the provision of information to consumers about origin and production systems, which is not only required to appropriately differentiate EU seafood products, but is also enshrined in the key CMO objectives.
- While levelling the playing field needs to be more clearly defined, EU primary seafood producers often consider that they are the most **exposed to global market globalisation**, especially in cases where trade agreements between the EU and third countries are in place or are being negotiated.
- In order to achieve Article 2 of the CFP, **marketing tools** have an important role to play, providing that the same requirements are in place for all seafood products (i.e., both fresh and processed products).
- **Public initiatives** are needed to prevent the supply being made through a limited number of species, mostly imported. This will help to make a better use of all EU species, bearing in mind that the EU will, in any case, rely on imports in the future.
- In order to improve the global **efficiency of the seafood market**, it is necessary to find new ways to communicate about products and production methods. Information about the **functioning of the value chain** should also be provided, together with the **origin of the product**, especially for processed products.
- Within the EU, when different production methods are developed to exploit a shared stock, often under different management systems, it is important to **consider all the effects of the activities** to ensure that a **greater outcome** is achieved from the stock. In some fisheries, this need is even reinforced by the ***Brexit*** situation.

3.1. Background

The **Common Market Organisation** (CMO)[54], was primarily created in 1976 as part of the Common Agriculture Policy (CAP). It can be considered as the first separate seafood-based body of laws. The main initial objectives of the CAP were to guarantee **minimum levels of production**, so that Europeans would have enough food to eat, and to ensure a **fair standard of living** for those dependent on agriculture. According to the definition of Article 38(1) of the Treaty of Rome (now Article 32(1) of the TFEU) '**agricultural products'** means the **products of fisheries** and products of first-stage processing directly related to these products (Churchill and Owen, 2010).

The **current objectives** of the CMO are defined in Article 35 of the CFP[55] **Basic Regulation**, which says that a CMO in fisheries and aquaculture products shall be established in order to:

- contribute to the achievement of the objectives set out in **Article 2** (see Box 1 below for selected extracts), and in particular to the **sustainable exploitation of living marine biological resources**;
- enable the fishery and aquaculture industry to **apply** the CFP at the appropriate level;
- strengthen the **competitiveness** of the Union's fishery and aquaculture industry, in particular producers[56];
- improve the **transparency** and **stability of the markets**, in particular as regards economic knowledge and understanding of the Union markets for fishery and aquaculture products along the supply chain, ensure that the **distribution of added value** along the sector's supply chain is more balanced, improve **consumer information** and raise awareness, by means of notification and labelling that provides comprehensible information;
- contribute to ensuring a **level playing field for all products** marketed in the Union by promoting sustainable exploitation of fisheries resources;
- contribute to ensuring that consumers have a **diverse supply** of fishery and aquaculture products;
- provide the consumer with **verifiable and accurate information** regarding the origin of the product and its mode of production, in particular through marking and labelling.

In the context of this study, it is important to clarify what '*competitiveness*' means, as this will have some important implications for the understanding of the case studies analysed below. Also, while the first three points of Article 2 of the CFP deal mostly with the biological component of sustainability, it should be clarified that any sustainable exploitation of living marine biological resources requires the EU fleets to be economically and socially sustainable. Otherwise, no exploitation would be further possible. This is indeed well indicated in point 5 of Article 2 of the CFP Basic Regulation (see Box 1).

54 Regulation (EU) No 1379/2013 of the European Parliament and of the Council of 11 December 2013 on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000

55 Regulation (EU) No 1380/2013Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013.

56 The term *producers* here will be mostly understood as being the economic unit involved in the production process, i.e., in general the fishing and aquaculture company. However, the term *producers* can also be applied to the employees, especially the crew when considering fishing activities.

Box 1: Selected extracts of Article 2 of the CFP Basic Regulation

Article 2(5) of the CFP Basic Regulation says, among other things, that the CFP shall, in particular:

- (c) provide conditions for economically viable and competitive *fishing capture* and *processing* industry and *land-based fishing related activity*;
- (d) provide for measures to adjust the fishing *capacity* of the fleets to levels of fishing opportunities consistent with paragraph 2, with a view to having economically viable fleets without overexploiting marine biological resources;
- (e) promote the development of sustainable Union *aquaculture* activities to contribute to food *supplies* and security and *employment*;
- (f) contribute to a fair *standard of living* for those who depend on fishing activities, bearing in mind coastal fisheries and socio-economic aspects;
- (g) contribute to an efficient and transparent *internal market* for fisheries and aquaculture products and contribute to ensuring a level playing field for fisheries and aquaculture products marketed in the Union;
- (i) promote *coastal fishing activities*, taking into account socio- economic aspects.

Source: Regulation (EU) No 1380/2013

Economic sustainability means that the money received for the production of seafood products exceeds the costs incurred. The firm must be profitable to be sustainable.

Being competitive means that the buyers (i.e., the final consumers or the processing industry) are willing to pay for the product involved, bearing in mind that the seafood market is highly competitive internationally. This means that being profitable today does not mean that the fleet will remain competitive in the future, e.g., if imported substitutes are preferred by consumers, mostly based on lower prices.

Two types of competitiveness can be distinguished as a means of maintaining or expanding the market share and economic performances:

- *Price - competitiveness:* consumers construct their buying decisions based on the price. In this case, improving the competitiveness of EU producers can be achieved through a decrease in cost, thanks to efficiency gain, including through some improvements in the management system to avoid non-necessary costs. The relative competitiveness of EU producers could also be modified by trade and non-trade measures or development aiming to level the playing field between EU producers and non-EU competitors.
- *Non-price competitiveness:* consumers construct their buying decisions based on other attributes than price. These attribute might be the quality of the product, origin of the product, process and production methods, or a mix of all. In that case, improving the competitiveness of EU producers can be achieved through stronger promotion and differentiation of EU based products or through adapted public policies, including public procurements, to develop a low carbon footprint and circular economy.

These two types of competitiveness will be considered hereafter, bearing in mind that, as in many other sectors, high EU standards for environmental and social conditions in general reduce the possibility of proposing low prices. In the next sections, the latest developments aimed at increasing competitiveness are presented (section 3.2), and some key future challenges are identified (section 3.3).

In order to illustrate and analyse these future challenges, three generic case studies are then described (section 3.4).

3.2. Latest developments

The current CMO is defined in Regulation (EU) No 1379/2013 of the European Parliament and of the Council, and aims at:

- Protecting the producers,
- Focussing primarily on primary producers (fishing and aquaculture companies),
- Linking market considerations with resource management issues.

The major recent developments identified, including through direct interviews and consultations with key stakeholders, are the following: better adjustment of the fishing capacities (A), end of the withdrawal scheme (B), IUU Regulation (C) and production and management plans (D).

(A) In line with the general objective of sustainable exploitation of the fish stocks, it is considered that in most cases, the adjustment between fishing opportunities and fishing capacities is improving. This is the result of two converging evolutions:

- As underlined in chapter 2 dealing with the management of fish resources, the status of the stocks is improving, even with a significant increase in the number of the stocks considered to be at MSY. Some non-quota key commercial stocks are also characterised by record abundance, as it is the case of the scallops' fisheries in France (see case study 6).
- At the same time, the capacity of the EU fishing fleet has decreased, which means that fewer fishing companies are exploiting larger stocks.

As a result of these two converging evolutions, the economic performances of most of the EU fleet has increased over the last few years. In 2017, the Gross Value Added (GVA) was estimated at EUR 4.5 billion and the gross profit was estimated at almost EUR 2.0 billion, respectively (combined gross tonnage (GT) of 1.56 million tonnes and engine power of 6.3 million kilowatts (kW)[57] (STECF, 2019b). GVA as a proportion of revenue was estimated at 58% and gross profit margin at 26%. In 2014, the same figures were estimated, respectively, at EUR 3.7 billion and EUR 1.6 billion (for a combined gross tonnage (GT) of 1.6 million tonnes and engine power of 6.4 million kilowatts (kW) (see STECF, 2016).

Moreover, in 2017 the fishing activity generated an average of EUR 28 362 in wages annually, while some highly attractive levels of remuneration have been reached in some countries, which is also needed to ensure the sustainability of the sector.

(B) One of the key developments undertaken with the implementation of the current CFP is the end of the so-called 'price withdrawal' scheme, which was considered as biologically and economically not relevant or harmful (Le Gallic, 2011[58]), especially in the context of the landing obligation (see chapter 3). Basically, the end of such a scheme encourages producers to ensure that there will be enough demand for their products, as otherwise they would not get any money for their catches. While some concerns were raised by the fishing industry before the reform regarding the

[57] See https://ec.europa.eu/fisheries/press/eu-fleet-maintains-high-profits-mainly-thanks-sustainable-fishing-methods_en for further information.

[58] Le Gallic B. (2011), Role of POs and Cooperatives. EAFE discussion forum on CMO reform. European Parliament. 6th December 2011.

economic consequences of such a scheme, few difficulties were encountered, except at the beginning of the reform application.

(C) While the IUU Regulation[59] was implemented as part of the previous CFP reform (with entry into force in 2010), it is still considered by many stakeholders as being a key recent development[60]. One reason for that is that the implementation of the IUU Regulation progressively but continuously improved, including with the new development in May 2019 regarding the digitalisation of the process. In addition, the ex-post analysis of the implementation of the Regulation required several years of data and analyses (see e.g., Mundy, 2018). The purpose and applause of the IUU Regulation can be understood by the following elements:

- The aim was to level the playing field between EU companies and third countries companies not complying with sustainability measures, especially for highly competitive and global such as Tuna. In the specific case of RFMOs (Regional Fisheries Management Organisations), the IUU Regulation ensured EU companies that engaging in sustainable but costly practices would not become a comparative advantage.
- More generally, the IUU Regulation is considered as a key example of an EU-led initiative to promote sustainable fisheries worldwide. First, results clearly show that such pro-active actions are possible and WTO (Word Trade Organisation) compatible (Le Gallic, 2008), especially with respect to the Chapeau of GATT Article XX (see Box 2 below). While the IUU Regulation is mostly based on environmental conditions, this EU initiative might be extended to other socio-economic aspects (e.g., working conditions).

Box 2: Selected extract from the Chapeau of GATT Article XX

The *General Exceptions* section says, among other things:

- Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:
- (a) necessary to protect public morals;
- (b) necessary to protect human, animal or plant life or health;
- (e) relating to the products of prison labour;
- (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

Source: Text from the General Agreement on Tariffs and Trade (GATT)[61]

(D) Another key recent development, introduced by the 2013 reform of the CMO, is the generalisation and obligation for all producer organisations to design and submit a Production and Marketing Plan (PMP) to the public authorities. Together with the end of traditional support measures (e.g., withdrawal prices), PMPs are a move towards a more market-oriented approach. The aim is to

59 Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU Regulation)

60 In general, key stakeholders are considering that at the time of the last reform process, recently developed regulations and practices were not sufficiently taken into account when evaluating the efficiency of the reform (which resulted in an inexact assessment).

61 https://www.wto.org/english/docs_e/legal_e/gatt47.pdf

improve the matching between the supply (i.e., the catches) and the demand, in order to make the most money as possible from the limited natural resource. This evolution is also reflected in a change of role of the producer organisations (POs), who are considered to become, on purpose by the EU authorities, the key players of the CFP. In fact, the new Regulation indeed narrowed down the link between CMO and CFP in a more explicit way than any former Regulation.

3.3. Future challenges

While the economic performances have clearly improved during the last period ***in general***, thanks to the four elements mentioned above as well as other improvements in the management process, some challenges remain, either globally or for specific fleet or production sectors: levelling the playing field between EU and non-EU producers (E), finding the routes to the market for less known, local species (F), making sure that the most efficient production methods are encouraged and preferred, in order to generate the best value for society, taking into account all the aspects of sustainability (G). In addition to these general challenges, it is also important to ensure that specific schemes to facilitate the access of raw material for the processing industry (e.g. the Autonomous Tariffs Quotas scheme) are not negatively impacting EU producers through pushing down the ex-vessel prices.

(E) In a context of creeping globalisation and Free Trade Agreements (FTA), as reflected by the current discussions regarding the new FTA between the EU and the Mercosur (Argentina, Brazil, Paraguay, Uruguay), it is important to make sure that a fair competition occurs. One key element here consists in levelling the playing field between EU and non-EU producers (see case study 4). However, other concerns related to the objectives of the CMO are involved, such as informing the consumers about the origin of the seafood products, including for processed commodities.

NB: Levelling the playing field within the single EU market (see the Celtic Sea case study 6; subtopic 1).

Not all fishing activities operate under strictly similar social conditions in all EU Member States, especially in terms of qualification, remuneration, health protection and working conditions. When such cases occur in a mixed fishery exploited by several EU fleets, this might also generate an uneven playing field in terms of competitiveness. Differences in remuneration systems between countries, especially for non-EU crew, might also be an issue (Jones et al., 2019). In order to ensure fair competition between EU fleets exploiting similar stocks, working conditions, in all respects, should be harmonized.

(F) One objective of the CMO is to make sure that the best use is made of each and every species available in EU waters, including those coming from coastal fisheries, especially in a context of 'under-consumption' of seafood products in most EU countries (compared to recommended consumption levels). Finding the routes to the market for less known, local species can be challenging (see case study 5). This is due both to consumer knowledge and to retailers' strategies.

(G) In most mixed fisheries, different fishing methods are used to catch the fish, with different economic, environmental and even social performances. It is thus important to consider the whole value chain organisation when assessing the efficiency of the production and marketing strategies, in a context of sustainable development (incl. Sustainable Development Goals; see case study 6). A key challenge, therein, is to ensure that specific efficient or promising production methods are not negatively affected by other fishing practices, including through market or stock interactions.

3.4. Case study 4: Seabass and seabream aquaculture in the Mediterranean Sea

General topic involved: Risk of non-competitiveness, mostly because of uneven production methods and standards (not in line with objectives (c), (f) and (g) of Article 35 of the CFP, or with Recital (4) of the CMO Regulation (see Box 3).

Box 3: Recital (4) of the CMO Regulation

> (4) The provisions of the CMO Regulation should be implemented in compliance with the *international commitments* of the Union, in particular with regard to those under the provisions of the World Trade Organisation. When trading in fishery and aquaculture products with third countries, the conditions for *fair competition* should be ensured, in particular through respect for *sustainability* and the application of *social standards* equivalent to those that apply to Union products.

Source: Regulation (EU) No 1379/2013

Summary: The CFP has progressively introduced some regulations aimed at levelling the playing field between EU and non-EU producers, in order to promote fair competition when trading in fishery and aquaculture products with third countries. This has especially occurred in the area of IUU fishing, with the IUU Regulation (Council Regulation (EC) No 1005/2008) However, when it comes to other environmental and social conditions, most of the industry and NGO representatives still consider that they are suffering from unfair competition, even if the production practices involved do not generate impacts on the quality of the product itself. Referring to the Chapeau of Article XX of the GATT, as well as some trade measures implemented in other territories on Process and Production Methods (e.g., USA), more stringent standards or regulations may be needed to ensure fair competition with non-EU producers.

This case study focusses on the markets for European seabass (*Dicentrarchus labrax*) and seabream (*Sparus aurata*) (SBSB), which are mostly supplied by aquaculture activities, where the historical / traditional EU producers (Italy, France, Spain, Greece) are competing with imported products from Turkey and other emerging non-EU competitors that do not face the same production standards.

Such a situation can be found in several other markets, including, but not limited to:

- Trout (*Oncorhynchus mykiss*): competition with Turkey today; and maybe with other key producers in the near future, such as Iran.
- Tuna: competition from Asia and Pacific countries, especially in the cases where Free Trade Agreements (FTA) with the EU are in force, which leads to direct competition for EU producers. For instance, in the case of Vietnam, a FTA has been signed, without fully considering the sustainability of Vietnamese seafood production (see also next point about pangasius). In October 2017, the EC indeed issued a 'yellow card' to Vietnam, as the country did not fully comply with the IUU Regulation.
- Pangasius/tilapia (*Pangasius spp.* / *Oreochromis spp.*): indirectly competing with EU whitefish producers (mostly capture fisheries, but maybe whitefish aquaculture in the future), whereas a part of the production is coming from areas where the water is highly polluted, which would not be possible in the EU.

NB1: Some 'fair' differences in production costs occur between countries, mostly due to differences in resources endowment and standard of life. Here, the case study is considering the differences in production costs due to other reasons, such as harmful environmental and social standards.

NB2: Differences in production costs due to differences in social standards may even increase with the coming application of the 'Safety and working conditions'-related Directive. This Directive (Council Directive (EU) 2017/159 of 19 December 2016)[62], voted in the context of International Labour Organisation ILO Convention C188 (*Work in Fishing Convention, 2007 - No. 188*) is indeed to be transposed into national laws of the Member States by the end of 2019.

3.4.1. Situation

Highlights:

- During the last decade (2007-2016), the production of EU farm seabass production has decreased in Italy and France (respectively –20% and –32%), which is not in line with the objectives of the CFP and the associated Blue Growth agenda.
- The volume share of EU producer countries remained stable at 44% in 2016 after a decrease from 60% in 2008 to 43% in 2014. However, the value share of EU producer countries decreased again from 54% in 2014 to 50% in 2016 (FAO, 2018), due to price pressure from imported products.
- Since 2012, Turkey has replaced Greece as the leader in the seabass and seabass aquaculture industry (FAO, 2018)
- The penetration of Turkish products in the EU market (mostly seabass) has continuously increased over the last 15 years.
- Turkish products have almost fully replaced Greek products in the Spanish market.
- As for EU import prices for these species, from 2015 to 2017 they fell by 7% for seabass and 14% for gilthead seabream (EUMOFA, 2018).

General development:

The mass-production aquaculture of seabass started in France and Italy in the late 1960s. Seabass farming is often associated with gilt-head seabream farming.

In 2016, the global production of farmed seabass reached more than 191 000 tonnes. EU production accounted for 43% of this total. According to FAO statistics, the main producing areas in 2016 were the EU (81 852 tonnes), Turkey (80 847 tonnes) and Egypt (24 498 tonnes).

Table 1: World production of farmed seabass in tonnes (2007-2016)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU 28	60,494	60,443	58,656	65,180	69,052	63,929	63,875	62,825	69,763	81,852
Turkey	41,900	49,270	46,554	50,796	47,013	65,512	67,913	74,653	75,164	80,847
Egypt	598	4,383	5,381	16,306	17,714	13,798	12,328	15,167	14,343	24,498
Tunisia	793	788	1,370	1,466	2,832	1,999	1,968	1,869	2,802	2,564
Other	689	570	571	580	665	784	687	840	1,059	1,243
Total	104,47	115,45	112,53	134,32	137,27	146,02	146,77	155,35	163,13	191,00

Source: FAO

[62] Council Directive (EU) 2017/159 of 19 December 2016 implementing the Agreement concerning the implementation of the Work in Fishing Convention, 2007 of the International Labour Organisation, concluded on 21 May 2012 between the General Confederation of Agricultural Cooperatives in the European Union (Cogeca), the European Transport Workers' Federation (ETF) and the Association of National Organisations of Fishing Enterprises in the European Union (Europêche) (Text with EEA relevance.)

One of the main highlights of the last decade in EU farm seabass production are the drops experienced in Italy and France (–20% and –32%, respectively). In France at least, this is partly explained by the fact that a part of the production moved to an organic method, in order to increase the price of the product through an improvement in the quality (gain in *non-price competitiveness* as it is not possible to stay competitive from a purely price perspective).

For seabream, the volume share of the EU producer countries decreased from 58% in 2008 to 45% in 2016. Accordingly, the *value share of the EU decreased* from 70% in 2008 to 50% in 2016 (FAO, 2018).

Considering the quantities and value provided by the FAO, the average value of seabream and seabass produced in 2016 was EUR 8.99 per kilogram in France, 8.18 in Italy, and 6.87 in Spain, while in Turkey, Tunisia and Egypt the figures were 5.18, 5.20 and 3.18, respectively.

According to a recent study, SBSB production in Turkey was only stagnated between 2008 to 2011 because of the economic crisis and tightening in the market. After that, it has increased rapidly because of market extension and product diversification, thanks to governmental supports for promoting and developing Turkish seafood worldwide (Deniz, 2018). There is also a potential for export of processed fish products to the EU. EU imports of seabass from Turkey indeed represent 98% of the total EU imports (see Table 2). This can partly be explained by the fact that on 6 March 1995, Turkey signed a custom union with the EU, as part of the accession discussions. This means that Turkish products do not face any custom duties[63].

Table 2: Extra-EU imports of fresh seabass by country of origin in tonnes, 2012-2016

Origin	2012	2013	2014	2015	2016
Turkey	6 556	10 991	13 169	14 667	16 591
Other	26	87	132	38	136

Source: COMEXT

According to several recent studies, the increasing volumes of seabass imported from Turkey into the EU, at a lower price, has affected the Greek export price to EU markets.

Greece has been Spain's main trade partner since the beginning of the century but its leadership declined as new actors entered the market. Imports of whole fresh seabream from Greece in 2010 reached around 7 000 tonnes, while imports from Turkey did not exceed 500 tonnes. After 2012 Turkey has replaced Greece as the main trade partner for Spanish importers.

Consequently, international price competition in Spain is indeed led by Turkish exports. Greek exporters and Spanish farmers thus need to accommodate their prices according to the changes made in Turkish prices (Cidad et al, 2018).

Also, the Greek processing sector relies mainly today on imported raw material, despite the availability of domestic farmed finfish. Price is the main reason for restricting the use of domestic fish for processing raw material (Cidad et al, 2018).

According to STECF (2018c; see below), the SBSB industry shows rather poor performances over the 2008-2014 period, during which a process of adjustment in the production structure occurred. The number of small and large companies decreased to the benefit of medium-size companies. The result of this process of concentration and adjustment was an overall decline in the number of companies in the sector.

