NEW ECONOMICS FOUNDATION

WHO GETS TO FISH?

THE ALLOCATION OF FISHING OPPORTUNITIES IN EU MEMBER STATES

CONTENTS

SUMMARY

FISH STOCKS ARE OWNED BY NO ONE BUT DESIRED BY MANY. HOW, THEN, SHOULD ACCESS TO FISH STOCKS BE DETERMINED?

IN THE EU, MEMBER STATES HAVE ANSWERED THIS QUESTION VERY DIFFERENTLY, WITH MANY DIFFERENT SYSTEMS IN USE. WE ANALYSE 12 COUNTRIES IN DETAIL, AND FIND THAT DESPITE DIFFERENT SYSTEM DESIGNS, NONE OF THEM ARE FULLY MANAGING THEIR FISHERIES IN THE PUBLIC INTEREST.

IN THIS REPORT, WE DESCRIBE THESE SYSTEMS OF FISHING OPPORTUNITIES, ASSESS THEIR PERFORMANCE AGAINST DEFINED OBJECTIVES, AND MAKE RECOMMENDATIONS FOR REFORM.

Much has been written on the topic of overfishing and the large gains – environmental, economical, social – of managing fish stocks at larger population levels to support sustained catches. But far less is known, and facts are far harder to come by, on the similarly vexed issue of who gets given the right to fish. This report examines how 12 EU Member States make that decision – and the consequences that this can have.

Whether it is the disappearance of fishing communities around the coast, the controversy over larger and larger factory trawlers, or the alarm over the privatisation of a public resource, many of the concerns about contemporary fisheries management are about how the resource is divided, not just the size.

To explore this issue of allocating fishing opportunities, we analyse 12 EU Member States in detail: Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, Sweden, and the UK. The systems of fishing opportunities in use vary significantly. Whilst fishers in Belgium and the Netherlands fish many of the same species in the same waters, the government-rationed quotas of the former, and market for ownership rights in the latter, are worlds apart in management approach.

To assess whether a system of fishing opportunities is successful, we have developed a framework of 12 objectives (Table 1). Whilst not specifying a precise blueprint for fisheries, a successful system should achieve these objectives to allow fishers to thrive and the public to benefit, all whilst ensuring a good process of decision-making.

OBJECTIVES	DESCRIPTION
Secure	Fishing opportunities provide fishers with a sustained, long-term share of fish stock(s)
Flexible	Fishers can access new fishing opportunities or exchange existing ones
Accessible	New eligible fishers are granted fishing opportunities upon entry to the industry
Viable	Fishing operations are financially viable and employees are decently paid
Equitable and fair	Fishing opportunities are distributed fairly and unique needs are prioritised
Publicly owned	Fish stocks and fishing opportunities remain publicly owned
Meets government objectives	Governments use fishing opportunities to meet national and EU policy objectives
Limited public expense	The cost of managing the system of fishing opportunities is covered by the fishing industry
Captures resource rent	As a public resource, some of the resource rent is captured
Transparent and accountable	Decision making on the allocation of fishing opportunities is transparent and accountable
Objective	The allocation of fishing opportunities follows a systematic and fair process
Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

In assessing the systems in use based upon these objectives, there is a spectrum of performance across the Member States analysed; each system with some positive signs of performance, but all systems with serious challenges as well. In all Member States, fisheries management is shown to be costly to administer and generates little public revenue. Obtaining access to the fishing industry for new entrants is difficult, and the transparency of many systems of fishing opportunities is low.

Our proposals for reform vary by Member State, responding to the contexts of each system including any national objectives for fisheries that have been established. Some of our proposals for Member States include:

- a government statement clarifying public ownership of fishing rights
- a quota reserve for new entrants
- a peer-to-peer quota swapping system
- a landing tax differentiated for domestic ports
- a reallocation of quota using socio-economic and environmental criteria.

Fisheries will continue to face questions over access. This framework presents a path towards fishing in the public interest.

1.1 FISHING OPPORTUNITIES

Fishing opportunities are the access rights granted to companies, individual fishers and members of the public that allow them to fish. These opportunities come in many different forms, from a fishing licence to operate a 6 metre vessel to the quota held by a large-scale trawler to catch 50 tonnes of herring over the year. Their primary purpose is to prevent overfishing, reduce conflict between users, and ensure good practices are upheld in utilising the natural resource.

As the oceans, and consequently fish stocks, are not owned by anyone, governments are responsible for managing these rights – deciding 'who gets to fish'. In many cases, where stocks are not heavily fished, granting fishing opportunities is straightforward – fishers apply for a licence and they can fish relatively freely if they meet the requirements. However, for commercial fisheries, many fishers want to access the same stocks and there is a risk of overfishing. In these cases, it is common for authorities to distribute fishing rights (e.g. a quota limit on catches/landings) to limit access. Authorities then consider wider socio-economic and environmental implications in how they allocate these fishing opportunities. This process is complex and often political. Difficult questions arise such as on what basis should allocation decisions be made? And who wins and loses under different types of access management? It is these distributional issues related to fishing opportunities that are the focus of this report.

Some of the same questions arise in debates about the distribution of fishing opportunities between Member States as well. This aspect of distribution (which has been fixed since the establishment of the EU's Common Fisheries Policy in 1983) is not the focus of the report. Here we look specifically at the fishing opportunities that Member States have available and how they manage them. Aquaculture, inland fisheries, and recreational fisheries are also not covered in this report. Lastly, the level that fishing opportunities are set at and the sustainability of fishing are, in many ways, distributional issues between generations and are also not covered here. Whilst we have written previous studies on the sustainability of fishing opportunities for commercial stocks ('the size of the pie'),[1] it is the means, method and effect of the distribution that concern this report ('the sharing of the pie').

1.2 WHY DISTRIBUTION MATTERS

Deciding 'who gets what' in fishing opportunities has significant implications not just for fishers themselves but for the structure of the industry, coastal communities with fishing ports, and the environmental sustainability of the fleet. The allocation of fishing rights determines the financial viability of fishing, who is rewarded for performance, and whether new fishers can access the system. The rules on how rights are managed once they have been allocated have similarly significant consequences. For example, if opportunities are transferable, some fishers may, over time, accrue these fishing opportunities through buying them and significantly change the distribution. Moreover, as fishing opportunities represent a right to use a publicly owned natural resource, how they are utilised should be of particular public concern.

Within marine fishing, opportunities under quota management or other forms of rights allocation are most contentious. This is because there are usually some 'winners' and 'losers' that result from quota allocation whilst for most non-quota stocks, access is usually distributed equally for licence holders. Non-quota commercial fishers under effort controls will in most cases have the same duration of fishing access across the board.[2] For these reasons this report focuses on quota fishing opportunities that have a greater tendency towards problematic outcomes. Other fishing opportunities are covered only where they are the primary form of fishing access (e.g. effort and spatial management in Italy).

Many current issues and controversial debates in fisheries management are related to the allocation of fishing quotas. A couple of examples serve to illustrate the importance of how the design of regulations has created problems but could also provide a way forwards, if corrected.

THE INITIAL ALLOCATION OF FQAS IN THE UK

In 1999, the UK implemented a system Fixed Quota Allocations (FQAs) that granted fishers fixed shares of the national catch quota. Fishers who were members of producer organisations mainly using larger, over 10 metre vessels received individual quotas whilst non-members accessed a FQA pool managed by the government. The FQAs allocated were distributed to these individual fishers and pools based on fishers' track records – their past fishing activity in terms of tonnes landed using a reference period of 1994-1996. However, under 10 metre vessels were not required to report their landings over this period and the sampling methods used by the goverment to estimate the missing data has been criticised for underestimating the past landings of the under 10 metre vessels. Subsequently, the share of FQAs allocated to the under 10 metre pool was far lower than their actual historical activity.[3]

This under-allocation has resulted in a number of problems for the under 10 metre fleet, including a shifting of activity and subsequent overfishing of non-quota species[4] and the leasing of FQAs from producer organisations at a significant financial cost. The end result has been that access for under 10 metre vessels has become more restricted and expensive, and as chapter 15 on the UK reveals, the small-scale sector is struggling financially with further repercussions for many fishing communities.

This example illustrates a number of key concerns. Firstly, it is crucial to get the initial allocation of fishing opportunities right in order to have equitable outcomes. This is especially true for systems like the UK where allocation is fixed indefinitely and the government has minimal means to make corrections. Secondly, it raises questions about the process of establishing FQAs and whether these problems could have been avoided with better consultations or co-management between government and stakeholders.

TRANSFERABLE QUOTAS AND HARBOURS IN DENMARK

Denmark uses a type of quota system where fishers can buy, sell and lease quotas amongst each other in a market for fishing rights. The use of a market as a regulatory tool is often implemented to improve the efficiency and profitability of the fleet, but has also been linked to negative side effects. In 2007, Denmark expanded its existing transferable quota system to include whitefish stocks such as cod, sole and plaice. This put many small-scale fishers in the transferable quota system. As more profitable fishing companies could then buy and accumulate quotas, fishing rights have subsequently become more concentrated. Since 2007, capacity has declined considerably with a third of active fishing vessels leaving the sector by 2014.[5] Additionally, 39 harbours closed their fishing operations following the decline and increased concentration of the fleet.[6]

As chapter 6 on Denmark reveals, on some metrics the new Danish quota system has been a significant success. Profitability has improved, and overcapacity significantly reduced. However, it has to be recognised that there are significant trade-offs in systems of fishing rights and this method of capacity reduction has harmed many coastal communities. A balanced system of objectives should reveal whether the benefits of of the current system are worth the social costs.

CHOKE SPECIES AND QUOTA SYSTEM FLEXIBILITY

In fisheries under quota management, where there are individual quota limits placed on different commercial fish stocks, issues may occur where vessels operate in multispecies and mixed fisheries. In these fisheries, it is very difficult to target species individually and several species are caught together in each haul. Historically in the EU this has resulted in the mass discarding of fish that cannot be landed but are caught as unwanted bycatch due to the nature of the fishery. During the 2013 reform of the Common Fishery Policy, a swell of public interest in preventing discarding led to a regulation (Article 15) that phased in a ban on discarding (formally the 'landing obligation'). With the final phase of the landing obligation scheduled for 2019, many fishers are worried about the problem of choke species – where the exhaustion of TAC for one species limits fishing for all other species in the mixed fishery. This could shut down fishing operations before the end of the season with potentially significant economic implications.[7]

Developments are underway in many research areas to help mitigate the choke species issue, but it also clear that there is an aspect related to fishing opportunities. As fishers are heterogenous with respect to the areas where they fish, the time that they fish, and the type of gear that they use, the choke species problem will be felt to varying degrees. A quota system with high security would allow fishers to plan their trips and investments to try and mitigate chokes. A quota system with high flexibility would allow fishers who need extra quotas for a choke species and fishers who have available quotas to arrive at a mutually beneficial outcome. Whilst some Member States have systems in place to help accommodate this issue, improvements to security, flexibility, and other features of systems of fishing opportunities are an issue explored in more detail throughout this report.

TIME FOR REFORM

From these examples, it is clear how important it is to get the design and regulation of fishing opportunities right. In many cases, fishing opportunities were designed without due considerations of the competing objectives and without fully understanding the trade-offs involved. However, this need not be the case. Different systems have been implemented throughout the world and have been tested over many years, often accompanied by detailed academic research. This means that we now have a strong understanding of the relationship between different ways of designing fishing opportunities and the likely outcomes. More than ever before, we are in a position to take an evidence-based approach to design fishing opportunities according to particular desired outcomes.

1.3 THE IMPLICATIONS OF 'BREXIT'

Whilst the details of Brexit are still far from clear (as of March 2017), there are potential implications for the management of fishing opportunities. The most obvious impacts involve the setting of total allowable catches and the division of these fishing opportunities between Member States (described in chapter 2) as well as access arrangements for fishing vessels to UK and EU waters. The expectation is that Brexit will impact the size and location of the fishing opportunities that are available to the UK and also to the many EU Member States that share fish stocks with the UK or access UK waters.

However, the allocation of fishing opportunities within Member States, the topic of this report, is a responsibility of Member States with guidance from the EU (see the discussion of CFP article 17 in chapter 3). The system of fishing opportunities in the UK was established by the UK and devolved administrations and continues to be managed at this level. Brexit will not change this fact and several recent reports on the 'new opportunities' of Brexit misunderstand this point.[8,9] This clarification also applies to the issue of 'foreign trawlers' in UK waters that are foreign-owned UK vessels ('flagged vessels') and are therefore governed through the UK system of fishing opportunities.[10] Brexit does not fundamentally change the status of these vessels as long as foreign ownership of businesses is permitted in the UK under freedom of establishment (see our recommendations in chapter 15).

At the time of writing, the question of whether Brexit will change the distribution of TACs a nd/or territorial waters between the UK and the is EU is disputed.[11] It is clear, however, that Brexit will not change the powers available to the UK to allocate fishing opportunities to its fishing fleet, as this power is already held by Member States.

1.4 OUR APPROACH FOR THIS REPORT

In this report, we advocate four core principles in considering the allocation of fishing opportunities. From these four principles we take an objective-led approach and define and operationalise 12 objectives for systems of fishing opportunities in chapter 3.

1. Marine fish stocks are fundamentally a public resource.

Just as marine fish stocks are a public resource, so too are shares or rights to harvest them. This means that no actor should be granted an indefinite, exclusive right to fish stocks that are owned commonly. Such a privatisation would mean gifting a resource from all potential right holders to a select few, also excluding future generations in the process.

2. The distribution of fishing rights needs to include social and environmental objectives.

As the social and environmental consequences of marine fishing are numerous and significant, fishing opportunities need to be distributed in a manner that reflects this reality. Not doing this would leave externalities unaccounted for and would fail to produce a system that moves toward desired outcomes.

3. Fishers and stakeholders need more control over their fishing opportunities.

The management of fishing opportunities is usually bureaucratic and distant from the important stakeholders in the process – fishers themselves. Regulations are often complex and opaque and in many cases policy consultations are not accessible to most fishers. Information about the allocation of fishing rights should be in the public domain and open to scrutiny.

4. To be effective, management must work for all actors involved.

A system of fishing opportunities implies fishing activity is taking place – there is no point in designing a system without it. As such, a system of fishing opportunities should enable fishers not only to make a living, but to thrive. This principle also extends to the management of fisheries. A costly or unwieldy management system is difficult to sustain as finances are demanded for alternative uses.

ROAD MAP

This report takes a new approach to fishing rights in EU Member States. At the core of our assessment and the recommendations that follow is a framework of objectives. We consider these foundational objectives as essential to pursue in all countries as key guiding principles. The particular circumstances and needs of EU Member States vary, as should any policy solutions they implement. However, as overarching objectives, the framework presented in this report should be very useful in informing policy design.

Chapter 2 provides context and background to EU fisheries with an outline of the different forms management can take, the different types of fishing opportunities in use, and some clarifications around definitions that are used throughout the report. Chapter 3 covers our framework for analysis and describes how foundational objectives are operationalised into indicators and measures. Chapter 4 comments on how such a framework shapes our thinking regarding some current and often controversial policy debates in fisheries management. Chapters 5-16 describe the fisheries and systems of fishing opportunities in 12 EU Member States and apply our framework of analysis to measure the performance of each system. Each chapter concludes with policy recommendations for the Member State based on the findings of the analysis. Chapter 17 provides an overview of the results from the Member State assessments and concludes the report with comments on the way forward.

Our hope is that this report can improve decision-making by providing much needed information that can serve as a base of evidence whilst also providing a set of objectives that can prompt a necessary conversation about what makes for a successful fishery.

---

1 Carpenter, G., & Kleinjans, R. (2015). Landing the blame: Overfishing in European waters 2001-2015. London: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/281450725_Landing_the_blame_overfishing_in_EU_waters_2001-2015

2 Likewise, recreational licences typically provide the same fishing opportunities to all licence-holders, regardless.

3 Cardwell, E. J. (2012). Invisible fishermen: the rise and fall of the UK small boat fleet. European Fisheries at a Tipping Point: Universidad de Murcia. Retrieved from http://www.catedrajeanmonnet.eu/Publicaciones/Publikationen%20-%20European%20Fisheries%20-%20capitulos/Chapter%207%20-%20Cardwell%20-%20Invisible%20fishermen.pdf

4 Sustainable Access to Inshore Fisheries (SAIF) Advisory Group. (2010). Reform of the English inshore fishing fleet. Final Report: Key findings and recommendations: Sustainable Access to Inshore Fisheries (SAIF) Advisory Group.

5 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

6 Høst, J. (2015). Market-based fisheries management: Private fish and captains of finance: Springer International Publishing. Retrieved from http://link.springer.com/book/10.1007%2F978-3-319-16432-8

7 Russell, J., Mardle, S., & Curtis, H. (2015). Landing obligation economic impact assessment (EIA). Interim report two: Scenario analysis. Edinburgh: Sea Fish Industry Authority. Retrieved from http://www.seafish.org/media/publications/Seafish_LOEIA_Interim_Report_2_Scenario_Analysis_310815_FINAL.pdf

8 Pirie, M. (2016). Catch of today: A ten point plan for British fishing. London: Adam Smith Institute. Retrieved from https://static1.squarespace.com/static/56eddde762cd9413e151ac92/t/57bd4b3c414fb59d429e1aab/1472023359039/Catch+of+Today+fixed2.pdf

9 Booth, P. (2016). A briefing: Fisheries policy outside the EU. London: Institute of Economic Affairs. Retrieved from https://iea.org.uk/wp-content/uploads/2016/09/IEA-Briefing-Fisheries-.pdf

10 Stewart, B., & Carpenter, G. (2016). What would Brexit really mean for the UK's fishing industry? The Conversation. Retrieved from https://theconversation.com/what-would-brexit-really-mean-for-the-uks-fishing-industry-56312

11 Boffey, D. (2017, 15/02/2017). UK fishermen may not win waters back after Brexit, EU memo reveals, The Guardian. Retrieved from https://www.theguardian.com/environment/2017/feb/15/uk-fishermen-may-not-win-waters-back-after-brexit-eu-memo-reveals

2.1 INTRODUCTION

Most fisheries around the world now operate under some form of management, whether it is administered through a local fishing collective, a regional authority, or national and international governments. These management regimes vary significantly in their scale and organisation, legal standing, and powers to enforce. Whilst many management systems are in a state of constant reform, some traditional systems used by Indigenous Peoples have been in place for millennia. What most management regimes have in common, however, is an attempt to constrain the amount of fishing that takes place as well as deciding who has the right to fish; this is the management of fishing opportunities. Collective action is needed to prevent overfishing when fishing capacity [1] is high and individual fishers' interests are geared towards maximising catch. Overfishing not only risks the collapse of the stock, but it also leads to lower yields for fishers. Overcoming this tendency towards overfishing is the most fundamental issue in fisheries management and it underlies the sustainability of the industry.

In EU waters, the responsibility for fisheries management is shared between the EU and its Member States. This system of multi-level governance extends to local levels as well, with regional governments, producer organisations and, in some cases, local fishing cooperatives, granted some management powers. Overarching regulations are stipulated by the EU's Common Fisheries Policy and are implemented across all Member States. These regulations include the setting of EU-wide total allowable catches (TACs), technical regulations on fishing methods, data collection, subsidy schemes, and nearly all other aspects of fisheries management. Whilst the EU provides some guidance, Member States decide how TACs and other fishing opportunities are subdivided and distributed at a national level, including what methods or criteria are used in this process. Local authorities and associations commonly have responsibilities over inshore, non-quota stocks such as shellfish. This report focuses primarily on how fishing opportunities are allocated at the national level.

The following chapter will cover the need for fisheries management and the forms it can take (Section 2.2), the complex multi-level governance that comprise fisheries management in the EU (Section 2.3), and a general overview of the different types fishing opportunities used in the EU and some common variations (Section 2.4). A summary table of the main fishing opportunities used in 12 EU Member States is available at the end of the chapter, which is then expanded upon in the Member State chapters.

2.2 WHY MANAGE FISHERIES

Fisheries management exists because unconstrained fishing can lead, and has led, to depletion of the resource and many negative ecological, economic and social effects. When individual fishers pursue their fishing activities in the absence of any coordination, there is an increased risk of overfishing and conflict between fishers in accessing fish stocks. This is known as open access fishing and is the situation described by Garrett Hardin's famous 1968 paper The Tragedy of the Commons [2]. According to Hardin's theory, rational individuals in an open access context will seek to maximise their gains from the resource. Even when this course of action leads to overexploitation, individuals are incentivised to keep exploiting the resource for their own benefit. This is motivated by the fear that individual, unilateral reduction in fishing activity will simply result in others reaping the benefits by increasing their own fishing activity. The benefit of further exploitation operates at the private level, whilst the cost of overexploitation is distributed to all individuals (public). This leads to the tragic situation

where individually rational actions create a worse outcome for all. To counter this tendency, the fundamental task of fisheries management is to allow the sustained exploitation of fish stocks through the prevention of overfishing. Not only can this limit the negative ecological, economic and social effects associated with overfishing, but there are significant returns that can be generated from fisheries to both private and public actors if managed correctly.

There is not one specific solution to the 'tragedy of the commons' in fisheries management but several distinct approaches, all of which involve some form of collective action. These include common pool management, government management, and privatisation.

COMMON POOL MANAGEMENT

In a small-scale, localised context, where the same fishers target a stock exclusively, fishers themselves may set and apply rules on fishing access. In this situation, the resource is managed as 'common property' and the fishers set up their own enforcement mechanisms to ensure the stock is well-managed through constraints on catches and limited entry.[3] One point of frequent confusion is that common pool management is interpreted as being equivalent to open access, when in fact common pool management is a response and a potential solution to an open access situation. Part of this misinterpretation stems from the vague phrase 'tragedy of the commons'. However, it is clear from Hardin's text that this should be specifically defined as meaning the tragedy of open access to common resources.[4]

Common pool management as a local, institutional solution to the open access resource problem has been well-documented by the political scientist Elinor Ostrom in several unique contexts. Nevertheless, this approach to management can be more difficult to achieve when the fishery is geographically large-scale or migratory, with many intermittent and new fishers accessing the resource who may not have a long-term stake in the stock. In these situations, there is not one defined group of users that can coordinate easily with each other to manage the resource.

GOVERNMENT MANAGEMENT

For large-scale fisheries accessed by many fishers, nationally and internationally, government management is usually the chosen approach. This is because governments tend to have stronger regulatory powers than those that exist in voluntary arrangements and are impartial to the interests of individual fishers. Government regulation of fisheries usually comes in the form of restricting the number of fishers and setting conditions for eligibility (limited licensing). Governments may also impose other 'input controls' such as limits on the number of allowable days at sea or areas fishers may access. They may also apply 'output controls' such as setting catch quotas which can be set nationally or for individual vessels. Government management may also involve supranational governments such as the EU, or for international waters, intergovernmental organisations called Regional Fisheries Management Organisations (RFMOs).

PRIVATE MANAGEMENT

Increasingly, privatisation is suggested as a management approach to overfishing.[5,6,7] It is argued that if fish stocks are privately owned, the tragedy of the commons will be avoided as the costs of overfishing will be felt by the owner rather than being dispersed between many fishers; thus, both the benefits and costs of overexploitation are held privately and are therefore aligned. In practice, full privatisation of fish resources occurs mostly in inland water-bodies on privately owned land or for shellfish and aquaculture farms. Full privatisation has not been applied to large marine stocks as most governments consider fish a public resource and follow the principle that wild fish are unowned until caught. When commentators refer to the 'privatisation of fish' they usually refer to much narrower cases where the fishing right/

opportunity is a private entity rather than the fish stock itself. In those cases, the fishery is still managed and regulated by governments which set catch limits and apply other regulations. In the rest of this report, we use the term 'privatisation' in the latter sense, referring to use rights rather than fish stocks.

In the EU, all three of these approaches are applied to varying degrees.[8] Nevertheless, despite the occurrence of local fishery management in some instances, the discussion surrounding fisheries management focuses predominantly on management at the EU and national level. Local institutional arrangements also exist but only through government mandates and these must comply with EU and national law.

Although the conservation of fish stocks is central to fisheries management, there are often additional objectives that governments and involved organisations pursue. Many of these objectives emerge because of the exceptional nature of the fishing industry, for instance its use of a common resource and its significant interaction with other marine industries. Whilst it represents only a small proportion of GDP, fishing has tremendous importance in terms of culture, heritage, community, and other social dimensions. These considerations entail a much broader set of objectives than the conservation of fish stocks. For example, these objectives may include minimising harmful impacts on the marine ecosystem, providing employment or ensuring the viability of coastal fishing where communities are highly dependent on the sector – all objectives defined in the Common Fisheries Policy. This report will highlight the importance of an objectives-based approach to fisheries (chapter 3) and examine each Member State's objectives in detail (chapters 4-15). The following sections outline the international, EU and national fishing regulations on the conservation of fish stocks relevant to an understanding of fishing opportunities in EU Member States.

2.3 MULTI-LEVEL FISHERIES REGULATION

INTERNATIONAL REGULATIONS

International conventions on shared waters have been in place for centuries but only included provisions on fisheries conservation from the second half of the 20th century. Before this time, it was customary to have free, open-access fishing anywhere outside of narrow territorial waters. The industrialisation of fishing post-World War II led to a greater impetus for international rules to manage conflict over fish stocks and fishing grounds as well as to limit overfishing.

The most comprehensive law for international fishing is the United Nations Convention on the Law of the Sea (UNCLOS). Its latest incarnation, UNCLOS III, was adopted in 1982 and 167 states are party to this convention, including the EU as a bloc. The scope of UNCLOS III is wide-ranging with key aspects including the establishment of territorial sovereignty of coastal states over territorial waters, rules of free passage, measures on the conservation of biological resources and the provision of an international dispute settlement mechanism. UNCLOS III established territorial waters as the 0–12 nautical mile zone from a state's coastline and the Exclusive Economic Zone (EEZ) as the 12–200 nautical mile area. States have sovereignty over their EEZ to exploit its living and non-living resources. One stipulation of this exploitation is that management measures to help set total allowable catches should reflect the best scientific advice available. Additionally, wild fish in national waters are considered 'unowned' until caught, when they become property of the captors.

The EU is also a signatory to the 2002 United Nations World Summit on Sustainable Development in Johannesburg (Rio+10). Rio+10 includes articles on fisheries management in its outcome declaration and includes the provision that fish stocks should be restored so that they could produce maximum sustainable yield by no later than 2015 where possible.

Regional Fisheries Management Organisations (RFMOs) play a crucial role in international, deep-sea and migratory/straddling stocks. These intergovernmental organisations are composed of Member States that have an interest in the fish resources they manage. RFMOs are responsible for facilitating the joint management of fish stocks outside of EEZs or highly migratory stocks such as tuna. In some cases, their responsibilities extend to wider environmental management. RFMOs incorporate scientific assessments and propose measures such as TACs, which are divided between Member States according to either predetermined criteria or through ad hoc working groups (e.g. NEAFC's 'WG Allocation').

Due to their intergovernmental nature and lack of enforcement powers, RFMOs rely on achieving broad agreement by their members in setting conservation measures and their recommendations are only advisory. Some of the most important RFMOs for EU Member States are the International Commission for the Conservation of Atlantic Tuna (ICCAT), the North East Atlantic Fisheries Commission (NEAFC), the Northwest Atlantic Fisheries Organisation, and the General Fisheries Commission for the Mediterranean (GFCM).

EU REGULATIONS

The EU's predecessor, the European Economic Community, had already gained competences over fisheries policy in the 1970s but a formal policy, including quota management, emerged through the Common Fisheries Policy (CFP) in 1983. The CFP assigned conservation responsibilities within all Member States' combined EEZs to the Community as an exclusive competence. In the decades that followed, the EU's mandate transformed through multiple reforms (once every ten years) into the Common Fisheries Policy (CFP), culminating in its most recent reform in 2013 (Regulation No 1380/2013). The main objectives of the recent reform include:

- fishing all stocks at MSY by 2015, or 2020 at the latest;
- eliminating discards;
- improving data collection;
- addressing overcapacity; and
- applying an ecosystem-based approach to fisheries management.

The main roles of the EU in attaining these objectives are:

- setting fishing opportunities, multi-annual plans and implementing the landing obligation;
- setting technical measures and controlling capacity;
- ensuring policy enforcement; and
- enacting market measures through the Common Market Organisation.

Additionally, the EU's European Maritime and Fisheries Fund (EMFF), one of the EU Structural and Investment Funds, provides €6.4 billion in funding for fisheries and aquaculture projects between 2014 and 2020. Most of this funding (68%) is available for fishing, fish processing and aquaculture enterprises to aid in local development and transition to sustainable practices.[9] The remainder is used for improving control and enforcement, data collection and research. The EU's Marine Strategy Framework Directive, separate to the CFP, is a measure to achieve biodiversity targets in the EU's marine environment. It requires Member States to develop marine strategies using an ecosystem approach.

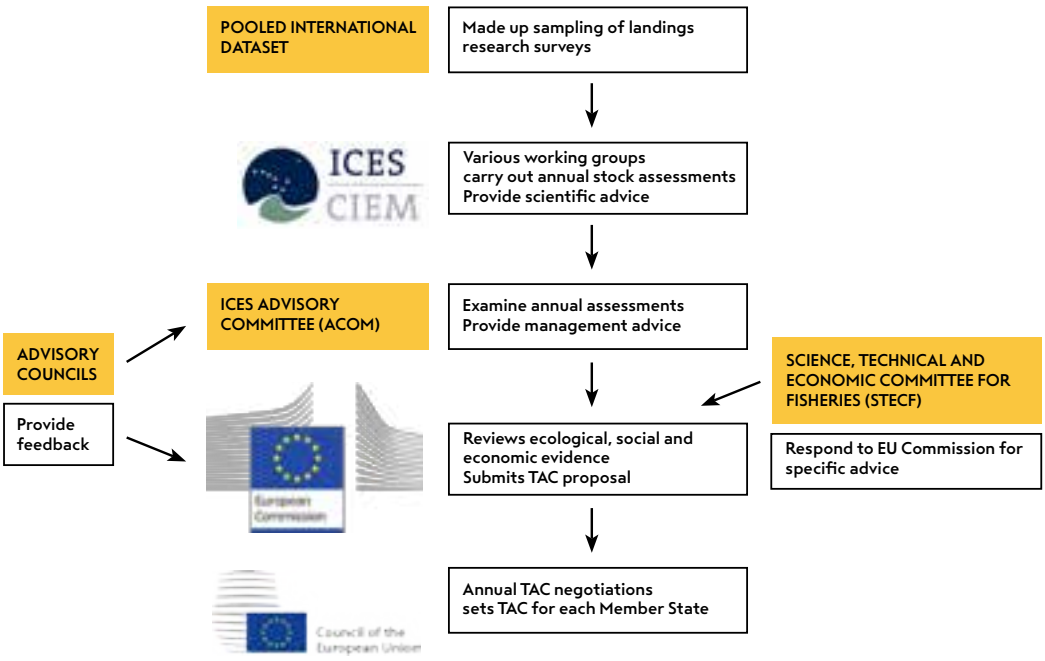
SETTING FISHING OPPORTUNITIES, MULTI-ANNUAL PLANS AND IMPLEMENTING THE LANDING OBLIGATION

Every year the EU sets around 200 fishing opportunities in the form of TACs for various commercial fish stocks in EU waters. Some TACs are set as part of a multi-annual management plan (MAP). MAPs specify long-term objectives at the level of the fishery (characterised by the species caught, the fishing gear used, and the area of operation). They feature a range of measures which may include effort controls, rules on TAC-setting and rules on landings and transport. The 2013 reform of the CFP included a landing obligation that is being phased in from 2015 to 2019. It requires that all catches subject to catch limits, and in the Mediterranean, species where a Minimum Conservation Reference Size applies, are landed. This effectively bans discarding of most commercial species in EU waters.

TACs and other fishing opportunities are set through a multi-stage process involving several institutions (figure 2.3.1).[10] Every year, Member States gather and submit data and research on fish stocks which is pooled in an international dataset. The International Council for the Exploration of the Seas (ICES), an intergovernmental scientific body, subsequently carries out annual stock assessments which it formulates into scientific advice on recommended levels of fishing to achieve MSY fisheries and the CFP's objectives. ICES' scientific advice is reviewed by an advisory committee before being passed on to the Commission. On the advice of the Scientific Technical and Economic Committee (STECF), the Commission formulates proposals on TAC levels in early autumn. Between October and December each year, the European Council of Ministers, which has full legal discretion, establishes a regulation that sets the TACs and other fishing opportunities for the following year.

TACs are distributed to Member States according to an allocation key which grants Member States a fixed share of the TACs each year. Known as 'relative stability', this distribution mechanism divides TACs according to the catch records of Member States between 1973 and 1978. Furthermore, adjustments are made according to the 'Hague preferences' provision (which provides a modest TAC underpinning for the UK/Ireland in specific cases on application) and for losses of national EEZ area. After the TACs have been set, it is up to Member States to decide how they distribute their national allocations to producer organisations, fishing companies and individual fishers. The allocation of fishing opportunities at the national level is the focus of this report.

Figure 2.3.1. Outline of the TAC setting process in EU waters



Source: Carpenter & Kleinjans (2015)

The landing obligation requires fishers to land all their catches. This regulation effectively ends the practice of discarding – the throwing away of caught but unwanted fish. Discarding is most prevalent in multispecific and mixed fisheries where it is difficult to target single species, despite quotas being held for individual species. [11] The reasons for discarding fish are varied and dynamic. Where there are minimum landing sizes, catches will be discarded if they are below the minimum landing size. A low market value of some species means that it is more profitable to retain on-board space for higher value species (high grading). Regulatory discarding occurs when catches exceed a fisher's available quota holdings and fishers would rather discard the fish than suffer the consequences of quota infringements. On other occasions, fishers may simply find it more manageable to discard catches that they are unable to effectively process or hold on board. The landing obligation is being gradually implemented with key pelagic stocks and some demersal species now (2017) covered. The biggest challenges for implementation are likely to appear in later years, particularly 2019, when the policy is implemented universally, including mixed fisheries. Choke species, where one quota is depleted before others in a mixed fishery, is one key implementation challenge that will need to be addressed. This issue will present new challenges for the distribution of fishing opportunities (quotas) to allow fishers flexible access so that choke situations can be avoided to the maximum extent. In the Mediterranean, where the landing obligation applies for all stocks with a minimum landing size, the implementation of the landing obligation introduces additional issues regarding data collection and enforcement.

SETTING TECHNICAL MEASURES AND CONTROLLING CAPACITY

As part of its competence in marine conservation, the EU legislates technical measures to regulate fisheries. Technical measures are a form of 'input control' that delineate permissible uses of gears, fishing techniques and other technical specifications. These measures are primarily aimed at improving the selectivity of fisheries and the reduction ecosystem impacts. This approach contrasts with 'output controls' such as TACs that focus on what is caught, rather than how it is caught. Technical measures may also include spatial and temporal restrictions on fishing activities. These restrictions limit negative ecological impacts that cannot be easily controlled through output controls and prevent the use of unsafe techniques/gears. Examples include restrictions on types of fishing gear, minimum landing sizes, and area closures. Technical measures are legislated mainly through stand-alone regulations but are often also included in MAPs and the annual EU fishing opportunity regulations. Prior to the 2013 reform of the CFP, many regulations on technical measures were orientated towards reducing discards by increasing selectivity through gear specification. However, with the landing obligation coming into force, these technical measures are likely to play a smaller role as the LO compels fishers to become more selective in order to comply with the TACs.

As the CFP has been reformed, technical measures have accumulated and become ever more complex and there are now over 30 regulations that include technical measures.[12] These measures have been criticised for being devised in a top-down manner, stifling innovation due to their inflexibility, and failing to promote clear metrics for success. Citing a recent retrospective evaluation and public consultation on technical measures, the Commission has proposed reforms of the technical measures regime through a new framework. These reforms will aim to regionalise, simplify, and increase the flexibility of technical measures.[13]

Overcapacity has been cited as one of the key contributors to overfishing in EU waters and the issue still features prominently in the most recent CFP reform. Indeed, 'too many boats chasing too few fish' is a frequently used catchphrase in fisheries management. National fishing fleets were built and industrialised during times of stock abundance and minimal quota control. In recent decades, with many stocks overfished, a significant imbalance between fishing capacity and available fishing opportunities emerged. Moreover, if many vessels can only be used for a fraction of the year's fishing days before quota limits are reached, operations become less economically viable and there are large amounts of underused and idle capital. For these reasons, the CFP (article 22) contains measures to address overcapacity. Member States are required to report their structural overcapacity to the Commission each year and introduce action plans

where overcapacity is a problem. Member States must also comply with the 'entry/exit scheme', which requires that any addition of capacity (in engine power and internal volume) to a Member State's fleet must be accompanied by an equal or larger decrease in capacity. In this manner, all Member States have an effective cap on their national fishing capacity.

MARKET MEASURES THROUGH THE COMMON MARKET ORGANISATION

The Common Market Organisation (CMO) is part of the CFP but enshrined in a separate piece of legislation (Regulation No 1379/2013). Its objectives include:

- providing a level playing field for fishery and aquaculture products in the Union;
- strengthening the competitiveness of the Union's fishery and aquaculture industry; and
- improving transparency in markets and providing consumers with accurate product information.

The CMO includes measures on the organisation of the industry, the production and market plans of producer organisations, common marketing standards and consumer information. The CMO details rules for producer organisations (POs) which are tasked with pursuing CFP objectives. POs are membership organisations of fishers and are involved in marketing fish, creating fishing plans for their members, and, in some cases, managing fishing opportunities. They are mandated to enforce their own internal rules and impose penalties on members for infringements. The CMO states that POs need to have 'a democratic functioning that enables the members to scrutinise their organisation and its decisions.' [14] In cases where they have quota management roles, POs will come under examination in this report.

NATIONAL REGULATIONS

Member States are required to apply and enforce all EU fisheries regulations, from technical regulations and marketing standards to fishing quotas. EU competences are most pronounced in the 12-200 nautical mile zone, whilst coastal/inshore waters (0-12nm) involve shared or national competences (table 2.3.1). [15] National measures that may affect other Member States in, for example, the 6-12nm coastal zone need to be non-discriminatory. The 0-6nm territorial zones, usually encompass many shellfish stocks and fish farms and are primarily under national competence, although the EU does set some mandatory standards. Inland and freshwater fishing are also under national competence. National authorities set rules for licensing on who is allowed to enter the industry and conditions for holding fishing rights.

Table 2.3.1: Arrangements for access and competence around the national coast

	0-6 nautical miles	6-12 nautical miles	12-200 nautical miles
		Inshore Zone	
Access	National vessels	National vessels, other vessels with historic access	Free access principle for all member states, agreed access for third countries
Powers to enact measures	National authorities	Member states through derogation under CFP. Subject to criteria	EU

Source: HM Government

The allocation of fishing opportunities, which is the focus of this report, is an exclusive power of Member States, although Article 17 of the CFP specifies some requirements. The Article states that Member States must use 'transparent and objective criteria including those of an environmental, social and economic nature'.[16] The extent to which Member States comply with Article 17 will be examined in this report.

The fishing opportunities that Member States manage range from distributing angling licences and setting the fishing season, to allocating fishing quotas and closing fisheries. Member States set licensing requirements and fees for all marine (and inland) fishing activities. They also usually regulate and oversee any devolved fishing authorities that manage fishing opportunities, such as regional governments and producer organisations. Crucially, for most large commercial stocks, Member States decide 'who gets to fish' through the allocation of fishing quotas.

SUB-NATIONAL REGULATIONS

Some aspects of fisheries management are often devolved to lower levels of government or to industry groups. Typically, national ministries control fishing opportunities beyond coastal waters, whilst inshore non-quota and shellfish stocks are managed by regional/local authorities or fisher groups. These sub-national organisations are subject to national guidelines and objectives. In many Member States, POs also take on quota management roles: facilitating swaps and transfers, pooling quotas and planning fishing activities on behalf of their members.

A PRIMER ON NATIONAL QUOTA MANAGEMENT

Quotas are just one type of fishing opportunity, but they cover most of the important commercial stocks and make up 60% of the landings in weight of the twelve Member States covered in this report.[17] This section will describe how Member States manage and distribute their TAC shares domestically after the TACs have been set by the Council of Ministers and allocated to EU Members through relative stability (see section 2.3.1).

LICENSING

All commercial and most recreational fishing in marine waters is subject to licensing. These licences restrict entry to the industry and specify the conditions under which fishers may carry out their fishing activities. A fishing licence is required to operate a fishing vessel and is a requirement to access fishing quotas. Licences are therefore the means by which 'eligible users' are identified by the relevant authority. In some Member States, licences are indefinite, whilst in others they are periodically renewed. Licences can be revoked where fishers violate regulations. Member States usually impose 'economic link' requirements for licensing – a set of criteria that fishers must comply with to demonstrate an economic benefit to the Member State. The objective of an economic link is to prevent foreign companies from accessing national fishing opportunities without having any economic connection to the Member State in question.

ALLOCATION

The allocation of fishing opportunities is the process by which government authorities distribute fishing quotas to fishers or intermediaries such as producer organisations. There are four main approaches to allocation in the EU context:

1. Historical track record. Fishers are granted a share of the national quota depending on their historical landings during a reference period. They receive the same share allocation each year unless their share is transferred.
2. Capacity-based allocation. Fishers receive a share of the national quota based on the capacity (gross tonnage or power) of their vessel(s). As long as vessel characteristics stay the same, the share received each year will also remain constant.

3. Criteria-based allocation. Quotas are allocated based on criteria which may include the above two allocation methods. Other criteria may include socio-economic factors such as employment provision or quota dependency.
4. Rationing. Quotas are allocated based on objectives such as equal distribution or maximising utilisation. This allocation is often differentiated by gear and/or capacity classes. Rationing is usually performed recurrently throughout the year with frequent adjustments.

QUOTA SHARE VS QUOTAS

In criteria-based allocation systems (1-3 above), fishers usually receive a quota share which specifies the percentage of the national quota for which fishers are eligible. These quota shares are normally a stable, long-term fishing right, depending on the Member State. In those cases, quota allocation is a direct process with little government involvement as national TAC shares are directly allocated according to the shares of eligible fishers'. Quotas refer to the yearly limit in tonnes of a fish stock. In rationed allocation systems (4 above), fishers do not hold quota shares and receive quotas directly.

NATIONAL QUOTAS

For some quota stocks, no allocation takes place and all eligible fishers can access the national quota (share of the EU TAC) until it is depleted. Once the national quota is exhausted the fishery is closed until the next quota period. This is sometimes referred to as the 'national pool'.

DIFFERENTIATED SYSTEMS

Most Member States manage distinct parts of the fishing industry with different quota systems. Most commonly, different systems of fishing opportunities are used in the management of the small-scale fleet and the large-scale fleet, or for full-time versus part-time fishers. Differentiation exists because governments may pursue different objectives for the various fleet segments, because of conflict between fishing fleets, or because of managerial considerations such as cost-effectiveness.

REALLOCATION

Reallocation occurs when the national government decides to redistribute quota shares. This can happen, for example, when the historical reference period is updated, when the type of allocation system is changed, or when new objectives are pursued.

QUOTA RESERVE

In some cases, the government or producer organisations keep a quota reserve aside from what is allocated to fishers. This reserve may be used for a number of different purposes: providing quotas for new fishers who do not hold quota shares; making special allocations to incentivise good practices; or use as a 'hardship fund' for fishers that run out of quotas. These quota reserves are distinct from those used for biological reasons during spikes in a fish stock.

PRODUCER ORGANISATIONS

In many Member States, producer organisations have quota management roles, with responsibilities over their members' quotas. In some cases, producer organisations (POs) will pool members' quotas or hold their own quotas which they allocate. POs often plan their members' activities and facilitate quota swapping and trading when applicable.

TRANSFERS

Beyond government re-allocation, there are three kinds of quota transfer:

1. Swaps: Quota swaps are a non-monetary exchange of one quota species for another. These swaps are often facilitated by POs and may require authorisation depending on the Member State. Member States also swap quotas between themselves, internationally.
2. Leasing: This involves in-year renting out of quotas between fishers/producer organisations. Leasing is temporary and the quota share is not transferred. Like independent transfer, only some quota systems permit leasing.
3. Full transfer of quota shares: In systems with quota shares, the share is usually attached to the vessel. When a vessel is transferred, its associated quota share is also transferred. In some systems (see ITQs below) quota shares can be fully transferred independently of the vessel.

Whilst most quota systems allow swaps, leasing and transfers are more restricted. Systems with full transfers often require some form of authorisation to take place.

LEGAL STATUS OF QUOTAS

In most Member States, quotas and quota shares do not confer property rights to the owners and the relevant government ministry has the power to reallocate or reform the quota system. In some cases, Member States have granted time-limited use rights that guarantee shares for a specified period, and, in a few cases, quota shares are of an ambiguous legal status.

2.4 TYPES OF FISHING OPPORTUNITIES

INTRODUCTION

Fishing opportunities are the enforceable restrictions within which fishers can legally fish. These vary significantly in character and stringency. Some fishing opportunities come in the form of territorial rights which allow authorised fishers to harvest species in a defined territory. This kind of opportunity is most appropriate for sedentary stocks such as bivalves. Catch quotas are a type of opportunity that specify the tonnage of fish stocks that can be caught. These are most common for large commercial stocks. Other fishing opportunities come in the form of open fishing within fishing seasons, limited entry and gear restrictions. All regulated fishing opportunities include licensing arrangements that set out basic requirements which fishers must comply with. In the case of commercial fishing, licences are often fishery-specific, attached to a vessel and necessary to hold quotas (where applicable). Recreational fishing licences usually specify permissible gears and small daily catch limits. This section summarises the types of fishing opportunities and how they apply to the EU Member States analysed in this report.

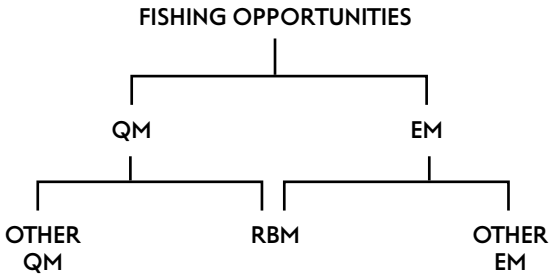
TYPES OF MANAGEMENT

Fishing opportunities can be grouped into quota management (QM) and effort management (EM) (table 2.4.1). In this report, QM will refer to all quantitative output controls and EM will refer to all input controls.[18] The former aims to achieve sustainable stock exploitation through limiting the landings or catches of vessels. The latter controls fishing mortality indirectly through imposing constraints on the capacity, time, area, and methods that fishers can use. Some types of QM and EM can be considered as 'Rights-Based Management' (RBM), a particular form of fishing opportunity with specific characteristics.

RBM, sometimes referred to as 'catch shares' in North America, relates to any fishing opportunities that convey secure and exclusive fishing rights to individual fishers or defined groups of fishers. [19] 'Secure' means that the right is long-term (durable) and cannot be arbitrarily confiscated. [20] 'Exclusive' means that only the right holder(s) can use the fishing right. In some cases, RBM use rights are a form of property right, but this is not usually the case. Many instruments can be considered as RBM whilst ultimate ownership stays with the state.

RBM systems allocate fishing rights in the form of a fixed share of national quota/effort or as a specified territory where the right holder can fish. In contrast, other types of fisheries management grant short-term, variable fishing opportunities or access to fishing areas or grant equal access until the national quota is depleted and the fishery is closed.

Figure 2.4.1. Fishing opportunities under different types of management.



In EU Member States, there is nearly always a mixture of QM and EM in place. All Member States must comply with EU technical measures, capacity and effort limits implemented in MAPs. Additionally, non-quota fisheries in Member State territorial waters are always managed through EM and technical measures. RBM, as defined above, applies predominantly to stocks under EU TAC management. The most common form of quota allocation across TACs and Member States is individual-vessel catch limits allocated according to historical track records, with some exceptions as mentioned above, such as rationed quota. These individual quotas are considered to be RBM when fishers have an exclusive long-term right to a specified share. There are also some cases of territorial management of fisheries that can be considered a form of RBM.

In the EU, there are cases of de facto open access fisheries but these are usually unintentional, caused by insufficient enforcement capabilities. Traditional common property arrangements – where fishers manage the fishery collectively at a local level – still exist but have largely been superseded by higher levels of government. Competences for fisheries management lie with the EU and Member States so these traditional organisations need to be given specific recognition and a legal mandate to carry out any management and enforcement. This has occurred in some cases such as the French Prud'homes, which are centuries-old fishing associations managing local fisheries. They have been granted legal powers by the French government to enforce rules.

A NOTE ON DEFINITIONS

RIGHTS-BASED MANAGEMENT (RBM)

This report uses a stricter definition of RBM than other publications on the subject. Our definition (Definition 1 below) closely aligns with the Environmental Defense Fund's definition of catch shares (Definition 2 below).[21] Other publications including MRAG et al (2009) have defined RBM much more broadly as encompassing all forms of access arrangements and any kind of fishing right (Definition 3 below).[22] In line with the Commission[23], MRAG et al (2009) go on to discuss the 'quality of rights', in terms of meeting the criteria of exclusivity, security, validity, and transferability. Like the Commission, they do not specify any minimum levels within their criteria for classing a fishing opportunity as RBM.

> Definition 1. RBM: *Fishing opportunities that convey secure and exclusive fishing rights to individual fishers or defined groups of fishers.*

> Definition 2. Catch Shares: *A fishery management system that allocates a secure area or privilege to harvest a share of a fishery's total catch to an individual or group.*[24]

> Definition 3. RBM*: *Any system of allocating fishing rights to fishermen, fishing vessels, enterprises, cooperatives or fishing communities. […] In essence, this covers all conceivable fisheries arrangements. For instance, according to this definition, even the open access situation could be regarded as RBM.* [25]

Our definition (Definition 1) differentiates RBM more clearly from other forms of management that do not grant secure and exclusive fishing rights to fishers. We use this definition for the purposes of this report and emphasise that is not a universal definition of RBM and catch shares.

FISHING OPPORTUNITIES

In this report, fishing opportunities refer to all units of fishing access. This term is used interchangeably with 'use right' and 'fishing right'.

> Definition 4. Fishing opportunities: *All types of fishing access whether that be input or output-based, QM, EM, RBM or open access.*

QUOTA MANAGEMENT (QM)

Our definition of quota management is based on the distinction between input and output controls. In other publications, quota management may also include effort quotas, which is an input control.

> Definition 5. Quota management: *Fishing opportunities that impose output limits (quantitative withdrawal limits) in terms of landed or caught weight or number of fish.*

EFFORT MANAGEMENT (EM)

We define effort management as all input controls, in contrast to QM. This definition is broader than definitions used in other publications. 'Effort' normally refers to fishing activity, defined by fishing time and fishing capacity and/or power (e.g. kilowatt days

at sea). However, for our purposes, we extend this definition to include other types of input controls, such as spatial access. We exclude technical measures such as gear restrictions in our definition as these cannot be considered as fishing opportunities.

Definition 6. Effort management: *Fishing opportunities that impose input controls including those of a spatial nature, but excluding gear restrictions.*

Figure 2.4.2. Types of fishing opportunities

		Instrument	Control	Unit
QM		National Quotas	Output	Catch
		Rationed Quotas	Output	Catch
	RBM	Individual Quotas	Output	Catch
	RBM	Individual Transferable Quotas	Output	Catch
	RBM	Community Quotas	Output	Catch
EM		Individual Effort Quotas	Input	Effort
EM		Territorial Use Right for Fisheries	Input	Area
EM		Limited licensing	Input	Capacity
EM		Spatial management	Input	Area
EM		Fishing seasons	Input	Effort
EM		Days at sea	Input	Effort
EM		Fishery closure	Input	Effort

Note: All fishing opportunities can be classed as either a type of quota management (QM) or effort management (EM) depending on whether they are a form of output or input control. Some fishing opportunities are classed as RBM as defined above.

QUOTA MANAGEMENT (QM)

NATIONAL QUOTAS

A national quota is applied to the whole fleet and not allocated to individual fishers. Open fishing is permitted until the national quota is depleted and the fishery is closed. This type of quota is often used for fish stocks in low-demand as a method of increasing quota utilisation. National quotas are often used in the management of particular fleet segments such as the small-scale fleet. In some cases, a national quota is divided into regional quotas. Since the quota is neither secure nor exclusive, national quotas cannot be considered a form of RBM. Sometimes national quotas are referred to as the 'national pool' of quotas.

RATIONED QUOTAS

Rationing quotas involve centrally determined quota allocations being granted to fishers, often based on the principle of equal access. Most commonly, fishers are grouped into classes depending on vessel size, capacity or gear type. Within each class, vessels receive the same individual catch limit. Rationing usually involves many in-year allocations and the catch limits are short-term (weekly or monthly). Since rationed quotas are not a long-term, secure share they cannot be considered as a form of RBM, despite being exclusive.

INDIVIDUAL QUOTAS (IQ)

Quota allocations are made to individual vessels based on their quota shares. Allocation is normally based on the vessel/licence historical track record of landings that confers an exclusive long-term quota share. Quotas are not directly transferable but in most IQ systems quotas can be transferred with vessel sale. In-year swapping of quotas is usually permitted and in some cases IQs may be pooled by a producer organisation.

INDIVIDUAL TRANSFERABLE QUOTAS (ITQ)

ITQs are similar to IQs with the added feature that the quota share is transferable and leasable. Initial allocation of ITQs are usually based on historical track records, but as ITQs are transferrable quota shares can change holders. In ITQ systems there are often regulations in place to limit the concentration of quota shares and/or to control the eligibility of quota holders.

COMMUNITY QUOTAS (CQ)

Community quota systems are similar to individual quotas but are allocated to a collective unit such as a fisheries association, a producer organisation or a port. It is up to the community organisation to determine how the quota is used by its membership. The organisation is responsible for ensuring quota compliance. Community quotas are sometimes referred to as 'pooled quotas'.

EFFORT MANAGEMENT (EM)

INDIVIDUAL EFFORT QUOTAS (IEQ)

IEQ systems grant fishers an allowance for effort (e.g. kilowatt days at sea), usually specified by gear type. Although most effort controls are not considered to be RBM, when fishers receive a secure and exclusive effort share they can be considered a form of RBM. In some cases, these permits may be transferable (ITEQ).

TERRITORIAL USE RIGHTS FOR FISHERIES (TURF)

In TURFs, use rights come in the form of a defined territory. Fishers managed through a TURF have exclusive access to harvesting fish in the designated area. TURFs are usually managed by membership organisations that limit entry and impose catch or effort controls on members. TURFs are regarded as RBM because a defined group of fishers receive exclusive and secure access rights.

LIMITED LICENSING (LL)

Limited licensing controls fishing effort by limiting the number of vessels (capacity) in the fishery. Usually LL is accompanied by other EM measures that specify vessel capacity, permissible gears, spatial limits and target stocks as licence conditions. In some cases, licences are transferable. Some recreational licences may also include catch limits such as bag limits.

SPATIAL MANAGEMENT

Spatial management involves imposing restrictions on where vessels may fish. These are usually put in place to protect biologically sensitive/valuable areas or to prevent gear conflict. Restrictions are often based on gear type or vessel size and may also have a temporal component. Most Member States restrict 0-3/6 nautical mile coastal zones to passive gears. Marine protected areas and fishery restricted areas can also be considered a form of spatial management.

FISHING SEASONS

Fishing seasons determine the times of year when a fishery is open. In many cases, fishing seasons are combined with quotas – thus restricting the period in which a catch limit applies. They are usually applied to match migratory patterns and avoid fishing during the sensitive spawning season for a species.

DAYS AT SEA (DAS)

Individual vessels can be granted a 'days at sea' (DAS) quota. This effort quota may be allocated based on historical track records, capacity, or rationed equally. A fisher's catch is therefore limited by the amount they can fish within their DAS allowance. DAS may also act as supplementary measures to catch quotas.

FISHERY CLOSURES

Fishery closures ban all or specified gear classes from fishing a particular stock/area for a specified time. They are most commonly used in fisheries without quota limits when biological indicators suggest that overfishing could threaten spawning stocks or identify other ecological reasons. Fishery closures are also put in place once quotas have been exhausted or significantly depleted.

EVOLUTION OF EU FISHERIES MANAGEMENT

In broad terms, commercial fisheries management in the EU has moved from open access and traditional common management arrangements to effort management, and more recently towards quota management, and RBM systems in particular. There are exceptions to this trend, and some traditional forms of local management (such as TURFs) already had characteristics of RBM systems, such as TURFs. Before the industrialisation of fishing in the twentieth century, technological constraints and the relatively short history of large-scale fishing on the high seas open access regime gave the impression that fish stocks were inexhaustible, particularly as fishers easily switched to healthy, unexploited stocks. Some technical measures were in place during this period, but only to a limited extent. At the same time, many fish stocks were managed at the local level through traditional common property arrangements. Post-WWII state investments and technological progress inspired tremendous expansions in fishing capacity of the EU fleet.

With improved science and catches levelling off in the 1970s, it became clear that fishing had to be constrained in order to prevent stock collapse and manage fish resources sustainably. Governments across the EU put in place centrally managed EM controls and eventually EU-level TACs were implemented with the passing of the Common Fisheries Policy in 1983. Despite these efforts, overcapacity and highly depleted stocks continued to affect most fisheries. Input controls and management of TACs through national quotas were not effective in reducing overcapacity. In many cases, national quotas and fishing seasons created a 'zero sum game' for fishers, causing a race to fish and overinvestment in capacity expansion. This occurs as fishers compete to fish as much as possible before the national quota is reached. The EU responded by implementing decommissioning schemes that provided subsidies to remove vessels from the fishing fleet in the 1990s.

Some Member States responded by moving beyond EU waters, targeting Southern Atlantic and other areas instead – moving excess capacity further afield. Another response by Member States wishing to adjust their fleet sizes and improve economic performance, was to introduce individualised, rights-based fishing opportunities. In many cases, these schemes were implemented in a differentiated manner, often leaving small-scale and recreational fishers under

EM. Individual catch limits reduced the race to fish and the incentives for expanding capacity. This did not apply to Mediterranean fisheries where the large fleet sizes, nature of short fishing trips, more localised fishing patterns, and prevalence of mixed fisheries, has continued to make catch limits difficult to implement. To date, only one species, bluefin tuna, is under quota management in the Mediterranean.

The most recent reform of the CFP in 2013 continued the push to reduce fishing capacity. Fishing opportunities and capacity are becoming more balanced in NE Atlantic fisheries, aided by many NE Atlantic stocks recovering after decades of overfishing. Many Member States are currently in an active process of reforming their fishing opportunities. Sweden is currently expanding its ITQ system to include demersal fisheries and scrapping weekly rationed quotas in 2017, and Poland is also looking to reform its quota system. Currently RBM systems are growing in popularity in the EU, but remain controversial. We address the arguments surrounding different approaches to management in section 3.4. It is likely that a variety of systems of fishing opportunities will continue to be used by different EU Member States.

QUOTA SYSTEMS IN THE EU

Table 2.4.1 summarises the predominant systems of managing fishing quotas and their allocation to the fishing fleet in twelve EU Member States. These twelve countries are the focus of this report and are described in detail in chapters 5-16.

Table 2.4.3 Summary of the quota systems currently in place in 12 EU Member States

COUNTRY	FISHING OPPORTUNITIES	ALLOCATION
Belgium	**Rationed and national quotas:** - IQs and daily catch limits - National quotas for coastal fishers	**Collective utilisation system** - Allocation based on engine power, equal access and utilisation
Denmark	**ITQs and rationed quotas** - ITQs for commercial fisheries - Rationed pool for less active fishers	**Historical and rationed allocation** - Initially allocated according to track records - Equal rationing to less active fishers
France	**IQs, pooled and national quotas** - Individual and pooled quotas for PO members - National pool for non-PO fishers	**Historical, criteria and pooled** - Allocations to POs on historical criteria - Some extraordinary socio-economic allocations and reserve allocations
Germany	**IQs and rationed quotas** - Individual quotas for full-time fishers - National pool for part-time fishers	**Historical, criteria and pooled** - Allocations based on historical criteria - Equal rationing to less-active fishers - Small quota reserve held ministry
Ireland	**Rationed quotas and IQs** - Demersal quotas rationed monthly - Pelagic quotas individually allocated	**Utilisation and historical** - Rationed in two size categories - Allocated by historical catch record
Italy	**EM, ITQs and TURFs** - EM measures in management plans - ITQs in the BFT fishery - TURFs in mollusc and artisanal fisheries	**EM and historical** - Fishing seasons and spatial restrictions for towed gears and other measures - Historical allocation in ITQ fishery

COUNTRY	FISHING OPPORTUNITIES	ALLOCATION
Netherlands	**ITQs, IEQs and national pool** - ITQs and IEQs for major commercial stocks - National quota for remaining TAC stocks	**Historical and pooled allocation** - Allocations based on historical criteria - Non-ITQs quotas pooled nationally
Poland	**Rationed and national quotas** - Rationed quotas in place for TAC stocks - National quotas for some segments	**Historical and size category** - Historical allocations to length-based fleet segments. Equal within segment
Portugal	**IQs and ITQs** - IQs for EU TACs - ITQS for NEAFC, NAFO and ICCAT stocks	**Historical catch record** - All quota allocated according to historical landings
Spain	**IQs, ITQs and national quotas** - IQs for EU TACs - ITQS for NEAFC, NAFO and ICCAT stock - National quotas for some artisanal fishers	**Historical and other criteria** - Quota shares determined by a number of criteria; most importantly historical catches and capacity - POs may pool quotas internally
Sweden	**ITQs, rationed and national quotas** - ITQs in place for major pelagic stocks - IQs for demersal stocks since 2017 - Pelagic and demersal pool for SSF	**Historical and equal access** - IQs and ITQs are allocated by historical track record - Equal access to national pool
United Kingdom	**IQ/ITQs, and rationed quota** - Sector quotas designed as IQ system but evolved into de facto ITQs - Small-scale/non-sector quotas rationed monthly by devolved administrations	**Historical and rationed allocation** - Quotas allocated according to historical landings to PO (sector) members - National quota pool rationed equally by licence to small-scale and non-sector

1 Fishing capacity refers to the ability of fleets or vessels to catch fish. Although there is no universally agreed definition, in the EU, it is usually defined in terms of vessels' internal volume (gross tonnage) or their engine power (kw).

2 Hardin, G. (1968). The Tragedy of the Commons. Science, 162(3859), 1243-1248. doi: 10.1126/science.162.3859.1243. Although Hardin used the term 'Commons', he actually meant 'open access', see Kahui, V., Armstrong, C. W., & Foley, N. S. (2016). An international view on 'correcting the whimsies of U.S. fisheries policy'. Choices, 3. Retrieved from http://www.choicesmagazine.org/choices-magazine/submitted-articles/an-international-view-on-correcting-the-whimsies-of-us-fisheries-policy

3 The difference between open access and common property is as follows: in open access fisheries, there are no arrangements between fishers to control fishing levels and free fishing prevails. In a common property regime, fishers organise amongst themselves to manage the resource and set and enforce restrictions.

4 Kahui, V., Armstrong, C. W., & Foley, N. S. (2016). An international view on 'correcting the whimsies of U.S. fisheries policy'. Choices, 3. Retrieved from http://www.choicesmagazine.org/choices-magazine/submitted-articles/an-international-view-on-correcting-the-whimsies-of-us-fisheries-policy

5 The Economist. (2008). A rising tide: Scientists find proof that privatising fishing stocks can avert a disaster, The Economist. Retrieved from http://www.economist.com/node/12253181

6 Easterbrook, G. (2009). Privatise the seas. The Atlantic. Retrieved from https://www.theatlantic.com/magazine/archive/2009/07/privatize-the-seas/307544/

7 Booth, P. (2016). A briefing: Fisheries policy outside the EU. London: Institute of Economic Affairs. Retrieved from https://iea.org.uk/wp-content/uploads/2016/09/IEA-Briefing-Fisheries-.pdf

8 There are also some fisheries that can be considered open access due to little regulation or weak enforcement. These are cases where stocks have low commercial value or the fishery is difficult to regulate.

9 European Commission. European Maritime and Fisheries Fund (EMFF). Retrieved from https://ec.europa.eu/fisheries/cfp/emff_en

10 Carpenter, G., & Kleinjans, R. (2015). Landing the blame: Overfishing in European waters 2001-2015. London: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/281450725_Landing_the_blame_overfishing_in_EU_waters_2001-2015

11 Santurtún, M., Prellezo, R., Arregi, L., Iriondo, A., Aranda, M., Korta, M., Onaindia, I., Garcia, D., Merino, G., Ruiz, J. & Andonegi, E. (2014). Characteristics of multispecific fisheries in the European Union. European Parliament. IP/B/PECH/IC/2013-088. Retrieved from http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/529053/IPOL-PECH_ET(2014)529053_EN.pdf

12 Commission of the European Communities. 2009. Green Paper: Reform of the Common Fisheries Policy. Brussels: Commission of the European Communities. COM(2016) 134 final. Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0163:FIN:EN:PDF

13 Commission, E. (2016). Proposal for a regulation of the European Parliament and of the Council on the conservation of fishery resources and the protection of marine ecosystems through technical measures, amending Council Regulations (EC) No 1967/2006, (EC) No1098/2007, (EC) No 1224/2009 and Regulations (EU) No 1343/2011 and (EU) No1380/2013 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. Brussels: European Commission. Retrieved from https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-134-EN-F1-1.PDF

14 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 (2013). Retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1482715488852&uri=CELEX:32013R1379

15 HM Government. (2014). Review of the balance of competences between the United Kingdom and the European Union: Fisheries report: Cabinet Office. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335033/fisheries-final-report.pdf

16 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 (2013). Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF

17 NEF calculations based on European Commission. (2016). FIDES: Fishery Data Exchange System. Retrieved from: http://ec.europa.eu/idabc/en/document/2254/5926.html and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1481615/2016-07_STECF+16-11+-+AER+2016_JRC103591.pdf

18 Normally effort management will be more narrowly defined as controls that specifically limit capacity and fishing activity.

19 Environmental Defense Fund Fishery Solutions Centre. RBM Basics. Washington, DC: Environmental Defense Fund. Retrieved from http://fisherysolutionscenter.edf.org/rbm-basics

20 There is no simple objective way of defining 'long-term' but as a rule of thumb we suggest that a catch share should last a minimum of four years.

21 Bonzon, K., McIlwain, K., Strauss, C. K. and Van Leuvan, T. (2013). Catch Share Design Manual, Volume 1: A Guide for Managers and Fishermen (2nd ed.). Washington, DC: Environmental Defense Fund. Retrieved from http://fisherysolutionscenter.edf.org/sites/catchshares.edf.org/files/CSDM_Vol1_A_Guide_for_Managers_and_Fishermen.pdf

22 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

23 Commission of the European Communities. (2007). Rights-based management tools in fisheries. [unpublished] http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=URISERV:l66040&from=EN

24 Bonzon, K., McIlwain, K., Strauss, C. K. and Van Leuvan, T. (2013). Catch Share Design Manual, Volume 1: A Guide for Managers and Fishermen (2nd ed.). Washington, DC: Environmental Defense Fund. Retrieved from http://fisherysolutionscenter.edf.org/sites/catchshares.edf.org/files/CSDM_Vol1_A_Guide_for_Managers_and_Fishermen.pdf

25 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

INTRODUCTION

In this chapter, we outline the objectives that we believe are fundamental to a successful system of fishing opportunities and which governments should integrate within the design of their respective system(s). Whilst these 'foundational objectives' should be pursued universally, they can be included in a variety of ways and still accommodate additional governmental objectives. As explained in section 3.1, this objective led approach is important as fisheries research cannot inform system design without a clear definition of what is to be achieved. Whilst necessary in some form, these objectives do not provide a precise blueprint. Examples include managing fish stocks as a public resource, providing opportunities for new fishers, and granting fishers secure and flexible fishing access.

We then operationalise these objectives into indicators in section 3.2 to assess the systems of fishing opportunities used in 12 EU Member States: Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Spain, Poland, Portugal, Sweden, and the UK. These 12 Member States were chosen as a manageable number given the duration of the project and a priority was given to Member States with significant fisheries under quota management (as a particularly important fishing opportunity in questions of allocation).

Where possible, these indicators for analysis are quantitative, with several measures from EU-wide datasets providing an indication of performance for each objective. Other indicators are qualitative and performance is evaluated through expert interviews and secondary research. In addition to these foundational objectives, we also assess Member State performance against objectives of fisheries policy that have been defined at a national level and lie outside of our foundational objectives. This assessment of performance, along with descriptions of the systems in place and recommendations for reform, is carried out in the Member State chapters (4-15).

Assessing performance using indicators can often appear comprehensive and robust, but performance can be affected by forces beyond the system design of fishing opportunities. Section 3.3 comments on the appropriate way to interpret the results of our assessment. Working from our foundational objectives, in section 3.4 we present our position on some of the key debates in fisheries management. In particular, we discuss rights-based management (RBM), the choice between effort and quota management, the use of individual transferable quotas (ITQs), and co-management. Our aim is to clarify the issues surrounding these topics and demonstrate that some of the ideological divides may be better understood if viewed from the perspective of competing objectives and trade-offs.

3.1 WHY USE OBJECTIVES?

To assess whether a system of fishing opportunities is 'successful', a framework of objectives is required. Success can only be defined relative to desired outcomes.

Many researchers in this area have previously overlooked this fact and analysed fisheries policy without first identifying the intended objectives. Fisheries economists are particularly guilty of this, often applying a framework of resource rent maximisation with little discussion of the fact that this is only one possible objective for a fishery and that decisions about objectives are not value-neutral.[1] It is therefore not surprising that fisheries economists and other researchers are often frustrated that their seemingly obvious and straight-forward policy conclusions are lost or distorted in the policy-making process when other objectives are incorporated into decision-making.

In his book chapter, Economic Principles: An Economic Perspective on Fishing, Arne Eide provides a particularly clear example of how and why a particular framework for analysis is used:

> Fisheries management needs to be based on expressed political objectives, preferably with clear priorities. Bioeconomic theory is a useful tool for the analyses of the biological and economic effects of different exploitation levels and of the possible management means needed to obtain these effects. But there is, in principle, no built-in normative theory which makes it possible to omit the basic political decision on how to utilise the natural value of a fish resource. The following discussion, related to the use of different management means, therefore presumes a clearly expressed political objective for the utilisation of the fish resource. For simplicity, in the following discussion, it is assumed that resource rent maximisation is the political goal. This should, however, not be interpreted as a normative statement, since an infinite number of other objectives are possible. [2]

Our report starts with a framework of foundational objectives, and then assesses the performance of systems of fishing opportunities against this framework. Much of this framework remains in place irrespective of the Member State being assessed. This is intentional. These objectives are fundamental to the nature of fisheries (for example, the need for fishing to be economically viable or for fish stocks to be treated as a public resource). These foundational objectives are not the complete picture, however. There may also be objectives specific to Member States (or to the Common Fisheries Policy) that should be seen as additional objectives. We classify these pursuits below under the objective of 'pursuing government objectives'.

Whilst there are alternatives to an objective-led approach, the objectives considered here are still handled, either explicitly or implicitly. Whether it is a framework with only one goal, a preservation of historical access, or the implementation of market to decide allocation, all of these systems implicitly make a judgement on the value of the objectives, even if that value is zero. A simplified framework cannot escape the fact that fisheries management faces multiple and competing objectives.

3.2 FOUNDATIONAL OBJECTIVES, INDICATORS, AND MEASURES

This section describes the objectives used to evaluate the performance of a system of fishing opportunities through the application of qualitative and quantitative indicators. Foundational objectives are grouped under three categories: good for fishers, good for society and good process. These categories reflect the fact that a) fisheries should work for their participants – fishers themselves, b) as fish stocks are a public resource, and because there are wider societal impacts associated with fishing, societal objectives should be pursued, and c) the design and the day-to-day functioning of the system should be publicly accountable and democratic (table 3.2.1). These categories are similar to the principles underpinning our analysis as explained in chapter 1.

SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

These objectives build on previous work by the New Economics Foundation on criteria-based allocation of fishing opportunities for sea bass in the UK [3] and the Scottish Nephrops fishery, [4] as well as incorporating secondary literature on systems used in non-EU countries,[5] by other organisations, [6,7] frameworks applied in studies on socio-economic trade-offs,[8,9] studies on programme evaluation, [10,11] and literature on other management considerations.[12,13,14]

The twelve objectives listed here emerged from discussions at the ICES conference in May / June 2016 'Understanding marine socio-ecological systems: Integrating the human dimension in integrated ecosystem assessment' [15] and were further refined during interviews for the report to ensure applicability across all systems and contexts.

These objectives are not for fisheries management in general, but specifically for systems of fishing opportunities. Notably, our objectives do not cover areas such as data collection or enforcement. This is because the focus of this report is on the socio-economic and political aspects of fishing opportunities rather than managerial and scientific considerations. Good science, effective monitoring, control and enforcement (MCE) are essential in all fisheries management systems, but these are beyond the scope of this report, which focuses on the allocation of fishing opportunities and the decision-making that supports the policy processes (see chapter 2).

Additionally, despite the well-documented impact of fisheries on the marine environment, these environmental impacts are largely absent from the framework of objectives. The major reason for this omission is that the primary impact of fisheries on the marine environment is through the fishing mortality of target species. This is an issue relating to the size of the total allowable catch, not the system for allocating the corresponding fishing opportunities (i.e. the size of the pie rather than the distribution). [16]

Impacts on non-target species and wider ecosystem impacts are important externalities however, and are only dealt with as they manifest in government objectives (including article 17 of the CFP) under 'Meets government objectives'. Ideally, an objective in the form of 'Minimises impact on the marine ecosystem' would stand on its own, but there is still an issue in this space with EU-wide datasets of impact. Ideally, gear impact assessments developed by organisations like the Marine Conservation Society [17] and Seafish [18] can fill this gap in the future by adding enough detail and gear types to be able to compare Member States and if they are allocating fishing opportunities to low-impact fishing technologies.

GOOD FOR FISHERS

The following objectives can be grouped under the broad category of 'good for fishers'. Each of these objectives captures an aspect of fishing opportunities that exists to allow fishers to thrive as participants in the industry. To work for fishers, a successful system of fishing opportunities should be: secure, flexible, accessible, viable, and equitable and fair.

SECURE

INDICATOR: LONG-TERM PLANNING

Secure fishing opportunities imply that allocations of long-term quota shares or other types of opportunities cannot be arbitrarily confiscated. A system of secure fishing opportunities allows fishers to plan into the future. This is a fundamental feature of any business environment which allows consideration, not just of how an operation will survive the current financial year, but how it will survive over five to ten years as well.[19] In fisheries this is particularly important as there are large capital investments in fishing gear that need to be planned over long periods. The average age of fishing vessels in the EU is 27 years.[20]

SELECTED MEASURE: INVESTMENT AS A PERCENTAGE OF REVENUE

The level of investment in the fisheries sector can be used to assess whether the system of fishing opportunities is fostering long-term planning. All else being equal, if there is security in fishing opportunities then fishers (and outside investors) will have the confidence to invest.[21] For example, research on ITQ systems has shown that higher levels of security are linked to higher asset value and lower dividend price ratio. [22]

To standardise this measure across Member States, investment should be assessed relative to revenues and/or depreciation. Investment below 10% of revenues or less than depreciation is cause for concern that there may not be enough security in the system of fishing opportunities to allow for long-term planning.

INDICATOR: CONFIDENCE IN THE EXCLUSIVITY FISHING RIGHT

A system of secure fishing opportunities in a catch quota system (see chapter 2 for definitions) means that fishers do not need to pursue a 'race to fish' because their quota is an entitlement to a quantity of fish that can be caught within a set period (typically monthly or annually). Fishing behaviour that is characteristic of a race to fish may imply that fishers do not feel secure that their quota allocation truly represents the catch limit it designates and prompts them to speed up their fishing to ensure their allocated quota is harvested.

SELECTED MEASURE: NUMBER AND TIMING OF FISHERY CLOSURES

To test whether there is a 'race to fish' in a quota system, the number and timing of fishery closures can be assessed. A large number of early fishery closures suggests that fishers may be trying to capture as much of their quota as possible in case it becomes unusable at a later date. However,

some fisheries, especially seasonal species or those that experience large amounts of undersized juveniles, can have 'planned' closures and this should be taken into account in the assessment. Fishery closures can also result from high effort if there is a lack of trust in future allocations based on stock status. The number of months under closure are summed together, with only closures from TACs with over 10 tonnes of quota included.

INDICATOR: CONFIDENCE IN THE LEGAL SECURITY OF THE FISHING RIGHT

A system of secure fishing opportunities means that fishers have confidence in the continued ownership of opportunities. In particular, there should be no concerns that fishing rights will be revoked arbitrarily by the government or reallocated without due warning.

SELECTED MEASURE 1: STATED AND REVEALED SECURITY AND VALIDITY

The security of fishing rights has been assessed in previous reports, in particular reports that advocate the use of rights-based management in EU fisheries. A report by the consultancy MRAG quantified the security and validity of fishing rights in EU Member State on a 1-5 spectrum, although some Member States, notably Sweden, have reformed their systems since 2009 and therefore require updating. [23]

Additionally, exchange in fishing rights indicates confidence in the rights holding their value through the transaction. In Member States with a system of exchange, analysing the amount of quota trading provides a supplementary indicator of legal security.

FLEXIBLE

A well-designed system of fishing opportunities should have a high degree of flexibility in the system to match the dynamic nature of fisheries. Without available quota, fishing cannot take place, but different fleets and vessels may require quota at various times in the year. Whilst the total amount of quota is often a constraint, this is not always the case, and well-designed mechanisms to increase flexibility can get quota into the hands of fishers so they can continue their operations. By using indicators of quota flexibility and quota usage, we can test how well the existing mechanisms are working for EU Member States. As the landings obligation is currently being phased in, leading to quota constraints inevitably becoming more acute, the flexibility of systems of fishing opportunities will be challenged to mitigate the choke species problem whilst also ensuring quota compliance.

Whilst other frameworks on fishing opportunities have defined 'transferability' as an objective in itself, [24] we believe that 'flexibility' is the underlying objective and transferability is one (of several) features than can be used to increase flexibility.

INDICATOR: HIGH QUOTA USAGE

In a flexible system of fishing opportunities, quota usage would generally be high as operators seek to maximise the return on their entitlements.

SELECTED MEASURE: QUOTA UPTAKE

Some quotas will naturally have higher or lower levels of usage due to market price, stock availability, allocation methodologies and geography, for example. However, in comparing quota uptake (the percentage of quota usage) between Member States fishing the same TACs, [25] we should get a good indication of the Member States with better flexibility, especially where a sufficiently large sample size of quotas are used. Only quotas with over 10 tonnes and where a Member State has over 10% of the total share are included.

INDICATOR: FEW QUOTA SHORTAGES

Just as low quota usage means that quotas are not getting into the right hands, so too does quota usage that is too high, leading to discarding or non-compliance as catches above quotas cannot be landed. A flexible system of fishing opportunities would mitigate these quota issues.

SELECTED MEASURE 1: QUOTA NON-COMPLIANCE

Unreported catches are the number one form of the illegal fishing that takes place in the EU, often because a vessel has reached its quota limit. According to the European Fisheries Control Agency (EFCA), of the 2,002 suspected infringements in 2012-2014, 1,056 (53%) were due to unreported catches. [26]

Comparing Member States on quota non-compliance is not straight forward, as concerns are often raised that some Member States have lax enforcement of fishing regulations. This criticism is more limited regarding EU enforcement through EFCA. Whilst far from comprehensive, EFCA's annual reports catalogue infringements at the Member State level.

SELECTED MEASURE 2: AMOUNT OF (REGULATORY) DISCARDING

If fishers cannot access the quotas they require, an alternative to keeping fish on board the vessel in violation of the law is that fishers discard the fish overboard. [27] Whilst there are a great many factors influencing discard rates, a comparative approach between Member States using the same fishing gear in the same area and on the same stocks (a 'metier') in the same year will exclude some of these external factors and focus on the differences in performance due to different systems of fishing opportunities. For example, comparing the discard rates of plaice from beam trawls that are under 15 metres and fishing in the Eastern English Channel gives one data point to compare between Member States with this metier. New data collection procedures for the fisheries dependent information (FDI) data call will allow for more detailed comparisons following the next data call. [28] Additionally, the implementation of the landing obligation is expected to significantly change performance in the coming years.

ACCESSIBLE

The previous objectives focused on those already in the fishing industry but a system of fishing opportunities should also work for those trying to enter the fishing industry. Nearly all systems have grandfathered or gifted fishing rights to fishers although this tends to benefit incumbents in the industry to the detriment of future fishers. There is no normative basis for why owning a vessel that was active during a reference period should be the sole determinant of whether you receive free fishing rights, as is the case in many Member States. It is true that existing fishers have a legitimate expectation to future fishing access (if compliant with EU fishing laws), but this expectation should not undermine the possibility for others, in particular young fishers, to join the industry.

There is some overlap between creating an accessible system of fishing opportunities and our other foundational objectives. An equitable system of fishing opportunities implies maintaining access to fishing rights for future generations, much like maintaining sustainable fish stocks themselves. Additionally, one of the justifications for the objective of public ownership (see below), is that the public nature of fish stocks is incompatible with highly restricted or privatised access. However, a system of fishing opportunities that is highly accessible is often difficult to reconcile with the objectives of managing overcapacity and economic viability for those already in the fleet. This trade-off is discussed in section 3.4 (trade-off #5).

INDICATOR: NEW ENTRY

Most systems of fishing opportunities have essentially granted squatting rights to those fishers with activity when quotas were established. A study on UK quota rights estimated the value of these squatting rights at over €1.3 billion.[29] Yet as a public resource, the quota system should be accessible to broader society, with a particular focus on youth who may wish to enter the industry but lack the capital to purchase these initially gifted rights. Accessing commercial fisheries should not just be for the rich or those who were fortunate enough to have a record of activity during the reference period.

SELECTED MEASURE 1: AMOUNT OF ACCESS RIGHTS SET ASIDE FOR YOUNG FISHERS

To overcome the financial hurdle for young fishers entering the industry, a portion of the quota should be set aside that can be accessed as a time-limited right. After several years on 'loaned quota', young fishers should be able to build up capital to more formally enter the industry. This measure assesses whether such a policy is in place and whether it works effectively and fairly.

VIABLE

Security, flexibility, accessibility and equity are all important attributes of a system of fishing opportunities but for the system to work it needs to be viable for the participants. If a perfectly designed system does not allow fishers to pay their expenses, then it will not endure and cannot be described as successful.

INDICATOR: FINANCIAL VIABILITY

For a fishing business to endure it must be economically viable. Losses may be maintained for a couple of years, but recurring losses cannot be sustained.[30] This is the nature of the commercial fishing industry as opposed to the recreational sector. Payments for crew must also be at a level than can be sustained.

SELECTED MEASURE 1: PROFITABILITY (GROSS PROFIT MARGIN)

Gross profit is defined as total revenues minus total costs. The gross profit margin is defined as gross profit over revenues, or the percentage of revenues that are maintained as profits. A low gross profit margin (undefined, but 10% is reasonable) for a fleet or Member State means that it is at financial risk.[31]

Other economic measures are sometimes used for the same purpose, such as the net profit margin, which includes the opportunity cost of capital and vessel depreciation. Net profits have come under criticism as being unrealistic in the EU context due to the wide range of interest rates across EU Member States. These rates may not accurately convey risk-free investments.

SELECTED MEASURE 2: FISHING WAGES RELATIVE TO AVERAGE NATIONAL WAGE

In addition to profitability, fishing wages also indicate whether the fishing sector is in a state of economic viability. Profits may appear low, but if they are paid out in wages the issue may simply lie in the method of accounting rather than the system of fishing opportunities. This is particularly important given the prevalence of owner operated vessels that blur the line between profits and wages, as well as the common revenue sharing model in fishing wages where the value of landings (often after subtracting operating expenses) is split amongst crew ('share fishing').[32] Taken together, high profits and high wages show that a system of fishing opportunities has enabled an economically viable industry, whilst low profits and low wages may indicate a problem with the system and the need for reform.

EQUITABLE AND FAIR

Fairness in the initial distribution of fishing opportunities is often taken for granted, but in some cases not realised. Where initial allocation methods are biased, (e.g. in the reference period chosen or method of establishing track records) or if decision-making is unrepresentative, these allocations can end up leading to the unfair loss of fishing rights for many. However, another aspect of equity in fishing opportunities is the differential consideration of fishers based on a vulnerability (ie. high dependency) or positive externalities. Some of these considerations overlap with governmental objectives (see 'Pursues government objectives'), but is evaluated here as simply the presence of policy mechanisms that attempt to address these considerations.

Finally, a high concentration of fishing opportunities, regardless of how they came about, is defined as an inequitable fishery. Both the level and the direction of the change in concentration are important aspects.

These multiple considerations of equity are often classified as procedural fairness and outcome fairness.

INDICATOR: DISTRIBUTION OF FISHING OPPORTUNITIES

MEASURE: FAIRNESS OF INITIAL DISTRIBUTION

The initial allocation of fishing opportunities should not systematically bias against a particular group of fishers, whether intentionally or unintentionally. Complaints by fishers about the fairness of initial allocations, either in the media or in studies of the topic, can be a good indicator of unfairness if these complaints are well substantiated and evidence-based.

In some cases, preferential allocation could be justified when social objectives are present (e.g. maintaining fishing activity in coastal communities with a high dependency on fishing).

MEASURE: CONCENTRATION OF FISHING QUOTAS

High levels of concentration of fishing opportunity holdings (i.e. a high Gini coefficient or Herdindahl-Hirschman Index) are often associated with lost or more expensive access for fishers without holdings. Although some concentration may be desirable to achieve economic objectives, excessive concentration can lead to monopoly situations and unfair outcomes. Unfortunately, few Member States have a public record of fishing opportunities per owner or per vessel (see 'Transparent' objective), although there is currently an EASME/EMFF project to compile this information across Member States.[33]

GOOD FOR SOCIETY

As fish stocks are a public resource, there is an additional set of objectives that assess when a system of fishing opportunities benefits the public at large as well as delivering for those in the industry. These objectives derive from the basis that fish stocks are a public resource and, whilst secure access may be granted, this is done on the condition that it is in the interest of wider public objectives. There are also nationally defined objectives that are assessed for those particular Member States as some of what constitutes a 'successful' fishery is unique to the national context. To work for society, a system of fishing opportunities should: be publicly owned, pursue government objectives, be a limited public expense, and capture resource rent.

PUBLICLY OWNED

This objective refers not only to public ownership over fish stocks but extends to public control over fishing opportunities (i.e. over who gets the right to use the public resource). As fish stocks are commonly held by society, it is appropriate that governments or other public bodies have final discretion over those receiving fishing opportunities. This means that the fisheries ministries and other authorities can alter the allocation of fishing rights to pursue government objectives without paying compensation. If you do not own the property, you do not require compensation if it is taken away.

Garett Hardin, often invoked for his identification of problems in open access to common resources, explained the need for ultimate public ownership of resources as such: "Beyond the limits of his confining skin, no man can own anything. 'Property' refers not to things owned but to the rights granted by society; they must periodically be re-examined in the light of social justice." [34] Privatisation, i.e. granting permanent use rights to private parties, or the legal classification of use rights as a form of private property, is in direct violation of this principle. Privatisation means a resource that all members of the public have a stake in has been lost, granting those right-holders an indefinite source of access and revenue.

It may appear that this objective conflicts directly with the objective of 'Security' where we advocate giving fishers long-term fishing rights. In section 3.4 we discuss the trade-off between security and public ownership and argue that reconciliation is possible.

INDICATOR: ABILITY FOR GOVERNMENT TO REALLOCATE FISHING OPPORTUNITIES

MEASURE: GOVERNMENT CAN REALLOCATE QUOTAS WITHOUT RISK OF LEGAL CHALLENGE

Governments' ability to change quota allocations is a demonstration of public control over fishing rights. It means that the government has the authority and legal mandate to distribute access to the public resource. Conversely, legal challenges against allocation decisions indicate a lack of legal clarity surrounding how the government can manage fishing rights. These challenges suggest that claimants believe use rights are a form of property right for which any government alteration constitutes confiscation that is subject to compensation.

INDICATOR: LEGAL CLARITY

MEASURE 1: OFFICIAL STATEMENTS FROM THE GOVERNMENT

Official statements expressing the public ownership of fish stocks and on the government' discretion in allocating use rights. These statements can be supplemented with court decisions on the ownership of fishing rights.

MEETS GOVERNMENT OBJECTIVES

SUB-OBJECTIVE: GOVERNMENT OBJECTIVES

As detailed in the Section 3.1 the framework adopted for this analysis applies to objectives that have been defined by the relevant political bodies at both the Member State and EU level.

SELECTED INDICATOR: VARIED BY MEMBER STATE

EU Member States vary in their stated objectives for fisheries, so the relevant comparison is not between Member States but against a Member State's self-defined objectives. The most common objectives for fisheries are on the issues of job protection, supporting coastal communities, maintaining a diverse fishing fleet and maintaining a healthy marine ecosystem. These objectives have not been defined in our report as 'foundational' and necessary for all systems, but rather as context-specific national objectives.

SUB-OBJECTIVE: FULL IMPLEMENTATION OF THE COMMON FISHERIES POLICY

The EU's Common Fisheries Policy also contributes relevant objectives. Article 2 of the CFP, which defines the objectives of the policy, contains four objectives that are particularly relevant for systems of allocating fishing opportunities:

- 2.5(c) provide conditions for economically viable and competitive fishing capture and processing industry and land-based fishing related activity;
- 2.5(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;
- 2.5(f) contribute to a fair standard of living for those who depend on fishing activities, bearing in mind coastal fisheries and socio-economic aspects;
- 2.5(h) take into account the interests of both consumers and producers;
- 2.5(i) promote coastal fishing activities, taking into account socioeconomic aspects. [35]

Some of these CFP objectives are already incorporated in other foundational objectives. The CFP objective in 2.5(c), and to some extent, 2.5(f) are similar to our 'Viability' objective through profits and wages – at least for the seafaring component of the fishing industry, which is the focus of this report.

The processing industry, as well as consumers mentioned in 2.5(h) are affected by systems of fishing opportunities to the extent that they would like large volumes of low-priced fish and fish products. Some systems of fishing opportunities may encourage this, by ensuring 'Flexibility' and other mechanisms that shift fishing opportunities to low-cost and (presumably) low-price producers.

Although objective 2.5(i) is difficult to operationalise, it is strongly related to Article 17 of the CFP, which states that:

> 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. [36]

The important qualifying words in this Article are "shall" (transparent and objective criteria), "may" (criteria regarding the impact of fishing on the environment, the history of compliance, the contribution to the local economy and historical catch levels), and "shall endeavour" (to use criteria as incentives to fishing vessels deploying selective fishing gear or using fishing techniques with reduced environmental impact, such as reduced energy consumption or habitat damage). The obligation for transparent and objective systems are covered in this framework, whilst the positive suggestions here for criteria-based allocation and incentives to minimise environmental harms will be assessed alongside national government objectives.

Objective 2.5(d) is expanded on in Article 22 of the CFP, which states that:

> Member States shall put in place measures to adjust the fishing capacity of their fleet to their fishing opportunities over time, taking into account trends and based on best scientific advice, with the objective of achieving a stable and enduring balance between them. [37]

SELECTED MEASURE 1: FISH PRICES

To assess CFP objectives 2.5(h) and 2.5(c) on the benefits to processors and consumers, Member State fish prices are analysed as measure of whether a large abundance of low-priced fish is being produced. Fish prices vary significantly between different fleets due to the species, size, quality, and season of catch. To remove the effect of some of these causes of price variation, prices are compared between Member States only in instances where there are landings of the same species caught in the same ICES area (to avoid comparing catches of northern and southern hake, for example). Only cases where multiple Member States have over €100,000 of landings of the same species in the same area are used for comparison.

SELECTED MEASURE 2: IMPLEMENTATION OF ARTICLE 17

Article 16.6 of the CFP requires Member States to describe how fishing opportunities are allocated, including how Article 17 is being implemented. In 2016, the Commission sent a request to Member States for information regarding their method of allocation. The Commission has made these submissions available to the authors upon request. This measure involves an assessment of the extent to which Article 17 is applied in each Member State using these submissions, with supplementary information from secondary research.

SELECTED MEASURE 3: IMPLEMENTATION OF ARTICLE 22

The Science, Technical and Economic Committee for Fisheries (STECF) produces an annual report on the balance of fishing capacity with the available fishing opportunities. The six balance indicators used in the report (sustainable harvest indicator, stocks at risk indicator, return on investment/return on fixed tangible assets, ratio between current revenues and break-even revenue, inactive fleet indicator, vessel use indicator) attempt to measure if fleets are overcapitalised and unable to be financially viable or are reliant on stocks that are overfished.[38]

INDICATOR: DESIGNATED QUOTA RESERVE TO PURSUE GOVERNMENT OBJECTIVES

A designated quota reserve used by the government to allocate fishing opportunities according to governmental objectives is a necessary, yet mostly absent, component of systems of fishing opportunities with lengthy or indefinite use rights. Government objectives, certainly those in the CFP, if not all EU Member States, depart from the natural tendencies in quota systems which tend to be shaped by market economics to ensure economic viability. Allocating fishing opportunities through a quota reserve (or equivalent system) means that objectives are specifically targeted and have a greater chance of succeeding.

MEASURE: PRESENCE OF A QUOTA RESERVE FOR PURSUING GOVERNMENTAL OBJECTIVES

This measure is assessed based on whether a quota reserve exists and is used for pursuing specific government objectives. This assessment excludes reserves for international quota swaps, which help with the objective of flexibility, but not specific governmental objectives.

LIMITED PUBLIC EXPENSE

INDICATOR: EFFECT ON PUBLIC FINANCES

Fisheries management (i.e. decision-making, enforcement, science) is very costly, partly due to both the relatively small size of fisheries as an economic sector, as well as the difficulties associated with managing a complex and often remote resource. The result is that fisheries are a large net expense in EU Member States, especially as instruments to raise public revenue from fisheries are rarely employed.

If costly management schemes are put in place (e.g. full subsidies, daily consultations), performance across the other objectives could be very high and the system would appear to be a successful model. This objective is important to add a dimension of 'value for money'.

MEASURE 1: COSTS OF MANAGEMENT COMPARED TO LANDINGS VALUE

To assess the relative cost of the fisheries management systems (which includes the system of fishing opportunities), the total cost of management is compared to the value of landings.

MEASURE 2: COSTS OF MANAGEMENT COMPARED TO PUBLIC REVENUE GENERATED (NET EFFECT)

To assess the net effect on public finances, the total cost of management activities can be compared to the tax revenue gained. Whilst forms of levies are commonplace in developed fisheries internationally, so far this has not been the case in EU Member States.[39] Notable exceptions include licence fees and, to some degree, the funding of arms-length fisheries organisations through landings levies (e.g. the Sea Fish Industry Authority in the UK, Bord Iascaigh Mhara in Ireland and the cofradias in Spain). These organisations are non-departmental public bodies and receive levies on the first sale of fish.

Unfortunately the data on management costs are not broken down by function. Ideally just the cost of managing the system of fishing opportunities would be available. As such, additional fishery management costs can be added for a more complete picture, such as subsidies and fuel tax exemptions.

Besides the primary benefit of minimising the public finances designated to fisheries management that could be devoted to other purposes (with potentially higher social benefit), there are many secondary benefits to lowering the net effect of fisheries management on public finances, particularly through the generation of public revenue from the fishing industry. For one, fisheries economists have postulated that aligning the costs and benefits of management may put pressure on both public management and private fishers to lower the costs of management and thereby create a more efficient fishery.

There is also the issue of fairness. As much of the public expense is about managing the impacts of fishing, ensuring that the costs of management are at least partially covered through the generation of public revenue from the fishing industry is a relatively straightforward application of the 'polluter pays principle' used in other sectors. Here, pollution can be interpreted in a literal sense (e.g. fuel leakage, marine litter), but the major externalities are overfishing and impacts on marine ecosystems. These impacts from fishing harm other sectors of the marine economy and future generations and are currently managed at public expense.

Whilst landings taxes or quota auctions are likely to affect the behaviour of fishers and have some distortionary impact, the impact is unlikely to be greater than alternative forms of taxation that currently pay for management costs.[40,41]

CAPTURES RESOURCE RENT

INDICATOR: AMOUNT OF RESOURCE RENT CAPTURED

As all EU Member States restrict new entry into the fishing industry, and most Member States have gone through substantial decommissioning schemes, the amount of total effort in the fishery is below the 'open access' point. At least in theory, this lower effort should generate resource rent as a result of management decisions. This resource rent will accrue to fishers, typically in the form of above normal profits, although it may be dissipated in other forms, such as crew wages. As this resource rent is a result of government action to limit entry to the fishery, some of this rent should be secured by the government, rather than a windfall gain to those fishers already in the industry.

ECONOMIC PROFITS FROM A REDUCTION IN FLEET EFFORT

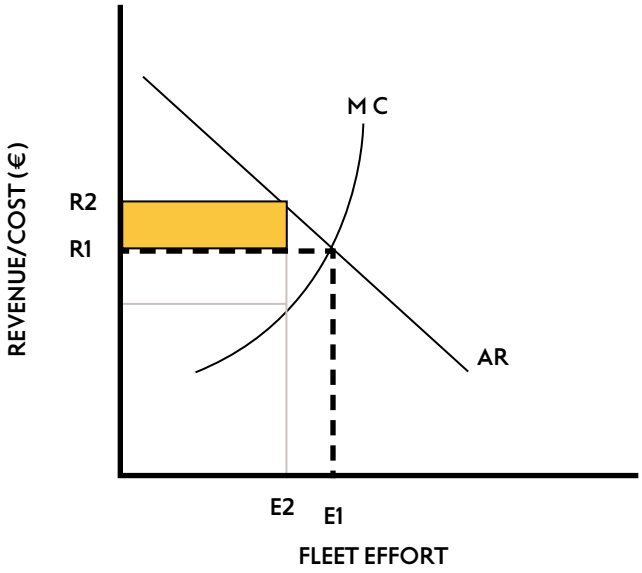


Figure 3.2.1: MC represents marginal cost and AR represents average revenue. As fishing effort is restricted from E1 to E2, average revenues increase from R1 to R2. The shaded area illustrates the resource rent generated. [42]

MEASURE: AMOUNT OF RESOURCE RENT CAPTURED

In theory, the assessment of this indicator should be a straightforward calculation of resource rent compared to industry taxes or other means of capturing this rent. However, the heterogenous nature of fishing fleets complicates this calculation. This is due to the fact that there will be a natural spread in profitability across the fishing fleet, so some profits are not resource rent but 'intra-marginal rent' and should be excluded.[43] Even the components that make up resource rent vary from study to study. For our purposes, we simply assess whether any instruments are in place to recover resource rent, however large that rent may be. One possibility it to consider reported profits as a proxy for resource rent, especially in Member States with large corporate taxes that capture some of this profit.

GOOD PROCESS

Both 'good for fishers' and 'good for society' categories of objectives are focused on the outcomes of the system, but the ways in which decisions on fishing opportunities are made and people engage with the system are also essential to a 'successful' fishery. Good process grants the system legitimacy, allows for public scrutiny, and leads to better design outcomes. A system of fishing opportunities with good process should be: transparent, objective, made at the right level, and representative.

TRANSPARENT

Transparency underpins any democratically accountable process. Transparency means that stakeholders, members of the public, and journalists can be well-informed and are in a position to engage with and scrutinise the process. A lack of transparency risks giving insiders a free hand and risks corruption.

INDICATOR: PUBLICLY ACCESSIBLE INFORMATION

MEASURE: ALLOCATION OF FISHING OPPORTUNITIES DESCRIBED IN AN EASILY ACCESSIBLE AND COMPREHENSIBLE PUBLIC DOCUMENT

Information on the functioning of the system of fishing opportunities, including the method of allocation, should be easily accessible and capable of being understood by the general public.

MEASURE: A PUBLICLY AVAILABLE AND UPDATED REGISTER DETAILING HOLDINGS OF QUOTA SHARES AND OTHER FISHING RIGHTS

As quota shares represent entitlements to a public resource they should be made transparent through a publicly available register. This information is essential to determine, for example, the level of quota concentration and how it has changed over time, or the levels of dependency that quota holders have on a particular TAC.

OBJECTIVE

Through the use of a consistent, rule-based allocation method fishers know what to expect. The process can be scrutinised easily and is less open to influence by particular interests.

INDICATOR: THE ALLOCATION OF FISHING OPPORTUNITIES IS RULE-BASED AND NON-ARBITRARY

MEASURE: ASSESSMENT OF THE PROCESS

An objective allocation method should be clearly described with well-defined allocation criteria. In systems that use multiple criteria for allocation, this includes the relative weightings of criteria or the conditions for their use.

RIGHT LEVEL OF GOVERNANCE AND REPRESENTATIVE

Fishing opportunities need to be managed at the most appropriate level of government. Concerning small-scale coastal stocks, management should be localised to utilise local expertise and involve local stakeholders. The principle of subsidiarity dictates that tasks should be managed centrally only when they cannot be performed more effectively at local levels. Going further to ensure representative decision-making, broad participation and stakeholder consultation in decision-making on fishing opportunities and management are essential to achieve fair and legitimate outcomes. Often voices are lacking from these debates and, fishers with limited financial means and/or representatives for the broader public interest in fisheries are often not represented. Procedures need to be in place to ensure a broad representation of interests.

Co-management (described in section 3.4) underpins both indicators for this objective as it involves both localising management and including a broad base of stakeholder views in decision-making.

INDICATOR: SUBSIDIARITY

MEASURE: WHEREVER POSSIBLE, MANAGEMENT EMPOWERS LOCAL INSTITUTIONS

This measure is assessed based on the division of competences between different levels of government and stakeholder organisations and is informed by secondary literature and interviews on the Member State systems in use across different fishing opportunities.

INDICATOR: STAKEHOLDER REPRESENTATION

MEASURE: THERE ARE PROCEDURES FOR INCLUSIVE AND INTERACTIVE STAKEHOLDER REPRESENTATION IN DECISION-MAKING

This measure assesses whether decision-making processes on fishing opportunities engage stakeholders in an interactive and collaborative manner, whilst also ensuring representation from all fleet segments, local stakeholders and wider society. Information is gathered from secondary literature and interviews on how different Member States approach stakeholder representation and these approaches are then compared to best practices in stakeholder management that have been identified in the literature on co-management. [44,45,46]

SUMMARY OF FRAMEWORK, METHODOLOGY AND SOURCES

Table 3.2.2 provides a summary of our framework of 12 objectives, the indicators that inform them, and the measures and sources used in the assessment. Wherever possible, EU-wide data sources were used to increase comparability between Member States. Wherever possible, measures are evaluated using an average of the three most recent years (depending on data availability and variance of the measure). Qualitative information for the descriptive measures was taken from government documents and published studies in the academic and grey literature. Over 80 unstructured interviews were also completed to help inform the descriptive measures and review the information gathered for the statistical measures. These interviews also informed the description of Member State systems in Chapters 4-15. Interview selection was chosen with a focus on government and academic expert knowledge, particularly those involved in STECF working groups on fleet economics and data collection, as well as input from interested stakeholders, including those who got in contact via the ResearchGate project page. A list of interviewees is available at the front of the report.

SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

3.3 WHAT CAN BE CONCLUDED FROM THESE PERFORMANCE INDICATORS?

Performance on these indicators is dependent on many factors, some of which are unrelated to the system of fishing opportunities that is in place. Different Member States find themselves in unique situations that are not directly comparable due to stock health, devolved administrations, fishing traditions, employment patterns, consumer markets, trust in institutions, other investment opportunities, fishery specialisation, and institutional capacity, to name but a few. For each performance indicator that is assessed, there is an alternative explanation as to why performance is particularly good, bad, neutral, or mixed. As such, the analysis of these indicators cannot be conclusive, but performance can be indicative, particularly if the same result is found across multiple measures for the same indicator or multiple indicators for the same objective. Poor performance on a defined objective across indicators points to the need for future research and potential reform. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

We were unable to acquire accurate and reliable data for all measures defined in this chapter. Additionally, for some Member States, no assessment is provided for some indicators due to the specific nature of their system (e.g. Italy for quota-specific indicators). Still, the Member State analysis in chapters 4-15 offers the first detailed analysis of whether the systems of fishing opportunities used by Member States are successful using an objective-based approach. Just as many of these measures could not have been assessed a decade ago, the hope is that fisheries research continues to progress and that these performance indicators/measures can be further refined in the future, and new indicators/measures can be constructed altogether.

---

1 Different studies have also defined different components to constitute resource rent, e.g. consumer surplus.

2 Eide, A. (2009). Economic Principles: An Economic Perspective on Fishing A Fishery Manager's Guidebook (pp. 75-102): Wiley-Blackwell. Retrieved from http://dx.doi.org/10.1002/9781444316315.ch4

3 Williams, C., & Carpenter, G. (2015). Sea bass and Article 17 of the Common Fisheries Policy New Economics Foundation working paper. London, UK: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/284430910_NEF_working_paper_on_sea_bass_Dicentrarchus_labrax_and_article_17_of_the_reformed_Common_Fisheries_Policy_CFP

4 Williams, C., & Carpenter, G. (2016). The Scottish Nephrops fishery: Applying social, economic, and environmental criteria New Economics Foundation working paper. London, UK: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/303523398_NEF_working_paper_The_Scottish_Nephrops_fishery_Applying_social_economic_and_environmental_criteria

5 National Oceanic and Atmospheric Administration Fisheries (NOAA). National Standard Guidelines. NOAA Fisheries. Retrieved from http://www.nmfs.noaa.gov/sfa/laws_policies/national_standards/index.html

6 Bonzon, K., McIlwain, K., Strauss, C. K., & Van Leuvan, T. (2013). Catch share design manual. Volume 1: Guide for managers and fishermen (2nd ed.). Washington, D.C.: Environmental Defense Fund. Retrieved from http://fisherysolutionscenter.edf.org/sites/catchshares.edf.org/files/CSDM_Vol1_A_Guide_for_Managers_and_Fishermen.pdf

7 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

8 Voss, R., Quaas, M. F., Schmidt, J. O., & Kapaun, U. (2015). Ocean acidification may aggravate social-ecological trade-offs in coastal fisheries. PLoS One, 10(3). Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/25780914

9 Rossetto, M., Bitetto, I., Spedicato, M. T., Lembo, G., Gambino, M., Accadia, P., & Melià, P. (2015). Multi-criteria decision-making for fisheries management: A case study of Mediterranean demersal fisheries. Marine Policy, 53, 83-93. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X1400298X

10 Marchal, P., Andersen, J.V., Aranda, M, Fitzpatrick, M., Goti, L., Guyader, O., Haraldsson, G., Hatcher, A., Hegland, T.J., Le Floc'h, P., Macher, C., Malvaroa, L., Maravelias, C.D., Mardle, S., Murillas, A., Nielsen, J.R., Sabatella, R., Smith, A.D.M., Stokes, K., Thögersen, T. and Ulrich, C. (2016). A comparative review of fisheries management experiences in the European Union and in other countries worldwide: Iceland, Australia, and New Zealand. Fish and Fisheries, 17(3), 803-824. Retrieved from http://dx.doi.org/10.1111/faf.12147

11 Brinson, A. A., & Thunberg, E. M. (2016). Performance of federally managed catch share fisheries in the United States. Fisheries Research, 179, 213-223. Retrieved from http://dx.doi.org/10.1016/j.fishres.2016.03.008

12 Symes, D., & Phillipson, J. (2009). Whatever became of social objectives in fisheries policy? Fisheries Research, 95(1), 1-5. Retrieved from http://dx.doi.org/10.1016/j.fishres.2008.08.001

13 Munro, G. R. (2010). From drain to gain in capture fisheries rents FAO Fisheries and Aquaculture Technical Paper 538. Rome: Food and Agriculture Organization of the United Nations. Retrieved from http://www.fao.org/3/a-i1617e.pdf

14 Lam, M. E., & Pauly, D. (2010). Who is right to fish? Evolving a social contract for ethical fisheries. Ecology and Society, 15, art16.. Retrieved from http://www.ecologyandsociety.org/vol15/iss3/art16/

15 ICES. Understanding marine socio-ecological systems: Including the human dimension in Integrated Ecosystem Assessments. Retrieved from http://www.ices.dk/news-and-events/symposia/MSEAS/Pages/MSEAS.aspx

16 There is an argument that a poorly designed system of fishing opportunities may increase issues with low quotas and put lobbying pressure on the Member State to raise the TAC. We have not included this indirect measure here but the information is available in Carpenter, G., & Kleinjans, R. (2015). Landing the blame: Overfishing in European waters 2001-2015. London: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/281450725_Landing_the_blame_overfishing_in_EU_waters_2001-2015

17 Marine Conservation Society. Good Fish Guide. Available at: http://www.goodfishguide.org/

18 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Available at: http://www.seafish.org/rass/

19 However, to be consistent with the 'Publicly owned' objective, security cannot be permanent, it must be time-limited or revocable.

20 NEF calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

21 It is possible that high investment is an indication of insecurity and a predatory approach to exploit a fish stock before others can, although this level of exploitation, and thus investment, would not be sustainable over many years.

22 Grainger, C.A. & Costello, C. (2011). The value of secure property rights: evidence from global fisheries. NBER Working Paper Series. Working Paper 17019. Retrieved from https://core.ac.uk/download/pdf/6424596.pdf

23 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

24 Bonzon, K., McIlwain, K., Strauss, C. K., & Van Leuvan, T. (2013). Catch share design manual. Volume 1: Guide for managers and fishermen (2nd ed.). Washington, D.C.: Environmental Defense Fund. Retrieved from http://fisherysolutionscenter.edf.org/sites/catchshares.edf.org/files/CSDM_Vol1_A_Guide_for_Managers_and_Fishermen.pdf

25 TAC management units and biological stocks do not fully align. In most cases, but not all, one fish stock is split between multiple TACs for management.

26 European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

27 This practice is currently being phased out in the EU through the landing obligation, which will likely increase quota non-compliance in systems of fishing opportunities with limited flexibility.

28 New data collection procedures for the effort data call will allow for more detailed comparisons of this information in the next data call. The reliability of the discard estimates is also expected to improve, especially in cases where currently no quarterly data is provided and an average from other Member States is 'filled in'.

29 Appleby, T., Van der Werf, Y., & Williams, C. (2016). The management of the UK's public fishery: A large squatting claim? University of the West of England working paper. Retrieved from https://www.researchgate.net/publication/303437821_A_WORKING_PAPER_ON_THE_MANAGEMENT_OF_THE_UK%27S_PUBLIC_FISHERY_A_LARGE_SQUATTING_CLAIM

30 Due to data availability, economic analysis is conducted at the fleet segment level from the economic data call, whereas ideally analysis would be conducted at the level of the firm (one or more fishing vessels with the same owner).

31 Subsidies are not included in the STECF database and so financial risk is likely overestimated using this measure.

32 Guillen, J., Macher, C., Merzéréaud, M., Boncoeur, J., & Guyader, O. (2015). Effects of the share remuneration system on fisheries management targets and rent distribution. Marine Resource Economics, 30(2), 123-138. Retrieved from http://www.jstor.org/stable/10.1086/679970

33 The Executive Agency for Small and Medium-Sized Enterprises. Study on ownership and exclusive rights of fisheries means of production. Retrieved from https://ec.europa.eu/easme/en/tender/9571/study-ownership-and-exclusive-rights-fisheries-means-production

34 Hardin, G. (1972). Exploring new ethics for survival: the voyage for the spaceship Beagle. Viking, New York, New York, USA.

35 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 (2013). Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF

36 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 (2013). Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF

37 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 (2013). Retrieved from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:354:0022:0061:EN:PDF

38 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF 16-18). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1453963/2016-10_STECF+16-18+-+Balance+Capacity_JRC103772.pdf

39 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

40 Johnson, R. N. (1995). Implications of Taxing Quota Value in an Individual Transferable Quota Fishery. Marine Resource Economics, 10(4), 327-340. Retrieved from http://www.jstor.org/stable/42629125

41 Arnason, R. (2010). On the economic distortion of pure resource rent taxation. Paper presented at the 15th IIFET Conference, Montpellier, France. Retrieved from https://ir.library.oregonstate.edu/xmlui/handle/1957/39294

42 Coglan, L., & Pascoe, S. (1999). Separating resource rents from intra-marginal rents in fisheries economics survey data. Agricultural and Resource Economics Review, 28(2), 219-228. Retrieved from http://ageconsearch.umn.edu/handle/31291

43 Coglan, L., & Pascoe, S. (1999). Separating resource rents from intra-marginal rents in fisheries economics survey data. Agricultural and Resource Economics Review, 28(2), 219-228. Retrieved from http://ageconsearch.umn.edu/handle/31291

44 Conley, A., & Moote, M. A. (2003). Evaluating collaborative natural resource management. Society and Natural Resources, 16, 371-386. Retrieved from https://www.fs.fed.us/emc/nfma/collaborative_processes/conley_moote.pdf

45 Carlsson, L., & Berkes, F. (2005). Co-management: concepts and methodological implications. Journal of Environmental Management, 75(1), 65-76. Retrieved from http://dx.doi.org/10.1016/j.jenvman.2004.11.008

46 Pinkerton, E. (2009). Partnerships in Management A Fishery Manager's Guidebook (pp. 283-300): Wiley-Blackwell. Retrieved from http://onlinelibrary.wiley.com/doi/10.1002/9781444316315.ch11/summary?primaryCompoundsResultsPerPage=250

INTRODUCTION

The merits and faults of different types of management systems for fishing opportunities have been debated for decades. Most pronounced is the advocacy and resistance towards the increased prevalence of rights-based management (RBM), and in particular, individual transferable quotas (ITQs), which are one form of RBM. The most frequently stated concerns are that RBM systems privatise the natural resource, benefit big businesses at the expense of coastal communities, and crowd out small-scale fishers. On the other side of the debate, proponents of RBM point to the 'race to fish', overcapacity, and inefficiency as major problems with these more conventional forms of management such as effort management (EM) and national quotas. The debate has often become divided by disciplinary lines with many economists focusing on economic advantages of RBM and social researchers critiquing this economic focus, citing social and cultural concerns. Our position on the RBM debate, as with the other debates we consider here, is based on the set of 12 foundational objectives that we are using to define a successful system of fishing opportunities. In addition to these objectives, the types of instruments used in fisheries management should also be based on governmental objectives and managerial considerations (see figure 3.4.1).

This chapter will outline our thinking on five key debates in fisheries management: rights-based management (section 4.1), quota management (section 4.2), effort management (section 4.3), individual transferable quotas (section 4.4), and co-management (section 4.5).

4.1 RIGHTS-BASED MANAGEMENT (RBM)

WHAT IS RBM?

As defined in Chapter 2, systems of fishing opportunities that are considered under RBM are those that convey secure and exclusive fishing rights to individual fishers or defined groups of fishers. This definition is very similar to how 'catch shares' are often defined in North American fisheries management. In the European context, RBM systems include five types of fishing opportunities that are summarised in table 2.4.2. RBM systems in the EU Member States studied in this report include IQs and ITQs. These systems share the dual features of granting eligible fishers a long-term quota share that is unlikely to be revoked (secure) and is only useable by the holder of the quota share (exclusive).

Unfortunately, much confusion surrounds the terms 'RBM' and 'catch shares' due to their repeated misuse, their conflation with particular systems, and their lack of standard definitions. Some of the most common misconceptions include:

- The term 'rights' in 'rights-based management' is sometimes conflated with 'property rights'. Most RBM systems do not involve creating property rights out of use rights. Some RBM systems define fishing opportunities as property rights and some do not, but property rights are not a necessary feature of RBM systems.
- It is sometimes stated that RBM involves privatising fish stocks, rather than fishing opportunities. In some cases, RBM creates use rights as a form of private property, but it rarely involves privatising fish stocks themselves. Nearly all fishing opportunities are 'privatised' in a different sense of the term; only a group of eligible users can access fishing opportunities whilst others struggle to get access. This is particularly the case in systems of fishing opportunities that rely purely on a fixed historical allocation, where individual fishers receive a long-term share of the resource that they exclusively benefit from.

- It is sometimes stated that RBM transforms use rights into tradable commodities, which in turn leads to consolidation of ownership, and creates 'quota barons' or 'slipper skippers' who do not fish but profit off the ownership of fishing rights. This is a fair observation but it only applies to a subset of RBM systems, most commonly in the form of ITQs. ITQs are one type of RBM and many varieties do not involve transferable use rights. Some ITQ system have been designed to try and counteract these effects.

We sympathise strongly with the concerns expressed in these misconceptions. As our foundational objectives show, we believe that both fish stocks and use rights should ultimately be publicly owned and that the allocation of fishing opportunities should be done in a way that is equitable. However, falsely conflating terms and ideas in a debate can lead to poor, or at best, inefficient decision-making.

COMMON ADVANTAGES OF RBM

- As RBM fishing opportunities convey a secure long-term right, they allow for better planning, longer fishing seasons, and let fishers choose for themselves when and how to use their opportunities.
- As individual or defined groups of fishers are allocated exclusive fishing opportunities, the incentives for a 'race to fish' no longer exist. Fishers utilise individual or community catch limits rather than accessing a national TAC or, more simply, fishing until a closure is imposed.
- By ending the race to fish and granting long-term shares, RBM opportunities generally lead to better economic performance through more economically efficient decision-making.[1,2]
- This long-term planning and security can also improve safety as fishers have increased confidence that they can avoid bad weather whilst still harvesting their catch at a later date.[3,4]
- RBM can be used to legally enshrine traditional local forms of management that often have similar key characteristics (restricting eligible participants with a long-term stake in the resource).
- Tradable use rights in RBM (e.g. ITQs), if designed properly, can be particularly effective in pursuing economic objectives and addressing overcapacity.

COMMON DISADVANTAGES OF RBM

- RBM systems are usually more sensitive to initial allocation problems. Because allocation is longer-term than in effort management or other types of quota management, initial misallocation can create long-term inequities in fishing access.
- As most RBM systems allocate fishing opportunities based on historical fishing activities, there is a very strong incumbency bias, privileging existing fishers with track records but making entry more difficult and expensive for new fishers.[5]
- As RBM confers secure rights to fishers, often the government loses control of access and thus the ability to pursue new objectives and make adjustments (trade-off 1). In some cases, the use rights are even privatised – in the legal sense – leading to extensive loss of control. Under a privatised system, it may be near impossible to reverse the process as it would amount to the confiscation of property.
- Output-based RBM opportunities are often more difficult to administer, with more demanding science and data requirements to set TACs. These limits must also be paired with greater enforcement requirements.

The ability of secure and exclusive use rights in RBM systems to foster stewardship and improve the environmental sustainability of fisheries is actively debated – as is the use of property rights and similar tools in other fields of natural resource management. However, the theory suggests that, by granting secure and exclusive rights to fishers, the future status of fish stocks becomes of prime importance to fishers as fish stocks represent a future revenue stream. A larger fish population should even increase the value of rights that fishers hold. In this sense, environmental and individual financial interests become aligned.

However, there are several reasons to be sceptical of this theory. Fishers will continue to face biological uncertainty and it is still likely that private discount rates will not align with social discount rates, and thus the fishery will continue to tend towards overexploitation. Even private landlords can downgrade the environmental quality of their assets.[6] It is even possible that instituting property rights may crowd out other, more community-based, incentives of fishers to conserve fish stocks.

Crucially, fisheries need to be acknowledged as a unique natural resource with respect to potential ownership arrangements, and not directly comparable to classic thinking on land-based conservation initiatives. In fisheries, property rights can only be assigned to a share or quantity of fish from a common pool but never to a specific identified set of fish (with the exception of sedentary fish stocks where rights can be assigned to a bed of shellfish). This problem of mobile fish and individual identification means that fisheries will continue to operate as a common resource no matter what the form of management.[7,8] The consequence is that even under RBM, fishers will still have individual financial incentives that conflict with environmental sustainability (e.g. misreporting and ecologically damaging fishing techniques). The empirical evidence on whether RBM systems have improved environmental sustainability is also mixed [9,10,11] although they are found to have less biological fluctuation.[12,13] Unfortunately, much of the literature on RBM systems and sustainability is specifically about ITQ systems, so evidence on that specific variation is reviewed later (see section 'Individual Transferable Quotas (ITQs)').

Lastly, it is important to note that there is a larger ideological debate around RBM. Critics argue that expansion of RBM systems is part of a larger trend of neoliberalism which seeks to 'enclose' the commons through assigning individual property rights.[14,15] Resources that were previously collectively managed are enclosed and granted or sold to individual rights-holders. This enclosure of fisheries is associated with a change in values, particularly towards an individualistic ethic that may detract from existing community values – a change that has been documented in some fishing communities for a range of different actors.[16,17,18]

OUR PERSPECTIVE ON RBM

RBM systems can be designed in many ways and consequently the 'devil is in the detail'. Due to the risks of (legal) privatisation and lost public control, we support RBM instruments only when designed in a manner that is consistent with our foundational objectives. In a legal sense, this means that RBM use rights should be under state control. Long-term shares may be granted, but these shares should be time-bound (i.e. include a sunset clause) or conditions should be specified under which the shares can be revoked. Additionally, the relevant government should have the means to use fishing opportunities to pursue objectives and provide access to new fishers, for example, through a dedicated quota reserve. Our foundational objectives on good process and equity also need to be fulfilled in the initial allocation of use rights.

An important caution is that the use of RBM in countries without strong, representative, and transparent institutions has at times led to negative outcomes, with traditional fishers and communities separated from the resource in favour of financial interests.[19]

Despite these conditions, it is clear that there is a role for RBM in many fisheries management systems. Whilst often not the focus of RBM literature, effort-based RBM fishing opportunities can be particularly valuable for local, traditionally managed stocks (TURFs) or when managerial constraints make setting and enforcing quotas too difficult (IEQs).

4.2 QUOTA MANAGEMENT (QM)

WHAT IS QM?

We define QM as fishing opportunities that impose output limits (quantitative withdrawal limits) in terms of landed or caught weight, or number of fish. QM includes most types of RBM already covered (see table 2.4.2), so this section focuses on quota management more generally and in particular national and rationed quotas.

COMMON ADVANTAGES OF QM

- Most importantly, quota management allows for the management of stocks with TACs set according to scientifically determined limits for harvesting/mortality such as the MSY objective used in EU fisheries management.
- It allows fish stocks to be managed effectively in order to pursue long-term socio-economic and environmental objectives and end the tragedy of the commons.
- QM provides a clear way of distributing fishing opportunities between Member States and between fishers as quotas are more easily divisible than other fishing opportunities.
- National quotas, a form of QM, allows fishers to fish freely until the national quota is depleted. This can be desirable for some low-pressure stocks.
- Rationed quotas, another form of QM, grants the government full control over allocation in order to pursue objectives and tailor distribution.

COMMON DISADVANTAGES OF QM

- Where no robust stock assessments are available, TACs cannot be set precisely. However, using precautionary TAC setting may still be superior to non-TAC forms of management.
- In some cases, QM is more difficult to enforce, especially for large, dispersed fleets, because of the landing obligation and the need for 'full catch accountability'.
- TAC setting is complicated by mixed fisheries that are harder to model and can result in 'choke species' where the exhaustion of TAC for one species limits fishing for all other species in the mixed fishery.
- National quotas (non-individualised) can risk creating a race to fish as all fishers access the same national quota pool until the whole quota is depleted.
- Even if national quotas are divided into separate seasons or between different parts of the fleet, there are likely to be multiple, smaller races to fish in those time periods or fleet segments.
- Rationed and national quotas do not provide secure access for fishers and thus the benefits that the security of QM often entails.

OUR PERSPECTIVE ON QM

All else being equal, quota management is always preferable to effort management when fish stocks are overfished or in high demand. Effort management (and technical measures) are indirect ways of attempting to control fish mortality and are thus rarely as reliable as quota management. Our view is that QM should be implemented where possible and that efforts should be made to overcome managerial constraints (such as poor scientific understanding of stocks or enforcement capabilities). Despite the added complexities of applying QM in mixed fisheries, QM is the best way to achieve sustainable stock management.

The issue of choke species in a mixed fishery is not due to quota management but rather a combination of limited selectivity in fishing gear (generating bycatch) and the aim to end overfishing for all commercial fish stocks in EU waters (including bycatch species). Previously

the choke species issue was addressed simply by discarding the fish in large quantities, severely hampering stock recovery. Now that the landing obligation (often referred to as the discard ban) is being phased in, and all catches must be accounted for, the choke species problem is more acute. A change in management from QM to EM has been proposed by some as a means to fish through a choke with the same species composition.[20] Whilst not stated explicitly, this proposal implies the continued overfishing of some commercial species and is not compatible with the core MSY objective of the CFP (Article 2.2). There are also significant drawbacks to effort management (covered in the next section) that have led to a trend away from EM and towards QM, as science, data collection, and enforcement have improved.

In summary, we think there is scope and urgency to expand quota management for some overfished stocks currently under EM, including some stocks in the Mediterranean, but also elsewhere (e.g. formal TACs for sea bass and sardines in the North Atlantic). In order to manage all stocks at biomass levels capable of producing MSY by 2020 at the latest, the extension and effective implementation of QM is essential. QM is less appropriate for small, low value, underfished and sessile stocks and stocks that are not shared between Member States (e.g. brown crab). In such cases, QM is often not cost effective or necessary.

TRANSITIONING TO QM

The following set of conditions should be used in prioritising stocks and fisheries to transition from EM to QM. When these conditions are met, changing to QM is the most urgent priority and can yield the greatest benefits:

- Mono-specific stocks
- Large and medium-scale fisheries
- Overfishing (F/FMSY >1)
- Reliability of landings data to ensure the limit is respected
- Reliability of scientific data for setting catch limits
- Fewer ports and vessels involved for easier management and enforcement
- Better length composition of stock (to protect against high grading, percentage of catches below MCRS or average catch size versus maturity size)
- Quality of catch records.

4.3 EFFORT MANAGEMENT (EM)

WHAT IS EM?

We define effort management as fishing opportunities that impose input controls, including those of a spatial nature, but excluding technical gear restrictions (e.g. mesh sizes, prohibitions of certain gears). This is a broad definition as EM is normally defined in terms of number of vessels, days at sea (DAS), capacity and engine power. Like QM, some forms of EM can be considered as RBM systems whilst other forms of EM cannot. This section will mainly discuss EM fishing opportunities that are not considered as RBM systems.

COMMON ADVANTAGES OF EM

- Limited licensing is the main effort control used in fisheries, in which capacity can be managed by limiting the number and characteristics of participants.
- EM measures are usually less reliant on robust stock assessments and data than output-based systems.

- EM as a stock conservation measure is often simpler and cheaper to administer and enforce. This is because input controls like days at sea, and geographic information are often easier to monitor. Landings do not need to be measured against quotas under EM, although information on landings is required for indirect reasons.
- EM can be used to provide non-discriminatory systems of fishing access.
- EM may offer advantages in managing data poor, mixed fisheries, especially when completing stock assessments for all species is costly. In such a situation, production models (based on effort) can be used to estimate the resource.

COMMON DISADVANTAGES OF EM

- As a conservation tool, non-RBM forms of EM are prone to creating a race to fish. As fishers do not have individual catch per unit of effort limits, they are often incentivised to fish as much as possible until the fishery is closed or their DAS limit is exhausted.
- These incentives can lead to dangerous fishing practices as fishers directly compete with each other to fish as much and as fast as possible. Where allowed, extra investment and capacity may develop.
- As EM measures control catches indirectly, it is much more difficult to ensure stocks are fished at sustainable levels. This is especially true when effort management is not properly adjusted to reflect capacity increases.
- As EM is not stock specific, it is much more difficult to manage overfishing of particular species. High-value stocks are likely to be targeted and overfished.
- If overcapacity is not specifically addressed, EM is likely to lead to falling profits and provide only short-term employment. This is because overcapacity leads to earlier closures and subsequent unused capacity.
- A lack of security in some types of EM presents difficulties for fishers to plan ahead and manage their activities with long-term view.
- Even individualised effort and DAS quotas are likely to incentivise capacity growth that may not be accounted for ('technological creep').

OUR PERSPECTIVE ON EM

Although EM can be an effective form of fisheries management for many low-pressure stocks, we have a strong preference for using QM systems for most commercial stocks. In EM fisheries, it is much more difficult to control fishing mortality of specific stocks and thus comply with basic conservation goals. There are arguments that EM is easier to apply, especially in complex mixed fisheries, but even in such cases EM should only be a preferred choice if there is little risk of overfishing. Attempts should be made to overcome managerial constraints and introduce quotas. One exception is locally-managed fisheries with long-standing arrangements where TURFs are usually an effective form of use right. Organisations administering TURFs still need to be held to account to ensure stocks are managed sustainably. Another exception is the use of EM as a supplementary to protect certain habitats (spatial management), spawning stocks (closed seasons) or excess effort (days at sea).

4.4 INDIVIDUAL TRANSFERABLE QUOTAS (ITQs)

WHAT ARE ITQs?

Individual transferable quotas, a type of rights-based management, have attracted much controversy in fisheries management. Proponents often regard ITQs as the most effective regulatory tool to improve the economic performance of fishing fleets and reduce overcapacity. Through creating a market in fishing opportunities, the most profitable fishing companies

remain, whilst less profitable vessels sell their quotas and exit the industry. Opponents criticise the common outcomes of ITQ systems in use, such as the concentration of quota ownership, but much of the criticism of ITQs extends to a deeper ideological basis, as opponents see such systems as 'commodification' and the 'marketisation' of public resources for the benefit of a select group of quota holders.[21,22]

VARIATIONS OF ITQs

ITQ systems take a variety of forms. In common, they are all secure and exclusive quantitative withdrawal rights (i.e. rights-based management) with the added feature of allowing permanent transfer (change of ownership) of quota shares. ITQ systems also allow for quota leasing, a feature that also exists in some IQ systems that do not permit full transferability. ITQ systems also in other respects:

- Legal status: whether ITQs are considered a form of private property (e.g. New Zealand), or a revocable use right (e.g. Denmark) or as a 'possession' (e.g. UK) [23]
- Eligibility: which actors can hold quotas (e.g. in Denmark only 'active fishers' can hold ITQs)
- Trading blocs: who can transfer quotas to whom (e.g. the Icelandic ITQ system is divided into LSF and SSF blocs and in Norway transfers of ITQs are limited to geographical regions)
- Regulation of transfers: whether quota transfer requires a producer organisation or ministry authorisation
- Safeguards: whether there are limits on quota concentration, quota reserves for particular fleet segments, or restrictions to keep quotas in particular communities (i.e. trading blocs).

All ITQ systems create a market in quota shares that invariably leads to some owners accumulating quota shares whilst others sell their shares and some leave the industry altogether. The presence of a market gives the opportunity for more profitable and well-financed fishing companies to expand their operations and fishers that are less profitable to sell their quota share and leave the fishery. Depending on the restrictions in place, it is common for a fishery managed through ITQs to become restructured through time with a decline in capacity and increase in fleet specialisation.

This general restructuring associated with ITQ systems tends to bring with it a number of advantages and disadvantages. The advantages and disadvantages of rights-based management (see section 3.4.3), which also apply to ITQs, are not repeated below.

COMMON ADVANTAGES OF ITQ SYSTEMS

- By creating a market in quota shares, more profitable fishing companies have the opportunity to expand their operations (improved flexibility in access).
- The system gives fishers an economical 'way out' through selling their quota shares.
- Excess capacity is taken out of the system through market forces, rather than costly decommissioning schemes.[24]
- Increase in profitability as the number of vessels declines.[25,26,27]
- Increasing profitability allows for resource rent taxation.[28]
- Added flexibility in avoiding choke species and increasing quota utilisation.

COMMON DISADVANTAGES OF ITQ SYSTEMS

- Difficulties in accessing quotas for some participants limits efficiency and innovation.[29]
- A greater concentration of quotas, more unequal ownership, and issues of equity.[30]
- As quota ownership becomes more concentrated, so too does port activity. This has led to the loss of fishing industries in many coastal communities.[31,32]

- Although some concentration of ownership may be desirable, excessive concentration can lead to monopolisation and anti-competitive behaviour within a fishery.[33,34]
- New entrants are normally required to purchase fishing rights.
- In poorly regulated ITQs, inactive fishers or non-fishers may lease out quotas or hold quotas as a speculative asset. This is undesirable as it raises quota prices and unjustifiably affords an income to persons via a gifted public resource.[35]
- Small-scale fishers are crowded out of the market as they are often unable to afford buying new quota shares and buyers are much more likely to be large-scale operators. Small-scale fleets tend to be less profitable and have a smaller capital asset in their vessel.
- Traditional fishing communities are crowded out, as has been documented for the Maori in New Zealand,[36,37] the Mi'kmaq in Canada,[38] and the Saami in Norway [39] and the Huna Tlingit and Kaigani Haida in Alaska.[40]
- A loss of employment as the number of vessels declines.[41]

Categorising some of these findings as advantages and disadvantages can be debated. Employment is a key determinant of wellbeing and is often seen as a societal good, especially to coastal communities where this employment occurs, but it is also a cost of production. Using this perspective, it could be argued that the reduction in fisheries employment is a feature of ITQ systems, not a flaw. Further, many industries have gone through technological transformations substituting capital for labour, so some view a decline in fisheries employment as something of an inevitability, especially given a lack of interest from many young people. That said, economic theory is rightly criticised for overestimating the fluidity of labour markets. Fisheries in particular are a concern on this point due to the remote nature of the fishery and unique working environment. Surveys of fishers show that many would not consider moving to another industry or another port, although this varies substantially by the type of fishing fleet.[42]

This discussion reveals a larger ideological debate in fisheries around a neoliberal approach to management. Whilst this critique was discussed in the section on rights-based management in the context of 'privatisation', the 'marketisation' element of ITQs brings with it new elements of neoliberal critique, such as the changes in the distribution of power among actors (away from crew members, fish workers, and local communities and towards quota holders, enforcement agencies and scientists).[43] Many authors have noted in the context of RBM and ITQ that whether the unit of analysis is the individual or the community makes a significant difference to the assessment of advantages and disadvantages.

There also a number of claims about the effects of ITQs that are disputed, with mixed or insufficient evidence available. As with RBM systems more generally, claims that ITQs foster environmental stewardship and improve environmental sustainability are contested. One major difficulty in assessing this claim empirically is that ITQs are often conflated with RBM. Studies assessing environmental performance under ITQs are often a mix of management systems with broad conclusions drawn specifically about ITQs and transferability. In fact, whilst it is clear why there may be expectations for property rights to be associated with environmental sustainability (discussed above), it is not clear why the element of transferability in ITQs should increase sustainability.

This definitional issue highlights a second major difficulty in assessing this claim empirically – the difficultly of identifying the casual mechanism in comparisons of systems with differences in multiple features. A few high-profile studies have shown that fisheries managed under ITQs around the world are in better environmental condition than alternative, often open access systems.[44,45] (This issue also impacts extrapolating from local studies that analyse a change in management from open access to ITQs.[46]) Drawing conclusions about which element of ITQ systems, or common factors outside of the system design, has led to this positive performance requires the use of control variables. The presence and scientific quality of fishing limits is a particularly important control. There is a real danger that advocates of ITQs are using a generalised approach to point to the success of systems with ITQs whilst arguing that any failures of ITQs are simply an issue with particular system design.

It is possible that ITQs could lead to improved environmental outcomes by amplifying the RBM arguments covered above as the potential financial returns (and thus the purported environmental incentives) for quota holders increases. The reduction in capacity under ITQs also means fewer vessels using less fuel, and consequently lower ecosystem effects as well (all else being equal, e.g. no change in gear use).

It is also possible that ITQs could lead to worsened environmental outcomes by furthering an owner-fisher separation that undermines the argument about aligning behavioural incentives. ITQs may make collective action more difficult [47,48] and this can present a challenge in solving some environmental issues.

Empirically, ITQs have been documented to have a positive environmental effect on target species,[49] but cause increases in discarding through high-grading.[50,51,52] Overall, most research has concluded that ITQs have a mixed or unknown effect for non-target species and the wider ecosystem.[53,54,55,56] A common conclusion from the research on the environmental impacts of ITQs is that these systems are not sufficient, and are likely to be necessary, to address the host of environmental issues associated with fisheries and that other policies are needed.[57,58,59,60,61,62]

Whether ITQs can further environmental sustainability will continue to be an area of research and debate. Our hope is that future research will make a greater distinction between the great variety of management systems to determine whether it is a feature of property rights (security and exclusively), transferability, or some other factor that leads to a purported outcome under ITQ management.

OUR PERSPECTIVE ON ITQS

Similar to the use of RBM systems more broadly, we take a conditional approach to the use of ITQs in fisheries management in line with the objectives defined in this chapter. In many cases, ITQs have led to negative consequences and work against some of our foundational objectives. However, we acknowledge that, with the right safeguards and design features in place, ITQs can be an effective regulatory tool. This is especially true when national objectives are focused on improving economic efficiency and reducing overcapacity. In these instances, we do not think these benefits apply to all parts of the national fishing industry and regard ITQs as an inappropriate tool for small-scale fisheries due to the important contribution of these fleets to coastal heritage [63] and the different fishing logic that characterises the small-scale fleet, for instance a deviation from profit maximisation [64,65] that has been found to describe general behaviour across the fleet as a whole.[66,67,68] It is significant that the Low Impact Fishers of Europe (LIFE), which represents the interests of small-scale fishers, opposes the use of ITQs for fisheries management. [69]

It is unlikely that separation from the ITQ system will be completely clean. To varying degrees the large-scale and small-scale sectors still operate in the same markets for outputs and inputs. For example, if ITQs impact average fish prices or crew wages, this will also be felt in the small-scale sector to some degree. Still, where ITQs are used to purpose certain necessary objectives, differentiated management for small-scale fisheries seems essential to maintain other objectives of fisheries management. Some studies of European fisheries point to examples where successful separation of small-scale fishers from ITQs already takes place.[70]

Whilst ITQ proponents will claim that system design can address any objection raised, our assessment of current ITQ use reveals fundamental trade-offs that can be mitigated but not overcome. We are also approaching the issue of selecting the best system of fishing opportunities for a set of objectives, rather than starting with a particular system and adapting it to different situations.

Based on this context, we support the use of ITQs only when the following conditions are met:

- ITQs are applied only to large-scale, industrial fisheries; [71]
- National objectives focus on economic efficiency and reducing overcapacity;
- Safeguards (listed below) are in place that make the ITQ system consistent with our foundational objectives.

ESSENTIAL DESIGN FEATURES AND SAFEGUARDS IN ITQ SYSTEMS

In order for ITQ systems to be consistent with our foundational objectives, a number of design features are essential. These relate particularly to the objectives of accessibility, equity and maintaining fish stocks as a publicly owned and controlled resource:[72]

- The small-scale fleet, which would face structural disadvantages, is kept outside of the ITQ system or is stringently ringfenced to prevent loss of the fishing rights. This differentiation also reflects the often-varying national objectives for different parts of fishing industry;
- Quota shares are constituted as revocable use rights;
- Initial allocation is objective, transparent, based on an inclusive stakeholder process and sympathetic to the circumstances of unusual cases;
- Quota shares are set aside or a small quota transfer 'tax' recuperates shares back to authorities for the purpose of accommodating new fishers;
- A quota reserve is established for the purpose of annual performance-based allocations in accordance with Article 17 of the CFP;
- Caps on the percentage of quota shares any single fishing company or association of companies may hold;
- Active fisher and minimum utilisation requirements. The former ensures that quotas are not held by retired fishers or non-fishers as a source of rental income. The latter further reduces the risk of 'rentier fishing' and encourages transfer of shares rather than perpetual leasing;
- A publicly available register detailing fishing company's quota share holdings.

4.5 CO-MANAGEMENT

Co-management has emerged as a rapidly expanding practice in fisheries management around the world. It is difficult to define precisely and a large range of institutional arrangements have been described as falling under co-management. Co-management systems typically involve sharing management responsibility among multiple parties such as governments, user groups, local communities, and other stakeholders who operate at different levels. Often, co-management involves some degree of power-sharing, new institutions to address roles and responsibilities of the parties, new governance structures to make decisions together, and an extensive process of deliberation, negotiation and trust- and relationship-building. In some cases, these systems result from explicit efforts by governments to move away from top-down fisheries management; in others, co-management may simply arise through a bottom-up process of self-organisation. Some of the frequently cited benefits of co-management include: improved quality and design of regulations, improved legitimacy and acceptance of regulations amongst fishers, consideration of complex management issues, and reduced management costs for authorities as some responsibilities are taken over by professional bodies. This is a promising development, particularly as issues of power and decision-making are key to many grievances in the fishing industry.[73]

ISSUES IN CO-MANAGEMENT

Co-management should be welcomed as an approach, but can also come with certain risks when not implemented properly. An important concern in any move towards greater fisher/industry involvement in decision-making is equitable representation. Within the fishing industry there are wide discrepancies in available resources and social capital that create a barrier for many fishers to contribute equally. To systematically overcome these inequities in line with our 'Right level of subsidiary and representative' objective, participation in co-management needs to include all major fishing groups across gear types, vessel sizes and fisheries. In some cases, ensuring this equitable participation may require costs of participation (including opportunity costs) to be covered centrally (limiting one of the stated benefits of co-management).

Another concern is that the wider public interest and political objectives can be side-lined in favour of the interests of the fishing industry. Fish stocks are a public resource and the fishing industry has wide-ranging social and environmental implications that are of general concern to the public. Co-management cannot let these interests be watered down by allowing the fishing industry alone to set policy objectives. The public interest can be protected by leaving certain aspects of policy-making (especially high level objectives) at the political level or through ensuring the effective representation of public interest groups from local community representatives to environmental organisations.

Lastly, in some cases, co-management arrangements may be criticised as inefficient and slow in terms of decision-making or lacking decisiveness and leadership in making major reforms. Whilst there are situations in which this may be true, more often the time required to build relationships and reach mutually-agreeable decisions among parties pays off in the future in the form of reduced conflict and associated transaction and legal costs. The benefits of sharing information and knowledge and building relationships can generate additional benefits beyond the co-management system itself that are important but difficult to measure when evaluating performance of a co-management system. There can be trade-offs between inclusive representation and decisiveness and ensuring the right people and parties are at the table is an important consideration. It must be recognised that effective co-management requires capacity building and institutional learning to take place – simply creating new organisations is insufficient.[74] This can take time and investment in building up social capital.

OUR PERSPECTIVE ON CO-MANAGEMENT

In line with our foundational objective on 'Right level of subsidiarity and representative', the application of co-management principles is a welcome move to democratise public decision-making, giving greater control to those effected by government management and improving stakeholder involvement. However, ensuring equitable representation, including the wider public interest, is essential for the benefits to be widespread.

---

1 Grimm, D., Barkhorn, I., Festa, D., Bonzon, K., Boomhower, J., Hovland, V., & Blau, J. (2012). Assessing catch shares' effects evidence from Federal United States and associated British Columbian fisheries. Marine Policy, 36(3), 644-657. Retrieved from http://dx.doi.org/10.1016/j.marpol.2011.10.014

2 Birkenbach, A., Kaczan, D., & Smith, M. D. (2015). Do catch shares end the race to fish and increase ex vessel prices? [unpublished]. Retrieved from https://www.aeaweb.org/conference/2016/retrieve.php?pdfid=885

3 Grimm, D., Barkhorn, I., Festa, D., Bonzon, K., Boomhower, J., Hovland, V., & Blau, J. (2012). Assessing catch shares' effects evidence from Federal United States and associated British Columbian fisheries. Marine Policy, 36(3), 644-657. Retrieved from http://dx.doi.org/10.1016/j.marpol.2011.10.014

4 Pfeiffer, L., & Gratz, T. (2016). The effect of rights-based fisheries management on risk taking and fishing safety. Proceedings of the National Academy of Sciences, 113(10), 2615-2620. Retrieved from http://www.pnas.org/content/113/10/2615.full.pdf

5 Carothers, C. (2015). Fisheries privatization, social transitions, and well-being in Kodiak, Alaska. Marine Policy, 61, 313-322. Retrieved from http://dx.doi.org/10.1016/j.marpol.2014.11.019

6 Bromley, D.W. (2016). Rights-based fisheries and contested claims of ownership: Some necessary clarifications. Marine Policy, 72, 231-236. Retrieved from http://www.aae.wisc.edu/dbromley/pdfs/rbfisheries.pdf

7 Copes, P., & Charles, A. (2004). Socioeconomics of individual transferable quotas and community-based fishery management. Agricultural and Resource Economics Review, 33(2), 171-181. Retrieved from https://doi.org/10.1017/S106828050000575X

8 Bromley, D.W. (2016). Rights-based fisheries and contested claims of ownership: Some necessary clarifications. Marine Policy, 72, 231-236. Retrieved from http://www.aae.wisc.edu/dbromley/pdfs/rbfisheries.pdf

9 Gilmour, P. W., Day, R. W., & Dwyer, P. D. (2012). Using Private Rights to Manage Natural Resources: Is Stewardship Linked to Ownership? Ecology and Society, 17, 1-12. Retrieved from https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/8566/Using%20Private%20Rights%20to%20Manage%20Natural%20Resources.pdf?sequence=1&isAllowed=y

10 Grimm, D., Barkhorn, I., Festa, D., Bonzon, K., Boomhower, J., Hovland, V., & Blau, J. (2012). Assessing catch shares' effects evidence from Federal United States and associated British Columbian fisheries. Marine Policy, 36(3), 644-657. Retrieved from http://dx.doi.org/10.1016/j.marpol.2011.10.014

11 There is anecdotal evidence that some fishers have asked for lower catch limits under RBM systems, but no formal review of the prevalence of this attitude or if it relates to conservation gains. In the EU, the TAC-setting process involves multiple systems but the outcomes of the negotiations to not show a correlation between Member States with secure rights and following scientific advice on catch limits, see Carpenter, G., & Kleinjans, R. (2015). Landing the blame: Overfishing in European waters 2001-2015. London: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/281450725_Landing_the_blame_overfishing_in_EU_waters_2001-2015

12 Essington, T. E. (2010). Ecological indicators display reduced variation in North American catch share fisheries. Proceedings of the National Academy of Sciences, 107(2), 754-759. Retrieved from http://dx.doi.org/10.1073/pnas.0907252107

13 Essington, T. E., M. C. Melnychuk, T. A. Branch, S. S. Heppell, O. P. Jensen, J. S. Link, S. J. D. Martell, A. M. Parma, J. G. Pope, and A. D. M. Smith. (2012). Catch shares, fisheries, and ecological stewardship: a comparative analysis of resource responses to a rights-based policy instrument. Conservation Letters, 5(3), 186-195. Retrieved from http://dx.doi.org/10.1111/j.1755-263X.2012.00226.x

14 McCay, B. J. (2012). Enclosing the fishery commons: From individuals to communities. In D. H. Cole & E. Ostrom (Eds.), Property in Land and Other Resources (pp. 129-251). Cambridge, MA: Lincoln Institute of Land Policy. Retrieved from https://www.lincolninst.edu/sites/default/files/pubfiles/enclosing-fishery-commons_0.pdf

15 Pinkerton, E., & Davis, R. (2015). Neoliberalism and the politics of enclosure in North American small-scale fisheries. Marine Policy, 61, 303-312. Retrieved from http://dx.doi.org/10.1016/j.marpol.2015.03.025

16 Olson, J. (2011). Understanding and contextualizing social impacts from the privatization of fisheries: An overview. Ocean & Coastal Management, 54(5), 353-363. Retrieved from http://dx.doi.org/10.1016/j.ocecoaman.2011.02.002

17 Carothers, C. (2015). Fisheries privatization, social transitions, and well-being in Kodiak, Alaska. Marine Policy, 61, 313-322. Retrieved from http://dx.doi.org/10.1016/j.marpol.2014.11.019

18 St. Martin, K. (2001). Making Space for Community Resource Management in Fisheries. Annals of the Association of American Geographers, 91(1), 122-142. Retrieved from http://www.tandfonline.com/doi/abs/10.1111/0004-5608.00236

19 Hersoug, B. (2011). Fishing rights to the right people? Management options in crowded small-scale fisheries. MAST, 10(2), 15-39. Retrieved from http://www.marecentre.nl/mast/documents/MAST10.2_Hersoug.pdf

20 Fishing for leave. Only days at sea work in a mixed fishery. http://ffl.org.uk/only-days-at-sea-work-in-a-mixed-fishery/

21 Bromley, D. W. (2009). Abdicating responsibility: The deceits of fisheries policy. Fisheries, 34(6), 280-290. Retrieved from http://www.aae.wisc.edu/dbromley/pdfs/fisheriesifq.pdf

22 Høst, J. (2010). A neoliberal clash: Access rights and the clash of coastal lifemodes. Retrieved from http://www.seafdec.or.th/wsfc2010/CZAP-WSFC%20Conference%20Proceedings/Concurrent%20session%201-2/Jeppe_Host_Full_Paper_CZAP_WSFC_2010.pdf

23 This applies to FQAs where a legitimate expectation has been created through continued utilisation, according to the following high-court ruling: United Kingdom Association of Fish Producer Organisations) v Secretary of State for Environment, Food and Rural Affairs [2013] EWHC 1959 (Admin)

24 Brinson, A. A., & Thunberg, E. M. (2016). Performance of federally managed catch share fisheries in the United States. Fisheries Research, 179, 213-223. Retrieved from http://dx.doi.org/10.1016/j.fishres.2016.03.008

25 Newell, R. G., Sanchirico, J. N., & Kerr, S. (2002). Fishing quota markets. Washington, DC: Resources for the Future. Retrieved from http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-Event-fishing-quota.pdf

26 Arnason, R. (2005). Property Rights in Fisheries: Iceland's Experience with ITQs. Reviews in Fish Biology and Fisheries, 15(3), 243-264. Retrieved from http://link.springer.com/article/10.1007/s11160-005-5139-6

27 Waldo, S., & Paulrud, A. (2013). ITQs in Swedish demersal fisheries. ICES Journal of Marine Science, 70(1), 68-77. Retrieved from http://dx.doi.org/10.1093/icesjms/fss141

28 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

29 Pinkerton, E., & Edwards, D. N. (2009). The elephant in the room: The hidden costs of leasing individual transferable fishing quotas. Marine Policy, 33(4), 707-713. Retrieved from: http://dx.doi.org/10.1016/j.marpol.2009.02.004

30 Doering, R., Goti, L., Fricke, L., & Jantzen, K. (2016). Equity and ITQs: About Fair Distribution in Quota Management Systems in Fisheries. Environmental Values, 25(6), 729-749. Retrieved from http://www.ingentaconnect.com/content/whp/ev/2016/00000025/00000006/art00007 https://doi.org/10.3197/096327116X14736981715742

31 Høst, J. (2015). Market-based fisheries management: Private fish and captains of finance: Springer International Publishing. Retrieved from http://link.springer.com/book/10.1007%2F978-3-319-16432-8

32 Agnarsson, S., Matthiasson, T., & Giry, F. (2016). Consolidation and distribution of quota holdings in the Icelandic fisheries. Marine Policy, 72, 263-270. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.04.037

33 Stewart, J., & Callagher, P. (2011). Quota concentration in the New Zealand fishery: Annual catch entitlement and the small fisher. Marine Policy, 35(5), 631-646. Retrieved from http://dx.doi.org/10.1016/j.marpol.2011.02.003

34 Said, A., Tzanopoulos, J., & MacMillan, D. (2016). Bluefin tuna fishery policy in Malta: The plight of artisanal fishermen caught in the capitalist net. Marine Policy, 73, 27-34. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.07.025

35 Taal, C., Bartelings, H., Beukers, R., Klok, A. J., & Strietman, W. J. (2010). Visserij in Cijfers 2010 (Vol. LEI rapport 2010-057): LEI Wageningen UR. Retrieved from http://edepot.wur.nl/154255

36 Day, A. (2004). Fisheries in New Zealand: the Maori and the quota management system. Vancouver, BC: First Nations Summit. Retrieved from http://www.fns.bc.ca/pdf/NewZealand.pdf

37 Yandle, T. (2006). Sharing natural resource management responsibility: Examining the New Zealand rock lobster co-management experience. Policy Sciences, 39(3), 249-278. Retrieved from http://dx.doi.org/10.1007/s11077-006-9023-6

38 Charles, A. (2006). Community fishery rights: issues, approaches and Atlantic Canadian case studies. Paper presented at the Thirteenth Biennial Conference of the International Institute of Fisheries Economics & Trade: Rebuilding Fisheries in an Uncertain Environment, Portsmouth, UK. Retrieved from http://ir.library.oregonstate.edu/xmlui/handle/1957/43656

39 Davis, A., & Jentoft, S. (2001). The challenge and the promise of indigenous peoples' fishing rights—from dependency to agency. Marine Policy, 25(3), 223-237. Retrieved from http://dx.doi.org/10.1016/S0308-597X(01)00014-8

40 Langdon, S. J. (2015). Foregone harvests and neoliberal policies: Creating opportunities for rural, small-scale, community-based fisheries in southern Alaskan coastal villages. Marine Policy, 61, 347-355. Retrieved from http://dx.doi.org/10.1016/j.marpol.2015.03.007

41 Olson, J. (2011). Understanding and contextualizing social impacts from the privatization of fisheries: An overview. Ocean & Coastal Management, 54(5), 353-363. Retrieved from http://dx.doi.org/10.1016/j.ocecoaman.2011.02.002

42 Scotland, M. (2016). Scottish sea fisheries employment 2015: Scottish Government. Retrieved from http://www.gov.scot/Publications/2016/10/8198

43 Kokorsch, M., Karlsdóttir, A., & Benediktsson, K. (2015). Improving or overturning the ITQ system? Views of stakeholders in Icelandic fisheries. Maritime Studies, 14(1), 15. Retrieved from https://maritimestudiesjournal.springeropen.com/articles/10.1186/s40152-015-0033-x

44 Costello, C., Gaines, S. D., & Lynham, J. (2008). Can Catch Shares Prevent Fisheries Collapse? Science, 321(5896), 1678-1681. Retrieved from http://dx.doi.org/10.1126/science.1159478

45 Costello, C., Lyman, J., Lester, S. E., & Gaines, S. D. (2010). Economic incentives and global fisheries sustainability. Annual Review of Resource Economics, 2, 299-318. Retrieved from http://dx.doi.org/10.1146/annurev.resource.012809.103923

46 Sigler, M. F., & Lunsford, C. R. (2001). Effects of individual quotas on catching efficiency and spawning potential in the Alaska sablefish fishery. Canadian Journal of Fisheries and Aquatic Sciences, 58(7), 1300-1312. Retrieved from http://www.nrcresearchpress.com/doi/abs/10.1139/f01-074

47 Emery, T. J., Tisdell, J., Green, B. S., Hartmann, K., Gardner, C., & León, R. (2015). Experimental analysis of the use of fishery closures and cooperatives to reduce economic rent dissipation caused by assignment problems. ICES Journal of Marine Science, 72(9), 2650-2662. Retrieved from https://academic.oup.com/icesjms/article/72/9/2650/2458742/Experimental-analysis-of-the-use-of-fishery

48 Emery, T. J., Gardner, C., Hartmann, K., & Cartwright, I. (2016). The role of government and industry in resolving assignment problems in fisheries with individual transferable quotas. Marine Policy, 73, 46-52. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.07.028

49 Branch, T. A. (2009). How do individual transferable quotas affect marine ecosystems? Fish and Fisheries, 10(1), 39-57. Retrieved from http://dx.doi.org/10.1111/j.1467-2979.2008.00294.x

50 Copes, P. (2000). Adverse impacts of individual quota systems on conservation and fish harvest productivity. Paper presented at the Eighth Biennial Conference of the International Institute of Fisheries Economics and Trade, Marrakech, Morocco. Retrieved from http://oregonstate.edu/dept/IIFET/copes_morocco.pdf

51 Vestergaard, N. (1996). Discard Behavior, Highgrading and Regulation: The Case of the Greenland Shrimp Fishery. Marine Resource Economics, 11(4), 247-266. Retrieved from www.jstor.org/stable/42629169

52 Acheson, J., Apollonio, S., & Wilson, J. (2015). Individual transferable quotas and conservation: a critical assessment. Ecology and Society, 20(4). Retrieved from http://dx.doi.org/10.5751/ES-07912-200407

53 Chu, C. (2008). Thirty years later: the global growth of ITQs and their influence on stock status in marine fisheries. Fish and Fisheries, 10(2), 217-230. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1467-2979.2008.00313.x/abstract

54 Branch, T. A. (2009). How do individual transferable quotas affect marine ecosystems? Fish and Fisheries, 10(1), 39-57. Retrieved from http://dx.doi.org/10.1111/j.1467-2979.2008.00294.x

55 van Putten, I., Boschetti, F., Fulton, E. A., Smith, A. D. M., & Thebaud, O. (2014). Individual transferable quota contribution to environmental stewardship: a theory in need of validation. Ecology and Society, 19(2). Retrieved from http://www.ecologyandsociety.org/vol19/iss2/art35/

56 Melnychuk, M. C., T. E. Essington, T. A. Branch, S. S. Heppell, O. P. Jensen, J. S. Link, S. J. D. Martell, A. M. Parma, J. G. Pope, and A. D. M. Smith. (2012). Can catch share fisheries better track management targets? Fish and Fisheries, 13(3), 267-290. Retrieved from http://dx.doi.org/10.1111/j.1467-2979.2011.00429.x

57 Gibbs, M. (2010). Why ITQs on target species are inefficient at achieving ecosystem based fisheries management outcomes. Marine Policy, 34, 708-709. Retrieved from http://dx.doi.org/10.1016/j.marpol.2009.09.005

58 Arnason, R. (2012). Property rights in fisheries: how much can individual transferable quotas accomplish? Review of Environmental Economics and Policy, 6(2), 217-236. http://dx.doi.org/10.1093/reep/res011

59 Gibbs, M.T., Thébaud, O. (2011). Beyond individual transferable quotas: methodologies for integrating ecosystem impacts of fishing into fisheries catch rights. Fish and fisheries, 13(4), 434-449. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1467-2979.2011.00442.x/abstract

60 Emery, T. J., B. S. Green, C. Gardner, and J. Tisdell. (2012). Are input controls required in individual transferable quota fisheries to address ecosystem based fisheries management objectives? Marine Policy, 36(1), 122-131. Retrieved from http://dx.doi.org/10.1016/j.marpol.2011.04.005

61 Acheson, J., Apollonio, S., & Wilson, J. (2016). Individual transferable quotas and conservation: a critical assessment. Ecology and Society, 20(4), 7. Retrieved from http://dx.doi.org/10.5751/ES-07912-200407

62 Soliman, A. (2014). Do private property rights promote sustainability? Examining individual transferable quotas in fisheries. Seattle Journal of Environmental Law, 4(1), 245-281. Retrieved from http://digitalcommons.law.seattleu.edu/cgi/viewcontent.cgi?article=1037&context=sjel

63 Sumaila, U.R. (2010). A cautionary note on individual transferable quotas. Ecology and Society, 15(3), 36. Retrieved from http://www.ecologyandsociety.org/vol15/iss3/art36/

64 Cambiè, G., Pantin, J. R., Salomonsen, H., & Kaiser, M. J. (2015). Economic performance and fishing strategies of the Welsh coastal fleet Fisheries & Conservation report No. 43. Bangor, Wales: Bangor University. Retrieved from http://fisheries-conservation.bangor.ac.uk/wales/documents/43.pdf

65 Salas, S., & Charles, A. (2007). Are small-scale fishers profit maximisers?: Exploring fishing performance of small-scale fishers and factors determining catch rates. Paper presented at the Proceedings of the 60th Gulf and Caribbean Fisheries Institute, Punta Cana, Dominican Republic. Retrieved from http://smu-facweb.smu.ca/~charles/PDFS_2005/083.pdf

66 Robinson, C., & Pascoe, S. (1997). Fisher behaviour: exploring the validity of the profit maximising assumption Centre for the Economics and Management of Aquatic Resources.