63 https://ec.europa.eu/trade/policy/countries-and-regions/negotiations-and-agreements/

Table 3: Main economic indicators in the seabream and seabass industry, 2008-2014

Indicators	2008	2009	2010	2011	2012	2013	2014	% variation 2013 : 2014	% variation 2014: (2008-2013)
Number of companies	261	249	219	171	183	206	190	-8%	-12%
Total employees	3 273	2 299	2 836	2 294	2 557	3 130	3 306	6%	21%
Total income (million EUR)	307.7	368.4	390.4	330.2	406.3	441.3	541.3	23%	45%
Total Operational costs (million EUR)	328.6	424.9	364.7	297.7	390.0	447.2	527.5	18%	40%
Gross Value Added (GVA - million EUR)	34.6	4.3	80.5	79.9	57.8	37.3	33.2	-11%	-32%
Earnings Before Interest and Tax (EBIT - million EUR)	-35.0	-87.9	-1.6	17.2	-21.9	-50.8	-70.1	-38%	-134%
Return on Investment (ROI)	-7.2%	-15.6%	-0.4%	4.5%	-3.7%	-9.4%	-11.2%	-19%	-111%

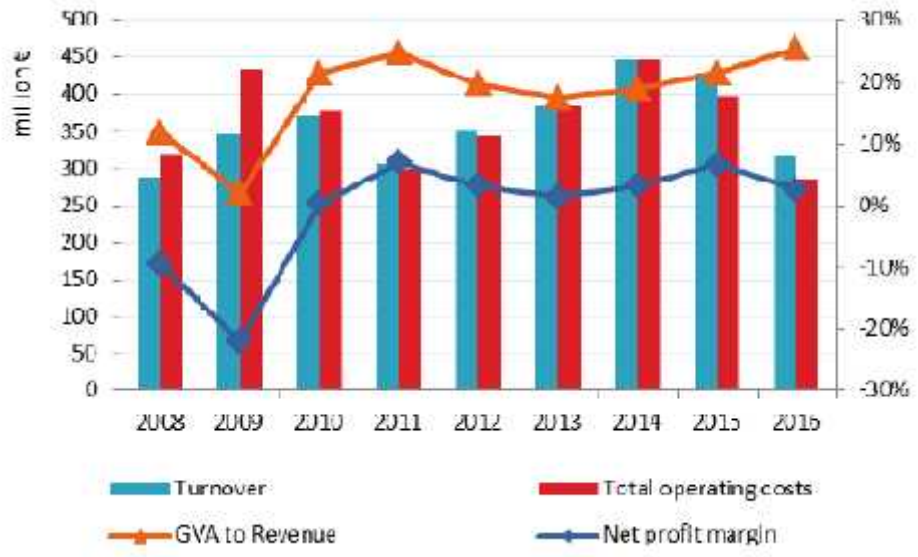
Source: STECF, 2018c
Note: the table does not include information from Greece, France, Slovenia, Malta or non-EU countries of Europe.

For the last decade, Turkish production has been steadily increasing, mostly due to advantages in terms of production costs and government support, which allowed for lower prices compared to other competitors.

The report (STECF, 2018c) also underlined that while some export subsidies seem to have been eliminated, the playing field is still not levelled for EU SBSB producers. As non-EU production is indeed not regulated as in the EU, non-EU producers do not need to maintain the same production standards (which enable reducing the production costs).

Performance indicators for EU seabass and seabream producer countries are presented in the figure below. In general, the overall performances of the sector remain low compared to other seafood activities, which makes the EU SBSB sector vulnerable to any likely risky situation (such as the decrease in imported price or the devaluation of the currency in use in some competing countries, e.g., the Turkish Lira). This can also be observed by the low level of GVA as a proportion of revenue, estimated at around 25% in 2016.

Figure 11: Economic performance indicators for seabass and seabream aquaculture, 2008-2016



Source: EU Member States Data Collection Framework, DCF-EUMAP data submission, 2016

3.4.2. Forthcoming scenarios

Due to differences in social and environmental standards, globalisation and market competition for similar basic products, for which *price-competitiveness* occurs, are likely to result in a decrease in the number of EU firms, mostly due to concentration processes that take place to gain in efficiency. This is, of course, not fully in line with the objectives of the CMO.

As in other industries exposed to globalisation, some support can be expected through the structural European Globalisation Adjustment Fund (EGF[64]) to accompany this trend, but this will not improve the resilience of the sector.

One solution could be the specialisation in high quality differentiated products, as is the case in some countries (e.g., France, Italy) where some consumers are able and willing to pay a price premium (due either to the origin of the product or the production method - *non-price competitiveness*). Such an answer could even be extended to other EU countries, e.g., through the establishment of international Producers' Organisations aimed at promoting EU-based production systems. This could even be supported through Union Priority 5 of the EMFF.

Remark: While such a *non-price competitiveness* strategy can prove efficient, at least in the short run, it also raises some questions / challenges regarding the access to these local products by the bulk of the population, which then has to rely on imported products, sometimes produced in harmful social and environmental conditions. In turn, this can be seen as not being consistent with Article 39 of the CAP, which the CFP is derived from, and which says that the policy aims at ensuring that *supplies reach consumers at reasonable prices*. Moreover, the continuation of such a situation might even been seen inconsistent with Article 86 (b), saying that the policy should not limit production, markets or technical development, to the prejudice of consumers.

64 https://ec.europa.eu/social/main.jsp?catId=326&langId=en

Partly due to the difficulties encountered by the global WTO negotiations, there is currently a trend of developing bilateral Free Trade Agreements (FTA) between the EU and third countries[65]. When seafood products are covered by these Agreements, there might be a risk for the competitiveness of EU producers due to differences in environmental and social standards, including working conditions. In the case of the Trade Agreement signed between the EU and Vietnam on 30 June 2019, for instance, some competitiveness concerns might occur, as at the same time, the US Department of Commerce maintained high anti-dumping rates for some Vietnamese products. In absence of a levelled playing field, some EU-based companies can even decide to reduce their costs by employing non-EEA staff, even under specific working regimes.

A possible strategy could be to replicate the example of the IUU Regulation, e.g., to make sure that sustainability, in every aspect, is respected. This could apply, among other things:

- to environmental aspects, including (some) aquaculture production systems;
- to social aspects, especially regarding working and safety conditions.

Also, as the multiplication of FTAs may increase competition between EU and non-EU products, informing consumers about the origin and the production method to ensure a fair competition, as this might be an opportunity for some EU producers to reap the benefits of *non-price competitiveness*.

3.4.3. Identification of gaps

Despite the fact that some of the challenges described above have, at least partly, already been identified by the European Parliament[66], there is still no clear and comprehensive process to ensure that EU standards are verified in all respects for imported products, including processed ones.

Moreover, there is no systematic analysis of non-EU government export supports. While anti-dumping procedures can be put in place, the process takes time and some damages may be irreversible. Also, compared to other large markets, EU producers have the feeling of being the most exposed to competition with third countries.

There are also issues regarding the labelling of processed products using non-EU products as raw material, as information regarding the origin might be confusing (e.g., with several possible origins mentioned on the package), and the production methods are hardly mentioned.

When Trade Agreements or custom unions are negotiated between the EU and third countries, specific considerations about the sustainability of fisheries and aquaculture sectors should be taken into account, including all the aspects of the productions methods (e.g., quality of the water or origin of the feed in aquaculture).

3.5. Case study 5: Northern EU market

General topics involved:

Risk of misuse or non-valorisation of a lot of species, not demanded by the main retail chains (not in line with Recital (6) of the CMO Regulation).

Summary: Together with changes in population structure and globalisation, the consumption of seafood products tends to be concentrated in a limited number of species, especially in the North of the EU, although this tendency might expand to other countries through the process of standardisation

65 https://ec.europa.eu/trade/policy/countries-and-regions/negotiations-and-agreements/

66 See Parliament's own initiative report 2017/2129 (INI), with a text adopted P8_TA (2018)0223 on 30 May 2018 on the Implementation of control measures for establishing the conformity of fisheries products with access criteria to the EU market.

of eating practices. In most of the Northern retail chains, the supply is indeed limited in mostly imported species such as salmon (*Salmo salar*), tuna (*Thunnus spp.* and *Katsuwonus pelamis*), cod (*Gadus morhua*) & Alaska pollock (*Gadus chalcogrammus*), shrimps. This is partly due to the developments observed in the retail sector, as well as to the poor knowledge of consumers about seafood products and production methods. Such a situation is thus not in line with Recital (6) of the CMO, which aims at promoting an informed and varied consumption of seafood products.

Box 4: Recital (6) of the CMO Regulation

> (6) In order for the CMO to be a success, it is essential that *consumers are informed*, through marketing and educational campaigns, of the value of eating fish and the wide variety of species available, as well as of the importance of *understanding the information* contained on labels.

Source: Regulation (EU) No 1379/2013

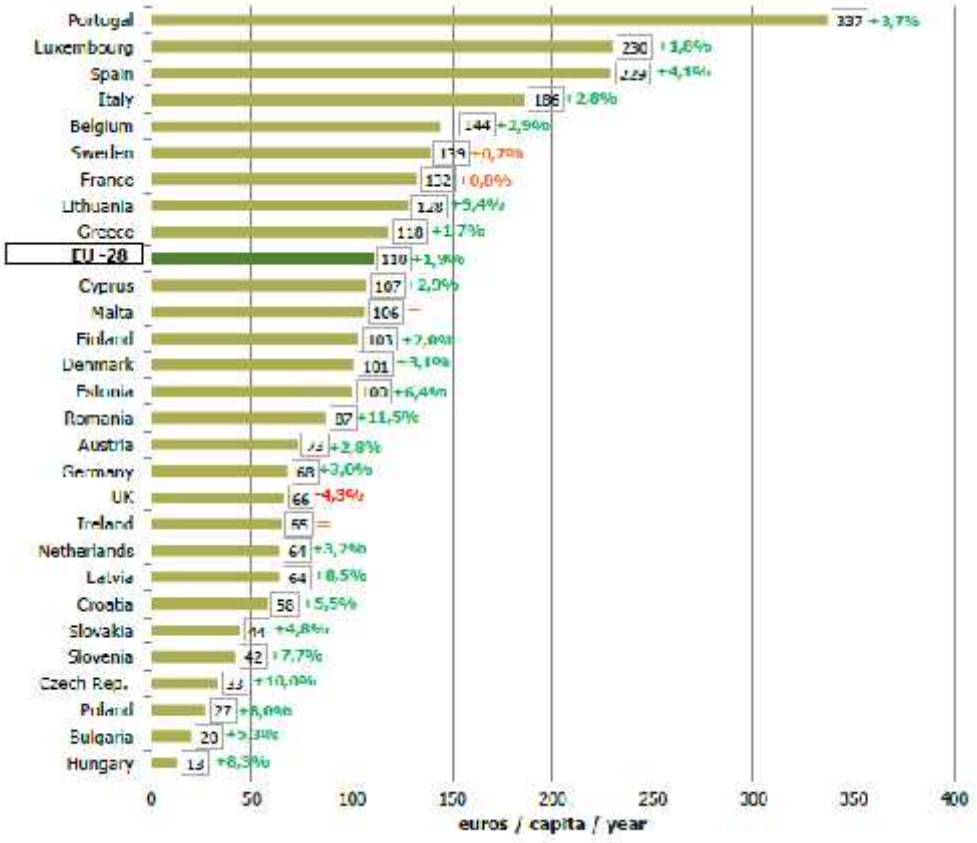
3.5.1. Situation

According to a recent EUMOFA study (EUMOFA, 2018[67]), the EU household expenditure on fishery and aquaculture products reached a 15-year peak in 2017, totalling EUR 56.6 billion. The top five species eaten in the EU (tuna, cod, salmon, Alaska Pollock, and shrimps) amounted to 43% of the total market in 2016. These species are mostly imported from non-EU countries. However, the situation varies a lot across EU Member States. The analysis here focusses mostly on EU Northern markets.

While Belgium had a per capita household consumption of EUR 144, i.e., above the EU average (EUR 110), most other EU Northern countries are characterised by lower seafood expenditures than the EU average: Denmark (EUR 101), Austria (EUR 73), Germany (EUR 68), the UK (EUR 66), Ireland (EUR 65), The Netherlands (EUR 64) and Poland (EUR 27) (see Figure 12).

[67] EUMOFA (2018), *The EU fish market*. 2018 Edition. DOI: 10.2771/41473

Figure 12: Per capita household expenditure on fishery and aquaculture products in the EU in 2017 and % variation 2017/2016 (out-of-home consumption is excluded)



Source: EUROSTAT (Purchasing Power Parities –PPPs –per capita nominal expenditure); see also The EU fish market, 2018 Edition, p. 30, EUMOFA

In Germany, while the five most important species consumed in 2012 were Alaska pollack (23.3%), herring (*Clupea harengus* - 18.5%), salmon (12.5%), tuna (11.2%) and catfish/pangas (4.8%), accounting for 70% of the consumption (Rath, 2012), a slight change occurred in the recent period, with the top five being Alaska Pollock, salmon, tuna, prawn and saithe (*Pollachius virens*) (EUMOFA, 2017). As noted in the recently updated EUMOFA country profile for Germany, loose fish is also more rarely consumed than the EU average (minus 14 points)[68].

In Poland, the five most consumed species, accounting for around 64% of the consumption, were, in 2017, pollock, herring, mackerel (*Scomber scombrus*), cod and salmon.

In the UK, in 2016, cod, salmon, tuna, cod and haddock (*Melanogrammus aeglefinus*) accounted for around 58 % of the consumption, not including the '*fish fingers*' commodity, mostly made from imported whitefish products such as Alaska pollock (Seafish, 2016).

In the Netherlands, the five most consumed species are also tuna, herring, salmon, Alaska pollock and the '*fish fingers*' commodity (Pinckaers, 2019).

In Ireland, in 2015, the five most consumed species were salmon, cod, prawns[69], hake (*Merluccius merluccius)* and haddock.

[68] EUMOFA Country Profiles. Update 15/02/2019, available at https://www.eumofa.eu/en/germany

[69] 'All prawns' category. https://www.msp-platform.eu/events/eumofa-country-fiches

This concentration of consumption in a limited number of mostly imported species, can be explained by the following elements:

- In most Northern countries, there has been an increased interest in sustainably caught fishery products and responsibly farmed products. Sustainability labels are becoming increasingly important for all food products, but the most popular sustainability labels for both retailers and consumers are Marine Stewardship Council (MSC) and Aquaculture Stewardship Council (ASC). In practice, more and larger retail chains (e.g. Edeka and Lidl in Germany, Marks and Spencer in the UK, etc.) are requiring these two labels. In other words, products that are not MSC-certified cannot enter most of the Northern markets. This can be a challenge for a lot of EU small scale, little documented fisheries, which might have some difficulties in being certified, while some of the largest fisheries in the world (e.g., Alaska Pollack[70], Alaska salmon, and most Icelandic whitefish species) are certified.
- Retailers and processors are also interested in regular supplies and regular prices, which can be offered by the aquaculture products (such as salmon or panga). Small scale, local EU fisheries are conversely characterised by irregular supplies (mostly because of seasonality, weather conditions, etc.) and prices. For commercial and institutional restaurants, too, it is often easier to book frozen raw material from Alaska or New Zealand (e.g. hoki *Macruronus novaezelandiae*) three months in advance rather than relying on local supply.
- Recent studies show that the general knowledge of EU Northern consumers regarding seafood products and production methods is generally low, especially when considering the origin of the processed products. Further, EUMOFA studies show that the lack of knowledge about cooking or using seafood products is one of the main reasons for preventing consumers from buying seafood (e.g., EUMOFA, 2017). This is especially the case for the younger generation. The more people get used to easy-to-use products, such as salmon, the more they tend to buy them, although some substitute products might exist (e.g., smoked trout coming from EU farms). As noted in EUMOFA (2017), consumers focus on species they know, and that reassure them.

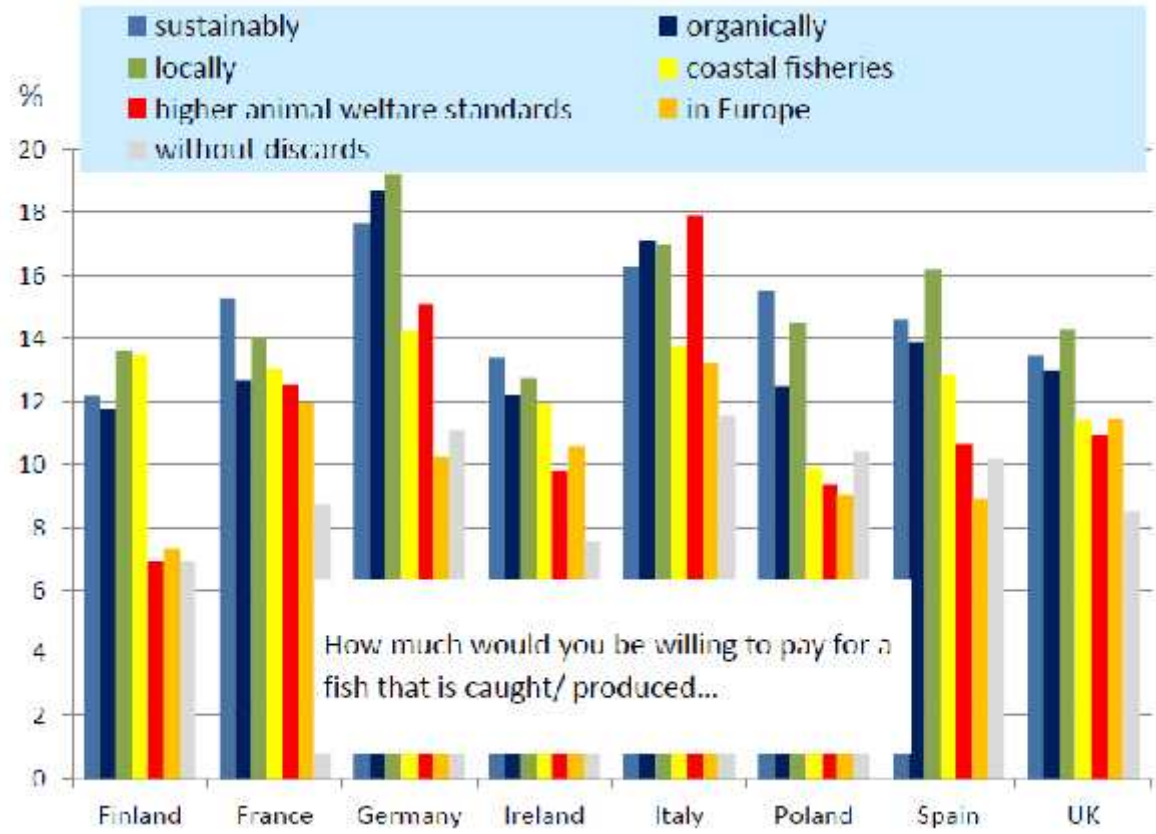
While the EU is, and will remain dependent on imports, the issue at stake here is that at the same time, ***some EU products are facing difficulties to find their route to the market***, including some traditional ones like plaice, which lost access to the market following the implementation of the management measures put in place to recover the stock. This means that part of the EU could be more used to satisfying the seafood demand from the market, and that part of the EU production could receive a better price.

This is reinforced by the fact that some EU consumers are declaring their interest in EU or local products, either for social (employment) or environmental (reduced carbon footprint; 'zero-kilometre' consumption) reasons. This is partly reflected by the fact that 51 products are registered in the EU with geographical indications (GIs): Protected Designations of Origin (PDOs), and Protected Geographical Indications (PGIs) as well as Traditional Specialities Guaranteed (TSG) (EUMOFA, 2018). According to EUMOFA country profiles, 42% of EU consumers indicate an interest in the origin of the product, while 24% declare their interest in brand or quality labels (e.g., PDO, PGI, but also probably private labels).

Other studies, conducted as part of recent H2020 funded research programs, also show that some consumers are interested in the local or EU origin of the product (e.g., Zander and Feucht, 2016)

[70] The biggest certified fishery, with a tonnage of around 1.2 million tonnes per year.

Figure 13: Consumers' interest in specific seafood attributes in eight Member States



Source: Zander and Feucht, 2016[71]

3.5.2. Forthcoming scenarios

Some of the developments described above, such as the specific labelling scheme requirement, are likely to expand. This can be a challenge for some EU fisheries, but also an opportunity, as suggested by the examples of the Normandy and Jersey lobster fishery (*Homarus gammarus*) or the Granville whelk fishery (*Buccinum undatum*), certified despite their limited production (445 tonnes and 6 066 tonnes, respectively). Clearly, in order to compensate for their lack of knowledge regarding seafood and production methods, consumers want to get clear signals. However, such signals are not only provided by a limited number of private labels. Some public labels can also be used, as shown by the recently implemented French label, which also includes social considerations. Otherwise, when considering the main fishing zones, this label requirement might only result in an increase in imports.

Although the situation may vary between countries, some initiatives might be taken in institutional restaurants (school, hospital, army, ministry, etc.) to maintain and promote a diversified supply of seafood products, including local ones. Some recent studies show that in most EU countries (Zander et al, 2017[72]), such a development can be implemented, and even supported by some EMFF measures[73]. In the case of places where the fish supply is sufficient, it is for instance technically and legally possible

[71] Zander K. and Feucht Y. (2016) *Consumers preferences for sustainable European fish.* SUCCESS project workshop. Competitiveness and sustainable sourcing in Europe for fish and seafood. Rome, 18th May 2016. Available: http://www.success-h2020.eu/success-workshops/workshop-rome-2016/

[72] SUCCESS Deliverable D2.2, accessible http://www.success-h2020.eu/outputs/deliverables/

[73] In the USA, in July 2019 the USDA decided to buy up to USD 41 millions of Alaska Pollack to support the National School Lunch Program, Emergency Food Assistance Program and other similar initiatives. .

to organise the sourcing from fresh local productions rather than relying on frozen substitutes booked three months in advance.

A clear trend explaining the supply concentration in a limited number of mostly whitefish species is the increased demand for easy and ready-to-eat products, especially for younger generations. A possible way of providing access to a larger variety of species, including those from small-scale EU fisheries, could therefore consist in developing new processed products, as aimed by EMFF Union Priority 5.

3.5.3. Identification of gaps

While it is an objective of the CMO to achieve a better value from all EU seafood products, including from small-scale fisheries, some further efforts need to be developed at Member State level. This is indeed partly estimated in text adopted by the European Parliament on 29 May 2018[74].The need to better inform consumers about the importance of healthy eating is also recalled in this text, as well as the possibility of conducting a study on the impact of imports on local fisheries.

Bearing in mind Recital 12 of the CFP Basic Regulation, which says that *the CFP should also contribute to the supplying of highly nutritional food to the Union market and to reducing the Union market's dependence on food imports*, it is necessary to find new ways of informing about products and production methods. Information about the functioning of the seafood value chain should also be provided, together with the origin of the product, especially for processed products.

Efforts should particularly be made for species that are less known by EU consumers where substitution is partly possible. The improvement of some of the EU stocks could thus result in a better marketing of these products.

3.6. Case study 6: Western waters (including channel fisheries)

General topics involved:

A. Risk of non-optimal use of the fish stocks, from an economic and societal point of view, due to the lack of appropriate management or collaboration process.

B. Loss in competitiveness of some 'best practices' EU fleets, due to global management inconsistencies.

C. Promotion of the most sustainable and ***valuable*** production systems.

(Not in line with Recital (7), (12) and (14) of the CMO Regulation).

Summary: Healthy marine fish stocks have the potential to generate high economic and social values for society. In addition to the sustainability of the stocks, specific actions have to be implemented to guarantee the efficient exploitation of the stocks and the stability of the market. While such an objective is relatively straight forward in the case of single species single gear fisheries, where there is a direct matching between the *scale* of the resource exploited and the scale of the fleets involved, this can be much more complicated in multispecies multi gear fisheries, where different fishing activities are exploiting the same stock with different fishing practices and different regulations.

In most mixed – shared fisheries, there is direct or implicit competition between various fleet and fishing practices to access the resource, leading, in some cases, to collective under- or non-optimal behaviours. In particular, it might happen that some fishing practices occurring in one or more Member States could impede the promising efforts developed by specific fishing segments in one Member

[74] See Parliament's own initiative report, with the text adopted P8_TA (2018)0210 on 29 May 2018 on the optimisation of the value chain in the EU fishing sector (2017/2119(INI))

State, e.g., when highly selective production methods (e.g., seabass lining) are affected by the general decline of the stock due to other fishing practices (e.g., decline of the seabass stock in the Channel around the 2010 period), or when an activity generates high level by-catch mortality during a specific period (e.g., spider-carbs (*Maja squinado*) harm by bottom trawling during the melt period (Boncoeur *et al*. 2000). Moreover, it might happen that some fishing activities are more able to generate a higher value for society than others. When several Member States are involved, this general situation can be exacerbated by the fact that different management regimes are in place, thus resulting in jurisdiction conflicts.