67 Le Gallic, B. (2000). Differences of profitability within a multi-species multi-gear multi-area fishery: How much is explained by barrier to entry? . Paper presented at the IIFET 2000 Conference, Corvalis, US. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1017.1754&rep=rep1&type=pdf

68 A related, or perhaps alternative explanation is that the degree of profit maximising activity may vary by pelagic versus demersal fleets, see for example Girardin, R., Hamon, K.G., Pinnegar, J., Poos, J.J., Thébaud, O., Tidd, A., Vermard, Y., Marchal, P. (2016). Thirty years of fleet dynamics modelling using discrete-choice models: What have we learned? Fish and fisheries. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/faf.12194/full

69 Low-Impact Fishers of Europe. (2015). Rights based management and small scale fisheries in the EU: Human rights versus property rights. Retrieved from http://lifeplatform.eu/wp-content/uploads/2016/12/LIFE-Statement-on-ITQs_full.pdf

70 Waldo, S., Berndt, K., Hammarlund, C., Lindegren, M., Nilsson, A., & Persson, A. (2013). Swedish coastal herring fisheries in the wake of an ITQ system. Marine Policy, 38: 321-324. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X12001479

71 An appropriate definition of small/large-scale depends on the fishery in question.

72 We cannot give specific and/or numeric prescriptions on these design features as they will be context-dependent.

73 Donkersloot, D. & Menzies, C. (2015). Place-based fishing livelihoods and the global ocean: the Irish pelagic fleet at home and abroad. Maritime Studies, 14(20). Retrieved from https://maritimestudiesjournal.springeropen.com/articles/10.1186/s40152-015-0038-5

74 Pinkerton, E. (2009). Partnerships in Management: A Fishery Manager's Guidebook (pp. 283-300): Wiley-Blackwell. Retrieved from http://dx.doi.org/10.1002/9781444316315.ch11

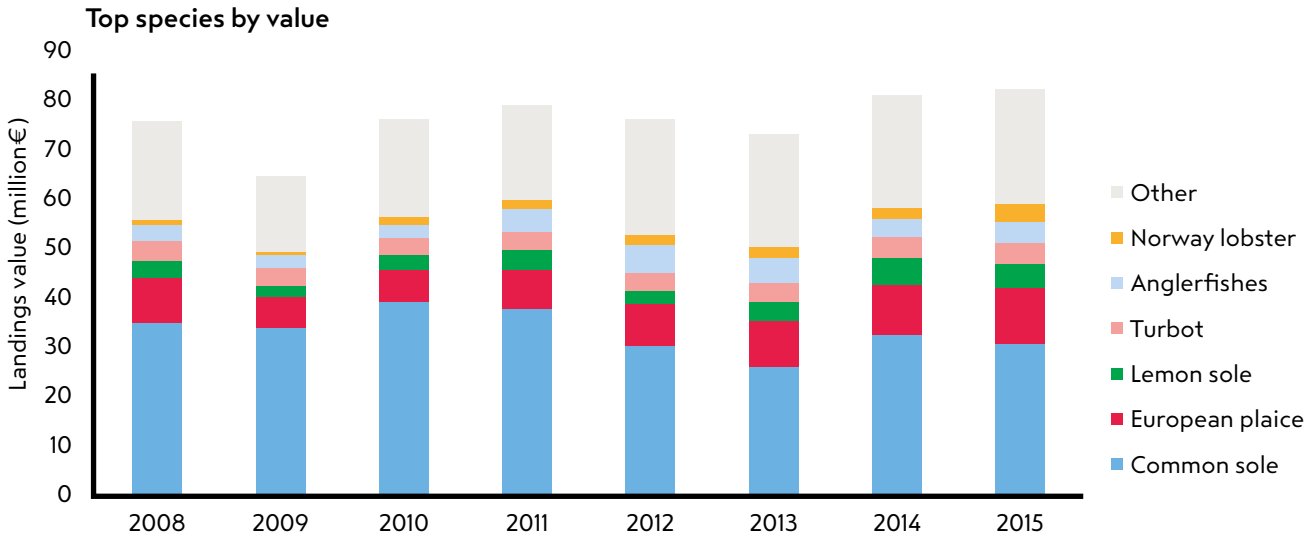
Belgium has a small fleet predominantly made up of beam trawlers targeting demersal species in the North Sea. Most commercial fishing is under a quota system designed to give fishers equal access all year round and where the ministry and industry take an active role in management. To assess Belgium's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. This analysis indicates that Belgium performs well overall but falls short particularly on the security and accessibility of its fishing opportunities. This may be explained by the short-term and variable nature of quota allocations and the lack of affordable options for new fishers. We propose a number of changes, including reform of Belgium's allocation system to offer more secure and flexible quota access.

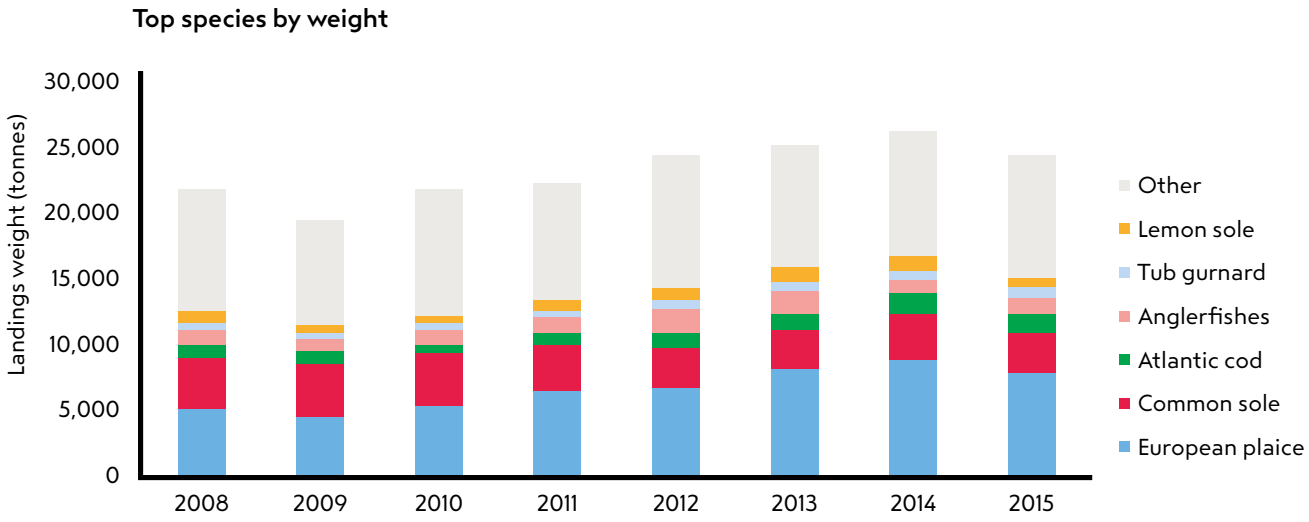
5.1 INTRODUCTION AND BACKGROUND

Belgium has the smallest commercial marine fishing industry of the 12 EU Member States reviewed in this report, with just 72 operational vessels in 2015. The industry employs 345 people in commercial fishing activities; 127 fewer than in 2008. Despite a decline in the number of vessels and number of people employed over this time period, the weight and value of landings have slightly increased (by 2,700 tonnes and €6 million).[1] At the same time, the industry was still unprofitable on a net level in 2014.

Belgium's coastline of 70km facing the North Sea is all contained within the region of Flanders. Belgium has two main fish ports Oostende and Zeebrugge with a third, smaller port, at Nieuwpoort. Around 18% of fish landed by Belgian vessels is landed into foreign ports for sale, although a much larger share is landed abroad before being transported back to Belgian ports (59%). The country's main fishing grounds by landings value are the North Sea (45%), English Channel (30%), Bristol channel and Celtic Sea (16%). Belgium fishes a total of 69 stocks under EU TACs with demersal species plaice and sole accounting for the greatest landings by weight and value (see Figure 5.1.1).

FIGURE 5.1.1: BELGIUM'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE





Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database

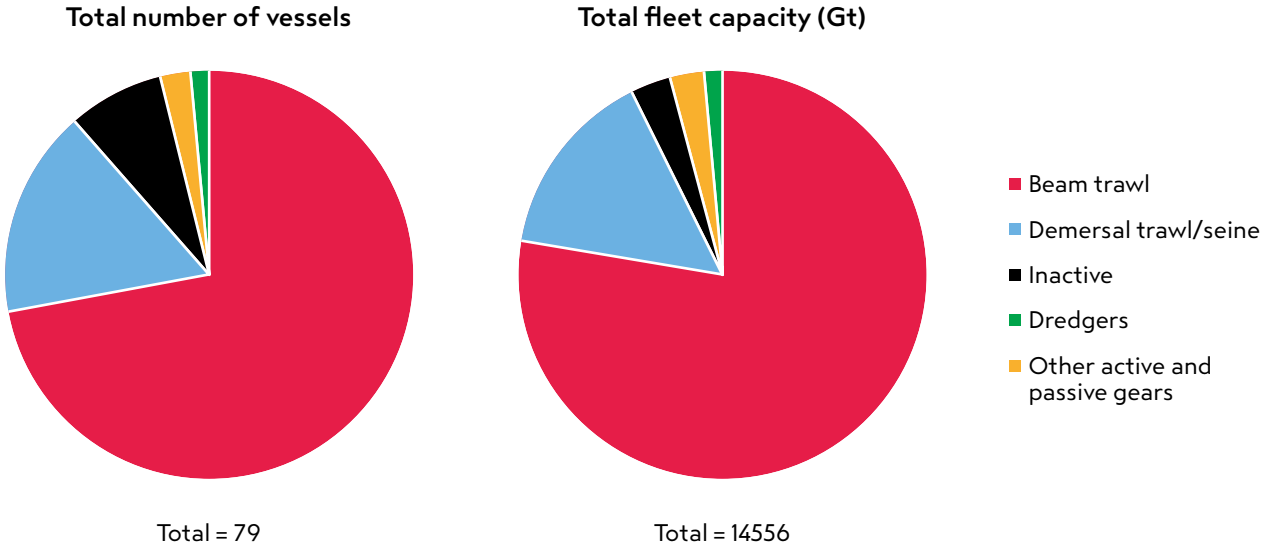
The Belgian fleet can be divided into coastal vessels, beam trawlers and a group of vessels with mixed gear types. This last group of vessels includes otter trawlers, purse seiners, gillnetters and dredgers that target a variety of stocks. Beam trawlers, making up most of the Belgian fleet, consist of small to large trawlers targeting plaice and sole and to a lesser extent cod and other demersal species. The coastal segment are smaller vessels (still over 12 metre) mainly targeting shrimp during the summer and autumn, and trawl for demersal species during the winter and spring.

TABLE 5.1.1: THE NUMBER OF ACTIVE VESSELS IN BELGIAN'S THREE OFFICIAL FLEET SEGMENTS

COASTAL SEGMENT	<221KW	>221KW
17*	16	29

**This reflects the number of vessels eligible for the coastal segment but may not necessarily be officially registered as such.*
Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FIGURE 5.1.2: BELGIUM'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse Belgium's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Belgium's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

5.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management and effort management
Types of fishing opportunities:	Rationed, national and days at sea quotas
Differentiation in allocation:	Large-scale, small-scale and coastal fleet segments
Landed weight under quota management:	73% [3]

OVERVIEW

Belgium maintains a compulsory system of licensing for commercial fishing as well as an openly accessible, minimally regulated recreational fishery. In the commercial sector this puts a limit on the number of vessels allowed to carry out fishing activities in compliance with the EU's entry-exit scheme. It also limits access to fishing opportunities to fishers that can prove an 'economic link' to Belgium, to reduce foreign use of fish resources.

The majority of Belgium's fishing opportunities come in the form of landings quotas, but other restrictions are also in place including effort controls in the form of days at sea quotas. These effort restrictions are in place to comply with the EU's North Sea Cod Recovery Plan. Once a fisher has an authorised vessel and commercial fishing licence, they have access to the national fishing quotas, which are rationed to all fishers on the principle of universal access. These quotas come in the form of catch limits for individual vessels. Access to fishing opportunities is centrally managed by the Flemish fisheries ministry in co-management with the PO.

GOVERNANCE

Within Belgium's multi-level government structure, responsibility for fisheries management is held by the Flemish Department of Agriculture and Fisheries. Fisheries are managed on the basis of ministerial discretion with a strong advisory role for the fishing industry. Policy decisions are made in the form of ministerial decrees. All commercial fishers are member of the Rederscentrale (although this is not compulsory) which acts as both a representative body and as a producer organisation for its members. A Quota Commission composed of eleven representatives from the Rederscentrale, is chaired by a ministerial civil servant and is responsible for quota allocation advice. ILVO, the Institute for Agriculture and Fisheries, is the Department's scientific research body on fisheries and agriculture.

BELGIUM'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: Large and small-scale | Coastal fleet | All

This table summarises five key features of Belgium's quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

On advice of industry representatives, catch limits are set by the ministry throughout the year. These are rationed to all vessels depending on the fleet segment (large or small) and in some as a function of vessel power. The coastal fleet accesses a national quota pool and does not have vessel limits.

HOLDER

Catch limits are apportioned to vessels, not operators, and these limits cannot be pooled. This with the exception of national quotas for coastal fishers.

TRANSFERABILITY

Catch limits cannot be transferred but can be adjusted by the Ministry.

SECURITY

Although access for each fisher is ensured, catch limits are subject to change and fishers/vessels cannot claim a long-term right to any share of the quota.

DURATION

Catch limits are set in multi-month and daily limits. Daily catch limits can be spread over a multi-day fishing trip.

QUOTA ALLOCATION

Quota allocation in Belgium follows a 'collective utilisation system', which aims to maximise access for all fishers, fully utilise quotas, and respond to market conditions through rationing individual catch limits to vessels. It is centrally managed by the ministry in order to pursue these main objectives. Quota allocation is differentiated between three fleet segments: the large, small and coastal fleet segments. Allocations come in the form of both daily vessel catch limits and vessel non-transferable quotas (from hereon just 'catch limits'). Vessels of the same fleet segment receive an equal allocation, except where allocation is adjusted for vessel engine power – in those cases, a more powerful vessel will receive a higher allocation.

The catch limits are set out at the start of the year, and are subject to amendments proposed in the monthly meetings of the Quota Commission called 'supplementary quota regulations'. The most important in-year allocation changes usually apply for the periods of January-June, July-October and November-December. The Quota Commission advises the minister, who in most cases, accepts its advice in full. The catch limits are then published for each month in an official newsletter sent to fishers and on the ILVO and Rederscentrale websites.

The coastal segment is defined as vessels with a maximum engine power of 221kW, under 70Gt that make fishing trips starting and ending in a Belgian harbour of no longer than 48 hours. Vessels that meet these specifications have to formally register to join the coastal segment. Vessels that do not register stay in the small fleet segment. Registered vessels are not bound by catch limits, only by fishery closures once the national quota is depleted. Their fishing activity is restricted through the maximum trip duration limit and natural constraints such as weather conditions.

The small fleet segment is defined as vessels that have an engine power of less than 221kW but may conduct longer trips. The large fleet segment consists of vessels with engine power above 221kW. These segments conduct a mixed fishery with sole as the main target species, which is – in most cases – regulated by multi-month catch limits that are allocated several times a year. For some stocks these catch limits are adjusted as a function of the vessel's engine power (see example below). In contrast, non-target species such as cod are often regulated by daily catch limits. These are set as daily limits for each month but in practice can be spread over a multi-day trip.

Quota allocation is fishery-specific (species and area) and is differentiated between the small, large and coastal fleet segments. In some cases, allocation is further differentiated by gear type (e.g. passive or beam). Some fisheries are only opened part of the year. For example, the Bay of Biscay fishery is normally only opened mid-year. The following examples illustrate the variation of types of allocation and the kinds of adjustments that are made during the year.

ALLOCATION EXAMPLE 1: BRISTOL CHANNEL AND CELTIC SEA NORTH (VIIFG) SOLE IN 2016

Only eligible small fleet segment vessels may participate in this fishery. Vessels with Bay of Biscay authorisation receive a reduced allocation in the middle period.

POWER-ADJUSTED MULTI-MONTH CATCH LIMITS

TABLE 5.2.1 OVERVIEW OF ALLOCATIONS MADE IN THE BELGIAN VIIFG SOLE FISHERY (2016)

<table>
<tr><th></th><th>1-Jan to 31-May</th><th>1-Jul to 31-Oct</th><th>1-Nov to 31-Dec</th></tr>
<tr><td>Small fleet segment</td><td>4000kg</td><td>-</td><td>-</td></tr>
<tr><td>Large with Gulf of Biscay authorisation</td><td rowspan="2">10kg/kW</td><td>1000kg</td><td rowspan="2">2000kg + 2kg/kW</td></tr>
<tr><td>Large without Gulf of Biscay authorisation</td><td>1000kg + 6kg/kW</td></tr>
</table>

ALLOCATION EXAMPLE 2: NORTH SEA (IV) COD FISHERY IN 2016

Fishers participating in this fishery can either fish with daily catch limits (first table) or apply at the start of the year for a longer-term IQ determined by vessel engine power (second table).

DAILY CATCH LIMITS

TABLE 5.2.2: OVERVIEW OF DAILY CATCH LIMITS SET FOR THE BELGIAN IV COD FISHERY (2016)

	1-Jan to 1-April	1-Apr to 30-Jun	1-Jul to 31-Oct
Small fleet segment (beam trawlers)	120kg/day	250kg/day	325kg/day
Large fleet segment (beam trawlers)	240 kg/day	500kg/day	650kg/day
Non-beam trawlers	360kg/day	600kg/day	750kg/day

POWER-ADJUSTED MULTI-MONTH CATCH LIMITS FROM 1-JAN TO 31-OCT

TABLE 5.2.3: OVERVIEW OF MULTI-MONTH CATCH LIMITS SET FOR THE BELGIAN IV COD FISHERY IN 2016

	Initial	April amendment	July amendment
Small fleet segment	15kg/kW	20kg/kW	-
Large fleet segment	9kg/kW	12kg/kW	16kg/kW +3000kg
Large fleet segment (passive gears)	15kg/kW	20kg/kW	-

Source: De Rederscentrale

QUOTA RULES

Catch limits are not a form of legal possession in the Belgian system. Individual vessels must comply with the catch limit set for its respective fleet segment and cannot swap or trade their catch limit. When a catch limit is exceeded by a fisher, it is deducted from that vessel's quota for the next year, in addition to a 20% penalty. Where quotas are underutilised, quotas are carried over to the next quota period of the same year. Thus, quota utilisation is encouraged through central management rather than through individual transfers. The only way to acquire additional quotas is through purchasing another active vessel with its associated fishing licence.

OTHER FISHING OPPORTUNITIES

Belgium maintains a number of effort limits, both set nationally and in accordance with EU regulations. All vessels have to comply with an annual 270 days at sea limit. In the case of the North Sea (ICES areas IV and VIId), vessels have to comply with the cod recovery zone (discontinued as of 2017) days at sea limit of 180 days. Most of the coastal vessels do not reach this limit as they are constrained in how frequently they can fish by weather conditions. Where days at sea are underutilised they may be transferred between vessels by the Quota Commission, and in some cases, can be traded in for extra catches with the Commission

Belgium has a very large recreational fishery, sometimes termed 'semi-recreational', which consists of 631 under 12 metre vessels including 102 using mobile gears. These fishers are currently not significantly regulated and do not fish against quotas, but do compete with the commercial sector over fishing grounds.[4]

5.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of Belgium against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 5.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

Two main sources for Belgium-specific objectives have been acquired. These include statements from the fisheries department and the Covenant on Sustainable Fisheries. The former reflects the administrative objectives of Belgium's quota management and the latter provides high-level long-term policy objectives. The Covenant has been signed by the Rederscentrale, the Minister for Agriculture and Fisheries, head of the fisheries department, environmental NGO Natuurpunt, and the research institute ILVO. It includes seven main goals.

DEPARTMENT OF AGRICULTURE AND FISHERIES

According to a senior civil servant, the Belgium quota allocation is designed to pursue the following objectives:

- Ensure fishers can fish the whole year round
- Treat all fishers equally
- In principle, allow all vessels to fish anywhere.

COVENANT ON SUSTAINABLE FISHERIES GOALS:

- Use Flemish fishery works to keep commercial fish stocks within safe [biological] limits
- Minimise the impact of the fishing fleet on the ecosystem
- Protect marine nature through protected areas and species
- Make fishers economically viable
- Recognise particular requirements of small-scale and coastal fishers
- Make fisheries socially responsible and fishers satisfied with their jobs, wages, and safety standards
- Educate new fishers to see their role as 'guardians of the sea'.

METHODOLOGY

Table 5.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 5.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSES EACH OF THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

5.4 ANALYSIS

This section will assess the performance of the Belgian system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request.

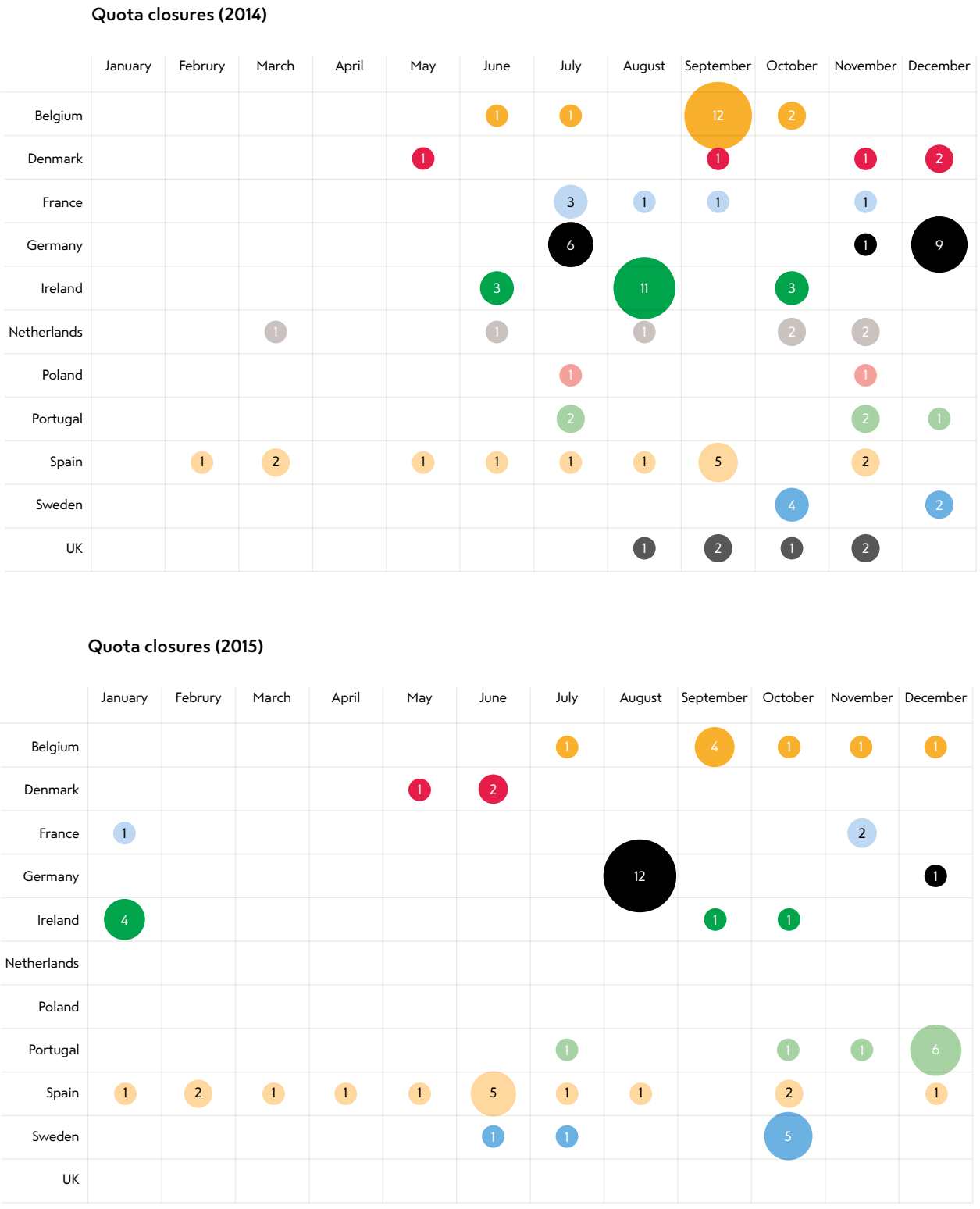
TABLE 5.4.1: PERFORMANCE OF BELGIUM'S SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	Low
	Flexible	Low
	Accessible	Low
	Viable	Mixed
	Equitable and fair	High
Good for Society	Publicly owned	High
	Meets government objectives	Mid-high
	Limited public expense	Mid-low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mid-high
	Objective	Mid-high
	Right governance level and representative	Mid-high

SECURE: LOW

Together with Ireland, Belgium scores the lowest in the MRAG et al (2009) assessment of security / validity in EU quota systems.[5] Although licences themselves are secure, and fishers know they will receive allocations in the future, catch limits are adjusted frequently and fishers are not granted a long-term, fixed quota share. This may inhibit planning and specialisation. Investment has not suffered too much as a consequence, as investment in the Belgium fishing fleet is comparatively moderate.[6] Additionally, there are a relatively high number of quota closures that have occurred, especially given the small number of quotas Belgium fishes (and only considering quotas above 10 tonnes in national allocation). This may be indicative of a lack of planning possible for fishers as their allocations are not fixed for the whole year.[8]

FIGURE 5.4.1: NUMBER OF QUOTA CLOSURES EACH MONTH BY MEMBER STATE



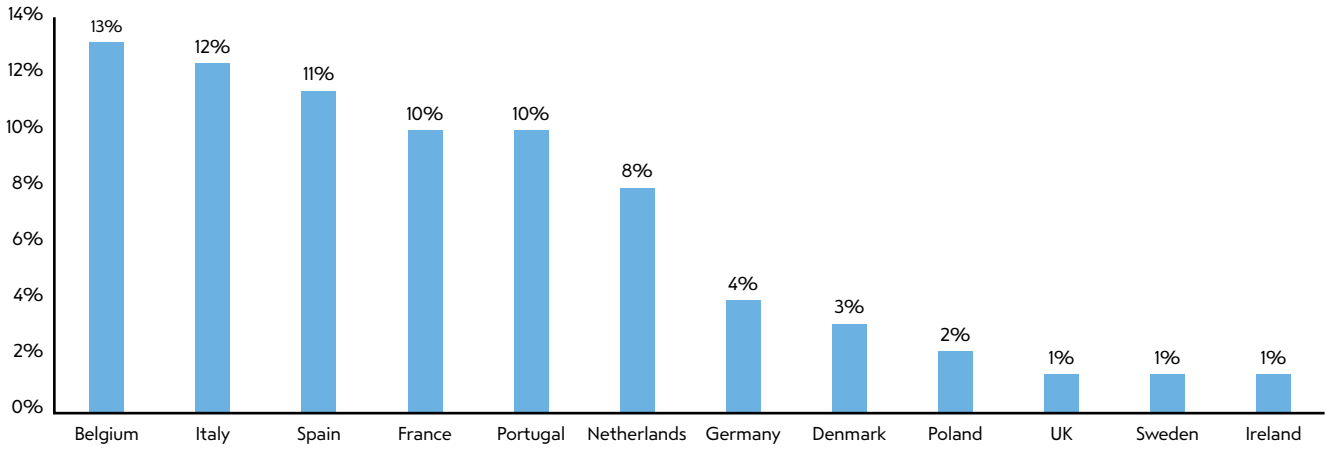
Source: Authors' calculations using data from the Fishery Data Exchange System (FIDES).

FLEXIBLE: LOW

There are indicators of poor flexibility in fishing opportunities for the Belgian fishing industry. Quota uptake in the Belgian fleet is low compared to other Member States fishing the same quotas[9], indicating that quotas are not getting to fishers that could use them, whilst discarding is high compared to other Member States using similar gears in same areas.[10] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting. There are also the most frequent incidents of suspected quota infringements (13% of vessel inspections)[11] of any EU Member State reviewed in this report.

Taken together, these three measures indicate that some fishers do not have the quotas they need, whilst other fishers may hold quotas they are not fully utilising. This is consistent with the fact that Belgium does not allow the transfer, leasing or swapping of catch limits. Surprisingly, Ireland which has the most similar form of quota management, performs highly on these measures. This suggests that flexibility, as measured by utilisation, infringements and discards, can be achieved without introducing transferable quotas.

FIGURE 5.4.2: PERCENTAGE OF VESSEL INSPECTIONS WITH SUSPECTED INFRINGEMENTS BY MEMBER STATE (2013-2015)



Source: Authors' calculations using data from European Fisheries Control Agency (EFCA) annual reports (2013-2015).

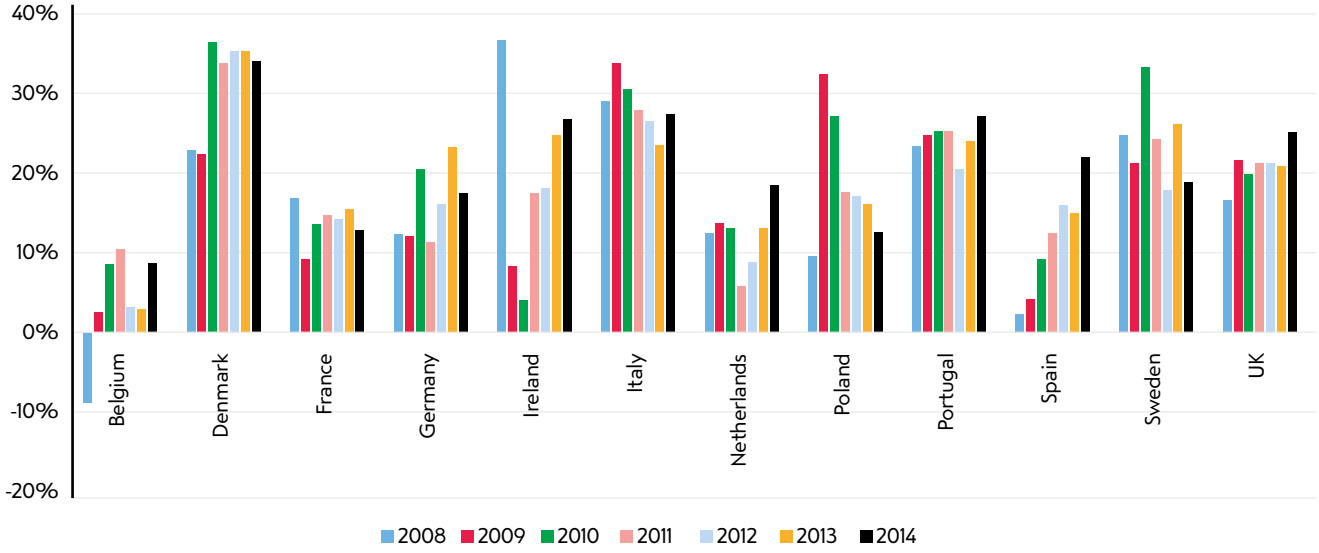
ACCESSIBLE: LOW

New fishers need to purchase an existing vessel, or introduce a new vessel as long as an equivalent amount of capacity is removed from the fleet. This is in line with the CFPs entry/exit scheme and capacity ceiling. Since catch limits are allocated to vessels on the basis of equal access and vessel-power, new fishers do not need to purchase additional fishing rights. However, quota value may be internalised in existing vessels, increasing the costs of purchasing vessels. Young fishers receive financial aid for days at sea when they join the industry as an income supplement. Students of the fishery school and aspiring fishers aged 20-31 are eligible.

VIABLE: MIXED

The Belgian fishing industry is an example of very mixed indicators of economic viability. Gross profit margins are the lowest of all Member States covered and were negative in 2008.[12]

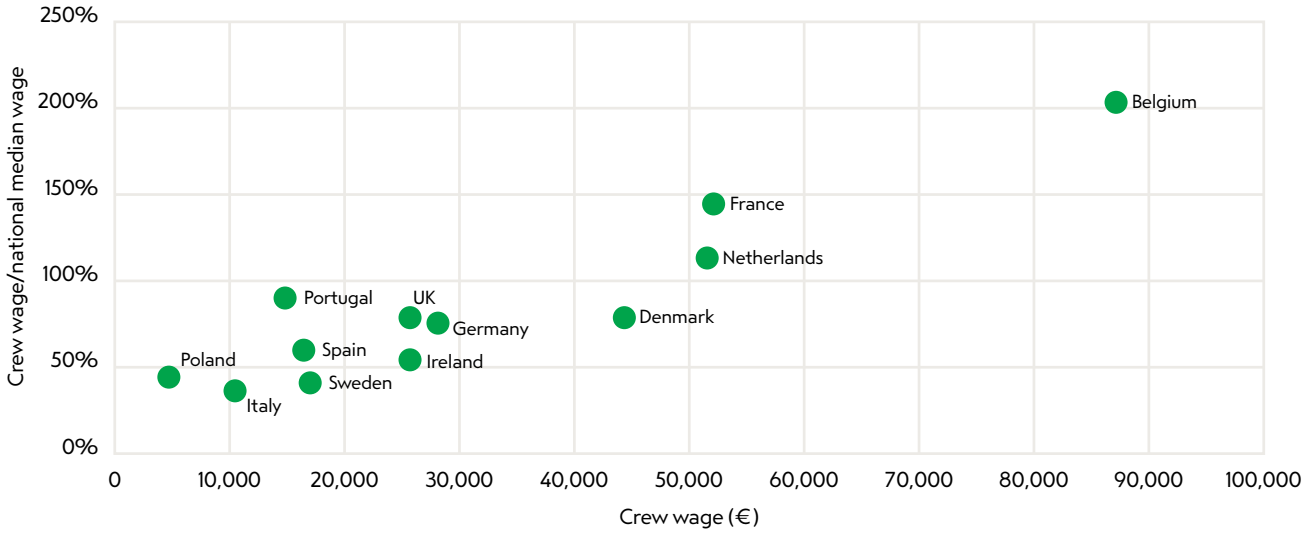
FIGURE 5.4.3: GROSS PROFIT MARGIN BY MEMBER STATE BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

However, and no doubt related, crew wages were the highest of all Member States covered. This is due to a 2003 Belgian law that assured income security for each trip, even for low catches, to end an era of "no catch, no pay"[13]. This is the opposite situation of most EU Members where the balance of power means that fishing is often more economically beneficial for vessel owners than for crew (profits compared to wages).

FIGURE 5.4.4: FISHING WAGE ATTRACTIVENESS BY MEMBER STATE



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database and OECD.stat. Note: Wage attractiveness as measured by crew wages as a percentage of the national median wage (y-axis) and by crew wage, € (x-axis).

EQUITABLE AND FAIR: HIGH

All vessels within the same fleet segment receive equal quota allocations, adjusted for engine power for a number of stocks. This is a highly equitable form of allocation as fishers' access doesn't depend on them having a track record or an ability to buy quota shares. It also means all fishers are provided with minimum allocations.

PUBLICLY OWNED: HIGH

Public ownership and control over fishing opportunities is highly emphasised by the Belgian fisheries administration. The 'collective utilisations system' provides the fisheries minister a high degree of discretion. Allocations are made by ministerial orders and are not legally challenged by fishers. Catch limits are a regulatory tool and cannot in any way be owned or transferred. Likewise, licences cannot be separated from vessels and traded.

MEETS GOVERNMENT OBJECTIVES: MID-HIGH

EU OBJECTIVES

In its response to the Commission regarding its system of fishing opportunities and compliance with Article 17 of the CFP (and objective 2.5(i)) Belgium highlighted several relevant measures.[14] These include technical measures to reduce discards, extra sole quotas for the small fleet segment (relatively speaking) and programmes to replace ageing vessel engines with more efficient, low carbon engines. Notably, the collective utilisation system itself ensures equitable access to fishing opportunities without the need for special allocations. This can be viewed as a 'social' form of allocation. Despite this, Belgium does not include specific environmental criteria in its allocation formulas.

The CFP objective 2.5(d) on balance capacity is detailed further in Article 22 of the CFP, which states that a Member States' fishing capacity should be in balance with the fishing opportunities that are available. A STECF report assessing the balance of EU fleets with the available fishing opportunities scored Belgium comparatively average, with the beam trawl and mixed gear fleets showing indications of balance, and the demersal trawl fleets showing indications of being out of balance.[15]

On CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Belgium has relatively moderate landings prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings.

NATIONAL OBJECTIVES

All of the national objectives related to fishing opportunities described in section 4.3 have already been covered by our foundational objectives. Our indicators for 'Viable' includes measures on profitability and wage which indicate that Belgium performs both successfully and poorly. As Belgium has one of the largest number of closures before the end of the year we question whether this is consistent with allowing 'fishers to fish all year round'. On the other hand, fishers may simply be depleting some quotas and then moving on to other stocks subsequently, without having to stop for the year. Through the collective utilisation system Belgium succeeds in 'treating all fishers equally'.

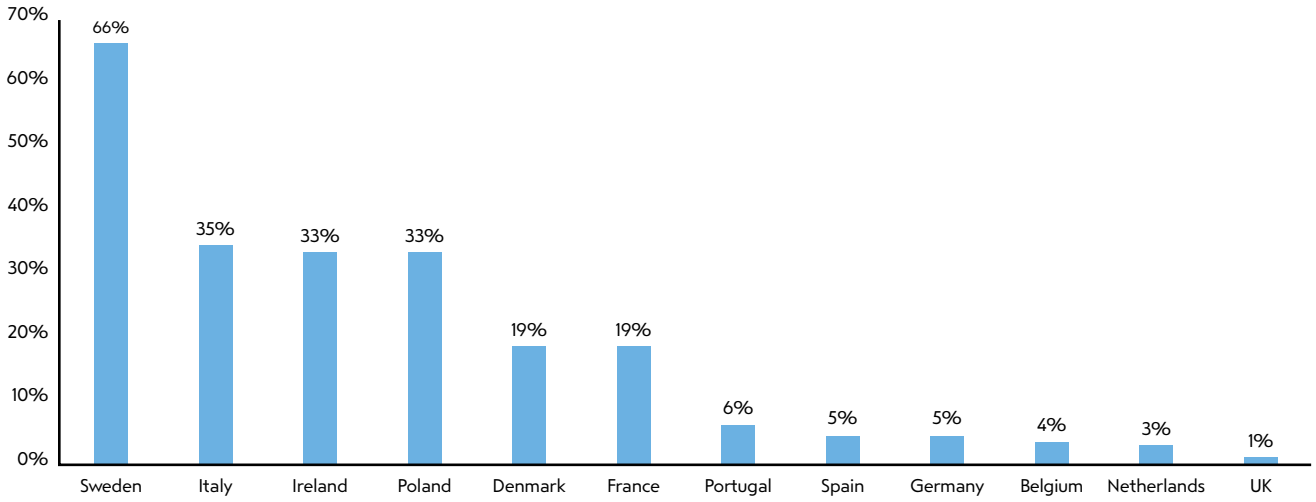
Belgium does not maintain a quota reserve for the purpose of pursuing government objectives. Such a reserve would be of less utility in the Belgian system where the minister already has wide powers to change allocations.

LIMITED PUBLIC EXPENSE: MID-LOW

The costs of fisheries management in Belgium are relatively low (4% of landed value) compared to the other Member States analysed.[16] However, the lack of (direct) revenue raised means that the costs of management are high as a net government expense.

Fuel subsidies for fishing are comparatively low in Belgium (0.14€/litre), but these subsidies add up to a large amount in Belgium (€6 million annually) as fishing is one of the most fuel intensive industries. This is particularly true compared to the size of economic output from the industry (7% of landed value).[17] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

FIGURE 5.4.5: NATIONAL GOVERNMENT EXPENDITURE ON FISHERIES MANAGEMENT AS A PERCENTAGE OF LANDED VALUE



Source: Authors' calculations based on OECD.stat and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: MID-HIGH

Belgium publishes its rationed quota allocations in the public legal journal Staatsblad every month and these are also sent to fishers themselves. They describe the allocation rules and outcomes clearly, but do not detail the objectives or methodology behind these allocations. This is because allocation decisions are made by the Quota Commission based on a multitude of factors on a discretionary basis. The details of these meetings are not publicly available. Hence Belgian's transparency in terms of the process being publicly accessible is not entirely satisfactory.

As quotas are rationed, and fishers don't hold or own any quota share or entity, a public register is not relevant for this Member State. In principle, anyone could estimate any vessels' quota allocations simply by finding out its power rating and what fleet segment it belongs to.

OBJECTIVE: MID-HIGH

Quota allocations decisions are made by an industry commission based on many different goals and concerns. As far as is publicly known, this committee does not follow a set of fixed rules or procedures to arrive at their decisions. Although the quota allocations to vessels themselves are always rule-based (objective) the methods to reach these rules are not known. This cannot be considered fully 'objective' but is a normal feature of rationed quota systems. Such decision-making bodies, without objective procedure, are at risk of catering to better represented interests.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-HIGH

As Belgium has a very small fleet it is unsurprising that decision-making is vested in a few central bodies with little scope or practical advantage of devolving management. At the same time the PO, representing all fleet segments, is closely involved in decision-making.

Through its co-management procedure of involving the PO in quota settings and other decisions, there is strong industry representation present. It is unknown how fairly the fleet is represented in Quota Commission meetings. It is not clear to what extent local community stakeholders, environmental groups and other interests are represented in decision-making on fishing opportunities.

5.5 RECOMMENDATIONS

According to our assessment, Belgium performs most poorly on objectives in the 'Good for Fishers' category. Especially on security, flexibility and accessibility, our indicators suggest that improvements are needed. Like most Member States, Belgium also does not perform well recovering resource rents, although it performs relatively well in terms of low management costs. We give a number of policy proposals to improve fishing opportunities in these areas.

MORE SECURE QUOTAS

Fishers are not allocated a fixed share of the quota, and so they do not know exactly how much they will be allocated year-on-year as a percentage of the national quota. Additionally, for most quotas, in-year adjustments are made and some quotas are allocated as daily catch limits. This may make it difficult for fishers to plan ahead and organise their activities in longer time-scales. Despite this, there are advantages to the current setup which allows planners to allocate equitably and make adjustments to respond to changing circumstances, key objectives pursued by the Belgian administration.

Bearing in mind Belgium's commitment to the public control of use rights and pursuing social objectives, any move to more secure quotas cannot compromise on these principles. We propose the following reform to give fishers greater security over their access. We suggest that vessels receive part of their allocations (at least 50%) as long-term quota shares that are not subject to in-year amendments. The initial allocation of these shares could follow the methods already used for catch limits or they could be based on other criteria (see the 5th recommendation). These shares should also stay constant over multiple years but be subject to periodic review and be revocable. This would give individual fishers more certainty over parts of their catch allowances whilst still maintaining public control and ownership.

MORE FLEXIBLE QUOTA ACCESS

The current form of rationing leads to under-utilisation, lack of opportunity for fishers to specialise and access additional quotas in short time-scales. More flexibility can be added to the system without privatising quotas. For example, a ministry managed online platform for swapping catch limits could be introduced. This would allow fishers to swap catch limits with each other, on ministry approval, in a non-monetised manner. It could give more control to individual fishers to manage their activities, specialise more on particular stocks and potentially increase overall utilisation. These swaps could also be made to only apply to quota shares as proposed above.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landing obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.14/litre for Belgium is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[19] - use the most fuel per landed value, whilst pots and traps use the least.[20] This variance in fuel use is an important price signal that should be reflected in the price of fish.[21] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landing obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[22]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

DIFFERENTIATE A LANDINGS TAX AS AN ALTERNATIVE TO AN ECONOMIC LINK REQUIREMENT

Belgium, along with other EU Member States has struggled with the issue of flag vessels – foreign-owned vessels that have purchased national quota and land abroad. Often with flagged vessels, the operations shift away from Belgium's communities and as a result the national quotas are no longer delivering for local fishing communities.

Some Member States have approached the issue of flagged vessels with an 'economic link', requiring a certain percentage of landings to occur domestically or a certain percentage of the crew to be domestic residents. An evaluation of the economic link in the UK revealed that it was having some effect, although most of that effect was through a criterion for vessels landing abroad to donate quotas to the small-scale fleet in the UK[23] – a policy option that has since been scrapped.

An alternative, and administratively simpler policy, is to differentiate the landings tax proposed above.[24] This tax would be lower for domestic landings either through a two-tiered rate or by netting off port and harbour dues. Seen another way, this differentiated rate means that quotas being landed abroad have a financial penalty in the form a higher levy. The degree of differentiation in the tax rate would need to be high enough to ensure that national quota is generating a national benefit by increasing Belgian value chains.".

This policy approach addresses the issue of flagged vessels and national benefits whilst also adding to the framework of a landings tax for science and enforcement, covered previously. The revenues raised would go some of the way towards correcting the costs of management compared to the revenues raised.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Although the current system of fishing opportunities is highly equitable, no objective environmental are included in the allocation mechanism. Allocation is based purely on vessel capacity (kW) and equal access and does not include any further criteria. Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[25] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[26] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPROVE TRANSPARENCY AND REPRESENTATION

Although Belgium ranks moderately high in transparency, there is still room for improvement. One part of the process that is not very transparent is the process of setting quota rations as it is unknown what is discussed in the Quota Commission. Only the final outcomes of these meetings are publicly available in the resultant quota allocations. As the Quota Commission's advice is nearly always accepted in full by the minister, it acts as a de facto public decision-making body, determining the use of a public resource. For this reason, the content of these meetings should be made more transparent.

Currently, non-industry stakeholders are not represented in Quota Commission decision-making. We recommend that Belgium seeks to include a wider range of perspectives in Quota Commission meetings including academic, environmental and civil society stakeholders.

5.6 CONCLUSIONS

Belgium's approach to fishing opportunities through the 'collective utilisation system' is unique amongst the Member States reviewed in this report. Its objectives of equal access and public control are reflected in our analysis of the Belgian system, resulting in high performance on societal and 'process' objectives. However, this appears to come at a cost of low performance on secure and flexible access for fishers and may negatively impact profitability (although wages are high). Based on our assessment of available information and input from interviews, we recommend that Belgium:

- Provides more secure quota access through allocating some of the national quota as long-term, revocable quota shares;
- Improves flexibility in quota access through a ministry-authorised swapping system;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Differentiates this landings tax to favour landings in national ports to ensure that the use of a national resource benefits Belgian communities;
- Incorporates social and environmental criteria in its allocation mechanism to pursue non-economic objectives and comply with Article 17 of the CFP;
- Improves transparency and representation in quota decision-making.

Some of these recommendations, such as applying a landings tax and cutting fuel subsidies, will increase costs for the sector. At the same time, improving security and increasing quota uptake and specialisation through increased flexibility should improve economic performance. Taken together, these recommendations could transform the Belgian fishery whilst also keeping the general system structure and its current advantages intact.

---

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Departement Landbouw & Visserij, 2015, De Belgische Zeevisserij 2015: Aanvoer en Besomming

3 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

4 Institute voor landbouw- en Visserijonderzoek. LIVIS een transitie naar commerciele kleinschalige visserij in Belgie.

5 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

6 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

7 Fisheries Data Exchange System (FIDES) dataset 2013-2015.
8 An alternative explanation for these quota closures is that Belgium utilises a number of small quotas which are non-target stocks as part of a mixed fishery. This means that quotas are easily depleted before vessels move onto the next stock.
9 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset 2013-2015.
10 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf
11 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports
12 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
13 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
14 Departement Landbouw & Visserij, 2016.Submission to the Commission in line with Article 16.6 of Regulation 1380/2013. Obtained from the Commission via an information request.
15 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf
16 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
17 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
18 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018
19 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/
20 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf
21 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.
22 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf
23 Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf
24 A differentiated landings tax was one of the options for reform considered in the review of the UK's economic link by Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf
25 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf
26 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508

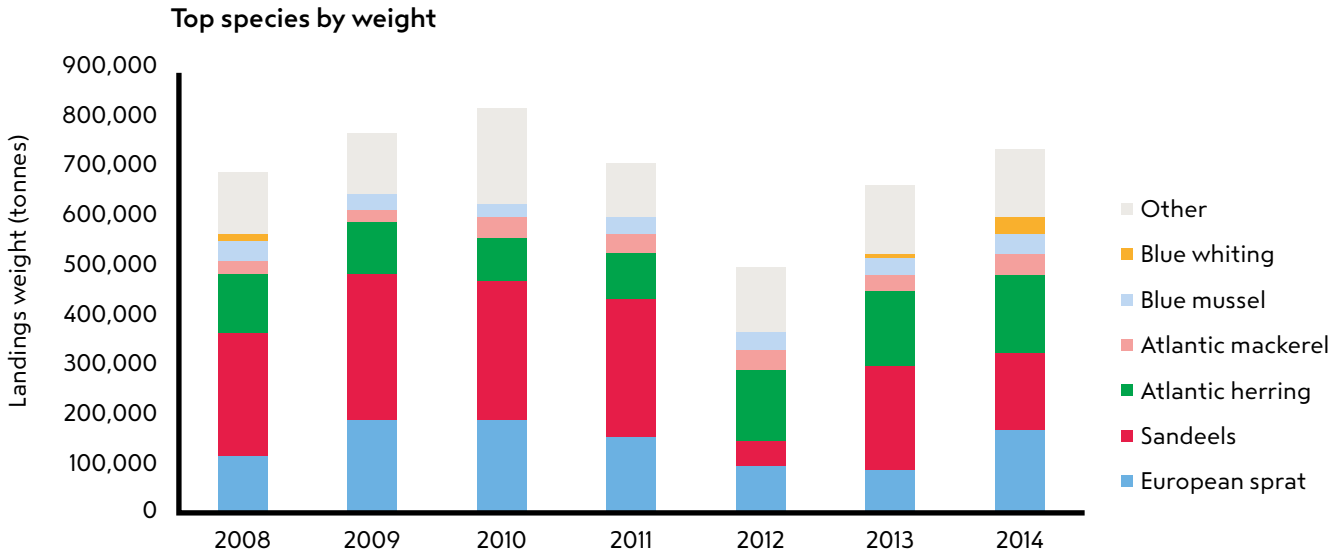
Denmark has a relatively large fishing industry targeting demersal and pelagic stocks in the Baltic and the North Sea. Most commercial stocks are regulated by a market-oriented system of transferable quotas that allow fishers to buy and sell quota shares. To assess Denmark's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. Our results indicate that Denmark performs highly on many objectives but for others, such as management costs and implementing Article 17 of the CFP, improvement is needed. A number of reforms are recommended including implementing a landings tax and using Denmark's 'FishFund' for allocations based on Article 17 criteria.

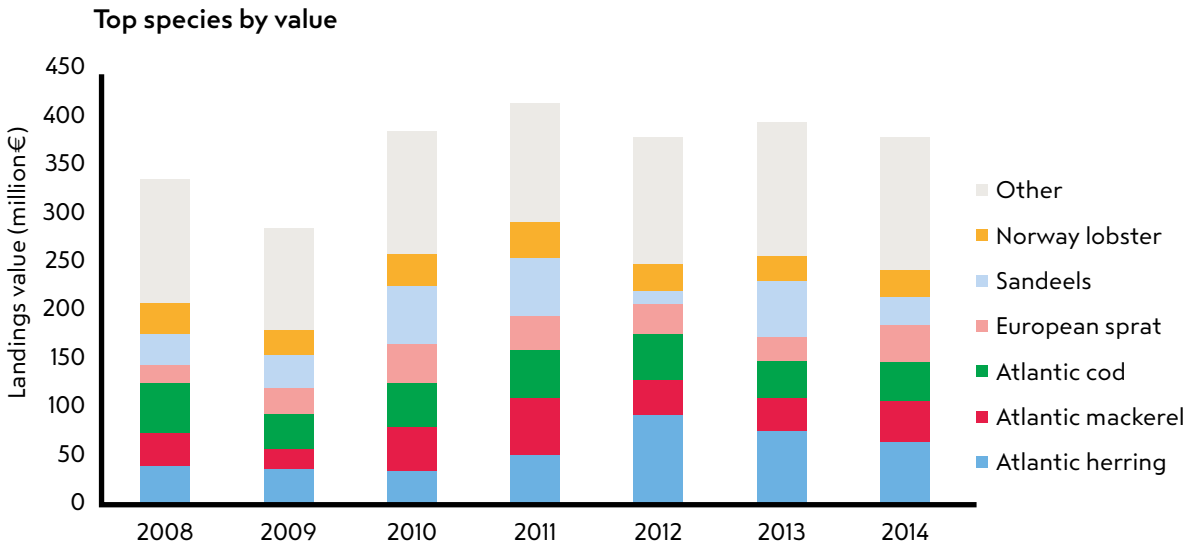
6.1 INTRODUCTION AND BACKGROUND

With no land further than 52km from the sea, it is not surprising that Denmark has a well-established marine fishing industry. It has a shoreline of 7314 km with fishing vessels registered at 278 ports around the country.[1] The largest commercial fishing operations are found in ports on the west coast of Jutland including Thyborøn, Hanstholm, Hirtshals and Skagen. Much of the Baltic fishery takes place from the Island of Bornholm. Marine fisheries make up 0.15% of Denmark's Gross Domestic Product and provides employment for just over 1400 fishers.[2] With a relatively small domestic fish market, much of the industry is geared towards exports -- worth €2.9 billion in 2014. In 2013, Denmark produced 22% tonnes more fish than it consumed, making it one of the few EU members with a fish surplus.[3]

Currently the largest fisheries by weight are sprat, sandeel and herring. These are fished in the North Sea and around Denmark, mainly by large pelagic and demersal trawlers. The main fisheries in Denmark are the industrial fishery for fishmeal production, which includes sprat, sandeel and blue whiting, the pelagic fishery for herring and mackerel and the demersal trawl fishery, which targets cod, haddock and plaice. The small-scale sector (under 12 metres) use mainly gillnets, and to a lesser extent, bottom otter trawls and dredges. These vessels mainly target demersal flatfish and roundfish. Many small-scale vessels change gear throughout the year to suit seasonal variations and respond to closures.

FIGURE 6.1.1: DENMARK'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE

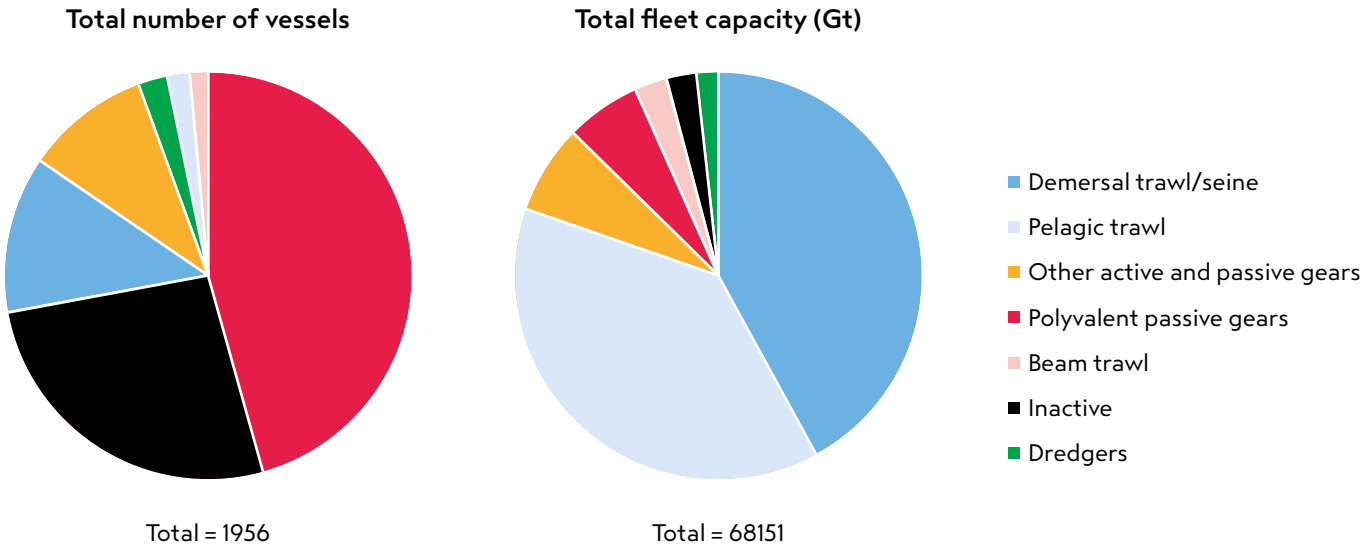




Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The Danish marine fishing sector has experienced a period of significant change over the past 20 years, with the number of vessels halving since 1995.[4] This reduction in fishing capacity has come about through a number of EU and national policy changes in response to the combined issues of overcapacity and progressively lower fishing limits being set in response to overfishing. EU-wide capacity reduction programmes and the implementation of an Individual Transferable Quota (ITQ) system for some pelagic stocks in 2003 and large demersal stocks in 2007 have led to structural adjustment in the Danish fleet. The number of vessels has shrunk for all fleet segments and many ports have closed as a result. Employment in marine fishing is now a fifth of what it was in 1995. Despite these changes, the total landings value has slightly increased in recent years, from €330 million in 2008 to €379 million in 2014.[5] The average crew wage in Denmark is the fourth highest of the 12 Member States at €44,000 per full-time equivalent fisher.

FIGURE 6.1.2: DENMARK'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

TABLE 6.1.1: DANISH FLEET COMPOSITION BY LENGTH CLASS IN 1995 AND 2015

Year	Length Class	Number	Capacity (1000Gt)
1995	U12m	3967	11.575
	12-23m	999	35.258
	>23m	215	60.481
	Total	5181	107.314
2015	U12m	1981	6.075
	12-23m	320	16.254
	>23m	68	44.117
	Total	2369	66.446

Source: Eurostat, derived from the European Fleet Register. Note: Figures may differ from the Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse Denmark's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Denmark's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

6.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota-management (RBM)
Types of fishing opportunities:	Individual transferable quotas and rationed quotas
Main allocation criteria:	Historical catches (ITQs), coastal premium and rationed quotas
Differentiation in allocation:	Active fishers, less active fishers and the coastal fleet.
Landed weight under quota management:	91%[6]

OVERVIEW

As with other EU countries, Denmark has a compulsory licensing system for both its commercial and recreational fisheries. In order to be eligible for a commercial fishing licence, there are requirements of being an 'active fisher' which include being economically dependent on fishing and long-term Danish residence. New fishers can obtain a licence and access commercial fishing quota when over 60% of their income comes from fishing. Quota fishing opportunities come in the form of individual transferable quotas for most pelagic and demersal stocks. Fishers that cannot fulfil the active fisher requirements may join the 'less-active fleet' where they receive equal vessel catch limits.

Non-quota fishing opportunities include shellfish licences and periodic catch limits for mussel and oyster dredging. Capacity caps are used as means to constrain effort in these non-quota fisheries. Like all EU member states, Denmark also complies with the EU's entry-exit scheme which prevents increasing capacity in the commercial fishing sector.

GOVERNANCE

The Danish Ministry of Environment and Food is the ministry responsible for fisheries management and its 'AgriFish' agency is involved in day-to-day management of fishing opportunities. There are three producer organisations (PO) in Denmark, all under the umbrella of the Danish Fisherman's Association. The POs have a representative and marketing role, but are not involved in quota management. As Denmark uses ITQs for its main quota species, most decision-making on quotas is decentralised to fishers themselves. This means that the agency is not heavily involved in management and distribution of quota. 'Fishpools', which are voluntary associations that facilitate the leasing and swapping of quotas between members, partly fulfil this role. The Danish Technological University's National Institute of Aquatic Resources conducts research on behalf of the ministry on fisheries policy.

DENMARK'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria	Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

This table summarises five key features of Denmark's quota system with the exclusion of the less-active fishers. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

With the implementation of ITQs, allocations were made on a one-off basis according to the historical track record of fishers during a reference period. Subsequent allocations are made directly based on the ITQ holdings of fishers. Additional quota is allocated to coastal fishers.

HOLDER

Active fishers, defined as individuals who receive at least 60% of their income from fishing, amongst other criteria, can hold ITQs. These quotas can be used with any of the vessels the fisher operates.

TRANSFERABILITY

ITQs are leasable and transferable. Full transfers are made with ministry authorisation. There are maximum limits on quota ownership for the same species and ITQs in the 'coastal fishery' are ringfenced, meaning transfers can only take place within that fishery.

SECURITY

ITQs are rights held by active fishers for an indefinite period. However, the ministry holds the right to reallocate ITQs with a required 16 years' minimum notice as of 2017.

DURATION

ITQs apply for the whole quota year.

QUOTA ALLOCATION

With the introduction of ITQs for pelagic and demersal fisheries, quota shares were initially allocated before becoming a right held by vessel owners. This means that after the initial grandfathering of fishing quotas, the ministry no longer actively allocates quotas on an annual basis. Rather, fishers holding quotas receive a direct share of the national total allowable catch (TAC) depending on their own quota share holdings. These initial allocations took place with the respective introductions of the pelagic ITQ system in 2003 (and its expansion in 2007) and the demersal ITQ system in 2007. These were based on the historical catch records of fishers over a three-year reference period with vessel owners receiving quota in proportion to their historical fishing activity. An appeals process was provided for fishers who contested their own initial allocation and fishers in 'non-typical situations' could apply for a correction. Quota shares are held by fishers indefinitely, but the ministry can claim back quotas with an 8-year notification period. This will be replaced in 2017 with a 16-year notification period.

A small, varying percentage of the national TAC is set aside each year for a national 'Fishfund', which is a quota reserve that can be used by the ministry. The Fishfund is predominantly used to lend quotas to new fishers that have joined the industry. To be eligible for the Fishfund quota, new fishers have to prove a commitment to the sector. Additionally, the Fishfund can be used as an incentive for fishers to participate in research or trial innovative technologies. Another share of quotas is reserved for a fisher class called 'less-active fishers' (LAF). These are fishers owning vessels whose income fell below approximately €30,000 at the time of allocation. These fishermen still have to qualify as such by complying with the 60% earnings minimum. These fishers cannot legally hold quotas and their quota is managed as a pool by the ministry. These quotas are rationed within the LAF fleet as equal, non-transferable individual catch limits. LAFs can supplement this by leasing (but not permanently acquiring) quotas from Fishpools.

QUOTA RULES

Denmark uses a system of ITQs in conjunction with measures to prevent the concentration of quota ownership and protect coastal fishers. Quotas come in the form of tradable rights held by active fishers and attached to vessels. These rights come in the form of a share of the national quota. They can be freely leased and swapped within Fishpool groups that facilitate transactions. Permanent trades of quotas can also be performed under the authorisation of the ministry. In order to keep quota ownership in fishers' hands, only active fishers can hold quota and any company holders must be two-thirds owned by fishers. Additionally, any individual operator cannot hold more than 10% of the quota for demersal stocks.

There is also a coastal fishery scheme intended to boost smaller-scale fishers. It provides a supplementary quota allocation for smaller scale fishers who volunteer to enter the segment for a period of three years at a time. Vessels under 17 metres that conduct 80 or more fishing trips of a duration of less than 48 hours are eligible for the scheme. This grants the fisher access to additional sole, plaice and cod quotas for which 10% of the national quota is set aside. These quotas cannot be traded outside of the group of fishers in the scheme and fishers must stay in the scheme for a minimum of three years. These operators may still purchase quotas from outside of the coastal fishery.

In December 2016 additional measures were passed by the Danish parliament to create a protected part of the coastal fishery and allocate additional cod, sole and plaice to this segment. Vessels that are under 15 metres that meet the other conditions of the coastal fishing scheme are eligible and will be granted 75% of their coastal premium. Quota shares and capacity rights would be permanently locked into this protected group, and can only be bought-in but not sold-out. Members of this group will receive additional quota shares worth 40 million kroner (€5.4 million).

OTHER FISHING OPPORTUNITIES

A number of fish stocks are not under quota management, including various shellfish. Limited licensing, a form of input control, is used to limit oyster and blue mussel dredging in Limfjord, Kattegat and the Wadden Sea. Periodic catch limits are also applied in addition to limiting entry for mussels. Fishers themselves determine the number of fishing days and the fishing seasons. The fishing right (licence) is transferable only through vessel purchase or handover. The total capacity, in terms of the number of available licences, is capped.

6.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of Denmark against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 5.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

Two sources of government objectives for Denmark's allocation of fishing opportunities have been identified. The Danish basic regulation on fisheries mentions a few considerations in the allocation of fishing opportunities. Also, some objectives have been noted in reports and articles, one of which is included here.

FISHERIES ACT NO. 17, CH.7, ARTICLE 34.6

In determining rules pertaining to the division of fishing opportunities particular consideration is given for:

- Resource conservation and sustainability
- Rational exploitation of resource including best seasonal utilisation
- The balance between available resources and fishing capacity
- Economic and employment concerns in the fishing industry, processing industry and related economic activities both for the country as a whole and individual parts of the country.

MOGENS SCHOU (2013) - OBJECTIVES OF THE DANISH ITQ SYSTEM[7]:

- Balance fleet capacity with available fishing opportunities
- Create a viable and profitable fishing economy
- Support coastal fishers and communities
- Provide young fishers with the ability to participate.

METHODOLOGY

Table 6.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 6.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

6.4 ANALYSIS

This section will assess the performance of the Danish system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request.

TABLE 6.4.1: PERFORMANCE OF DENMARK'S SYSTEM OF FISHING OPPORTUNITIES

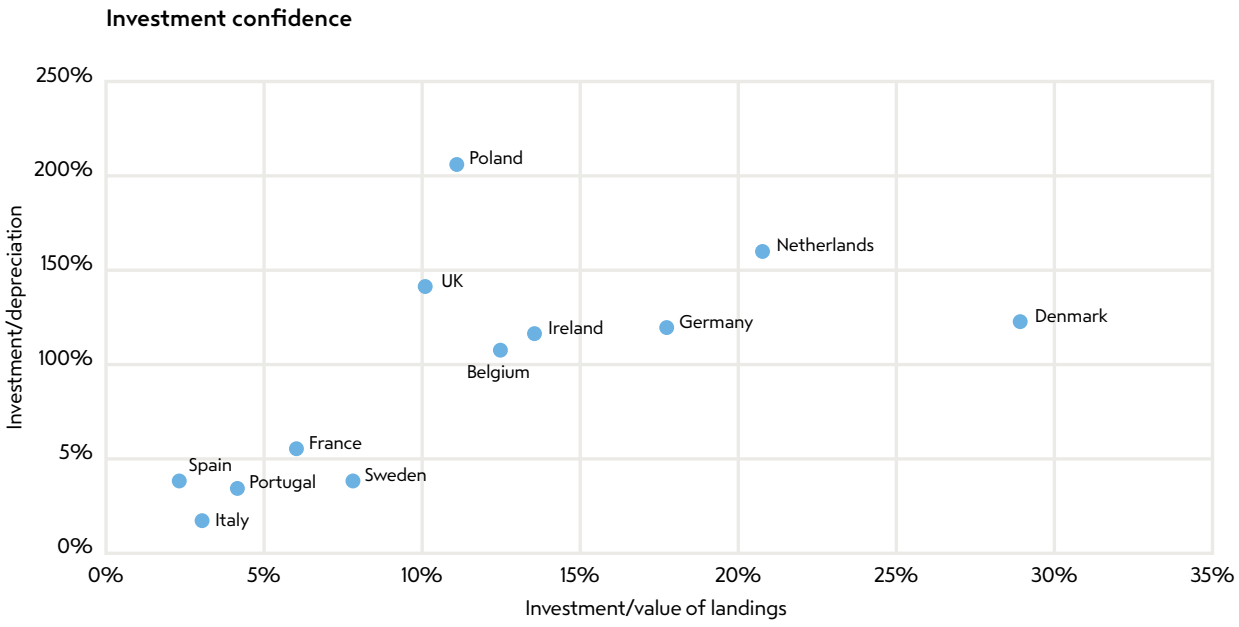
Category	Objectives	Rating
Good for Fishers	Secure	High
	Flexible	Mid-high
	Accessible	Mid-high
	Viable	Mixed
	Equitable and fair	Mid-low
Good for Society	Publicly owned	Mixed
	Meets government objectives	Mid-high
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	High
	Objective	Mid-high
	Right governance level and representative	Mid-low

** in flux ** increasing*

SECURE: HIGH

Fishing opportunities in Denmark are among the most secure of any EU Member State, scoring highly in the MRAG et al (2009) assessment of security/viability.[8] This is reflected in the performance of the fishing fleet, as investment as a percentage of landed value is the highest of the Member States covered in this report.[9] There are also very few fishery closures, indicating confidence regarding in-year quotas.[10]

FIGURE 6.4.1: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS



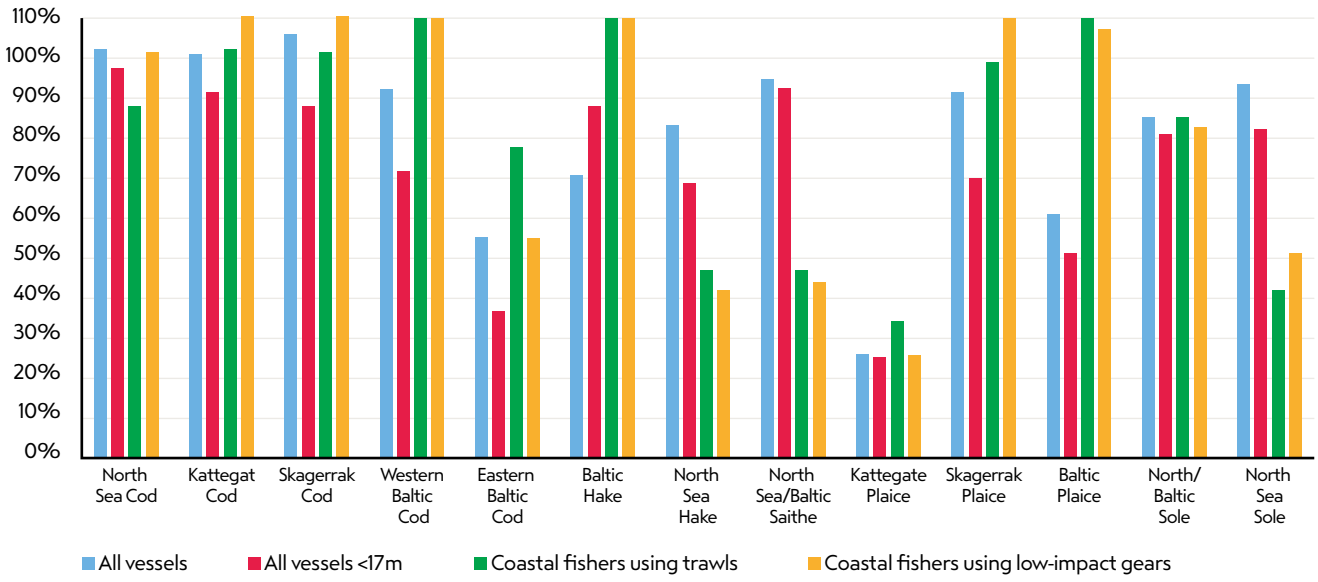
Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FLEXIBLE: MID-HIGH

Whilst a recent AgriFish report on fishing infringements revealed that the majority of infringement came from failing to report catch,[11] the levels of suspected infringements (3% of vessel inspections) are low compared to other Member States.[12] Together with low rates of discarding relative to other Member States using similar gears in the same areas, this performance indicates that most fishers are getting the quotas they need.[13] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

Conversely, quota uptake is low compared to other Member States for the same quotas,[14] so there is potential for more flexibility in the system to improve performance through higher quota utilisation. For some quotas (Baltic hake, Skagerrak plaice, Baltic plaice), quota uptake is near 100% for the coastal fishers but with unused quotas for the rest of the Danish fishing fleet.[15] Current methods of quota flexibility in the Danish system rely on financial mechanisms (transfer or leasing) that may not be feasible for the small-scale fleet segments, even when additional quota is highly sought after.

FIGURE 6.4.2: QUOTA UPTAKE BY DANISH MANAGEMENT CATEGORIES FOR DEMERSAL STOCKS (2014-2015)



Source: NaturErhvervstyrelsen

ACCESSIBLE: MID-HIGH

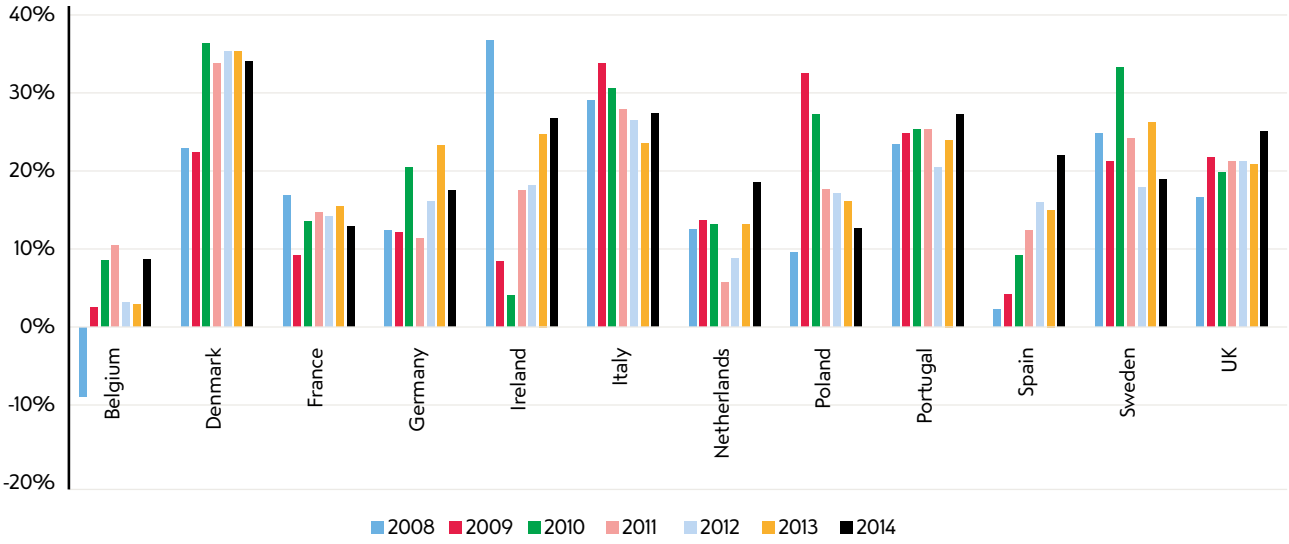
Denmark is one of the few Member States to set aside quota to accommodate new fishers. New fishers wishing to join the 'full-time fleet' that have demonstrated significant investment, namely through purchasing a vessel, can borrow quota from the Fishfund. This is not a permanent allocation, but is granted until the newcomer is self-sufficient or for a maximum of eight years. Then this quota is freed up to lend to other newcomers. The scheme is available for fishers under the age of 40. As new fishers will still need to eventually buy shares (unlike fishers with existing track records), accessibility is still limited.

In total, between the FishFund and the young fishers loan (sections 52 and 72 of the Fisheries Act) there is approximately €3-3.5 million available to young fishers at 2016 prices. Whilst there are 28 different TACs that form part of the available quota, around 80% comes from just four TACs: Nephrops in the Skagerrak, Kattegat and the Baltic, anglerfish in the North Sea, sprat in the North Sea, and cod in the Eastern Baltic.[16] These measures should improve accessibility, but may not necessarily translate directly into recruitment, which is an ongoing issue.[17]

VIABLE: MIXED/IN FLUX

For the past few years the Danish fishing fleet has been the most profitable of the EU Member States covered in this report.[18] Crew wages are high, but moderate compared to the median national wage.[19]

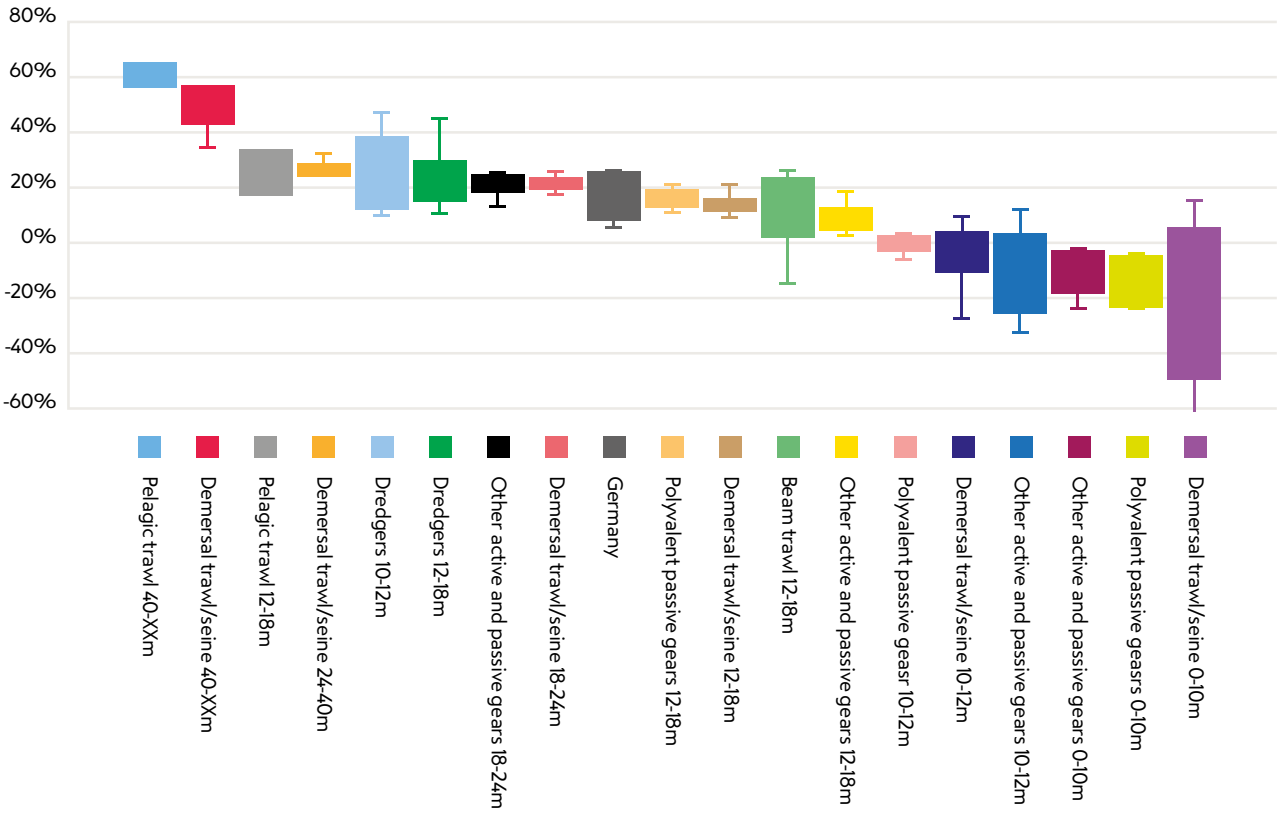
FIGURE 6.4.3: GROSS PROFIT MARGIN BY MEMBER STATE BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

This positive picture of economic viability for the fleet as a whole changes significantly at the fleet level, however. Average gross profit margins range from 60% for 40m+ pelagic trawlers and -20% for under 10m demersal trawlers.[20]

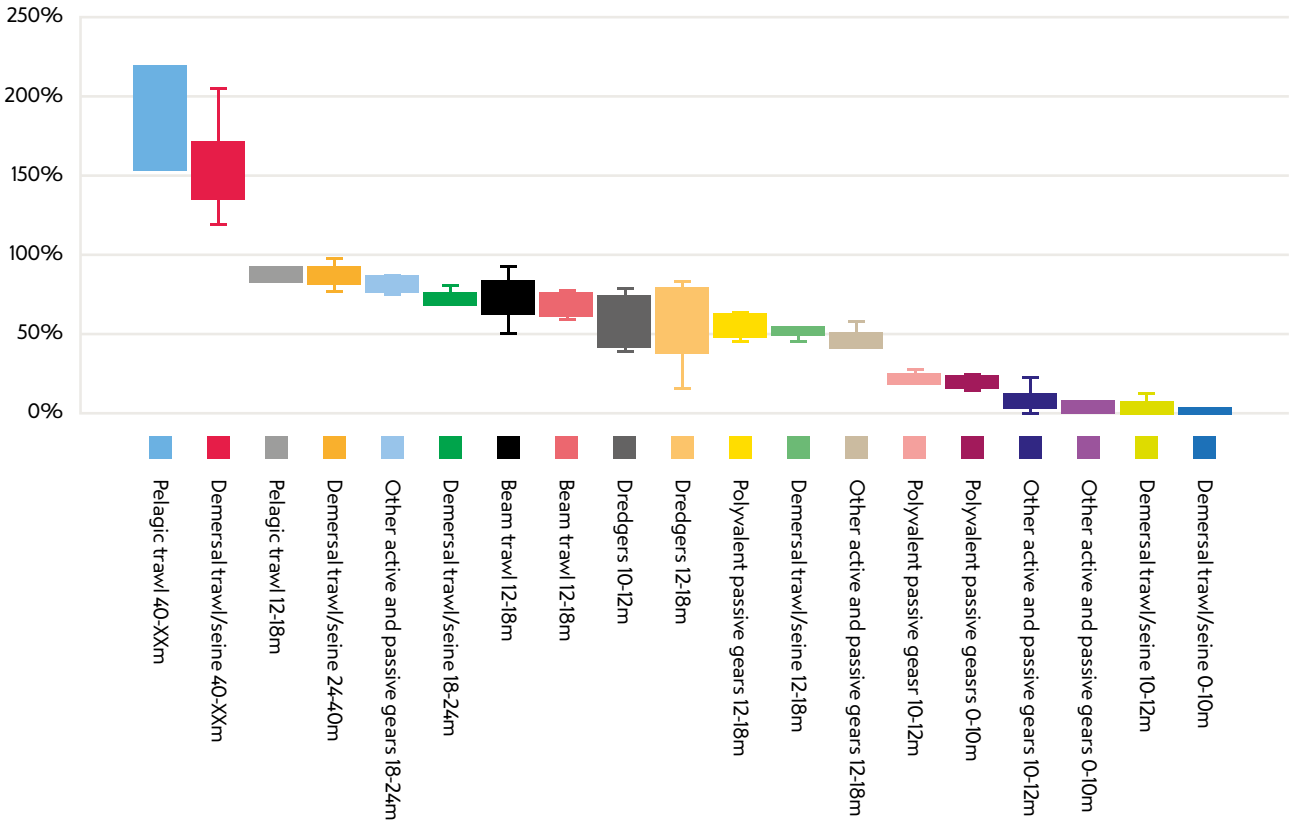
FIGURE 6.4.4: GROSS PROFIT MARGIN BY DANISH FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Similarly, for wages, whilst most fleets have crew wages that are a fraction of the national median wage, the two fleets of 40m+ vessels (pelagic trawler and demersal trawl/seine) have crew wages over 50% higher than the national median wage. These two fleets also have the largest gross profit margins. On both economic indicators, it is the smallest fleet segments in length with the lowest performance. This may be the result of high quota transfer and leasing prices that can constitute a large portion of the costs for the small-scale fleet segment. As such, the recent creation of a closed system for coastal fishers with a large quota premium should improve the economic viability of these fishers.

FIGURE 6.4.5: CREW WAGES AS A PERCENTAGE OF THE NATIONAL MEDIAN WAGE BY FLEET SEGMENT



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

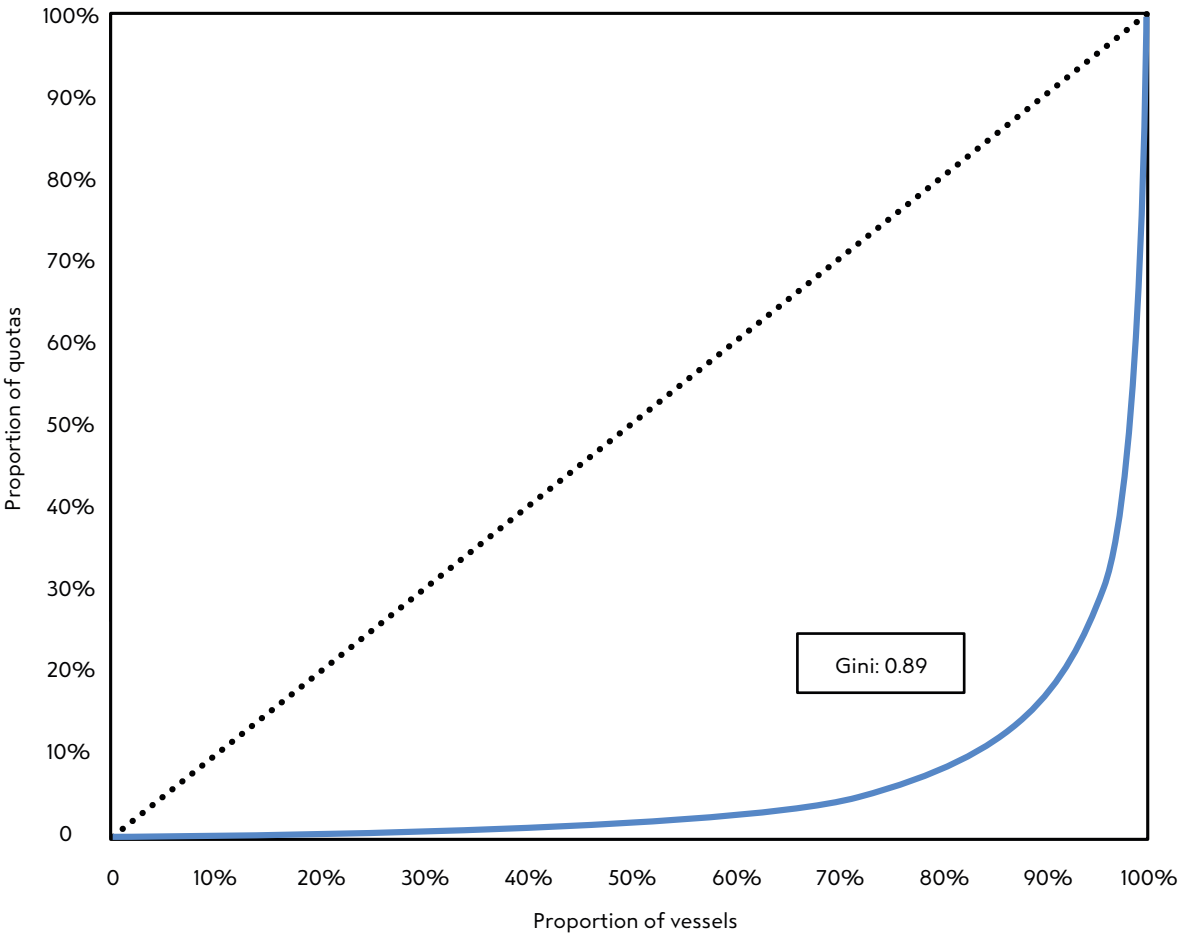
EQUITABLE AND FAIR: MID-LOW/INCREASING

Systems based on historical quota allocation, and especially those where quotas are transferable, are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. New fishers without a track record will need to buy fishing rights or rely on special allocations. Historical allocation is highly favourable to incumbent fishers who are granted a free quota share. Transferability compounds this inequity as some fishers begin to rely on leasing quotas at increasing costs. Further, the concentration of quota through transfers of ownership increases market power and creates potential situations of oligopoly/monopoly in the quota market.

Denmark has tackled some of these issues through a quota lending for new fishers, an appeals process in the allocation process and caps on the share of the quotas any one fishing company can hold. New measures due to be implemented in 2017 further address equity concerns by providing extra protected allocations to small-scale fishers. Some may argue that these actions to benefit small-scale fishers constitute 'shutting the stable door after the horse has bolted', with significant capacity reduction already having taken place and many ports being closed since ITQs were introduced, although small-scale vessels still constitute the majority of the Danish fleet.

Quotas in Denmark are highly concentrated, not only by vessel, but also by owner, as one owner may oversee multiple vessels. Combining all quotas together and measuring concentration by quota tonnage reveals a Gini coefficient of 0.89 and a Herfindahl-Hirschman Index of 506. These figures indicate that quota holdings are extremely unequally divided, but it is not a case of oligopoly power. Recalculating the figures based on ownership increases the Gini coefficient to 0.92 and the Herfindahl-Hirschman Index to 522.[22]

FIGURE 6.4.6: CONCENTRATION OF DANISH QUOTA BY VESSEL (2016)

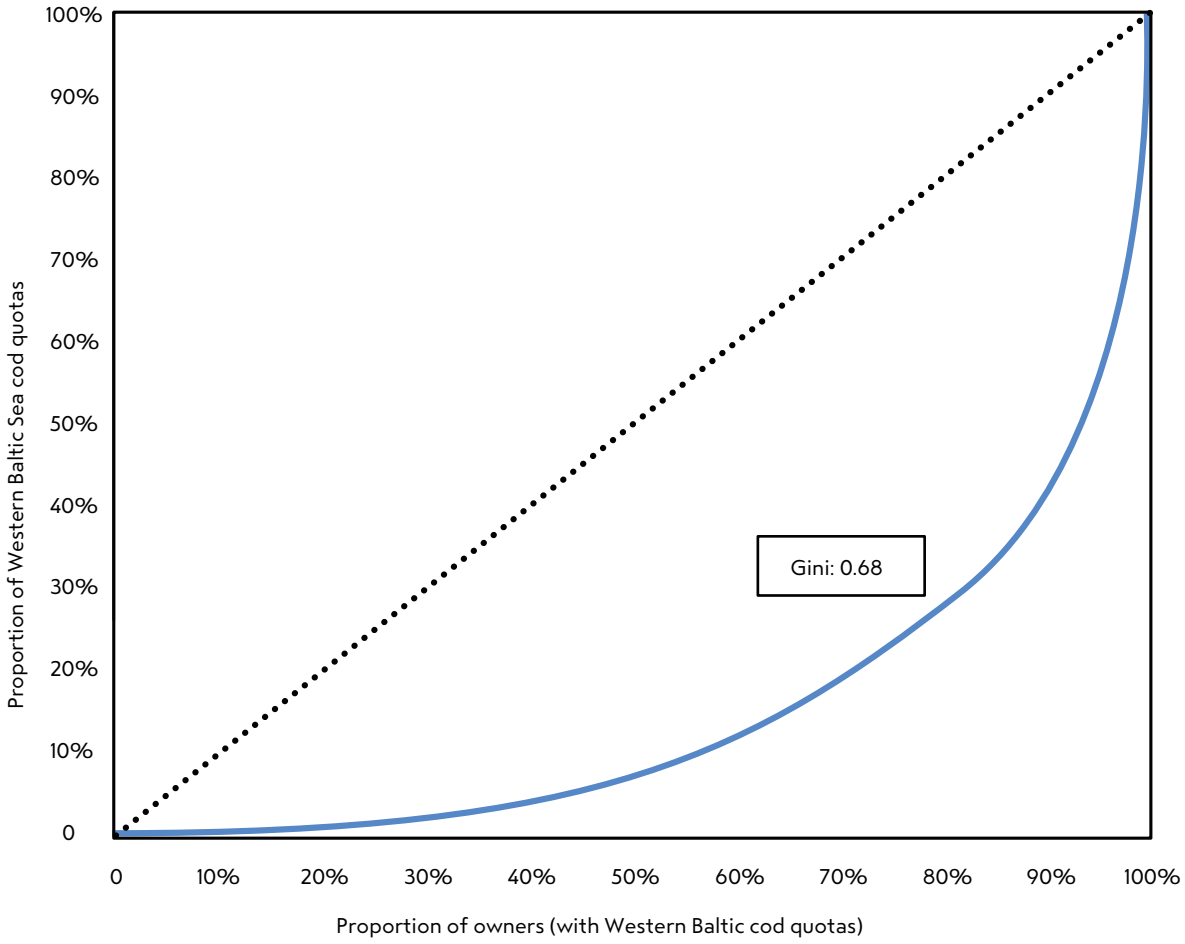


Source: Authors' calculations using on data from Fiskeristatistik.

Taking one individual quota (here western Baltic cod) shows that the same general finding holds, although the level of concentration decreases. For North Sea cod the Gini coefficient for FQA concentration is 0.68 and the Herfindahl-Hirschman Index is 93. Recalculating the figures based on ownership increases the Gini coefficient to 0.74 and the Herfindahl-Hirschman Index to 99.[23]

Difficulties with ownership information (especially changes mid-year) prevent an accurate estimate of concentration by owner (rather than vessel).

FIGURE 6.4.7: CONCENTRATION OF DANISH WESTERN BALTIC COD QUOTA BY VESSEL (2016)



Source: Authors' calculations using on data from Fiskeristatistik.

PUBLICLY OWNED: MIXED

In Denmark quota shares are revocable use-rights, fishers do not possess a permanent share of the Danish quota. However, as of 2017 the government must give 16 years' notice to reallocate quotas, a doubling from the initial 8 years. This is concerning as it means control over allocation is lost. Few governments can anticipate the need to make reforms over such large time-scales and some issues may require an urgent response. Additionally, critics are sceptical about whether ITQs would really be revoked in practice and worry that ITQs will eventually become a permanent right held by fishers.

The FishFund is under more direct government control and maintains a share of the quota reserved for public goals. This percentage is flexible and can be expanded if necessary without legislation. Additionally, quotas reserved for the less-active fleet are also under direct government control. Denmark has tried to reconcile two objectives, public ownership and security, and has managed to find a balance between the two.

Even though ITQs are ultimately revocable and the FishFund affords more government control over allocation, we cannot see the recent change to a 16-year notice period as consistent with the objective of public ownership. The FishFund and government-management of the LAF are clear cases of public ownership, however ITQs have shifted towards more permanent rights. For these reasons we rank Denmark as 'Mixed'.

MEETS GOVERNMENT OBJECTIVES: MID-HIGH

EU OBJECTIVES

Denmark has the ability, through its quota reserve (FishFund) to pursue social, environmental and economic objectives in the allocation, as required by Article 17 of the CFP and noted in objective 2.5(i), but it is not currently used for those purposes (described below).

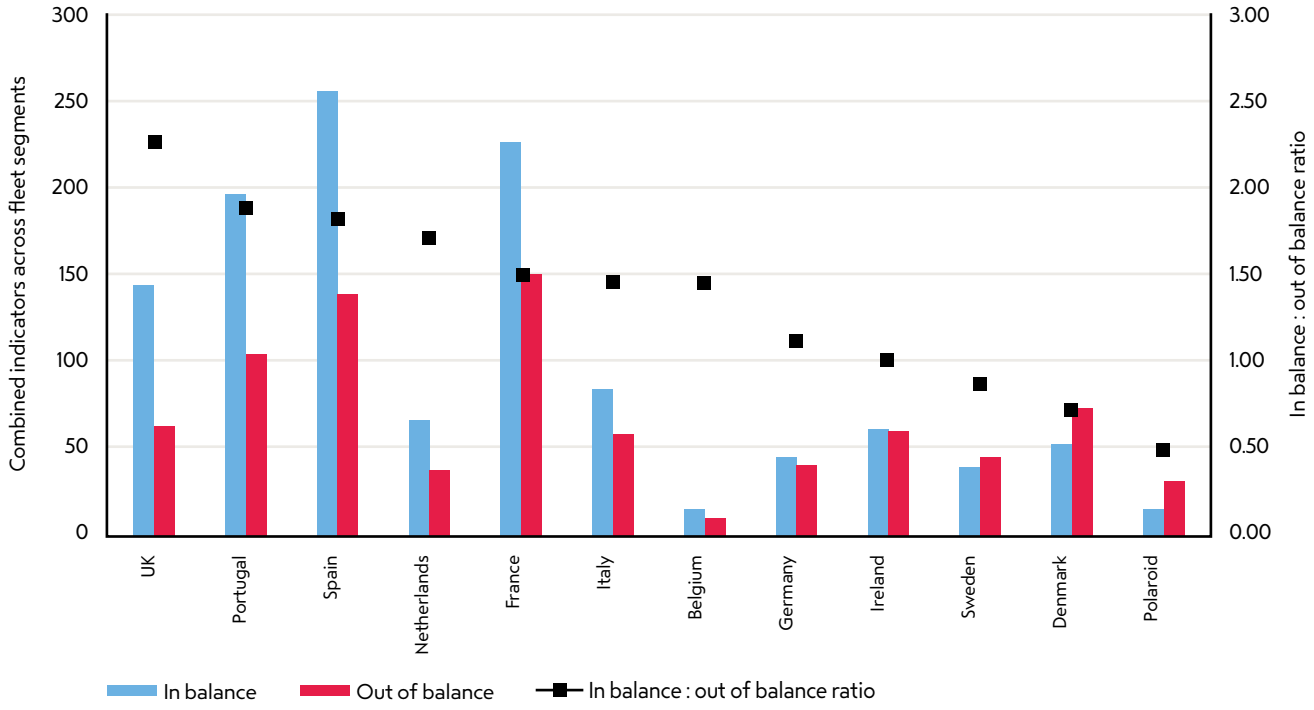
Another CFP objective, 2.5(d) is covered in Article 22, which states that a Member States' fishing capacity should be in line with the fishing opportunities available. In the most recent STECF report on balance indicators, Denmark scores poorly compared to other Member States, with some fleet segments shows signs of overcapacity. In particular, the passive gear fleets in Denmark are assessed as out of balance on almost every indicator used in the STECF report.[24]
On CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Denmark has relatively moderate landings prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings.

NATIONAL OBJECTIVES

At the national level, the Danish government's objectives for fisheries can be found in the Fisheries Act No.17 and in writing from Mogens Schou, who played a key role in the design of the current system. There are several clear statements from these two documents that are relevant for an analysis of the allocation of fishing opportunities:

- 'The balance between available resources and fishing capacity' Fisheries Act;
- 'Economic and employment concerns in the fishing industry, processing industry and related economic activities both for the country as a whole and individual parts of the country.' Fisheries Act;
- 'Create a viable and profitable fishing economy' Schou;
- 'Support coastal fishers and communities' Schou;
- 'Provide young fishers with the ability to participate' Schou.

FIGURE 6.4.8: NUMBER OF INSTANCES OF IMBALANCE ACCORDING TO THE SIX STECF BALANCE INDICATORS ACROSS THE NATIONAL FLEET SEGMENTS

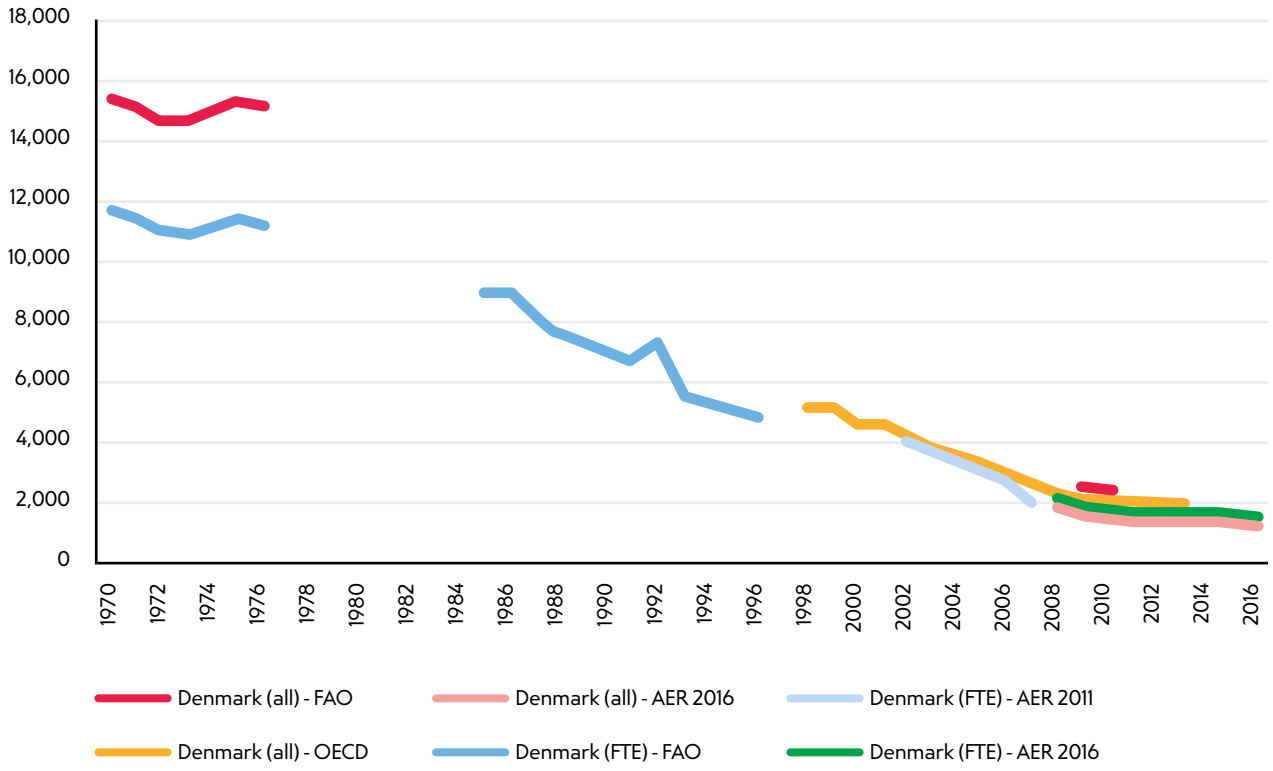


Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated between balanced and out of balance results.

There is a significant amount of overlap between these government objectives and the foundational objectives we have defined. The first objective has already been covered by an EU objective, the third objective is covered by the 'Viable' foundational objective, and the fifth objective is covered by the 'Accessible' foundational objective.

Economic and employment concerns, particularly at the level of coastal communities (the second and fourth objectives listed) lie largely beyond the foundational objectives we have defined. Denmark, like most other EU Member States, does not fare well on these objectives as fisheries employment continues to decline. There is often a trade-off between maintaining employment and balancing capacity with available fishing opportunities. In Denmark, pursuing the latter objective has come at the expense of the former.

FIGURE 6.4.9: EMPLOYMENT IN THE DANISH MARINE FISHING SECTOR SINCE 1970



Source: Authors' calculations using data from the Food and Agriculture Organization (FAO), Organisation for Economic Co-operation and Development, and Scientific, Technical and Economic Committee for Fisheries (STECF).

At the level of coastal communities there is also indication the Denmark has not fulfilled its objectives for fisheries as quotas have become concentrated in a small number of large vessels whilst a large number of small ports struggle.[25]

Denmark has a quota reserve (FishFund) which gives the government control over a percentage of the national quota. Separate from the FishFund, Denmark allocates additional quotas to the coastal fleet, as detailed in section 5.2. This quota allocation is made with the purpose of protecting small-scale fishers and provides a top up of cod and sole quotas for participants in the scheme, rather than being strictly criteria-based. Pound net fishers for cod and herring also have quotas reserved.

LIMITED PUBLIC EXPENSE: LOW

The Danish fisheries management is moderate in its cost (19% of landed value),[26] but like all EU Member States in this report, there is no balance of public revenue generation from the fishing industry. In addition, there are implicit fuel subsidies in Denmark of 0.37 €/litre, adding significantly to the public costs of fisheries (€34 million annually), particularly when compared to the size of economic output from the industry (9% of landed value).[27] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: HIGH

There is no easily accessible document or webpage that describes how the Danish allocation of fishing opportunities is carried out. Descriptions of the quota system can, however be found in numerous reports and scientific articles. An official, clearly explained text is missing. On the other hand, in other respects Denmark performs very well in transparency with high data availability and up-to-date news on the AgriFish website. Additionally, Denmark has a publicly accessible quota register, mandated by the Fisheries Act, that details quota holdings by vessel.

OBJECTIVE: MID-HIGH

All allocation was made on the basis of historical track records. This is an objective procedure for allocation. It is unclear in what conditions the quota fund is used to allocate from the quota reserve.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-LOW

In the ITQ system fishers are individually responsible for the fishing opportunities they hold. This gives actors at the lowest possible level control over access rights. This is beneficial for individual decision-making and planning. Fishpools are established as membership-based organisations to facilitate quota exchange. At the same time, ITQs tend to empower vessel owners rather than vessel crew.

Fishers are represented in fishing associations and POs but it unclear what measures are in place to ensure that representation is inclusive and gives a voice to less well-resourced fishers. There is little comprehensive and up-to-date literature on co-management in Denmark, however one study rated previous forms of participatory management as a form of 'consultation'. In their classification scheme consultation ranks lowly in terms of the degree of active participation and does not include mechanisms for ensuring that representation is equitable or inclusive.[28]

6.5 RECOMMENDATIONS

Denmark ranks well on most of our foundational objectives in 'Good for Fishers' and 'Good Process' categories. However, we still see room for improvement in areas concerning the wider social and environmental benefits of fisheries. We recommend that Denmark should cover more management costs through a landings tax and fully implement Article 17 of the CFP. Additionally, it should see through the successful implementation of the new protected coastal fishery.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Currently, Denmark performs some preferential allocations for the coastal fleet and has a reserve for less-active fishers. However, it does not use objective social and environmental criteria to allocate quotas, with all quotas in the ITQ system being allocated according to historical track records. The coastal premium is a supplement, not a criterion integrated into the allocation mechanism. Denmark could further improve allocation through expanding the role of its quota reserve for performance-based allocation.

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use the quota reserve (FishFund) for criteria based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserve allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[29] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[30] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landings obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[31]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at 0.37 €/litre for Denmark is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[32] - use the most fuel per landed value, whilst pots and traps use the least.[33] This variance in fuel use is an important price signal that should be reflected in the price of fish.[34] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[35]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

FULLY IMPLEMENT THE NEW CLOSED SYSTEM FOR COASTAL FISHERS

The new closed system for coastal fishers is a very positive step. It matches a proposal by the small-scale fishers' organisation Foreningen for Skånsomt Kystfiskeri (FSK) to tackle the problem of low flexibility for small-scale, low-impact fishers in acquiring additional quotas and the resulting low economic viability.[36] The amount of additional quotas in the system (€5.4 million), matches the conclusions of a joint report between FSK and the New Economics Foundation on what would be required to bring the small-scale fleet segments to profitability.[37] Statistics on quota uptake (covered in the analysis of 'Flexibility') confirm that a lack of quota is a major constraint for small-scale fishers and indicate that they are likely to utilise the additional quota.

In addition, whilst there is no perfect definition of 'small-scale', the change in cut-off from 17m to 15m is reasonable, excluding an extra 3.5% of Danish vessels.[38] The challenge now is to inform coastal fishers of this system and ensure an easy transition for all interested fishers. This is a potential concern given the less organised nature of the small-scale fleet segment and the strict, and possibly daunting, one-way nature of the new closed system. The new protected coastal fishery is an important move to improve the equity of the Danish quota system and will also help address the current imbalance between capacity and fishing opportunities in this fleet segment.

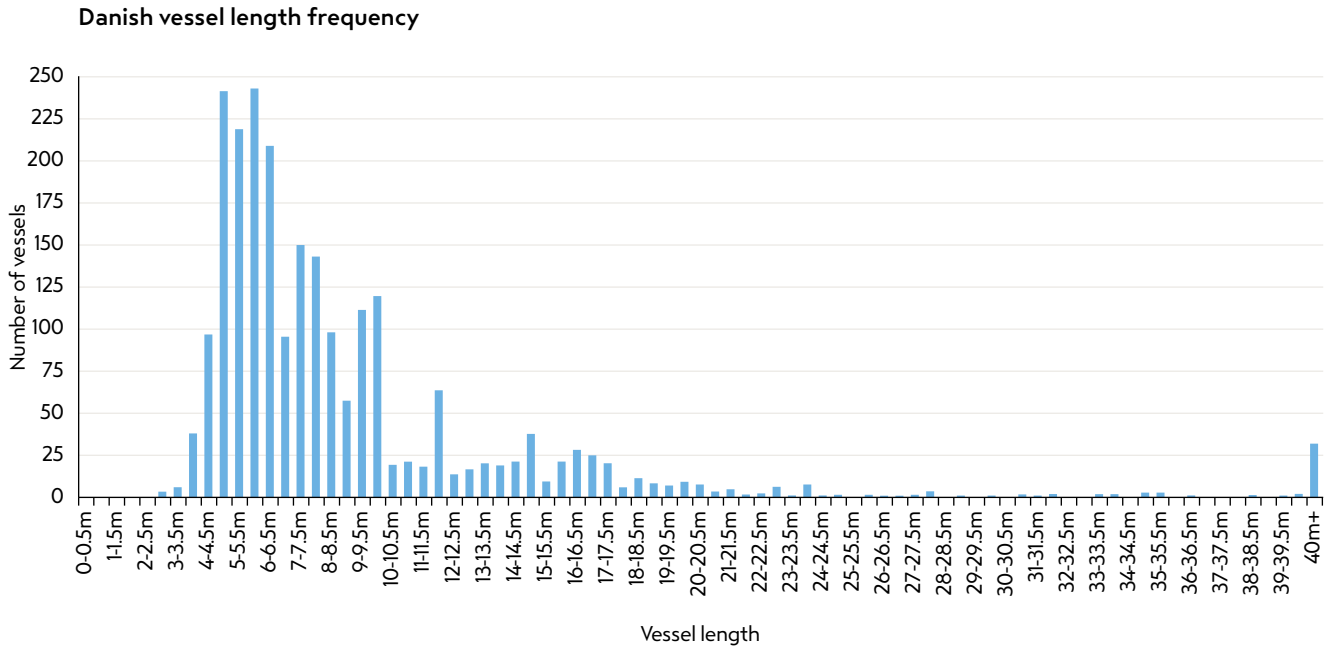


Figure 6.5.1: The composition of the Danish fleet as measured number of vessels per length group. Source: Community Fishing Fleet Register, 2016.

6.6 CONCLUSIONS

Denmark implemented ITQs to manage access to its pelagic and demersal fisheries during the 2000s. The system was designed with a number of safeguards to protect small-scale fisheries and retain public ownership. The extent to which these safeguards have succeeded is a question of ongoing debate, however the reforms have clearly paid-off in terms of economic performance with high profitability and wages. According to our analysis, improvement is needed on a number of fronts, including meeting government objectives such as employment, supporting coastal communities and complying with Article 17 of the CFP. Additionally, management costs of fisheries and a resource rent are not being recovered. Based on our assessment of available information and input from interviews, we recommend that Denmark:

- Fully incorporates social and environmental criteria in its allocation method, using the FishFund to this end;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Fully implement the new closed quota system for coastal fishers.

Some recommendations, such as applying a landings tax and cutting fuel subsidies, will increase costs for the sector. However, in a context of very high profits (34% gross profit margin in 2014) and significant public expense in management and fuel subsidies, there is potential for the balance of costs to shift. Reforms to provide additional quota and protection to a coastal fleet, due to be implemented in 2017, are welcome, but extending the notice period for ITQs revocation risks reducing public control. Taken together, these recommendations could transform the Danish fishery whilst also keeping the general system structure and its current advantages intact.

1 European Commission. (2016). Community Fishing Fleet Register. Retrieved from http://ec.europa.eu/fisheries/fleet/index.cfm
2 Semrau, J. & Ortega Gras, J.J. (2013). Fisheries in Denmark. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/513972/IPOL-PECH_ET(2013)513972_EN.pdf
3 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf
4 European Commission. (2016). Community Fishing Fleet Register. Retrieved from http://ec.europa.eu/fisheries/fleet/index.cfm
5 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
6 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
7 Bonzon, K., McIlwain, K., Strauss, C. K., & Van Leuvan, T. (2013). Catch share design manual. Volume 1: Guide for managers and fishermen (2nd ed.). Washington, D.C.: Environmental Defense Fund. Retrieved from http://fisherysolutionscenter.edf.org/sites/catchshares.edf.org/files/CSDM_Vol1_A_Guide_for_Managers_and_Fishermen.pdf
8 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf
9 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
10 Fisheries Data Exchange System (FIDES) dataset 2013-2015.
11 The Danish Agrifish Agency. (2016). Fisheries inspection 2015: Commercial and recreational inspection and results. Ministry of Environment and Food of Denmark. Retrieved from http://lfst.dk/fileadmin/user_upload/NaturErhverv/Filer/Tvaergaaende/Kontrol/Kontrol-fiskeri/2016-04-26-Fiskerikontrol2015-Engelsk.pdf
12 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports
13 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf
14 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset. 2013-2015
15 NaturErhvervstyrelsen - Opgørelse over udnyttelsen af de arter der indgår i kystfiskerordningen i 2014 og 2015.
16 Authors' calculations based on the Fisheries Act and EU Market Observatory for Fisheries and Aquaculture products (EUMOFA). Retrieved from https://ec.europa.eu/fisheries/cfp/market/market_observatory_en
17 European Maritime and Fisheries Fund – Operational Programme for Denmark 2014-2020.
18 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
19 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
20 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
21 Høst, J. (2015). Market-based fisheries management: Private fish and captains of finance: Springer International Publishing. Retrieved from http://link.springer.com/book/10.1007%2F978-3-319-16432-8
22 Authors' calculations based on Fiskeristatistik. IOK-og FKA-fartojers andele og landinger 2015. Retrieved from http://lfst.dk/fiskeri/fiskeristatistik/statistik-for-fiskeriets-regulering/iok-og-fka-fartoejers-andele-og-landinger-2015/ and NaturErhvervstyrelsen. Søgning i fartøjsoplysninger. Retrieved from http://webfd.fd.dk/fdweb/app/vessel-find
23 Authors' calculations based on Fiskeristatistik. IOK-og FKA-fartojers andele og landinger 2015. Retrieved from http://lfst.dk/fiskeri/fiskeristatistik/statistik-for-fiskeriets-regulering/iok-og-fka-fartoejers-andele-og-landinger-2015/ and NaturErhvervstyrelsen. Søgning i fartøjsoplysninger. Retrieved from http://webfd.fd.dk/fdweb/app/vessel-find
24 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf
25 Høst, J. (2015). Market-based fisheries management: Private fish and captains of finance: Springer International Publishing. Retrieved from http://link.springer.com/book/10.1007%2F978-3-319-16432-8
26 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
27 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
28 Leite, L., & Pita, C. (2016). Review of participatory fisheries management arrangements in the European Union, Marine Policy, 74, 268-278. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X16304742
29 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

30 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508

31 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

32 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

33 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

34 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

35 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

36 Foreningen For Skånsomt Kystfiskeri. 2015. En fremtid for det skånsomme kystfiskeri. Available at: http://skaansomtkystfiskeri.dk/wp-content/uploads/2016/05/Fremtid-for-det-danske-kystfiskeri.pdf

37 Foreningen For Skånsomt Kystfiskeri and New Economics Foundation. 2016. Kystfiskeriet skal fremtidssikres til gavn for beskæftigelsen, lokal vækst og en bæredygtig udvikling. Available at: http://skaansomtkystfiskeri.dk/wp-content/uploads/2016/11/Rapport_layout-FINAL.pdf

38 Authors' calculations based on European Commission. (2016). Community Fishing Fleet Register. Retrieved from http://ec.europa.eu/fisheries/fleet/index.cfm

France is a major fishing nation with nearly 7,000 vessels spread between the country's Atlantic and Mediterranean coasts and its overseas territories. A large part of France's fishing opportunities are under quota management, allocated to producer organisations and individual fishers. To assess France's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance.

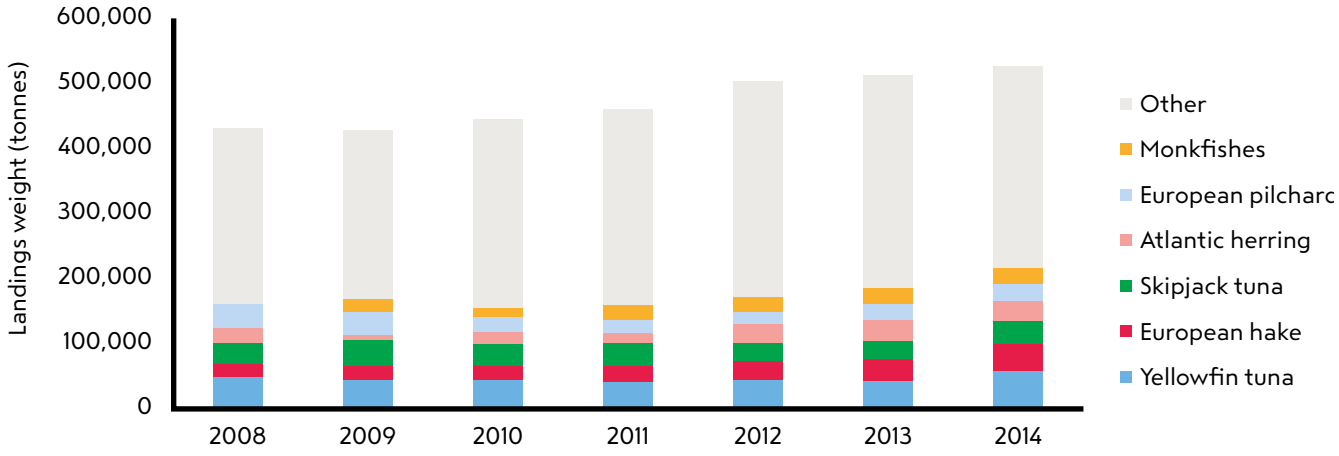
Our analysis shows that France performs well on a small number of objectives but has a lot of room for improvement. In particular, providing more flexible and accessible fishing opportunities and increasing transparency should be priorities. We propose a number of reforms that are aimed at addressing these shortfalls, including a peer-to-peer quota swapping system, stronger rules on accommodating new fishers and improving transparency in quota allocation.

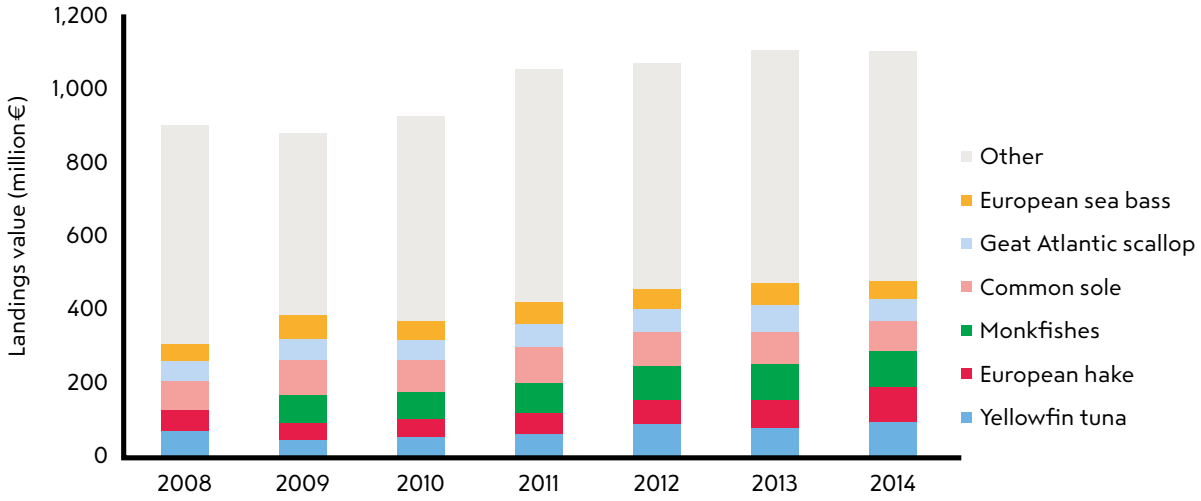
7.1 INTRODUCTION AND BACKGROUND

France is one of the largest marine fishing countries in the EU. The mainland has a coastline of 5,500km dotted by 300 fishing ports. In 2015 there were 6,911 active vessels in France (6,000 of which are under 12 metres) employing around 10,000 fishers. In 2014, a total of 526,000 tonnes of fish was landed, worth €1.1 billion, and showing growth since 2008.[1] France holds approximately 9% of the EU quotas in weight but also fishes extensively in non-EU waters in overseas territories. France is also a big consumer of fish with an average consumption of 35kg per year. It is dependent on imports for 60% of its fish consumption.[2]

France fishes a range of species at large volumes. Along with Spain, France is a major fisher of tropical tuna, including yellowfin and skipjack. This includes predominantly the purse seine fleet in the West of Africa and Indian Ocean. The Atlantic and Mediterranean tuna fisheries are regulated by the International Commission for the Conservation of Atlantic Tuna (ICCAT), an intergovernmental organisation. As of 2014 France has 22 long-distance purse seiners with an average length of 78 meters. The small-scale fleet (under 12 metres) comprises 86% of all vessels. These fishers focus on demersal stocks under EU TACs and shellfish as well as bluefin tuna in the Mediterranean. The large-scale fleet consists mainly of pelagic and demersal trawlers targeting a number of diverse stocks including herring, common sole, monkfish, hake and sea bass.

FIGURE 7.1.1: FRANCE'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE

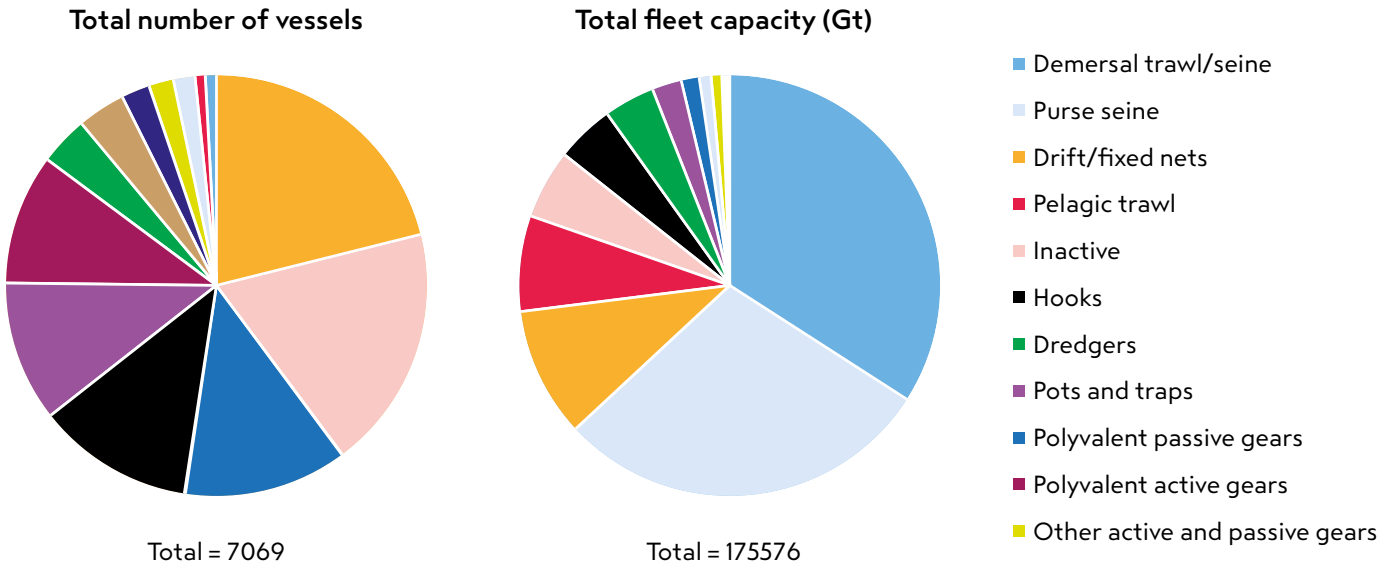




Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Having had significant issues with overcapacity, the French fleet has shrunk by nearly 2,000 vessels (21%) since 1990. All size categories have declined similarly over this period. Note that around 2,500 vessels (mainly under 12 metre) were added to the fleet register in 2008, inflating the 2015 figure in the table below. This decline has occurred as fleet numbers adjusted to lower fishing limits set by the EU and fishers responded to programmes (such as scrappage schemes) to reduce the fleet size.

FIGURE 7.1.2: FRANCE'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

TABLE 7.1.1: FRENCH FLEET COMPOSITION BY LENGTH CLASS IN 1995 AND 2015

Year	Length Class	Number	Capacity (1000Gt)
1990	U12m	6657	31.395
	12-23m	1781	70.543
	>23m	333	107.732
	Total	8771	209.67
2015	U12m	5996	24.604
	12-23m	728	52.192
	>23m	187	95.248
	Total	6911	172.044

Source: Eurostat, derived from the European Fleet Register. Note: Figures may differ from the Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The French fleet is one of the most diverse, with a very large range of gear types. This is reflective of the long and varied fishing traditions that are maintained from the mainland and overseas territories in most of the major oceans by the French fleet.

The next sections of this chapter will describe and analyse France's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and France's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

7.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management
Types of fishing opportunities:	Individual Quotas, pooled quotas (PO and national)
Main allocation criteria:	Historical catches, socioeconomic, market trends
Differentiation in allocation:	Sector (PO) fishers and non-sector fishers
Landed weight under quota management:	42%[3]

OVERVIEW

France maintains a compulsory licensing system for commercial fishing and access to national quota. Once a licence has been obtained there are both quota and non-quota fishing opportunities. Most significant mobile Atlantic stocks are under landings-quota management. Quotas come in the form of both individual non-transferable quotas and pooled (producer organisation and national) quotas. Producer organisations (POs) have a significant role in managing quota fishing opportunities in France when over 60% of their income comes from fishing. Quota fishing opportunities come in the form of individual transferable quotas for most pelagic and demersal stocks. Fishers that cannot fulfil the active fisher requirements may join the 'less-active fleet' where they receive equal vessel catch limits.

Shellfish are not managed under quotas, nor are Mediterranean stocks, with the exception of bluefin tuna. These fishing opportunities are managed through licensing, effort controls, fishing seasons, and in the case of Mediterranean stocks, through local fisher associations. Regional fisheries committees are involved in managing access to the 12nm coastal zone.

GOVERNANCE

The Directorate for Maritime, Fisheries and Aquaculture (DPMA), under the Ministry of Ecology, Sustainable Development and Energy, is responsible for fisheries management in France. Decision-making and policy implementation has a strong emphasis on co-management, with various fisheries organisations included in aspects of fisheries management. Regarding quota management, allocation to individual vessels is devolved to producer organisations. France has 14 POs. They represent just under half of vessels but account for the vast majority of landings. The POs are organised into two Federations: Association Nationale des Organisations de Producteurs (ANOP) and Fédération des Organisations de Producteurs de la Pêche Artisanale (FEDOPA). The two are mostly differentiated by the size of vessels they represent. In addition to quota management, POs have marketing and representation roles.

A number of fisheries committees play formal roles in national public decision-making and have authority in regional fisheries management. These committees are composed of a variety of stakeholders from union representatives and fishers to industry representatives. The regional committees (CRPMEM) also have authority for the management of inshore fisheries through a variety of instruments including licensing, spatial, closures and effort management. A quota monitoring committee, composed of the DPMA, the two PO federations and the national fisheries committee (CNPMEM) meets monthly for ongoing evaluations of quota management and exchanges. Long-standing, membership-based cooperatives called Prud'homies manage inshore non-quota fisheries on the Mediterranean coastline.

FRANCE'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	National
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: Sector fishers | Non-sector fishers | All

This table summarises five key features of France's quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

Initially, France allocates quotas to PO members according to three criteria: historical catch levels; socioeconomic balance; and market orientation. In practice, the vast majority of allocation is performed on the basis of the first criteria and the use of the other criteria is exceptional. Then POs decide how to allocate quotas to individual members. Non-PO members access a national pool of quotas.

HOLDER

The track records used for historical allocation are attached to vessels. However, sector fishers' quotas are under the management of the PO. The rest of the quotas are utilised by individual vessels. Non-PO members have their quotas pooled nationally.

TRANSFERABILITY

Quotas are not transferable or leasable, although track records do get transferred with the vessel when the vessel changes owner. Quotas can be swapped within and between POs upon ministerial approval.

SECURITY

Although historical quota allocations are consistent over many years, fishers do not have a secure right to the quotas and the ministry has a mandate to make changes in allocation.

DURATION

Quotas for both the sector and non-sector apply for the whole year.

QUOTA ALLOCATION

Quota allocation in France is a multi-level process involving both the Directorate for Maritime, Fisheries and Aquaculture and the POs. At the national level, the DPMA allocates to POs and non-sector vessels based on three criteria: historical track record; socioeconomic balance; and market orientation. In practice, the main annual allocation is based on historical track record and only extraordinary allocations use the other two criteria. The historical reference period is 2001-2003 for most stocks and 2008-2010 for bluefin tuna[4]. The non-sector quotas are set for all non-PO vessels as a collective quota, which is around 1% of the total national quota. This means that all vessels have access to the same pooled quotas and fisheries get closed once quotas are depleted.

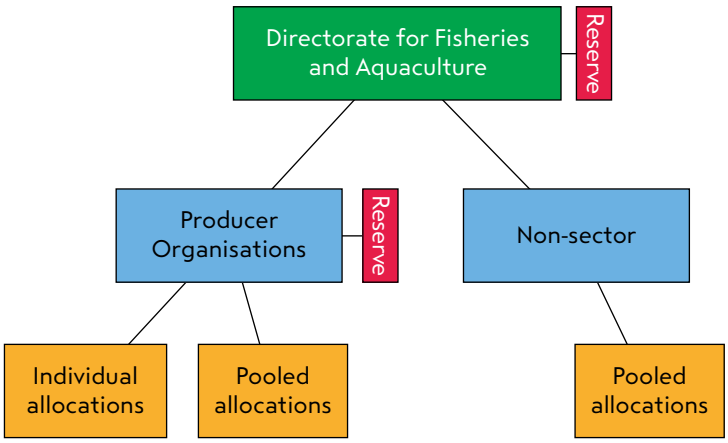
POs have full control over the quotas they receive and use a variety of methods to allocate these quotas to fishers. These methods range from full collective management to individualised management. POs generally allocate quotas in three different ways depending on the level of fishing demand for the quotas in question[5]:

1. Quotas that are generally under-utilised are freely accessible as pooled quotas for all PO members.
2. Quotas that are moderately in demand may be pooled at particular gear or harbour levels to balance supply and demand.
3. The most highly sought-after quotas are distributed as individual vessel quotas.

These last two methods used by POs are performed largely on the basis of historical track records (and/or landings in more recent years) of the relevant segments/fishers, similar to the practice of allocation from the DPMA to POs.

Both the DPMA and POs maintain quota reserves that are used for international quota swaps and for allocations separate from the purely historical allocations. These reserves become populated when vessels are scrapped or traded (detailed below). As a result of using a fixed historical reference period in allocation, fishers that were less active or only entered the industry after the reference period are placed at a disadvantage, as is common in other Member States' systems. POs use their quota reserves to compensate for this lack of track record for new fishers. POs may also use quota reserves to balance fishing opportunities with fishing capacity through granting additional quotas to vessels with too few quotas relative to their capacity. The national quota reserve managed by the DPMA may also be used to aid POs in accommodating new fishers. With the new article 921-48 of the Rural Code, which was put into law in 2014, the national reserves should now also be used to pursue social and environmental objectives and aid in the merging of POs.

FIGURE 7.2.1: DIAGRAM REPRESENTING THE PROGRESSION OF QUOTA ALLOCATION IN FRANCE FROM THE DIRECTORATE TO INDIVIDUAL FISHERS

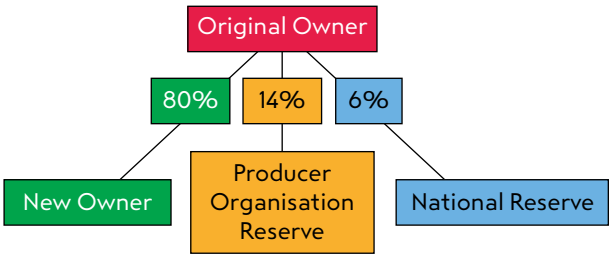


QUOTA RULES

Although quotas are non-transferable, some measures are in place to give flexibility in access. These flexibilities aim to ensure that 1) quotas go to where they are needed and 2) underutilised quota is minimised. POs can make in-year quota swaps with other POs and with non-sector vessels with ministerial authorisation. These quota swaps do not affect their track record and the subsequent year's allocation. A sizeable proportion of quotas are allocated in the form of pools aiming to give fishers access to a range of quotas. This benefit may be limited if the PO is small with low quota holdings. Producers that own multiple vessels can also transfer quotas between vessels. High quota utilisation is encouraged by penalising the refusal of exchanging under-utilised quota with quota reductions for the following year. Underutilised quota may also be reallocated to other POs.

Quotas can be transferred permanently via vessel sales or decommissioning as the track-record associated with the vessel also gets exchanged. Since 2015, when a vessel is sold, 80% of its quota stays with the vessel – going to its new owner – and 20% goes to the national (30%) and PO (70%) reserves. When a vessel is taken out of the industry, its associated quota is distributed 50:50 to the national and PO reserves. This reserve allows the directorate and POs to make special allocations to pursue a variety of objectives. Although officially quotas are not supposed to be valorised, vessel prices do tend to reflect the value of their associated track record. This means that there is a de-facto market in quota shares, albeit a restricted one.[6]

FIGURE 7.2.2: VESSEL TRANSFER QUOTA DISTRIBUTION



OTHER FISHING OPPORTUNITIES

Non-quota fisheries management is conducted primarily through regional authorities in conjunction with the 14 regional fisheries committees (CRPMEMs). These have authority to distribute licences for non-quota species. This is done on the basis of social and economic objectives, particular to the context. They also specify technical requirements relating to gears and fishing areas. Prud'homies are centuries-old fisheries associations based along the French Mediterranean coast. They have competences over small-scale vessels fishing in the Mediterranean and can enforce their own rules.

7.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of France against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 7.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Governments uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

One main source of government objectives was acquired for France. This is the Rural and Marine Fisheries Code, France's national legislation on fisheries and the rural economy. A few objectives related to fishing opportunities were found. Unfortunately, specific objectives were not identified.

RURAL AND MARINE FISHERIES CODE

ARTICLE L911-2

The objectives of the policy on marine fisheries, marine aquaculture and food activities are to comply with the principles and rules of the common fisheries policy and in compliance with international commitments:

1. To enable the sustainable exploitation and enhancement of the collective heritage of the fishery resources to which France has access, both on the foreshore and in its waters under jurisdiction or sovereignty and in other waters where it has fishing rights under international agreements or in areas of the high seas.

ARTICLE L2

This policy aims to support income, increase employment and improve the quality of life of fishers, aquaculturists and employees in these sectors, as well as to support research, innovation and development in the Aquaculture industry.

METHODOLOGY

Table 7.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 7.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers

Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

7.4 ANALYSIS

This section will assess the performance of the French system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request.

TABLE 7.4.1: PERFORMANCE OF FRANCE'S SYSTEM OF FISHING OPPORTUNITIES

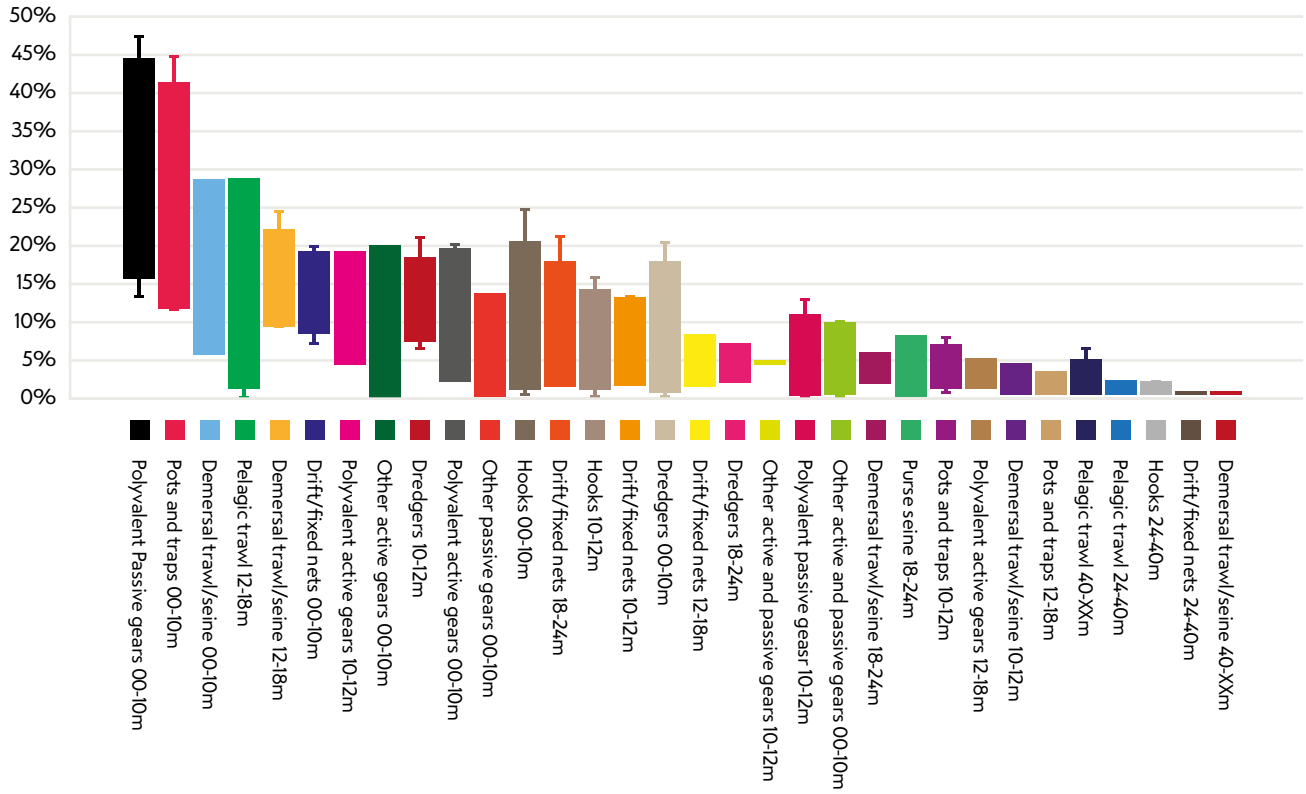
Category	Objectives	Rating
Good for Fishers	Secure	Mixed
	Flexible	Low
	Accessible	Mid-low
	Viable	Mixed
	Equitable and fair	Mid-low
Good for Society	Publicly owned	Mid-high
	Meets government objectives	Mid-low
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Low
	Objective	Mid-low
	Right governance level and representative	Mid-high

SECURE: MIXED

Investment is relatively low in the French fishing fleet. Whilst this can be credited to a number of broader socioeconomic issues in France, security in fishing rights is likely to be a contributing factor. As most of the fishing rights in France are valid for only one year, resulting in a low ranking from MRAG et al (2009), there is some insecurity for medium-term planning.[7] In practice, however, the high shadow prices for quotas (as quotas are attached to vessels) indicates that the rights are viewed as secure.[8] Interestingly, investment data shows that it is the larger segments that have the lowest levels of investment.[9]

There are also complaints about the security of fishing rights within the year for the non-sector as a race to fish sometimes results in early closures for the non-sector, although fishery closures are low for the French fishing fleet as a whole.[10]

FIGURE 7.4.1: INVESTMENT AS A PERCENTAGE OF LANDED INCOME BY FLEET SEGMENT (NORTH ATLANTIC FLEETS 2008-2014)



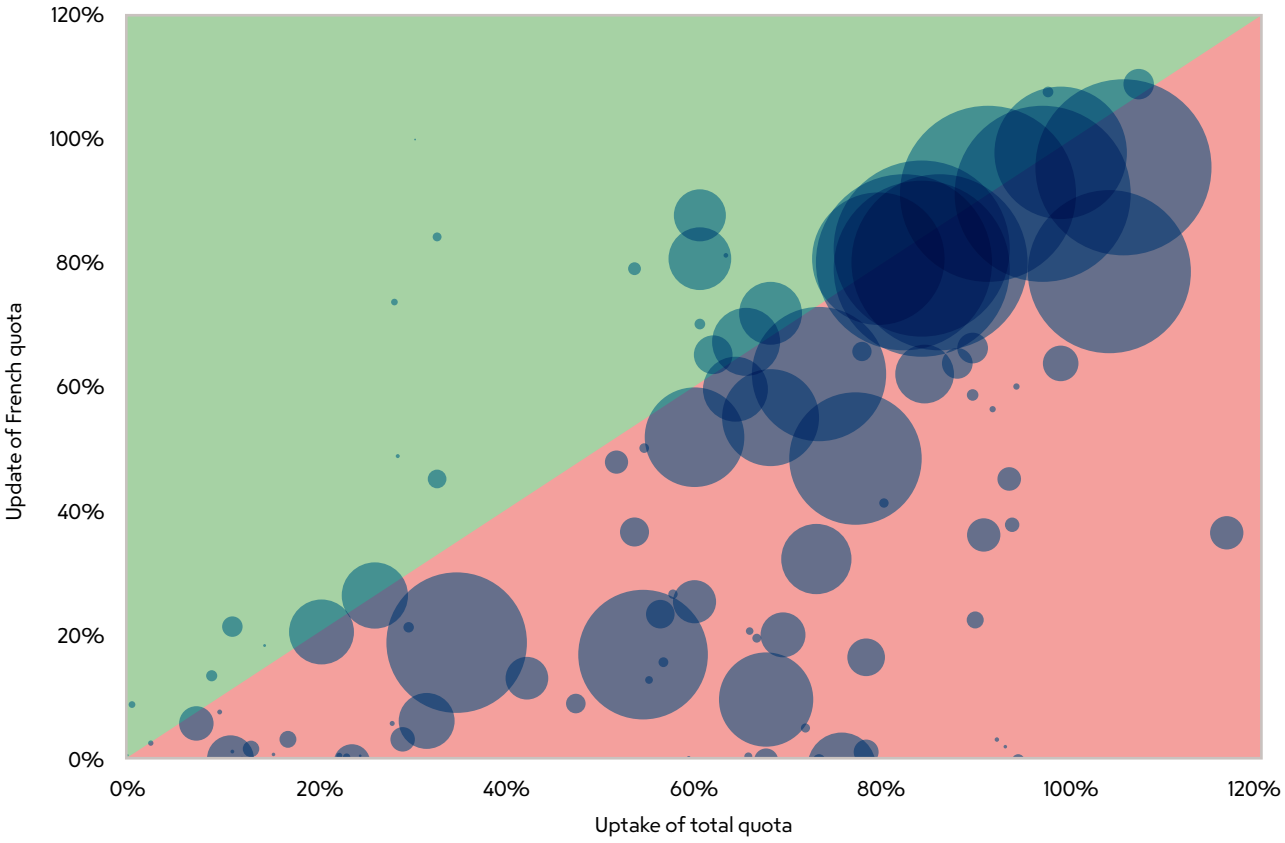
Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

FLEXIBLE: LOW

Whilst the POs maintain flexibility though the exchange of quotas, including an increasing amount of exchange with POs in the UK, there are indicators of poor flexibility in the fleet. Quota uptake in the French fleet is low compared to other Member States fishing the same quotas[11], indicating that quotas are not getting to fishers that could use it. However, this may also be attributable to the favourable relative stability France enjoys in EU TAC. Discarding is high compared to other Member States using similar gears in the same areas[12] and there are relatively frequent incidents of quota infringements (10% of vessel inspections)[13], indicating that some fishers do not have the quotas they need. As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

Low TACs overall could explain some of this performance but are unlikely to provide a full explanation. The same low investment and lack of fleet renewal has been credited to the fact that fishing quotas are attached to a vessel and need to be purchased together. This lack of easy transferability matches with the finding that it is the large-scale fleet segments (and the more likely buyers of quotas) that have low investment compared to other Member States.

FIGURE 7.4.2: FRENCH QUOTA UPTAKE IN COMPARISON TO TOTAL UPTAKE BY ALL MEMBER STATES UTILISING THE SAME QUOTAS



Source: Authors' calculations using data from the Fishery Data Exchange System (FIDES). Note: Quotas, represented by bubbles in the green half are utilised more than average, and in the red half, less than average.

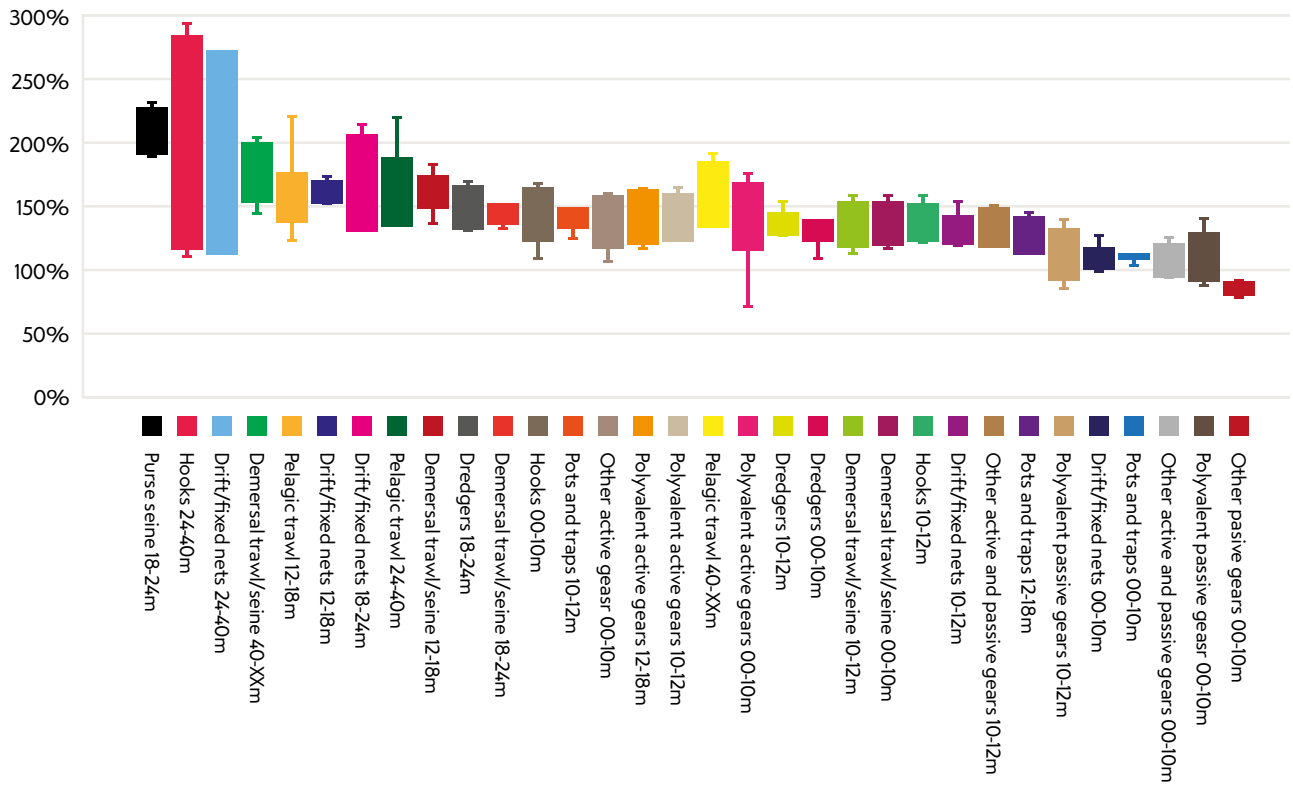
ACCESSIBLE: MIXED-LOW

Although quota reserves are in place for new fishers, they may not always be sufficient to accommodate newcomers. New fishers can purchase a vessel with an existing track record, or rely on POs pooled and reserve quotas. However, POs may not pool enough quota and can be reluctant to accept members without a track record, creating a barrier to entry. This problem is amplified by a lack of investors in the French fishing industry. In some cases, the national quota reserve is used to allocate quotas to POs with new fishers to improve access. The Competition Authority's report on the French quota system stated that fishers active in the reference years may be granted an undue competitive advantage over newcomers.[14]

VIABLE: MIXED

Overall, the French fishing fleet has mixed economic viability, as it is characterised by low profits (13% gross profit margin in 2014) but high wages (€52,000 in 2014).[15] Whilst there are much higher wages in the large-scale fleet, most of the small-scale segments have average wages higher than the national median wage in France (€36,000).[16]

FIGURE 7.4.3: CREW WAGES AS A PERCENTAGE OF THE NATIONAL MEDIAN WAGE BY FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

EQUITABLE AND FAIR: MIXED-LOW

Systems based on historical quota allocation are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. According to an expert interview, poor recording practices are an issue in France especially for small-scale vessels. New fishers without a track record will need to buy fishing rights or rely on special allocations. Historical allocation is highly favourable to incumbent fishers who are granted a free quota share.

France deals with these issues in ways mentioned earlier. As POs allocate some quotas through a pool rather than individually, fishers that lack track records do have access to some quota. Additionally, PO and national reserves are used to correct for a lack of fishing opportunities for some fishers, although not sufficiently.[17] Still, there are widespread complaints – including some from the Competition Authority - about the disadvantaged access for fishers without track records.[18]

Small-scale fishers have complained about a lack of bluefin tuna authorisations handed out. Many fishers that have been fishing bluefin tuna for decades lost out because of the 2008-2010 reference period. Additionally, others have complained about poor access to sole quotas in the Bay of Biscay.

PUBLICLY OWNED: MID-HIGH

Article R921-35 of the Maritime and Rural Affairs law states that the minister responsible for fisheries has the power to make allocation decisions. Additionally, the breadth of the allocation criteria affords the minister significant discretion to perform extraordinary allocations. Quotas are treated as publicly controlled entities which is recognised by the fact that they are not allowed to valued or exchanged for a price. The Fisheries Laws of 1997 and 2010 state that fish resources are considered as common heritage meaning they cannot be privatised. Despite this, research has shown that that a shadow market in quotas exists as vessel prices internalise the value of quotas associated with its track record.[19]

MEETS GOVERNMENT OBJECTIVES: MID-LOW

EU OBJECTIVES

France's system of allocating fishing opportunities allows the government to pursue objectives through two ways: the socioeconomic and market conditions criteria, and national and PO quota reserves. Regarding the use of the national reserve in particular, an amendment to the Rural Code in 2014 states:

ARTICLE R921-48:

The national reserve may be used to allocate:

> to producers on the basis of criteria of an environmental, social and economic nature: these criteria may include the impact of the fishery on the environment, compliance history, contribution to the local economy and catch records; The prioritisation of the national reserve is an incentive for vessels deploying selective gear or using fishing techniques with reduced environmental impact, such as low energy consumption and limited impacts on Habitats.

This amendment is, in part, a direct translation of Article 17 of the CFP into national law. One key difference is that in the French law it is stated that the 'national reserve may be used to allocate…' (emphasis added) whilst Article 17 states 'Member States shall use transparent and objective criteria' (emphasis added). It is unclear to what extent these criteria have been used in national reserve allocations so far and so it is difficult to judge if France complies with Article 17 and objective 2.5(i) of the CFP.

On CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, France has relatively high landings prices in comparison to other Member Stats fishing the same TAC species in the same area with at least €100,000 in landings. This may indicate a lower amount of consumer surplus to buyers, although it may also indicate a difference in the quality of the product or a difference in markets.

The other relevant EU objective, 2.5(d), is covered in Article 22 of the CFP, which states that action should be taken by Member States to align fleet capacity with available fishing opportunities. In its most recent assessment of the balance of fleet capacity and fishing opportunities, STECF scores France moderately well, with most fleet segments in line with fishing opportunities across multiple indicators.[20]

NATIONAL OBJECTIVES

At the national level, France has few stated objectives. Two statements stand out from the Rural and Marine Fisheries Code as relevant objectives for the allocation of fishing opportunities:

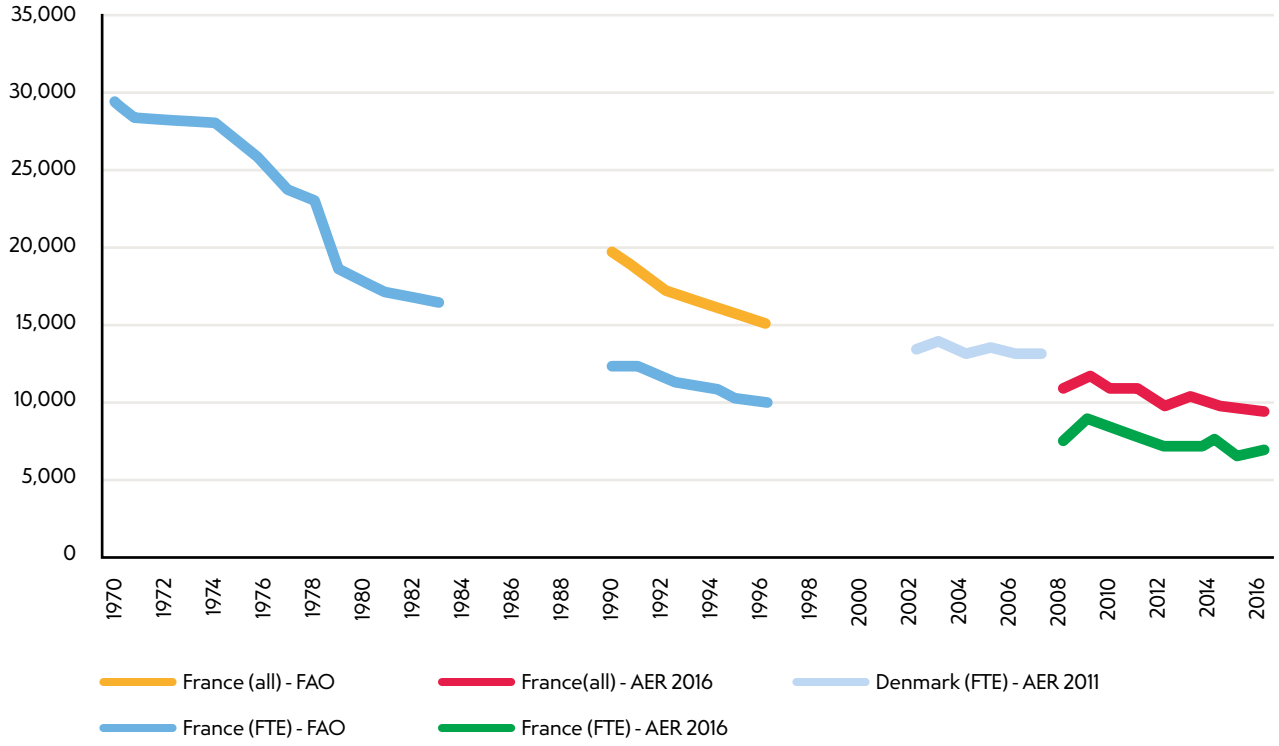
ARTICLE L911-2

1. 'enhancement of the collective heritage of the fishery resources to which France has access'
2. 'support income, increase employment and improve the quality of life of fishers' Article L2

The foundational objective 'Viable' covers some aspects of these objectives, albeit in a strict economic sense. France was scored as 'mixed' on this objective. However, Article L2 specifically mentions increasing employment as an objective, which is likely linked to the collective heritage of Article L911-2.

Employment has not been increasing in France, and has decreased over the past several decades along with nearly all other EU Member States and developed nations outside the EU.[21]

FIGURE 7.4.4: EMPLOYMENT IN THE FRENCH FISH CATCHING SECTOR SINCE 1970.



Source: Authors' calculations using data from the Food and Agriculture Organization (FAO) and Scientific, Technical and Economic Committee for Fisheries (STECF).

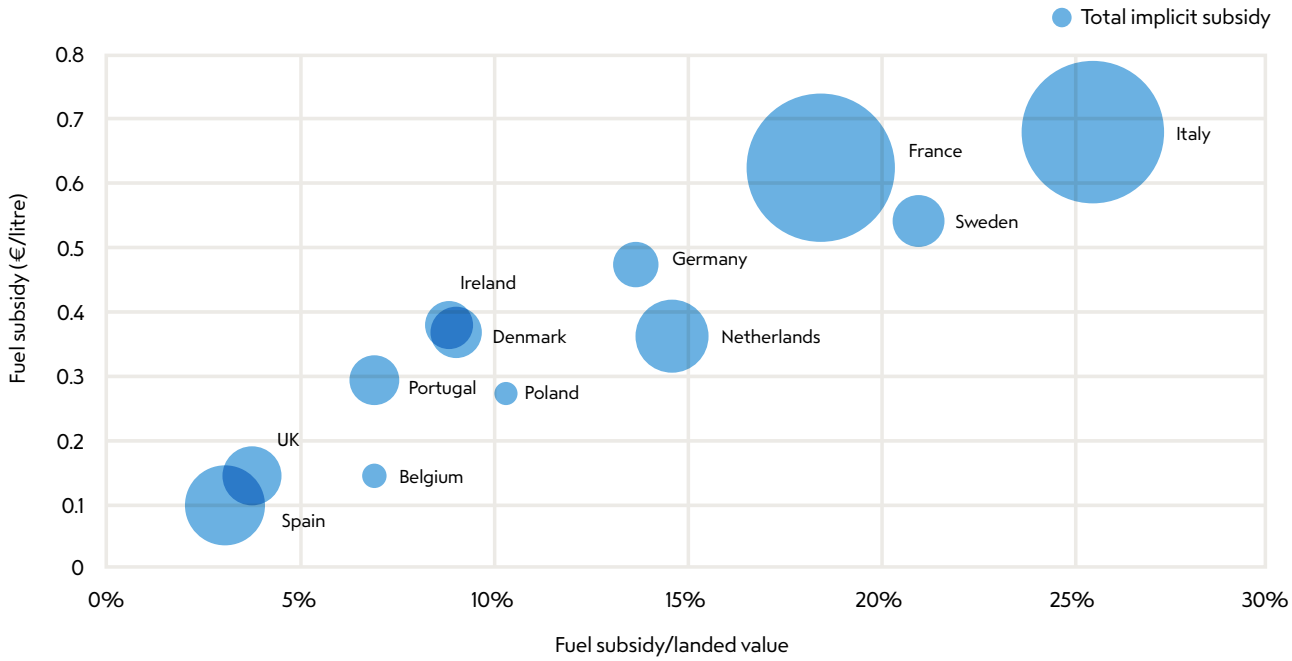
France has a national quota reserve, as described in the EU objectives, but the reserve is not currently aligned with the national objectives that are stated here.

LIMITED PUBLIC EXPENSE: FAIR

The costs of fisheries management in France are average compared to other EU Member States (19% as a percentage of landed value)[22]. There are two ways in which some of the management costs of fisheries are covered. POs, which perform some duties that might otherwise be performed by the state, collect a fee based on a percentage of their landings value. Additionally, licensing fees contribute to monitoring and control. These sources of revenue are small and insufficient to cover management costs.

Implicit fuel subsidies for fishing are very high in France (0.63€/litre). As fishing is one of the most fuel intensive industries, these subsidies add up to large amounts in France (€203 million annually), particularly when compared to the size of economic output from the industry (18% of landed value).[23] They mainly benefit large-scale trawlers which are the most fuel-intense. Fuel subsidies are also in conflict with government objectives to minimise the environmental impact of fishing.

FIGURE 7.4.5: IMPLICIT FUEL SUBSIDY BY MEMBER STATE MEASURED IN EUROS PER LITRE OF FUEL AND AS A PERCENTAGE OF TOTAL LANDED VALUE OF THE NATIONAL FLEET.



Source: Authors' calculations based on European Parliament report and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: LOW

The mechanism of allocating fishing opportunities is laid out in France's statutory law. This is publicly available but is not sufficiently accessible or simply and clearly explained. There is no document or webpage that sets out how fishing opportunities are allocated in a clear and straightforward manner. France does not maintain a publicly available register detailing quota share holdings by vessel or PO. Since allocations are made every year to POs and non-PO fishers based on vessel-track this information is internally available but has not been made publicly available.