Bearing in mind that the CFP and the CMO aim to generate sustainable wealth (Article 35(a)) and ***producers incomes*** (Article 35(c), says that the CMO should ***strengthen the competitiveness*** of the Union fishery and aquaculture industry, in particular producers; see above), this should at least be partly taken into account when considering the overall exploitation strategy, as the most valuable activities are the ones that are most likely to generate high value added high wages.

On the other hand, it might also happen that some fishing activities are more dependent than others on a species or a specific area (specialised vs opportunistic behaviour). Here again, this relative dependency should at least be partly taken into account when considering the overall exploitation strategy.

In order to illustrate the issues at stake, two sub-cases are presented, both occurring in the Western Waters / Channel area: The seabass fishery and the king scallop fishery (*Pecten maximus*).

Such a situation can be found in several other markets, including, but not limited to:

- Cuttlefish (*Sepia sepia*) in the Western Waters / Channel, where different fleets (e.g., trawlers and potters) are exploiting cuttlefish at different levels of the life cycle and in different areas.
- Sole (*Solea solea*) in the Channel, North Sea, where the stock is exploited by different fishing techniques: nets in France, beam and otter trawl in the UK, and formally, beam trawl and pulse wing system in the Netherlands.
- Nephrops (*Nephrops* norvegicus) in some areas of Scotland, the Irish Sea and the Bay of Biscay.
- Mackerel and herring in the whole EU, where most of the production is achieved by over 40 metres pelagic trawlers targeting commodity markets, while some small-scale segments (handliners for mackerel, driftnetters for herring) are fetching a far higher market price, with sometimes no or difficult access to fishing opportunities.

3.6.1. Situation

a. The Seabass case

Seabass is a major species of the French seafood market[75]. The two major stocks (the Northern seabass stock and the Bay of Biscay seabass stock) are mainly targeted by French vessels (Daurès, Nourry and Charles, 2017[76]). In 2013, the total catch from these stocks was around 4 000 tonnes per year for the Northern seabass stock, which is analysed here. Historically, the production of seabass was mostly carried out by traditional liners, as is the case for several other Member States. The coastal liners fleet (or "hook fleet" according to the EU regulation) is a traditional fleet for seabass catches in France, which

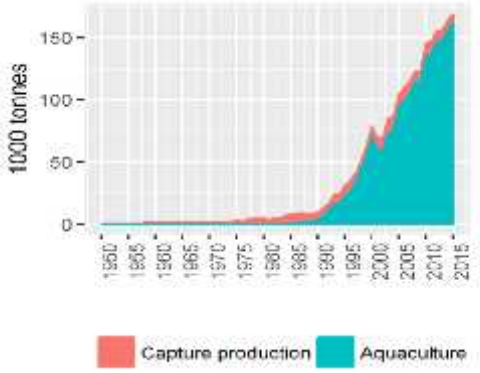
[75] Seabass apparent consumption is assessed at around 12 000 tonnes in recent years

[76] Daurès F, Nourry M. and Charles E. (2017). *Promoting Coastal Fisheries Products in a competitive environment: the French case of the Sea Bass Breton label "Bar de ligne de la pointe de Bretagne"*. Communication at the XXIIIrd EAFE Conference. 25-2è April 2017. Available at: http://www.success-h2020.eu/events-conferences/eafe-2017/

is currently composed of more than 200 commercial fishing vessels. Vessels are mostly less than 12 metres long (with one or two people on board) distributed along the French Atlantic coast and primarily targeting seabass. Brittany liners are a major subgroup of this fleet.

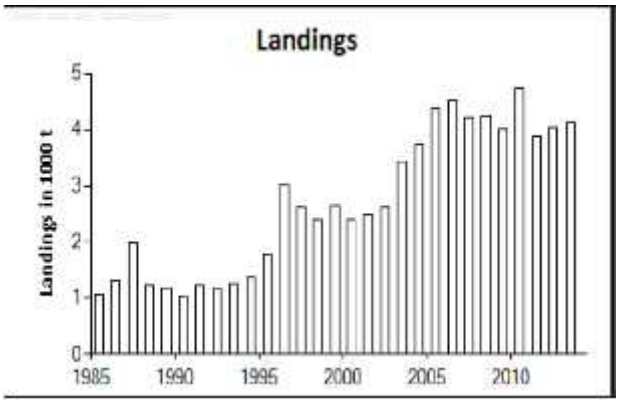
The trend in Northern seabass catches, which is the one documented here, is characterised by two periods of increases between 1995 and 2010. The first increase occurred just after 1995 and the second in the mid-2000s, Figure 15). These increases in landings are the result of the attractiveness of this fishery for some large trawlers (over 18 metres demersal and/or pelagic trawlers) which faced the decline of their traditional target stocks. In that context of generalised overexploitation of traditional EU stocks (EC, 2016) broadly described, and leading to severe restrictions in fishing quotas, the absence of fishing regulations (quotas, licences) on seabass stocks, as well as an increasing demand in seafood markets, has created an opportunity for these trawler fleets.

Figure 14: Global production of European seabass by production source, 1950-2015



Source: FAO-Fishery and Aquaculture Statistics

Figure 15: Total landings of European seabass in channel, Celtic Sea and North Sea, 1985-2015



Source: ICES, WGCSE 2014

From 2000 to 2007, the number of vessels in the seabass fishery remained stable, around 1 000 to 1 100 vessels per year, and then decreased slightly to reach 900 vessels in 2015. The number of vessels belonging to the hook fleet varied between 250 to 350 vessels over that period, corresponding to around 30% of the seabass fleet with a peak of 347 vessels reached in 2007. Meanwhile, French seabass landings noticeably increased in the first half of the period, starting at 4 184 tonnes in 2000 to reach a peak of 5 957 tonnes in 2006 (+43%). They then decreased slightly between 2006 and 2013, and finally faced a sudden drop from 2013 onward, due to excessive total fishing pressure since 2010. This situation of the seabass Northern stock "depletion" resulted, in 2015, in the entry into force of a management plan, mostly resulting in a ban of pelagic activities during the spawning season.

As one might expect, the increase in catches resulted in a decrease in prices for the whole fishery. In order to differentiate their products from the ones caught by the trawlers, in 1993 a sub-group of Brittany coastal liners created the brand "Bar de Ligne de la Pointe de Bretagne" which is still in use in 2019.

The "Bar de Ligne de la Pointe de Bretagne" is a private and collective brand that can be used by vessels that are members of the "Ligneurs de la Pointe de Bretagne" association. To do so, vessels must comply with several criteria for the seabass catch activity (Daurès, Nourry and Charles, 2017):

- Vessels of less than 12 metres using hook (line or longline) to catch seabass, registered at a Brittany harbour;
- Respect 24 hours maximum between the catch and the first sale;
- Respect a biological stop during part of the year (February and/or March) in order to respect the seabass spawning season.

The objective of the "Bar de Ligne de la Pointe de Bretagne" label is clearly to receive a price premium for attributes that are considered specific to seabass caught by coastal liners in comparison to other fleets' catches or farmed seabass:

- the freshness, because of the short trip duration due to the small size of the vessel and their coastal fishing areas;
- the quality of the product, overall because of the gear used which does not downgrade the product like trawl can do, for instance;
- the traditional feature associated with the "line" fishing gear in France and in Europe (Mariat Roy, 2015) which is often used by small (artisanal) vessels and considered as environmentally friendly.

This price premium can be observed over the 2000-2015 period (see Table 4), when prices varied depending on the fleet segments.

On average, and over the period, the ex-vessel prices for the seabass landed by the hook fleet is around 14 EUR/kg while it is around 8 to 9 EUR/kg for the others.

Table 4: Average seabass ex-vessel prices per fleet segment, 2000-2015

Fleet segment	Ex-vessel price (EUR/kg)
Hook fleet	14.0
Polyvalent fleet	11.9
Netter fleet	9.0
Demersal trawl fleet	8.6
Pelagic mixed trawl fleet	8.0

Source: Daurès and Nourry 2017

When considering the case of the specific labelled hook fleet compared to all the other fleets, the analysis clearly shows that:

- A price difference exists between different fishing methods;
- The price difference between labelled hooked caught seabass and those caught by trawlers peaked at 7.3 EUR/kg in 2015 (Daurès and Nourry, 2017[77]).

The seabass case is an example of high competition in stocks and markets. As a result, marketing strategies appear as a potential means to *improve the competitiveness* and sustainability of small-scale fleet activities, providing that sufficient access to the resource is granted for labelled vessels.

This latter point raises the question of the allocation of fishing access in this specific context of product labelling where the race to fish is more or less still the rule. For the seabass fishery, the management essentially occurs through vessel limitation, depending on the fleet the vessel belongs to. These

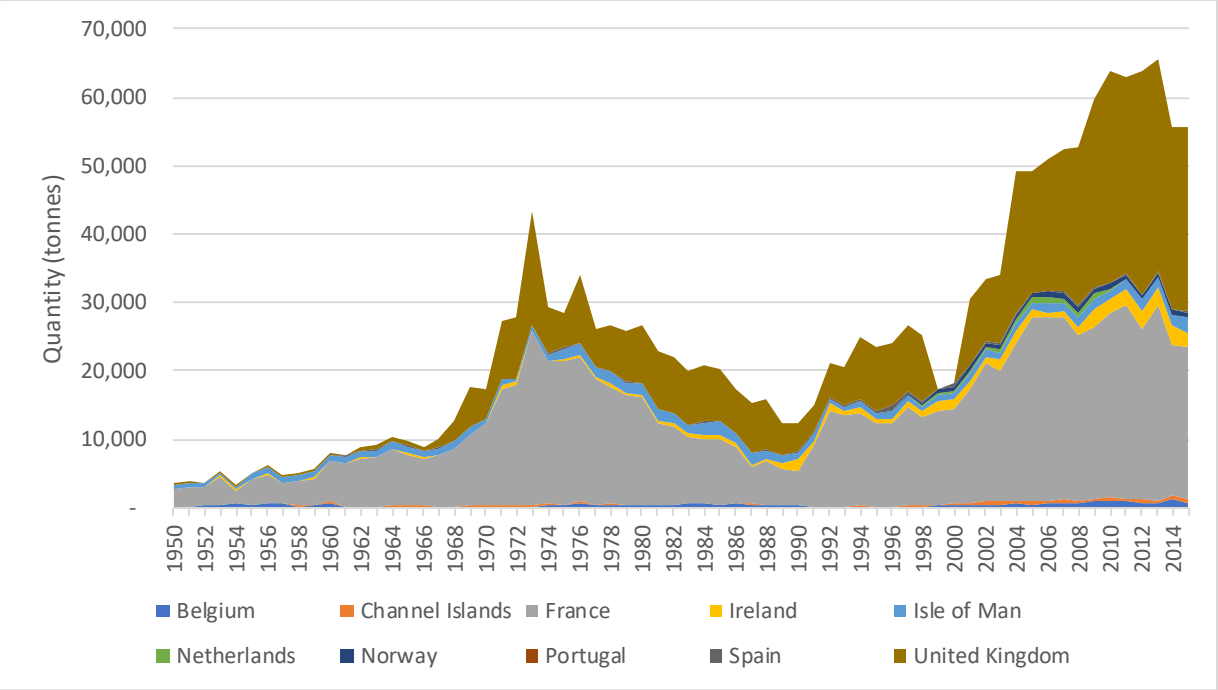
[77] Daurès F. and Nourry M. (2017) *Labelling the Sea Bass Coastal fishery - Lessons from the French Experience*. Poster presented at the Slow Fish Conference 2017. Available at http://www.success-h2020.eu/events-conferences/slowfish-2017/

management decisions have been taken since 2014, after decades of non-management measures, because of the decline of Northern seabass stock, and recent concerns regarding the Bay of Biscay seabass stock. This also means that without the decision to implement specific management regulations, which was taken at the EU level, the competitiveness and the sustainability of the labelled hook fleet would have been strongly reduced, despite the potential price-premium and the limited pressure on the stock and the marine environment.

b. The scallops case – Channel

King scallops (*Pecten maximus*) are only caught in Europe, and are mostly caught by French and UK dredge fleets, accounting for 91% of EU landings in 2014 (STECF AER, 2016; FAO, 2017). The development of the landings of king scallops since 1950 is presented in Figure 13. The English Channel (i.e., ICES sub-areas VII d and VII e) is the most productive area with 58% of reported landings in 2014[78] (see STECF, 2016).

Figure 16. Development of king scallops since 1950



Source: FAO, 2017

For the UK and France, king scallops were the third most valuable species in 2014 in the UK, and the 4th in France (domestic catches). Even though there is a significant production of king scallops by the UK and France, it could be viewed a high value niche market on a worldwide scale.

King scallops are a coastal species but targeted by a range of vessels mostly using dredge. They are highly regulated fisheries but not by total allowable catch. The analysis performed here concerns the Bay of Seine, which is the biggest French fishery, and for which part of the fishery is shared with Member State fleets outside territorial waters (mostly UK fleet).

There are various differences in management between the UK and France, particularly in inshore waters. However, the biggest differences are that France imposes a closed season (i.e., May to

[78] This figure is considered to be quite underestimated due to the organisation of the value-chain in the Eastern part of the Channel, where an important quantity of scallops is not sold through auction markets (Le Gallic et al., 2010).

September) on its fleets, whereas the UK does not, and that the French vessels are submitted to catch limits.

The differences between France and the UK can also be seen in the way the sector is organised:

- In France, the vessels are strongly dependant on their fishing places, whereas UK vessels are more mobile and less dependent on a specific part of the stock (the UK fleet is considered to have an opportunistic strategy, moving from one fishing area to another).
- There is almost no market for fresh scallops in the UK. As a result, most of the UK scallops are exported to France and Italy.

Difference in quayside prices: According to the data reported to the JRC, there is a difference between the quayside prices observed in France and the United Kingdom, which has represented at least 30 cents per kilogram since 2011 (STECF 2019).

Table 5: Quayside prices for king scallops in France and the UK (in EUR/kg), 2011-2017

	2011	2012	2013	2014	2015	2016	2017
France	2.43	*	2.32	2.50	2.70	3.12	3.18
UK	2.08	2.15	1.89	2.06	2.36	2.78	2.87
Price difference	0.35		0.42	0.44	0.34	0.35	0.30

Source: STECF 2019
Note: * the price reported for 2012 for France in the STECF report is not relevant.

Differences in economic performances: Over the period 2008-2016, the GVA generated by French dredge segments targeting scallops is significantly higher than the equivalent segments in the UK. Due to specific national regulations, there are no dredgers over 18 metres in France. Nonetheless, no UK segment presents a better performance over a long period than the French segments.

Table 6: Turnover to Gross value added (GVA) ratio for several dredge segments (DRB) in France and the UK, 2008- 2016

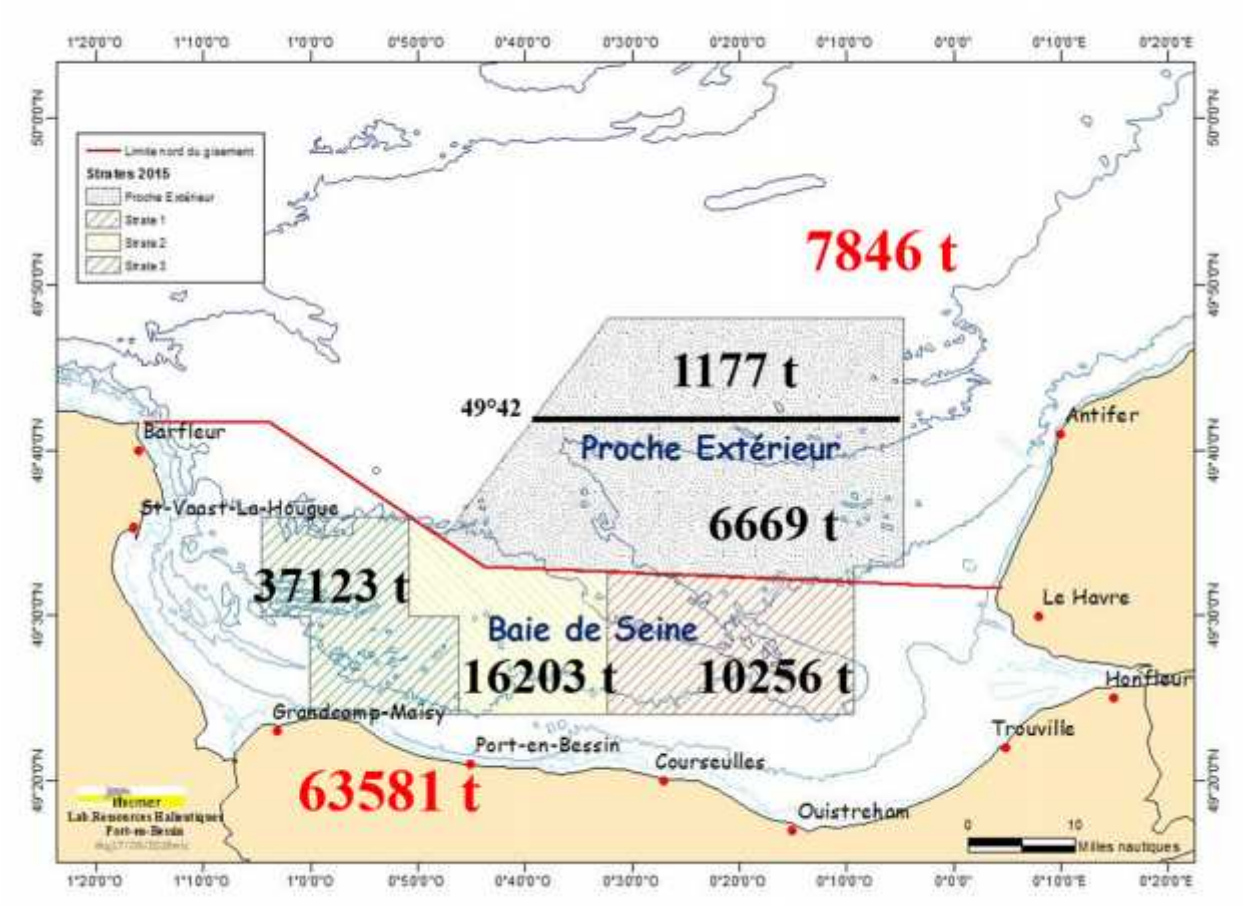
Member State	Dredge segment	2008	2009	2010	2011	2012	2013	2014	2015	2016
France	VL0010	64%	58%	67%	62%	56%	55%	54%	51%	59%
France	VL1012	51%	49%	58%	47%	40%	42%	46%	56%	50%
France	VL1218	45%	43%	51%	36%	33%	41%	42%	47%	46%
UK	VL0010	41%	39%	39%	32%	44%	25%	32%	31%	32%
UK	VL1012	35%	40%	38%	32%	47%	27%	38%	34%	31%
UK	VL1218	36%	45%	41%	36%	41%	33%	38%	36%	35%
UK	VL1824	39%	43%	47%	50%	42%	39%	35%	43%	38%
UK	VL2440	36%	43%	48%	50%	41%	38%	37%	43%	37%

Source: STECF AER 2019

Differences in stock status (inside /outside territorial waters): For the main French scallops stock (Bay of Seine), the recent stock assessment shows a very strong difference in productivity inside the Bay (i.e., in territorial waters) and outside the Bay. Indeed, inside the Bay, a record 63 600 tonnes of

exploitable stock were estimated (compared to 48 600 tonnes in 2017), while outside the Bay, i.e., where most of the management measures are not in force, the respective figures are 7 800 tonnes and 18 800 tonnes. While some environmental elements may have played a role, part of this increase inside the Bay is considered to result from the management measures put in place since 2000.

Figure 17: Abundance of the king scallop biomass inside and outside territorial waters



Source: CNPMEM[79]

3.6.2. Forthcoming scenarios

The two sub-case studies show the importance of considering the question of access regulation in a mixed- shared fishery when analysing the overall economic performances of the exploitation. In the seabass case, the implementation of the new regulation in 2014 was considered as a solution to avoid any further decline in stock due to the report of fishing effort of some fleets.

In the king scallop case, the race for fish, which occurs outside territorial waters due to the absence of limitations on the UK side, results in maintaining the stock at low levels, while the strong increase in stock inside the French territorial waters suggests that the management system in place can, at least partly, play a key role in improving the resource condition and the profitability of the fleet. To some extent, the fact that the UK fleet can fish all year-round could even impede the effort of the French fleet to respect the summer ban.

[79] http://www.comite-peches.fr/campagne-coquille-saint-jacques-2018-2019-estimations-plus-prometteuses-jamais/ Consulted on 15/08/2019

Such situation may currently be reinforced in the context of *Brexit*, as a lot of uncertainties exist regarding the way shared stocks will be managed in the future outside territorial waters. In the case of Nephrops, the UK production is by far the most important in Europe, which means that any regulatory divergence, post-*Brexit*, may have an important impact on competing EU fleets (France, Denmark, Ireland, notably).

In general, even, or especially for non-quota species, the producer organisations (POs) have a key role to play to ensure that the greatest value can be extracted from the fishery. As indicated, their role has gradually but significantly evolved since their creation in 1976. On purpose, they became the key players of the CFP and CMO, especially with the development of the production and marketing plan (PMP) implemented during the last CMO reform. Based on Regulation EU N° 1379/2013, the aim of the PMP is to bridge the gap between traditional resource management and the market demand, by placing the POs at the core of the management system. While such a development appears to be quite successful in some countries, where the POs made huge efforts in terms of capacity-building, there is still a greater need for market-oriented management, especially if opportunistic fishing practices are in place. Also, and with regards to paragraph (12) of the CMO, there is a clear potential for more effective international POs, which could help to develop a consistent management approach.

In addition, and in accordance with Recital (7) of the CMO, future development in mixed-shared fisheries needs to consider how the special characteristics of SSF are taken into account in the exploitation of the fishery, especially regarding the allocation of fishing opportunities. This is especially important with regards to Article 17 of the CFP (see Box 5 below), calling for the inclusion of environmental and social criteria in the definition of fishing opportunities. The seabass case can provide a good example of this, as the use of lines can generate higher ex-vessel prices, while being considered as a very selective fishing method.

Box 5: Article 17 of the CFP Basic Regulation

Article 17

Criteria for the allocation of fishing opportunities by Member States

When allocating the fishing opportunities available to them, as referred to in Article 16, Member States shall use transparent and *objective criteria* including those of an *environmental*, social and *economic* nature. The criteria to be used may include, inter alia, the impact of fishing on the environment, the history of compliance, the contribution to the local economy and historic catch levels. Within the fishing opportunities allocated to them, Member States shall endeavour to provide incentives to fishing vessels deploying selective fishing gear or using fishing techniques with reduced environmental impact, such as reduced energy consumption or habitat damage.