OBJECTIVE: FAIR

As described in section three, France allocates quotas according to three criteria. The method for using historical fishing records to allocate is clearly outline in the Code rural et de la pêche maritime. However, it is unclear in what circumstances the other two criteria should be applied and to what extent, or what weighting they should be given. This rather undermines the objectivity of allocation.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MODERATE

France's fisheries management has strong co-management features. There are many regional committees with local representation from different industry stakeholders. These have formal powers in licensing and technical measures. POs have quota-management mandates on behalf of their members and plan fishing activities. Prud'homies also deliver devolved management. Despite these institutional features, complaints have been made that POs are not democratically organised and small-scale fishers are poorly represented in decision-making.

Although it is difficult to assess the full inclusiveness of representation, industry and professional representation is integral to the institutional make-up of decision-making. Complaints have been made that PO are rather negatively affected by internal politics and favouritism towards fishers that hold the largest track records.[24] This calls into question their ability to be non-discriminatory towards members.

Although there is no up-to-date research on co-management in all aspects of the French fishing industry, certain schemes have been researched. PO quota-management has been described as 'co-management by delegation' which affords a high level of independence to the devolved organisation (POs).[25] Additionally, the Bay of Brest scallop restocking has been classified as a involving 'functional participation' which is a government driven form of partnership which involves sharing some aspects of decision-making.[26]

7.5 RECOMMENDATIONS

Our analysis of the French system of fishing opportunities shows a number of areas of inadequate performance. In particular, flexibility, transparency and accountability in POs require improvements. Like all Member States reviewed in this report, France has low scores in covering fisheries management costs and capturing a resource rent. We suggest a number of reforms that could help to remedy some of the problems that have been diagnosed.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Our analysis of the French quota system indicates that fishers do not have sufficiently flexible quota access. This is apparent in relatively low utilisation and high numbers of quota violations and regulatory discarding. There are a number of ways of improving flexibility in quota access. This can be achieved without introducing ITQs, which are widely opposed in France.[27]

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.
Currently in France, uptake of quotas is frequently less than 100% at the end of the year, so there are surplus quotas held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if they exhaust their quotas for certain species. The resulting improvements in flexibility can contribute towards compliance with the landings obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over members' quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESSIBILITY FOR NEW FISHERS

Currently many new fishers that don't have an existing track record face additional barriers to being able to fish. They face much higher costs if they want to buy a vessel with a track record. Also, many POs will reject new fishers that don't have existing track records, as this means members have to share quotas with fishers that do not affect the POs allocation. There are number of ways to provide better access to new fishers. Here are two proposals that would give new fishers easier entry.

PROPOSAL 1 – GRANT QUOTA SHARES TO NEW FISHERS

New fishers that have demonstrated an investment in the fishing industry are granted permanent shares from the national quota reserve. These can be granted on the basis of vessel characteristics and the fishing plan of the recipient. If necessary, the share of the national reserve could be increased to accommodate fishers that lack track records. Although this may seem unfair to fishers that may lose out from expanding the national reserve, it must be noted that these fishers were also gifted their initial allocation free of charge.

PROPOSAL 2 – CREATE RULES ON PO ALLOCATION

A rule should be introduced that dictates that POs allocate a fixed percentage collectively and a fixed percentage individually. For example POs would be required to pool 30% of their allocations and allocate the remainder individually. Fishers with individual track record-based allocations should only be allowed to access the pool once they have depleted their individual quotas. This would 1) prevent the internal politics over quota allocations which gives unwarranted leverage to fishers with large track-records; 2) guarantee a set amount of quotas available for new fishers; 3) make internal allocation rule-based across POs.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[28] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[29] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landings obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[30]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.63 per litre for France is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats [31] - use the most fuel per landed value, whilst pots and traps use the least.[32] This variance in fuel use is an important price signal that should be reflected in the price of fish.[33] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[34]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

CREATE A QUOTA SHARES REGISTERS AND CLARIFY ALLOCATION

Allocation in France is not transparent. It is unclear under what circumstances criteria other than historical participation can be used to allocate quota and what their respective weightings are. There is no available data or public register on how much POs are allocated, and how allocation calculations are performed. Furthermore, the quota management of POs is opaque and not open to scrutiny.

To resolve these problems, the following steps can be taken:

1. Quota allocation decisions need to be made by providing publicly available documentation on the methods of allocation and the criteria used. According to Article 17 of the CFP these should be objective and transparent.
2. The outcomes of allocation decisions should be available in a quota register showing the recipients of allocations. This applies to both ministry and PO allocations.

ENSURE PROPER REPRESENTATION AND DEMOCRATIC FUNCTIONING OF POs

Complaints are frequently levied at how POs are managed, namely that larger fishing companies wield disproportionate levels of influence, sometimes to the detriment of small-scale fishers or newcomers. The board of the France's largest PO has 759 vessels in its membership, including 59% under 12 metre vessels. However, only 16.3% of the seats on the board are represented by small-scale fishers.[35] This puts into question the ability of the PO to represent its membership fairly.

As organisations managing access to a public resource, POs need to function in an accountable and democratic manner. PO decision-making needs to be transparent and inclusive. We suggest that higher standards are implemented to ensure equitable representation and greater disclosure of allocation practices in POs.

7.6 CONCLUSIONS

France's fishing opportunities are allocated via POs as both non-transferable individual and collective quotas, predominantly on the basis of historical track records. POs, professional organisations, and Prud'homies have significant roles under France's co-management system. Some aspects of France's quota system have recently been scrutinised in a 2016 report by the Competition Authority. Our analysis reiterates some of the issues highlighted in the report, including poor access for new fishers and weak representation and transparency of POs. Additionally, we found that fishers lack flexible access to quotas and management costs are not recovered. Based on our assessment of available information and input from interviews, we recommend that France:

- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Improves accessibility for new fishers by either granting quota shares to new fishers or ensuring that POs set aside sufficient quota for collective use;
- Incorporates social and environmental criteria in the allocation mechanism;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Creates a quota shares register detailing allocation recipients;
- Ensures proper representation and democratic functioning of POs.

Although a landings tax and cutting fuel tax exemptions may increase costs for the fishing industry, it would reduce the government's financial burden and encourage more efficient and less fuel-intensive activities. At the same time, improving flexibility through a swapping system may lead to higher quota utilisation and improved economic performance. Taken together, these recommendations could transform the French fishery whilst also keeping the general system structure and its current advantages intact.

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from: http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf

3 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

4 In 2012 the DPMA made an allocation based on socioeconomic balance to all vessels with a bluefin tuna authorisation. This gives a small percentage (worth 600kg in 2016) of quota to all authorised vessels.

5 Larabi, Z., Guyader, O, Macher, C. & Daurès, F. (2013). Quota management in a context of non-transferability of fishing rights: The French case study. Ocean and Coastal Management, 84, 13-22. Retrieved from http://www.sciencedirect.com/science/article/pii/S0964569113001634

6 Guyader, O., Daurès, F., Jézequel, M. & Thébaud, O. (2006). Second hand market for fishing vessels and implicit price of fishing rights. International Workshop on Regulating Access to Marine Fisheries in the Coastal Zone. IUEM, Plouzané.

7 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

8 Larabi, Z., Guyader, O, Macher, C. & Daurès, F. (2013). Quota management in a context of non-transferability of fishing rights: The French case study. Ocean and Coastal Management, 84, 13-22. Retrieved from http://www.sciencedirect.com/science/article/pii/S0964569113001634

9 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

10 Fisheries Data Exchange System (FIDES) dataset 2013-2015.

11 Fisheries Data Exchange System (FIDES) dataset. 2013-2015

12 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf

13 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

14 The Competition Authority, 2015. No. 15-A On the effects on competition of the distribution mechanism of fishing quotas in France.

15 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

16 Authors' calculations based on OECD.stat and Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

17 The Competition Authority, 2015. No. 15-A On the effects on competition of the distribution mechanism of fishing quotas in France.

18 The Competition Authority, 2015. No. 15-A On the effects on competition of the distribution mechanism of fishing quotas in France.

19 Guyader, O., Daurès, F., Jézequel, M. & Thébaud, O. (2006). Second hand market for fishing vessels and implicit price of fishing rights. International Workshop on Regulating Access to Marine Fisheries in the Coastal Zone. IUEM, Plouzané.

20 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf

21 Authors' calculations based on Food and Agriculture Organisation (FAO). (2013). Fisheries employment. and Scientific Technical and Economic Committee for Fisheries (STECF). (2011). The 2011 annual economic report on the EU fishing fleet (STECF 11-16). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/256769/2011-11_STECF+11-16+-+2011+AER+on+the+EU+fishing+fleet_JRC67866.pdf and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

22 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

23 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

24 The Competition Authority, 2015. No. 15-A On the effects on competition of the distribution mechanism of fishing quotas in France.

25 Le Floc'h, P., Murillas, A., Aranda, M, Daurès, F., Fitzpatrick, M., Guyader, O., Hatcher, A., Macher, C. & Marchal, P. (2015). The regional management of fisheries in European Western Waters. Marine Policy, 51, 375-384. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X14002553

26 Leite, L., & Pita, C. (2016). Review of participatory fisheries management arrangements in the European Union, Marine Policy, 74, 268-278. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X16304742

27 Frangoudes, K. & Bellanger, M. (2017). Fishers' opinions on marketisation of property rights and the quota system in France. Marine Policy [in press]. http://www.sciencedirect.com/science/article/pii/S0308597X1730012X

28 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

29 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508

30 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

31 Seafish. Risk Assessment for Sourcing Seafood. http://www.seafish.org/rass/

32 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

33 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

34 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

35 Frangoudes, K. & Bellanger, M. (2017). Fishers' opinions on marketisation of property rights and the quota system in France. Marine Policy [in press]. http://www.sciencedirect.com/science/article/pii/S0308597X1730012X

CHAPTER 8 - GERMANY

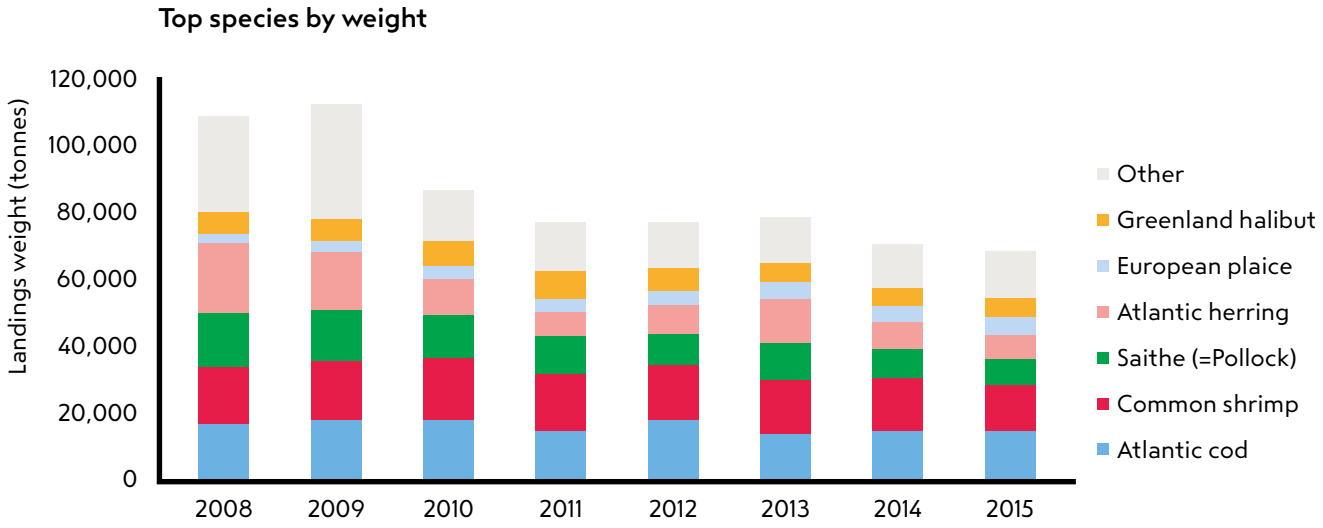
Germany has fishing activities in the North Sea, Baltic Sea and arctic waters targeting a mixture of demersal and pelagic stocks. Most of its fishing opportunities are under EU TACs and it has a non-transferable quota system in place at the national level. To assess Germany's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance.

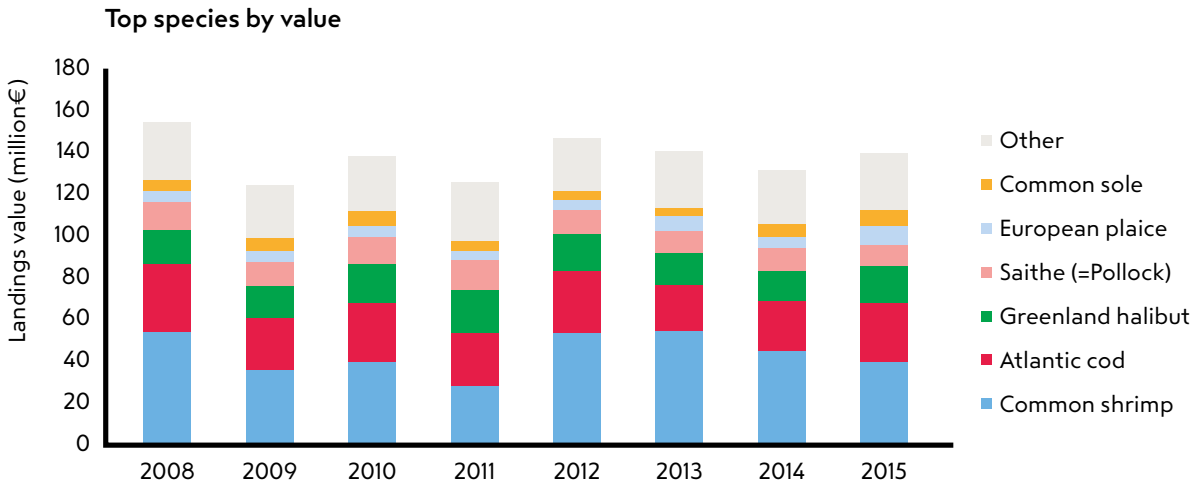
Our analysis shows that whilst Germany performs well on security of fishing access and economic viability, performance is low on many other objectives, especially accessibility and transparency. Low accessibility for new fishers may be due to a lack of starter-quotas available and newcomers have to purchase vessels with existing allocations. We recommend a number of reforms including setting aside quotas for new fishers and creating a public quota register to improve transparency.

8.1 INTRODUCTION AND BACKGROUND

Germany has a relatively small marine fishing sector with 1,443 registered vessels employing 1,605 fishers.[1] Fishing activity takes place on both the Baltic and North Sea-facing coasts. In 2015 Germany landed 238,000 tonnes of fish.[2] By some metrics, the sector has been in decline over the past five years, with landings, vessel numbers and employment all falling. At the same time, the sector has become more profitable, increasing from a 9.1% negative net profit margin in 2009 to a 9.1% positive margin in 2013. Germany is 33% self-sufficient in terms of its fish consumption and so relies on fish imports to a large degree.[3] Just over 80% of the German fleet consists of small-scale (under 12 metre) vessels, which fish almost exclusively in the Baltic Sea. Cod and shrimp are the two most commercially important stocks, making up nearly half of Germany's landed value.

FIGURE 8.1.1: GERMANY'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE





Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: These figures exclude data from fleet segment DEU A27 TM40XX as no economic data was reported. This segment accounted for 155kt of live landed weight.

The German fleet can be divided into several different segments according to their size, gear and target stocks:

1) A long-distance fleet consisting large-scale (over 40 metres) pelagic and demersal trawlers operate in the North Atlantic including Eastern arctic and Greenland waters. These target pelagic herring and mackerel as well as demersal stocks such as Greenland halibut, cod and redfish.
2) A beam trawl fleet segment consisting of vessels up to 27m in length target brown shrimp in the North Sea and a few larger beamers target mainly flatfish and Nephrops in the North Sea and Skagerrak.
3) Small Baltic trawlers, some switching between cod and flatfish, and herring and sprat.
4) The largest segment: the passive under 12 metres target Baltic cod, herring and freshwater species such as pike-perch in Brackish waters. These vessels use a variety of passive gears including gillnets, trammel nets and traps.

FIGURE 8.1.2: GERMANY'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2014)

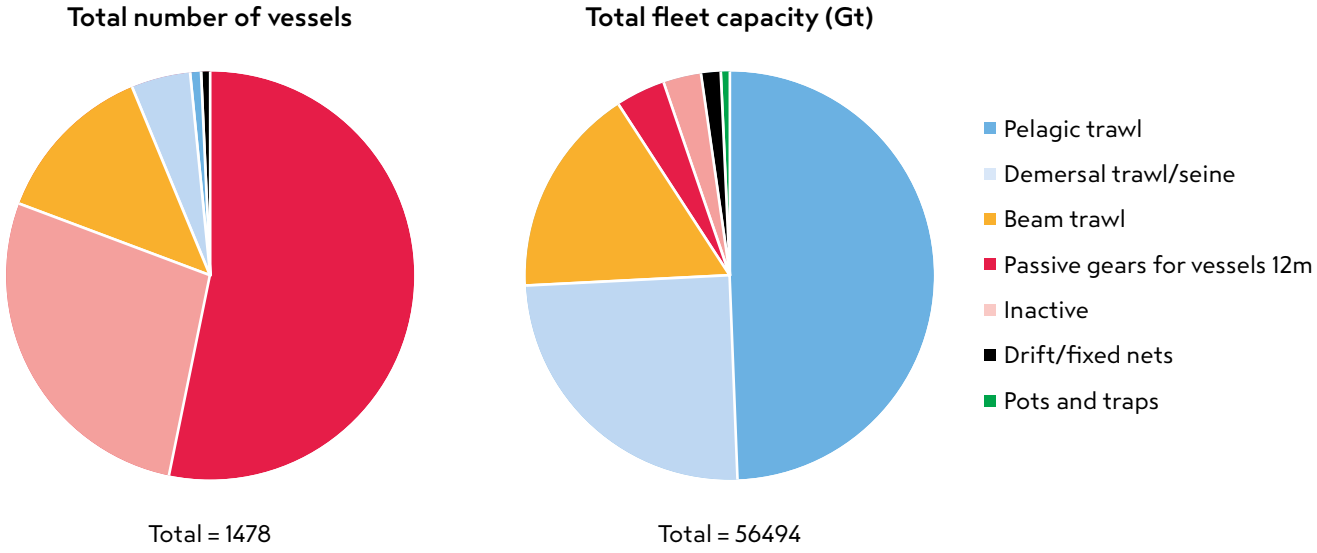


Figure 8.1.2: Germany's fleet gear-composition by number of vessels and fleet capacity in 2015. Source: STECF Annual Economic Report, 2016.

Over the past 20 years, the German fleet has seen a large reduction in number of vessels and capacity (Table 8.1.1). After German reunification the subsidies for the Baltic small-scale fleet were reduced and the EU declined to buy international quotas for East Germany's large off-shore fleet. This change has occurred during a time when the whole European fleet shrunk as a result of capacity reduction efforts. The current, much slimmed-down fleet, is profitable, yet there is concern over the ageing fleet and lack of investment.

TABLE 8.1.1: GERMAN FLEET COMPOSITION BY LENGTH CLASS IN 1995 AND 2015

Year	Length Class	Number	Capacity (1000Gt)
1995	U12m	3967	11.575
	12-23m	999	35.258
	>23m	215	60.481
	Total	5181	107.314
2015	U12m	1981	6.075
	12-23m	320	16.254
	>23m	68	44.117
	Total	2369	66.446

Source: Eurostat, derived from the European Fleet Register. Figures may differ from the Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse Germany's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Germany's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

8.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management (RBM)
Types of fishing opportunities:	Individual quotas, pooled quotas and rationed quotas
Main allocation criteria:	Historical catches, economic value and market conditions
Differentiation in allocation:	Full time and part-time fishers, sector (PO) and non-sector
Landed weight under quota management:	87% [4]

OVERVIEW

Germany's fishing opportunities come in the form of a licensing system, individual non-transferable quotas and community quotas. Commercial fishermen are required to hold a fishing licence to carry out their activities and need individual fishing permits for quota stocks. Most commercial fishing is managed with quota limits, which come in two forms. Full-time fishers receive individual quotas that are attached to vessels and cannot be transferred whereas part-time fishers access a national quota. Full-time and part time commercial licences depend on the proportion of income fishers receive from fishing activities. Germany complies with the EU entry-exit, which obliges Member States to only add fishing capacity if at least the same amount of capacity is taken out of the national fleet. This means that new fishers need to purchase existing vessels to join the industry.

GOVERNANCE

The Federal Office for Agriculture and Food (BLE), under the Ministry of Food and Agriculture (BMEL), carries out the day-to-day management of the fishing sector. The federal states are responsible for control and enforcement. The marine fishing sector is divided into four groups depending on whether fishers are members of POs or not and if they are part time or full-time fishers (with differing rules applying for each). Germany employs a form of co-management in its fisheries management with formal meetings between the Fisheries Association (the federal fishers' union) and the ministry each year in addition to consultation on regulatory changes. Quota management is partially devolved to POs which carry out quota management and are responsible for the quota compliance of their membership. Coastal and non-quota stocks management is devolved to federal states.

GERMANY'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	National
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: Full-time fishers | Part-time fishers | All

This table summarises five key features of Germany's quota system with the exclusion of the less-active fishers. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

Allocation to full-time fishers is criteria based, but predominantly uses a historical reference period. Part-time fishers access a community quota, rationed by month.

HOLDER

Quotas are attached to vessels for full-time fishers and held by the ministry for part time fishers.

TRANSFERABILITY

Quotas are non-transferable and non-leasable but can be swapped within POs. They remain attached to the vessel if the vessel's owner changes.

SECURITY
Although quotas are property of the state, allocation has stayed very consistent since the current system was put into place. This has given fishers a strong expectation of future access.

DURATION
Full-time fishers' allocation applies to the full quota year (with the exception of sole where quarterly limits are also set) whilst part-time fishers access a monthly quota pool.

QUOTA ALLOCATION

Quota allocation is based on a set of criteria laid out by the Marine Fisheries act of 1984 which includes 1) past participation, 2) the economic value of the fleet and 3) market conditions. Additionally, the negative effects of limiting fishing possibilities can be taken into account. In practice, past participation (historical track record) is the primary criterion used in allocation with 1986-7 and 1989-90 used as fixed reference periods for the North Sea and Baltic Sea respectively. These criteria have to be used both by the ministry in allocating to POs and non-PO full-time fishers as well as by POs themselves. Part-time fishers don't receive individual quotas but access a national quota pool that sets monthly limits and where fishing closures are applied.

A share of the national quota is also reserved by the ministry for in-year hardship allocations. Fishers can apply for a share of this reserve during the year and any excess quotas are distributed via the standard process towards the end of the year. Only a few percent of the national quota is available for part-time fishers and for the hardship fund with over 95% allocated to full-time fishers.

QUOTA RULES

Quotas are publicly owned and non-transferable, although some measures are in place to shift quotas and provide flexibility. They are attached to vessels and can only be transferred alongside the vessel. They can also not be leased or be detached from their original vessel except with exceptional permission from the ministry. Fishers need to announce their quota utilisation plans to the ministry at the start of the year so that any excess quotas can be reallocated for that year. This reallocation does not affect historical track records. Quotas can be used on a different vessel by the same operator, but the quota-holding vessel has to be maintained in an 'active state', meaning that it is kept sea-worthy.

POs have the authority to pool quotas through buying vessels. A vessel's associated quota can be used by PO members. POs largely follow the historical track record of individual fishers in their allocation but may allocate based on the other criteria too. Fishers can contest changes in PO quota allocation.

8.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with two types of objectives: foundational objectives and government-specific objectives. As we were unable to identify national government objectives for Germany, our analysis (section 4) assesses the performance of Germany against foundational objectives alone. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 8.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

METHODOLOGY

Table 8.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. The performance on each measure is scored based on quantitative analysis and / or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 8.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

8.4 ANALYSIS

This section will assess the performance of the German system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

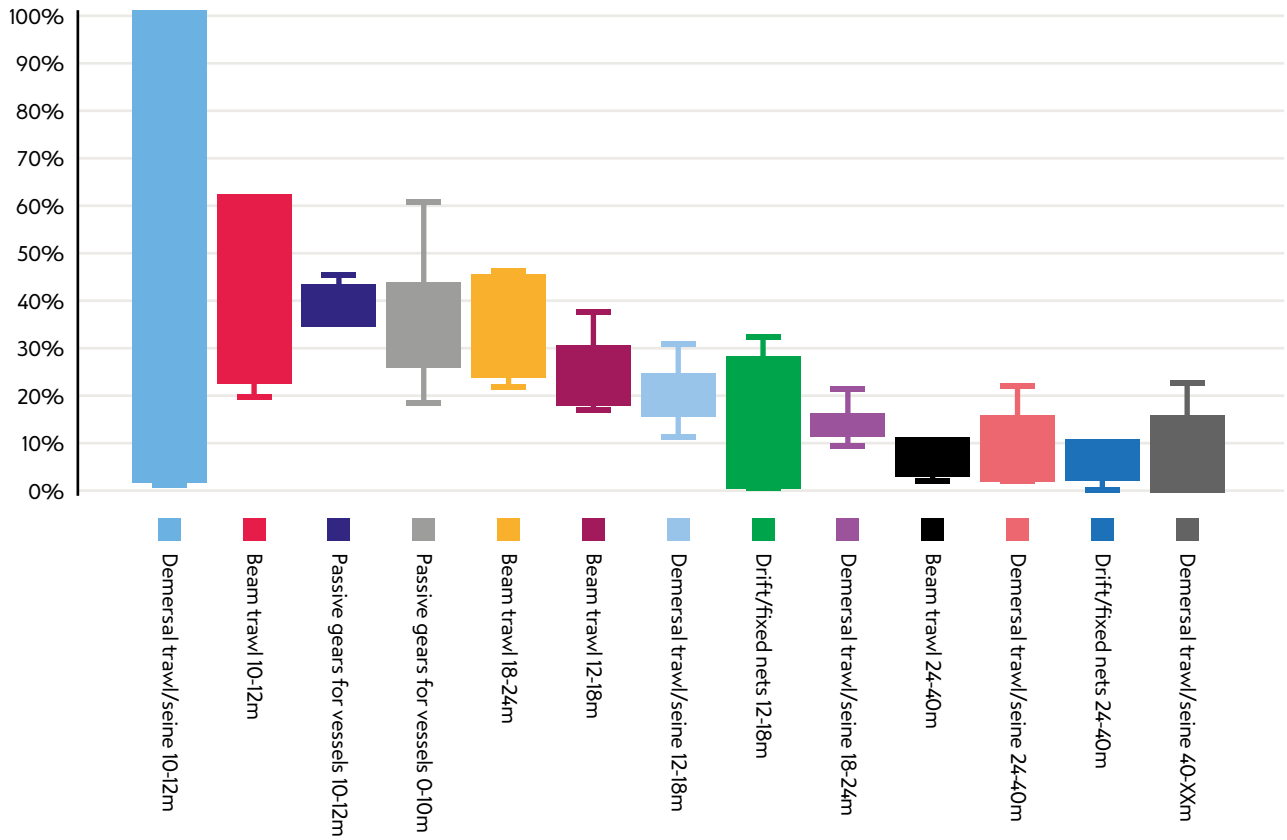
TABLE 8.4.1: PERFORMANCE OF GERMANY'S SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	Mig-high
	Flexible	Mixed
	Accessible	Low
	Viable	Mig-high
	Equitable and fair	Mid-low
Good for Society	Publicly owned	Mid-low
	Meets government objectives	Mid-low
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Low
	Objective	Mid-low
	Right governance level and representative	Mid-low

SECURE: MID-HIGH

Fishing opportunities in Germany are relatively secure, with the MRAG et al (2009) scoring the IQ system moderate to high on security and validity.[5] Whilst there have been some fishery closures in Germany[6], a potential indication of issues with in-year security, investment in the German fishing fleet is relatively high. Contrary to the common view in German fisheries, it is the small-scale fleets in the Data Collection Framework that have the highest levels of investment as a percentage of landed income.[7]

FIGURE 8.4.1: INVESTMENT AS A PERCENTAGE OF LANDED INCOME BY FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

FLEXIBLE: MIXED

Compared to other EU Member States, there is a relatively low amount of quota non-compliance (4% of vessel inspections with suspected infringements) and relatively low rates of discarding compared to other Member States using similar gears in the same areas, indicating that fishers are getting the quotas they need.[8] As a caveat, without fully documented fisheries, it is difficult to assess the accuracy of this discard reporting. Conversely, quota uptake is low compared to other Member States for the same quotas,[9] so there is potential for more flexibility in the system to improve performance through higher quota utilisation. This lower than average utilisation exists despite rules in place to reallocate excess quota.

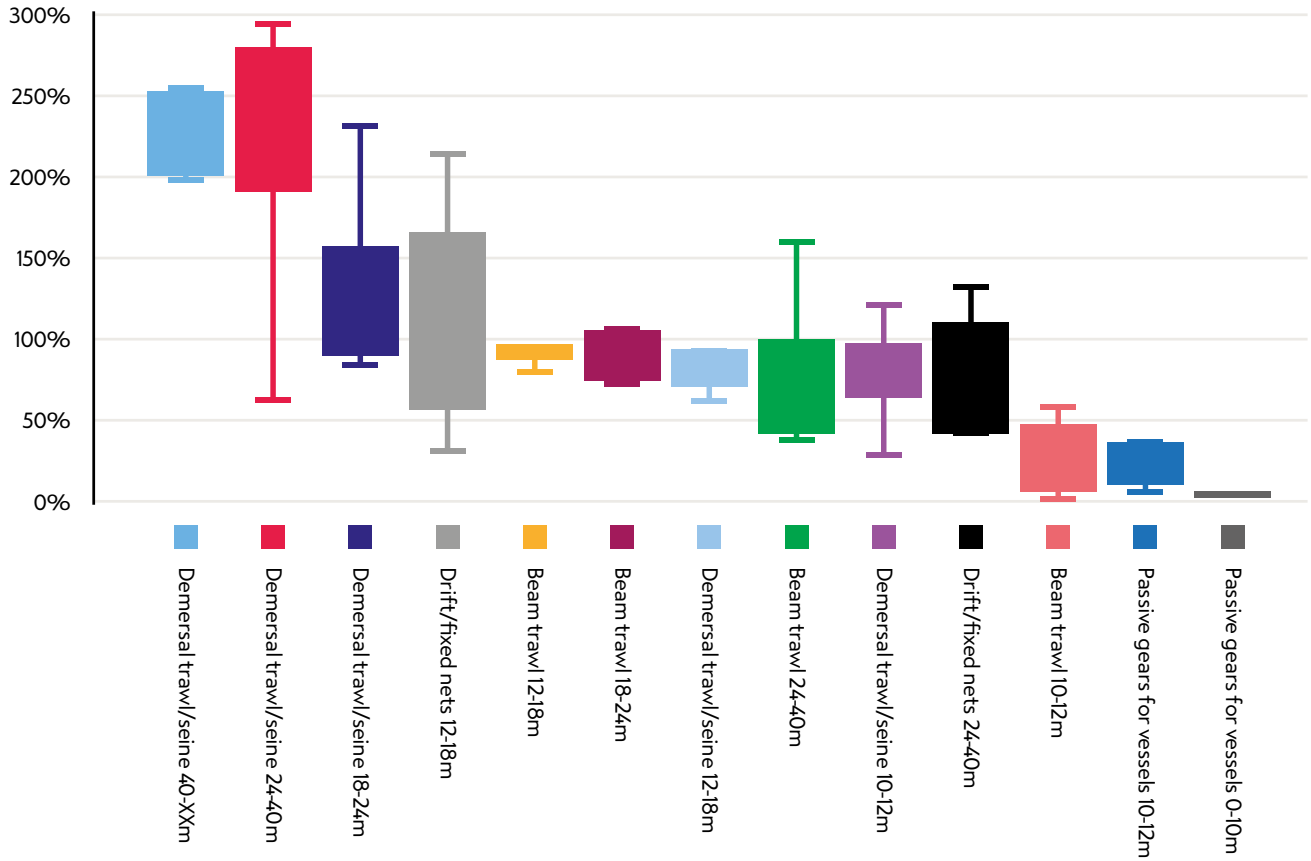
ACCESSIBLE: LOW

There is no quota reserved for newcomers so new full-time fishers have to purchase vessels with existing track records in order to access fishing opportunities.

VIABLE: MID-HIGH

Both fishing profits and crew wages are moderate in Germany compared to other EU Member States. At the fleet level, there is a wide variance in crew wages, with generally high wages in the large-scale fleets, in some cases over twice as high as the national median wage, and low wages in the small-scale fleets, in some cases less than half the level of the national median wage. This may be related to the lack of provisions in the German system of fishing opportunities that explicitly target the small-scale fleet.

FIGURE 8.4.2: GROSS PROFIT MARGIN BY GERMAN FLEET SEGMENT (2008-2014)



EQUITABLE AND FAIR: MID-LOW

Systems based on historical quota allocation are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. New fishers without a track record will need to buy fishing rights or rely on special allocations. Historical allocation is highly favourable to incumbent fishers who are granted a free quota share.

Germany currently has insufficient measures in place to deal with this issue, and it also does not seek to improve equitable access based on social objectives. Instead, allocations remain based on an old historical reference period, that potentially overvalues older vessels; the average age of the German fleet is 30 years. The hardship fund as part of the national quota reserve may provide a 'social' allocation but it is unclear what criteria are used in its allocations.

PUBLICLY OWNED: MID-LOW

Although quota allocation is a ministerial responsibility and multiple criteria are used to allocate quotas, some experts fear that through time, quotas have become de facto privatised. Reference periods for historical allocations date back to the 80's and early 90's. With few moves to update this or reallocate quotas there is a risk that fishers will have developed a 'legitimate expectation' for receiving a particular share of the quota. This can form the basis for arguing that quota are legal possessions, and thus no longer state property. No official or legal statements have been found that clarify the legal status of quotas.

MEETS GOVERNMENT OBJECTIVES: MID-LOW

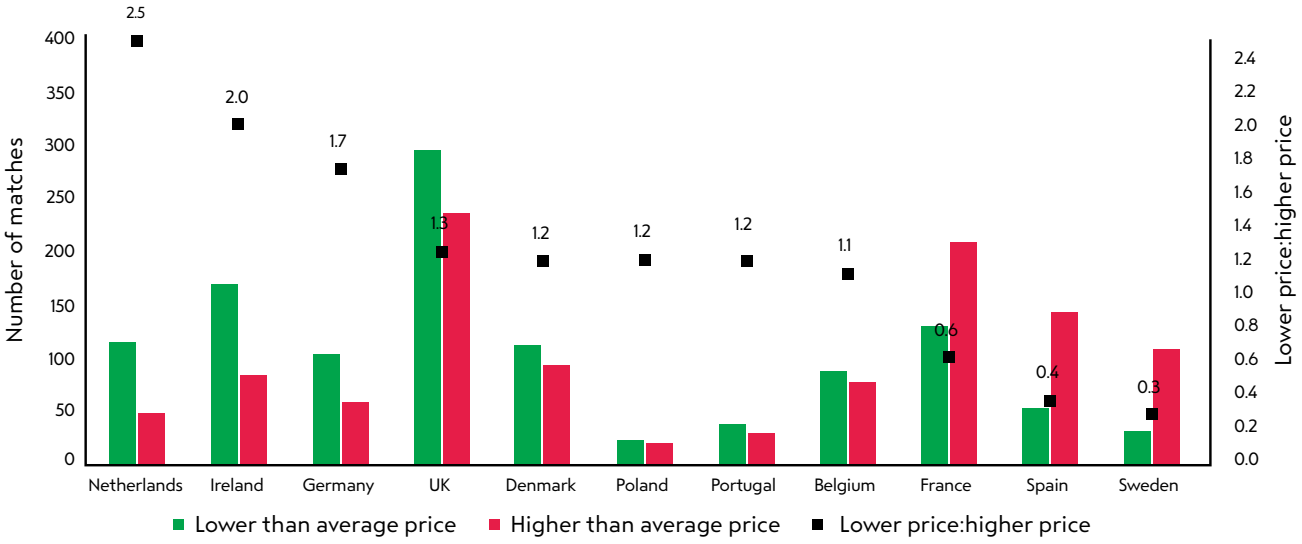
EU OBJECTIVES

Germany's allocation method does not include social or environmental criteria, as required by Article 17 of the CFP and following objective 2.5(i). The in-year allocations using the quota reserve could potentially be a type of 'social' allocation, but it is not known what method is used to reward these quotas.

Article 22 of the CFP states that Member States should ensure that their fleet capacity is in balance with the fishing opportunities that are available, following on from objective 2.5(d). In STECF's latest assessment of balance indicators, Germany scores moderately low compared to other Member States. This is largely the result of the demersal trawl and passive gear fleet segments, whilst the beam trawl fleet appears to be in balance.[10]

Lastly, on CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Germany has low prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings. This may indicate a higher amount of consumer surplus to buyers, although it may also indicate a difference in the quality of the product or a difference in markets.

FIGURE 8.4.3: COMPARISON OF MEMBER STATE FISH PRICES FOR THE SAME SPECIES IN THE SAME AREA



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated of instances of lower than average prices to higher than average prices.

NATIONAL OBJECTIVES

No documentation of objectives for fisheries management is available for Germany, so performance according to national objectives cannot be assessed.

The fisheries authority maintains a national quota reserve that is used up during the year depending on need. This gives the government the potential to use allocation as a means to pursue objectives, although its use in this regard has been limited to date. Currently the use of this reserve is used predominantly as a hardship fund or as a source of additional quotas when fishers run out.

LIMITED PUBLIC EXPENSE: LOW

At €6 million, equivalent to 5% of landed value, the costs of management in Germany are relatively low compared to other EU Member States covered in this report. However, there are no forms of (direct) revenue generation from the industry to pay for management. There is also an implicit fuel subsidy in Germany of 0.47 €/litre, relatively high compared to other EU Member States, and equivalent to an €18 million effect on public finances from revenues lost. Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: LOW

Germany provides a short document (Fischereiquoten-Management in Deutschland) describing features of allocation but it is not sufficiently detailed or comprehensive. The German Fisheries Act (1984) mentions criteria that should be used in allocation but provides no detail. Unfortunately, requests for official documentation require the payment of a €500 access fee. As a result, most of the information used in section 2 of this report was obtained via communications with experts and stakeholders.

No register exists that details quota share holdings by fishers or POs. Communications with stakeholders have confirmed the lack of transparency in how POs, in particular, work.

OBJECTIVE: MID-LOW

Allocation that is based on fixed historical track records are by definition objective. Other criteria that are stipulated in the German Fisheries Act are applied on a discretionary basis. It is unclear how/if they are weighted and the methodology underlying these other criteria is similarly unclear. It is difficult to know how successful applications for the quota reserve are determined.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-LOW

Some quota management responsibilities are delegated to POs. This brings some collective management down to a lower level, although the extent to which POs pool quotas may be minimal. This is because quotas are allocated to vessel track records rather than to POs and POs only pool quotas if individual fishers agree to do so. Some management and control responsibilities are delegated to state authorities. The federal states and professional associations are consulted on quota decisions. No literature on the use of co-management in the German context was identified.

8.5 RECOMMENDATIONS

Germany performs well on the security of fishing opportunities and ensuring the economic viability of the fleet but also falls short on a number of foundational objectives. In particular, the quota system lacks flexibility and accessibility for fishers, management costs are not accounted for and transparency in the allocation process is insufficient. Additionally, we recommend that Germany fully implements Article 17 of the CFP by incorporating objective and transparent economic, social and environmental criteria into its allocation process or setting aside a separate quota reserve for allocations on this basis.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Our indicators show a mixed picture for Germany's level of flexibility. Although there are few quota shortages, quota utilisation is low for many stocks. This is consistent with Germany's IQ system that does not permit leasing or transfers independent from vessels. The fact that historical track records used in allocation date to the 1980's is also likely to create large discrepancies between what fishers are allocated and what they need.

We suggest that Germany introduces a peer-to-peer quota swapping system that avoids monetising quotas but gives fishers more control to exchange. It could either replace or supplement the current approach of reallocating quotas based on fishers submitted fishing plans. An additional measure that would improve flexibility is to scrap the 'active-vessel' rule which forces vessel owners to keep old vessels active in order to use quotas on a different vessel. A single owner should be able to move quotas between vessels without requiring that vessels are kept in an active state.

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.

Currently in Germany, uptake of quotas is frequently less than 100% at the end of the year, so there is excess quota held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if they exhaust their quotas for certain species. The resulting improvements in flexibility can contribute towards compliance with the landing obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over member's quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESS FOR NEW FISHERS

Currently, new fishers wishing to join the 'full-time' sector are required to purchase vessels with existing track records to access quotas. This creates a significant barrier to entry and has the tendency of over-valuing older vessels with larger track records. These vessel licences are likely to include the shadow price of quotas shares. Fishers that were active during the reference period are hugely advantaged over new fishers who often rely on inheriting a vessel licence. It cannot be justified that new fishers, accessing the same public resource, should have to pay significantly more.

Although it is difficult to facilitate new entry in a context of EU capacity reduction regulations, efforts can still be made to give new fishers a more equal initial footing. To improve access for new fishers, Germany should set aside quota in a national quota reserve for the purpose of accommodating new fishers. These quotas these could be lent to fishers for a number of years (8 years in the Danish model) that have demonstrated significant investment in the fishing industry (i.e. vessel purchase). A more equitable method would be to 'tax' quota when vessel sales take place or when vessels are removed from the fleet (the French model). Then quota shares are appropriated by the fisheries authority to be allocated to new fishers in a continual process of re-gifting, rather than in short-term loans. This initial gifting can be performed based on vessel capacity and the fishing plans of the new fishers.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Germany's current allocation method is highly weighted towards historical landings. It is not clear how, or to what extent the other criteria mentioned in Germany's fishing law are used in practice. For these reasons, Germany should take further steps to incorporating social and environmental criteria into its allocation mechanism. This can also be achieved through expanding the role of the national quota reserve in performing allocations separately from the standard mechanism

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[11] Based on an extensive consultation exercise, they shortlisted the criteria in the box opposite.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[12] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landing obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[13]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.47 per litre for Germany is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[14] - use the most fuel per landed value, whilst pots and traps use the least.[15] This variance in fuel use is an important price signal that should be reflected in the price of fish.[16] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landing obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

DIFFERENTIATE A LANDINGS TAX AS AN ALTERNATIVE TO AN ECONOMIC LINK REQUIREMENT

Germany, along with other EU Member States has struggled with the issue of flag vessels – foreign-owned vessels that have purchased national quota and land abroad. Often with flagged vessels, the operations shift away from Germany's communities and as a result the national quotas are no longer delivering for local fishing communities.

Some Member States have approached the issue of flagged vessels with an 'economic link', requiring a certain percentage of landings to occur domestically or a certain percentage of the crew to be domestic residents. An evaluation of the economic link in the UK revealed that it was having

some effect, although most of that effect was through a criterion for vessels landing abroad to donate quotas to the small-scale fleet in the UK [18] – a policy option that has since been scrapped.

An alternative, and administratively simpler policy, is to differentiate the landings tax proposed above.[19] This tax would be lower for domestic landings either through a two-tiered rate or by netting off port and harbour dues. Seen another way, this differentiated rate means that quotas being landed abroad have a financial penalty in the form a higher levy. The degree of differentiation in the tax rate would need to be high enough to ensure that national quota is generating a national benefit by increasing German value chains.

This policy approach addresses the issue of flagged vessels and national benefits whilst also adding to the framework of a landings tax for science and enforcement, covered previously. The revenues raised would go some of the ways towards correcting the costs of management compared to the revenues raised.

MAKE QUOTA ALLOCATION MORE TRANSPARENT

The allocation mechanism is not sufficiently explained in publicly available documents and no public register of quota ownership exists. This makes the process opaque and closed-off from proper scrutiny. We suggest that more information should be provided to demonstrate objectivity by detailing the allocation mechanism and use of criteria. The outcomes of these allocations should be made publicly available in a quota register. The same applies for POs, which have been giving a public mandate to manage quotas.

8.6 CONCLUSIONS

Germany maintains a system of non-transferable quotas allocated to fishers based on vessel historical track records. The quota system has not been significantly changed since the basic fisheries law of 1984 was passed. Our analysis shows that the German quota system could benefit from reforms that improve quota flexibility and accessibility to the fleet and recover management costs. Based on our assessment of available information and input from interviews, we recommend that Germany:

- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Improves access for new fishers either through lending or granting quota to young fishers wishing to enter the industry;
- Fully incorporates social and environmental and environmental criteria in its primary allocation method, or through using the national quota reserve;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Differentiates this landings tax to favour landings in national ports to ensure that the use of a national resource benefits German communities;
- Improves transparency in its allocation method and publishes a quota share register.

Some reforms, such as introducing a landings tax, may increase costs for the industry, whilst other reforms could improve economic performance. Either way, access to a public resource is a privilege granted by the state and should not be accompanied by further subsidies that may encourage more harmful types of fishing. Taken together, these recommendations could transform the German fishery whilst also keeping the general system structure and its current advantages intact.

1 Eurostat 2016. Note: the number of active vessels as reported by the STECF Annual Economic Report is significantly lower at 1073.
2 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
3 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf
4 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
5 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf
6 Fisheries Data Exchange System (FIDES) dataset 2013-2015.
7 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
8 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf
9 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset. 2013-2015.
10 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf
11 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf
12 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508
13 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018
14 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/
15 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf
16 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.
17 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf
18 Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf
19 A differentiated landings tax was one of the options for reform considered in the review of the UK's economic link in Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf

The Irish fishing sector is diverse with large-scale pelagic and demersal trawlers, and many small-scale vessels targeting a range of stocks including mackerel, Norway lobster, herring and blue whiting. The Irish government takes an active role in quota management with non-transferable quotas allocated on a monthly basis on the advice of industry representatives. To assess the Irish system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance.

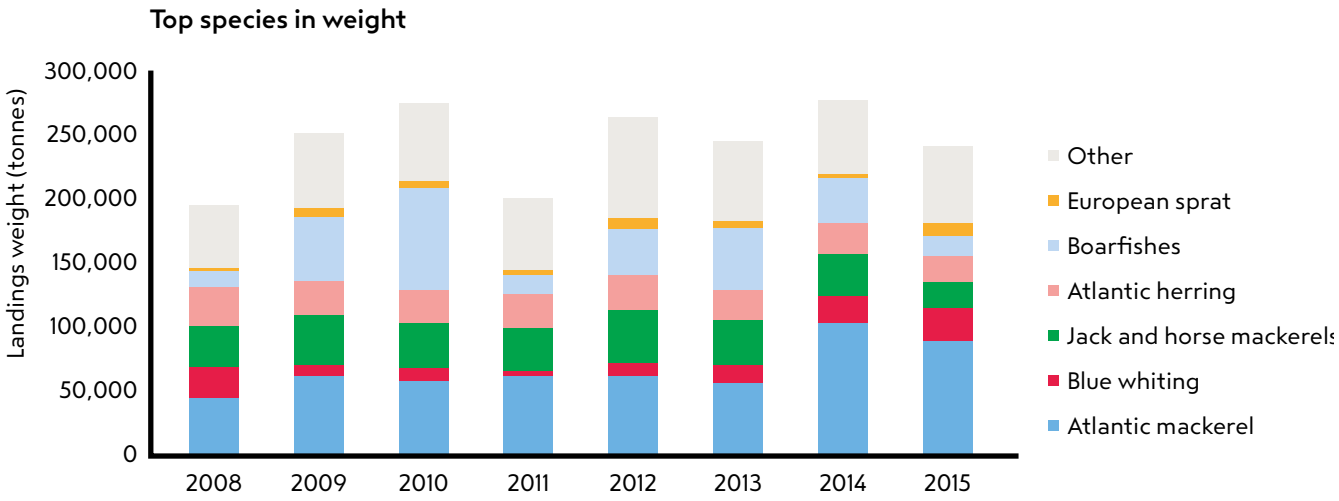
Our analysis indicates that Ireland performs well on meeting government objectives and allocating fishing opportunities in an equitable manner, but less well on objectives on representation and security. We recommend a number of reforms including improving representation in the quota commission for small-scale fishers and improving the security of quota allocations.

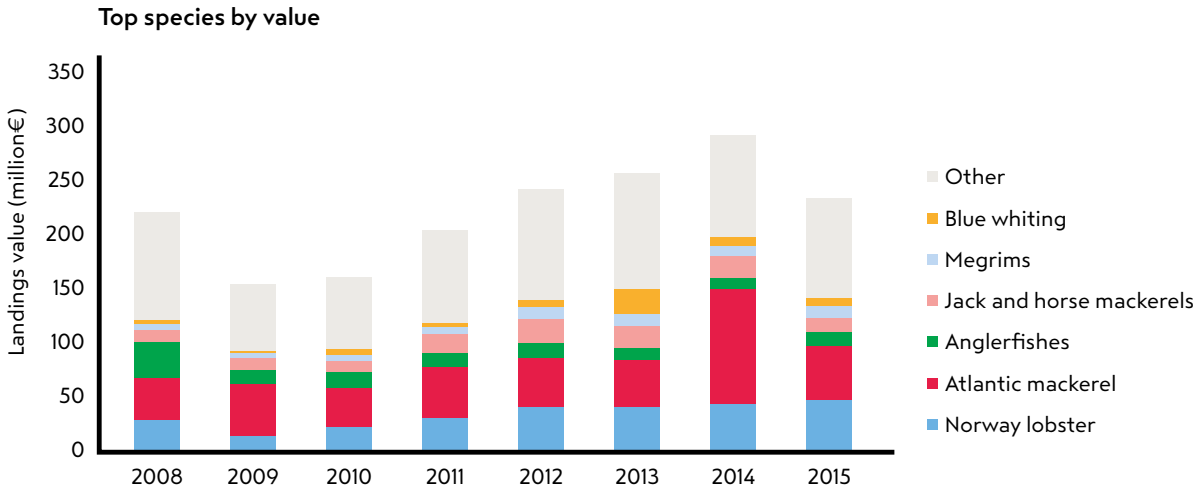
9.1 INTRODUCTION AND BACKGROUND

Ireland is an important fishing nation, benefiting from some of the most productive fishing grounds in Europe. It accounts for around 7% (279,000 tonnes) of the EU's landings and 4% (€268 million) of total landed value in 2014.[1] It is one of the few EU countries to have a positive trade balance in fish, exporting more than it imports[2]. Although fisheries account for only a small fraction of GDP, fish harbours are spread around the whole country, with many coastal communities reliant on income from fisheries.

The fishing industry targets a range of pelagic, demersal and shellfish stocks with mackerel, blue whiting and horse mackerel currently accounting for the biggest catches. These three pelagic species also account for over half the value of all Irish landings. The Norway lobster fishery in the Irish Sea is also a significant source of income, producing a value of €50 million in 2015.

FIGURE 9.1.1: IRELAND'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE



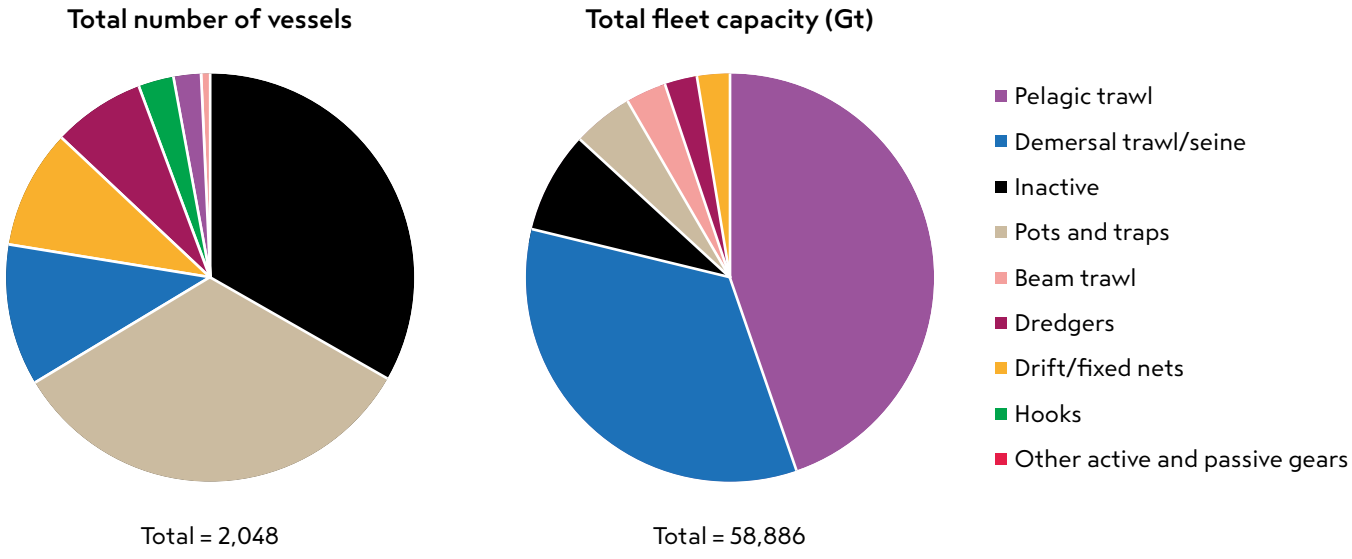


Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The Irish marine fishing sector has seen a period of growth in the last two and a half decades, with the fleet becoming more differentiated at the same time. Unlike other EU Member States, the number of vessels has increased from 2,088 to 2,155 between 1990 and 2015, with capacity increasing by 5,000Gt over the same period. Capacity peaked in the early 2000s and has declined since then in compliance with EU regulations. The number of people employed in the marine fishing sector has also increased from 2,866 to 3,179 between 2008 and 2013., with 11,000 employed in the whole seafood industry. Over the same period, landed weight and value have also increased.

The catching sector is split into large-scale pelagic trawlers, which include RSW (refrigerated seawater) vessels, the polyvalent fleet, including inshore vessels, and the beam trawlers. The inshore fleet is almost exclusively reliant on shellfish fisheries using pots for species such as brown crab, shrimp and whelk. In terms of capacity, the large-scale (>23m) fleet has increased the most since 1990, with 16000Gt being added whilst the mid-sized (12-23m) fleet has declined by 10,000Gt. The small-scale sector has stayed relatively constant, declining by just 300Gt.

FIGURE 9.1.2: IRELAND'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

TABLE 9.1.1: IRELAND FLEET COMPOSITION BY LENGTH CLASS IN 1990 AND 2015

Year	Length Class	Number	Capacity (1000Gt)
1990	U12m	1555	6.8
	12-23m	460	25.6
	>23m	73	26
	Total	2088	58.4
2015	U12m	1867	6.5
	12-23m	180	14.7
	>23m	108	42.4
	Total	2155	63.6

Source: Eurostat, derived from the European Fleet Register. Note: a large number of pot fishers (~400) were registered only in 2003. Figures may differ from the Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse Ireland's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Ireland's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

9.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota-management
Types of fishing opportunities:	Individual quotas and rationed quotas
Main allocation criteria:	Historical catches, equal access
Differentiation in allocation:	Pelagic, demersal, and by fleet segment
Landed weight under quota management	92%[3]

OVERVIEW

Ireland's fishing opportunities come in the form of licences and individual non-transferable quotas. Licensing, compulsory for all fishers, is granted on criteria including a national economic link and benefits brought to local communities. Vessel power and capacity are also capped within fleet segments.

Shellfish fishing, which is not under quota management, is not constrained through effort or catch quotas. Instead, licensing and technical regulations are the main forms of intervention. In some cases, bivalve shellfish cooperatives have been set up where a specified farming area is controlled by a membership based coop.

Most stocks are exploited using mobile gears are under quota management. For these opportunities, licensed vessels are given fishing access in the form of catch limits depending on the vessel's fleet segment. The quotas specify the weight of species that vessels can land in specific periods. These quotas are managed by the fisheries ministry with advice from an industry representative committee. In addition to quotas, there are also seasonal closures and days-at-sea limits in place for some stocks.

GOVERNANCE

Fisheries governance in Ireland involves a number of governmental, local and private organisations. The Department of Agriculture, Food and the Marine (DAFM) is the ministry with overall responsible for fisheries management at the discretion of the minister. The Sea Fisheries Protection Authority carries out enforcement work. There are four producer organisations (POs) consisting of mostly large-scale operators with a combined membership of around 10% of Irish vessels but 71% of capacity[4]. These POs are roughly distinguished by their geographic focus and the target fisheries of their members. Irish POs have marketing, representation and support roles for their members. The Irish Fishermen's Organisation also represents commercial fishers but does not have PO status. Inshore fishers are represented by the National Inshore Fisheries Forum, which includes members from six regional forums.

The most important organisation related to fishing quotas is the Quota Management Advisory Committee (QMAC). It is composed of representatives from DAFM, the Sea Fisheries Protection Authority, a representative from each of the four POs, the National Inshore Fisheries Forum, the Fish Producers and Exporters Association and the Fishing Cooperative Association. This committee is responsible for advising the DAFM Minister on quota allocation. On the whole, the minister follows this advice and signs the proposed allocations into law as statutory instruments. These are then published in Fisheries Management Notices that specify the enforceable catch limits applying to the various fleet segments. This is a co-management process where industry representatives play a leading role in quota allocation decisions.

IRELAND'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	National
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: Full-time fishers | Part-time fishers | All

This table summarises five key features of Ireland's quota system with the exclusion of the less active fishers. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION
Allocation is proposed by an industry-led committee with no fixed set of criteria. Pelagic quotas are set largely according to the track record (historical) of fishing vessels and demersal quotas are set mostly as equal quotas for vessels of the same size category on a monthly basis (rationing). Separate shares for the polyvalent fleet segment are allocated.

HOLDER
Quotas are associated with vessels.

TRANSFERABILITY
Quotas are non-transferable and non-leasable.

SECURITY
Quotas are considered a public good, so fishers do not have a sustained right to any share of the quota. Demersal quotas are subject to monthly amendments.

DURATION
The length of time associated with a quota varies per stock, with pelagic quotas in effect ranging from several months to the whole fishing season and demersal quotas set for monthly periods.

QUOTA ALLOCATION

Quota allocation is based on a set of criteria laid out by the Marine Fisheries act of 1984 which includes 1) past participation, 2) the economic value of the fleet and 3) market conditions. Additionally, the negative effects of limiting fishing possibilities can be taken into account. In practice, past participation (historical track record) is the primary criterion used in allocation with 1986-7 and 1989-90 used as fixed reference periods for the North Sea and Baltic Sea respectively. These criteria have to be used both by the ministry in allocating to POs and non-PO full-time fishers as well as by POs themselves. Part-time fishers don't receive individual quotas but access a national quota pool that sets monthly limits and where fishing closures are applied.

A share of the national quota is also reserved by the ministry for in-year hardship allocations. Fishers can apply for a share of this reserve during the year and any excess quotas are distributed via the standard process towards the end of the year. Only a few percent of the national quota is available for part-time fishers and for the hardship fund with over 95% allocated to full-time fishers.

QUOTA RULES

Quotas are divided between pelagic, and whitefish and deep sea species. In general, pelagic quotas are set for a multi-month period based on the track record of individual vessels with a number of exceptions. There is little discretionary year-on-year change in allocation. In contrast, whitefish and deep sea stocks have their quotas set on a monthly basis in close consultation with QMAC.

The whitefish and deep sea allocation involves individual limits for vessels depending on whether they are over or under 16.76 metres in length. Generally, the large vessels receive double the catch limits of the smaller size category. QMAC advises the minister on quota allocation and he/she then signs, making any adjustments deemed necessary, a management notice that takes legal effect. These monthly quotas spread the Irish TAC over the year. Fishers that wish to concentrate on monkfish can take part in a special scheme giving them access to additional quotas in return for reduced fishing of other species. There is no formal system in place detailing the criteria used in these allocation decisions. However, the following considerations are mentioned in Ireland's Quota Management Policy document: uptake patterns, market conditions, weather/sea conditions and concerns of the inshore fleet.

There are eight main pelagic fisheries, each with their own system of allocation: mackerel, Celtic Sea herring, North West herring, Atlanto-Scandian herring, horse mackerel, blue whiting, boarfish and albacore tuna. The particular management of each is further subdivided between various sectors of the fleet.

Mackerel quotas are divided between the large-scale pelagic fleet, known as RSW (Refrigerated Seawater) vessels, that receive an 87% share, and polyvalent fishers are left with the remaining 13%. Individual vessels within these two groups receive allocations based on their historical catch record for an 11-month period. Under 18 metre polyvalent fishers without a track record have access to 2.5% of the normal polyvalent quota allocation.

Horse mackerel is allocated based to all vessels according to their historical catch record on an annual basis. Polyvalent fishers without track record have access to a small quota set-aside.

The Celtic Sea and North Western herring fisheries take place in the autumn and weekly quotas are set according to track records as well as particular ringfenced allocations for small-scale fishers and 5% made available for fishers without a track record. A small number of fishers are selected to fish herring in Norwegian waters each year.

Blue whiting quotas are divided 91%:9% between the RSW and polyvalent segments with the industry nominating a limited number of vessels to receive an allocation. Boarfish quotas are allocated 85% based on track record and 15% for fishers without a track record. Lastly albacore tuna is fished by 50 vessels with per-trip limits.

QUOTA RULES

Fishing quotas are managed as a public resource which, according to Irish policy documents, means that quotas cannot be bought, sold or leased in any form. It is the minister's prerogative to manage fishing quotas and they cannot be considered a property right. In order to manage quota utilisation in a non-tradable system, interventions take place to adjust quota allocations. In the case of whitefish, QMAC holds monthly meetings and can make allocation changes to maximise utilisation. This is more difficult for pelagic quotas, which are often set over longer time-periods. As quota management responsibility lies with the minister on the advice of QMAC, there is little direct, devolved role of POs or individual fishers in handling quotas.

OTHER FISHING OPPORTUNITIES

Many shellfish stocks (with the exception of Nephrops) and other coastal stocks are not under national quota management. These are regulated through technical conservation measures. In practice, many of these stocks are not strictly regulated and licensing is the only form of control. A number of areas are protected areas with limited or no fishing activities. These include Darwin Mounds, Hatton Bank, North West and West Rockall, the haddock box in Rockall and Logachev Mounds. Additional controls are in place, such as the herring spawning box off County Waterford which prohibits over-20m vessels from fishing herring in that area.

9.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of Ireland against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 9.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

A number of sources have been identified that describe Ireland's fisheries objectives. They have been selected on the basis of their relevance to the design of fishing opportunities. These are from the Irish Department of Agriculture, Food and the Marine.

DAFM - QUOTA MANAGEMENT POLICY, 2016:

- Achieve the best possible spread between vessel operators and in terms of take-up of quotas during the year
- Avoid early closure in whitefish fishery
- Maintain quotas as a public resource and avoid the concentration of rights
- Retain a balanced spread of sizes and types of fishing vessels
- Keep the economic link to Ireland's coastal communities, including maintaining vital employment where there are limited alternative economic activities.

DAFM - DEPARTMENTAL OBJECTIVES

- In view of the precarious economic state of the fishing industry and the dependence of certain coastal communities on fishing, it is necessary to ensure the relative stability of fishing activities by allocating fishing opportunities amongst Member States, based on a predictable share of the stocks for each Member State.
- Developing an economically sustainable fishing industry
- Contributing to a vibrant, sustainable rural economy.

DAFM - NATIONAL STRATEGIC PLAN: THE FISHERIES SECTOR 2007-2013

- In view of its importance for vulnerable fishing dependent communities' clear objectives for the inshore sector will be established to assist local communities maintain a local fishing industry that is competitive and profitable.

METHODOLOGY

Table 9.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 9.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

9.4 ANALYSIS

This section will assess the performance of the Irish system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

TABLE 9.4.1: PERFORMANCE OF IRELAND'S SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	Low
	Flexible	High
	Accessible	Mid-low
	Viable	Mixed
	Equitable and fair	Mid-high
Good for Society	Publicly owned	Mid-high
	Meets government objectives	Mid-high
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mixed
	Objective	Mid-low
	Right governance level and representative	Mid-low

SECURE: LOW

The Irish system of fishing opportunities is managed on a comparatively interventionist manner than other Member States and with more government control over the allocation of fishing opportunities. There are trade-offs with such an approach, particularly with the level of security in fishing rights. Ireland and Belgium score the lowest in the MRAG et al (2009) assessment of security / validity in EU quota systems.[5]

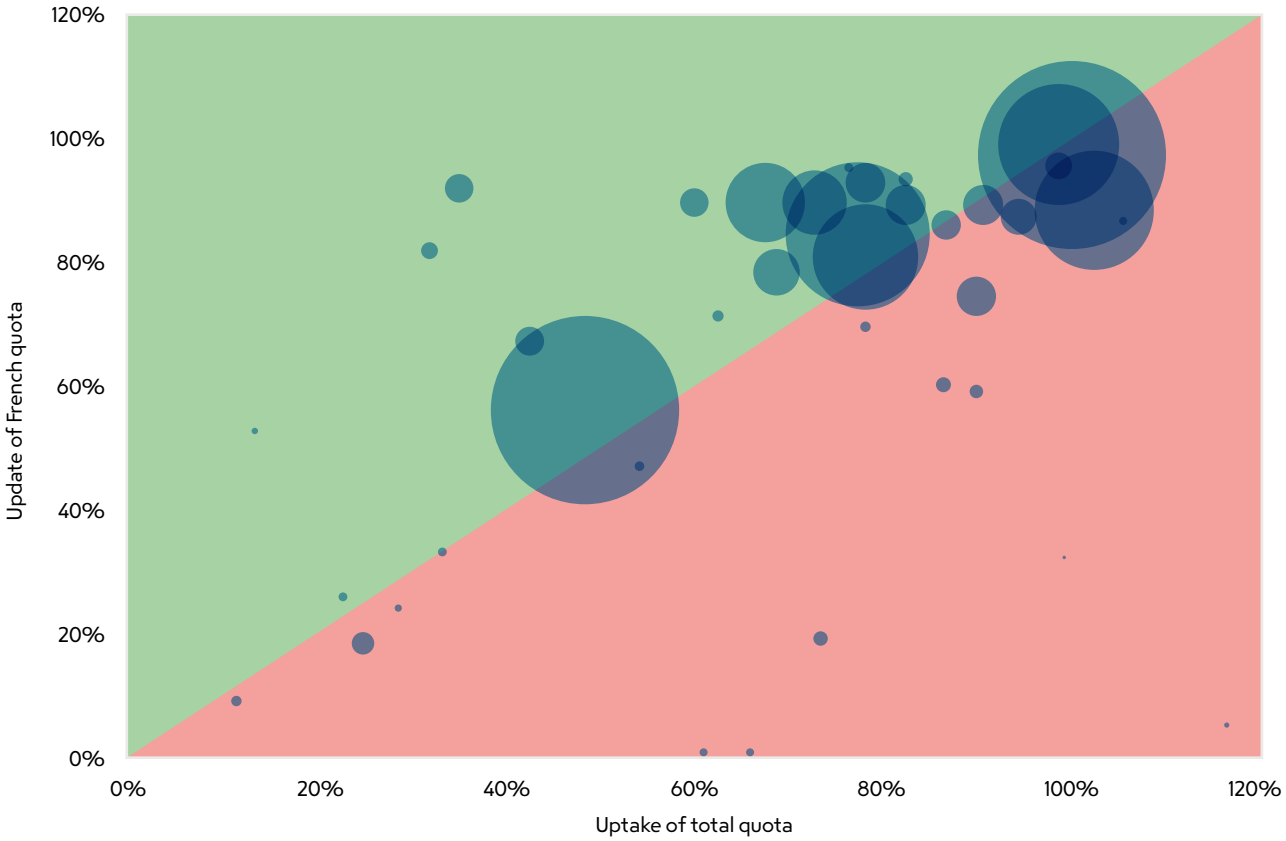
Investment has not suffered too much as a consequence, as investment in the Irish fishing fleet is comparatively moderate[6], however issues of security are higher in the whitefish fishery with monthly quota allocations. These whitefish quotas are intentionally overallocated to target quota utilisation, but result in occasional fishery closures and 'race to fish' behaviour.[7]

FLEXIBLE: HIGH

Whilst the active government role in the allocation of quota opportunities is likely to be causing issues with the security of fishing rights, it does seem to be generating a flexible system with quotas getting to fishers that need and will utilise the quotas. Discarding is moderate compared to Member States with similar gears in the same areas[8] and there are few instances of quota infringements (1% of vessel inspections).[9] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

Some research has suggested that whitefish quota uptake is low compared to the total available quotas - due to low stock abundance.[10] However, quota utilisation in Ireland is actually high compared to other Members States fishing the same TACs, an indicator of flexibility in access.[11]

FIGURE 9.4.1: IRISH QUOTA UPTAKE IN COMPARISON TO TOTAL UPTAKE BY ALL MEMBER STATES UTILISING THE SAME QUOTAS



Source: Authors' calculations using data from the Fishery Data Exchange System (FIDES). Note: Quotas, represented by bubbles in the green half are utilised more than average, and in the red half, less than average.

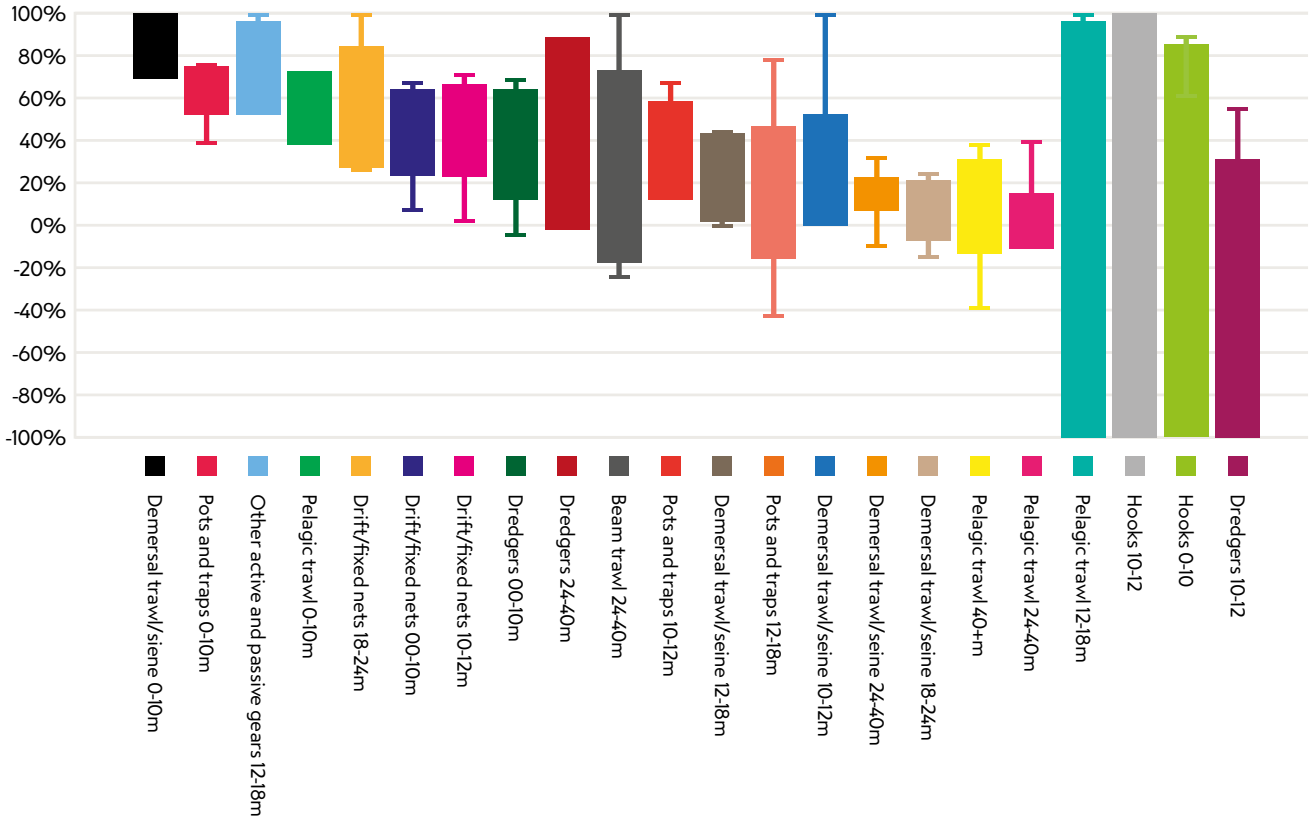
ACCESSIBLE: MID-LOW

New fishers need to either purchase an existing registered vessel with its capacity rights or purchase a new vessel. In the latter case, they will be required to register and purchase GT and kW corresponding to the vessel separately in the brokerage market in order to be authorised to fish. Although new fishers do not need to purchase fishing rights (quotas) they do need to purchase capacity rights which are a privately traded asset in Ireland. No measures are in place to facilitate entry for new fishers or set aside capacity rights.

VIABLE: MIXED

The Irish fishing fleet is characterised by moderate profitability but relatively low wages.[12] The most noticeable trend in fleet profits is that drift/fixed net fleets have relatively high profitability, whilst the pelagic trawl fleets have relatively low profitability, in contrast to many other Member States.

FIGURE 9.4.2: GROSS PROFIT MARGIN BY IRISH FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

EQUITABLE AND FAIR: MID-HIGH

Irish quota allocation is geared towards equity with vessels in the same fleet segments receiving equal allocations. It is hard to determine whether allocations between fleets segments is equitable or not. One area where equity is at risk is in non-transparent allocations made to vessels with monkfish authorisations[13]. These are granted with reductions in other quotas but this may be more than compensated for through additional by-catch quotas[14]. These allocations are not made publicly available. The tradable nature of capacity rights risks increasing barriers to accessing fishing opportunities in the first place.

PUBLICLY OWNED: MID-HIGH

Ireland's quota policy document states that: 'In Ireland, quotas are a public resource and is managed to ensure that property rights are not granted to individual operators.'[15] This is reflected in the management approach taken whereby the minister on advice of the QMAC, takes a very active and frequent role in allocation. This is less the case for pelagic stocks, the majority of which are allocated by historical landings.

Although fishing opportunities are publicly owned, curiously capacity rights are a private asset. This is partially a result of the CFP capacity management rules that cap GT and kW in MS. These have become a tradable entity in Ireland. The Licensing Registration Guidance notes state:

> Capacity in the form of gross tonnage and engine power is a privately owned tradable asset on the tonnage market and must be provided at a ratio of 1:1 as part of the licensing process.[16]

This appears to be at odds with Ireland's commitments towards managing fish stocks as a public resource as part of the access rights are private.

MEETS GOVERNMENT OBJECTIVES: MID-HIGH

EU OBJECTIVES

With strong ministerial involvement in allocation, the Irish system of fishing opportunities readily caters for pursuing criteria-based quota allocation in accordance with Article 17 of the CFP. Allocations with reference to Article 17 include mackerel quotas set aside for artisanal gillnet and hook and line fishing, herring ringnets and surface longlining of albacore tuna.[17] Whilst Ireland is unique among Member States in identifying specific quota allocations as fulfilling Article 17, these allocations do not appear to be based on objective and transparent criteria but are one-off allocation decisions.

There are indications that the balance of fishing capacity in Ireland does not match the fishing opportunities available, as required by Article 22 of the CFP. According to the STECF report on capacity balance, Irish fleets perform comparatively poorly on balance indicators. This is a particular problem for the pelagic trawl fleet.[18]

NATIONAL OBJECTIVES

At the national level, the Irish government's objectives for fisheries are covered through DAFM's Departmental Objectives and DAFM's Quota Management Policy. There are several clear statements from these two documents that are relevant for an analysis of the allocation of fishing opportunities:

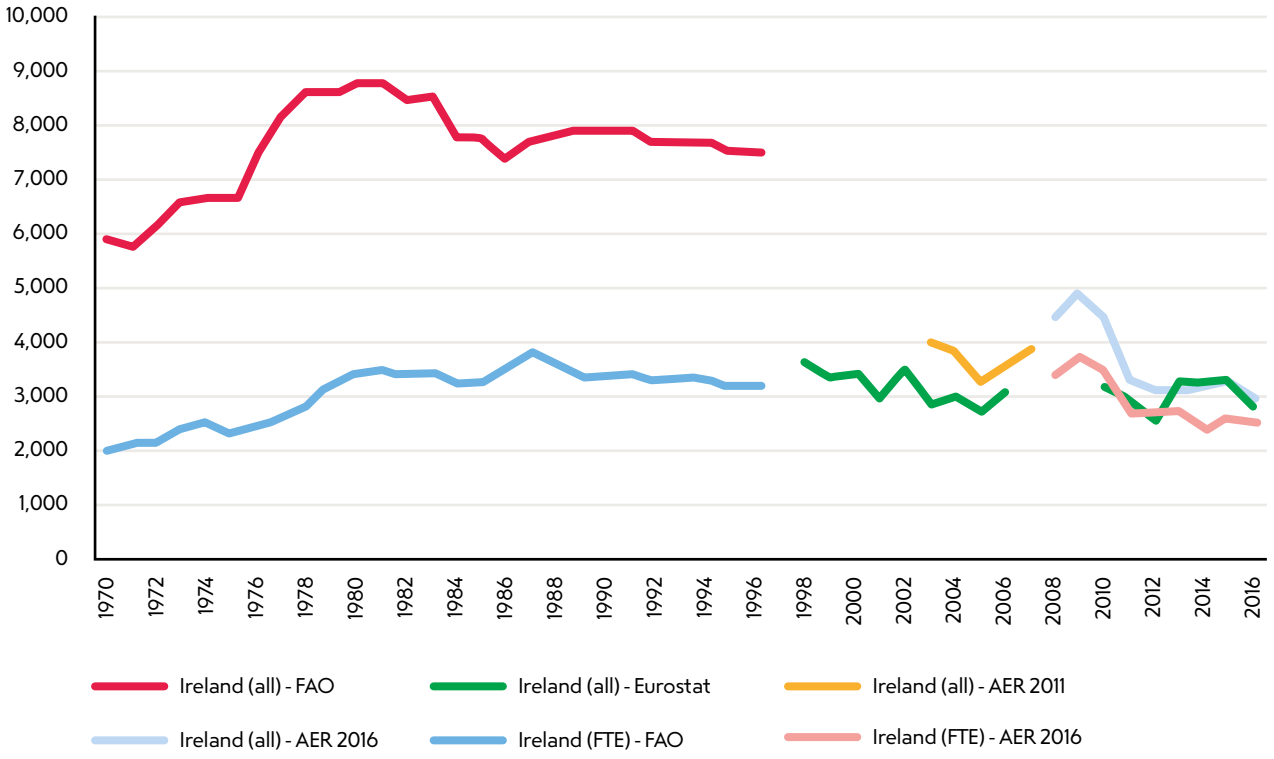
1. 'Achieve the best possible spread between vessel operators and in terms of take-up of quota.' Quota Management Policy
2. 'Avoid early closure in whitefish fishery,' Quota Management Policy
3. 'Maintain quota as a public resource and avoid the concentration of rights,' Quota Management Policy
4. 'Retain a balance spread of sizes and types of fishing vessels,' Quota Management Policy
5. 'Keep the economic link to Ireland's coastal communities, including maintaining vital employment where there are limited alternative economic activities,' Quota Management Policy
6. 'An economically sustainable fishing industry,' Departmental Objectives
7. 'A vibrant, sustainable rural economy,' Departmental Objectives

There is a significant amount of overlap between these government objectives and the foundational objectives we have defined. The first and second objectives are covered by the 'Flexible' foundational objective, the third objective is covered by 'Publicly owned' and 'Equity', and the sixth objective is covered by 'Viable'. Ireland performs fairly well on these objectives, although the results for viability were mixed.

The associated objectives of a sustainable rural economy, coastal communities and vital employment are not covered, nor is the objective of a diverse fleet.

Interestingly, the Irish fishing fleet is the only fleet in this report to avoid a steep decline in employment over the past decades.[19] This is partly due to the role the Irish government has played in managing fishing opportunities to ensure a spread of quota across fleets.

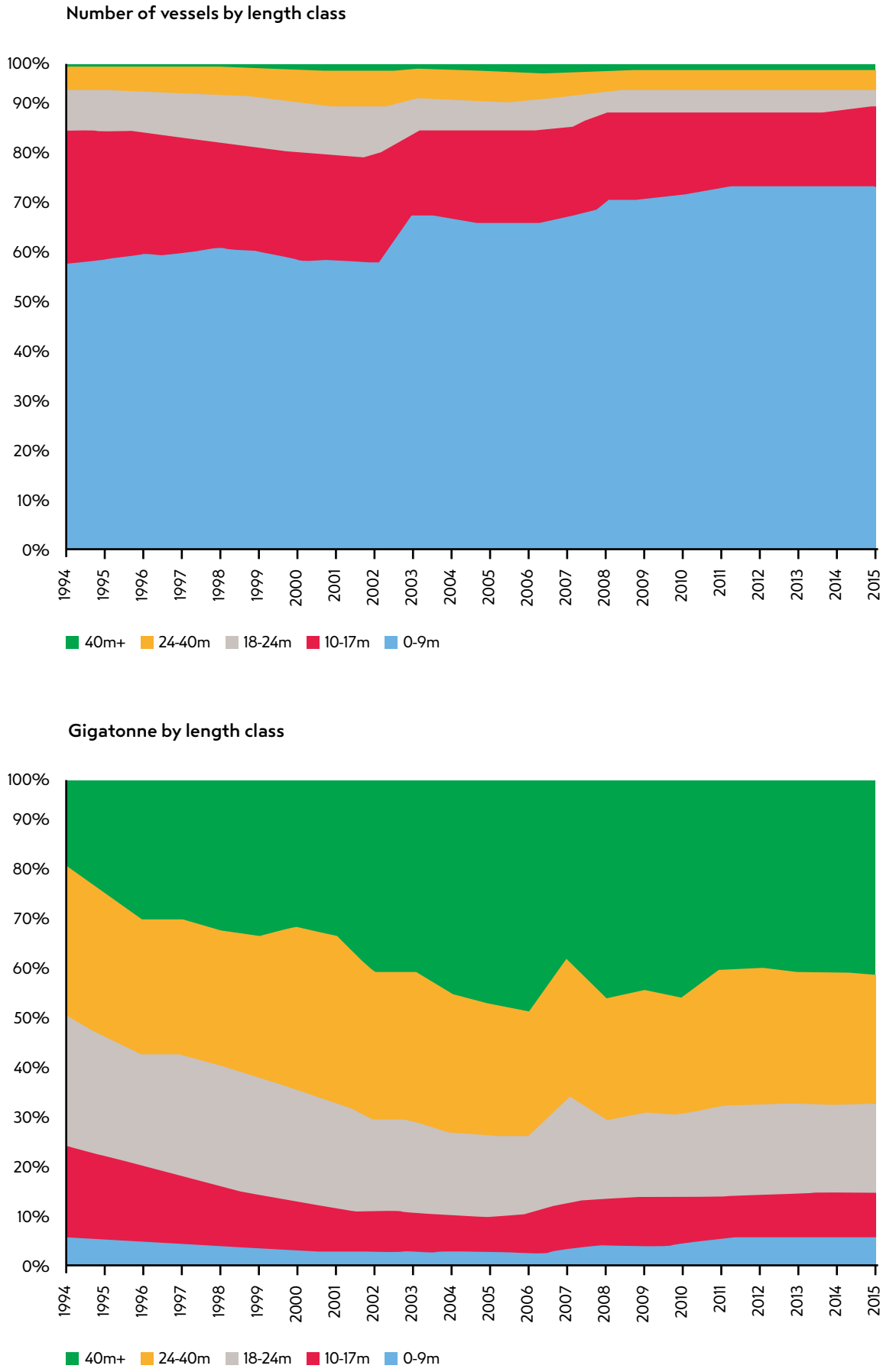
FIGURE 9.4.3: EMPLOYMENT IN THE IRISH MARINE FISHING INDUSTRY SINCE 1970



Source: Authors' calculations using data from the Food and Agriculture Organization (FAO), Eurostat, and Scientific, Technical and Economic Committee for Fisheries (STECF).

The diversity of the Irish fleet has changed in recent decades and it is difficult to define if any point in time is more or less balanced. The most significant changes by gigatonne are the rise of 40m+ vessels and simultaneous decline of mid-sized (10-17m and 18-24m vessels). Measured by number of the vessels, the largest change is the increasing in 0-9m vessels in recent years. Unfortunately, the classification of gears has changed over the time period so it is difficult to reliably assess how the balance of gear types has changed.

FIGURE 9.4.4: CAPACITY OF THE IRISH FLEET SINCE 1994 AS MEASURED BY NUMBER OF VESSELS AND TONNAGE

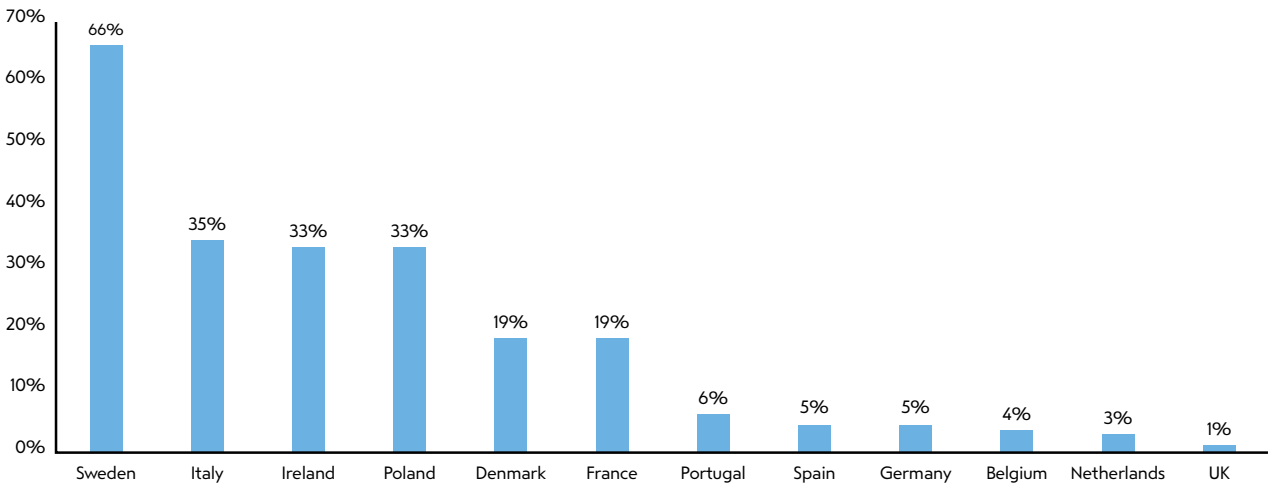


Source: Authors' calculations using data from Eurostat database.

LIMITED PUBLIC EXPENSE: LOW

The costs of fisheries management in Ireland are high compared to other EU Member States (33% as a percentage of landed value)[20]. Part of this high management cost is likely to be due to the ad hoc and involved nature of management in the allocation of fishing opportunities – though it is hard to be certain of this.

FIGURE 9.4.5: NATIONAL GOVERNMENT EXPENDITURE ON FISHERIES MANAGEMENT AS A PERCENTAGE OF LANDED VALUE



Source: Authors' calculations based on OECD.stat and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

There are also implicit fuel subsidies for fisheries in Ireland (0.38€/litre). As fishing is one of the most fuel intensive industries, these subsidies add up to large amounts in Ireland (€26 million), particularly when compared to the size of economic output from the industry (9% of landed value).[21] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

Part of the cost of management is covered by landing fees that pay for Bord Iascaigh Mhara, the Irish Sea Fisheries Board which is an organisation that operates in a space between the government and fishing industry.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: MIXED

Ireland provides a document describing the overarching method and process of quota allocation on the DAFM website. It is clear and accessible and provides a decent level of detail. More details are provided in fishery-specific documentation on the website. One major downfall is that no information is provided on the basis of QMAC advice for quota allocations. Most POs do not make information available on how they manage quotas.

No details are easily available on non-quota species or the way in which they are managed/regulated.

OBJECTIVE: MID-LOW

As detailed above, quota decisions are made on advice of QMAC, an industry-lead committee. Although a number of overarching objectives are known there is no known set of rules or procedures that QMAC follows to arrive at its advice. This is with the exception of pelagic quotas allocated on the basis of historical track records. Details of QMAC meetings are not made publicly available. This is neither transparent nor objective and is potentially liable to arbitrary outcomes or undue influences of over-represented interests.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-LOW

The strong role of QMAC, the industry committee that advises the Minister on allocation decisions, has been recognised as a form of co-management.[22] The same study classified this co-management arrangement as 'co-management by partnership' whereby government and users act as equal decision-makers. There is little devolution of access management and many non-quota species are under-regulated, with little role for local organisations.

QMAC, the industry body that advises the minister on quota allocation is composed of one representative from each of the four POs, one from the National Inshore Fishermen's Forum, one from the Fish producer and Exporters Association and one from the Fishing Cooperative Association. Although their members constitute some of the highest capacity vessels, POs represent only around 10% of the number of vessels. This makes POs heavily over-represented in the QMAC. The scale of fishing activities shouldn't determine the level of representation in decisions about access to a public resource. Scientific advisors and other stakeholders are not represented.

9.5 RECOMMENDATIONS

According to our analysis, Ireland has a mixed performance across indicators. It performs well on flexibility, public ownership and equity but less so on security, pursuing government objectives and limiting public expense. We offer a number of recommendations that are aimed at addressing some of the shortcomings of the Irish system.

IMPROVE THE SECURITY OF QUOTA ALLOCATIONS

Whitefish quotas are subject to monthly alterations by the QMAC. This is not conducive to providing fishers with secure access and prevents individual fishers from planning their business activities on a medium to long-term basis. We suggest two possible ways of increasing security that will not compromise Ireland's commitment to maintaining fish resources in public ownership.

PROPOSAL 1

Allocate a significant share (>50%) of whitefish quotas based on either historical track records or vessel characteristics such as power or gross tonnage. This could be done on a yearly basis with yearly alterations where necessary. This would give fishers a large, fixed allocation which they can confidently plan around throughout the year. The remaining share can be allocated according to current practices, but should also incorporate specific Article 17 criteria (see the recommendation below).

PROPOSAL 2

To improve the security of allocations even further, a share of the pelagic and demersal quotas should be partially allocated as long-term, but revocable shares. These will apply over multiple years (preferably at least 4 years) but will include revocation or sunset clauses. This will retain public control over allocation and leave a certain share reserved that can be allocated on a more discretionary basis. Shares could be determined on the basis of historical fishing, capacity or Article 17 criteria (see examples below).

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Although the current system of fishing opportunities is equitable, no objective environmental or social criteria are included in the primary allocation mechanism. Ireland does make a number of special allocations that give preferential access to particular fleet segments, including those with selective gears, as noted in its submission to the Commission in 2016 regarding its allocation method.[23] However, this is not the same as systematically integrating objective weighted criteria into the allocation mechanism.

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[24] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms
Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years
Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years
Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[25] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landing obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[26]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.38 per litre for Ireland is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[27] - use the most fuel per landed value, whilst pots and traps use the least.[28] This variance in fuel use is an important price signal that should be reflected in the price of fish.[29] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landing obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[30]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

DIFFERENTIATE A LANDINGS TAX AS AN ALTERNATIVE TO AN ECONOMIC LINK REQUIREMENT

Ireland, along with other EU Member States has struggled with the issue of flag vessels – foreign-owned vessels that have purchased national quota and land abroad. Often with flagged vessels, the operations shift away from Ireland's communities and as a result the national quotas are no longer delivering for local fishing communities.

Some Member States have approached the issue of flagged vessels with an 'economic link', requiring a certain percentage of landings to occur domestically or a certain percentage of the crew to be domestic residents. An evaluation of the economic link in the UK revealed that it was having some effect, although most of that effect was through a criterion for vessels landing abroad to donate quotas to the small-scale fleet in the UK[31] – a policy option that has since been scrapped.

An alternative, and administratively simpler policy, is to differentiate the landings tax proposed above.[32] This tax would be lower for domestic landings either through a two-tiered rate or by netting off port and harbour dues. Seen another way, this differentiated rate means that quotas being landed abroad have a financial penalty in the form a higher levy. The degree of differentiation in the tax rate would need to be high enough to ensure that national quota is generating a national benefit by increasing Irish value chains.

This policy approach addresses the issue of flagged vessels and national benefits whilst also adding to the framework of a landings tax for science and enforcement, covered previously. The revenues raised would go some of the ways towards correcting the costs of management compared to the revenues raised.

IMPROVING REPRESENTATION OF INSHORE SECTOR AND TRANSPARENCY IN THE QMAC

Currently, the QMAC is composed disproportionately of PO representatives. Although POs represent a large number of large-scale vessels, most vessels are not PO members. It is questionable whether this degree of PO representation is in the best public interest given the QMAC's influential role in quota allocation.

We also suggest QMAC advice and decision-making itself should be more transparent, with publication of minutes and the final advice for the minister.

9.6 CONCLUSIONS

The Irish government manages most of its quotas actively, with the exception of pelagic species where most allocations are longer-term. Quota decisions, with a strong industry role via the QMAC, are a good example of co-management working in practice. Our analysis shows that performance across objectives is mixed, with high scores for flexibility and equity but lower scores for security, limited public expense and representativeness. Based on our assessment of available information and input from interviews, we recommend that Ireland:

- Improves security of quota allocations by allocating a share of the quota to vessels over the whole year, or allocating revocable quota shares over multiple years;
- Fully incorporates social and environmental criteria in its allocation method alongside existing criteria;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Differentiates this landings tax to favour landings in national ports to ensure that the use of a national resource benefits Irish communities;
- Improves the representativeness and transparency of the QMAC.

Some recommendations, such as applying a landings tax and cutting fuel subsidies, will increase costs for the sector whilst reducing the costs borne by government. At the same time, improving security is likely to improve economic performance for many fishers. Taken together, these recommendations could transform the Irish fishery whilst also keeping the general system structure and its current advantages intact.

---

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf

3 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

4 Fahy, E. (2016). Introducing Ireland's Fish Producer Organisations. Eaten fish soon forgotten. Retrieved from http://eatenfishsoonforgotten.com/introducing-irelands-fish-producer-organisations/

5 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

6 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

7 Fisheries Data Exchange System (FIDES) dataset 2013-2015.

8 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf

9 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

10 Mooney, J. (2017, 01/01/2017). Irish trawlers fail to catch quota 'due to overfishing'. The Sunday Times. Retrieved from http://www.thetimes.co.uk/article/irish-trawlers-fail-to-catch-quota-due-to-overfishing-900r9nx50

11 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset 2013-2015.

12 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

13 Fahy, E. (2016). Monkfish authorisation – Ireland's secret whitefish quotas. Eaten fish soon forgotten. Retrieved from http://eatenfishsoonforgotten.com/irelands-secret-whitefish-quotas/

14 Fahy, E. (2016). Monkfish authorisation – Ireland's secret whitefish quotas. Eaten fish soon forgotten. Retrieved from http://eatenfishsoonforgotten.com/irelands-secret-whitefish-quotas/

15 Department of Agriculture Food and the Marine. (2016). Quota Management Policy. Retrieved from https://www.agriculture.gov.ie/fisheries/seafoodpolicy/forms

16 Department of Agriculture Food and the Marine. (2016). The Licensing Registration Guidance notes. Retrieved from https://www.agriculture.gov.ie/seafood/seafisheriesadministration/fishingboatlicencing/

17 Department of Agriculture Food and the Marine. (2016). Quota Management Policy. Retrieved from https://www.agriculture.gov.ie/fisheries/seafoodpolicy/forms/

18 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf

19 Authors' calculations based on Food and Agriculture Organisation (FAO). (2013). Fisheries employment. and Scientific Technical and Economic Committee for Fisheries (STECF). (2011). The 2011 annual economic report on the EU fishing fleet (STECF 11-16). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/256769/2011-11_STECF+11-16+-+2011+AER+on+the+EU+fishing+fleet_JRC67866.pdf and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

20 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

21 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

22 Le Floc'h, P., Murillas, A., Aranda, M, Daurès, F., Fitzpatrick, M., Guyader, O., Hatcher, A., Macher, C. & Marchal, P. (2015). The regional management of fisheries in European Western Waters. Marine Policy, 51, 375-384. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X14002553

23 Department of Agriculture Food and the Marine. (2016). Submission to the Commission in line with Article 16.6. of EU Regulation 1380/2013.

24 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

25 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508

26 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

27 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

28 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

29 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

30 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

31 Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf

32 A differentiated landings tax was one of the options for reform considered in the review of the UK's economic link in Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf

The Italian fleet is large and diverse targeting a huge variety of stocks in the Mediterranean including hake, anchovy and clams and sardines as some of the more commonly targeted species. Aside from bluefin tuna and to a lesser extent anchovy, fishing opportunities are restricted primarily through effort management such as capacity limits, fishing seasons and closed areas.

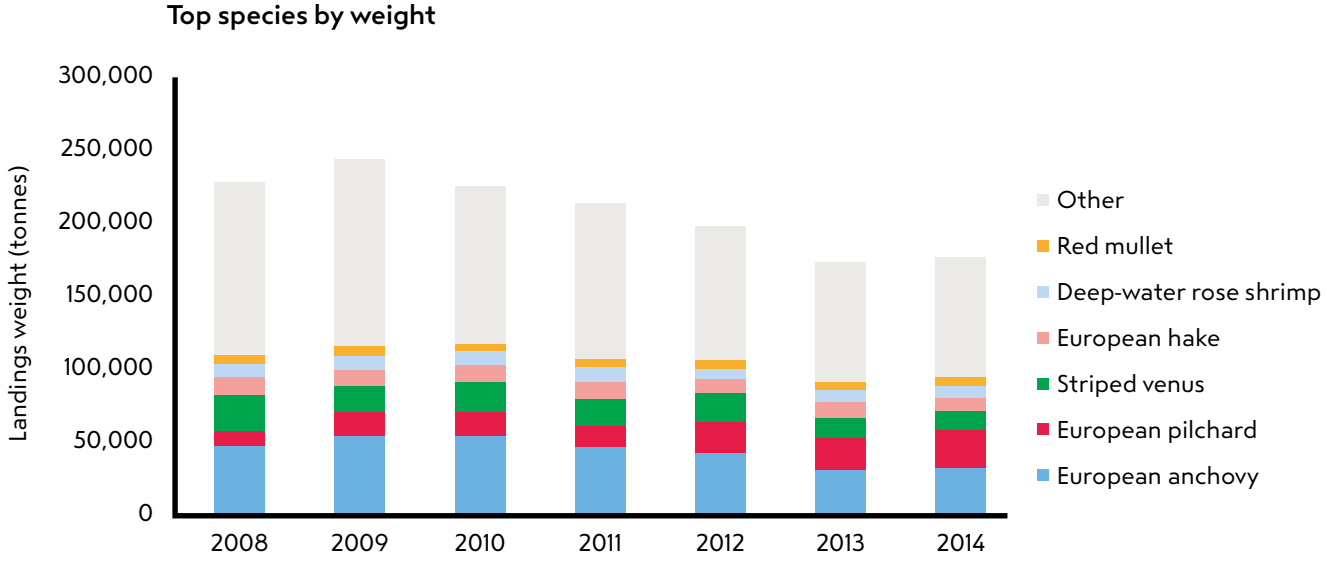
To assess the Italian system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. Our analysis suggests that the Italian system is effective in providing equitable access and ensuring public control over fisheries. However, it is unclear to what extent fishing access is secure under the effort regime and wages are very low compared to other Member States. Mediterranean stocks are currently heavily overfished and we recommend that Italy adopts quota management where this can be practically achieved.

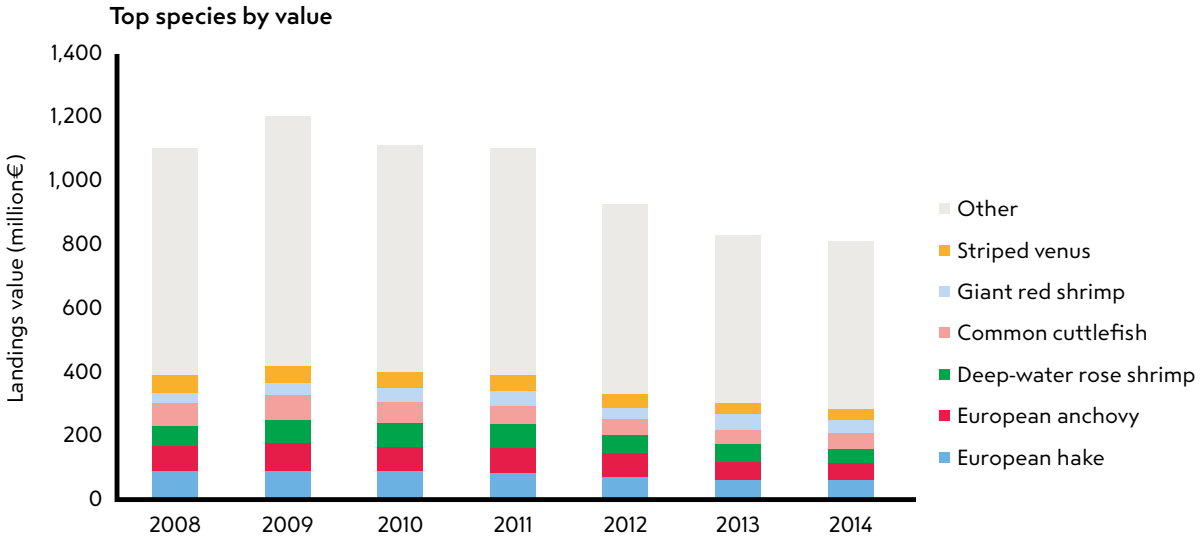
10.1 INTRODUCTION AND BACKGROUND

With a coastline of around 7,600 km and a long tradition of fishing, it is unsurprising that Italy has one of Europe's largest fleets. It has a significant small-scale fleet with under 12 metre vessels comprising 66% of Italy's 12,700 vessels.[1] The Italian industry has been shrinking for many years, with capacity, landings and revenue all falling. In 2004 there were 14,900 vessels landing over 300,000 tonnes of fish. As Figure 10.1.1 shows, the total landed weight in 2014 is now under 200,000 tonnes.

With nearly all of its fishing taking place in the Mediterranean, Italy is suffering the consequences of the poor biological state of Mediterranean fish stocks. Although most stocks are not analytically assessed, the Food and Agricultural Organisation estimates that 85% of those Mediterranean and Black sea stocks with valid assessments are fished at unsustainable levels.[2] The amount of overfishing is particularly serious for demersal stocks, with hake being fished at five times the sustainable limit. With few proven policies like catch quotas in place, and considerable illegal fishing, there is a long way to go towards sustainable fisheries management - the basis for a long-term, thriving fishing industry.

FIGURE 10.1.1: ITALY'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE





Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Italy's fleet is very diverse and can be divided into a number of broad segments. The largest segment, in terms of number of vessels, is the under 12 metre passive gear fleet. This segment accounted for 20% of Italy's landed weight and value in 2014 and employs 7172 people (full-time equivalent - FTE) out of 21,000 in the whole fleet. The fleet landed €160 million in 2014 with cuttlefish, hake and octopus fisheries making up the largest share. The small demersal trawl fleet (12-18 metres) consists of 1254 vessels with key target species including hake, shrimps and red mullet. Large demersal trawls and seiners (over 18 metres) of around 800 vessels target shrimp, hake, lobster and red mullet. This segment employs around 3000 FTEs and accounted for 29% of the total landed value in 2014. Pelagic trawlers target anchovy and sardines (pilchard) in the Adriatic Sea and purse seiners target bluefin tuna in the wide Mediterranean Sea and small pelagic species in the Tyrrhenian sea. Finally, 700 dredgers predominantly targeting clams in the Adriatic Sea landed 15,600 tonnes.

As Figure 10.1.3 shows, there is a significant difference between the number of vessels and the capacity of vessels belonging to a particular segment. Over half of Italy's capacity is dedicated to demersal fishing whilst two thirds of the vessels are in the passive-gear segment. Although the industry has been consistently shrinking, most fleet segments are profitable, with just the largest vessels and some dredgers making net losses in 2014.[3] Profits are still lower than in previous years, which has been attributed to lower market prices of key stocks.[4]

FIGURE 10.1.2: THE GEOGRAPHIC DISTRIBUTION OF ITALY'S LANDINGS

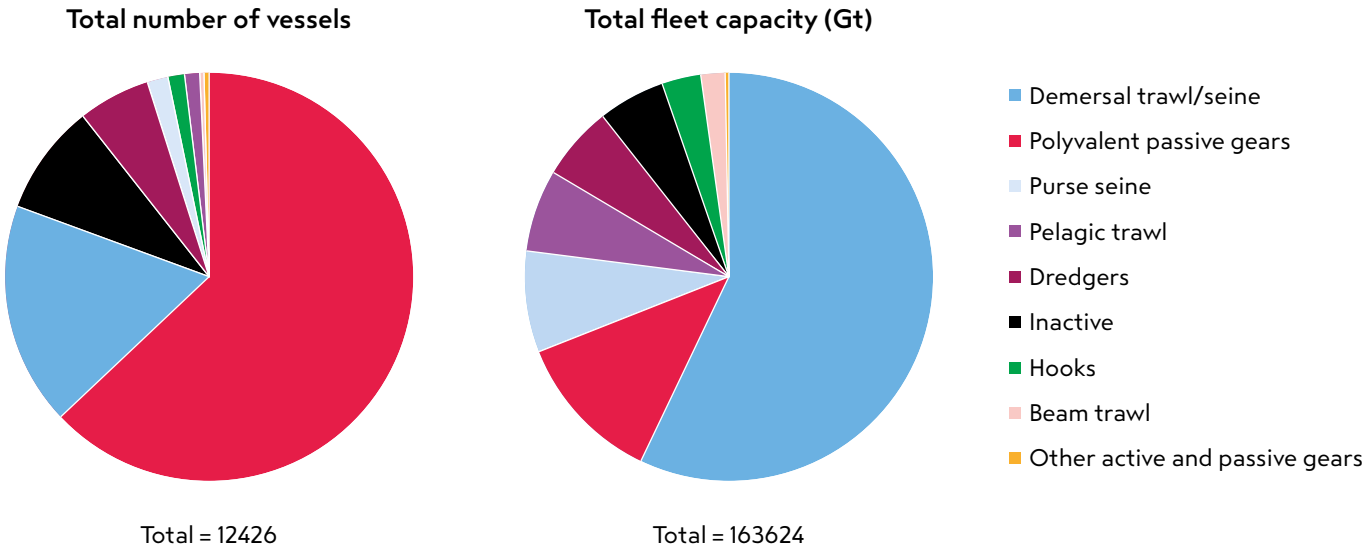
GSA Zone	% of total landed Weight	Value
9	10.2	14.3
10	10.8	14.9
16	11.6	16.8
17	49.9	31.8
18	11.6	11.9
19	5.9	10.4

Source: STECF, 2016. Annual Economic Report

Image: UN FAO

Owing to the large and varied industry and the complicated nature of fisheries in the Mediterranean, Italy's fisheries management is complex. As quotas are only formally in place for bluefin tuna in the Mediterranean, the government relies on a range of input-controls to work towards sustainable fishing levels.

FIGURE 10.1.3: ITALY'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse Italy's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Italy's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

10.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Effort management
Types of fishing opportunities:	Open seasons, fishing zones, individual transferable quotas and TURFs.
Main allocation criteria:	N/A
Differentiation in allocation:	Coastal, offshore, Mediterranean and high seas
Landed weight under quota management:	1%[5]

OVERVIEW

Control of fishing opportunities comes in the form of licensing, management plans, territorial use rights and catch quotas. Through restricted licensing in compliance with the EU's entry-exit scheme, the total amount of capacity is limited. Management plans specify fishing seasons, day limits, minimum landing sizes, closure areas, and other technical measures, thus controlling fishing effort. These plans are made at the international, national and local level. For some stocks and in small-scale fisheries, voluntary management associations implement effort controls over particular territories for their membership. Bluefin tuna, under the jurisdiction of the International Committee for the Conservation of Tuna, is under international quota management. Bluefin tuna quotas are then allocated to authorised vessels as individual quotas. Lastly, spatial limits in the form of a 3 nautical mile exclusion zone for towed gear and a number of no-fishing zones are in place.

GOVERNANCE

Italy's Directorate General for Maritime Fisheries and Aquaculture, under the Ministry of Agriculture, Food and Forestry, is responsible for fisheries management. The Directorate writes national management plans – the primary form of fishing control. Some responsibilities are devolved to regional administrations, including the development of local management plans, the conduct of scientific research, the maintenance of biodiversity, and the enhancement of local products. Although there are active producer organisations (POs) in Italy, they do not have a significant role in fisheries management, but focus instead on marketing work.

There are a number of local management groups involved in planning and regulation at the local level over particular coastal zones. These groups are voluntary organisations that have formed consortia including the consortium for the management of molluscs (COGEMO) and the consortium for the management of artisanal fisheries (COGEPA). The former operates primarily on the Adriatic Sea. Italy is also a member of the General Fisheries Commission for the Mediterranean, which is the regional fisheries management organisation of the Mediterranean and Black Sea. It develops regional management plans for international stocks. Large-scale offshore fishers usually work independently of any PO or consortium and market their fish independently.

LICENSING

Fishing licences give fishers a permit to fish with a given vessel and enters them on the Sea Workers register. These permits are valid for eight years and usually specify the gear used, the fishing area and type of fishing. There are four kinds of licences:

- Coastal (under 18 metre vessels fishing with 6nm from the coast),
- Offshore (under 24 metre vessels fishing up to 20nm),
- Mediterranean (over 24 metre vessels, with no territorial limit),
- High seas licence for fishing outside of the Mediterranean.

Recreational fishers do not require a fishing licence, but membership of a fishers federation which controls fishing times and gear types is required.

MANAGEMENT PLANS

EU Regulation 1967/2006 established that Mediterranean Member States need to implement management plans for major gear types to improve stock conservation. Management plans are used to limit fishing effort with the objective of reaching biologically safe fishing levels. These plans are made at community (international), national and local levels -- as appropriate for the stock(s) in question. Management plans contain rules on fishing effort, technical rules, and temporal closures. National management plans, limited to territorial waters, include summer fishing closures for

trawlers. These closures last between 30 and 45 days and are based on the spawning seasons of key target species. The plans also include targets for capacity adjustment and gear regulations to improve selectivity. For some stocks, such as small pelagics, weekly fishing-days limits are also included, or, in the case of Adriatic anchovy stocks, daily catch limits. These plans are implemented by a wide stakeholder group including POs, fisher associations, the directorate, and research bodies.

TERRITORIAL USE RIGHTS

COGEMO and COGEPA are consortia of local management organisations that have jurisdiction over a defined territory. They are voluntary membership-based organisations that have power to monitor and sanction members. COGEMO are involved in local mollusc fishing. They license members and impose effort controls, seasonal closures and daily bag limits. COGEPA branches allow fishermen and local organisations to contribute to the design of local management plans. These plans may be adopted by the ministry as a decree and include exploitation rules.

QUOTA SYSTEM

Bluefin tuna is under a quota system with the International Council for the Conservation of Tuna setting Total Allowable Catches (TAC) for a number of its Member States. Italy receives a share of this TAC and determines how to allocate it amongst its fleet. The number of bluefin tuna licences that are issued is limited and the ministry decides on the vessels that receive authorisation. The quotas are distributed as individual quotas to longliners, seiners and recreational fishers. A small reserve is kept aside for emergency allocation. In the case of longliners, allocation is based on a historical reference period of landings between 1995 and 1998. Seiners receive a minimum of 130 tonnes worth of quotas and allocation to vessels is based on capacity and takes into account in-year gear changes. The quotas are transferable within fleets using the same fishing-technique. It is not possible for new fishers to get access to bluefin tuna quotas without ministry intervention.

10.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with two types of objectives: foundational objectives and government-specific objectives. As we were unable to identify national government objectives for Italy, our analysis (section 4) assesses the performance of Italy against foundational objectives alone. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 10.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

METHODOLOGY

Table 10.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 10.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

10.4 ANALYSIS

This section will assess the performance of the Italian system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

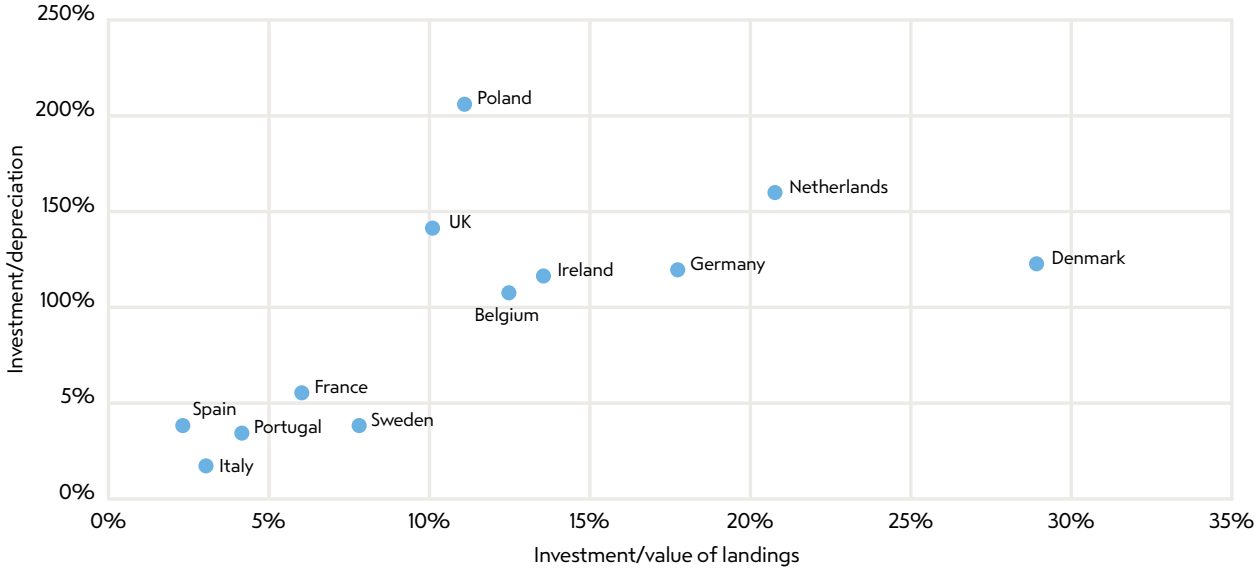
TABLE 10.4.1: PERFORMANCE OF ITALY'S SYSTEM OF FISHING OPPORTUNITIES.

Category	Objectives	Rating
Good for Fishers	Secure	Uncertain
	Flexible	Uncertain
	Accessible	Mid-low
	Viable	Mixed
	Equitable and fair	Mid-high
Good for Society	Publicly owned	High
	Meets government objectives	Mid-low
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mid-low
	Objective	Uncertain
	Right governance level and representative	Mid-high

SECURE: UNCERTAIN

The Italian system of fishing opportunities is fairly secure, with MRAG et al (2009) rewarding high scores for both security and validity across all types of Italian fishing rights.[6] This security in system design has not translated into investment however, as Italy has one of the lowest levels of investment among EU Member States covered in this report (both as a percentage of depreciations and compared to the landed value[7]). This low investment, which is evident across all Italian fleet segments in the Data Collection Framework, is likely to be the result of external issues, in particular the poor state of fish stocks in the Mediterranean and a more pessimistic outlook at the quantity of total fishing opportunities in the future.

FIGURE 10.4.1: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FLEXIBLE: UNCERTAIN

The effort-based fishing opportunities used in Italy are difficult to assess in terms of flexibility, as the measures of quota non-compliance, regulatory discarding and quota uptake do not apply to Italian fishing opportunities, with the exception of bluefin tuna. Effort-based fishing opportunities allow more flexibility to fishers in terms of redirecting their effort towards different species, although compared to quotas that are used in the other EU Member States in this study, there is less flexibility in terms of swapping, leasing, transfers, or other means of exchange. Such flexibility in effort restrictions is not as straightforward as a catch limit as the impact on fishing mortality is more difficult to measure. For some effort measures, and in particular spatial measures, an exchange between fishers is not possible.

ACCESSIBLE: MID-LOW

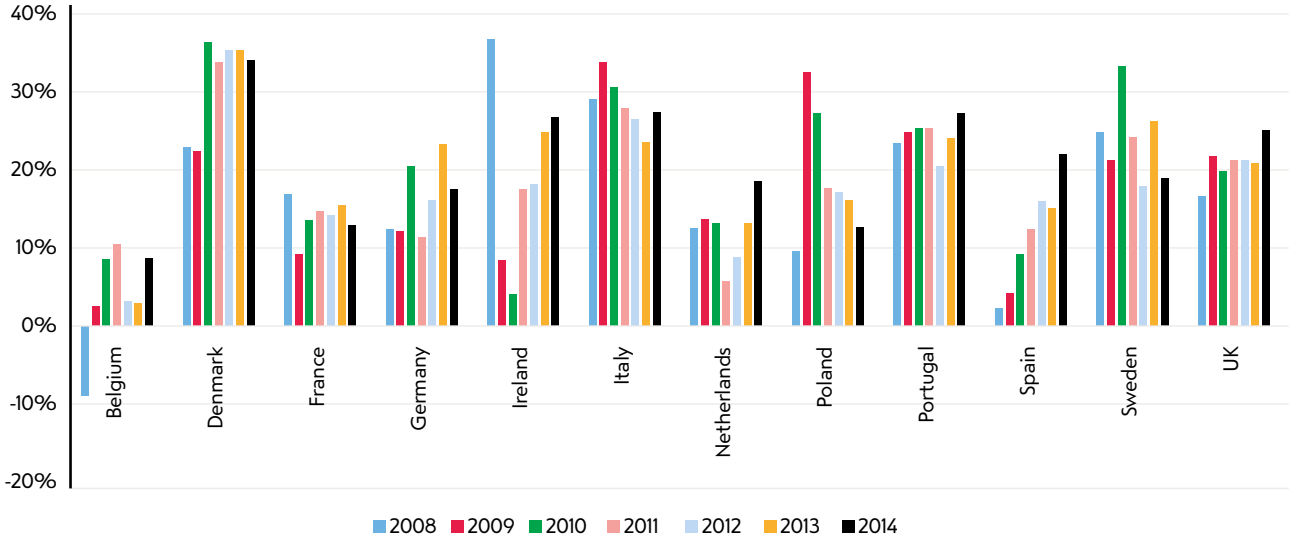
New fishers are required to obtain the correct licence for the fishery they want to access. This will depend on the target species, the distance the fisher needs to go from the coast and the type of vessel used. They may also need to join a relevant fishing association, especially in the case of joining a coastal fishery. Due to the EU's capacity management programmes, capacity can only be added to fleets if a corresponding amount of capacity is removed. With the exception of bluefin tuna, new fishers do not a track record or purchase fishing rights to access fishing opportunities. In the case of bluefin tuna, the newcomer will need to obtain a special authorisation to receive an allocation. Extraordinary allocations would need to be made in order for them to access bluefin tuna quotas without a historical track record.

Italy's use of effort management means that for nearly all stocks new fishers do not need to purchase or otherwise obtain fishing rights. Fishers simply need to comply with the relevant effort measures for their fleet. However, since Italy's primary conservation method is through restricting fishing capacity, it is difficult to obtain a licence in the first place. New fishers are required to purchase vessels with existing licences in nearly all cases.

VIABLE: MIXED

The Italian fishing fleet is one of the most profitable in EU (27% gross profit margin in 2014). This is remarkable given the amount of overcapacity in the Italian fleet and the poor state of fish stocks targeted by the Italian fleet.

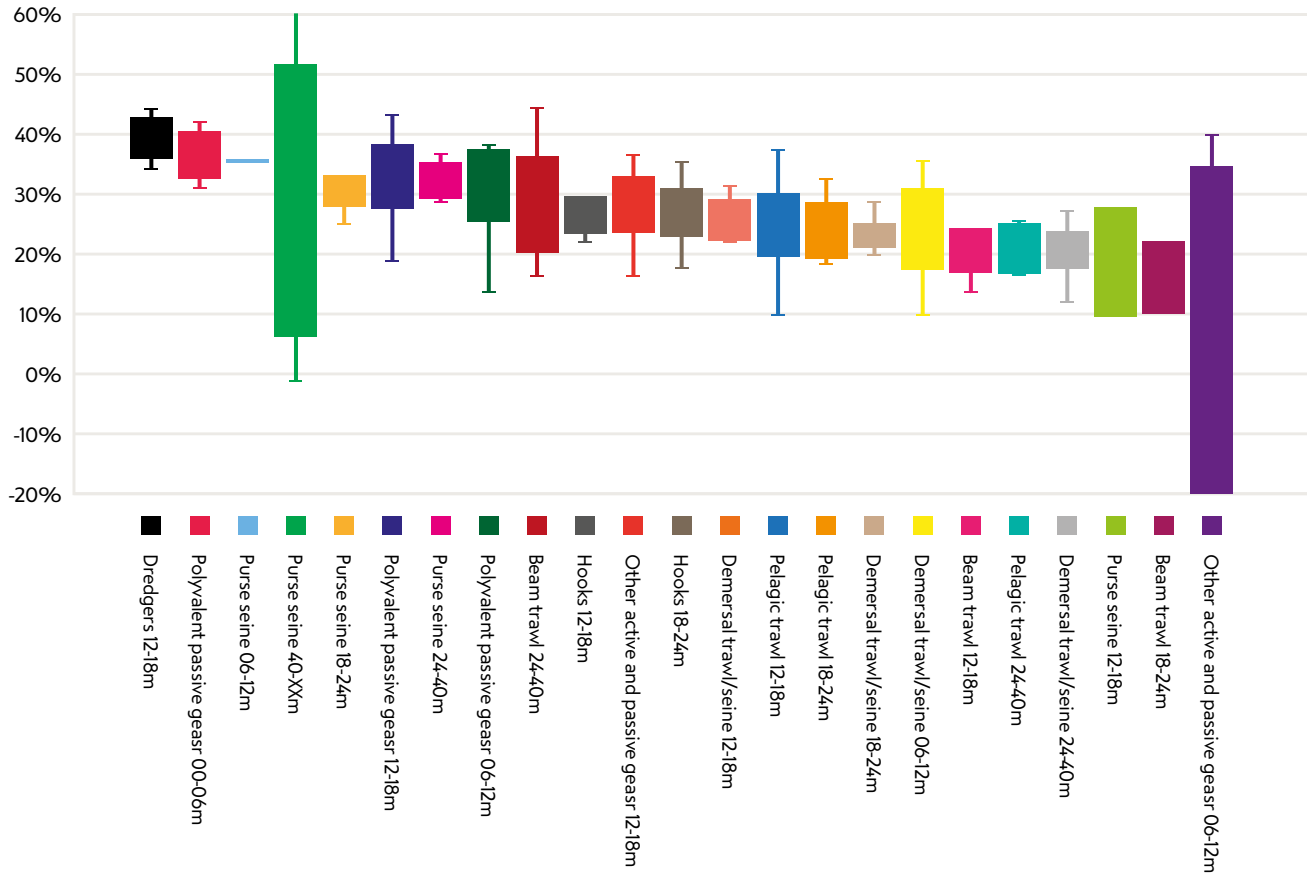
FIGURE 10.4.2: GROSS PROFIT MARGIN BY MEMBER STATE BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

These high profit margins are also evident across all fleet segments in the Data Collection Framework, with average gross profit margins about 15% for all fleets except one (6-12m other active and passive gears).

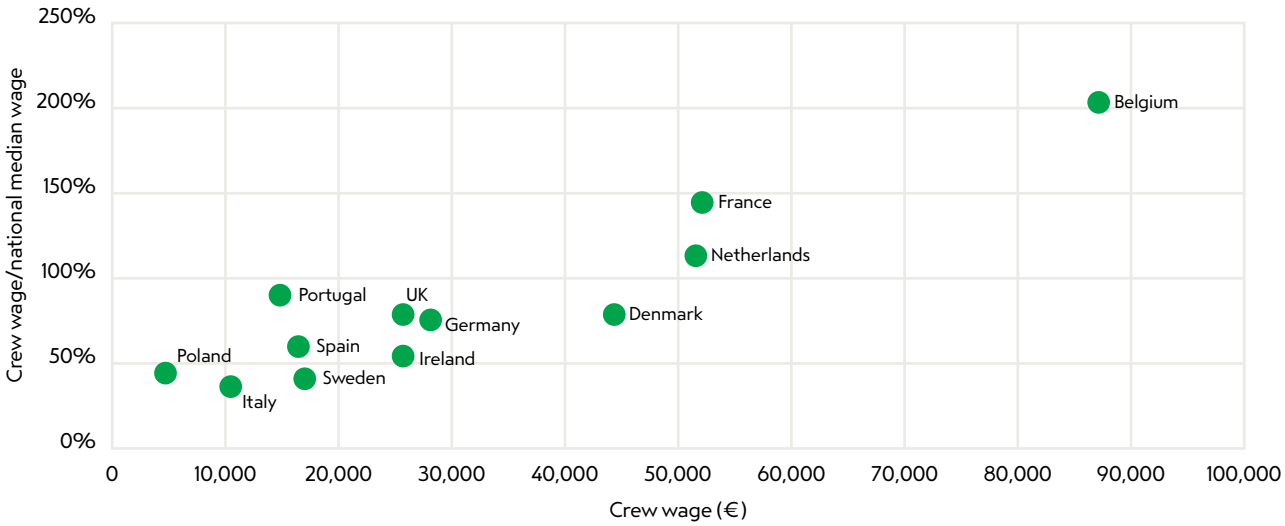
FIGURE 10.4.3: GROSS PROFIT MARGIN BY ITALIAN FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

These high profits are likely to be explained by the other measure of economic viability: crew wages. The Italian fishing fleet has the second lowest crew wages of the EU Member States in this report and the lowest crew wages compared to the national median wage. This imbalance between profits and wages may be partly an issue of economic power lying with vessel owners than with the crew. However, it is also likely to reflect an accounting issue in which, the many small vessels in Italy record their income as profit, rather than as a wage.

FIGURE 10.4.4: FISHING WAGE ATTRACTIVENESS BY MEMBER STATE



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database and OECD.stat. Note: Wage attractiveness as measured by crew wages as a percentage of the national median wage (y-axis) and by crew wage, € (x-axis).

EQUITABLE AND FAIR: MID-HIGH

As fishers with the same licence are under the same rules in effort management, fishing opportunities are inherently equally accessible. Inequities may exist between different types of fisheries that may be more or less favourable to fleet segments. Bluefin tuna, which is allocated on the basis of historical track records, suffers from the associated issues with this form of allocation. It favours fishers that happened to have high landings during the reference period and is discriminatory to new fishers wanting to join the fishery without specific measures to accommodate them.

PUBLICLY OWNED: HIGH

Fish stocks are treated as a national resource in Italy through the active role of public authorities and a lack of private use rights in the effort management system.

MEETS GOVERNMENT OBJECTIVES: MID-LOW

EU OBJECTIVES

Article 17 of the CFP requires the allocation of fishing opportunities with transparent and objective criteria, in particular those of an environmental, social, and economic nature. The most relevant feature of the Italian system of fishing opportunities for Article 17 is the use of spatial management to provide preferential access for passive gears, with trawlers not permitted to fish in the coastal zone. This is in line with the requirements of Article 17, but is a relatively small part of the Italian system.

A second EU objective is the need to balance fishing capacity with the available fishing opportunities is covered in Article 22 of the CFP. According to the most recent STECF report on balance capacity, Italy has average performance compared to other Member States in this area. In general, Italian fleets perform well on economic indicators for overcapacity (net profit margins, return on fixed tangible assets and current revenue to break-even revenue) but poorly on technical indicators (inactive vessel indicator, vessel utilisation ratio).[8] As explained in the 'Viable' objective, these positive results for the profitability of the Italian fleet are at least partly explained by simple vessel accounting, as crew wages in Italy are the second lowest of the EU Member States in this report.

CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers is not covered here as the other Member States have been compared based on species under TAC management.

NATIONAL OBJECTIVES

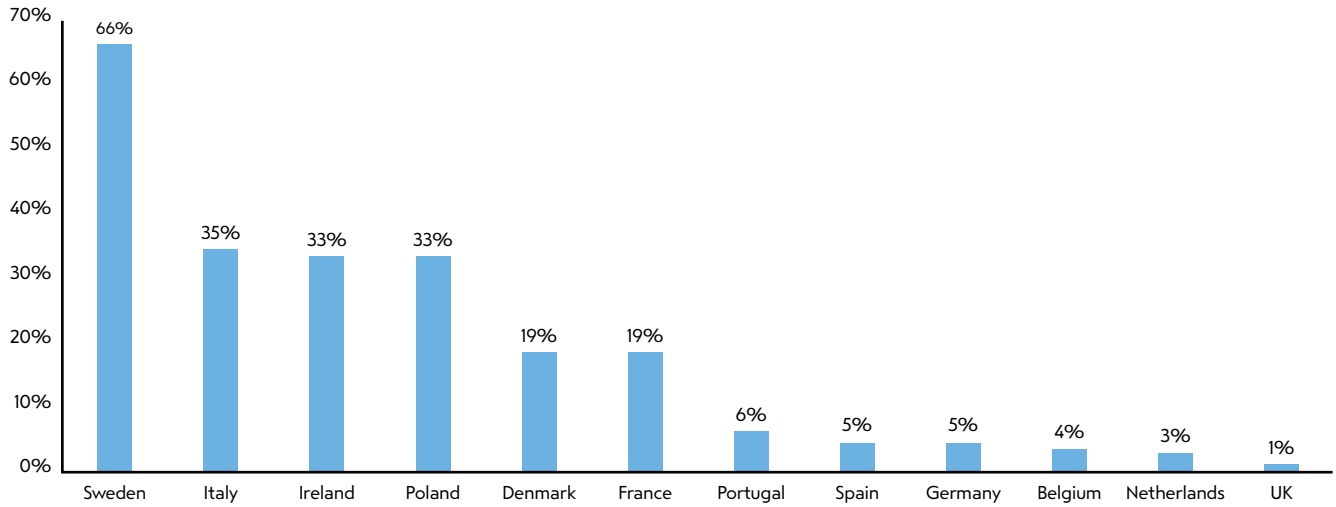
No documentation of objectives for fisheries management is available for Italy, so performance according to national objectives cannot be assessed.

Due to the lack of quota species, a quota reserve is not as applicable to Italy, although one could be created for bluefin tuna. The use of fishery specific management plans also complicates an equivalent role for effort or spatial reserves.

LIMITED PUBLIC EXPENSE: LOW

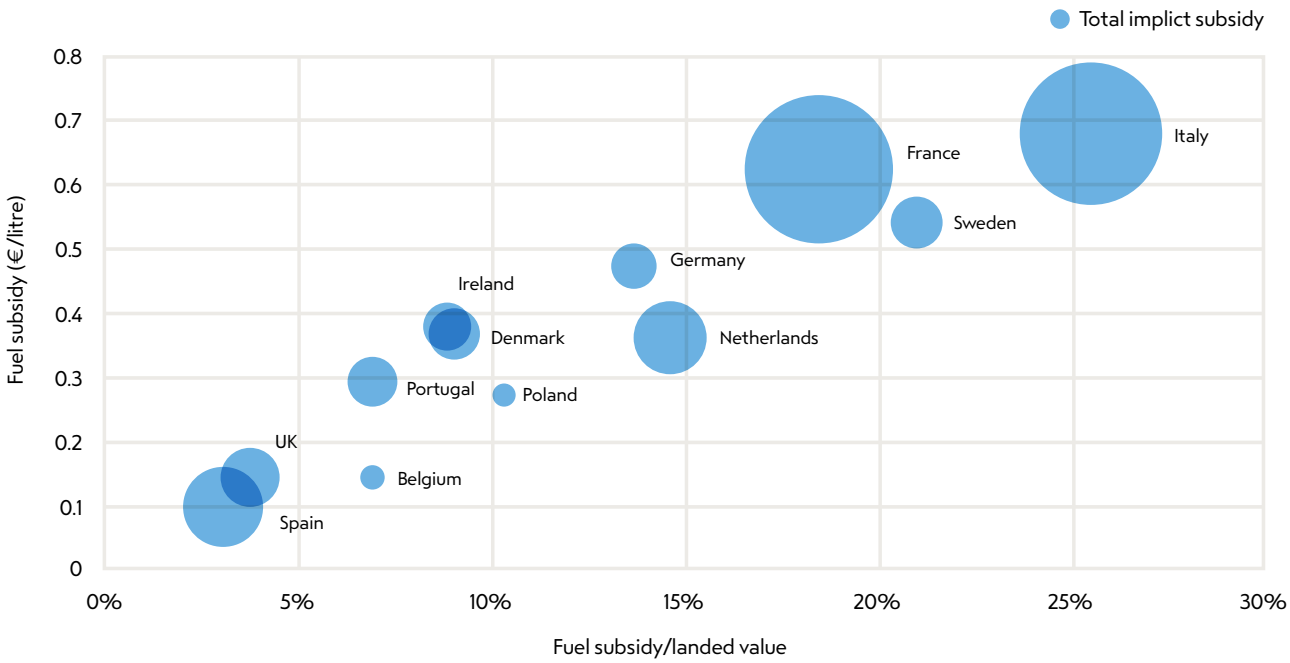
The Italian fishing system has one of the highest levels of management costs of the EU Member States in this study (35% of landed value). Whilst the effort-based system of fishing opportunities has many layers that may add to the cost of management, these high costs are also due to the sheer scale of the Italian fishing fleet, with a large number of small vessels around the entire country. There are no forms of direct revenue generation from the industry to help balance management costs.

FIGURE 10.4.5: NATIONAL GOVERNMENT EXPENDITURE ON FISHERIES MANAGEMENT AS A PERCENTAGE OF LANDED VALUE



Sources: Authors' calculations based on OECD.stat and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FIGURE 10.4.6: IMPLICIT FUEL SUBSIDY BY MEMBER STATE MEASURED IN EUROS PER LITRE OF FUEL AND AS A PERCENTAGE OF TOTAL LANDED VALUE OF THE NATIONAL FLEET.



Sources: Authors' calculations based on European Parliament report and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Italy has the highest reported fuel subsidies for fishing of any EU Member State in this study (0.68€/litre). As fishing is one of the most fuel intensive industries, these subsidies add up to large amounts (€813 million annually), particularly when compared to the size of economic output from the industry (25% of landed value).[9] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing. By lowering operational costs, these fuel subsidies also encourage continued overcapacity – a noted issue in the Italian fishing fleet. This may be reflected in the high profits that are reported in the industry (see 'Viable' objective).

CAPTURES RESOURCE RENT: LOW

As there is no system of direct revenue collection from the fishery, no resource rent is currently being captured.

TRANSPARENT AND ACCOUNTABLE: MID-LOW

There is no easily accessible document on Italy's fishing opportunities. There are numerous reports and pieces of legislation that detail fishing opportunities, but not in a simple manner. This is partially justified by the complexity and regional variation in available fishing opportunities.

OBJECTIVE: UNCERTAIN

Effort controls are implemented through management plans, which are written on the basis of stakeholder consultation and scientific advice. On this basis, it cannot be determined from outside of the process if it is objective.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-HIGH

Many aspects of fisheries management are devolved to regions and local organisations. Regional authorities are involved in writing regional management plans and also inform national management plans. Local management plans are implemented where fisheries are geographically small and isolated. Fishing associations, supported by the national government, have taken over many management responsibilities from their members. Some of these are ancient organisations whilst others have been given mandates based on minimum membership requirements.

10.5 RECOMMENDATIONS

Italy is unusual compared to the other Member States reviewed in this report in that few stocks are under quota management. Italy has more significant issues with sustainable stock management and enforcement and problems are related to the fleet structures and types of fishery prevalent in the Mediterranean. These issues are not covered by our Foundational Objectives and so have not been analysed in this report. We recommend that Italy takes further steps towards introducing quota management, where conditions permit, and implement a landings tax to reduce costs of management.

TAKE STEPS TOWARDS INTRODUCING QUOTA MANAGEMENT

As explained in chapter 3.4, quota management (QM) is normally preferable over effort management (EM), particularly for mobile and over-fished stocks. EM is an indirect way to control fishing mortality and fishers often have the opportunity to adapt technically and behaviourally to land more catches. Moreover, EM is not stock-specific, making it particularly difficult to ensure the sustainability (Bmsy & Fmsy) of individual stocks. We recommend that efforts are made to introduce QM where possible and further steps are taken to make it possible in the long-term.

Where the following conditions are met, QM can be most readily implemented in order of appropriateness:

- Mono-specific stocks
- Large and medium-scale fisheries
- Reliability of landings and catch data to set and enforce limits
- Urgency of a change in management approach (F/FMSY and B/BMSY)
- Low discards rates or scope for improving selectivity
- Fewer ports and vessels involved for easier management and enforcement
- Better length composition of stock (to protect against high grading, percentage of catches below MCRS or average catch size vs maturity size)

Many stocks in the Mediterranean do not meet all of these criteria and QM can often not be implemented for various managerial reasons. This framework can provide guidance on where best to prioritise roll out of QM. Moreover, in cases where lack of scientific data, enforcement and control are the main obstacles, the Italian government should take active steps to overcome them. Improvement in the control of fishing mortality is particularly urgent given the state of Mediterranean stocks and the CFP's objective to manage all stocks at MSY by 2020 at the latest. QM is one tool that may deliver more successfully on this objective than existing arrangements.

As chapter 2 has shown, there is a large range of possible quota arrangements and types of allocation to choose from. Since Italian fisheries have traditionally worked largely on the principle of equal access, the type of quota arrangements should be collectively oriented. This could include, for example, democratically run local or fleet-level POs that pool quotas for their members; equal allocations to fishers working in particular fisheries; or criteria based allocation with a heavy emphasis on equal access.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landings obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[10]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.68 per litre for Italy is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[11] - use the most fuel per landed value, whilst pots and traps use the least.[12] This variance in fuel use is an important price signal that should be reflected in the price of fish.[13] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[14]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

10.6 CONCLUSIONS

Italy manages most of its fishing opportunities through effort management, which sets it apart from the other Member States reviewed in this report. This provides equitable access to fishing opportunities but has disadvantages for stock conservation, although this is compounded by factors outside of the system of fishing opportunities. Our analysis shows that Italy has mixed performance across objectives. As Italy hardly uses quotas, we cannot provide a ranking for three of the objectives. Moreover, due to the contextual, fishery-specific nature of effort-regimes, it is difficult to provide many proposals. Based on our assessment of available information and input from interviews, we recommend that Italy:

- Takes steps towards introducing quota management where fisheries meet specified conditions;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions.

Moving towards quota management can improve the systems to ensure sustainable stock management. Granted, for many fisheries, quota management cannot be feasibly implemented, but where there is scope for improving stock assessments, gathering landings data and enforcing limits steps can be made in this direction. This applies similarly to the implementation of a landings tax which also requires data collection hurdles to be overcome. In this sense, changes in the Italian system of fishing opportunities should be made alongside significant improvements in the other fundamental aspects of fisheries management.

---

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 General Fisheries Commission for the Mediterranean. (2016). The State of the Mediterranean and Black Sea Fisheries. Rome: Food and Agriculture Organization of the United Nations. Retrieved from http://www.fao.org/3/a-i5496e.pdf

3 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

4 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

5 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

6 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

7 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

8 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf

9 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

10 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

11 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

12 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

13 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

14 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

CHAPTER 11- NETHERLANDS

The Netherlands has a productive fishing industry, with predominantly medium to large beam and pulse trawlers ('cutters') targeting demersal stocks in the North Sea. A small number of very large refrigerated vessels target pelagic species such as herring, whiting and mackerel. Major pelagic and demersal stocks are managed under a market-based system of transferable fishing quotas with a large role for producer organisations. To assess the system of fishing opportunities of the Netherlands we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance.

The Netherlands performs well on providing secure and flexible fishing access for existing fishers but performs poorly on objectives in the Good for Society category. This low performance for some objectives stems from a lack of quota allocation based on any social or environmental grounds. We propose a number of reforms including fully implementing Article 17 of the CFP, improving transparency and implementing a landings tax to cover management costs.

11.1 INTRODUCTION AND BACKGROUND

Relative to its population size, the Netherlands is one of the most productive fishing nations in the EU and is one of the few Member States that has a trade surplus in the fishing sector.[1] In 2015, there were 718 commercial vessels registered in the Netherlands of which around a third are small-scale (under 12 metre passive gear)[2]. Remaining consist of medium to large 'cutters' (mainly beam trawlers) and large-scale pelagic trawlers. This split also makes the Netherlands one of the few EU Member States with more large-scale vessels than small-scale vessels.

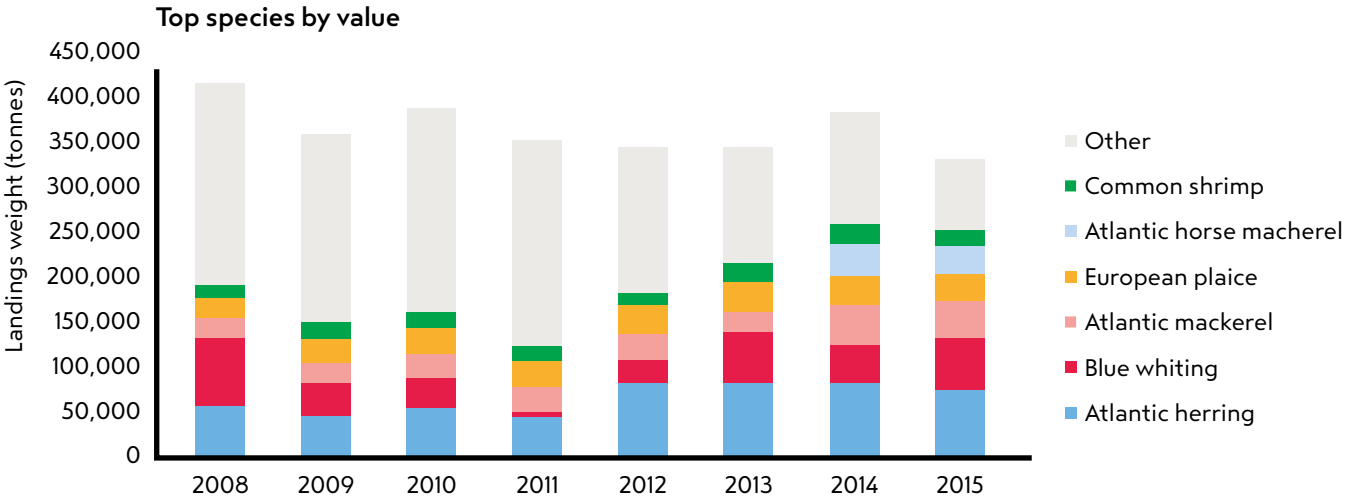
The marine fishing industry employs just over 2,000 fishers, landing 342,000 tonnes of catches worth €371 million in 2014.[3] The cutter fleet mainly target shrimp and flatfish in the North Sea as well as whilst the pelagic fleet target pelagic stocks across the North Sea and in Western waters around the UK and Ireland. There is also a Dutch shrimp fishery that operates around the Dutch coastline in the Wadden Sea and elsewhere in the North Sea.

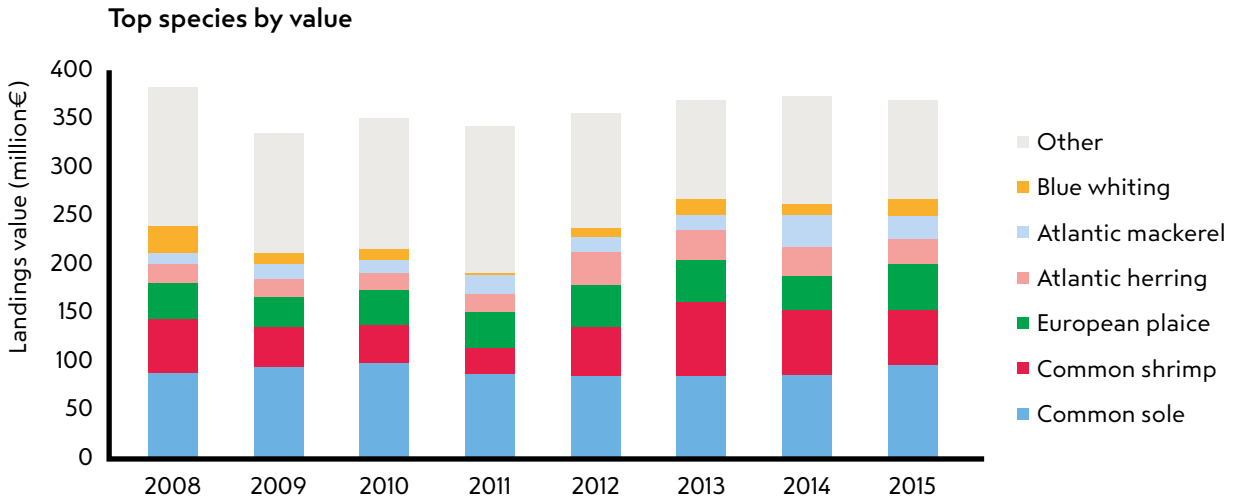
With most of the fleet oriented towards demersal fishing, plaice, shrimp and sole make up more than half of the Dutch landings value. In terms of volume, the pelagic fisheries bring back the largest catches, with herring, blue whiting and mackerel accounting for over half of the tonnage landed. The small-scale fleet mainly targets sea bass, lobster, mullet, oyster, cockles and some flatfish in the coastal fishery. The landings of the small-scale fleet account for just under 1% of total landings.

The 'cutter' fleet consists of medium sized bottom and demersal trawlers targeting flatfish, shrimp, langoustines. There is a small fleet segment of over 40 metre pulse trawlers targeting flatfish. Overall, the cutters are profitable, but not to the same degree as the larger pulse trawlers.

The pelagic trawlers consist of eight over 40 metre vessels targeting the top three most landed species mainly outside of the North Sea. This segment accounts for €123 million of landed value and most of the landed volume.

FIGURE 11.1.1: THE NETHERLANDS' TOP 6 SPECIES BY LANDED WEIGHT AND VALUE

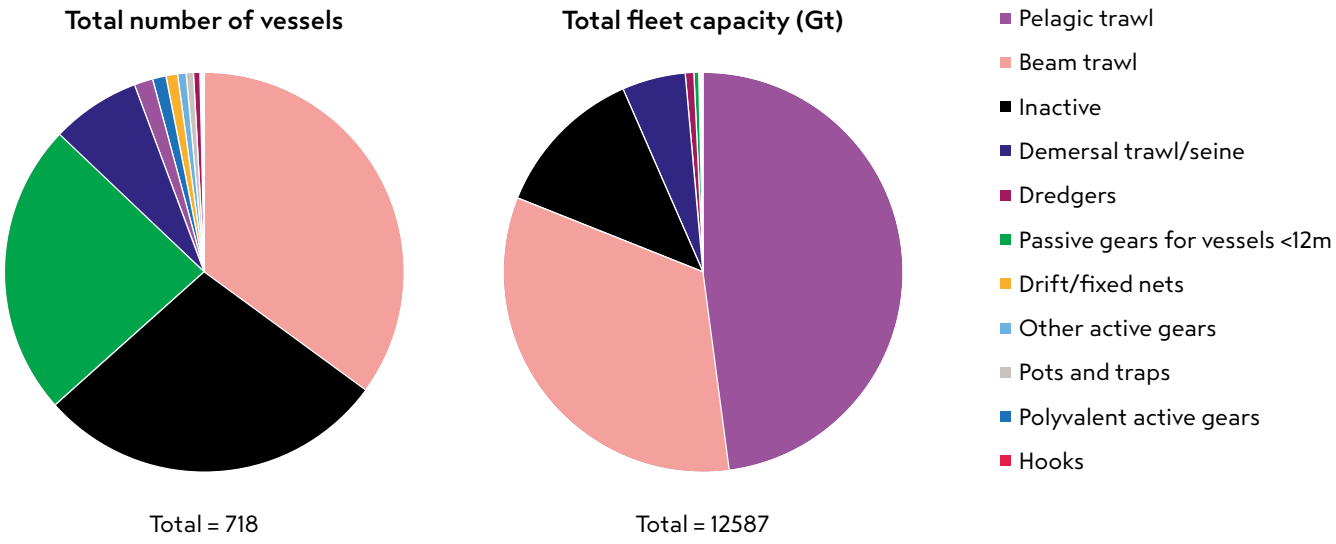




Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Over the past two decades, the Dutch commercial fishing sector has undergone significant structural change with the gradual implementation of an individual transferable quota system and the improved enforcement of quotas. Since 1990, the fleet has lost a third of its vessels, shedding overcapacity and adjusting to lower quotas. In comparison to other EU Member States, the Netherlands has a very small under 12 metre passive sector, which now consists of just 178 active vessels. However, as Table 11.1.1 shows, the number of vessels has declined across all fleet segments since 1990.

FIGURE 11.1.3: THE NETHERLANDS' FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

TABLE 11.1.1: DUTCH FLEET COMPOSITION BY LENGTH CLASS IN 1990 AND 2015

Year	Length Class	Number	Capacity (1000Gt)
1990	U12m	555	2.7
	12-23m	433	16.3
	>23m	496	155.8
	Total	1484	174.9
2015	U12m	348	0.9
	12-23m	244	14.1
	>23m	238	111.8
	Total	830	126.8

Source: Eurostat, derived from the European Fleet Register. Note: Figures may differ from the Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse the Netherlands' fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and the Netherlands' national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

11.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management (RBM) and Effort Management (EM)
Types of fishing opportunities:	Individual transferable quotas, effort quotas and national quotas
Main allocation criteria:	Historical catches (ITQ), equal access (non-ITQ)
Differentiation in allocation:	ITQ and non-ITQ stocks
Landed weight under quota management:	77%[4]

OVERVIEW

The most important Dutch fishing opportunities come in the form of landings quotas: mostly individual transferable quotas and, to a lesser extent, community quotas. Individual transferable quotas (ITQs) are in place for major pelagic and demersal stocks. For the some other stocks, national pooled quotas are in place, and remaining stocks are under effort controls alone. Licensing is compulsory and transferable. Transferable effort quotas are also in place for a number stocks next to ITQs.

GOVERNANCE

Fishing opportunities are managed by the Ministry of Economic Affairs in collaboration with producer organisations. With ITQs being introduced first for sole and plaice in 1976, the Dutch government devolved quota management to producer organisations (Bieshevel groups) in the early 1993.[5] Today producer organisations are still responsible for quota management and most major pelagic and demersal species are under ITQs. Non-ITQ stocks are under national quotas and non-quota species are limited through licensing and closures.

Currently there is one pelagic PO and seven demersal POs and the vast majority of fishers are members of a PO. The small-scale segment is the least well represented in POs, but some small-scale fishers are starting to organise to share fishing rights, such as the Vissers van de Kust cooperative. There are two main federations that represent the industry: the Nederlandse Vissersbond (Dutch Fishers Union) and VisNed, a Federation of Fishers Associations. Recently, netVISwerk, a national association to represent small-scale fishers (coastal and inland) has been established. With an ITQ system in place and quota management devolved to POs, the Dutch ministry's role is more limited in comparison to other Member States.

The Dutch fleet is differentiated into two major segments Mfl1 and Mfl2. Vessels in the former are allowed to target quota species whilst the latter are not. This differentiation was put in place in 2004 to constrain the amount of fishing geared towards targeting quota species. Mfl1 vessels are mostly large-scale targeting stocks under ITQs and national quotas and Mfl2 vessels are mainly small-scale. These small-scale vessels target shellfish like oysters, cockles, as well as mullet, sea bass, crabs, lobsters and shrimps and grey gurnard.

DUTCH FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: ITQs | Non ITQs | All

This table summarises five key features of the Netherlands' quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

Allocation of quotas for ITQ stocks is performed according to the ITQ holdings of fishers and fishing companies. These were initially allocated according to historical catches and engine power. Non-ITQ stocks are set as a national quota and are not allocated.

HOLDER

Fishers and fishing companies in possession of a fishing licence hold ITQs which are then pooled in the PO to be collectively managed. Non-ITQ quotas are held as national quotas.

TRANSFERABILITY

ITQs are freely tradable and leasable within POs. Full transfer is subject to ministry authorisation. Other non-ITQ quotas are freely accessible so no transfers occur.

SECURITY

ITQs are a de facto type of possession and are seen as permanent entitlements.

DURATION

Quotas apply for one year in line with EU TACs.

FIGURE 11.2.1: STOCKS TARGETED BY (NUMBER OF) DUTCH VESSELS DEPENDING ON TYPE OF LICENCE AND ITQ HOLDINGS

	Hold ITQs	Don't hold ITQs
Mfl1	ITQ stocks (374)	National quota stocks (137)
Mfl2	N/A	Non-quota stocks (202)

These include some of the following species:

ITQ stocks, e.g.
- sole
- plaice
- cod
- herring
- mackerel

National quota stocks, e.g.
- turbot and brill
- dab and flounder

Non-quota, e.g.
- shellfish
- mullet
- sea bass
- grey gurnard etc.

QUOTA ALLOCATION

For the main stocks under ITQs, allocation occurs directly based on the shares held by fishers and fishing companies. The Dutch shares of the EU TACs are converted to quotas according to the ITQs fishers possess with minimal involvement of the Dutch government. These quotas were originally allocated based on historical track records before being gifted as a quasi-property right (through ITQs). POs have to submit a plan at the start of the year to the ministry detailing how their quotas will be utilised. When this is plan is approved, they receive their quota shares.

A small quota share is kept aside by the ministry for the sake of international quota swaps and other management purposes. Aside from this, the POs are responsible for ensuring quota compliance and have tools to impose sanctions on members.

Non-ITQ quotas are set as national quotas that are accessible to all Mfl1 fishers. These quotas do not involve allocation as all fishers have equal access to these quotas.

QUOTA RULES

ITQs can be held by fishers that have a fishing licence and are in the Mfl1 fleet. The quotas can be freely leased and transferred between members of a PO and also between POs with ministry approval. There is, however, a limitation that quotas can only be leased to operators that already hold ITQs of that species, and the lease lasts one year. POs can also create group quotas, pooling ITQs, which members can access collectively. ITQs are associated with a fishing vessel and must be used with that vessel a minimum of once a year, every five years. This prevents excessive ownership of quotas with the sole purpose of leasing the quotas out. In order for a new individual to fish quota species they have to first purchase or lease ITQs. The number of holders of ITQs is also capped in order to restrict capacity increases but there are no restrictions on quota concentration.

Some ITQs for mixed fishery stocks have to be owned in conjunction with other ITQs to account for multiple species being caught simultaneously. This is the case for plaice and sole which have to be owned and transferred/leased together.

OTHER FISHING OPPORTUNITIES

A number of stocks including red mullet, sea bass and shrimp are not under quota management. The amount of effort is constrained through limited licensing. The 12nm coastal zone can only be fished by vessels below 300 horse power.

11.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with two types objectives: foundational objectives and government-specific objectives. As we were unable to identify national government objectives for the Netherlands, our analysis (section 4) assesses the performance of the Netherlands against foundational objectives alone. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 11.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

METHODOLOGY

Table 11.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. The performance on each measure is scored based on quantitative analysis and / or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 11.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

11.4 ANALYSIS

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with two types of objectives: foundational objectives and government-specific objectives. As we were unable to identify national government objectives for the Netherlands, our analysis (section 4) assesses the performance of Italy against foundational objectives alone. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

TABLE 11.4.1: PERFORMANCE OF THE NETHERLANDS' SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	High
	Flexible	Mid-high
	Accessible	Low
	Viable	Mixed**
	Equitable and fair	Low
Good for Society	Publicly owned	Low
	Meets government objectives	Mixed
	Limited public expense	Mid-low
	Captures resource rent	Low
Good Process	Transparent and accountable	Low
	Objective	Mid-high
	Right governance level and representative	Mixed

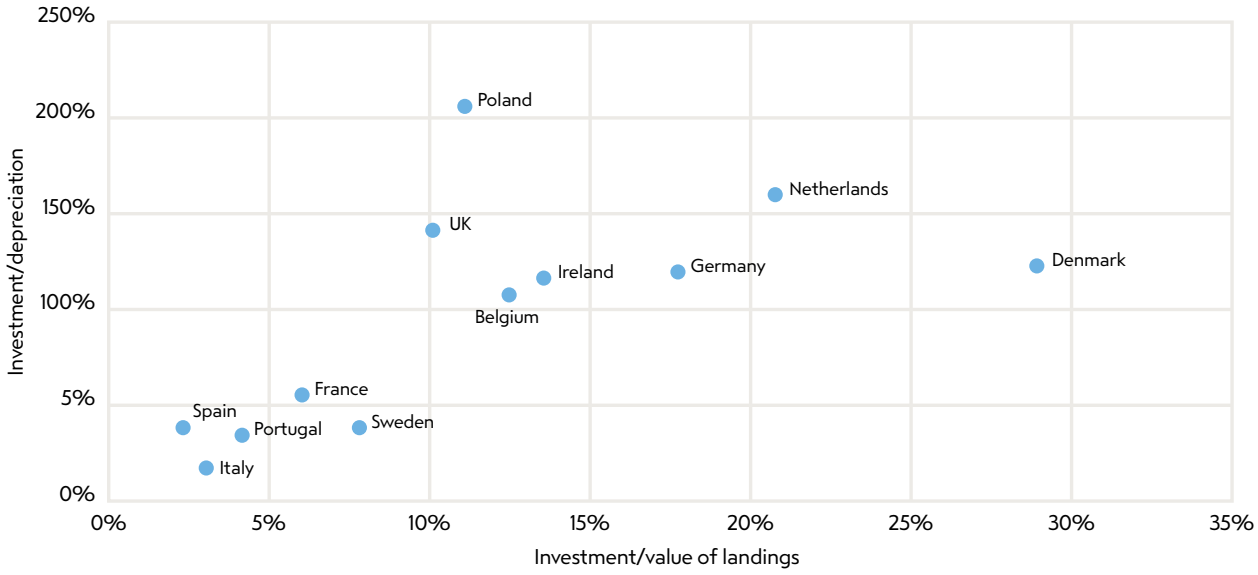
** *increasing*

SECURE: HIGH

The Dutch system of fishing opportunities has explicitly targeted security and this is reflected in the behaviour of fishers and the performance of the fishery.

Investment as a percentage of landed value is high (21%) as is investment as a percentage of depreciation (160%).[6] This indicates that fishers have confidence that they will retain, and benefit from, their quota holdings in the future. The MRAG et al (2009) assessment of RBM confirmed a high level of security in the industry.[7] Likewise, there have also been very few fishery closures or other indications of 'race to fish' behaviour, indicating security within a year as well.[8] This is with the exception of the shrimp fishery where a race to fish is reported to occur.