Source: Regulation (EU) No 1380/2013

3.6.3. Identification of gaps

In general, there is no systematic mechanism to ensure that the best use is made of the resource, or even a systematic evaluation of the value of the fish stocks. However, some production methods and management systems can prove useful to improve the competitiveness of the fleet and ensure the sustainability of the fishery.

In most countries, the access regulation is mostly based on a grandfathering method, i.e., fishing anteriority. While this approach ensures some stability and visibility for the fishing firms, it does not include any efficiency criteria, as listed in Article 17 of the CFP.

In the case of mixed-shared fisheries, especially outside the territorial waters, there is no obligation to develop a consistent and comprehensive management system. Promising management efforts made in some countries can thus be undermined by some opportunistic fishing practices, as occurs for scallops and cephalopods in the Celtic Sea. While the Regional Advisory Council (RAC) could facilitate the development of such consistent management approaches, they do not have the necessary power or mandate. Further, in the case of mixed-shared fisheries, it might be efficient to develop some formal or informal cooperation systems between the POs involved, so that the production and marketing plans (PMP) can match the scale of the stocks.

3.7. Conclusions

While the general objective of the CMO is to contribute to the successful implementation of the CFP, the analyses performed here focus on several particular domains of interest to **improve the competitiveness** of the EU seafood primary sector:

- **levelling the playing field** with non-EU producers;
- **promoting the widest variety of EU fish** products;
- **identifying potential inefficiencies** in management and productive systems.

During the recent period, in general, the profitability of the EU fisheries sector has improved significantly. This has been due to several structural reasons, such as the improvement in the state of the stocks, the **decrease in fishing capacities** (and the diversification promoted by Union Priority 4 of the EMFF), the implementation of the IUU Regulation, and the **systematic development of production and marketing plans**. These trends were also accompanied by low fuel prices and improvement in the management systems.

However, some challenges remain. **Levelling the playing field** is needed to ensure fair competition on the global market. While the IUU Regulation was a first initiative in this direction, some processes need to be designed to ensure that **all the dimensions of sustainability are respected**. This applies especially to the outermost regions of the EU, e.g., in the Indian Ocean, where differences occur in working conditions between EU and non-EU vessels. This also applies to the aquaculture system, where **all the exploitation conditions** should be controlled, including the feeding process.

In absence of such measures, the risk exists of seeing pressure on international prices, an increase in imports (as in the case of Turkey in the SBSB sector), and a **potential exclusion of some EU products from the EU market**.

This might also accelerate the **tendency of the concentration of the supply** observed in some EU countries, especially the Northern ones for the time being, especially in markets requiring specific (private) labelling schemes. This results from both retailer strategies, which aim at securing stability in quantity and price, and low consumer knowledge regarding seafood products and production systems.

In shared fisheries, when different fleets are using different production methods, under different management systems, there is often **room for improving the overall competitiveness of the sector**, e.g., by fully analysing the economic, social and environmental dimensions of the exploitation[80]. In particular, some promising production or management strategies can be impeded by other, often opportunistic, behaviours.

[80] Which is indeed fully in line with the article 17 of the CFP.

3.8. Recommendations

- **Based on the review of the latest development and future challenges related to the CMO, the following recommendations are appropriate:** In line with the IUU Regulation, checking the conformity of the fisheries products with international stock sustainability standards, and with safety regulations, checking the sanitary quality of the products entering the EU single market, **efforts should be made to verify that all aspects of sustainability are respected** during the production process of imported seafood products. This can include:
  - **working and safety conditions**, either at sea or in aquaculture facilities;
  - **production process in aquaculture activities**, including the use of antibiotics or feed products banned in the EU, as well as the quality of the water in the production area.

  While it might be technically difficult or too costly to verify all the aspects of sustainability from all production processes, such **efforts are particularly important in the context of Free Trade Agreements** between the EU and some third countries, in particular when the seafood sector is important.
- In addition to such trade measures, efforts should be made to **improve the information** provided to the consumers, including for **processed** products, which are currently exempted from the obligations applied to non-processed seafood products (e.g., regarding the origin and production methods). This is especially important because of the low knowledge of consumers regarding seafood products and the functioning of the globalised seafood value chain. **Clarifying the origin of the seafood ingredients and the production methods used could be considered as an interesting way of differentiating products made from EU-produced ingredients.**
- While making sure that the information provided to consumers is not misleading, including the use of some certification schemes, **efforts should be made at both EU and MS levels to increase the general knowledge about seafood products and production systems**, especially in some (Northern) EU countries where the seafood expenditure is relatively low and focussed on a handful of known, **mostly imported**, species. **Public actions** could consist of marketing and information campaigns, but also in **promoting the use of less-known, local species**, e.g., through the sourcing of institutional restaurants (school canteens, hospital, etc.).

Improving the competitiveness of the EU fisheries sector can also be achieved by **identifying the most efficient production methods and management systems**, taking into account all the aspects of sustainability. This is especially the case in shared-mixed fisheries, when different fleets are operating under different conditions. In order to prevent some fishing practices from undermining the promising strategies developed by some specific fleets, it is important to conduct a **full analysis of the performances of the fisheries**, including when the stocks are exploited by different MS fleets. All efforts should be **made to perform such analysis, either at Advisory Council, PO or EU levels. This could also help to develop joint production and marketing plans,** encompassing all the related activities through stock or market interactions.

4. EXTERNAL DIMENSION

*This section was prepared by Martín Aranda (*AZTI*) and Sébastien Metz (*Sakana Consultants*)

KEY FINDINGS

- The **European Union** emerges as a natural **leader in international fisheries governance**. Further efforts, however, would not yield good results where third fleets are subject to weak regulations.
- Capacity building, clauses in SFPAs, unregulated sea areas, and coordinated market mechanisms require further EU attention to **discourage escalating IUU fishing** and other harmful fishing practices in world fisheries.
- EU fishing fleets are conditioned by access agreements. **Level playing amongst all parties** sharing fish resources is needed to contribute to a **sustainable exploitation**.
- Within the EU, many resources are shared amongst Member States and others. **Brexit** provides opportunities to revisit the exploitation of shared stocks and further cooperate towards a **sustainable and economically viable exploitation**.

4.1. Background

In the 1970s, the emergence of the **Extended Fisheries Jurisdictions** (EFJ) triggered a profound change in international fisheries management. Indeed, in 1976 the European Economic Community extended its fishing limits to **200 nautical miles** off the **North Sea** and **North Atlantic** coasts. It was not until 2013 that the CFP incorporated the **external dimension** of fisheries as one of the pillars of the EU fisheries policy. This reform was a breakthrough which prioritized the principles of sustainable and responsible fisheries over the previous objectives of maintaining the presence of Union fleets in external waters and guaranteeing market supply. Articles 28 and 29 of **Regulation 1380/2013**, states the objectives of the external dimension which, in synthesis, are to ensure that the **Union fleet activities outside EU waters** are subject to the **same principles** applied **inside EU waters**. Meanwhile promoting a level playing field for Union fleets and third country operators, contribute to the **fight against IUU fishing** and promote, strengthen and even lead the process of improving the performance of **Regional Fisheries Management Organisations** (RFMOs).

Currently, the EU is one of the most **important fishing regions** in the world. The Union market for **fisheries products** is the largest (EUMOFA, 2018) and the region ranks fourth in terms **catches**, accounting for 5% of global captures (Eurostat, 2019). Concerning the **external fleet**, the Scientific Technical and Economic Committee of Fisheries (STECF) estimates that around **300 vessels** operate in long distant waters, which encompasses multiple RFMOs and other regions (STECF, 2018). Even more importantly than its international presence in fishing activities, the Union plays an active role in **international fisheries governance** thanks to its institutional capacity. The Union is able to back up decisions with sound scientific advice and expertise in international policy. The **scientific apparatus**, consisting of a network of national and private research institutes, STECF and a body of experts assisting the Union's participation in RFMOs, and other fora, are key elements to reinforce the Union's contribution to international fisheries governance. In turn, the **European Fisheries Control Agency** (EFCA) assists **Member States** in fulfilling control and inspection obligations under the CFP and

collaborate with **regional organisations** and **third countries** concerning the control and inspection obligations of the Union[81].

The Union is currently a **contracting party** in *five* tuna and *nine* non-tuna **RFMOs** (Table 8). The Union has also *nine* fully active **Sustainable Fisheries Partnership Agreements** (SFPA). *Six* of these agreements are in place with Senegal, Liberia, Ivory Coast, Seychelles, Mauritius and the Cook Islands and focus on **tuna species**. There are two provisionally active tuna agreements with Cape Verde and Gambia. Agreements focusing on **mixed fisheries** are in place with Morocco, Mauritania and Greenland. There is also one provisional mixed agreement with Guinea-Bissau. In addition, there are two active agreements with Norway and the Faeroese Islands – aka **Northern Agreements**. The agreement with Iceland is currently **dormant**. These agreements define the access rights of EU fleets to operate in third country waters. In 2019, the **budget appropriation for RFMOs** and other international organisations encompassed a **compulsory contribution** of EUR 4.9 million. In turn, the **voluntary contribution** to these organisations amounted to EUR 13.6 million. The latter encompassed contributions to the scientific work of international organisations, preparation of new international fisheries organisations, funding of some regional actions on control and inspection and contributions to any activity of interest to the EU in the realm of international organisations. In 2019, the **EU contribution to SFPA** amounted to EUR 142.6 million[82]. The so-called mixed agreements represented the largest proportion of the budget for SFPAs. As an example, the SFPA with Mauritania receives a contribution of EUR 61.63 million (43% of the budget for SFPAs[83]).

In addition, the EU has development policies and related financial instruments such as the **European Development Fund** (EDF) which is being employed to strengthen governance in fisheries in developing regions. In turn, the **European Regional Development Fund** (ERDF), and particularly INTERREG, is devoted to strengthening fisheries governance in Union regions such as the **Outermost Regions** (ORs), where cooperation with developing regions take place[84]. The ORs are EU outpost regions and can play a key role to influence non-EU regions on sustainable fisheries.

The EU stands as a **major international donor** able to contribute to the funding of **capacity building** in developing countries e.g. reinforcement of the administrative, technical and scientific apparatus and participation in fisheries governance in their regions. Due to its institutional and financial capacity the EU seems well placed to lead the process of **international fisheries governance**, although there is still room for improvement (Guggisberg, 2017). The Union's implication in the governance process can be justified by the presence of its fishing fleets in the different oceans and by the commitments manifested in the Union treaties, policies and international obligations.

4.2. Latest developments

The EU plays a key role in the work of the diverse RFMOs, where it is active in proposing **Conservation and Management Measures** (CMMs) and funding capacity building activities through the EMFF and the EDF. It has also a number of SFPAs to secure supply to the EU market, while financially contributing to development in the nations where its fleet operate. The participation of the Union in diverse fora, such as the **United Nations General Assembly** (UNGA) and **FAO's Committee of Fisheries** (COFI) have also contributed to achieving sustainable management of fisheries. Within the EU framework, the

81 Regulation (EU) 2019/473 of the European Parliament and of the Council of 19 March 2019 on the European Fisheries Control Agency
82 https://eur-lex.europa.eu/budget/data/DB/2020/en/SEC03.pdf
83 https://ec.europa.eu/fisheries/press/sustainable-fisheries-eu-and-islamic-republic-mauritania-extend-existing-protocol_en
84 https://www.mac-interreg.org/

creation of the **Long-Distance Advisory Council** (LDAC) in 2007 is a notable governance initiative aimed at supporting the EU distant waters fishing sector and enhancing its advisory role. The Union regulation on the **Sustainable Management of External Fishing Fleets** (SMEFF)[85], which is one of the pillars of the Fisheries Control System, attempts to guarantee the sustainable fishing activities of its fleets beyond EU waters, while facilitating a more effective control of operations. This ambitious commitment, however, may not yield the intended outcomes on fisheries sustainability where other nations do not impose similar requirements to their fleets (Guggisberg, 2019).

There are many challenges in international fisheries governance and the Union has made meaningful steps to address some of them either by leading international initiatives or adopting international commitments into the EU regulatory framework. Some of the issues described below have been largely recognised as challenges and extensively discussed and documented. In contrast, others are emerging and require international coordination and strengthening and development of international instruments and fora.

a. Illegal, unreported and unregulated (IUU) fishing

IUU fishing stands as a challenge requiring cooperative efforts amongst the diverse countries. Market mechanisms play a key role against IUU activities by restricting access to the market of products of dubious or illegal origin. Under the umbrella of the IUU Regulation[86], the Union has put into practice diverse mechanisms to restrict access to its markets. Despite this and other laudable initiatives, combating IUU fishing requires the development of international legal tools and effective enforcement mechanisms to discourage these activities.

The SMEFF represents an improvement in relation to the former **Fishing Authorisation Regulation** (FAR)[87]. The SMEFF establishes common eligibility requirements, obligations for data submission, and a burden of proof on IUU fishing is put on Union vessels under private agreements between Member States companies and third countries, aka direct agreements, joint ventures between Union capitals and third countries operators and activities of Union vessels chartered by third countries operators. Having set up the SMEFF, the Union seems like one of the most advanced regions concerning the control of its **Distant Waters Fishing Fleets** (DWFFs). It appears necessary, however, that third DWFFs operating in the **Exclusive Economic Zones** (EEZs) of coastal states fulfil similar control and transparency requirements. It would be advisable for the EU to encourage coastal states to develop regulatory frameworks for the activities of third country vessels in their waters. The EU could encourage this in the framework of the SFPAs (LDAC, 2015). Unregulated activities of these vessels may pose a risk for the sustainability of fishing resources in developing nation waters.

In turn, transhipments at sea are also an issue boosting IUU fishing. The Union's IUU Regulations forbid transhipments at sea between third country fishing vessels as well as between third country fishing vessels and EU flagged vessels within Union waters[88]. In consistence with its internal regulations, the

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85 Regulation (EU) 2017/2403 of the European parliament and of the council of 12 December 2017 on the sustainable management of external fishing fleets and repealing Council Regulation (EC) No 1006/2008

86 Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No 2847/93, (EC) No 1936/2001 and (EC) No 601/2004 and repealing Regulations (EC) No 1093/94 and (EC) No 1447/1999

87 Council Regulation (EC) No 1006/2008 of 29 September 2008 concerning authorisations for fishing activities of Community fishing vessels outside Community waters and the access of third country vessels to Community waters, amending Regulations (EEC) No 2847/93 and (EC) No 1627/94 and repealing Regulation (EC) No 3317/94

88 Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing, amending Regulations (EEC) No 2847/93, (EC) No 1936/2001 and (EC) No 601/2004 and repealing Regulations (EC) No 1093/94 and (EC) No 1447/1999

EU has been active in promoting the ban on transhipment at sea in diverse RFMOs, although in some cases these initiatives faced opposition and were shelved (see section 5.5).

b. Unsustainable fishing practices

These constitute a threat to targeted and non-targeted resources, particularly Protected Endangered and Threatened Species (PETs) and an unfair competition for fleets that abide by strict management measures. The use of these poor practices in the high seas is banned by international instruments such as, for example, the ban on large scale driftnets (e.g. nets longer than 2.5 kilometres) in the high seas (UNGA Resolution 46/215). Implementation of these bans is difficult and costly due to the impossibility to fully control large fleets in international waters. The Union incorporated this prohibition into its regulatory body for certain species. Banning of shark finning has also become a major concern. Consistent with the International Plan of Action (IPOA)-Sharks, the Union adopted the European action plan in 2009[89]. Similar actions have been proposed to diverse RFMOs. Actions plans were presented to the North East Atlantic Fisheries Commission (NEAFC) and North Atlantic Fisheries Organisations (NAFO) and successfully adopted by these organisations (Guggisberg, 2017). Other RFMOs such as the International Commission for the Conservation of Atlantic Tunas (ICCAT) have not adopted these CMMs due to opposition from some of their members (see section 5.5).

Coordination at international level is required to ban destructive fishing practices in EEZs to prevent expansion of such activities onto the high seas. This is particularly difficult when the livelihood of coastal communities is at stake and/or control capabilities are limited. All parties should be willing and able to adopt commitments on banning unsuitable fishing practices. Notably, decision-making procedures currently in place in diverse RFMOs allow members to opt-out of CMMs. This may jeopardize collective efforts to ban destructive fishing practices.

c. Increasing fishing capacity

Large fishing capacity implies a risk for resource exploitation and a threat to new fisheries. It also represents a waste of economic resources (FAO, 2000). Actions to reduce or freeze fishing capacity are high on the agenda of many RFMOs. One of the main constraints relates to the unwillingness of developing nations to restrict fishing capacity expansion due to legitimate claims to develop their own fisheries and secure food provision. The topic has been debated within and amongst RFMOs e.g. during the Kobe Process (Aranda *et al.* 2012). The Union has been active in promoting alignment of fishing capacity to fishing opportunities and contributed to the Kobe process. The Union has made diverse proposals for capacity limits in diverse RFMOs such as for example in ICCAT (see section 5.5).

d. The lack of institutional capacity in third countries

Many coastal states are developing nations which lack the technical and administrative capabilities to control the expansion of their fishing effort and capacity and to prevent encroachment of foreign IUU fleets in their waters. The lack of scientific capacities to collect and analyse data is even more evident since these nations have difficulties in complying with data collection and reporting as required for the RFMOs scientific assessments. Concerning SFPAs, coastal states may lack the means to determine surpluses and Monitoring, Control and Surveillance (MCS) activities, thus being unable to subject all fleets fishing in their waters to their own rules. Building institutional capacity in these countries is a challenge that should be effectively addressed in order to have a more comprehensive evaluation of resources status. MCS of these fleets are also sorely required to discourage and counteract IUU fishing.

[89] Council Regulation (EC) No 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels, later amended by Regulation (EU) 605/2013 of 12 June 2013

The Union is currently contributing to the fight against IUU fishing with capacity building initiatives such as those carried out by the EFCA with Western Africa inspectors under in the framework of the project PESCAO, funded by the EDF. There is a need to coordinate efforts between EU funds e.g. between EMFF and EDF, with other major donors and with the beneficiary countries and with participation of stakeholders in the Union, such as the LDAC, and its counterparts in the beneficiary countries.

4.3. Future challenges

a. Possible solutions for old problems

IUU fishing has been, and will likely continue to be, a big problem for world fishing. The lack of institutional capacity of coastal states will still impose limitations to discourage and deter these activities in their waters and to control their fleet activities in Areas Beyond National Jurisdictions (ABNJ)[90]. The use of new technological improvements such as satellite technologies or electronic monitoring, amongst others, are alternatives to conventional observer programmes. They are, however, costly solutions at this point in time and particularly difficult to implement in large small-scale fleets. Capacity building of inspectors in third countries is also sorely required. These are also costly although new technologies can reduce costs. Training of inspectors through internet-based modules offer promising results. Some initiatives on this matter have been carried out by the EFCA (Anon. 2018).

First of all, international commitments and willingness by all parties are required to tackle this problem. In addition, coordination is necessary to prioritize actions and avoid overlapping of funding. The Union is well placed to lead this process since it has in force some of these instruments and can lead by example. Funding efforts require international coordination amongst major donors and the coastal states to guarantee coordinated investment and avoid wasteful redundancies. Transparency in the use of the funding such as, for example, sectorial support intended to build MCS capabilities is also required.

Fishing capacity may continue to increase in already exploited and overexploited fisheries in the near future. Actions to freeze capacity face opposition, particularly when legitimate aspiration of developing states to develop their fisheries are at stake. Concerted efforts are required to establish the right balance between fishing capacity and fishing opportunities. This is a task that requires sound scientific support to determine which fleet sectors are overcapitalised and which can be developed.

b. Social sustainability of fishing fleets

Beyond biological and ecological considerations there is an increasing concern about crew working conditions at a global level and particularly in the high seas. The Union has implemented measures to guarantee good working conditions, e.g. habitability, health and security, for Union fleets operating in third country EEZs and international waters. These are initiatives whose implementation should be adopted by other flag states exploiting these resources. The RFMOs are well placed to promote this process, which requires participation of other international organisations such as the World Maritime Organisation (WMO) and International Labour Organisation (ILO). At present, FAO is leading the process of elaborating voluntary guidelines. But there is still a long way to guarantee better working conditions for fishers and ensure a level playing field for the different fleets exploiting shared resources.

[90] see e.g. https://www.un.org/bbnj/

c. The existence of marine areas where non-binding agreements are in place

Large marine areas are not yet subject to the jurisdiction of multilateral organisations with a mandate to establish CMMs. The south-western Atlantic off the coast of Africa is a particularly rich fishing area where no binding agreements are in place. Although the Fishery Committee for the Eastern Central Atlantic (CECAF) for western Africa provides sound scientific advice, it is widely recognised that this area requires an organisation with a mandate to establish fisheries conservation and management measures (Molenaar, 2005; LDAC, 2017a).

d. Development of allocation criteria

This is regarded as a key element to ensure fair distribution of fishing opportunities amongst fishing parties. Though UNFSA stated the need to define allocation criteria, this has only emerged as a need quite recently. Notably pre-UNFSA RFMOs do not include allocation provisions. Nonetheless, it has been incorporated into the regulatory body of some RFMOs like ICCAT. RFMOs arising after UNFSA such as WCPFC include guidance on allocation.

Consensus on allocation is hard to achieve due to the divergent positions of the members which in tuna RFMOs tend to lead to the formation of two blocks i.e. coastal states and Distant Waters Fishing Nations (DWFNs). Due to the diversity of the parties concerned, allocation procedures cannot be based solely on historical catches, but also encompass a range of factors such as socioeconomic dependency, compliance records and ecological impacts, amongst others. The Chatham House report on best practices in RFMOs suggested that one of the main difficulties for allocation is the new entrant issue. It seems necessary that at the time of allocation all interested parties are part of the convention in question (Lodge *et al.* 2007). Within RFMOs, efforts are being made to define allocation criteria and operationalize the distribution of fishing opportunities (see case study on tuna RFMOs).

e. The exploitation of new living marine resources

Due to population growth and changes in consumption patterns, global fish consumption shows an increasing tendency. Currently exploited stocks cannot withstand an ever-growing exploitation and aquaculture production cannot grow indefinitely. New fishing resources of potential economic interest, such as mesopelagic resources, constitute a source of protein for animal and human use and have pharmaceutical applications. The exploitation of these resources constitutes a technical challenge and may also require a new regulatory approach due to the role of these organisms in the ecosystem (see case study on International Governance in this report).

4.4. Case study 7: The SFPAs with Mauritania, Senegal and Guinea Bissau

The European Union has pledged to implement the United Nations Sustainable Development Goals (SDGs) not only within the EU but also with partner countries, notably by developing a post-Cotonou [91] framework on the future relations with the African, Caribbean and Pacific Group of states[92]. Several Sustainable Development Goals (SDGs) directly applicable to the fisheries sector are specifically listed in the recitals of the recent regulation on sustainable management of external fishing fleets[93], notably SDG14 which is to 'conserve and sustainably use the oceans, seas and marine resources for sustainable development', as well as SDG12 which is to 'ensure sustainable consumption and production patterns' (Recital (7) of Regulation 2017/2403). Some of the ten different specific targets associated with SDG14 are specifically focused on the exploitation of fisheries resources:

- Target 14.4: By 2020, effectively regulate harvesting and end overfishing, IUU fishing and destructive fishing practices and implement science-based management plans;
- Target 14.6: By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to IUU fishing;
- Target 14.7: By 2030, increase the economic benefits to Small Island Developing States and Least Developed Countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism;
- Target 14.b: Provide access for small-scale artisanal fishers to marine resources and markets.