FIGURE 11.4.1: FISHING WAGE ATTRACTIVENESS BY MEMBER STATE



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FLEXIBLE: MID-HIGH

The Dutch system of fishing opportunities, by using transferable quotas, is also designed to be flexible, but there are indications that this has not the case. Quota uptake for the Netherlands is lower than other Member States fishing the same quotas, which is an indication that it may not be getting to the fishers that need it most.[9] Whilst this is counterintuitive given the large number of stocks managed under ITQs, it could be that the high prices of quotas are prohibitive to fishers that would like to access the quotas. This has been a noted problem for the small-scale fleet.[10]

There are also moderate levels of discarding relative to other Member States using similar gear for a similar species in a similar area.[11] Taken together with instances of suspected quota infringements (8% of vessel inspections),[12] there may be signs that some fishers cannot access the quotas they need for regular operation. However, these levels of discarding and quota infringements are comparatively moderate and may be a result of the highly-mixed fisheries of the Dutch fleet. In addition, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

ACCESSIBLE: LOW

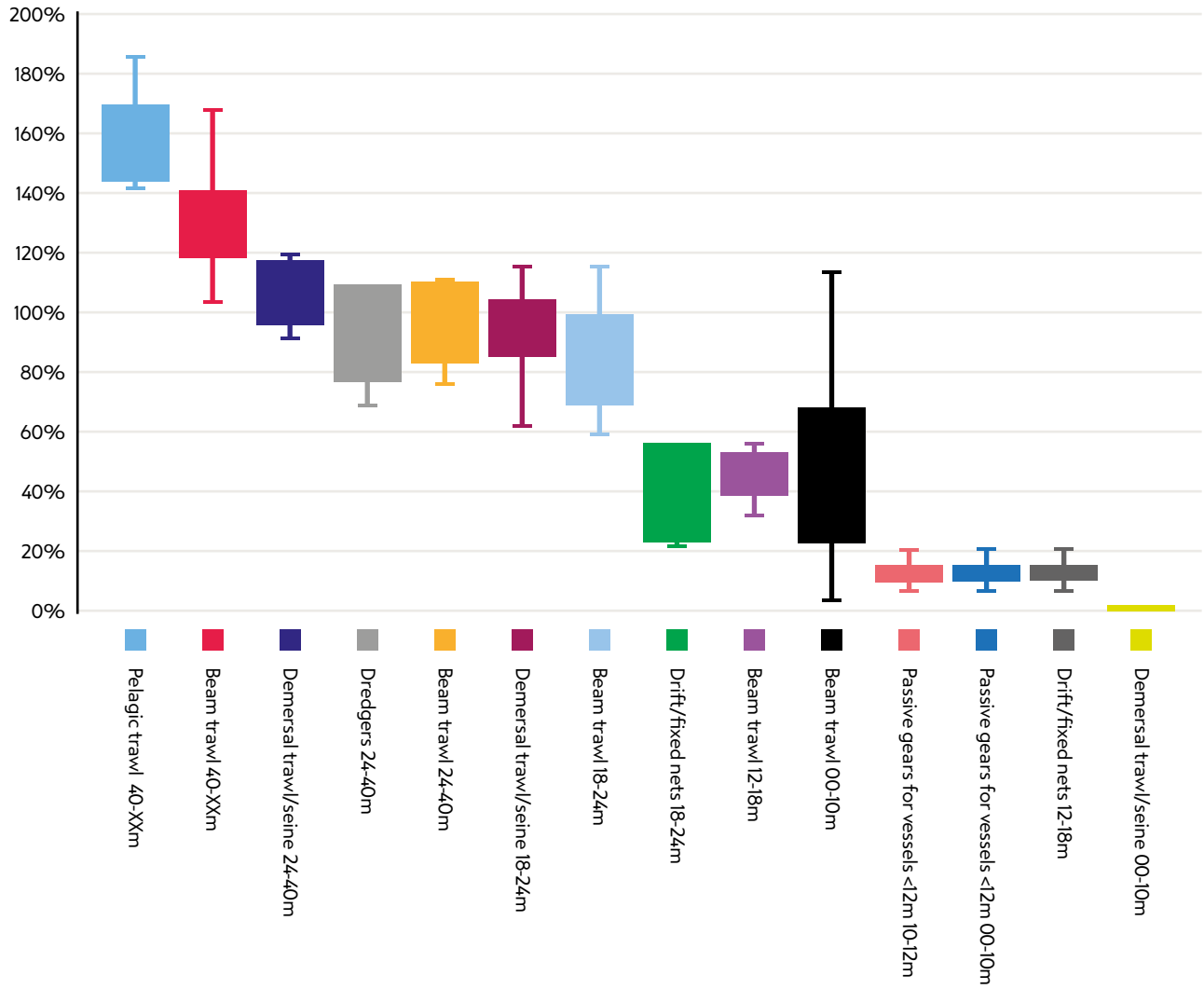
There is no specific quota pool set aside for new entrants to the Dutch fishery. Taken together with the high prices of quotas through the ITQ system, it is very difficult for young fishers to enter the industry and target high value species. Not only do new fishers need to purchase ITQs but they would also need to buy capacity rights to join the Dutch fleet. Newcomers can target non-ITQ and non-quota stocks with no additional cost but these offer few commercial opportunities. Fishers under the age of 40 can get a subsidy to cover 25% of the cost of purchasing a vessel.

VIABLE: MIXED/INCREASING

The Netherlands is one of the few Member States with a higher average wage in the fishing industry (€51,390)[13] than the national median wage (€45,347)[14]. Conversely, and in contrast to the pattern of ITQ systems elsewhere, profits in the Dutch fleet are comparatively low.[15] This may be a result of large the large investments taking place in the industry (21% of landed value) as much of the fleet is trialling new gear, such as the pulse trawl. Indeed, there are signs the investment is working as overall profits in the industry have increased for the past three years.[16]

There is also significant variance in economic viability at the fleet level, particularly for wages. Whilst average fishing wages are above the national median wage, this pattern is the result of particularly high wages in just a select few fleets and is not representative. Many of the fleet segments outside of the large trawlers have very low wages.

FIGURE 11.4.2: CREW WAGES AS A PERCENTAGE OF THE NATIONAL MEDIAN WAGE BY FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

Systems based on historical quota allocation, and especially where quotas are transferable, are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. New fishers without a track record will need to buy fishing rights or rely on special allocations. Historical allocation is highly favourable to incumbent fishers who are granted a free quota share. Inequality in access is reinforced by the Dutch division between Mfl1 and Mfl2 vessels, as Mfl2 vessels are excluded from accessing any quota species.

Transferability compounds this inequity as some fishers begin to rely on leasing quotas at increasing costs. Further, the concentration of quota through transfers of ownership increases market power and creates potential situations of oligopoly/monopoly in the quota market. The Netherlands has no measures in place to limit excessive concentration of fishing opportunities. As the prices of ITQs increase small-scale fishers tend to leave the industry, given the financial incentive to sell quotas, but few re-enter. Currently small-scale vessels only hold 0.05% of the total ITQs available.[17] Consolidation also occurs in the family owned cutter fleet where many vessels are bought up by larger fishing companies. The Dutch ministry takes no actions to provide equitable access for fishers but instead lets the ITQ system run its course. This is evident in the merging of companies to the extent that currently only three pelagic fishing companies exist.

PUBLICLY OWNED: LOW

Allocations based on historical track records were performed between the 1970s and 1990s with no subsequent reallocation as quotas were made transferable. These allocations have not been altered through government action and have thus become an allocation in perpetuity. With the key properties of exclusivity, durability, security and transferability and no revocation clause, Dutch ITQs carry the characteristics of formal property rights. Despite this, there is a lack of legal clarity surrounding the status of ITQs. There is an unspoken assumption that ITQs are now a form of private property and any attempt to repossess quotas by the government without compensation wouldn't stand up in court as fishers have developed a legitimate expectation.

MEETS GOVERNMENT OBJECTIVES: MIXED

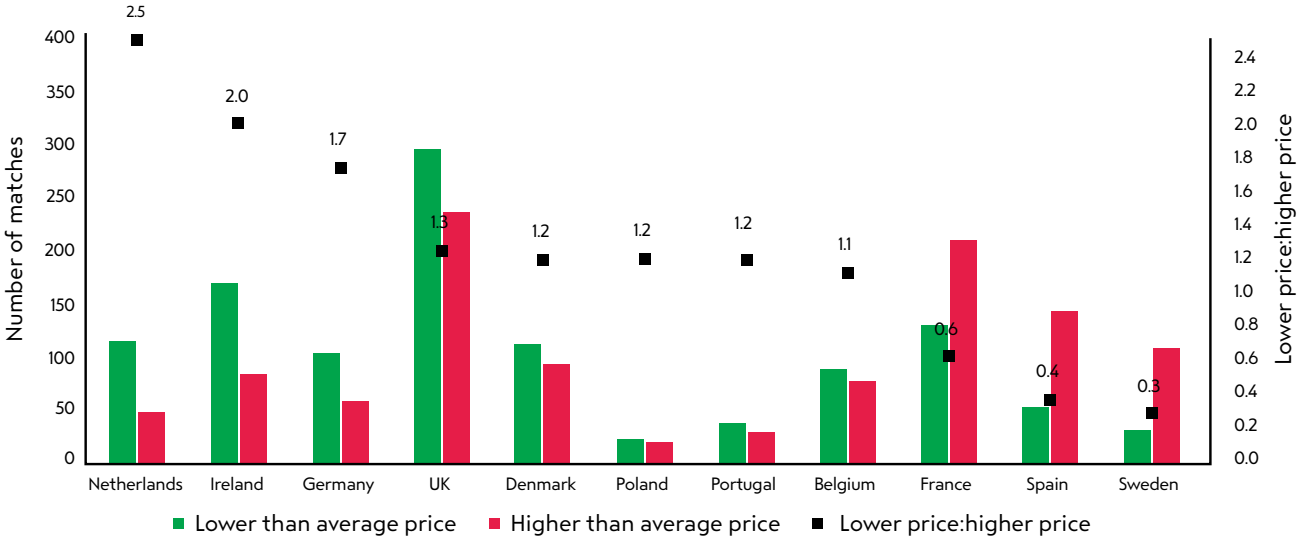
EU OBJECTIVES

No quotas are allocated in a performance-based manner along the lines of Article 17 of the CFP (following objective 2.5(i)). In its submission to the Commission in 2016 the Dutch administration stated that it was looking into the implementation of article 17 but made no claim that the Netherlands was taking any actions at this stage.[18]

The Dutch fishing fleet shows mostly positive signs of having a balance between fishing capacity and the fishing opportunities that are available, as stated in objective 2.5(d) and required under Article 22 of the CFP. Whilst performance varies by indicator used in general, the assessment of the STECF report on balance capacity is that Dutch fleets are in balance with the fishing opportunities available, especially compared to other Member States. There are also signs that balance has improved for the Dutch fleet in recent years.[19]

Lastly, on CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, the Netherlands has the lowest prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings. This may indicate a higher amount of consumer surplus to buyers, although it may also indicate a difference in the quality of the product or a difference in markets.

FIGURE 11.4.3: COMPARISON OF MEMBER STATE FISH PRICES FOR THE SAME SPECIES IN THE SAME AREA



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated of instances of lower than average prices to higher than average prices.

NATIONAL OBJECTIVES

No documentation of objectives for fisheries management is available for the Netherlands, so performance according to national objectives cannot be assessed. There is a small quota reserve which is used for the purpose of international swaps and research purposes, not for pursuing objectives.

LIMITED PUBLIC EXPENSE: MID-LOW

The costs of fisheries management in the Netherlands are relatively low (3% of landed value) compared to the other Member States analysed.[20] Again, this is one of the desired goals of an ITQ system. However, the lack of (direct) revenue raised means that the costs of management are high as a net government expense.

Fuel subsidies for fishing are comparatively moderate in the Netherlands (0.36€/litre), but add up to a large amount in the Netherlands (€54 million annually) as fishing is one of the most fuel intensive industries. This is particularly true compared to the size of economic output from the industry (15% of landed value).[21] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes). Due to strong property rights, the system is perceived as gifting a public good with no public benefit.

TRANSPARENT AND ACCOUNTABLE: LOW

The allocation process is not described in any official document or webpage in an accessible manner. It is described only in law and reports. No public register detailing quota holdings is in place.

OBJECTIVE: MID-HIGH

As initial allocation is based on historical catch records and subsequently ITQ holdings the allocation process is objective.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MIXED

Although quota allocation itself does not involve any participative decision-making, the management of quotas by POs has been widely heralded as a model of co-management. The effectiveness of the POs in creating good enforcement and legitimising the system as well as retaining fishing as a family-owned enterprise is often emphasised.[22] However, particularly small-scale fishers have complained about lack of representation in PO decision-making which tends to favour the interests of large-scale operators.

In a comprehensive analysis of co-management systems in Europe, the Dutch PO system, as well as the use of covenants signed by fishers and environmental NGOs were classified as forms of 'functional participation'. This is weaker than interactive participation, according to the authors' scale, due to its government lead and compulsory character.[23]

11.5 RECOMMENDATIONS

Although the Netherlands scores highly on most of our Good For Fishers indicators, low performance is prevalent for many others. The Dutch system exhibits features that are strongly geared towards economic performance whilst neglecting social and environmental aspects of fisheries management. We recommend a number of reforms that could go some way towards addressing these shortcomings.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Although our analysis indicates that the current quota system provides the Netherlands with reasonably high transferability, introducing an online, peer-to-peer swapping system may further facilitate exchange.

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.

Currently in the Netherlands, uptake of quota is frequently less than 100% at the end of the year, so there is excess quota held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if exhaust their quota for certain species. The resulting improvements in flexibility can contribute towards compliance with the landing obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over members' quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESSIBILITY FOR NEW FISHERS

Although new fishers, once licensed, can utilise the national quota pools and target non-quota species, it is very difficult to access the most commercially important stocks which are under ITQ management. Fishers need to be a member of a PO, and only a fixed number of vessels can target ITQ stocks. ITQs need to be purchased, often at considerable cost. Fishers that do not already own ITQs cannot hire them. This is in contrast to fishers that happened to be active during the reference periods for the initial allocation of quotas in the 1970s and that received free initial allocations.

Although it is difficult to facilitate new entry in a context of EU capacity reduction regulations, efforts can still be made to give new fishers a more equal initial footing. To improve access for new fishers, the Netherlands should set aside quotas in a national quota reserve for the purpose of accommodating new fishers. These quotas these could be lent to fishers for a number of years (8 years in the Danish model) that have demonstrated significant investment in the fishing industry (i.e. vessel purchase). A more equitable method would be to 'tax' quota when vessel sales take place or when vessels are removed from the fleet (the French model). Then quota shares are appropriated by the fisheries authority to be allocated to new fishers in a continual process of re-gifting, rather than in short-term loans. This initial gifting can be performed based on vessel capacity and the fishing plans of the new fisher.

AFFIRM PUBLIC OWNERSHIP OVER FISH STOCKS

Currently the legal status of ITQs is ambiguous, with some warning that they are de facto property rights. In that case, any attempts by the government to appropriate ITQs or alter the allocation method is likely to be met with legal challenges from fishing companies. Although secure access to fishing opportunities is essential, this should not compromise the public ownership and control of fish stocks. By privatising ITQs, the right to access this public resource is indefinitely gifted to a single group of fishers that were active during implementation. This means that the government is left with little control to manage fishing opportunities in the public interest.

The Netherlands should affirm that fish stocks are a public resource and that any rights granted to access those resources are revocable and subject to change. This will ensure that the current mechanism can be altered in the future and prevent further progression to fully private quotas. Measures on revoking or reallocating ITQs should recognise the long-term investments fishers have made and their need for secure access. This means only revoking ITQs where specific conditions are met or providing a long period of notice. For example, in Denmark, the minister has to provide a minimum of eight years notice to reallocate quotas.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN THE ALLOCATION METHOD

As stated in its submission to the Commission regarding Article 17 of the CFP, the Netherlands is in discussion with stakeholders, but does not claim to be implementing it. This is consistent with its allocation mechanism which functions purely based on the ITQ holdings of fishers and through national pooled allocations. No allocations are criteria-based and there is no attempt to use allocation as means to pursue government objectives.

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria-based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[24] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms
Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years
Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years
Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs
Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)
Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species
Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[25] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landing obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[26]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.36 per litre for the Netherlands is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[27] - use the most fuel per landed value, whilst pots and traps use the least.[28] This variance in fuel use is an important price signal that should be reflected in the price of fish.[29] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landing obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[30]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

MAKE THE QUOTA SYSTEM MORE EQUITABLE AND REPRESENTATIVE

Currently no measures are in place to ensure fishing opportunities are equitably distributed. The Netherlands should take the following steps to reduce some of the negative side-effects of the ITQ system and provide fairer access to fishers.

1) Introduce more stringent 'active fishing' requirements to limit ownership for the sole purpose of leasing out quotas ('slipper skippers' or 'divanvissers'). This will reduce quota prices and prevent individuals from earning an income by limiting the access of others to a public resource. It will also minimise the risk of larger commercial entities monopolising control over quotas.
2) Set aside ringfenced quotas for the small-scale fishing enterprises, creating a differentiated allocation system. These fishers, more than others, struggle to deal with the extra costs of fishing in the ITQ system, or are actively excluded from the option to access ITQ-species. Most of them are not members of POs and cannot lease ITQs as its only possible to lease once a fisher already owns ITQs and is a member of the Mfl1 fleet. This limits their options and means they can only access stocks in the national quota pool or non-quota stocks. Even a small quota reallocation could make a huge difference to small-scale fishers which have a low fishing capacity. Such a set-aside would have minimal costs to fishers that lose quotas as a result of any reallocation. Small-scale fishers could then operate in a non-transferable quota system with the possibility of pooling quotas through cooperatives as the Vissers van de Kust is currently trialling.
3) Facilitate the creation of 'small-scale PO(s)'. Currently many small-scale fishers are poorly represented and complain about favouritism towards larger operators. Moreover, some POs are disinclined to accept fishers that lack quota holdings. Through a dedicated small-scale PO some of these concerns may be addressed.

Measures were put in place in 2017 that allow fishers that don't own ITQs (mostly small-scale fishers) to land some ITQ species through the bycatch regulation and these are a step in the right direction. This should be extended into a permanent, ringfenced quota allocation accessible to small-scale fishers.

IMPROVE TRANSPARENCY OF QUOTA ALLOCATION

Very little official information is publicly available on quota allocation making it difficult to scrutinise Dutch fisheries management. Documentation should be made available describing and explaining how fishing opportunities are allocated in detail. A publicly accessible register should be created detailing quota holdings and transfers of fishing companies.

11.6 CONCLUSIONS

The Netherlands manages most of its commercially important fish stocks through an ITQ system with strong co-management features. POs play an important role in quota transactions and ensuring compliance with catch limits. Most small-scale fishers are excluded from the ITQ system and rely on stocks under national quotas or stocks outside of quota management completely. Our analysis of the Dutch system of fishing opportunities shows a mixed picture, with high rankings on security and flexibility, but poor performance on accessibility, equity, public ownership, management costs and transparency. Based on our assessment of available information and input from interviews, we recommend that the Netherlands:

- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access through reducing transaction costs;
- Improves accessibility for new fishers through either lending or granting quota shares to new fishers that have demonstrated an investment in the sector;
- Affirms public ownership over fish stocks and use rights to ensure that fishing access remains under public control and can be managed in the public interest;
- Fully incorporates social and environmental and environmental criteria in its primary allocation method, or through using the national quota reserve;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Makes the quota system more equitable, responding to the needs of small-scale fishers excluded from the ITQ system and improving their representation;
- Improves transparency in its allocation method and publishes a quota share register.

Implementing these proposals would lead to significant changes to how the Dutch fishery operates and would inevitably generate winners and losers – although this is no different from the status quo. A landings tax would shift the burden of costs from society to the fishing industry, which has near-exclusive access to the public resource. This and other reforms aim to improve the Netherlands' performance on Good for Society objectives, which at present seem to be neglected in favour of economic objectives and non-intervention from the government. Taken together, these recommendations could transform the Dutch fishery whilst also keeping the general system structure and its current advantages intact.

---

1 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf

2 European Commission. (2016). Eurostat.

3 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

4 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

5 van Hoof, L. (2010). Co-management: an alternative to enforcement? ICES Journal of Marine Science, 67, 395–401. Retrieved from https://academic.oup.com/icesjms/article/67/2/395/693675/Co-management-an-alternative-to-enforcement

6 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

7 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

8 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf

9 Fisheries Data Exchange System (FIDES) dataset 2013-2015.

10 Hoefnagel, E.W.J. & Buisman, F.C. (2013). Evaluatie Nederlands ITQ-systeem naar aanleiding van de herziening van het Gemeenschappelijk Visserijbeleid. WOt-werkdocument 357.

11 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf

12 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

13 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

14 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

15 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

16 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

17 A.T.M. van Helmond and N.A. Steins, 2016. Vangstsamenstelling per tuigcategorie. C107/16, Wageningen Marine Research.
18 Ministerie van Economische Zaken, 2016. Allocation of fishing opportunities – Article 16.6 of EU Regulation 1380/2013.
19 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf
20 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
21 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
22 Van Hoof, L. (2013). Design or pragmatic evolution: applying ITQs in EU fisheries management. ICES Journal of Marine Science, 70(2), 462-470. Retrieved from https://academic.oup.com/icesjms/article/70/2/462/797111/Design-or-pragmatic-evolution-applying-ITQs-in-EU
23 Leite, L., & Pita, C. (2016). Review of participatory fisheries management arrangements in the European Union, Marine Policy, 74, 268-278. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X16304742
24 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf
25 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508
26 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018
27 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/
28 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf
29 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.
30 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

CHAPTER 12 - POLAND

The Polish fishing industry mainly targets Baltic stocks including cod and herring but also has a small distant water fleet targeting pelagic stocks such as mackerel outside of the Baltic. Most commercially important stocks are under quota management which, in Poland, works in a rationing system based on vessel length. To assess Poland's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. Although our indicators suggest that Poland performs well on providing secure and flexible fishing access, allocation currently does not comply with Article 17 of the CFP and contribute to the viability of the fleet. We propose a number of reforms seeking to improve allocation through using social and environmental criteria as well providing quotas for newcomers.

12.1 INTRODUCTION AND BACKGROUND

Poland has a relatively small marine fishing industry centred around Baltic cod and the Baltic pelagic fisheries. It is one of the more recent members of the EU, joining in 2004 and subsequently adopting the Common Fisheries Policy regulations. Positioned between Germany and Kaliningrad (Russia), Poland has a 512km coastline facing the Baltic Sea. Currently the commercial fishing sector catches around 171,000 tonnes of fish worth €48 million and employing 2703 people.[1] Much of the sector is unprofitable due to a mixture of biological and structural factors.

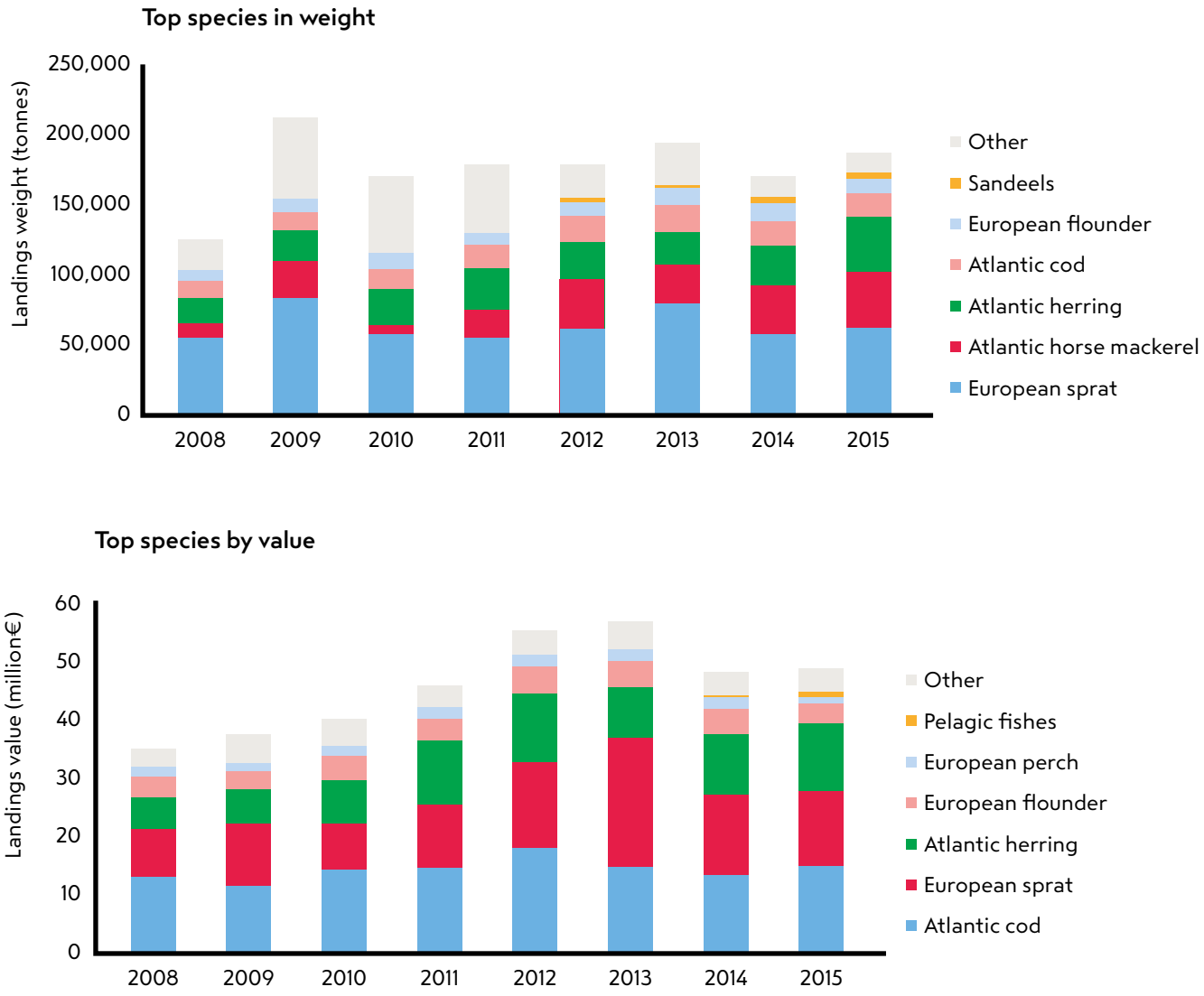
Poland consumes considerably less fish than the European average at 12kg per person per year and relies on imports for 60% of its consumption.[2] Much of Poland's fish imports are sent to its large processing industry, which produces more fish for export than is landed within the country.[3]

The three most important stocks for Polish fisheries are cod, sprat and herring, which collectively made up 80% of the total landed value in 2015. Sprat has become an important fishery quite recently with relatively high sales prices driving up supply.

The small-scale sector of 595 vessels using mainly gillnets and pots, fishes exclusively in the Baltic Sea and coastal lagoons. This fleet segment targets herring, cod, flounder and a range of freshwater species. The small-scale segment has been particularly affected by the poor state of Baltic cod stocks at present.

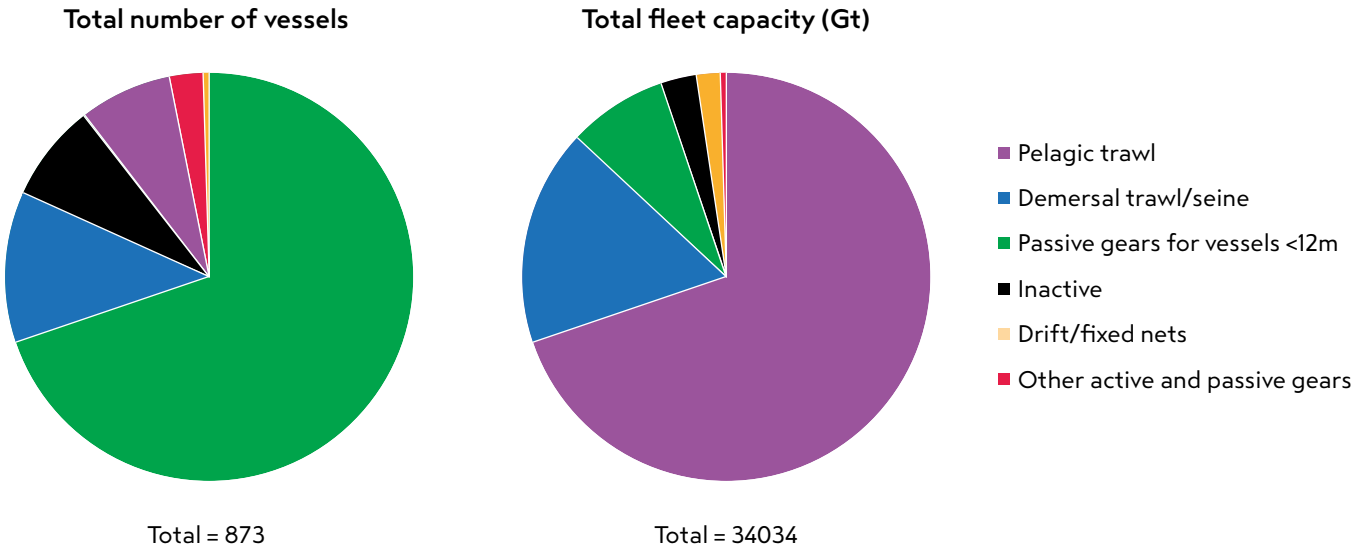
The pelagic under 40 metre trawler fleet of 43 vessels (in 2014) target mainly sprat and herring and the over 40 metre fleet target horse mackerel and mackerel beyond the Baltic Sea. Demersal trawling also takes place by the mid-sized fleet targeting mainly cod and flatfish. Around 75% of catches are landed at the ports of Władysławowo, Kołobrzeg and Hel.

FIGURE 12.1.1: POLAND'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FIGURE 12.1.2: POLAND'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The Polish fishing industry has had a turbulent history, from having one of the largest high seas fleets in Europe during the communist era to the economic restructuring when the country became a market economy and later joining the EU and its Common Fisheries Policy.

The 1960s and 1970s were characterised by significant state investment and capacity growth in combination with no enforcement of quotas. In 1988, just prior to the collapse of the Soviet Union, the sector was landing 628,000 tonnes of fish, employing 16,813 people and included 77 large-scale pelagic high seas trawlers. As state subsidies were taken away at the end of the Soviet Union and diminished stocks lead to moratoriums on fishing (e.g. all catches in the Bering Sea in 1992 and Alaskan Pollock in 2002), much of the Polish fleet became unviable. Currently, just four vessels remain in the distant water fleet and the size of the whole industry is much smaller.

The next sections of this chapter will describe and analyse Poland's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Poland's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

12.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management
Types of fishing opportunities:	Rationed quotas
Main allocation criteria:	Historical catches, equal access
Differentiation in allocation:	Fleet segments by vessel length
Landed weight under quota management:	62%[4]

OVERVIEW

Most fishing opportunities in Poland, including those under EU TACs, come in the form of catch quotas. These quotas are allocated in the form of individual annual catch limits allocated to vessels based on their size class. Smaller vessels (under 8 metres) access a common quota pool. Non-quota stocks are managed through restricted licensing but are not heavily regulated.

GOVERNANCE

The Ministry for Maritime Economy and Inland Waterways is responsible for marine fisheries (amongst other areas). Whilst there are six producer organisations (POs) for vessels to join, these POs do not have management responsibilities for fishing opportunities – as is sometimes the case in other EU Member States. This centralised management of fishing opportunities including quotas requires significant year-round involvement in running the quota system. Three regional inspectorates work under the ministry in carrying out ministerial policy.

POLAND'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

This table summarises five key features of Polands' quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

Most quotas are allocated to fleet segments of the same vessel-length category based on that segment's criteria including historical track records, power and sometimes biological factors. All vessels within a segment receive the same allocation. For a few other stocks, pooled allocations and individual historical allocations are used. From 2017 a second allocation is performed mid-year to increase utilisation.

HOLDER

Although quota allocation is based on vessel characteristics, quotas can easily be moved between vessels of the same operator, so the individual operator is the quota holder.

TRANSFERABILITY

As of 2017 no transfers are permitted, only between vessels of the same owner. Prior to 2017, in-year transfers were allowed.

SECURITY

Quotas are property of the state and fishers do not have a sustained right to a share of the fish stock.

DURATION

Quotas apply for the duration of the calendar year. Allocations are adjusted mid-year depending on utilisation

QUOTA ALLOCATION

Quota allocation in Poland is performed mainly through differentiated rationing to vessels within vessel-length groups. This means that all vessels in the same length-group receive an identical quota for the stock in question. This rationing to each vessel-length group is largely based on the historical track records of the length segment and their technical capacity. Each length-group thus gets a fixed share of the national quota. For some stocks, there is a small-scale segment (under 8 metres or under 12 metre) where quotas are pooled and all fishers in that category have free access next to a maximum vessel-limit, termed an 'Olympic system'.

For the remaining stocks vessels receive quotas based on their individual track records. This is the case for salmon and Western herring. For these two stocks historical landings are used to determine vessel allocations, 2005-2014 for salmon and 2005-2009 for Western herring. In these small-scale vessels do not receive separate allocations. Finally, for Baltic plaice, all vessels fish in an Olympic system. Table 12.3.1. summarises the different form of allocation by stock.

Quota allocation to vessel groups is not fixed according to weighted criteria and instead varies according to changing circumstances such as the status of stocks. An advisory group composed of fisher representatives advises the minister on allocation decisions, influencing allocation outcomes.

TABLE 12.2.1. TYPES OF QUOTA ALLOCATION FOR THE VARIOUS STOCKS FISHED BY POLISH VESSELS

Stock	Small Scale Vessels	Large/All Vessels
Cod (E&W)	**N/A**	**Length-class**
Herring (25-32)	**Olympic for <8m**	**Length-class**
Herring (22-24)	**N/A**	**Individual**
Sprat (22-32)	**Olympic for <12m**	**Length-class**
Salmon (22-31)	**N/A**	**Individual**
Plaice (22-32)	**N/A**	**Olympic**

QUOTA RULES

Fish resources are recognised as a public good centrally managed by the government, yet before 2017, some degree of quota transfer did take place. By May each year, operators are required to inform the ministry if they intend to fully utilise their allocated quotas that year. Any excess quotas are then reallocated by the ministry throughout the year based on bids by fishers. This reallocation does not affect vessel track records or allocations in subsequent years. However, unused quotas that are unreported do result in a reduced track record of the vessel involved, acting as incentive to report and thus utilise quota.

Individual fishers/companies that own multiple vessels can easily transfer quotas between their vessels. Before 2017, it was also possible for quotas to be transferred between operators with ministry permission for the duration of the quota year. Again, no change to track records occurs as a result of this process, and there is no official market in place for quota transfers. As of 2017, transfers are no longer allowed. To enter the industry and access quotas, new fishers have to buy existing vessels with track records. Capacity cannot be added to the system.

OTHER FISHING OPPORTUNITIES

Non-quota species are not intensely regulated and no quantitative restrictions are in place. There are however some technical measures such as size limits and closed seasons during spawning and migration periods for diadromous species.

12.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with two types of objectives: foundational objectives and government-specific objectives. As we were unable to identify national government objectives for Poland, our analysis (section 4) assesses the performance of Poland against foundational objectives alone. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 12.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

METHODOLOGY

Table 12.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 12.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers

Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

12.4 ANALYSIS

This section will assess the performance of the Polish system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

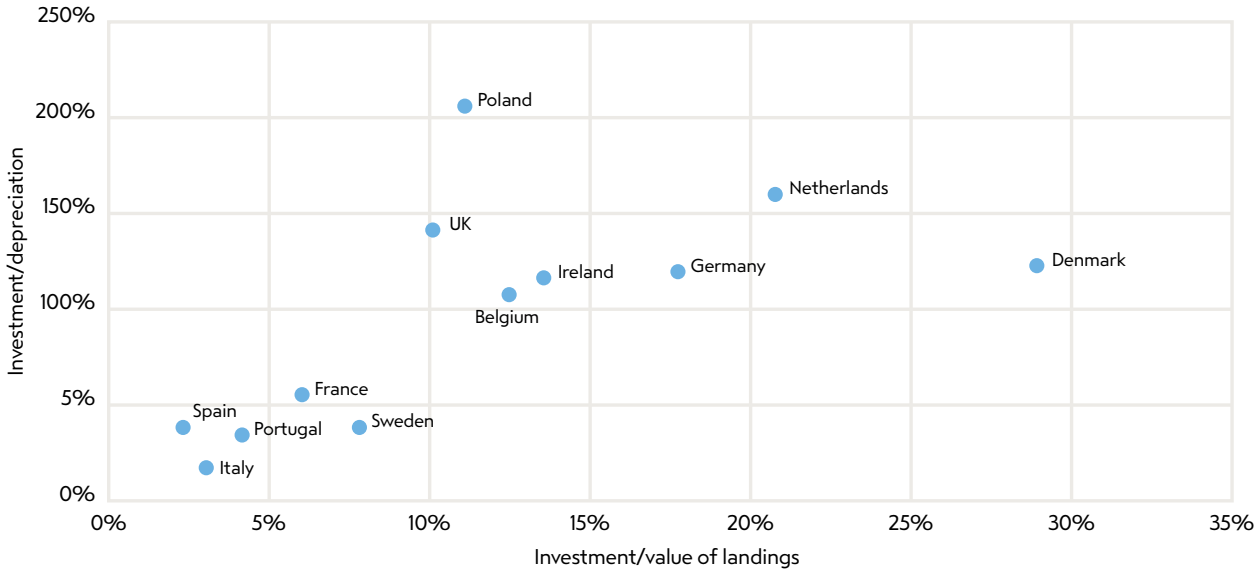
TABLE 12.4.1: PERFORMANCE OF POLANDS' SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	Mid-High
	Flexible	High
	Accessible	Low
	Viable	Low
	Equitable and fair	Mid-High
Good for Society	Publicly owned	High
	Meets government objectives	Mid-Low
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mid-Low
	Objective	Mid-Low
	Right governance level and representative	Mid-Low

SECURE: MID-HIGH

On paper, fishing opportunities in Poland are not very secure. Fishing licences apply for just one year and the government reserves the right to adjust the quotas in-year. In practice, however, these interventions are rare and fishers have confidence in the security and validity of their fishing rights, something already anticipated in the MRAG et al (2009) assessment of Poland's policy framework.[5] As a result, investment in the Polish fishing fleet is relatively high[6] and there have been very few fishery closures.[7]

FIGURE 12.4.1: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS



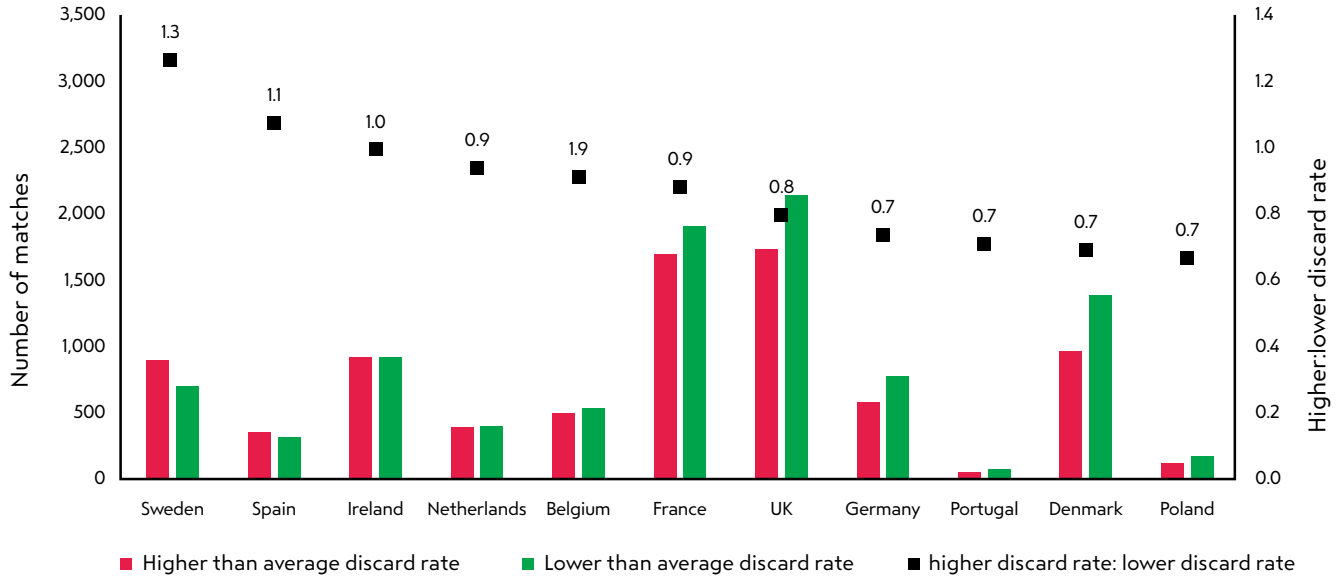
Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FLEXIBLE: HIGH

Poland performs well on all three measures of flexibility for fishing opportunities. Quota uptake is high compared to other Member States fishing the same TACs[8] whilst quota non-compliance in Poland is relatively rare (2%)[9], indicating that fishers are able to get the quotas they need and use the quotas that they have. The Polish fishing fleet also has low discard rates compared to other Member States using similar gear in the same area for the same species, another indication that fishers are getting access to the quotas they need.[10] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

This good performance on flexibility may be explained by pre-2017 allowances for transfers as well as the ministry's active role in ensuring utilisation.

FIGURE 12.4.2: MEMBER STATE DISCARD RATE COMPARISON WITH GEAR/AREA/SPECIES MATCH



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

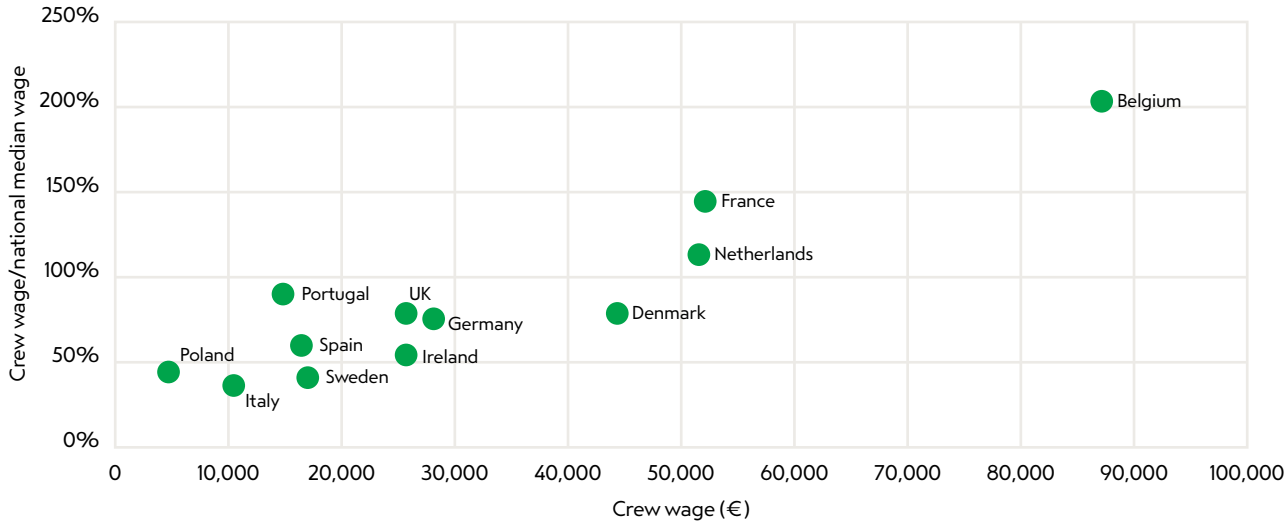
ACCESSIBLE: LOW

New fishers need to buy a vessel with existing quota holdings. There are no reserved quotas available for new fishers.

VIABLE: LOW

The system of fishing opportunities in Poland is not associated with good economic viability. The gross profit margin for the industry was 13% in 2014[11], which is relatively low, and has shown no sign of improving in recent years.. Crew wages in Poland are very low both compared to other EU Member States and also compared to the national median wage.[12]

FIGURE 12.4.3: FISHING WAGE ATTRACTIVENESS BY MEMBER STATE



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database and OECD.stat.
Note: Wage attractiveness as measured by crew wages as a percentage of the national median wage (y-axis) and by crew wage, € (x-axis).

EQUITABLE AND FAIR: MID-HIGH

Through rationing equally to vessels within fleet segments, all vessels within segments are guaranteed the same share. This guarantees access to all fishers but may be inefficient in some ways, with some fishers being allocated to much and others too little. This doesn't seem to be an issue in practice with our analysis suggesting that fishers have sufficient flexibility in accessing or disposing of quotas. It is unclear whether equity considerations are used to determine allocations to fishers that may be more vulnerable to quota shocks or to ensure viability.

One indicator that may suggest that allocation is inequitable is the capacity balance indicator (noted above). Disproportionate overcapacity in the passive fleets may be due to insufficient allocation of fishing opportunities, including quota allocations.

PUBLICLY OWNED: HIGH

Fish stocks are considered a national resource and the minister responsible for fisheries retains control over use rights. The Act on Fisheries, 2015 (Ustawa o rybołowstwie morskim) empowers the minister to allocate quotas.

MEETS GOVERNMENT OBJECTIVES: MID-LOW

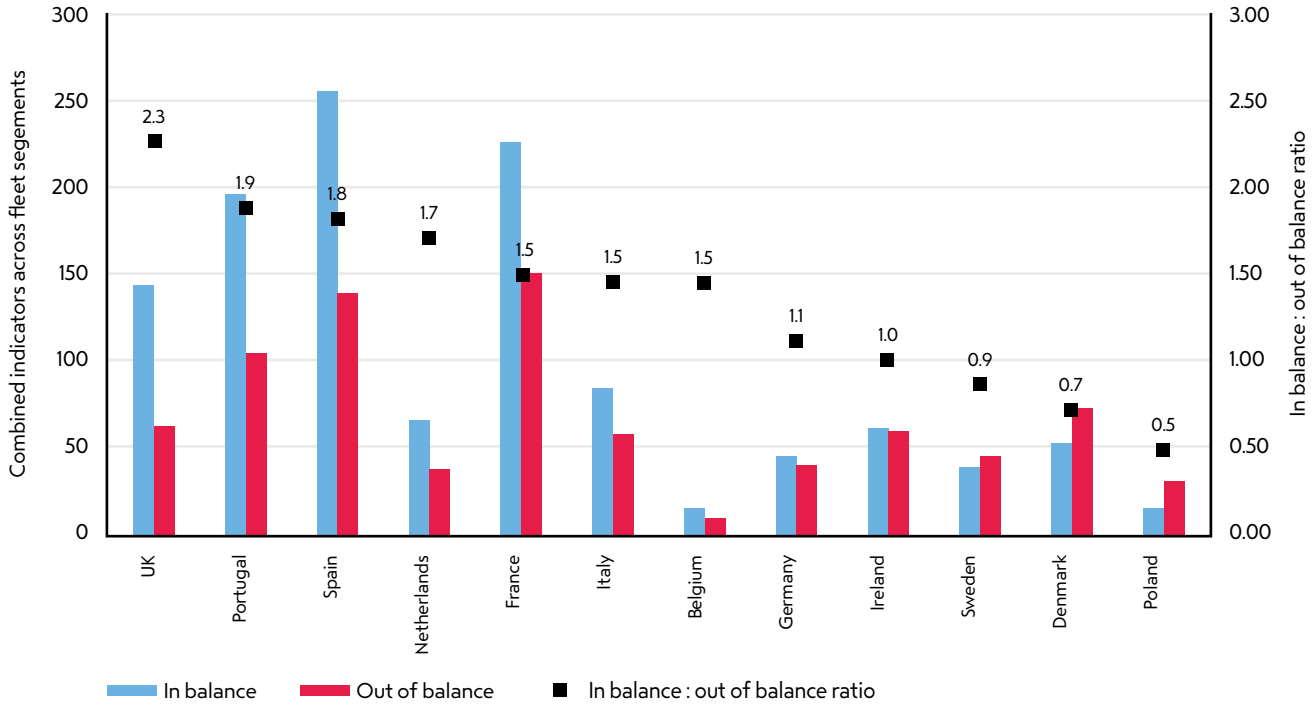
EU OBJECTIVES

Quotas are allocated to size-based fleet segments based on historical track records and rationed equally to individual vessels within segments. This leaves minimal room for allocating according to Article 17 criteria, which follows from objective 2.5(i) of the CFP. Some quotas are made available for reallocation during the year when fishers do not plan to fully utilise their share. This is allocated to fishers based on bids to the ministry. It is unclear on what basis the ministry awards these excess quotas to fishers.

A second objective of the CFP, 2.5(d) is elaborated in Article 22, which states that Member States should ensure their fishing capacity is in line with the fishing opportunities available. According to the most recent STECF report on balance indicators, Poland performs poorly in this regard, with the least balance between capacity and fishing opportunities of any Member State in this report. Whilst the drift/fixed net and passive gear fleet segments are the most out of balance, indicator performance has been getting worse for nearly all fleet segments over the past years.[13]

On CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Poland has relatively moderate landings prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings.

FIGURE 12.4.4: NUMBER OF INSTANCES OF IMBALANCE ACCORDING TO THE SIX STECF BALANCE INDICATORS ACROSS THE NATIONAL FLEET SEGMENTS



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated between balanced and out of balance results.

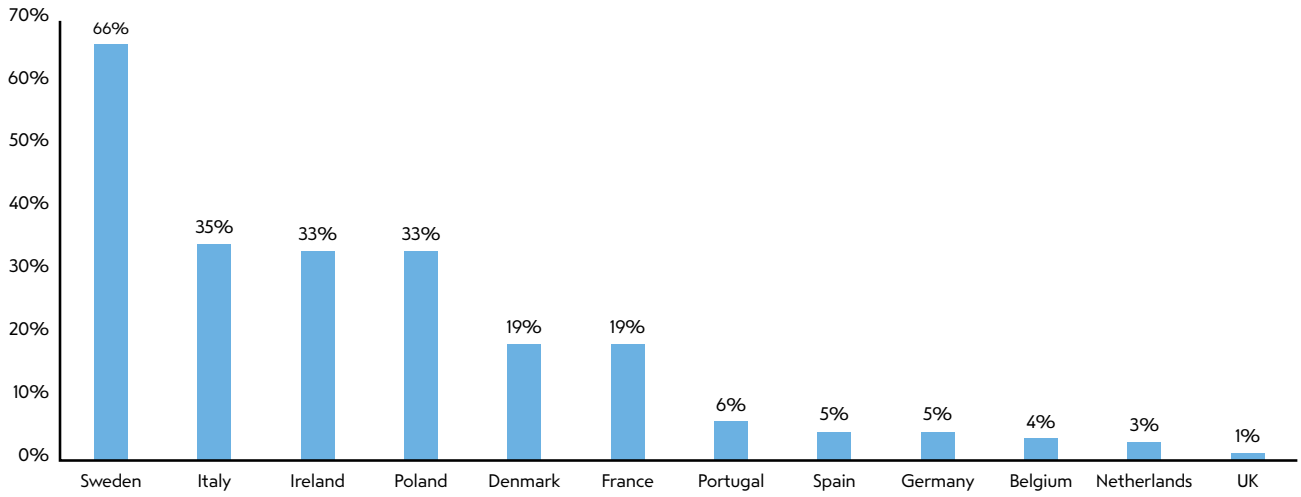
NATIONAL OBJECTIVES

No documentation of objectives for fisheries management is available for Poland, so performance according to national objectives cannot be assessed. In addition, there is no quota reserve or equivalent system to pursue particular objectives.

LIMITED PUBLIC EXPENSE: LOW

The costs of fisheries management in Poland is €15 million annually at the national level, equivalent to 33% of landed value.[14] This is relatively high compared to other EU Member States in this report. There are no forms of (direct) revenue generation from the industry to pay for management. There is also an implicit fuel subsidy in Poland of 0.27 €/litre, equivalent to a €5 million effect on public finances from potential revenue lost. Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

FIGURE 12.4.5: NATIONAL GOVERNMENT EXPENDITURE ON FISHERIES MANAGEMENT AS A PERCENTAGE OF LANDED VALUE



Source: Authors' calculations based on OECD.stat and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: MID-LOW

Annual notices are published online to detail quota rationing outcomes. These are clear and accessible. The underlying calculations and segment track records are not easily publicly available but are described in Poland's law on quota allocation (Poz. 1486 (2015). No publicly available register exists detailing vessels individual quota holdings or transactions.

OBJECTIVE: MID-LOW

Rationing is based on the track records of fleet segments that are sorted by vessel length. This is systematic but can also be considered arbitrary; vessels in the same length but with different track records/capacity may receive the same allocation.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-LOW

Consultations are legally required when legislative changes are being prepared. These are called 'social consultations'. When any large reforms are on the political agenda more significant consultations are held. It is difficult to assess how inclusive or participative these processes are, and in the past they have been criticised for not reflecting a true balance of interests.

Poland has held Fisheries Roundtable meetings to allow fishers and other stakeholders to deliberate policy issues. These involve informal consultations and dialogues but do not formally influence legislation or regulation. However, these meetings have influenced position development on policy issues and have informed the administration as well as building capacity for deliberation.[15]

12.5 RECOMMENDATIONS

Despite good performance in our Secure and Flexible objectives, the Polish fleet suffers from low viability. This may partially be explained by overcapacity and the prevalence of old vessels (average age of 28 years). Additionally, inadequate performance is observed in a number of other objectives including 'Accessible' and 'Limited public expense'. In light of this we propose a number of reforms that are aimed at improving the Polish system.

DEFINE SYSTEM OBJECTIVES

Outside of the EMFF operational programme, we were unable to identify easily available government objectives for the fishing sector. We recommend that these are formulated and made easily accessible.

Given the low viability of the Polish fleet and prevalence of overcapacity, we would normally recommend the introduction of ITQs with the safeguards noted in chapter 3.4 and keeping the small-scale sector outside of the ITQ system. However, government objectives that are oriented towards maximising employment or similar objectives would be incompatible with an ITQ system. Priority 4 of the Polish EMFF operational programme is to increase employment and territorial cohesion. Additionally, ITQs have been rejected in the past and have faced continued opposition (for example, as expressed in the Polish Fisheries Roundtable). For these reasons, we do not recommend the introduction of ITQs.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Although our indicators suggest that the Polish system already provides flexible access to fishers, introducing a peer-to-peer quota system may entail further benefits. It would allow fishers, in a decentralised manner to swap excess quotas for quotas they need, without a financial transaction. This could help address some of the lost efficiency that currently exists due to equal allocations to vessels of varying capacity in the same length-segment.

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.

Currently in Poland, uptake of quotas is frequently less than 100% at the end of the year, so there are excess quotas held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if exhaust their quota for certain species. The resulting improvements in flexibility can contribute towards compliance with the landing obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over members' quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESS FOR NEW FISHERS

Currently, new fishers wishing to join the commercial fleet are required to purchase vessels with existing track records to access quotas. This creates a significant barrier to entry and has the tendency of overvaluing older vessels with larger track records. These vessel licences likely include the shadow price of quota shares. Fishers that were active during the reference period are hugely advantaged through the gifting of quotas over new fishers who often rely on inheriting a vessel licence. It cannot be justified that new fishers, accessing the same public resource, should have to pay significantly more.

Although it is difficult to facilitate new entry in a context of EU capacity reduction regulations, efforts can still be made to give new fishers a more equal initial footing. To improve access for new fishers, Poland should set aside quotas in a national quota reserve for the purpose of accommodating new fishers. These quotas these could be lent to fishers for a number of years (8 years in the Danish model) that have demonstrated significant investment in the fishing industry (i.e. vessel purchase). A more equitable method would be to 'tax' quota when vessel sales take place or when vessels are removed from the fleet (the French model). Then quota shares are appropriated by the fisheries authority to be allocated to new fishers in a continual process of re-gifting, rather than in short-term loans. This initial gifting can be performed based on vessel capacity and the fishing plans of the new fishers.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Although the current system of fishing opportunities is equitable at the fleet level (vessels receive equal allocations), no objective environmental or social criteria are included in the allocation mechanism. Allocation is based purely on the combined historical track of particular fleet segments and does not include any further criteria.

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria-based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[16] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[17] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly while little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landing obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[18]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.27 per litre for Poland is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears - which tend to have higher impacts on marine habitats[19] - use the most fuel per landed value, whilst pots and traps use the least.[20] This variance in fuel use is an important price signal that should be reflected in the price of fish.[21] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landing obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[22]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

12.6 CONCLUSIONS

Poland rations quota to fleet segments based on vessel length, providing equal quotas to vessels in the same category. Our assessment of the Polish system of fishing opportunities indicates a mixed picture with good performance on flexibility, equity and public ownership objectives but poor performance on viability, limited government expense and meeting government objectives. Based on our assessment of available information and input from interviews, we recommend that Poland:

- Defines its system objectives in a publicly available document;
- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Improves accessibility for new fishers through either lending or granting quota shares to new fishers that have demonstrated an investment in the sector;
- Fully incorporates social and environmental criteria in its primary allocation method, or through using the national quota reserve;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions.

Some reforms, such as introducing a landings tax, may increase costs for the industry, whilst other reforms could improve economic performance. Poland is experiencing low viability and overcapacity in some of its fleet segments, problems that may be difficult to reconcile with objectives on maintaining high employment. This is why it is particularly important to generate defined objectives for the Polish fishery before moving ahead with major reforms, including several detailed here.

---

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf

3 Martin, J.I. (2011). Fisheries in Poland. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2011/460037/IPOL-PECH_NT(2011)460037_EN.pdf

4 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

5 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

6 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

7 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset 2013-2015.

8 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset 2013-2015.

9 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

10 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf

11 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

12 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

13 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf

14 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

15 Stöhr, C., Lundholm, C., Crona, B. & Chabay, I. (2014). Stakeholder participation and sustainable fisheries: an integrative framework for assessing adaptive comanagement processes. Ecology and Society, 19(3), 14. Retrieved from http://www.ecologyandsociety.org/vol19/iss3/art14/

16 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

17 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508

18 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

19 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

20 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

21 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

22 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

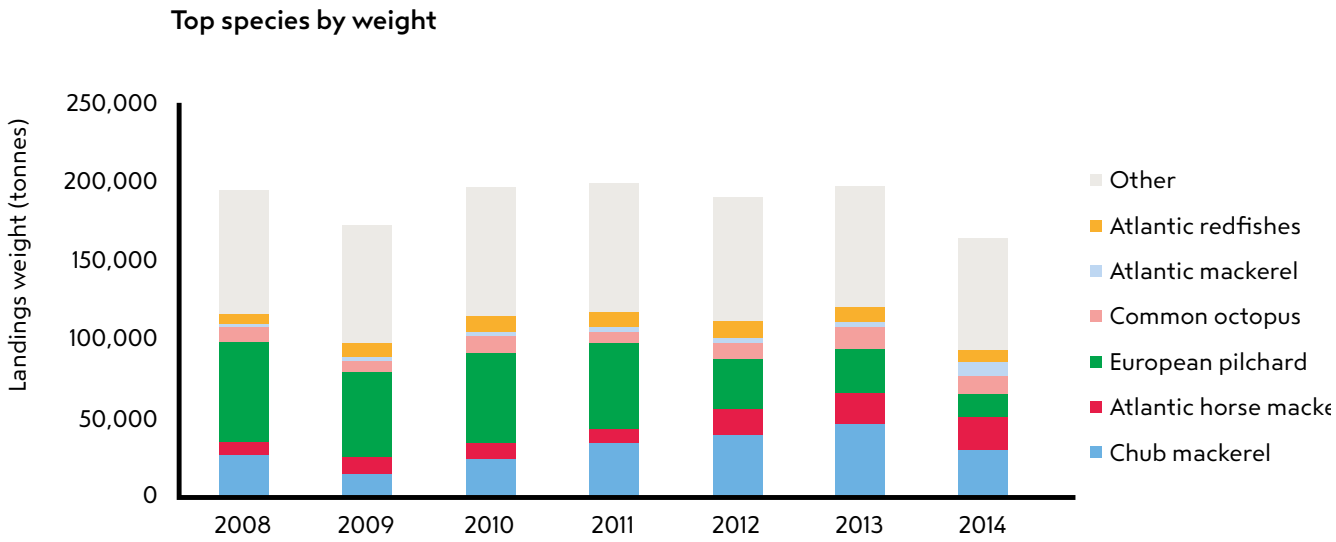
Portugal fishes from its mainland as well as from its overseas territories; Madeira and the Azores with the most valuable target species including octopus, sardines and horse mackerel. Portugal targets stocks under EU TACs as well as those managed by Regional Fisheries Management Organisations outside of EU waters. At the national level, the main commercial stocks are under quota management allocated to individual vessels.

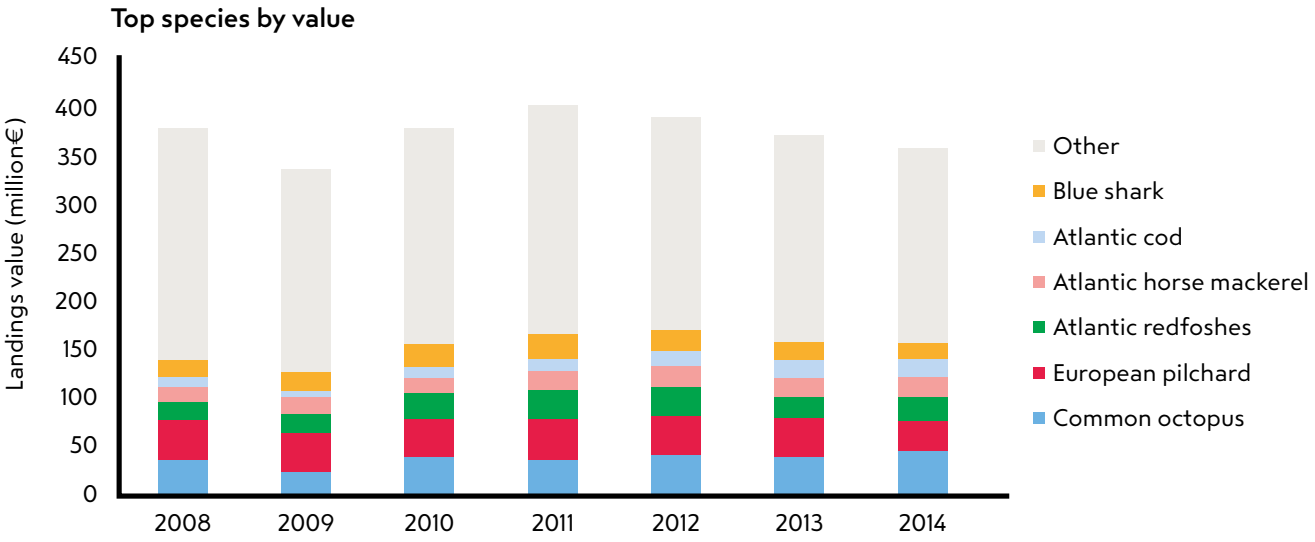
To assess Portugal's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. Portugal exhibits mixed performance across key objectives with improvement needed in a number of areas including accessibility for new fishers, representation of small-scale fishers and improving transparency and accountability. We propose reforms to address some of these issues.

13.1 INTRODUCTION AND BACKGROUND

Portugal has a large marine fishing industry with 8,205 registered vessels employing 17,000 people (8500 FTEs). Portugal is the highest fish consuming nation in the EU with an average annual fish consumption of 56.8kg per person.[1] Most of the Portuguese industry is based on the mainland with the exception of approximately 1,100 vessels fishing off Madeira and the Azores. The Portuguese fleet is also dominated by smaller vessels, with 90% of the vessels classified as small-scale (under 12 metres). With many older vessels being technically obsolete, a large proportion of the fleet is inactive (Figure 13.1.2). As a whole, the Portuguese fleet has been profitable for the past few years. This can be partially explained by lower fuel prices and the rising value of key species.

FIGURE 13.1.1: PORTUGAL'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE





Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The most important species for the Portuguese industry are chub mackerel, sardines (pilchard) and octopus. In 2014, octopus overtook sardines as the most valuable species by total landings. This was the result of recent implementation of lower quotas to protect the declining sardine population. In Madeira and the Azores, tuna, swordfish, blue shark, and small pelagic species are the main target species. Important demersal species include blackspot seabream, black and silver scabbardfish, conger, and wreckfish.

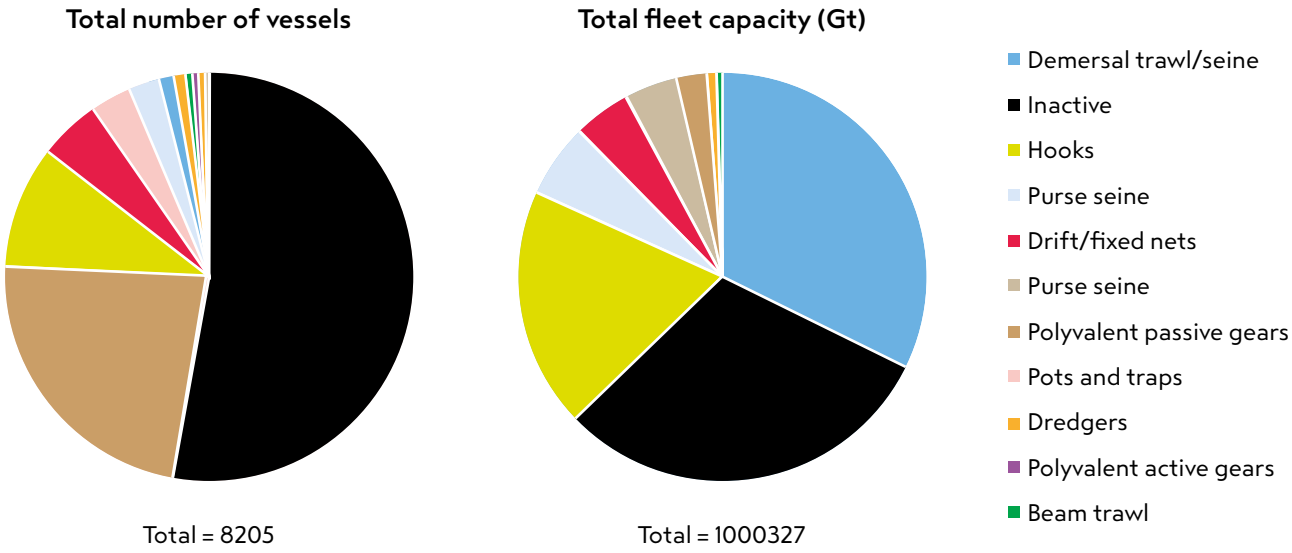
In Portugal fishing is spread out across many small coastal communities some of which are highly dependent on the fishing economy.[2] However, large-scale commercial fishing is predominantly based in the Centre region. This area accounts for 40% of the country's fishing capacity.[3]

In broad terms, the Portuguese industry can be divided into three fleets: the small-scale fleet, the large-scale fleet and the long-distance fleet. The small-scale fleet targets a diverse range of species and use various passive gears as well as dredges for clams. These species include sardines and mackerel as well as some demersal stocks such as conger eel and black scabbardfish.

The large-scale fleet (over 12 metre vessels fishing in territorial waters) comprises 822 vessels and 61% of the national fishing capacity. These vessels use purse seines and demersal trawls to target small pelagic species as well as demersal species such as Nephrops, hake and monkfish.

The distant water fleet fishes outside of European waters, in areas such as the North and South Atlantic, and consists of 26 large vessels that is split into two groups. The first targets cod and redfishes in NAFO and Norwegian waters with demersal trawls and the second targets tuna, swordfish and blue shark in the South Atlantic and Indian Ocean using longliners.

FIGURE 13.1.2: PORTUGAL'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The Portuguese fishing industry has shrunk over the past decades. Employment has been in decline since 1998 and total landings peaked in 1992 at 260,000 tonnes. The number of vessels has fallen by 49% since 1988[4]. Despite these downward trends, profitability is improving, with all major fleet segments recording net profits in 2014[5].

The next sections of this chapter will describe and analyse Portugal's fishing opportunities. The approach taken will be as follows. First, in section2, Portugal's national fisheries objectives will be outlined. These are based on government reports and policy statements. Our own set of objectives for fishing opportunities - as detailed in chapter 3 - are also summarised. These objectives will form the basis for measuring the success of Portugal's fishing opportunities. Section 3 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

13.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management
Types of fishing opportunities:	Individual quotas, pooled quotas, individual transferable quotas
Main allocation criteria:	Historical
Differentiation in allocation:	Distant water fleets and national fleet
Landed weight under quota management:	39%[6]

OVERVIEW

Portuguese fishers access a range of different fishing opportunities. 39% of landings are accounted for by stocks under quota management. A number of distant water (non-EU) stocks are under TACs set by Regional Fisheries Management Organisations. The remaining stocks are managed by national and bilateral quotas with Spain (including sardines), on advice of co-management groups (including bivalves) and through effort controls. In line with the EU entry-exit scheme, licensing is restricted and new vessels have to be accompanied by at least equal reductions in capacity. Some spatial management is in place, with the 6nm zone being reserved for small-scale passive fishers and dredgers.

GOVERNANCE

The Directorate-General for Natural Resources, Safety and Maritime Services (DGRM) has overall responsibility for fisheries and has broad competences and authority. A number of bodies play advisory roles in the directorate's decision-making processes, including the National Institute for the Sea and Atmosphere, producer organisations (POs), and the processing industry. There are 14 POs (12 of which operate from the mainland) that have quota management and marketing roles. PO membership is required for any fisher that lands a species under quota management. Since many different measures are in place to regulate fisheries, the DGRM has an active role in day-to-day management.

For management purposes, the fishing industry is divided in four main categories:

1. local <9 metre vessels operating near registered ports,
2. coastal >9 metre limited by fishing trip duration but can operate from greater distances,
3. high seas: larger vessels that are not restricted by trip duration,
4. recreational fishers: small vessels using passive gears.

PORTUGAL'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: ITQs | Non ITQs | All

This table summarises five key features of Portugal's quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

Most quotas are allocated to fleet segments of the same vessel-length category based on that segment's criteria including historical track records, power and sometimes biological factors. All vessels within a segment receive the same allocation. For a few other stocks, pooled allocations and individual historical allocations are used. From 2017 a second allocation is performed mid-year to increase utilisation.

HOLDER
Although quota allocation is based on vessel characteristics, quotas can easily be moved between vessels of the same operator, so the individual operator is the quota holder.

TRANSFERABILITY
As of 2017 no transfers are permitted, only between vessels of the same owner. Prior to 2017, in-year transfers were allowed.

SECURITY
Quotas are property of the state and fishers do not have a sustained right to a share of the fish stock.

DURATION
Quotas apply for the duration of the calendar year. Allocations are adjusted mid-year depending on utilisation

QUOTA ALLOCATION

For stocks managed under either EU, ICCAT or distant water TACs (NAFO & NEAFC), all quotas are allocated purely on the basis of historical fishing activity. These quotas were established at least 20 years ago. Distant water and ICCAT quotas are individually allocated whilst EU TACs are allocated to POs. These POs may then allocate to vessels based on vessel track records (individual) or hold quotas collectively in a pool or with daily catch limits.

Quotas managed by POs are still allocated to them on the basis of the track record of member vessels but POs may choose to allocate them differently (for example, in the case of sardines).

Some stocks are under quotas set unilaterally by Portugal or bilaterally with Spain for species that do not already fall under EU TACs. These quotas include annual catch limits for sardines and daily catch limits for bivalves.

QUOTA RULES

The distant water and ICCAT quotas are individual transferable quotas (ITQs). These quotas can be leased and traded between licensed operators with little restriction. Their period of validity is permanent, meaning that these quotas are a highly secure right that cannot easily be re-appropriated by the DGRM. The DGRM is therefore quite hands-off with regards to the management of these quotas.

Quotas outside of the ITQ system are only transferable alongside the associated vessel. Vessels can also move between different POs, taking their quota shares with them. Unused quotas can be reallocated by the DGRM. POs have quota management rights which means that they have control over their members' quotas and can chose how to distribute it between vessels.

OTHER FISHING OPPORTUNITIES

A number of recovery and management plans are in place to limit effort increases for non-TAC stocks. These plans include gear restrictions and fishing closures. Recovery plans exist for hake and Norway lobster, and sardines are under a multi-annual management plan.

13.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of Portugal against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 13.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

Government objectives were obtained from the Portuguese government programme document. This document outlines the objectives of the current government in all areas including fisheries. The objectives most strongly linked to fishing opportunities are given here. Additional objectives were obtained from the 2014-2020 Operational Programme for fisheries.

GOVERNMENT PROGRAMME

The government sees seafood as one of the most important and relevant marine resources and wants to build on its traditions in the sector to increase the value of this economic activity as a competitive business model. To this end, the government wants to:

- Sustainably manage fisheries resources of the Exclusive Economic Zone (EEZ), taking into account economic, social and environmental dimensions;
- Support the acquisition of the first vessel by young fishermen with the creation of a 'Young fishermen' credit line for sustainable development of the investment, supported under the PO MAR 2014-2020 (Operational Program), through elaboration of protocols with banking entities;
- Create a 'Small-Scale Fisheries' credit line for sustainable development of the investment supported under the PO MAR 2014-2020 through elaboration of protocols with banking entities.

OPERATIONAL PROGRAMME 2014-2020

- Increased competitiveness and viability of fishing companies including small-scale fisheries, and improving safety and working conditions
- Balance between fishing capacity and the fishing opportunities available
- Promoting economic growth, social inclusion and job creation, providing support for the employability and labour mobility in coastal and inland communities dependent on fisheries and aquaculture, including the diversification of activities in the field of fisheries and other sectors of the maritime economy.

METHODOLOGY

Table 13.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 13.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

13.4 ANALYSIS

This section will assess the performance of the Portuguese system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

TABLE 13.4.1: PERFORMANCE OF PORTUGAL'S SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	Mixed
	Flexible	Mixed
	Accessible	Low
	Viable	Mid-High
	Equitable and fair	Mid-Low
Good for Society	Publicly owned	Mid-High
	Meets government objectives	Mid-Low
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Low
	Objective	High
	Right governance level and representative	Mid-Low

SECURE: MIXED

Fishing opportunities in Portugal, at least on paper, are relatively secure. In the MRAG et al (2009) assessment of fishing opportunities, Portuguese fishing rights score highly on validity, and fairly high on security.[7] Performance indicators suggest that this has not had the directed effects. Investment in the Portuguese fishing fleet is low,[8] indicating a potential lack of long-term security, and there are instances of fishery closures,[9] indicating a potential lack of in-year security. Low investment in the Portuguese fishing fleet may also be due to historical overcapacity and a dramatic reduction in fishing opportunities over the past decades to reduce overfishing, a larger reduction than that of other EU Member States.[10]

FIGURE 13.4.1: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS

Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FLEXIBLE: MIXED

Fishing opportunities in Portugal are fairly flexible, and there is full transferability of many fishing rights. In practice, however, there are mixed findings from performance measures of profitability. There are high levels of quota non-compliance, indicating that some fishers are not getting access to the quotas they need[11], coupled with low levels of quotas uptake, indicating that some fishers are not using the quotas they have.[12] Conversely, discard rates are generally low compared to other Member States using similar gear in the same area for the same species, an indication that fishers are getting access to the quotas they need.[13] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

ACCESSIBLE: LOW

In order to access quotas, new fishers need to purchase an existing vessel with a track record to receive allocations. There is no set-aside of quotas to accommodate new fishers.

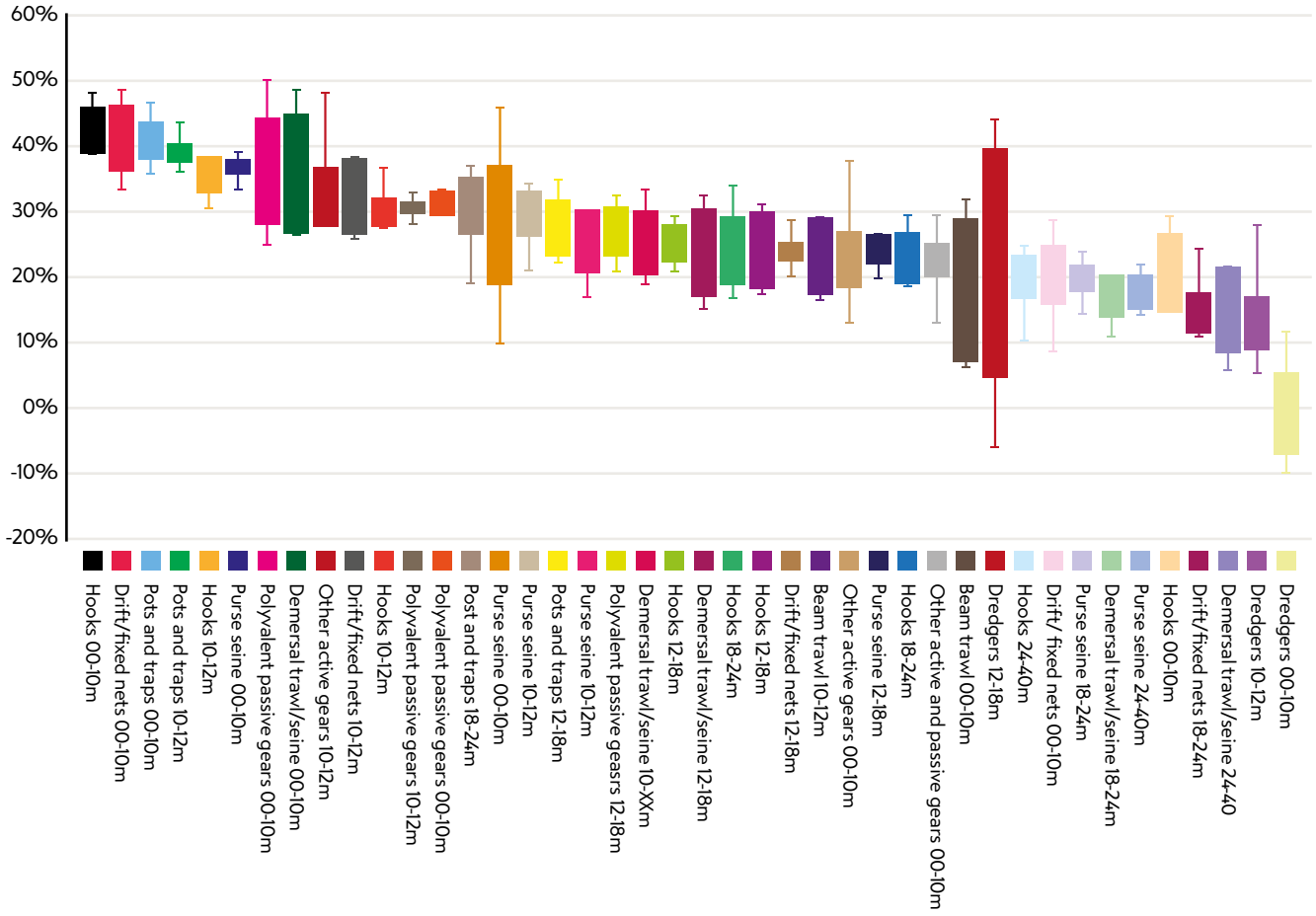
VIABLE: MID-HIGH

The Portuguese fishing fleet is fairly profitable, with gross profit margins ranging from 21-27% over 2008 to 2014.[14] Whilst crew wages are low compared to other EU Member States, they compare favourably to the national median wage in Portugal.[15]

At the fleet level, there is a wide variance in profitability. In contrast to most other EU Member States in this report, the small-scale fleet has the highest profit margins.[16]

Complaints about economic viability in the Portuguese fishing fleet tend to focus on the lack of bargaining power of fishers in setting the price of their landings, rather than issues more directly related to the system of fishing opportunities.

FIGURE 13.4.2: GROSS PROFIT MARGIN BY PORTUGUESE FLEET SEGMENT (2008-2014)



EQUITABLE AND FAIR: MID-LOW

Systems based on historical quota allocation are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. New fishers without a track record will need to buy fishing rights or rely on special allocations. Historical allocation is highly favourable to incumbent fishers who are granted a free quota share.

With long standing reference periods and limited possibility to transfer quotas to new vessels Portugal has an ageing fleet (average age of 31 years).[17] This rigidity in allocating based on old track records is particularly significant for Portugal, raising prices of old vessels and making new entry very difficult. Portugal does not seem to have any measures in place in addressing the inequities created by dependence on historical allocation.

PUBLICLY OWNED: MID-HIGH

Quotas are recognised as being revocable and not seen as conferring a permanent right to fishers. This is even the case of ITQs. In its submission to the Commission describing Portugal's method of allocation, the Portuguese government stated that even ITQs can be reduced or amended for management and conservation purpose.[18] This is despite the fact that they carry certain characteristics of real property rights such as exclusivity and transferability. Although the Portuguese government recognises that use rights are not private entities, there are no recent examples of the government using its powers to adjust allocation.