All SFPAs concluded by the EU are expected to foster the completion of the different SDG targets (Recital (7) of Regulation 2017/2403), while at the same time following Article 62(2) and (3) of UNCLOS stipulating the upper limit of potential catch achievable by EU vessels, referred to as "surplus catches" (Recital (9) and Article 33 of Regulation 2017/2403).

4.4.1. Situation

The Canary Current Large Marine Ecosystem (CCLME) is one of the most important upwelling areas in the world. According to FAO data, this ecosystem ranks third in the world in terms of primary productivity. Important resources are widespread in the waters of this ecosystem, including small pelagic species (sardines, sardinellas, mackerel, horse mackerel, and chad, amongst others), demersal fish (black hake), crustacean (shrimps), cephalopods (octopus, squid, cuttlefish) and large pelagic species (tuna species).

Over the last 30 years, the EU has had, and in some cases still has, bilateral fisheries agreements with most of the riparian countries of this Large Marine Ecosystem: Morocco, Mauritania, Cape Verde, Senegal, Gambia, Guinea and Guinea-Bissau. The European Union started to enter into bilateral fisheries agreement in the region in the early 1980s (Senegal and Guinea Bissau in 1980, Mauritania in 1987).

The SFPAs with Mauritania and Guinea Bissau are mixed agreements, providing access to a wide variety of species: demersal species, small pelagics and tuna species. After an initial period as a mixed

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91 The ACP-EU Partnership Agreement, signed in Cotonou on 23 June 2000, was concluded for a 20-year period from 2000 to 2020. See https://ec.europa.eu/europeaid/regions/african-caribbean-and-pacific-acp-region/cotonou-agreement_en

92 Joint communication to the European Parliament and the Council "A renewed partnership with the countries of Africa, the Caribbean and the Pacific" JOIN (2016) 52 final.

93 Regulation (EU) 2017/2403 of the European Parliament and of the Council of 12 December 2017 on the sustainable management of external fishing fleets and repealing Council Regulation (EC) No 1006/2008

agreement followed by a long suspension (between 2006 and 2014), the SFPA with Senegal is now considered as a tuna agreement with a limited hake component (Table 7). The difference in terms of access between the three SFPAs highlights the diverse state of developments of domestic fleets in the following three countries:

- In Senegal, most of the demersal and small pelagic species can be fully exploited by local fleets, which does not allow for any "surplus" allocation to be attributed to foreign vessels. The small current allocation of black hake to EU vessels is considered experimental and is currently limited to two vessels.
- Mauritania faces the same situation for its cephalopod fisheries (notably octopus), with no room to accommodate foreign fleets to target these species. However, Mauritania does not possess the domestic fleet to target the large resources of small pelagics in its waters. These small pelagic species are caught either by foreign vessels chartered by Mauritanian interests, or by foreign vessels entering Mauritanian waters through specific fisheries agreements (such as the EU-Mauritania SFPA, but also the Mauritania-Senegal bilateral agreement).
- With a less developed domestic fishing fleet, the surplus stocks currently available from Guinea Bissau allows to offer fishing opportunities to a more diverse range of EU fleets, including shrimp trawlers and cephalopod trawlers.
- None of these countries has a tuna fleets able to catch the tuna resources present in their EEZs.

Table 7: Main characteristics of the SFPAs with Mauritania, Senegal and Guinea Bissau

	Mauritania	**Senegal**	**Guinea Bissau**
EU contribution (euros per year)	61.625 million	1.808 million to 1.668 million	11.6 million
Sectoral support (euros per year)	4.125 million	0.75 million	4 million
Duration of the current protocol	4 years 16.11.2015 -15.11.2019	5 years 20.11.2014 -19.11.2019	5 years 15.06.2019 -14.06.2024
EU Fleet	25 vessels targeting crustaceans (shrimps) 6 non freezer trawlers targeting hake 6 freezer trawlers targeting hake 6 vessels targeting demersal resource without trawl 19 pelagic trawlers	2 trawlers targeting black hake	Shrimp freezer trawlers 3 700 GRT per year finfish and cephalopod freezer trawlers 3 500 GRT per year pelagic trawlers 15 000 GRT per year
	25 tuna seiners 15 pole-and-liners	28 tuna seiners 8 pole-and-liners	28 tuna seiners and longliners 13 pole-and-liners

Source: Press releases of the EC on SFPAs with Mauritania, Senegal and Guinea Bissau

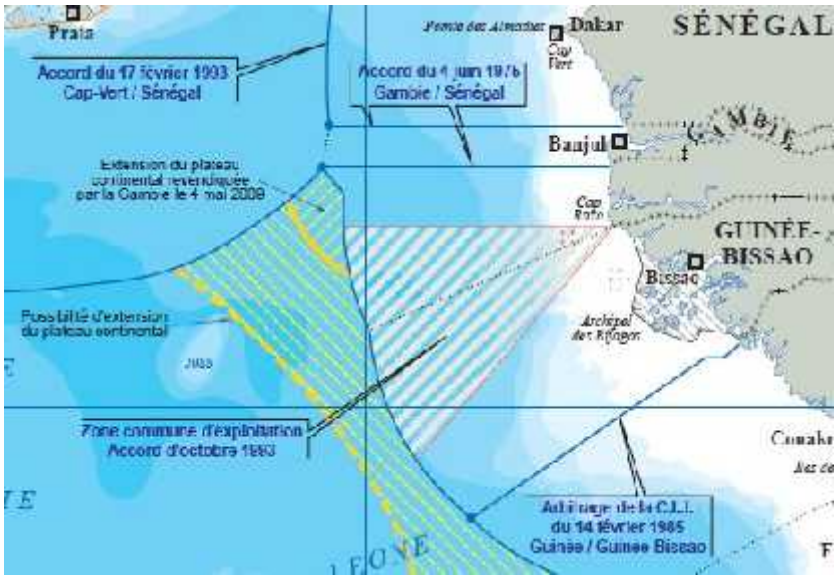
Several regional bodies have been created over the last 50 years to foster regional cooperation to support the management of fisheries resources along the Western coast of Africa, all covering the EEZs of Mauritania, Senegal and Guinea Bissau:

- The Fishery Committee for the Eastern Central Atlantic (CECAF) established in 1967 is the Regional Fisheries Body covering all fishing resources in the FAO area 34, being a consultative body under Article VI of the FAO Constitution. It has no regulatory powers and its recommendations are not binding for Committee Members. The EU is a member of the Committee, as well as France, Greece, Italy, the Netherlands, Poland, Romania and Spain. A scientific sub-committee was established in 1988 to offer regular stock assessments of important species, notably small pelagics and demersal resources, while tuna species are already covered by a RFMO (ICCAT).
- The Sub-Regional Fisheries Commission (SRFC) is an inter-governmental fisheries cooperation organisation launched in 1985, grouping Cape Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone. Its main aim is to strengthen the regional cooperation to enhance the sustainable management of fisheries resources in maritime waters under the jurisdiction of its Member States.
- The Ministerial Conference on fisheries cooperation among African states bordering the Atlantic Ocean (ATLAFCO) was established in 1989 and groups 22 riparian countries of the Atlantic coast of Africa from Morocco to Namibia. The objectives of the ATLAFCO is to support (1) promoting cooperation in fisheries management and development; (2) coordination and harmonization of Member States' efforts and capabilities to preserve, exploit, develop and commercialize fisheries resources; and (3) strengthening solidarity with landlocked African states and geographically disadvantaged countries in the region. It coordinates notably the Rafismer, the African Network of Fisheries and Marine Sciences Research Institutes.

It should be noted that in recent times relationships between the three countries (Mauritania, Senegal and Guinea Bissau) have been complicated:

- Mauritania and Senegal resumed a bilateral fisheries agreement in 2018 after two years of dispute over the potential of nomadic Senegalese fleets to fish inside Mauritanian waters. The dispute arose from the request by Mauritanian authorities that all fish caught in the Mauritanian EEZ should be landed in Mauritania. The agreement was signed after the two parties agreed that Senegalese fishermen could transport back their catch to Senegal by road after landing them in Mauritania without having to sell it in the Mauritanian market.
- Senegal and Guinea Bissau have also had an important dispute concerning the delimitation of their EEZs, leading to the creation of one of the most important joint maritime zone (JMZ) around Africa, where fish resources are equally shared between the two countries (Ibou 1995, see Figure 18). From the EU's perspective, the current arrangement means that EU vessels may be granted fishing rights inside the JMZ by both the SFPA with Senegal and the SFPA with Guinea Bissau. This situation is however far from optimal, as EU operators may face double standards while being controlled in the JMZ, as there is no clarity whereas operators should declare their catch to both countries or solely to the country where their fishing authorisation is granted. It also undermines the sustainable management of the area as a third country vessel refused by one country for suspicion of IUU activities could be authorised by the other one to fish in the JMZ (COFREPECHE, 2016).

Figure 18: Joint maritime zone between Senegal and Guinea Bissau



Source: from Ortolland & Pirat, 2008 (modified by the authors)

4.4.2. Forthcoming scenarios

a. Developing a regional approach to allocate fishing opportunities

Tuna SFPAs are sometimes presented as a network due to the nomadic behaviour of the different tuna species and the behaviour of the different EU tuna fleets. Replicating such approach could benefit fleets targeting small pelagic species or some demersal species, as these resources may also be considered as straddling stocks moving along the Western coast of Africa. It is notably the case for the majority of small pelagic and demersal species targeted by EU vessels in Mauritania, Senegal and Guinea Bissau. Considering these three SFPAs as a network would reinforce the ability of the EU to exploit sustainably important migratory stocks by coordinating the management measures applied throughout the whole sub-region.

Without a regional approach, it would not be possible to define appropriate harvest control rules allowing the sustainable exploitation of these important resources, coupled with a fair allocation between all coastal states. Only this kind of combined approach would allow to properly define the level of surplus available for foreign fleets in each state's EEZ, as well as developing adequate mechanisms to adapt the EU allocation to stock fluctuations.

The EU has been developing such approaches in its own waters with the implementation of TACs and quota systems which have evolved over the last 40 years to encompass multi-annual plans and landing obligations. Together with other stakeholders, the EU could encourage and assist the African coastal states in implementing a regional management framework, with mandatory catch limits and potentially other regional measures, which would improve drastically the management of important resources for local populations and distant water fleets.

b. Reinforcing the scientific capacity

Despite the different cooperation organisations covering the sub-region, there is a long way before the riparian states of the CCLME effectively regulate harvesting and implement science-based management plans (SDG target 14.4) on their own. As noted, the CECAF has no regulatory powers and the various coastal states may ignore its recommendations. But more importantly, the three coastal states need to develop and maintain a comprehensive scientific capacity, in terms of data collection

and stock evaluation to be able to take an active role in the scientific process (see notably COFREPECHE 2016).

For example, the Mauritanian institute IMROP is conducting an international evaluation workshop every 4 to 5 years but has not published specific stock evaluations since 2010 (7th international workshop), as the results of the 8th international workshop held in 2014 have not been published (F&S MARINE 2019a). The 9th international workshop was held at the beginning of 2019, but the report has not yet been published as of August 2019.

The Senegalese oceanographic research centre (CRODT) has no financial autonomy and is not under the authority of the fisheries administration, as it is a division of the ISRA (Senegalese Institute for Agricultural Research). This leads to several issues in terms of recruitment and long-term scientific programming, as the CRODT has to compete for position funding with other divisions of ISRA. The CRODT has not released independent evaluation work on the resources present in its EEZ for several years and has only been able to recently evaluate two species that are not targeted by EU vessels (octopus and deep-sea shrimps) thanks to the EU-funded ADUPES project (MRAG Europe 2018).

There is currently a lack of reliable at-sea observer programmes in the three countries, which is not only an issue for the EU fishing vessels but for all third countries' vessels operating in the area. This weak coverage is preventing full understanding of the catch composition in all fleet segments (EU fleets, third countries fleets and African fleets), notably in terms of level of bycatch and discards. The precariousness of this observer coverage lowers the ability to develop robust stock assessments, hindering the implementation of effective harvest control rules for most of the important species in the region (small pelagics, black hakes, cephalopods) (see COFREPECHE 2016, F&S MARINE 2019a, F&S MARINE, 2019b, Kvalkvik *et al.*, 2019).

c. Sharing the added value generated by the activity of EU vessels

The fisheries agreement model where distant water fleets only pass through the EEZ to catch their allocation without any benefit to the coastal states' onshore sector has become increasingly criticized as coastal states are looking for an increased share of the added value generated by the EU distant water fleet activity in their fishing waters. Over the last decade, there has been mounting pressure from coastal states to sign SFPAs imposing stronger links between EU distant water fleets and their onshore sector such as policies on obligatory landings or use of their port facilities. The different SFPA evaluations performed over the last five years for the Western African countries support this trend (see notably COFREPECHE 2016, F&S MARINE, 2019a and F&S MARINE, 2019b).

In Mauritania, it is mandatory for all fleets to land their catch in Mauritanian ports, although EU fleets operating under the SFPA do not have to sell their catch in the Mauritanian market. Most small pelagic species are either sold unprocessed (fresh/frozen) or processed into fishmeal form and destined to the export market. The Mauritanian government is trying to cap the quantities processed into fishmeal to improve the valorisation of the resource, without great success (F&S MARINE, 2019a, Isaksen *et al.*, 2019). In Guinea Bissau, despite important investments in the port of Alto Bandim (COFREPECHE 2016), port facilities are not sufficiently developed to receive and process landings from EU vessels not destined to the local market, due to the absence of basic services (no refuelling facilities, very limited cold storage facilities, amongst others.). Compared to its two neighbours, Senegal has far better infrastructures, which are praised by several fleets operating in the region. Landing facilities, cold storage, complete offer of ancillary services attract a significant share of the distant water fleets operating along the west coast of Africa. Despite this favourable environment, it was recently reported that Senegalese processors were not competitive enough to retain raw material landed in Dakar, which was being exported to be processed in other countries (F&S MARINE 2019b, Isaksen *et al.* 2019).

4.4.3. Identification of gaps

a. Funding of the scientific institutes

The recent SFPA evaluations highlighted that the three scientific institutes IMROP (Mauritania), CRODT/ISRA (Senegal) and INIPO (Guinea Bissau) are all struggling financially: most of the time, fixed costs are covered by the national administration, but there is no specific funding for running any research work, nor participating in the different international scientific fora. There is moreover a general shortage of scientific staff. The three institutes rely on other countries' funds to finance their research projects. Some evaluations pointed that the sectoral support could be more focused on strengthening the national scientific research (see notably F&S MARINE 2019a).

b. What is the level of available surplus?

Proper estimation of potential catch of European fisheries is essential to fulfil international obligations, notably the application of the "surplus" concept. The current lack of regional approach is however hindering the ability of coastal states to implement catch limits in line with a sustainable approach. Moreover, in the presence of other fleets targeting the surplus (Senegalese fleets in Mauritania and Guinea Bissau, fleets from Russia, China and other third parties in the waters of the three countries), it is essential to account for all catch and bycatch. It should also be noted that the bycatch for some fleets are the target species for other fleets...

The recent evaluation by the Mauritanian SFPA highlighted the lack of transparency concerning other fleets' activities which is detrimental to implement such process. Coupled with the lack of observer coverage, there are serious doubts about the provisions of UNCLOS regarding "surplus" catches being effectively followed, which is in opposition to (Recital (9) and Article 33 of Regulation 2017/2403.

c. What are the real catch limits for the EU vessels?

Current protocols in Senegal, Mauritania and Guinea Bissau do not always establish clear catch limits for EU fleets. The recent evaluation by the SFPA with Mauritania noted that, for most categories, the scientific names of species potentially targeted were not even mentioned in the protocol, and that there was ambiguity on the catch limits associated to each fleet segment. (Questions like "is the tonnage indicated only for the targeted species?" or "Does it include discards?" arose, for further background see F&S MARINE, 2019a). These ambiguities may constitute a risk for the operators in case of divergence of interpretation between the EU and the coastal states. They are also symptomatic of the issues associated with the imprecise definition of surplus.

4.5. Case study 8: The EU and fisheries governance in tuna RFMOs

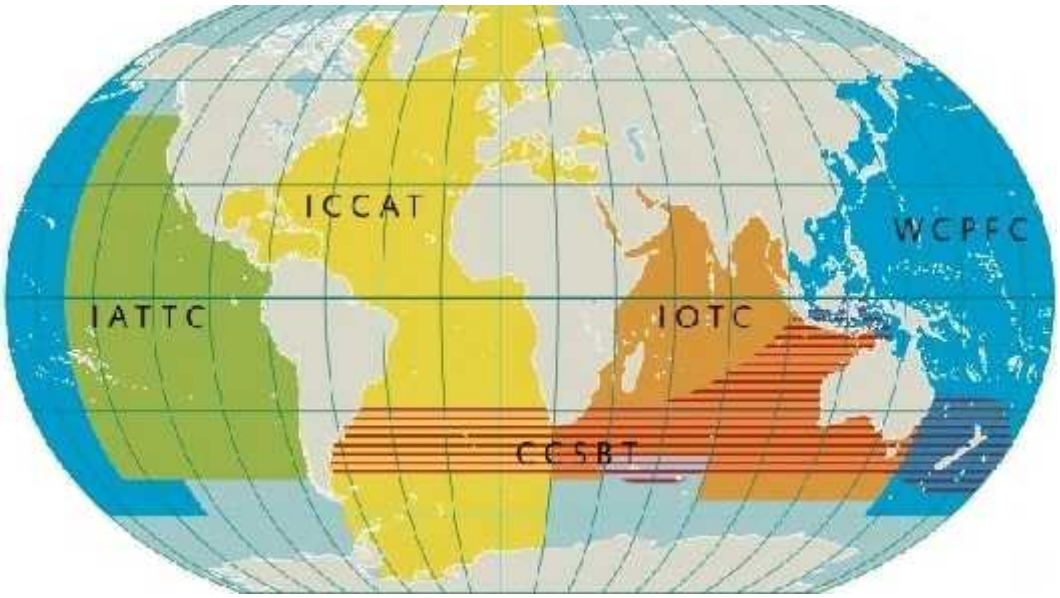
4.5.1. Situation

About 90% of the EU catches of tuna and tuna-like species occurs in waters under the jurisdiction of RFMOs and third country waters (Popescu, 2016). In 2017, EU fleet tuna catches in the diverse ocean areas accounted for 434 610 tonnes of live weight[94]. Out of this figure, the Western Indian Ocean represented about 52% of the catches and the Eastern Central Atlantic 30%. Spain and France make up almost all EU tuna catches with 64% and 28%, respectively. The Union is a contracting party in all tuna RFMOs i.e. Commission for the Conservation of the Southern Bluefin Tuna (CCSBT), Inter American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tunas

[94] Eurostat: Catches - major fishing areas (from 2000 onwards)

(ICCAT), Indian Ocean Tuna Commission (IOTC) and Western and Central Pacific Fisheries Commission (WCPFC). The figure below shows the ocean areas under the mandate of tuna RFMOs.

Figure 19: The Regional Fisheries Management Organisations (RFMOs) for tuna



Source: World Ocean Review 2013
Note: IATTC = *Inter American Tropical Tuna Commission*; ICCAT = *International Commission for the Conservation of Atlantic Tunas*; CCSBT = *Commission for the Conservation of Southern Bluefin Tuna*; IOTC = *Indian Ocean Tuna Commission*; WCPFC = *Western and Central Fisheries Commission*

Being highly migratory resources, tuna populations require concerted efforts amongst multiple fishing nations. Contracting Parties or Co-operating non-contracting Parties (CPCs), in particular developing parties, are limited in technical and human means to satisfy RFMOs obligations concerning data collection and reporting, conservation of fishing and non-fishing resources, fishing capacity and effort control and fight against IUU fishing and related trade, amongst others. The lack of institutional capacities by many coastal states has been largely recognised as a problem that requires an important cooperation effort (Lodge *et al.* 2007). Other aspects such as the economic and development aspirations of coastal states may delay or impede reaching a consensus. This is particularly relevant when it comes to deciding on Conservation and Management Measures (CMMs) for stocks and fishing activities comprising the EEZs of coastal states. Within RFMOs, the adoption of a measure requires consensus or majority vote. In the tuna RFMOs, for example, IATTC and CCSBT have a consensus decision-making mechanism. Should a party object a measure, consensus will be sought again. In the majority of tuna RFMOs, the decision-making procedure is based on the principle of consent, whereby each member has the right to object to a proposed measure. Thus, a given member must give its consent to be bound by a measure (Leroy and Morin, 2018). This procedure may impede comprehensive application of CMMs for all parties in the RFMO in question. It seems, however, that in only few cases members will opt out. Long negotiations take place when a proposal is at stake and parties may need to make some concessions to arrive to a decision that, although not fully satisfactory for all, may be acceptable and adopted as a CMM. As an example, the Union proposal for an ICCAT bluefin tuna management plan underwent several modifications as diverse members discussed the proposal. After long negotiations, the plan was adopted by the Commission in November 2018 (see ICCAT example in this report).

It is notable that the EU and many developed countries have conducted substantial efforts to bridge gaps in institutional capacity in the diverse regions by supporting observers' programs, conducting training activities for scientific personnel of coastal developing countries, amongst others. As mandated by Article 29 of the CFP, the EU has been active in strengthening the functioning of tuna RFMOs. Broadly speaking, the aim of these proposals is to improve sustainable exploitation of the stocks and non-targeted species, but also to ensure consistency between RFMO management measures and those in force in EU waters. Relevant actions carried out by the Union in the Indian and Atlantic Oceans, two of the main marine areas for the Union tuna fleets, are described below.

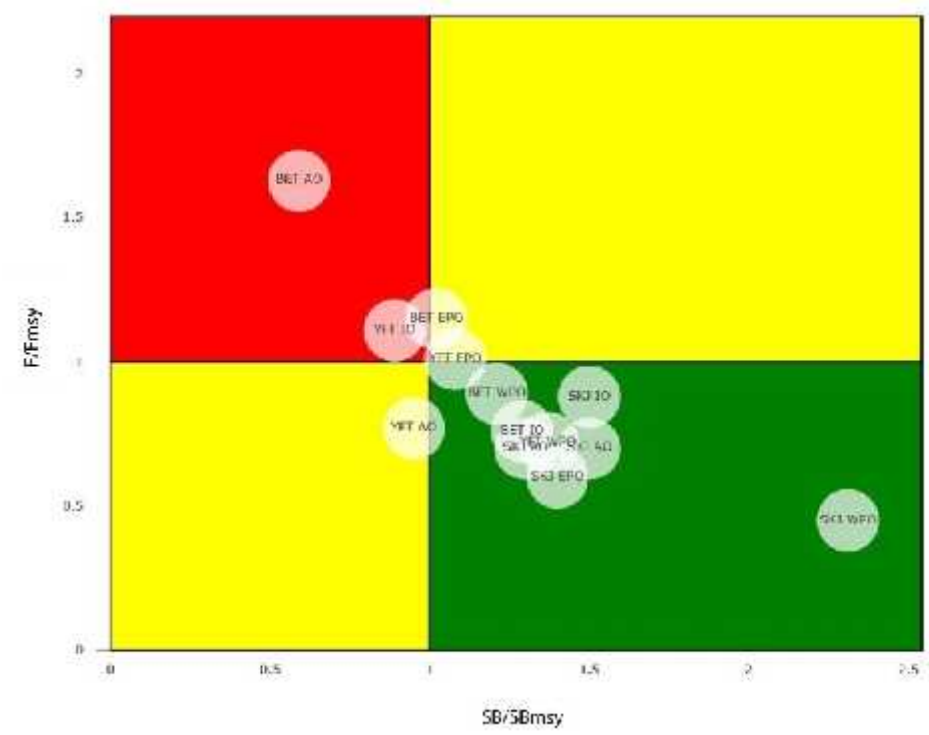
a. Indian Ocean Tuna Commission (IOTC)

The Indian Ocean is rich in fishing resources and particularly tuna and tuna-like species. Tuna represents 10.4% of total catches in this sea basin. According to MacFayden et al (2016), the tuna activity in this sea basin has an approximate value of EUR 6.5 billion. This is around 16% of the value of world tuna fisheries. The region is unique in the world in terms of cultural, political and socioeconomic differences amongst nations (Lecomte, 2017). The region is also particularly complex due to the heterogeneity of fishing practices and socioeconomic dependency on fishing in terms of livelihoods and food security. Since the 1990s the Indian Ocean sea basin has become an attractive fishing ground for DWFNs and particularly for French and Spanish industrial fleets. Small vessel tuna fisheries are particularly representative in catches. In the region, industrial fisheries are predominantly conducted by DWFN, while artisanal fisheries are carried out by the coastal states. The latter represents about 52% of tropical tuna catches in the region (Lecomte et al. 2017).

IOTC was established in 1996 with the mandate to regulate tuna fisheries in the region. The Commission has 31 contracting parties and 2 non-contracting parties. IOTC regulates 16 tuna and tuna-like species. The EU purse seiners target especially skipjack (*Katsuwonus pelamis*), yellowfin tuna (*Thunnus albacares*), bigeye tuna (*Thunnus obesus)* and albacore (*Thunnus alalunga*), and long liners swordfish (*Xiphias gladius*), blue shark (*Prionace glauca*) and also bigeye and yellow fin tuna. Recent assessments indicate that bigeye tuna, skipjack and albacore are not overfished, while yellowfin tuna is overfished (see Figure 20). A recovery plan for this stock has been in place since 2017 (IOTC, 2018).

Besides the interest in the main tuna stocks, the EU is particularly committed to address some of the most urgent regional challenges. The main issues of concern are the lack of data reporting, unsustainable fishing practices, allocation mechanisms and IUU fishing. Concerning data reporting, it has been largely recognised that there is a lack in quality, quantity and timely data reporting for target and non-target species to support sound assessment and management advice. The first performance review carried out in 2009 identified this as one of the main problems for IOTC (Anon. 2009). The second performance review, conducted in 2015, identified that despite the efforts made to strengthen data reporting and capacity building there is a lack of compliance by many CPCs (IOTC, 2016). The EU, and other donors, have also been active in funding research to strengthen the scientific knowledge base. The EU has supported capacity building in the region by funding initiatives such as the Smart Fish project, which aided several developing coastal states in the Western Indian Ocean region in the areas of fisheries statistics and compliance. This project mostly focused on coastal fisheries. The EU has also contributed to fund workshops concerning MCS and catch documentation schemes such as a recent workshop held in Mozambique in 2019.

Figure 20: A Kobe plot showing resources status of tropical tunas in the Atlantic Ocean, Indian Ocean, Eastern and Western Pacific Ocean



Source: Own elaboration, data from tuna RFMOs

NB1: F/Fmsy (ratio fishing mortality to the fishing mortality that will produce MSY. SB/SBmsy (ratio biomass to the biomass that will produce MSY). YFT (yellowfin tuna), BET (bigeye tuna), SKJ (skipjack tuna). IO (Indian Ocean), AO (Atlantic Ocean), EPO (Eastern Pacific Ocean), WPO (Western Pacific Ocean).

NB2: The Kobe plot is a practical and user-friendly way to determine "overfishing" and "overfished" stock status. The plots is a helpful tool for decision makers. The vertical axis indicates relative fishing intensity and the horizontal the relative biomass level. The dots in the plot represent fisheries. The fishery in the upper left quadrant are considered overfished. The upper right quadrant (in yellow) indicates a situation where overfishing is occurring and fisheries shall be managed carefully. The lower left quadrant (in yellow) indicates that fishing mortality has been reduced to allow the stock to recover. Finally, the quadrant in green indicates that the fishery is sustainable and has the potential to produce more fish.

Unsustainable fishing practices, and its impacts on target and non-target populations, have also received EU attention. In 2017, the EU tabled a proposal for a ban on large-scale driftnets (gillnets above 2.5 kilometres) in the entire Convention area. The rationale of the proposal was to address the problem of bycatches on non-target species such as marine mammals and turtles produced by entanglement in large gillnets. Resolution 12/12 was already in place to ban this gear in the high seas, but a general ban was regarded necessary to prevent these nets to drift from EEZs into the high seas. This CMM was adopted during the 21st Session of the IOTC in 2017 and implemented through Resolution 17/07. The prohibition will be in force from January 2022. Pakistan was the only CPC objecting the CMM and thus is not bound by this measure. Pakistan has one of the most relevant driftnet fleets worldwide. In 2014, the EU proposed a CMM to reduce the unwanted catches of marlin, blue marlin and longtail tuna. This proposal was also successfully adopted. In contrast, many other proposals of modification of CMMs and new CMMs have been shelved.

The Union has also raised concerns about escalating fishing capacity in the region, which is leading to overfishing of certain stocks. In 2016, the Union tabled a proposal to limit fishing capacity. The proposal included a reference period for vessels above 24 metres and proposed a freeze for vessels below 24 metres. The proposal was admitted for consideration but was finally rejected.

Consistently with the mandate of the CFP (Article 29, recital 3), the EU has been active in promoting allocation mechanisms for distribution of fishing possibilities in the Convention area. The EU has made two consecutive proposals concerning the allocation criteria. The first proposal was made in 2018 and encompassed a reference period to establish the TAC i.e. 2000 – 2016. 85% of the TAC is to be determined from historical catches occurred in the high seas and EEZs and conducted by the coastal State and the flag State. Instead, a group of 12 coastal states led by Mauritius have proposed that historical catches in a given EEZs shall be attributed solely to the coastal State with jurisdiction over that area, regardless of the flag of the vessels that took such catches. The coastal states' proposal was admitted for consideration by the Commission. As expected, two blocks emerged, typical of when it comes to making decisions on CMMs, the DWFN and the coastal States. The divergent positions and interests of the parties involved may complicate the decision-making process, particularly when the decision-making procedures allow members to opt out.

Notable developments have taken place in IOTC in the scientific realm, incorporating new data into the scientific process by employing the FADs and buoys. In turn, Management Strategy Evaluation (MSE) framework approaches are an alternative to traditional stock assessments. Harvest Control Rules in turn can stand as the core of multiannual plans, setting fishing levels based on stock assessment results. Initiatives of this kind have taken place within IOTC and all the tuna RFMOs. Joint tuna RFMO efforts are also being conducted such as the working group meeting on MSE held in Seattle (USA) in 2018.

b. International Commission for the Conservation of Atlantic Tunas (ICCAT)

ICCAT was established by the International Convention for the Conservation of Atlantic Tunas (1966), which entered into force in 1969. ICCAT is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas and has the mandate to establish legally binding conservation and management measures. Currently, the Commission has 53 contracting parties and 5 cooperating non-contracting parties. The Convention regulates about 30 species, including skipjack tuna, yellowfin tuna, bigeye tuna, Atlantic bluefin tuna, swordfish, billfishes, small tunas, sharks and other species.

In 2017, nominal catches of tuna and tuna-like species in the Convention area amounted to around 684 800 tonnes. EU catches in the Convention area accounted for 203 000 tonnes, representing 30% of the catches. Spain represented 58% of the Union catches, while France and Portugal represented 29% and 5% respectively. Purse seining is the most important gear in the Union fleet, amounting to around 126 300 tonnes (63% of the Union catches). Spain and France concentrated more than 95% of this gear catches. In turn, longliners caught 24 700 tonnes (12% of catches). Spanish, French and, to a lesser extent, Portuguese longliners represented 70% of these catches. Recent assessments indicate that the skipjack and yellowfin tuna are not overfished, while bigeye tuna is overfished, and overfishing is occurring (Figure 20).

In October 2018, the Union tabled a draft recommendation to establish a multi-annual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean. This plan entered into force on the 21st of June 2019 (Recommendation 18/02). The plan aims to move from the recovery plan for this stock to a management plan, considering that the scientific evidence indicates that the stock no longer requires emergency measures. The new plan set the TAC for 2018 and 2019 in 32 240 and 36 000 tonnes respectively. The plan includes the obligation of carrying out transhipments only at designated ports. Concerning fishing capacity, the Union proposed to allow developing CPCs to develop its fishing capacity upon documented justification of the need to fully utilise their fishing opportunities. The Union proposed to allow a variation of up to 20% of the purse seiner fishing capacity in 2017 as a baseline. The final resolution used as a baseline 2018. The Union also proposed to limit fish farm

capacity to the level of registered fish farms in 2008. The resolution finally allowed an increase of fish farming capacity up to 1 800 tonnes for CPCs running less than three fish farms.

In contrast, ICCAT members were unable to reach agreement on a long-term management plan for tropical tuna fisheries in the Atlantic. The Commission required to improve management measures, as contained in Recommendation 16/01, under a new plan to address the problem of bigeye tuna overfishing. The EU proposed to reduce mortality of juvenile tropical tunas, as well as limiting capacity for vessels below 20 metres, cap the number of FADs up to 350 per vessel in 2019, 275 in 2020 and 200 from 2021, and control measures such as the prohibition of transhipments at sea. In turn, South Africa tabled a proposal for limiting capacity for vessels above 20 metres and limiting FADs up to 250 per boat, amongst others. Notice that the proposals by the Union and South Africa had opposing positions concerning capacity and differences in FAD limits. A consolidated proposal was made by the Commission based on the South African proposal and incorporating elements from the Union proposal, such as the limits on FADs. This proposal did not reach a consensus. The existing measures (Recommendation 16/01) will stay in force at least until next year. Another example of a Union proposal is the recommendation on conservation of sharks caught in association with fisheries managed by ICCAT. The draft recommendation, proposed by the Union and other parties, included the obligation to land fins attached to the carcass. The draft proposal was discussed in the Dubrovnik meeting (2018) but consensus was not achieved on this matter (ICCAT, 2018).

4.5.2. Forthcoming scenarios

a. Scientific process

Considering the global growth in fish demand, it is expected that resources will continue to withstand high fishing pressure, particularly if fishing capacity is not effectively controlled. Sustainable management of tuna stocks and their ecosystem requires comprehensive data collection. Also, the incorporation of new data into the scientific process such as the use of echo-sounder buoy data for stock abundances, genetic data for identification of stock origin, electronic tagging for migrations and spatial distribution, amongst others are needed. Thus, it is expected that data collection programs will be even more demanding. Scientific research in terms of applying the MSE approach as an alternative to traditional stock assessments is regarded as a promising opportunity in tuna fisheries. This approach is a powerful tool to discuss potential outcomes with stakeholders and define Harvest Control Rules in a participatory model, providing the core for multiannual plans. MSE presents an opportunity to improve current fisheries management and steps are being taken to widen the application of this approach in the diverse tuna RFMOs. The requirements for eco-certification e.g. Marine Stewardship Council (MSC) are demanding the implementation of pre-agreed management procedures, which need to be tested within MSE frameworks. Implementation of the ecosystem approach to fisheries also requires substantial data collection and modelling.

b. Allocation of fishing opportunities

The wider implementation of allocation mechanisms is likely one of the main issues to be tackled in the near future by tuna RFMOs. While some actions are being carried out within RFMOs, there is still much to do in terms of clearly defining the criteria and factors to be considered for allocation. Allocation not only offers an opportunity to fairly distribute fishing opportunities amongst the stakeholders, but also can be a way to provide incentives for more efficient resource utilization. It could be a precondition to introduce rights-based management mechanisms in fisheries and allow the market to adjust fishing capacity to opportunities (Aranda et al. 2012). This could also represent an incentive for compliance

with data submission and CMMs should the allocation criteria incorporate compliance as a one of the factors to be considered.

c. Bycatches and discards

Eradication of non-sustainable fishing practices has the potential to reduce bycatch. CMMs aimed at finishing with these poor practices have resulted from governance efforts to which the Union has actively contributed. It seems that besides plain prohibition of these practices, improvements in selective gear design would also yield positive results. In turn, shark fining has negative ecological and ethical implications largely recognised by FAO (e.g. IPOA-Sharks) and the international community as an urgent issue needing address. Shark finning bans have been proposed in many RFMOs and despite rejections it is still high in the Union's agenda. Meanwhile, caps on catches for some tuna species may trigger discarding and high grading due to quota restrictions. Further implementation of a discard ban in tuna RFMOs will be a key topic in the future, particularly when caps on catches are implemented. Means to monitor and enforce a discard ban at such large geographical scale is a major challenge for fisheries governance.

d. IUU fishing

Non-compliance with management measures such as the operation of not authorized vessels in the convention areas, use of forbidden nets, transhipments at sea, incursions in EEZs without required authorizations, are some of the most common IUU activities. IUU fishing may continue to expand if dissuasive enough measures are not in place. Despite various actions conducted by tuna RFMOs to counteract this problem, such as the use of the IMO number, port states measures, restrictions on transhipments at sea, capacity building and market mechanisms, there is still much to do, particularly when some measures are only in place for some industrial vessels.

4.5.3. Identification of gaps

Lack of compliance with data submission obligations is a notable drawback for tuna RFMOs. This problem is particularly acute in regions where small-scale vessel activities predominate, such as the Indian Ocean. The lack of institutional capacities for data collection is being addressed by diverse initiatives funded by IOTC and donors such as Japan and the Union. Skills for participation in the scientific work of the commissions also require building of institutional capacities, learning new methodologies/technologies and even implication of non-scientific actors such as managers and industry into the scientific process e.g. when implementing the MSE approach. Thus, a continuous effort on capacity building is required. Donors play a key role by funding capacity building but there is still a need to coordinate fund use to avoid overlapping programs.

Concerning IUU fishing, effective action is required to control transhipments at sea where other options such as transhipments at port are not viable. The Union has adopted this measure internally and promotes its use in RFMOs, but these proposals are still refused in some ocean areas. Control of fishing activities through VMSs or other technological means such as EM, face also economic and technical constraints, particularly when it comes to implementing these measures in small-scale vessel fleets. A wider implementation of these monitoring measures would be required to discourage IUU fishing. There is still much to do in terms of coordination efforts amongst flag states and coastal states. Market mechanisms arise as an alternative to discourage IUU which could be advocated at a global level. The EU has pioneered the wide application of these systems and is well placed to further promote its implementation.

Allocation criteria has largely been recognised as an essential element when it comes to distribute fishing opportunities. One of the key issues is to define the weight of historical catches and other

factors such as socioeconomic considerations into the allocation procedures, plus the rights of DWFNs when it comes to allocation of the catches in EEZs. This process must be backed up by complete and reliable data on catches and socioeconomics to accurately establish reference periods. Other factors of interest to be included when defining allocation criteria are records of compliance and the impacts of the fleets on ecosystems. All these require a robust data collection framework which in many cases is lacking. First, political willingness is essential to define the allocation mechanisms. There is still a long way to achieve consensus when the main actors i.e. DWFNs and coastal states repeatedly hold divergent positions. The same divergence takes place when addressing the issue of fishing capacity. It would be worth establishing a cap on fishing capacity prior to conducting allocation processes. A permanent increase in fishing capacity will likely further jeopardize efforts to conduct allocation.

Bycatches and discards are other factors requiring careful attention because they imply adopting technical measures that could be costly or technically unviable for some national fleets. As mentioned previously, the Union has been active proposing measures, but there is still much working scope to reduce PET bycatches. Trustworthy observer programs at port and at sea are required to ensure effective implementation of bycatch related CMMs. New technologies can greatly help control activities at sea e.g. the electronic monitoring systems. Market mechanisms to discourage commercialization of fish coming from unsustainable practices would be beneficial to promote bycatch mitigation. Research to improve gear selectivity such as net modifications, acoustic technology, or release equipment would also be required to complement bycatch CMMs. In any case, political willingness is still required to widely adopt these measures. Consensus on CMMs is hard to achieve when the diverse members have different goals and perceptions of the problem.

4.6. Case study 9: The EU and its cooperation in international fisheries governance

4.6.1. Situation

The principal international binding instruments such as UNCLOS, UNFSA and other non-binding such as the FAO's Code of Conduct for Responsible Fisheries, clearly state the need for a sustainable exploitation of fisheries resources and to base decisions on best available science. Both actions require effective cooperation amongst nations. International cooperation in fisheries has been largely recognised as a key factor for the adequate management of resources exploited by different nations, even long before UNCLOS (Zacharias, 2014). For example, international organisms like GFCM and IATTC were founded by the 1950s. In 1982, UNCLOS was adopted and cooperation became a duty in the international fisheries arena. In fact, Part VII of UNCLOS states the obligation of fishing nations to cooperate when it comes to exploit resources in areas beyond national jurisdictions (ABNJ). UNCLOS highlights the role of international arrangements and RFMOs as essential elements to achieve sustainable exploitation of shared resources. In addition, the UNSA requires signatory parties to take part in RFMOs and abide to their rules to operate in the high seas. The current fisheries context, where one third of fish stocks are exploited above sustainable levels (FAO, 2018), demands effective international cooperation in the field of fisheries governance through its various instruments including RFMOs, international conventions and arrangements, cooperation fora and bilateral relations.

The duty to cooperate, however, is impossible to fulfil at a global scale in the absence of material means, scientific knowledge gaps and legal loopholes, such as the lack of organisations with a mandate to issue necessary binding regulations. These are particularly difficult tasks to address considering the history of fishing resources, which are highly sensible to environmental conditions, ecosystem changes and ever increasing and evolving exploitation patterns. At world level, some of the largest fishing

nations e.g. China, USA, Japan are also international powers with institutional, scientific and economic capacity to promote and support institutional capacity building in RFMOs and in developing countries. This cooperation includes the technical and scientific means to develop the required best available science, promote legal and operational frameworks to deter IUU fishing in high seas and EEZs, help coastal states to discourage IUU activities of their fleets in their waters or even beyond and have institutional means to cooperate on an equal basis with their counterparts in diverse aspects of international fisheries.

The EU stands as a major actor in the international fisheries arena due to its human and material means, market size and global presence of its fleets. But beyond its evident capacities, the EU has lawfully expressed its willingness to lead in the better governance process of RFMOs and at a bilateral level in cooperation with third countries where the Union fleets operate. In fact, Articles 29 to 31 of the basic CFP text highlight the role that the EU shall play in enhancing the performance of the RFMOs in terms of scientific capacity, fight against IUU fishing and reinforcement of MCS, promotion of compliance and fair allocation of fishing opportunities. The leading role of the EU in these fields has been highlighted by the European Commission in its Joint Communication entitled "International Ocean Governance: an agenda for the future of our oceans"[95] . The European Parliament has also adopted a resolution on International Ocean Governance, where fisheries have a high relevance. The Union's fishing sector has also echoed the leading role of the European Union (LDAC, 2017a). It is widely agreed that the EU is in a position to make a substantial contribution to the UN Sustainable Development Goals (SDGs), particularly to SDG 14 on "life below water".

The EU actively participates in fourteen tuna and non-tuna RFMOs in the Atlantic, Mediterranean Sea, Indian Ocean, and Pacific Ocean (see Table 8) and where RFMOs not yet exist as part of regional initiatives such as the EU Strategy on the Gulf of Guinea 2015-2020[96]. The Union has in place nine fully active Sustainable Fisheries Partnership Agreements (SFPA with Senegal, Liberia, Ivory Coast, Seychelles, Mauritius and Cook Islands focus on tuna species. Two others are provisionally active tuna agreements with Cape Verde and Gambia. In turn, mixed fisheries agreements are in place with Morocco, Mauritania and Greenland. One provisional mixed agreement with Guinea-Bissau is in place. Two active "Northern Agreements" are in place with Norway and the Faroe Islands. These are reciprocal agreements not involving direct financial compensation. Detailed information about the EU's financial contribution to SFPAs and RFMOs is provided in Section 4.1.

The EU has also in place development policies and *ad hoc funds* for cooperation with developing nations such as EDF. This fund is being instrumental to build capacity in developing regions through projects such as PESCAO[97] in the Gulf of Guinea, where the EFCA contributes to the development of a regional institutional and legal framework against IUU fishing, transfers technology, carries out training activities and establishes a network of observers. Thirteen coastal states in Western Africa benefit from this project which takes place between 2018 and 2022. The EU contribution to this project is EUR 15 million. Another relevant action is the ECOFISH program, which aims to enhance equitable economic growth by promoting sustainable fisheries in the Indian Ocean. The program has a budget of EUR 28 million[98].

95 Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. International ocean governance: an agenda for the future of our oceans. JOIN/2016/049 final

96 https://ec.europa.eu/europeaid/eu-gulf-guinea-action-plan-2015-2020_en

97 https://www.efca.europa.eu/en/content/pescao

98 https://ec.europa.eu/transparency/regdoc/rep/3/2018/EN/C-2018-4132-F1-EN-ANNEX-2-PART-1.PDF

Table 8: Regional Fisheries Management Organisations (RFMOs) and EU participation

RFMO	Acronym	Year established	Mandate	EU participation
Convention on the Conservation of Antarctic Marine Living Resources	CCAMLR	1982	Non-tuna	Yes
Convention on the Conservation and Management of the Pollock Resources in the Central Bering Sea	CCBSP	1994	Non-tuna	Yes
Convention on the Conservation of Southern Bluefin Tuna	CCSBT	1994	Tuna	Yes
General Fisheries Council for the Mediterranean (now Commission)	GFCM	1952	Non-tuna	Yes
Inter-American Tropical Tuna Commission	IATTC	1950	Tuna	Yes
International Convention for the Conservation of Atlantic Tunas	ICCAT	1969	Tuna	Yes
Indian Ocean Tuna Commission	IOTC	1996	Tuna	Yes
International Pacific Halibut Commission	IPHC	1923	Non-tuna	No
International Whaling Commission	IWC	1946	Non-tuna	No
Northwest Atlantic Fisheries Organisation	NAFO	1979	Non-tuna	Yes
North Atlantic Salmon Conservation Organisation	NASCO	1983	Non-tuna	Yes
North East Atlantic Fisheries Commission	NEAFC	1982	Non-tuna	Yes
North Pacific Anadromous Fish Commission	NPAFC	1993	Non-tuna	No
Pacific Salmon Commission	PSC	1985	Non-tuna	No
South East Atlantic Fisheries Organisation	SEAFO	2003	Non-tuna	Yes
South Indian Ocean Fisheries Agreement	SIOFA	2006	Non-tuna	Yes
South Pacific Regional Fisheries Management Organisation	SPRFMO	2009	Non-tuna	Yes
Western and Central Pacific Fisheries Commission	WCPFC	2004	Tuna	Yes

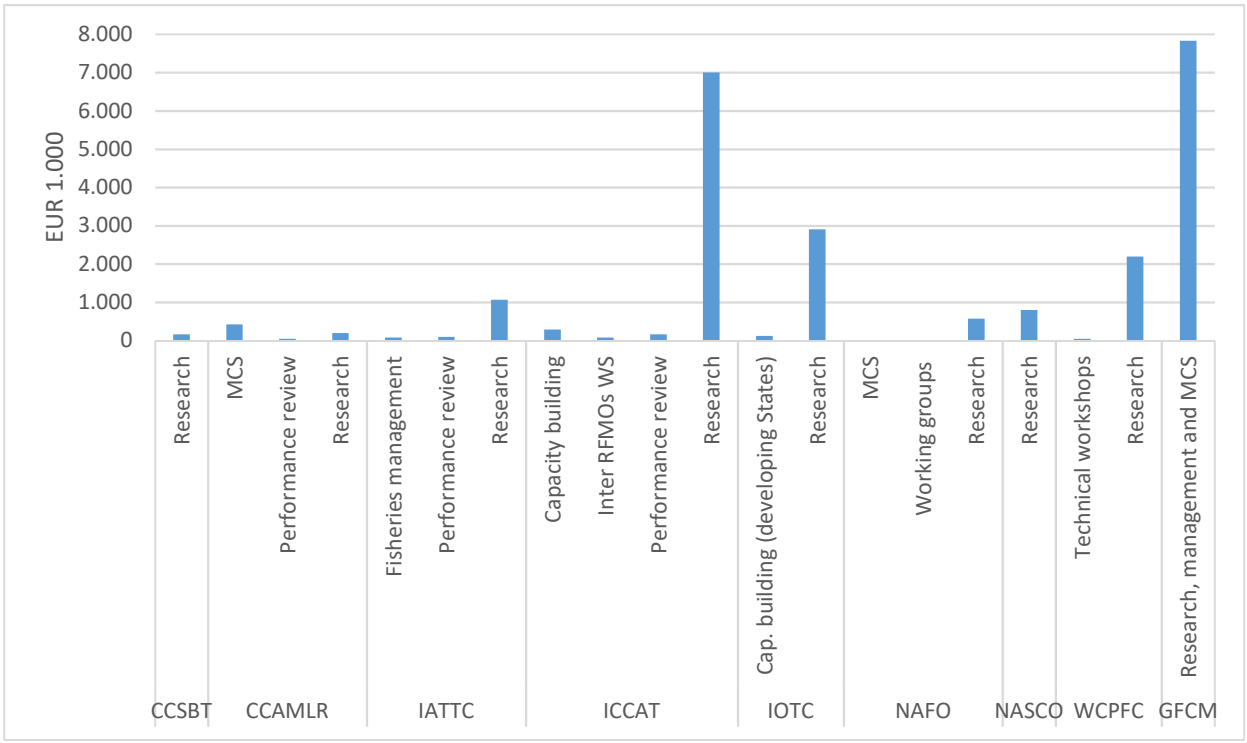
Source: Popescu (2016)

Concerning research, considerable EU funding is devoted to scientific research. Figure 21 shows the Union's contribution to science related work in selected RFMOs for the 2014-2018 period. The largest amount of funds for research development are devoted to the scientific process in tuna RFMOs. Other important aspect receiving EU attention is capacity building. Most of the funds for this activity are devoted to developing institutional capacities in ICCAT and IOTC waters, where many coastal countries are developing states. The GFCM, for example, receives EU contributions on a regular annual basis. Although contributions to performance reviews are not high on the list in terms of total budget, this activity is meaningful due to its important contribution to ensure critical RFMOs processes.

Contributions to support performance reviews are envisaged in Article 28 of the CFP. A key aspect of performance reviews is their relevance in making RFMOs accountable to the wider international community. This independent process evaluates the functioning of multilateral organisations to identify bottlenecks and actions required to achieve their intended conservation and management objectives (Lodge *et al.*, 2007).

The "International Ocean Governance: An agenda for the future of our oceans"[99] encompasses some of the most pressing problems in world fisheries such as fishing IUU fishing, subsidies triggering overfishing and overcapacity, unregulated marine areas, and capacity building in developing countries. Besides the diverse initiatives to address these issues at a global level, it seems that the framework of RFMOs is the best forum to conduct cooperation towards counteracting these problems. The Union is actively proposing draft recommendations (see tuna case in this report) and contributing with other major donors to capacity building, in particular in data collection, stock assessment, MCS and regional fisheries governance.

Figure 21: EU contribution to Regional Fisheries Management Organisations, 2014-2018



Source: Own elaboration, data from EU (2018)
Note: CCSBT = *Commission for the Conservation of Southern Bluefin Tuna*; CCSAMLR = *Convention for the Conservation of Antarctic Marine Living Resources*; IATTC = *Inter American Tropical Tuna Commission*; ICCAT = *International Commission for the Conservation of Atlantic Tunas*; IOTC = *Indian Ocean Tuna Commission*; NAFO = *Nord Atlantic Fisheries Organization*; NASCO = *North Atlantic Salmon Conservation Organization*; WCPFC = *Western and Central Fisheries Commission*; GFCM = *General Fisheries Commission for the Mediterranean Sea*

[99] https://ec.europa.eu/maritimeaffairs/policy/ocean-governance_en

4.6.2. Forthcoming scenarios

a. Ocean areas beyond RFMOs purview

Many ocean areas lack binding international agreements on conservation and management of fisheries resources (Molenaar, 2005). For example, the ABNJ in the Artic and western Africa. Meaningful initiatives have succeeded concerning the Artic, where the EU and nine parties have agreed not to engage in commercial fishing in the high sea portion of the Central Artic Ocean for a period of 16 years. The goals of this initiative are to prevent IUU fishing in the area and protect the fragile ecosystem[100]. Because the waters off Africa are particularly appealing for active exploitation by DWFNs, the EU recognises that these areas require the establishment of RFMOs, or at least fishing arrangements, and has manifested its willingness to take an active role in their development. This in spite that the EU implication in the development of new RFMOs is not expressly envisaged in the basic text of the CFP. These processes, however, might be lengthy and complex. Scholars, such as Molenaar (2005), suggest that the FAO should establish an international interim body with a mandate to adopt regulatory measures until RFMOs are in place.

b. The exploitation of new fishing resources

Due to population growth and changes in consumption patterns, there is a general tendency for higher global fish consumption. Currently exploited stocks cannot withstand an ever-growing exploitation and aquaculture production cannot grow indefinitely. New fishing resources of potential economic interest, such as mesopelagic resources, constitute an untapped source of marine protein and other uses such as fishmeal production, dietary supplements for humans and pharmaceutical products. Exploitation of these new resources is still at its infancy and rises serious concerns in the scientific community due to the impact this commercial exploitation may have on the ecosystem (Hidalgo and Browman, 2019). Extraction of these resources implies many technological and industrial application challenges. Meanwhile, on the international legal side their exploitation could be affected by UNGA negotiations on legally binding instruments under UNCLOS for the conservation and sustainable exploitation of marine biological biodiversity (Benkestein and Maposa, 2017). There are divided opinions on the role of fisheries in such an international instrument and while some delegations participating in the process fear that the new instrument would undermine current fisheries management and the role of their organisations others consider that this instrument may enhance the role of RFMOs by incorporating a stronger ecosystem based element (Wright *et al.* 2018).

4.6.3. Identification of gaps

a. Coordination in funding

The EU is a major global donor and funds diverse initiatives in developing regions. Nevertheless, it seems necessary to reinforce coordination of the funds devoted to capacity building. There is a risk of overlapping of funding actions and technical efforts. As an example, there are initiatives in Western Africa such as the project PESCAO which focuses on countries that also receive contributions under SFPA. It seems that these initiatives would benefit from greater coordination and the Union's distant fishing sector has suggested strengthening coordination of these activities (LDAC, 2017a). In this region, there are also other sources of funding such as the programme MAC of the ERDF which is designed to build territorial cooperation between the OR regions of Macaronesia (Canarias, Madeira

[100] Joint Report to the European Parliament and the Council improving International Ocean Governance – two years of progress. Join/2019/4 final

and Azores) with third countries such as Mauritania, Senegal and Cape Verde[101]. It appears that not many projects in building capacity in regional fisheries are presently being conducted. These funds can be complementary to FEMP and, as such, provide some opportunities for coordination in addressing institutional needs in the region.

The Union's stakeholders are conducting cooperation with coastal states and private actors in those countries through Memorandums of Understanding (MOUs) with COMHAFAT, representing 22 countries in Western Africa. The sector seems willing to engage in capacity building projects of the kind of the aforementioned PESCAO and the new SmartFish II in the Indian Ocean (LDAC, 2017b). Stakeholder's engagement in these actions appears instrumental to rise commitment from the private sector. Coordination amongst the private operators, both DWFFs and coastal sectors, seems also necessary to share best practices and contribute with their empirical knowledge to the initiatives funded by major international donors. Beyond the Union's policies and funding sources, coordination with other international powers seems also of great relevance to achieve the intended fisheries sustainability at regional and global level. The EC reports in its agenda on ocean governance that coordination to build better governance is being conducted with developed partners such as China, USA, Australia, amongst others.

b. Integration of fisheries with the wider marine governance

The institutional structures on which international fisheries governance were developed, in most cases several decades ago, at a time were industrial fisheries emerged as strong economic activities. At that point in time, evaluation of resources was based on single species approaches and consequently did not consider the relationship with other fish species and the ecosystem as a whole. RFMOs are making efforts to incorporate a broader approach in assessments and decision-making. However, there is still a long way to arrive to a more holistic management of the fishing activity, including its various impacts in the marine environment. International cooperation between the RFMOs and other bodies is in place to address those topics. Many gaps remain however to fulfil these objectives such as lack of sustained funding and scientific capacities in terms of human and material means, and the threat of IUU fishing and unsuitable fishing practices.

The emergence of new challenges in the exploitation of the seas such as the aforementioned impacts on biodiversity in ABNJs turns the spotlight again on fishing. RFMOs as organisations with decades of institutional experience seem well placed to accommodate new needs in marine governance concerning exploitation of new resources. Blasiak *et al.* (2016) report that in the framework of the UNGA negotiations on a binding instrument for biodiversity in ABNJs, some national delegations considered that management of these resources should be under the purview of RFMOs. In fact, these organisations hold a substantial institutional capacity and know-how in employing scientific advice to put binding CMMs into effect. Thus, they seem well placed for such an undertaking. However, this added task could increase the complexity of their organisational processes, costs of operation, and their requirements on technical and scientific capacities, particularly because a stronger ecosystem component would be required. Nevertheless, robust institutional structures will be required to implement mechanisms for fair and equitable sharing of benefits resulting from the exploitation of biodiversity in ABNJs (Benkenstein and Maposa, 2017). The RFMO model would at least provide a solid benchmark for further institutional developments for the high seas.

[101] https://www.mac-interreg.org/

4.7. Case study 10: The Brexit and fisheries

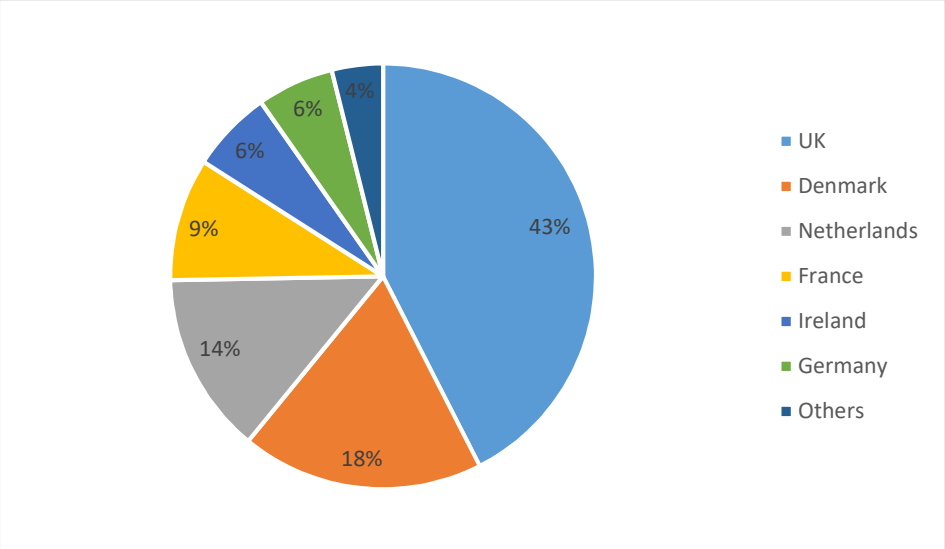
4.7.1. Situation

a. Basic facts

The exit of the United Kingdom from the EU (aka *Brexit*) is currently scheduled for the 31 October 2019. The *Brexit* will affect Union fisheries in UK waters in the North Sea, West of Scotland, Channel, Celtic Sea, Irish Sea and Falklands Islands. It would also have an impact on access of UK fish products to the Union market and vice versa. Reciprocal restrictions to waters and markets would have meaningful socio-economic consequences for the two actors. The UK EEZ is an important fishing ground for eight Member States i.e. Denmark, France, Netherlands, France, Ireland, Belgium Sweden and Spain (see Figure 22). The Union fleet operates mainly in ICES areas 5 to 8, within the geographical limits of NEAFC and North Sea. This fleet lands fish in both UK and Union ports. In addition, there are UK flagged vessels belonging to companies owned by Union operators which land their catches in UK and Union ports. In the 2012-2016 period, landings of fish caught in the UK's EEZ averaged 1 285 million tonnes of fish. Of these landings 739 000 tonnes (57%) were caught by the non-UK Union fleet and were worth approximately EUR 426 million. In turn, UK fleet landings sourced from these waters amounted to around 546 000 tonnes, valued at EUR 542 million. In the same period, the UK fleet landings sourced from other Member States' waters averaged 94 000 tonnes, valued at EUR 87 million.

In the 2010 to 2016 period, UK catches represented 43% of landings from the UK EEZ, while Denmark, Netherlands and France represented 18%, 14% and 9% respectively. Other countries such as Sweden, Belgium and Spain represented only 4% of landings (see Figure 22). According to Napier (2016), landings from the UK EEZ represent 15% of the global landings by the Union in the period 2012-2014. The most dependent Member State in terms of landings is Belgium with 45% of its total landings harvested in UK waters. This EEZ also represents a high proportion of the total landings from the Dutch (39%), Irish (35%), Danish (34%) and German (31%) fleets. These proportions are an average and vary depending on the stocks. Thus, in some cases the landings for certain stocks harvested in the UK EEZ can be very high.

Figure 22: Landings from UK's Exclusive Economic Zone (EEZ), 2010-2016



Source: Own elaboration, data from Williamson *et al.* 2017

According to Le Gallic *et al.* (2017), the most important species in terms of value landed from UK waters by the EU 27 vessels are mackerel (17%), herring (13%), sole (10%), nephrops (6%) and hake (6%), amongst others. The most important species for UK fleets in terms of value are nephrops (18%), mackerel (17%), king scallops (10%), haddock (7%) and crab (6%). Herring is the most important species in terms of value for Denmark, Netherlands and Germany. In turn, mackerel is the most important species for Ireland and the second for Denmark and Germany (Williamson *et al.* 2018).

Concerning trade, 70% of UK fish exports were sent to the EU market in 2017. The value of exports to the Union market reached EUR 1 091 million. In contrast, UK imports from the Union represented 34% of its total fish imports, amounting to EUR 889 million.

b. Access to resources

A likely ban of the Union fleet's access to UK waters will have a meaningful impact on income and employment in the Union fishing sector. EUFA[102] estimates that *Brexit* may cause a reduction of the Union fishing fleet of 500-600 boats and a loss of around 6.100 jobs. In terms of catches, the Union seems more dependent on the UK EEZ than the converse. The UK, in turn, seems more dependent on the Union market. Trade would play a key role in negotiating fishing possibilities. It appears, however, that both actors have different perceptions about the role of trade in these negotiations[103].

Once the UK effectively withdraws from the EU it will become an independent coastal State, pursuant to UNCLOS. Thus, bilateral agreements will be needed to allow Member States to fish in UK waters and vice versa (Sobrino Heredia, 2017). The Union membership allowed access to UK fleets not only to Member States EEZs, but also to fishing resources in third country waters such as Norway's. The UK fishing sector also benefits from the EMFF, in particular its small-scale vessel sector. The CFP contributes to the management of stocks that are shared by the diverse nations concerned. It provides a framework where decisions are backed up by a scientific apparatus and where the diverse parties are subject to rules aimed at exploiting resources in a sustainable way. The CFP also provides a highly regulated management framework, encompassing conservation and management measures and a control system which is delegated to the Member States administrations. These are particularly relevant when transboundary stocks are shared amongst Member States since all parties are bound to common rules. However, the CFP has been strongly criticised by part of the UK fishing sector (Fishing for Leave, 2016).

Under UNCLOS, UK will have sovereignty over the fishing resources occurring in its EEZ (see Figure 23). The Union in turn will no longer have any rights to fish in UK waters. However, UNCLOS establishes the duty to cooperate which shall prevail in this case to contribute to sustainable exploitation of fishing resources. In fact, most stocks exploited by UK are also shared with the Union, Norway and Faeroe Islands. The UK, as a sovereign coastal state, has the obligation to establish its own fisheries management system and access mechanisms. Thus, UK can grant or deny access to its resources to other fishing nations. This will be a matter of negotiations after the *Brexit* comes into force.

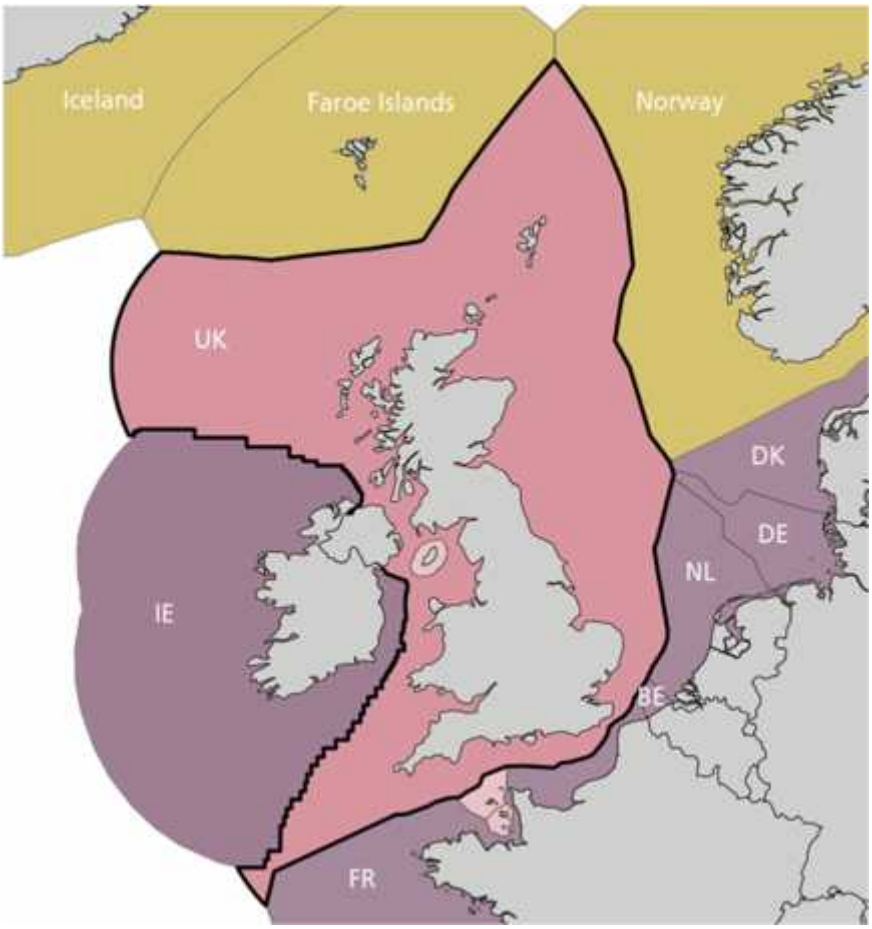
UNCLOS (Article 62) introduces the concept of the *surplus*, for which states should determine its harvesting capacity and, if the coastal State in question is unable to fully exploit the fishing resources, admit third countries to harvest the *surplus*. Prioritized access to nations which have historically fished in the zone shall be granted. This latter point implies, for some specialists, that Member States could claim historical rights for fishing in the UK EEZ. For other specialists, instead, Member States would not be able to claim historical rights since the CFP will no longer be in force for the UK (House of the Lords, 2016). In any case, the fact that the UK has the right to administrate the resources in its EEZ is regarded

102 https://fisheriesalliance.eu/santiago-2/

103 https://www.theguardian.com/politics/2018/nov/22/uk-commits-to-making-new-fisheries-deal-in-leaked-brexit-document

by many in the UK as a strength to lever fishing opportunities when it comes to negotiate fishing opportunities.

Figure 23: Map of the Exclusive Economic Zone (EEZ) of the UK



Source: The EU fisheries landing obligation: six months on, House of Lords (2017)

After withdrawal from the Union, the UK will be required to manage the fishing resources occurring in its EEZ. This implies the establishment of a policy framework and the determination of conservation and management measures. Cooperation in scientific and fisheries management matters with other coastal states seems sorely required for a sustainable exploitation of transboundary stocks. UK engagement in scientific matters within the framework of ICES is expected to continue. Management to achieve the Maximum Sustainable Yield (MSY) is described in the UK's White Paper of *Brexit* in fisheries (DEFRA, 2018) as an objective that is likely to be maintained after this process. Achieving this objective would require coordination and consistency between the conservation and management measures to be established by the UK and those established by the Union and other nations sharing the resources.

In particular, there is a need to set TACs, or other means for non-quota species, in cooperation with Member States and other neighbouring countries, based on sound scientific advice. The concept of *relative stability* is the principle pursuant to which allocation of fishing possibilities is carried out. This principle was established in the early 1980s, as laid down in the Hague preferences, and was based on historical catches in the period 1973–1978. The *relative stability* is considered by many as disadvantageous for the UK fishing communities. Thus, *Brexit* is perceived as a great opportunity to improve the competitiveness of their fishing industry and the livelihood of fishing communities. It also offers an opportunity to develop a fit for purpose UK fisheries policy (Fishing for Leave, 2016). Revision

and reformulation of this principle can be one of the outcomes of a soft *Brexit*. The *relative stability* is also considered unable to adapt to a resource too sensible to exploitation patterns and climate change (Philipson and Symes, 2018).

The so-called "mackerel dispute" is relevant for *Brexit* as it exemplifies how unilateral establishment of management measures, particularly of quotas, may lead to overfishing of transboundary stocks. In the mid-2000s, the north east mackerel stock saw its distribution pattern changing and became accessible for Icelandic fleets in its EEZ (Spijkers and Boonstra, 2017). This change was explained by changes in food availability, water temperature and stock size. From 2007, Iceland started to fish large quantities of mackerel. In 2009, Iceland set a unilateral quota for mackerel outside the Multilateral Plan agreed by the Union, Norway and the Faroe Islands, where Iceland had been only granted observer status. By 2009, the Faroe Islands stepped out of the agreement and later established its own quota. This resulted in a declining trend in SSB of mackerel (ICES, 2012). Norway and the Union responded to these actions by toughening access to their markets. Lessons from this dispute are to engage all relevant actors around the negotiation table to establish agreed allocation mechanisms.

The robust European research apparatus and the role of ICES as an independent scientific organisation brings advantages to future cooperation in determining levels of exploitation which are based on the best scientific advice. Beyond TACs, exploitation patterns shall be based on zonal attachment of the stocks at stake, determining where the different stages of their life cycles occur to safeguard sustainability and better economic benefits. Many stocks spend part of their life in non-UK EZZs where spawning and nursery grounds are found (Döring *et al.*, 2017). Thus, scientific cooperation would be a key factor to determine where the fishing activity should take place and back it up with decision making on reciprocal access mechanisms.

Concerning fisheries governance, UK is not a contracting party to RFMOs. As an independent coastal State, the UK's membership to these organisations is necessary to have fishing access to straddling and highly migratory stocks, as highlighted by the UK's *Brexit* White Paper (DEFRA, 2016). The UK will need to apply for membership to NEAFC, NAFO, ICCAT or other RFMOs. In a similar way, the UK will no longer have access to fishing opportunities under the so-called Northern Agreements between the Union and Norway and the Faroe Islands. Access to fishing resources in Norwegian waters has been of particular relevance for British fleets. UK fishing possibilities for cod in areas 1 and 2 of Norwegian waters amounted to10 784 tonnes in 2018.

c. Freedoms of the Single Market

The *Brexit* implies the end of the freedoms of the Single Market for UK. The end of free labour mobility may imply a shortage on worker availability to the UK fleet and processing sector. This may become an issue of concern for the UK fishing industry. In Scotland, for example, a quarter of crew members are European and non-European migrants (Philipson and Symes, 2018). In the processing industry, a survey on labour in the Scottish processing industry found out that around 58% of the workers were sourced from Union countries, notably from the Baltic States (Symes and Philipson, 2019).

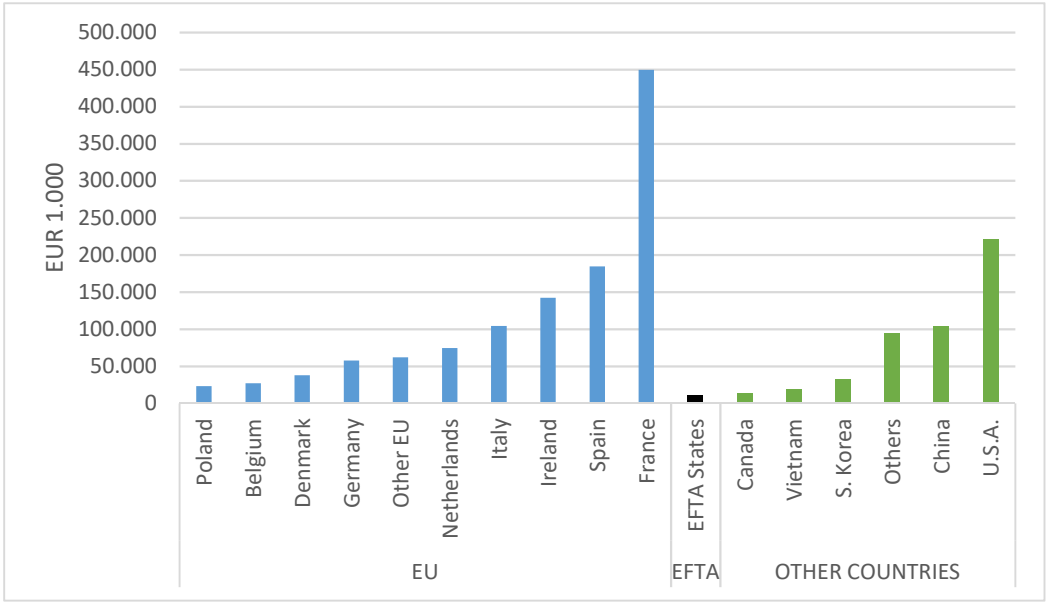
The right of establishment of companies would also be affected by *Brexit* (Sobrino Heredia, 2017). Although this is an issue not strictly related to fisheries it would have effects on investments in the sector. This may affect Union operators wishing to acquire or establish companies in the UK, and their vessels and quotas aka *quota hopping*. Currently, around 20% of the UK quotas belong to companies which are owned by parent companies in other Union countries (MRAG *et al.* 2019).

The UK and EU fishing industries are mutually dependant on each other's EEZs. From the quantitative evidence presented previously the Union fleet appears more dependent on the UK EEZ than the converse (Figure 24). For decades, a process of specialization has taken place based upon the fishing

opportunities established by the system of TACs and quotas (House of Lords, 2017). Further changes in access to resources will not only result in changes in fishing patterns, but also on processing and markets. Changes in the *status quo* and reduction of quotas for the Union fleet would be resisted by the Union fishing sector. As an example, evidence indicates that the pelagic fleet would be more exposed to economic dislocation (Le Gallic *et al.*, 2017). Beyond the TAC and quota systems, the Spanish cephalopod fleet fishing in the Falkland Islands is highly dependent on squid, which is shipped to Spain free of tariff. The economy of this archipelago, in turn, is also highly dependent on the activity of this Union operator, as fishing is one of the few economic sectors in place[104]. Regulation (EU) 2019/497 has been put in place to provide for contingency measures to soften economic distress on the Union fishing sector after *Brexit*. This measure will consist of public support for temporary cessation of fishing activities under the EMFF.

Concerning trade, one of the most relevant issues for the UK fishing industry will be the end of the Single Market for the UK and of the no tariff regime. Once outside the Union, UK fish would face tariffs between 0 to 24% to access the Union market, as any other third country. As a Member State, UK enjoys preferential tariffs concerning third country markets. Considering that the Union market absorbs 66% of the UK fish exports, producers would need to look for new markets or delocalize companies and processing facilities to Member States[105]. Since UK exports 80% of its landings it seems that some of these species may have no particular appeal for the domestic consumer and would not be easily rechannelled to the domestic market. Negotiation of preferential tariffs or cero tariffs between the parties seems the most reasonable alternative. Within the European Economic Area, for example, the Union has tariff agreements with Norway which vary depending on the species and product type.

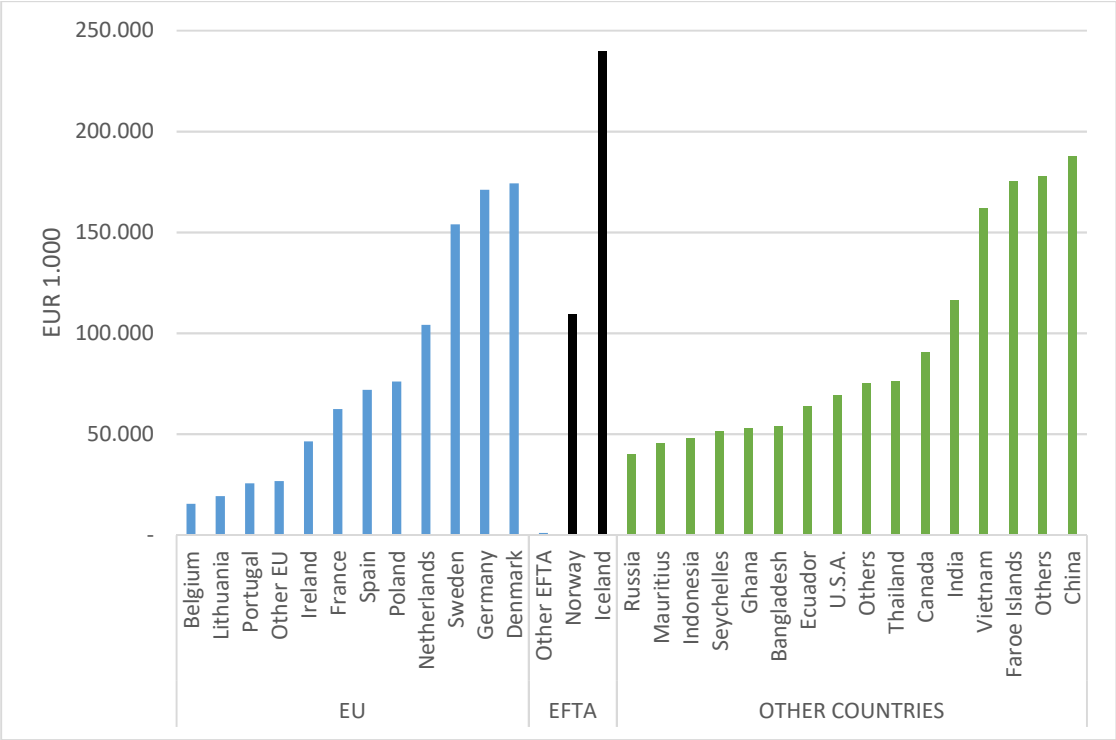
Figure 24: UK exports to the Union, EFTA and other countries in 2017



Source: Own elaboration, data from Marine Management Organisation (2019)

104 https://www.thelocal.es/20190418/how-brexit-threatens-falklands-economyand-spanish-fishermen
105 https://inews.co.uk/news/brexit/fish-processing-move-europe/

Figure 25: UK imports from the Union, EFTA and other countries in 2017



Source: own elaboration, data from Marine Management Organisation (2019)

As the most important export markets for UK are those of the Union, British exporters might be negatively affected by *Brexit* (Figure 24). In contrast, UK sources fish from a diversity of markets, particularly from Iceland and China. Thus, the UK market might not suffer a major distress after *Brexit* (Figure 25). The Union exporter sector, in particular those of Germany, Sweden and Denmark will be more affected by *Brexit*.

4.7.2. Forthcoming scenarios

The end of the CFP for the UK and the emergence of a large and rich maritime area entirely under British sovereignty will impose a challenge for international cooperation on fishing matters. It is evident that the North East Atlantic and North Sea are maritime areas where the diverse coastal states exploit resources which are to a large extent transboundary. The country's sovereignty over its EEZ might lead to unilateral setting of TACs and other technical measures that might negatively affect the resources. The experience with the "mackerel dispute" provides a clear example of the problems produced by non-cooperation.

Wide cooperation amongst the parties shall consider the zonal attachment of the diverse stocks as a basis for the establishment of quotas and other technical measures such as the landing obligations which seems acceptable for the UK (DEFRA, 2018). The adoption of zonal attachment would likely change the distribution of quotas amongst the fleets. Participation of the UK in bilateral agreements, similar to the Northern Agreements, or even multilateral agreements represent an opportunity for cooperation in scientific matters and management, but also brings a new player to the negotiation table. Thus, the decision-making process, particularly decisions on allocation of fishing opportunities and technical measures, could become more complex.

The possibility of a no-deal *Brexit* may be detrimental for the interests of the Union and the UK. There is a mutual dependency on access to fishing grounds, markets and even conservation and

management measures of mutual interest for sustainability, MCS in particular. There would be a strong impact on the Union fleet and especially for some Member States which heavily rely on the UK EEZ such as Belgium, Netherlands, Denmark and other fleets.

The fishing sectors have evolved in the framework of the fishing possibilities available through the CFP. Actors in the fish value chain would be challenged to quickly adapt to the new political situation. The UK coastal communities benefit from the so-called economic link by favouring local crew being hired and landings being made in UK ports by vessels having a fishing license to operate in UK waters. Should *Brexit* impede Union-derived capital investments to establish companies in the UK and have access to quotas that would have negative impacts on UK coastal communities?

On the trade side, access of the UK to EFTA/EEA is an alternative to solve some of the problems derived from tariff imposition which are perceived as a big issue for producers. This deal includes labour mobility, a factor that is advantageous for the UK fishing industry, though a controversial topic, constituting a large social and economic issue for the UK. Being part of the EEA implies, however, adoption of Union's legislation on trade, labour mobility and other aspects and may not be satisfactory for the UK. Nevertheless, it emerges as an alternative for the feared impact of tariffs on UK and Union seafood producers.

It appears that the UK cannot carry out the sustainable exploitation and management of transboundary stocks in isolation. Cooperation in scientific matters is assumed to be continued at least under the umbrella of ICES. The scientific framework in place seems robust enough to continue informing management and to pursue the goal of the MSY, which is high in both the UK and Union agenda. The definition of allocation keys amongst the two parties, and even with third parties, is a critical aspect to be addressed. Unilateral decisions on quotas may only lead to overfishing. Many elements of the well-established CFP framework such as the control regulation and conservation and management measures would still be beneficial for the UK and Union shared fisheries.

4.7.3. Identification of gaps

The *Brexit* will trigger many changes in productive sectors and resource management in the UK and the Union. The management system and the scientific apparatus require the UK data and scientific inputs to attempt to carry out a sustainable exploitation of shared resources by the diverse national fleets. Thus, the gap emerging in the short run would require a transitional period under which the rules of the CFP and fisheries opportunities would continue in place. This would counteract the expected economic disruption for the UK and the Union fishing sectors. The transitional period may facilitate negotiating a bilateral or multilateral agreement and arrive to an allocation key based on the so-called stocks zonal attachment and setting up of compatible technical measures across the EEZ.

Cooperation is needed to attempt conciliation of positions between the parties concerned. A multilateral approach instead of a bilateral agreement would better address these needs since it will incorporate all parties at stake and thus lower the risk of unilateral decisions. Additionally, the multilateral approach would be more coherent with the nature of transboundary stocks. Further studies are required to have a deeper understanding of the extent of zonal attachment, especially under a scenario of environmental climate change, as a basis for decisions on management and distribution of fishing possibilities amongst the parties concerned.

An allocation key and operational mechanisms to distribute fishing opportunities seem required to define criteria for allocation, considering not only the historical catches, but mainly zonal attachment, ecosystem considerations and socioeconomic dependence. International examples can provide some lessons about this complex task. Although the process of establishing allocation criteria in tuna RFMOs

are very different from a geographical and resource perspective, it may shed some light on allocation processes where states with very different objectives are concerned (see Section 5.5 in this report).

The sudden restriction on fishing opportunities would require Union fleets establishing bilateral agreements with third countries to compensate the lack of fishing opportunities. In the meantime, a framework for cooperation in MCS seems urgently needed to prevent an escalation of IUU fishing in the UK EEZ. Since fisheries are only a part of the deal and subject to other policies such as trade and labour mobility, effective coordination is required at the highest level of decision making between the two parties concerned. Thus, a transitional period seems required until agreement on allocation of fishing possibilities is reached. It appears that such an agreement would need to address the difficult decision to link (or not) access to fishing possibilities with trade, a fact that faces much resistance especially from the UK side.

4.8. Conclusions

The evidence gathered in this study indicates that **efforts made** by the EU in the framework of RFMOs, SFPA and other fora, have **not fully achieved** the intended objectives of sustainable fishing exploitation. Factors such as **IUU** fishing, high levels of **fishing capacity**, lack of **institutional capacities**, unsustainable fishing **practices** and poor **compliance** in other regions stand amongst the problems to be solved in the near future. The EU is well placed **to lead** an international effort to improve fisheries governance in coordination with other major international parties. **Cooperation** and coordination of activities such as identification of priorities and coordinated use of funds amongst governments, private actors and other parties is necessary to build better international fisheries **governance**.

New solutions to old and emerging issues require reinforced cooperation in **capacity building** in terms of technical and scientific matters, employment of new technologies to combat IUU fishing, coherence in the use of Union funds and coordination with other **international donors**, development of **allocation** criteria based also on socioeconomic and environmental factors, creation of international regulatory frameworks and organizations for **non-regulated** marine areas, and **level playing** field for all fleets operating in the high seas and EEZs. In the EU, ***Brexit*** raises many fears about the end of access of EU fleets to the UK EEZ. Non-cooperation by the parties might lead to the **unilateral** setting of quotas and thus negative impacts on stocks and fishing sectors. *Brexit* may offer an opportunity **to revisit** old allocation keys. The possibility of a no-deal *Brexit* might also have an impact on the well-established and sound **institutional cooperation** between the parties, which is in place in a variety of fields including research and management.

4.9. Recommendations

- There is a need to continue using and to even reinforce the **influence** of the EU in all aspects of the fisheries activity to address the growing problems in international fisheries. Particularly worrying is **IUU** fishing, where the financial **means**, technical expertise and political **influence** of the EU can play a key role in **deterring** these activities.
- Capacity building in all aspects of fisheries, from MCS, research, and administration requires the expertise and funds of the Union. Meaningful steps are being taken at present. But there is a need to **coordinate** the use of the diverse funding mechanisms of the Union to prevent overlapping financial actions in some regions.
- The EU has a strong regulatory framework in place for its fleets operating beyond EU waters. This constitutes a **benchmark** for other countries in the world. Thus, efforts are made to lead

international governance by example. This, however, may turn into a **heavy burden** for the Union distant fishing sector. It is essential that level playing is guaranteed to prevent a loss of **competitiveness** of the Union fleets in favour of other fleets.

- Efforts to bridge **regulatory gaps** in some marine areas are being conducted. However, formation of new RFMOs is a long process that can delay effective action. The fisheries area of western African Atlantic coast (CECAF), for example, lacks an organisation with a mandate on conservation and management. In the meantime, the EU in **coordination** with the countries concerned and other international actors could promote a regional agreement to manage the resources by establishing catch limits and management measures.
- SFPAs are not only mechanisms to ensure access to fish, but also mechanisms to promote **development** in diverse coastal states. Moreover, they may act as means to influence the relationship between partner countries and third fishing nations. For example, the concession of aid could be conditioned to the fulfilment of **requirements**, such as the declaration of catches and adoption of fisheries management measures, by **all actors** operating in the EEZ in question. These could improve the level playing amongst diverse fleets and contribute to sustainability.
- ***Brexit*** is a challenge for the future of fisheries management in the region. The lack of a common management framework for the fleets concerned is a threat that requires **cooperation** and **revision** of **quota distribution** amongst the fleets concerned. Allocation should be primarily based on stocks zonal attachment. In the meantime, it seems critical to consider a provisional period to maintain the **well-established** scientific and management frameworks.

CONCLUDING REMARKS

The 2013 CFP reform aimed to build further on the 2002 reform by setting MSY objectives, multi-annual plans and regionalisation. But most importantly, the reform aimed to make a profound change in the way fisheries management is conducted in the EU. The landing obligation is one of the most distinctive features of the last reform, which aimed to make the fishing industry accountable for its impact on all species and sizes caught, and not only on the share that can be landed and sold. This is a major step towards ecosystem-based fisheries management. Implementing such a paradigm shift does however not occur overnight, and many issues remain unresolved.

Evidence indicates that the EU fisheries have experienced an economic growth based on improvement of resource status, implementation of management measures such as reduction of fishing capacity, fight against IUU fishing, and diversification of production, amongst others. There is however a need to improve the competitiveness of the EU seafood primary sector by levelling the playing field with non-EU producers, promoting diversified fish production and identifying potential inefficiencies in management and productive systems. While the IUU Regulation was a first initiative towards to level the playing field additional management measures considering all aspects of sustainability, including aquaculture are needed. In absence of such measures, the risk is a potential exclusion of some EU products from the EU market. Concerning stocks shared by different fleets, there is still room for improvement of the overall competitiveness of the sector, e.g. by fully considering the economic, social and environmental dimensions of the exploitation.

Concerning the external dimension of the CFP, the evidence indicates that EU-led initiatives efforts not fully achieved the intended outcomes on sustainable exploitation. Factors such as IUU fishing, lack of institutional capacities, unsustainable fishing practices and lack of compliance in other regions stand amongst the problems be solved in the near future. Cooperation amongst parties and coordination of activities are key elements to achieve better international governance. In the near future, old and new issues will be in place, and new solutions are required in capacity-building, fight against IUU fishing, coordination in the use of Union and international funds, development of allocation criteria, creation of regulatory frameworks for non-regulated marine areas, and level playing field for all fleets operating in EEZs. In the EU, *Brexit* raises many fears about the end of access by EU fleets to the UK EEZ. Non-cooperation parties may only yield unilateral exploitation leading to negative impacts on stocks. *Brexit*, however, may offer an opportunity to revisit old allocation keys and define fishing opportunities on the basis of best scientific advice. Cooperation between parties stands as a promising option.

As discussed in this study, there are a number of historical, structural and institutional barriers that are difficult to overcome, and new challenges, such as climate change, may jeopardise the outcomes of policy decisions. Given the current rates of progress, several objectives may thus not be attained as stated in the CFP, and the relative balance between successes and failures will undoubtedly shape the discussions surrounding the next reform of the CFP.

This study has provided a number of specific recommendations for policy-makers for each of the topics. They can be synthetized in the following:

- There is a need to guarantee a level playing field with other international actors, otherwise the competitiveness of the EU fisheries throughout the value chain is at risk. The EU, as a natural leader in international fisheries governance, shall employ its technical, financial and political means to ensure that other actors fulfil international commitments on fisheries sustainability.
- Leading by example means that, for the EU, there is a need to revise some of the most essential elements of fisheries management, such as the allocation of fishing opportunities amongst the countries exploiting shared stocks. Zonal attachment of the stocks and ecosystem

considerations such as bycatch, amongst others, should be incorporated into the process of defining and sharing fishing opportunities. *Brexit* offers an opportunity to revisit the allocation process.

- Efforts should be made to strengthen regulatory frameworks at a global level, and to fight IUU fishing and other destructive practices. Fisheries management in the Mediterranean Sea should receive particular attention, and cooperation with other actors in that sea basin, together with capacity-building, is essential for success.
- Market mechanisms have shown their potential to counteract IUU fishing at least when it comes to restricting access of products of dubious origin to the EU market. These mechanisms could be further explored in cooperation with other major international partners.
- Provision of economic and technical assistance at bilateral and regional level shall be conditioned to increased transparency of the operation of fishing, and deterrence of the use of destructive practices. Thus, level playing for all fleets at stake might be improved as well as sustainability.

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This study examines the latest developments of the Common Fisheries Policy (CFP) in the fields of fisheries management, Common Market Organisation (CMO) and its external dimension. It also discusses the potential challenges that the EU fisheries policy might be facing in the near future. The present research contains ten case studies and concludes with possible solutions and recommendations to address some of the sector's forthcoming challenges.

PE 629.202
IP/B/PECH/IC/2019-016

Print ISBN 978-92-846-5471-0| doi:10.2861/543795 | QA-03-19-563-EN-C
PDF ISBN 978-92-846-5472-7| doi:10.2861/980 | QA-03-19-563-EN-N