MEETS GOVERNMENT OBJECTIVES: MID-LOW

EU OBJECTIVES

In its submission to the Commission regarding the implementation of Article 17 of the CFP, the Portuguese government states that licensing accounts for the economic dependence of communities involved in traditional fishing and the history of compliance.[19] Whilst dependency is a fair criterion, this process concerns licensing (access) rather than the allocation of fishing opportunities. Therefore, the current method of allocation cannot be considered as compliant with Article 17 and objective 2.5(i) of the CFP.

With regards to Article 22 and objective 2.5(d) of the CFP on balancing fleet capacity with the fishing opportunities available, Portugal performs comparatively well relative to other Member States, according to data in the STECF report on capacity balance. However, this is largely the result of good performance on economic indicators of overcapacity (net profit margins, return on fixed tangible assets and current revenue to break-even revenue) whilst performance on technical indicators (inactive vessel indicator, vessel utilisation ratio) and biological indicators (stock at risk indicator) is consistently poor.[20]

On CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Portugal has relatively moderate landings prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings.

NATIONAL OBJECTIVES

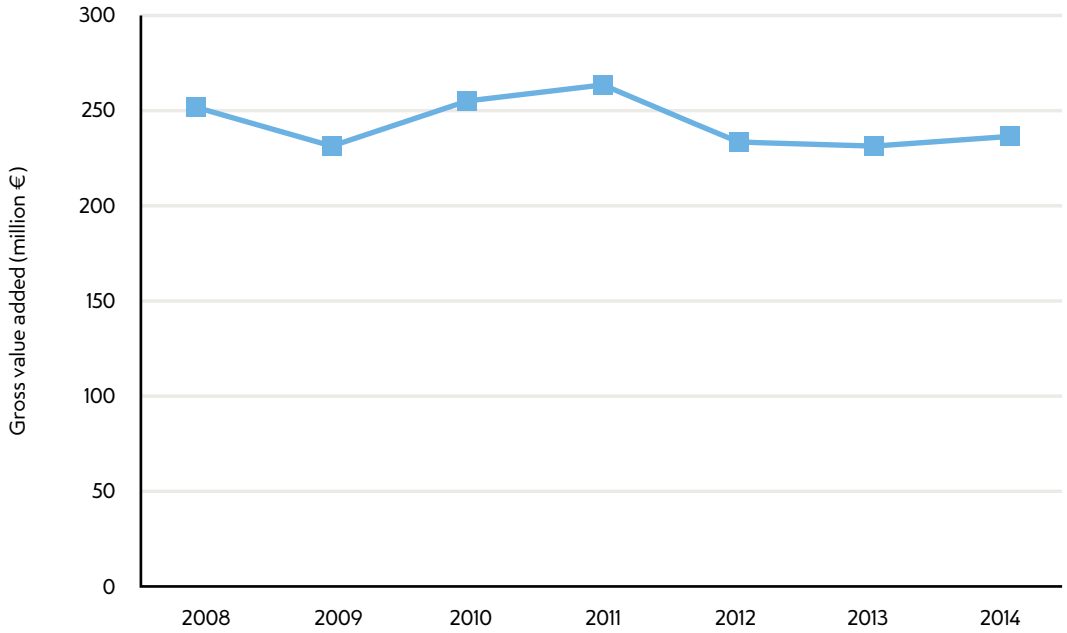
At the national level, Portugal's government objectives for fisheries are covered through the Government Programme and the Operational Programme for fisheries 2014-2020. Four statements stand out from these two documents as relevant objectives for the allocation of fishing opportunities:

1. 'Promoting economic growth, social inclusion and job creation,' Operational Programme;
2. 'Support the acquisition of the first vessel by young fishermen with the creation of a 'Young fishermen' credit line,' Government Programme;
3. 'Increased competitiveness and viability of fishing companies including small-scale fisheries,' Operational Programme;
4. 'Getting the balance between fishing capacity and the fishing opportunities available,' Operational Programme.

The second objective is covered by the foundational objective 'Access', the third objective is covered by the objective 'Viable' and the fourth objective is covered by Article 2.5d of the CFP, discussed in this section. Portugal performs moderately well on these overlapping objectives.

The objectives of economic growth, social inclusion, and job creation from the Operational Programme are distinct from the foundational objectives. Economic growth, measured here as GVA, has been relatively flat over the past several years.

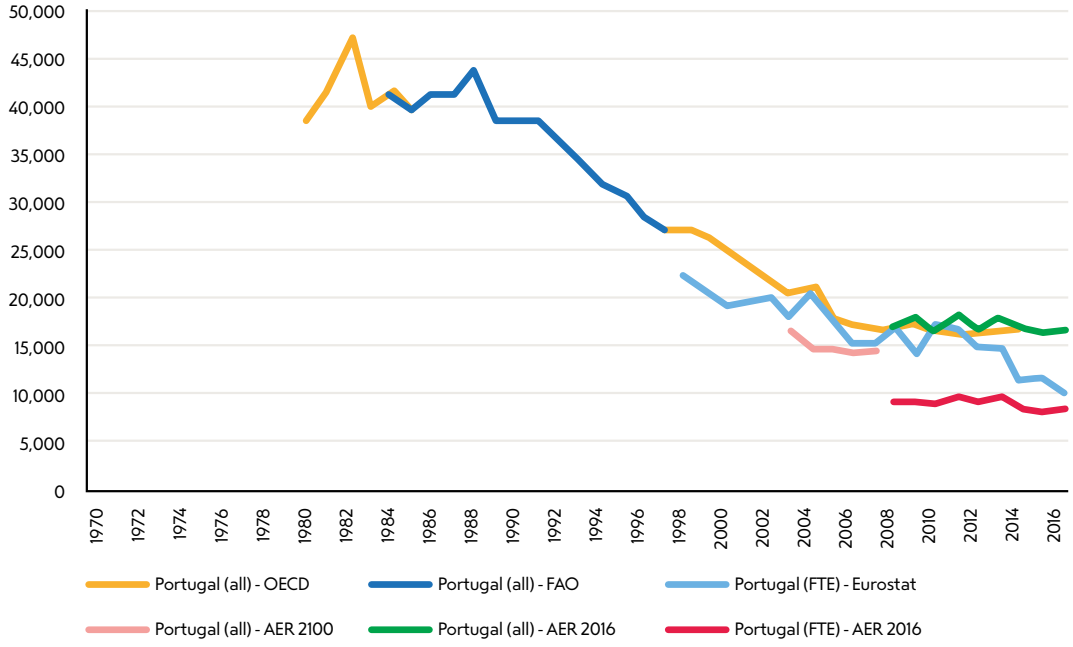
FIGURE 13.4.4: GROSS VALUE ADDED BY PORTUGUESE MARINE FISHERIES BETWEEN 2008 AND 2014



Source: Authors' calculations using data from the Food and Agriculture Organization (FAO), Organisation for Economic Co-operation and Development (OECE), Eurostat, and Scientific, Technical and Economic Committee for Fisheries (STECF).

Fisheries employment in Portugal has been in steep decline for decades but has recently been showing signs of levelling off.[21]

FIGURE 13.4.5: EMPLOYMENT IN THE PORTUGUESE MARINE FISHING INDUSTRY SINCE 1970



Source: Authors' calculations using data from the Food and Agriculture Organization (FAO), Organisation for Economic Co-operation and Development (OECE), Eurostat, and Scientific, Technical and Economic Committee for Fisheries (STECF).

Social inclusion, due to difficulties in measurement, has not been included for analysis here.

In terms of the ability to pursue government objectives in its system of fishing opportunities, Portugal does not keep a designated quota reserve. In the basic fisheries regulation (Law 278/87) it is stated that allocation should 'take into account in particular the number, characteristic and traditional activities of vessels and the location of catchable resources.' Since allocation is based purely on historical catch records it doesn't appear that this provision is implemented.

LIMITED PUBLIC EXPENSE: LOW

The annual costs of fisheries management in Portugal total €24 million at the national level, equivalent to 6% of landed value.[22] This is a moderate level compared to the other EU Member States in this report. There are no forms of (direct) revenue generation from the industry to pay for management. There is also an implicit fuel subsidy in Portugal of 0.29 €/litre, equivalent to another €24 million effect on public finances from revenues lost. Fuel subsidies conflict with government objectives to minimise the environmental impact of fishing.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENCY AND ACCOUNTABILITY: LOW

Portugal scores poorly on transparency because there is little official, easily accessible information regarding the quota allocation mechanism. There is also no public register showing the quota shares held by vessels/owners.

OBJECTIVE: HIGH

Allocation is based on historical catch records which provide an objective basis for allocation.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-LOW

Although no full assessment can be given for this objective, complaints have been made that small-scale fishers, in particular, are under represented. This is due to lack of organising by this segment. This negatively affects their bargaining power in sales and gives them less political influence.

13.5 RECOMMENDATIONS

According to our indicators, Portugal's performance on the twelve objectives is very mixed. It is also difficult to diagnose some of the poor-performing indicators, such as low investment, which could be explained by a variety of factors. We offer a number of recommendations to improve Portugal's performance on our Foundational Objectives.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Relatively low quota compliance and uptake suggest that the Portuguese quota system could benefit from improvements in flexibility. If fishers could have a way to get rid of excess quota and obtain quota where they have a shortage, improvements might be made on our flexibility indicators. In line with keeping EU TACs non-transferable, we propose the creation of an online, peer-to-peer quota swapping platform that allows fishers to make in-year swaps that don't affect track records.

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.

Currently in Portugal, uptake of quotas is frequently less than 100% at the end of the year, so there are excess quotas held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if exhaust their quotas for certain species. The resulting improvements in flexibility can contribute towards compliance with the landings obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over members' quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESS FOR NEW FISHERS

Currently, new fishers wishing to join the commercial are required to purchase vessels with existing track records to access quotas. This creates a significant barrier to entry and has the tendency of overvaluing older vessels with larger track records. These vessel licences are likely to include the shadow price of quota shares. Fishers that were active during the reference period are hugely advantaged through the gifting of quotas over new fishers who often rely on inheriting a vessel licence. It cannot be justified that new fishers, accessing the same public resource, should have to pay significantly more.

Although it is difficult to facilitate new entry in a context of EU capacity reduction regulations, efforts can still be made to give new fishers a more equal initial footing. To improve access for new fishers, Portugal should set aside quotas in a national quota reserve for the purpose of accommodating new fishers. These quotas these could be lent to fishers for a number of years (8 years in the Danish model) that have demonstrated significant investment in the fishing industry (i.e. vessel purchase). A more equitable method would be to 'tax' quota when vessel sales take place or when vessels are removed from the fleet (the French model). Then quota shares are appropriated by the fisheries authority to be allocated to new fishers in a continual process of re-gifting, rather than in short-term loans. This initial gifting can be performed based on vessel capacity and the fishing plans of the new fishers.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

Portugal's current allocation method is centred purely on historical landings as a criterion. This means that certain vessels are highly privileged and allocation does not consider forms of performance that should be encouraged. Portugal should take further steps to incorporating social and environmental criteria into its allocation mechanism. This can also be achieved through expanding the role of the national quota reserve in performing allocations separately from the standard mechanism

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[23] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1:	Large Fish – the proportion of the catch larger than length at maturity (Lm50)
Indicator 2:	Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species
Indicator 3:	Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[24] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landings obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[25]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.39 per litre for Portugal is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[26] - use the most fuel per landed value, whilst pots and traps use the least.[27] This variance in fuel use is an important price signal that should be reflected in the price of fish.[28] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[29]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

IMPROVE REPRESENTATION OF THE SMALL-SCALE FLEET

Currently, small-scale fishers are highly under represented both in POs and in decision-making. This puts them at a disadvantage in marketing, getting fair prices for their produce and influence in public decision-making. The DGRM should facilitate and support either the integration of small-scale fishers into existing POs or the creation of a small-scale specific POs. This could improve coordination and cooperation amongst small-scale fishers.

It is clear that there are barriers to organising the small-scale fleet due to heterogeneity, lack of resources and in some cases illiteracy. For these reasons, measures to further integrate small-scale fishers need to include sufficient capacity building and learning.

MAKE QUOTA ALLOCATION MORE TRANSPARENT

The allocation mechanism is not sufficiently explained in publicly available documents and no public register of quota ownership exists. This makes the process opaque and closed off from proper scrutiny. We suggest that more information should be provided detailing the allocation mechanism. The outcomes of these allocations should be made publicly available in a quota register. The same applies for POs, which have been given a public mandate to manage quotas.

13.6 CONCLUSIONS

Portugal manages its stocks through both IQ and ITQs, the latter applying mostly for non-EU quotas. It allocates all quotas on the basis of the historical track records of fishing vessels. Our assessment of Portugal's fishing opportunities indicates mixed to low performance across most objectives. Especially in accessibility for new fishers, implementing Article 17 of the CFP, limited public expense and transparency improvements are much needed. Based on our assessment of available information and input from interviews, we recommend that Portugal:

- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Improves access for new fishers either through lending or granting quota to young fishers wishing to enter the industry;
- Fully incorporates social and environmental and environmental criteria in its primary allocation method, or through using a national quota reserve;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Improves representation of the small-scale fleet through better inclusion into POs and capacity building;
- Makes quota allocation a more transparent process through publishing information on its method of allocation and creating a publicly available quota share register.

Some recommendations, such as applying a landings tax and cutting fuel subsidies, will increase costs for the sector. At the same time, improving flexibility and access for new fishers is likely to improve economic viability. The reforms proposed aim to improve the representation of wider public interests in the management of the resource. Taken together, these recommendations could transform the Portuguese fishery whilst also keeping the general system structure and its current advantages intact.

1 Vardakoulias, O. & Bernick, S. (2016). Fish dependence – 2016 update. London: New Economics Foundation. Retrieved from http://ent.cat/wp-content/uploads/2016/05/Fish-Dependence-2016.pdf
2 Martin, J.I. (2011). Fisheries in Portugal. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2006/369030/IPOL-PECH_NT(2006)369030_EN.pdf
3 Martin, J.I. (2011). Fisheries in Portugal. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2006/369030/IPOL-PECH_NT(2006)369030_EN.pdf
4 Martin, J.I. (2011). Fisheries in Portugal. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2006/369030/IPOL-PECH_NT(2006)369030_EN.pdf
5 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
6 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
7 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf
8 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
9 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
10 Carpenter, G., & Kleinjans, R. (2015). Landing the blame: Overfishing in European waters 2001-2015. London: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/281450725_Landing_the_blame_overfishing_in_EU_waters_2001-2015
11 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports
12 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset 2013-2015.
13 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf
14 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
15 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
16 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
17 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
18 The Directorate-General for Natural Resources, Safety and Maritime Services, 2016. Submission to the Commission in line with Article 16.6 of Regulation 1380/2013. Obtained from the Commission via an information request.
19 The Directorate-General for Natural Resources, Safety and Maritime Services, 2016. Submission to the Commission in line with Article 16.6 of Regulation 1380/2013. Obtained from the Commission via an information request.
20 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf
21 Authors' calculations based on Food and Agriculture Organisation (FAO). (2013). Fisheries employment. and Scientific Technical and Economic Committee for Fisheries (STECF). (2011). The 2011 annual economic report on the EU fishing fleet (STECF 11-16). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/256769/2011-11_STECF+11-16+-+2011+AER+on+the+EU+fishing+fleet_JRC67866.pdf and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
22 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
23 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf
24 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508
25 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018
26 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

7 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

28 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

29 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

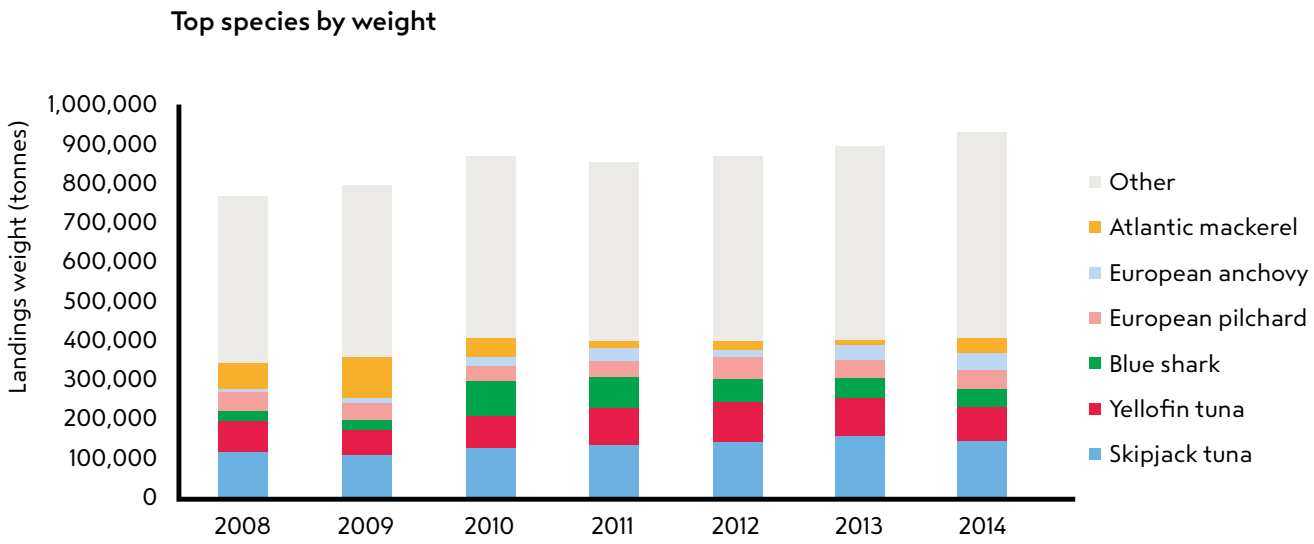
Spain conducts fishing activities in the Mediterranean Sea, the nearby Atlantic and other major seas around the world with its distant water fleet. Most of the stocks targeted, especially in the Mediterranean, are under effort management whilst Atlantic stocks tend to be under EU or RFMO TACs. To assess Spain's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. Our results show mixed performance across our indicators with Spain performing well on meeting national objectives and using representative management but less well on providing flexible access to fishing opportunities and covering management costs. We make a number of recommendations for reform including introducing a peer-to-peer swapping system and setting aside quotas for new fishers.

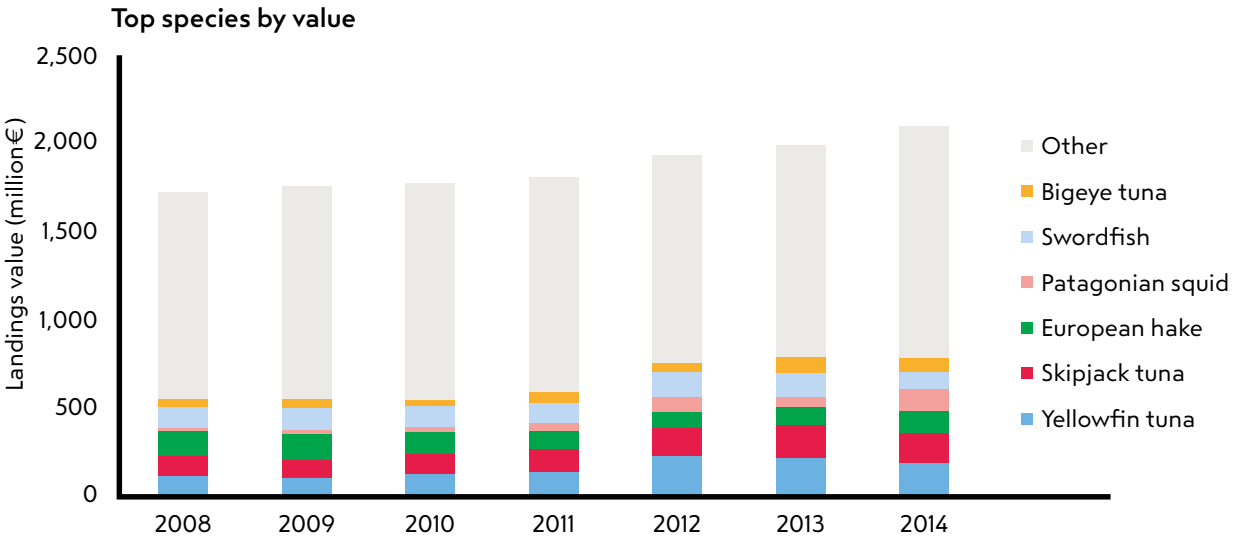
14.1 INTRODUCTION AND BACKGROUND

Spain is one of Europe's largest fishing nation with 33,000 individuals employed in marine fishing. The Spanish fleet is large and very diverse, with just under 10,000 registered vessels carrying out fishing activities mainly in the North Atlantic and Mediterranean around Iberia, but also in the South Atlantic, Indian and Pacific Oceans. In 2014, the Spanish industry landed 933,000 tonnes of fish worth €2.1 billion.[1] The fishing sector has declined in numbers and capacity over the past decades as fleets have rebalanced to suit current fishing opportunities and improve profitability.

Spain is a major consumer of fish with a per capita consumption rate of 42kg per year. As a result, despite its large fishing industry, Spain relies heavily on imports from other EU countries and beyond to meet its consumption needs.

FIGURE 14.1.1: SPAIN'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE

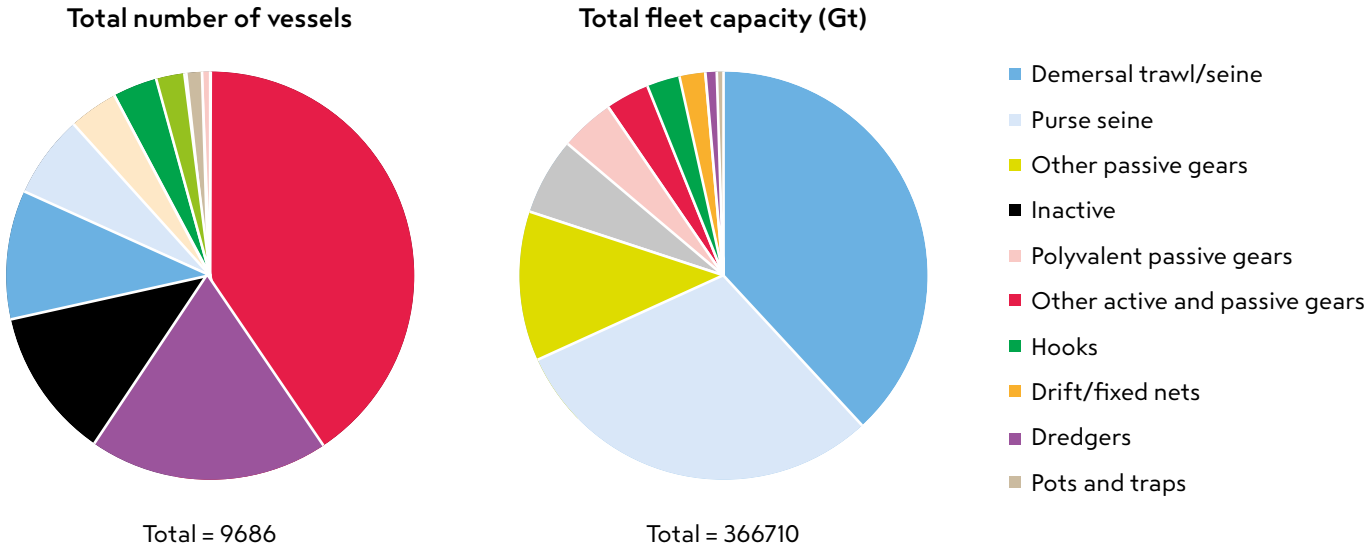




Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Spain fishes a very large range of stocks, as is evident from Figure 14.1.1, with the top 6 species making up less than half of the country's landed weight and value. Tuna species are the most significant target species for the Spanish fleet, mainly fished by the distant water purse seiner fleet in the Indian Ocean and Eastern Pacific. The most important stocks in EU and North Atlantic waters include hake, anchovy and pilchard (sardines). Just under half (48%) of the Spanish fleet is small-scale according to the EU definition (passive gear and under 12 metres in length). This figure increases to 72% if under 12 metre dredgers are included. The large-scale fleet covers 49% of and the distant water fleet – vessels that fish outside of European waters and are larger than 24 metres – make up the remaining 3%. Despite the large number of small to medium-sized vessels, the over 24 metre fleet make up 77% of Spain's fishing capacity measured in gross tonnage.

FIGURE 14.1.2: SPAIN'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The small-scale fleet segment comprises 4,156 vessels and employs approximately 8,000 fishers[2]. On the whole, the fleet is unprofitable, with mostly negative profit margins over the past four years. This segment targets a range of stocks including shellfish. The main species in terms of landed weight are Atlantic mackerel, octopus and European hake in the Atlantic, and swordfish, octopus and sea bream in the Mediterranean. Gears used include driftnets, hooks and pots.

The large-scale fleet (all active-gear vessels and vessels above 12 metres) employs just under 20,000 fishers and makes up just over half of Spain's fishing capacity. The large-scale fleet includes an Atlantic purse seiner fleet of 315 vessels targeting pilchard, mackerel and anchovy. Many of these vessels change gears to pole-lines when fishing in the Cantabrian Sea. This segment also includes a Mediterranean trawler fleet targeting shrimp, hake, mullet and lobster.

The distant water fleet accounts for 50% of Spain's landed weight, yet is made up of just 230 vessels. The over 40 metre fleet includes 33 freezer purse seiner targeting tuna in the Indian Ocean, South Atlantic and East Pacific.

TABLE 14.1.1: SPANISH FLEET COMPOSITION BY LENGTH CLASS IN 1990 AND 2015.

Year	Length Class	Number	Capacity (1000Gt)
1995	U12m	14853	35.527
	12-23m	3332	142.967
	>23m	1668	568.408
	Total	19853	746.902
2015	U12m	6887	15.446
	12-23m	1785	62.003
	>23m	736	265.137
	Total	9408	342.586

Source: Eurostat, derived from the European Fleet Register. Note: Figures may differ from the Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse Spain's fishing opportunities. The approach taken will be as follows. Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and Spain's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

14.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management (RBM) and effort management
Types of fishing opportunities:	Individual quotas, individual transferable quotas, pooled quotas (national and cofradias)
Main allocation criteria:	Historical catches, capacity, socioeconomic
Differentiation in allocation:	Fleet segments
Landed weight under quota management:	22%[3]

OVERVIEW

Spain provides a diverse set of fishing opportunities in the form of quotas, territorial use rights, and effort controls. EU, NEAFC and bluefin tuna stocks are under catch quota management, which are allocated to fishers on an annual basis. These quotas are allocated to individual fishing vessels whose owners may, in some cases, pool quotas. Allocations are criteria-based and vary per fishery.

GOVERNANCE

The fisheries department under the Ministry Agriculture and Fisheries, Food and Environment is responsible for fisheries management. The Ministry is involved in fisheries policy, managing fishing access, and regulation. It has a significant role in quota allocation, although some parts of the process are delegated. POs have a role in managing quotas, particularly for demersal stocks. The Spanish constitution mandates that Maritime fisheries - fishing activity beyond internal waters[4] - are a state-level competence, whilst Autonomous Communities have competence over inland water-fishing, internal waters, shell fishing and fish farming.

Local membership-based fishing organisation, called cofradias (fishing guilds) are very prevalent around Spain. In fact, the vast majority fishers are members of cofradias with a much smaller number organised in POs. There are 229 cofradias spread across the Spanish coastline and islands whose membership includes 83% of the total fisheries employment in Spain.[5] In the case of the Basque Country, the federations of cofradias may perform their own allocations or pool certain quotas for collective use. In some cases, they are also involved in quota transfers, although POs usually have a larger role in this. Cofradias are responsible for particular territories and so manage a type of territorial use right (TURF).

SPAIN'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	National / Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: ITQs | Coastal fleet | All

This table summarises five key features of Spain's quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

For most fish stocks, quotas are allocated on the basis of three main criteria: historical fishing activity, technical characteristics, and the optimal level of activity in the fleet. Swordfish quotas are allocated purely according to historical track record and bluefin tuna is allocated according to socio-economic factors as well as historical track record.

HOLDER

Most quotas are held individually by fishers, but associated with vessels. Some quotas such as bluefin tuna are held by Federations of cofradias when fishers pool them.

TRANSFERABILITY

Bluefin tuna, swordfish and demersal species fished in the NEAFC zone are under individual transferable quotas (ITQs). Other quotas may also be transferred but no official quota markets are in place.

SECURITY

Quota shares are not guaranteed and distribution criteria are applied every year for some stocks. At the same time, historical activity makes up the most important criteria, providing some consistency in the allocation of quotas.

DURATION

Quotas are set for the whole year. Cofradias and POs may set more short-term limits for their members.

QUOTA ALLOCATION

Spain has an internally varied system of fishing opportunities with differing rules applying to different fleet segments and different autonomous communities. First of all, stocks are distinguished as falling under the competence of autonomous communities or the federal government. The federal state manages marine mobile stocks whilst autonomous communities control inland and sedentary stocks such as shellfish. All quotas are initially allocated on the basis of a set of three criteria laid out by the country's basic fishing regulation (no. 3/2001). These criteria are:

1. historical fishing activity (catches and effort)
2. technical characteristics
3. optimisation of the entire fleet.

Additionally, employment and working conditions may also be considered after the application of the first three criteria. These criteria are adjusted every year with the new EU TACs in response to changing conditions. Historical track records are updated based on rolling reference periods. Despite these adjustments, shares are relatively constant across years. The choice and weightings of particular criteria vary per fleet and stock. These are set through legal orders.

For a number of stocks, allocation is based on fixed shares granted to vessels of particular fleet segments, often based on gear type. This is the case for the bluefin tuna, mackerel and demersal stocks. The ministry reserves small percentages of the quota of some stocks for reallocation. Some quotas (e.g. hake for small-scale vessels) are ringfenced for particular fleet segments to guarantee a minimum allocation. Two examples of allocation are given here:

EXAMPLE 1: NW CANTABRIAN PURSE SEINE MACKEREL CABALLA- FISHERY:

Primary scenario:
70% historical
30% capacity (GT)

Secondary scenario:
70% historical, 10% GT,
10% equal,
10% number of crew
Order AAA/2534/2015

EXAMPLE 2: NW CANTABRIAN GILLNET HAKE FISHERY:

50% equal allocation
25% according to the number of crew
25% based on historical catches
Order AAA/2534/2015

Quota allocation for bluefin tuna is performed differently to other stocks. Bluefin tuna quotas distributed amongst Member States are set by the International Commission for the Conservation of Atlantic Tuna (ICCAT) for a three-year period. It is then up to Member States to decide how these quotas are internally distributed. In Spain, quotas are allocated 60% on the basis of historical catch record and 40% on the basis of maintaining employment. The ministry reserves around 5% of the bluefin tuna quota for emergency cover of excess fishing and international quota swaps. Swordfish are also under the management of ICCAT, but national allocation is performed purely on historical fishing activity.

QUOTA RULES

Spain's fisheries law (Law 3/2001) allows quotas but not licences to be transferred independently from the vessel. In practice, formal markets and frequent trading in quotas are only prevalent for a number of fisheries. These include bluefin tuna, swordfish, NEAFC stocks including hake, nephrops, ling, whiting, anglerfish and pollack. Bluefin tuna quotas, usually managed by POs can be leased but not permanently transferred. Swordfish quotas are transferable with authorisation but their use is limited to particular management zones. Fleets fishing EU TAC stocks in ICES zones VIIIe and IXa do not use ITQs.

POs are heavily involved in the demersal NEAFC ITQ system, which acts as a 'classical' ITQ system. It applies to vessels above a capacity of 100 gross registered tonnage and quotas can be split and separated from vessels. There is a 30% quota concentration limit for individual or groups of companies. Vessels under 100GRT receive individual allocations separately from the ITQ system.

Quotas for pelagic stocks are allocated individually and are only transferable to a limited extent. Cofradias manage individual fishing effort sometimes through daily catch limits or by pooling quotas at the Federation level (e.g. bluefin tuna for the inshore fishery). Stocks outside of European waters are beyond the scope of this study.

Law 3/2001 states that transferability is permitted with prior ministerial authorisation according to the following a set of four criteria:

1. Prevent the accumulation of fishing opportunities for vessels in excess of that can be used;
2. Set a minimum requirement of fishing opportunity holdings below which the vessel must leave the fishery;
3. Justify that the transferability is restricted to vessels or groups of vessels belonging to certain categories. This should take into account the technical requirements of the fishery and the conditions of the vessels subject to transfer;
4. In order to maintain free competition, the volume of fishing opportunities that can be accumulated by a single company or group of related companies does not exceed 30% for each fishery.

Quotas held by vessels that are no longer 'habitual' to the corresponding fishery can be reallocated by the ministry according to fishers shares.

14.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of Spain against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 14.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

2001 REGULATION LAW NO.3:

This law aims to:

- Ensure the balanced and responsible exploitation of fisheries resources, sustainable development and protect, conserve and regenerate those resources and their ecosystems;
- Improve the conditions in which fishing activities are conducted, and the standard of living of fishermen;
- Adapt the effort of the fleet to the state of fishery resources;
- Promote the development of economically viable and competitive enterprises in the fisheries sector, facilitating adaptation to its markets;
- Promote measures of economic and social compensation when imbalances in the regions dependent on fishing occur.

METHODOLOGY

Table 14.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 14.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers

Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

14.4 ANALYSIS

This section will assess the performance of the Spanish system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request.

TABLE 14.4.1: PERFORMANCE OF SPAIN'S SYSTEM OF FISHING OPPORTUNITIES

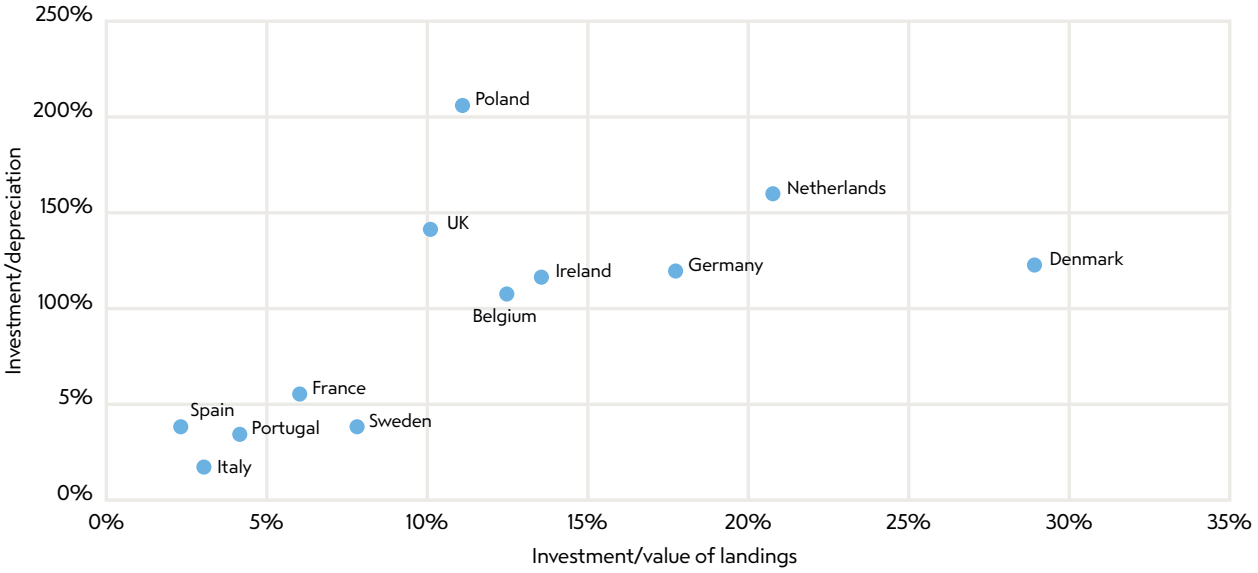
Category	Objectives	Rating
Good for Fishers	Secure	Mixed
	Flexible	Low
	Accessible	Low
	Viable	Low**
	Equitable and fair	Mid-high
Good for Society	Publicly owned	Mid-high
	Meets government objectives	Mixed
	Limited public expense	Mid-low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mid-low
	Objective	Mid-high
	Right governance level and representative	Mid-high

SECURE: MIXED

Fishing opportunities in Spain, at least on paper, are relatively secure. In the MRAG et al (2009) assessment of fishing opportunities, Spanish fishing rights score highly on validity, and fairly high on security.[6] This system design, however, has not translated into the performance indicators. Investment in the Spanish fishing fleet is low,[7] indicating a potential lack of long-term security, and there are instances of fishery closures,[8] indicating a potential lack of in-year security. Low investment in in the Spanish fishing fleet may also be due to historical overcapacity and a dramatic reduction in fishing opportunities over the past decades to reduce overfishing.[9]

Despite these mixed indications, security is written into Spanish fisheries with Law No.3/2001 establishing that vessels are allocated long-term quota shares according to criteria. In practice, allocations are changed as new regulations are passed, altering the allocation method for particular fisheries.

FIGURE 14.4.1: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS

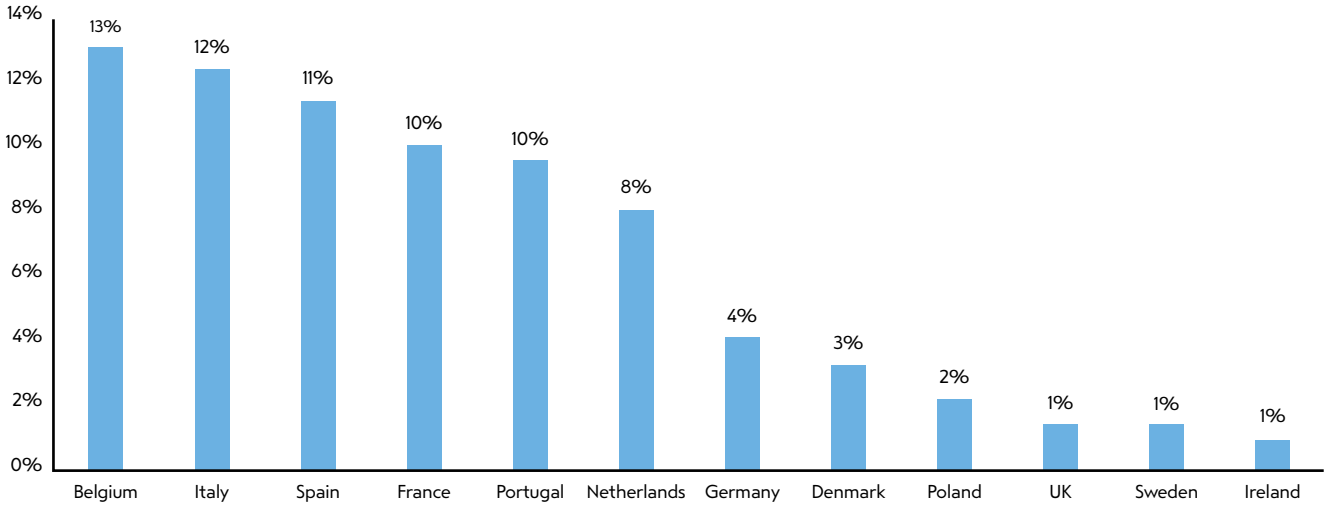


Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

FLEXIBLE: LOW

The Spanish system of fishing opportunities appears to suffer from a lack of flexibility. There are many instances of quota non-compliance (11% of vessel inspections with suspected infringements) and Spain has higher discard rates compared to other Member States using similar gears in the same area and for the same species.[10] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

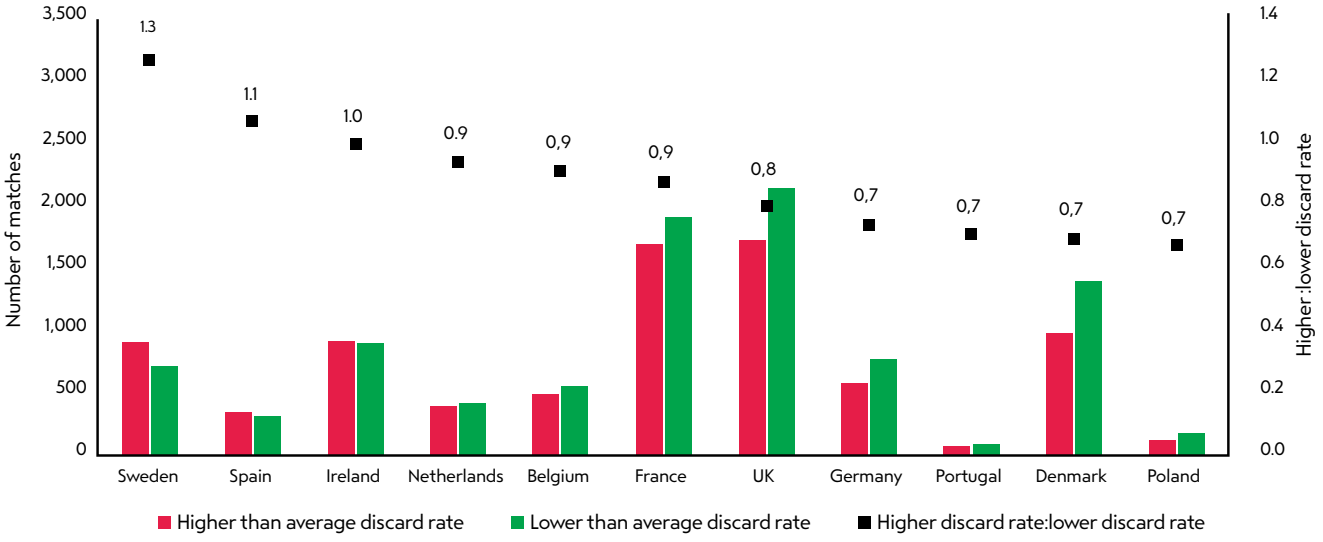
FIGURE 14.4.2: PERCENTAGE OF VESSEL INSPECTIONS WITH SUSPECTED INFRINGEMENTS BY MEMBER STATE (2013-2015)



Source: Authors' calculations using data from European Fisheries Control Agency (EFCA) annual reports (2013-2015).

These two measures indicate that there are quota shortages in Spain and fishers do not have the quotas they need, possibly a result of low flexibility. Whilst many quotas in Spain are managed through ITQs, which promote transferability, they may not facilitate flexibility for all fleets if prices are prohibitive or markets are not well organised.

FIGURE 14.4.3: MEMBER STATE DISCARD RATE COMPARISON WITH GEAR/AREA/SPECIES MATCH



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Quota uptake in Spain is fairly moderate compared to other Member States fishing the same TACs, so there is potential to improve flexibility with increased quota utilisation, although the overall reduction in fishing opportunities to combat overfishing is certainly a contributor as well.

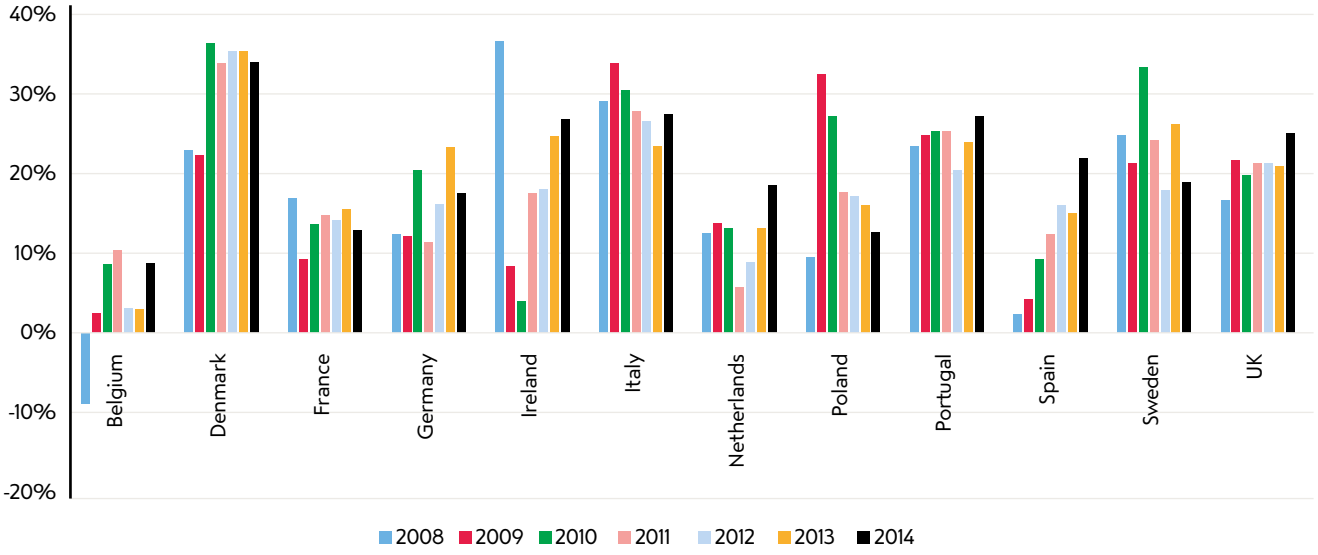
ACCESSIBLE: LOW

New fishers need to purchase vessels with existing quota entitlements in order to access fishing opportunities. There is no designated quota reserved for newcomers. Entry may be somewhat easier in shellfish fisheries or others not under quota management as fishing rights do not need to be acquired. Regardless, new entry has to comply with capacity regulations.

VIABLE: LOW/INCREASING

The Spanish fishing fleet has changed dramatically over the past decades and is currently in a state of low viability. Crew wages are relatively low, both compared to other Member States[11] and compared to the national median wage[12]. Profit margins are also low across nearly all fleet segments, although there appears to be a dramatic rise in recent years.[13] This positive trend may bring the Spanish fishing fleet closer to economic viability, especially if the identified drivers (a reduction in capacity and an increase in vessel efficiency and fuel efficiency in particular - despite relatively low investment)[14] continue to impact.

FIGURE 14.4.4: GROSS PROFIT MARGIN BY MEMBER STATES BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

EQUITABLE AND FAIR: MID-HIGH

Spain's allocation method is highly variable between fisheries. In fisheries that include social considerations in the allocation method, outcomes are likely to be fairer, guaranteeing all fishers minimum shares or benefiting fishers with higher performance on social criteria. For example, Spain uses criteria such as equal allocation for a share of the national quota for some fisheries. This provides for fishers that may not have built up a track record or be able to afford to purchase quotas. These social allocations are widespread, and distinguish the Spanish system of fishing opportunities from those of other EU Member States.

Spain's equitable allocations are not universal, however, and there are some fisheries where allocation is based purely on past participation. In these fisheries, concerns about equity are more prevalent as historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. As such, historical allocation is highly favourable to incumbent fishers who are granted a free quota share, whilst new fishers, or other fishers without a track record, will need to purchase fishing rights or rely on special allocations.

This problem has been highlighted by small-scale ('artes menores') fishers that were refused authorisations to fish bluefin tuna despite fishing the stock for decades. This is because authorisations were only granted to fishers active in a very short reference period (2007-2008) at a time when fishing with handlines was banned as a conservation measure.[15,16] Although a small reserve pool (50 tonnes in 2016) for bluefin tuna by-catch is available for small-scale fishers, it is difficult to access these quota as it is specified for by-catch only. The Low Impact Fishers of Europe (LIFE), in response to Spain's bluefin tuna fishing plan published in early 2017, criticised the ministry for continuing to unfairly allocate and exclude passive-gear, small-scale fishers in the Mediterranean.[17]

PUBLICLY OWNED: MID-HIGH

Fish stocks are constitutionally established as the state's public property. Article 132.2 of the Spanish constitution states:

Assets under the State's public property shall be those established by law and shall, in any case, include the foreshore beaches, territorial waters and the natural resources of the exclusive economic zone and the continental shelf.

At the same time the basic fisheries law (3/2001) states that any changes to allocation need to be proportionate or only made when fishing rights are not being used. Reallocation does occur in practice, in line with the basic law. The broad criteria stipulated by the basic law also give significant flexibility to the minister in determining allocations.

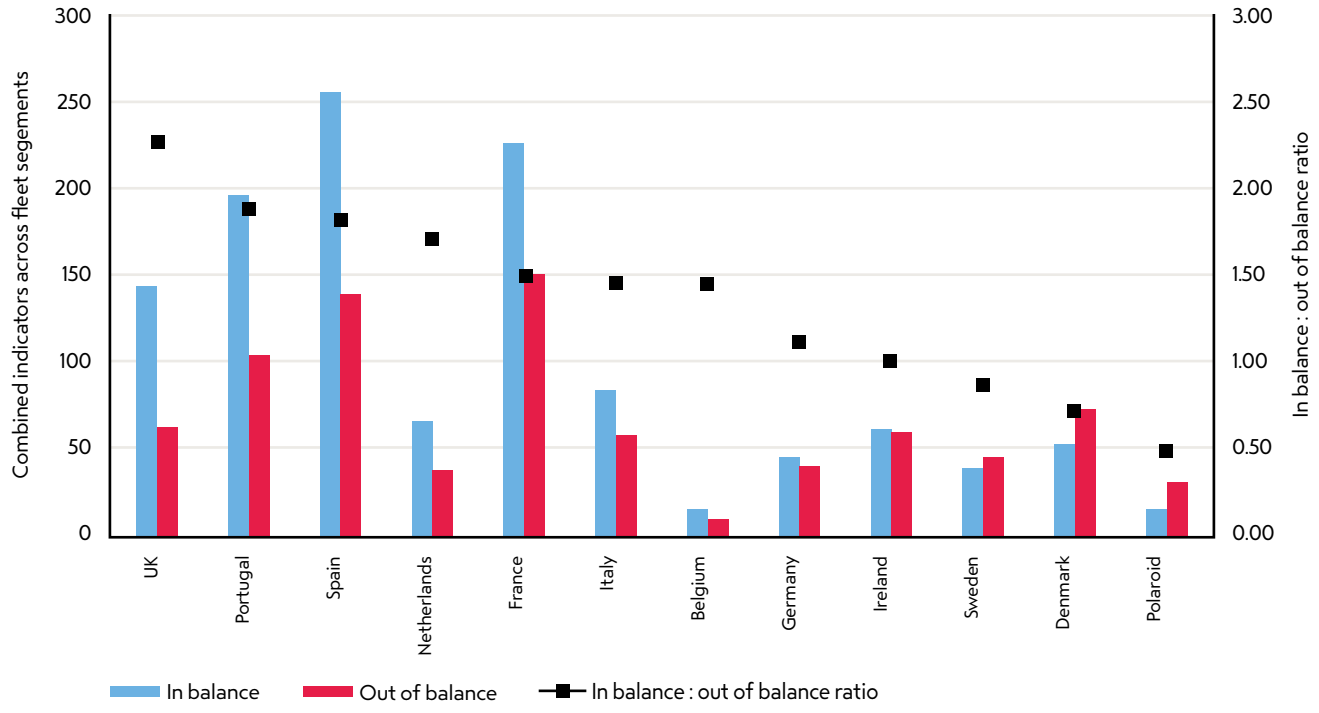
MEETS GOVERNMENT OBJECTIVES: MIXED

EU OBJECTIVES

In line with Article 17 of the CFP, in many fisheries Spain applies objective and transparent social criteria in its allocation of quotas. These include allocations based on employment and on equality where an equal percentage is allocated to all vessels. This is done to an extent not seen in any other Member States reviewed in this report. However, there is no use of environmental criteria in allocating quotas.

The capacity of the Spanish fishing fleet shows mostly positive signs of balance with the fishing opportunities available, as required under Article 22 of the CFP. Whilst there are signs that some fleets are out of balance, the indicators in the STECF report on balance capacity generally show a positive trend toward alignment, especially compared to other Member States.[18]

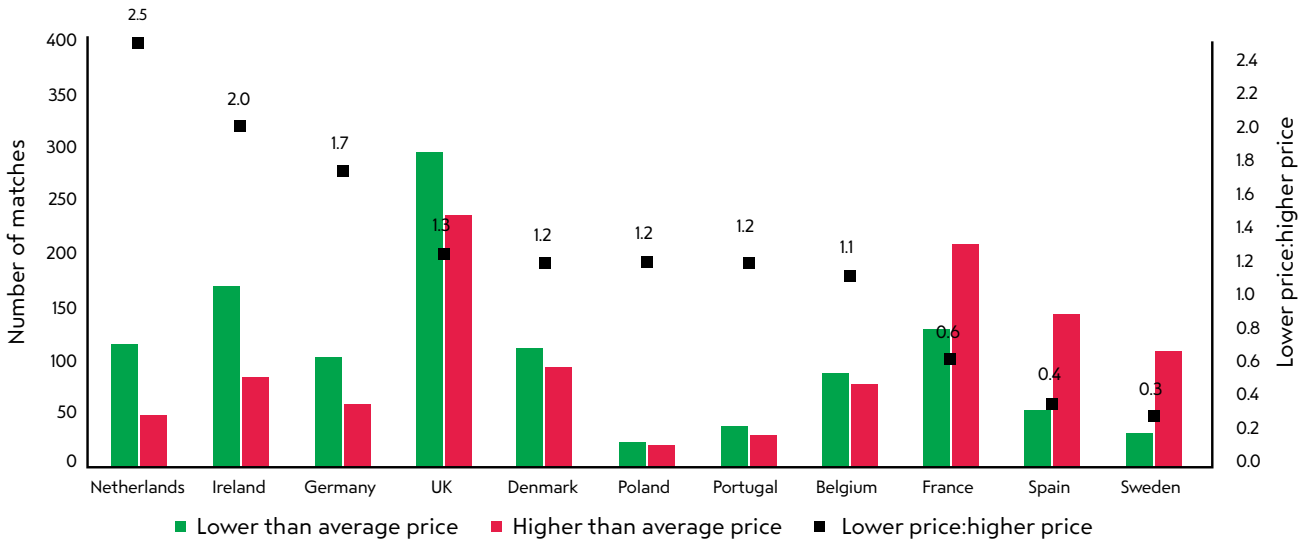
FIGURE 14.4.5: INSTANCES OF FLEET SEGMENT IMBALANCE ACCORDING TO THE STECF BALANCE INDICATORS



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.
Note: A ratio is calculated between balanced and out of balance results.

Lastly, on CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Spain has high prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings. This may indicate a lower amount of consumer surplus to buyers, although it may also indicate a difference in the quality of the product or a difference in markets.

FIGURE 14.4.6: COMPARISON OF MEMBER STATE FISH PRICES FOR THE SAME SPECIES IN THE SAME AREA



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated of instances of lower than average prices to higher than average prices.

NATIONAL OBJECTIVES

Spain's basic fisheries regulation states a number of national objectives. The objectives most closely related to managing fishing opportunities are given here:

1. 'Improving the conditions in fishing activities which are conducted, and the standard of living of fishers,' Regulation Law;
2. 'Adapt the effort of the fleet to the state of fishery resources,' Regulation Law;
3. 'To promote the development of economically viable and competitive enterprises in the fisheries sector,' Regulation Law;
4. 'To promote measures of economic and social compensation when imbalances in the regions dependent on fishing occur,' Regulation Law.

The first and third objectives are partially covered by the 'Viable' foundational objective, although there are also social conditions in fisheries that are more difficult to assess. The second objective is covered by the EU objectives (Article 22). The fourth objective is difficult to assess without an in-depth analysis of government spending in regions outside of the fisheries sector. Using compensation as an objective is an interesting departure from other Member States where either coastal communities are protected as an objective as else not specifically described.

The presence of quota reserves to pursue government objectives vary by fishery. In some fisheries, a small percentage of the overall Spanish quota is held by the fisheries ministry for in-year reallocation. In others, such as the distant water fleets, there is no such reserve.

LIMITED PUBLIC EXPENSE: MID-LOW

The costs of fisheries management in Spain are relatively low (5% of landed value) compared to the other Member States analysed.[19] Whilst relatively small, there is a commercialisation tax in place to cover the costs of running the cofradias.

Fuel subsidies for fishing are comparatively low in Spain (0.1€/litre), although there is scepticism about this data submitted by Member States. These fuel subsidies add up to a large sum (€64 million annually), especially given the high fuel intensity of fishing as an industry and the large size of the Spanish fishing sector. These fuel subsidies amount to 3% of the landed value.[20] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing and to reduce overcapacity.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: MID-LOW

Spain's allocations of quotas is explained in legislation, reports and scientific articles. However, there is no official ministry document or webpage that explains the allocation system in a clear, accessible manner. Additionally, no data is available detailing the allocation calculations or the holdings of quotas by vessel owners.

OBJECTIVE: MID-HIGH

Quantitative criteria are used in most of Spain's quota allocations. These are detailed in orders on the management of particular fisheries. These are clear and well operationalised. The basis for applying different criteria and weightings for different fisheries, and the factors which inform those decisions, are not clear.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-HIGH

Spain devolves a number of management powers to the Autonomous Communities. Moreover, POs and cofradias also play important roles in organising members' activities and managing quotas.[21] In a meta study of participatory methods in European fisheries management Leite and Pita (2016) evaluate the different mechanisms for involving fishers in decision-making. They found that in most studies on industry consultation, Spain tended used 'interactive' or 'functional' forms of participation.[22] This means that fishers involvement tended to be high, with some responsibilities shared between the administration and industry. It is unclear to what extent this also involves third parties such as local NGOs or community stakeholders.

14.5 RECOMMENDATIONS

Spain performs relatively well on our Good for Society and Good Process objectives but less well on Good for Fishers. Our indicators suggest that flexibility in quota access may be poor and the country performs relatively badly on crew wages and profitability (although this is improving). We propose a number of reforms that could help to address some of the apparent issues.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Relatively high quota infringements and discard rates suggest that the Spanish quota system could benefit from improvements in flexibility. If fishers could find a way to get rid of excess quota and obtain quota where they have a shortage, improvements might be made on our flexibility indicators. We propose the creation of an online, peer-to-peer quota swapping platform that allows fishers to make in-year swaps, that don't affect track records. These could be implemented at the fleet level to ensure quota does not leave a particular fishery.

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.

Currently in Spain, uptake of quotas is frequently less than 100% at the end of the year, so there are surplus quotas held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if exhaust their quotas for certain species. The resulting improvements in flexibility can contribute towards compliance with the landings obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over members' quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESS FOR NEW FISHERS

Currently, new fishers wishing to join the commercial fleet are required to purchase vessels with existing track records to access quotas. This creates a significant barrier to entry and has the tendency of overvaluing older vessels with larger track records. These vessel licences likely include the shadow price of quota shares. Fishers that were active during the reference period are hugely advantaged through the gifting of quotas over new fishers who often rely on inheriting a vessel licence. It cannot be justified that new fishers, accessing the same public resource, should have to pay significantly more.

Although it is difficult to facilitate new entry in a context of EU capacity reduction regulations, efforts can still be made to give new fishers a more equal initial footing. To improve access for new fishers, Spain should set aside quota in a national quota reserve for the purpose of accommodating new fishers. These quotas these could be lent to fishers for a number of years (8 years in the Danish model) that have demonstrated significant investment in the fishing industry (i.e. vessel purchase). A more equitable method would be to 'tax' quota when vessel sales take place or when vessels are removed from the fleet (the French model). Then quota shares are appropriated by the fisheries authority to be allocated to new fishers in a continual process of re-gifting, rather than in short-term loans. This initial gifting can be performed based on vessel capacity and the fishing plans of the new fishers.

ALLOCATE BLUEFIN TUNA QUOTA FAIRLY TO SMALL-SCALE FISHERS

Spain should recognise Mediterranean small-scale, passive fishers ('artes menores') as a distinct fleet segment in its allocations of bluefin tuna. Moreover, authorisations should be granted based on more comprehensive criteria, giving access also to fishers that may not have been active during a short reference period.

The significant increases in the total Spanish bluefin tuna quota in 2017 (a 20 % increase from 2016) was an opportunity to apply a more equitable allocation method, incorporating stronger social criteria, without harming any other fleet segments. All fleet segments could experience an increase in quota tonnage, whilst adjusting the shares that different fleet segments receive.

The Mediterranean small-scale fleet segment has been treated unfairly in the initial quota allocation and continues to be penalised. The fleet segment should receive higher bluefin tuna allocations, even without applying additional social and environmental criteria. Going further and applying Article 17 criteria of the CFP to recognise environmental and social impacts would likely result in even larger quota allocations to small-scale fishers.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly whilst little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landings obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[23]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at €0.10 per litre for Spain is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears - which tend to have higher impacts on marine habitats[24] - use the most fuel per landed value, whilst pots and traps use the least.[25] This variance in fuel use is an important price signal that should be reflected in the price of fish.[26] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[27]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

MAKE QUOTA ALLOCATION MORE TRANSPARENT

The allocation mechanism is not sufficiently explained in publicly available documents and no public register of quota ownership exists. This makes the process opaque and closed off from proper scrutiny to the wider public. We suggest that more information should be provided detailing the allocation mechanism. The outcomes of these allocations should be made publicly available in a quota register. The same applies to POs, which have been given a public mandate to manage quotas.

14.6 CONCLUSIONS

Spain allocates quota according to multiple criteria on a fishery by fishery basis. Quotas are legally transferable, although formal ITQ systems are in place in only a few cases. Our analysis shows that Spain has mixed performance across our foundational objectives. Despite transferability being permitted, our indicators suggest fishers do not have flexible quota access. Entry for new fishers is difficult and currently viability is low, but is showing improvements with profits rising over the past years. Spain performs well on equity and public ownership, albeit with some caveats. Based on our assessment of available information and input from interviews, we recommend that Spain:

- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Improves access for new fishers either through lending or granting quota to young fishers wishing to enter the industry;
- Allocates bluefin tuna more fairly to small-scale fishers in the Mediterranean through recognising them as an eligible fleet segment and providing allocations;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Improves transparency in its allocation method and publishes a quota share register.

Although a landings tax and cutting fuel tax exemptions may increase costs for the fishing industry, it would reduce the government's financial burden and encourage more efficient and less fuel-intensive activities. At the same time, improving flexibility through a swapping system may lead to higher quota utilisation and improved economic viability. Taken together, these recommendations could transform the Spanish fishery whilst also keeping the general system structure and its current advantages intact.

---

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

3 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

4 The internal waters are those placed within the straight baselines established in Decree 2510/1977, of August 5 (B.O.E. No. 234 of 30 September). This concept of inland waters is the same in the Convention on the territorial sea and contiguous zone in Geneva of 29 April 1958 and the United Nations Convention on the Law of the Sea of 10 December 1982.

5 General Fisheries Commission for the Mediterranean. (2016). The State of the Mediterranean and Black Sea Fisheries. Rome: Food and Agriculture Organization of the United Nations. Retrieved from http://www.fao.org/3/a-i5496e.pdf

6 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf

7 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

8 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015.

9 Carpenter, G., & Kleinjans, R. (2015). Landing the blame: Overfishing in European waters 2001-2015. London: New Economics Foundation. Retrieved from https://www.researchgate.net/publication/281450725_Landing_the_blame_overfishing_in_EU_waters_2001-2015

10 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

11 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

12 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

13 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

14 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

15 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

16 Guzmán, M.A. (2016). Question for written answer to the Commission. Parliamentary questions. Retrieved from http://www.europarl.europa.eu/sides/getDoc.do?type=WQ&reference=E-2016-009359&format=XML&language=EN

17 Low Impact Fishers of Europe (LIFE). (2017). 11 Years Awaiting in Vain for a Fair Quota Allocation. LIFE. Retrieved from http://lifeplatform.eu/11-years-awaiting-vain-fair-quota-allocation/

18 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf

19 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

20 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

21 Aranda, M. & Murillas, A. (2015). Allocation of fishing possibilities, incentives and outcomes: Insights from Basque fishermen's organisations in Spain. Marine Policy, 61, 171-178. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X15002250

22 Leite, L., & Pita, C. (2016). Review of participatory fisheries management arrangements in the European Union, Marine Policy, 74, 268-278. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X16304742

23 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

24 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

25 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

26 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

27 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

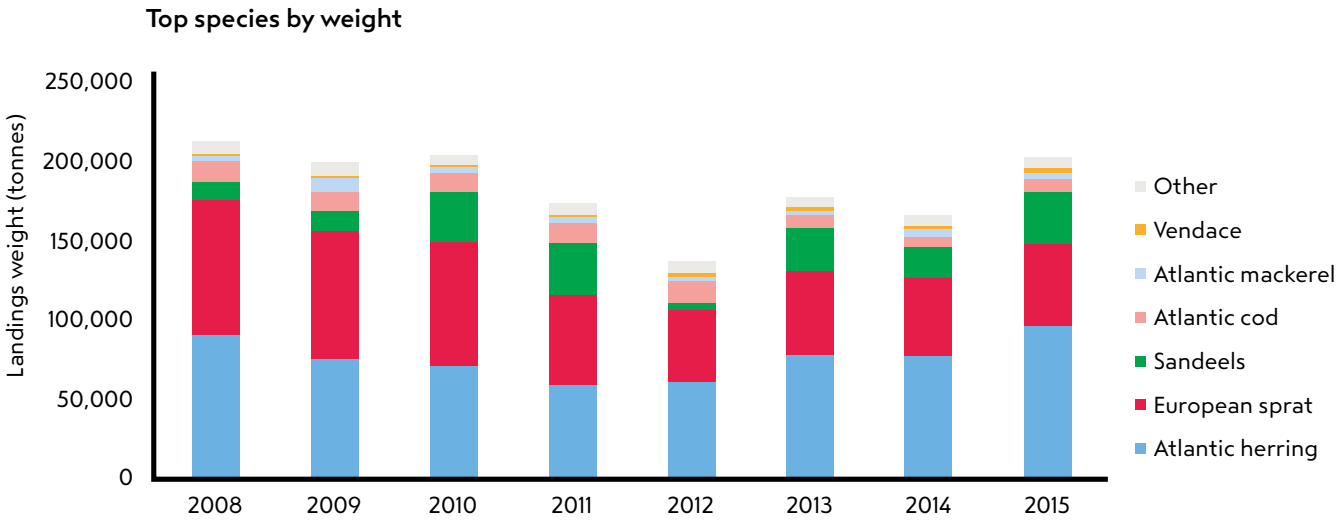
The Swedish fishing industry is centred around its west coast but also has fishing activities in the Baltic, targeting major pelagic and demersal stocks as well as shellfish such as Norway lobster and prawn. Sweden has a system of transferable quotas in place for its large-scale pelagic operations and is trialling a variation in the demersal sector in 2017. Fishers with passive gear types are under separate, non-transferable quota management.

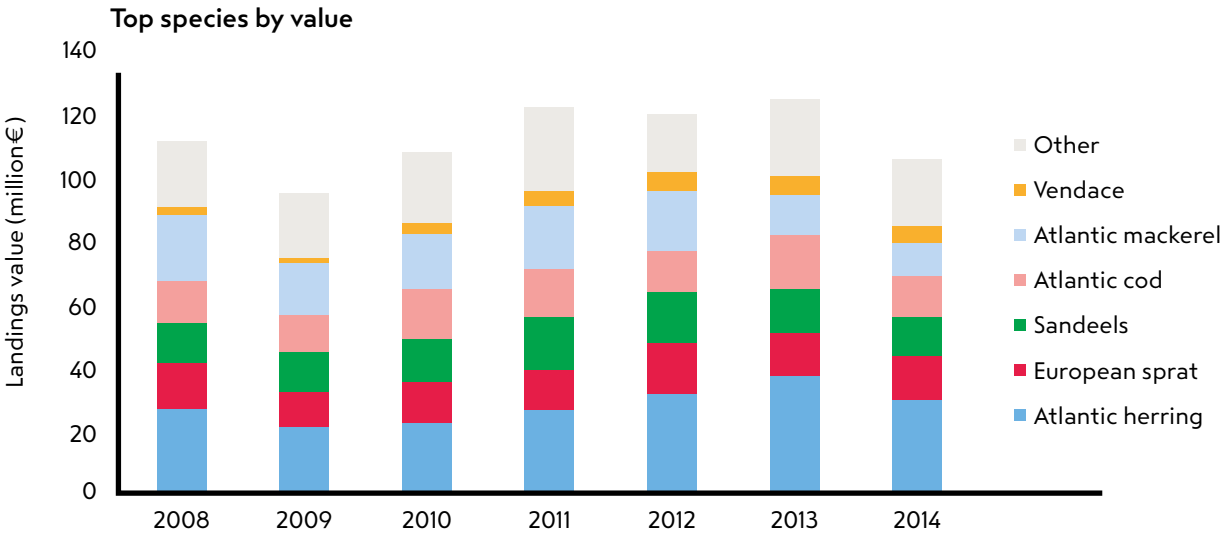
To assess Sweden's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. Ongoing reforms mean that some of our indicators are out of date, yet our analysis suggests that Sweden performs well on Good Process. However, further improvements can be made by fully implementing Article 17 of the CFP and reducing management costs which are currently amongst the highest of the countries studies.

15.1 INTRODUCTION AND BACKGROUND

Sweden's fishing industry is centered around its West coast, in particular Västra Götaland, but also fishes commercially in the Gulf of Bothnia, the Baltic Sea, and the North Sea. Sweden has a small fishing sector with 1,335 registered commercial vessels in 2015 employing 1,568 fishers. Over the past two decades the Swedish industry has shrunk significantly, with 1,000 fewer vessels since 1995. Recently, the Swedish sector has also been hit by low quotas due to the poor biological status of a number of stocks (including cod) as well as low market prices.[1] Despite this, 2015 showed strong improvement in terms of landed weight and value (Figure 15.1.1). Profitability is mixed, with some fleets, like the large-scale pelagic fishers, doing very well, whilst others, like Baltic cod fishers, making losses.

FIGURE 15.1.1: SWEDEN'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE

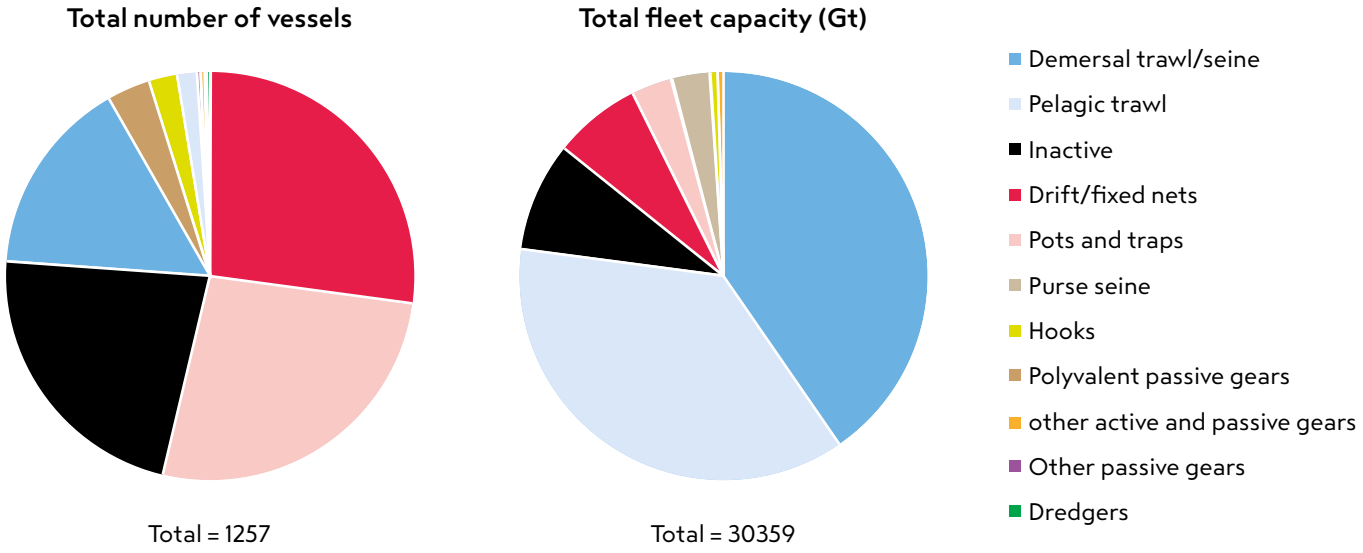




Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Herring, lobster and prawn constitute over half of Sweden's landed value, and herring, sprat and sandeel make up 90% of the total landed weight. The sector can be divided into three size segments that target mostly similar stocks. The under 12 metre segment mainly uses passive gears such as gillnets to target cod and herring and pots to fish Nephrops and crab. The medium sized vessels (12-24 metres) target cod, Norway lobster, shrimp and herring, mainly in the Baltic Sea using mid and bottom otter trawlers. The larger vessels (over 24 metres) use midwater trawls and purse seines to target North Sea sandeel and herring and sprat in the North Atlantic and Baltic Sea.

FIGURE 15.1.2: SWEDEN'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

As Table 15.1.1 illustrates, since 1995 all three segments have shrunk considerably, with the mid-sized fleet more than halving in capacity. This significant structural change can be attributed to overinvestment and subsequent overcapacity in the 1980s and 1990s followed by overfishing and reductions in total allowable catch (TAC).[2]

TABLE 15.1.1: SWEDEN'S FLEET COMPOSITION BY LENGTH CLASS IN 1990 AND 2015.

Year	Length Class	Number	Capacity (1000Gt)
1995	U12m	2054	8.534
	12-23m	335	20.517
	>23m	121	29.359
	Total	2510	58.41
2015	U12m	1164	5.044
	12-23m	130	7.652
	>23m	41	16.831
	Total	1335	29.527

The next sections of this chapter will describe and analyse Sweden's fishing opportunities. The approach taken will be as follows: Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and the Sweden's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

15.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management (RBM)
Types of fishing opportunities:	Individual (transferable) quotas, national quotas, rationed quotas
Main allocation criteria:	Historical catches
Differentiation in allocation:	Pelagic, demersal, and coastal
Landed weight under quota management:	99% [3]

OVERVIEW

Most of Sweden's main commercial fisheries are for species managed through EU TACs and thus under national quota management. Major pelagic stocks are managed through a system of individual transferable quotas (ITQs). From 2017 onwards a new IQ system was introduced to cover demersal stocks as well, replacing the system of weekly quota rations. Some have referred to it as a pilot ITQ system that does not (yet) include full ITQ features such as the permanent transfer of quota shares (see below).

Small-scale and passive fishers operate outside of the I(T)Q system and access a quota pool or quota rations, depending on the fishery. Sweden complies with the EU entry-exit scheme preventing additional capacity being added to the system. Licensing is restricted and dependent on fulfilling a number of criteria related to fishing experience and proving an economic link to the country. Some spatial restrictions are in place, including limits for towed gears and in the management of Norway lobster.

GOVERNANCE

The Swedish Agency for Marine and Water Management (SwAM) under the Ministry of Enterprise and Innovation is responsible for most aspects of fisheries management. It has a broad ranging mandate and is closely involved in day-to-day control and management. There are a number of producer organisations (POs) in Sweden, but these organisations do not have a role in managing fishing opportunities, as is the case in some other EU Member States. The POs are involved in marketing and political decision-making and are federated in the Swedish Fishermen's Association. The agency is trialling a number of co-management projects involving non-quota species. These projects consist of local industry representatives and are granted legal competences to control fishing activities in specified territories – a form of territorial use right. Lastly, county administrations work on regional fishing issues and are involved in licensing.

SWEDEN'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	National / Rationed
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: ITQs | Coastal fleet | All

This table summarises five key features of Sweden's quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

The Swedish quota system is differentiated between stocks inside and outside the ITQ system. For ITQ stocks (major pelagic and demersal species), allocation is performed on the basis of historical catch records. For non-ITQ stocks, quotas are held as a national pool or rationed

HOLDER

For ITQ stocks, quota is attached to vessel licences. For other stocks, quota is held collectively by the ministry.

TRANSFERABILITY
Pelagic ITQs are fully transferable, subject to ministry approval and concentration safeguards. Demersal quotas can be transferred during the year but vessel track records are not affected in the following year's allocation. Other quotas are non-transferable.

SECURITY
ITQs in the pelagic system apply for a 10 year period since introduction in 2009. After this period, quotas may then be reallocated. For other quotas, fishers have no specified sustained right to quota access.

DURATION
ITQs apply for the quota year, non-ITQ pelagic quotas last until full utilisation and demersal quotas are rationed on a weekly basis.

QUOTA ALLOCATION

Quota allocation is differentiated between pelagic and demersal stocks and between the large-scale and coastal fleets. Different rules apply for each of these sectors.

PELAGIC ITQS

The pelagic ITQ system was introduced in 2009 for major pelagic stocks including mackerel, herring, sprat, blue whiting and sand eel that are fished by over 12 metre vessels. The quota allocation for these stocks have been grandfathered in a one-off manner based on historical catch records from 2004 to 2006. In this system, national TACs are directly allocated to fishers based on their ITQ holdings, including quota transfers. This initial grandfathering applies for a period of ten years, after which allocation will be reviewed by the ministry. Despite this 10-year validity period, the authorities may make adjustments in allocation before the end of the period.

DEMERSAL IQS

The demersal IQ system was introduced at the start of 2017, mainly in response to changing regulatory needs with the EU landing obligation coming into force. Allocation is based on vessels' historical landings during 2011-2014, with landings for the worst year not accounted for. All vessels that use active gears to target demersal species are in the demersal IQ system. They all receive a minimum 1200kg quota underpinning, regardless of historical landings. A starter allocation of quotas will be provided, where quota availability permits. Shrimp in Kattegat and Skagerrak are rationed to vessels in two different classes based on historical landings.

COASTAL FLEET

For stocks not under ITQ management or those fished by under 12 metre vessels and vessels with passive gears (coastal fleet), quotas are allocated as pooled and rationed quotas. A share of the national quota is reserved for the coastal fleet that are rationed in the case of demersal stocks and accessible as a national quota for pelagic species. This quota is also available for new fishers who wish to enter the coastal fleet.

FIGURE 15.3.1: TYPES OF QUOTAS BY FLEET SEGMENT

STOCK VESSEL SIZE	OVER 12M/ACTIVE	UNDER 12M/PASSIVE
Pelagic stocks	ITQs	National/rationed quota
Demersal stocks	IQs	National/rationed quota

QUOTA RULES

PELAGIC ITQS

For stocks under the pelagic ITQ system, individual fishers can hold, transfer, and lease quotas. Full transfers of ITQ ownership are subject to SwAM approval. Measures have been put in place to reduce quota consolidation, including the following: a percentage of Baltic ITQs are reserved for Baltic vessels and any one operator cannot hold more than 10% of the quota for a particular stock. Additionally, each operator cannot hold ITQs on more than two vessels.

DEMERSAL IQS

The demersal IQ system only allows for temporary (in-year) transfer meaning that it cannot be classified as a full ITQ system. Any transfers that take place are only valid for the remainder of the year and subsequent allocation is not altered. Transfers require authorisation from the Marine and Water Authority which considers whether transfers are consistent with the implementation of the landing obligation. Additionally, concentration caps exist for most stocks, outlawing licence holders to possess more than a certain percentage of the total quota. These caps range between 4% and 15% of the national quota. In the case of shrimp, quotas can only be transferred between similar classes that are based on vessel sizes.

COASTAL FLEET

Quota in the national pool is reserved for coastal (under 12 metre and passive) fishers and is ringfenced from larger vessels in the IQ system. In the case of cod and mackerel quotas are rationed to vessels on a bi-weekly basis. Other species for coastal fishers are accessible in the form of a national quota. None of these quotas are transferable.

OTHER FISHING OPPORTUNITIES

Norway lobsters are managed under gear restrictions where fishers can place a limited number of pots. Additionally, open and closed seasons are applied to limit fishing.

15.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of Sweden against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 15.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

NATIONAL OBJECTIVES

The Swedish National Strategic Plan for the fisheries sector 2007-2013 was designed around several strategic objectives:

- To achieve the established environmental objectives by means of an eco-system based approach in management;
- To develop rural areas and create and maintain employment;
- To improve the profitability of enterprises in the fisheries sector;
- To increase understanding, knowledge and experience exchange;
- To have well-informed consumers.

ENVIRONMENTAL PROTECTION AGENCY, 2017:

- Balanced Marine Environment
- Cultivation and conservation of coastal heritage

SWEDISH AGENCY FOR MARINE AND WATER MANAGEMENT

Objective of the new demersal and shellfish quota system:

- Successfully implement the landing obligation

METHODOLOGY

Table 15.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 15.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for Fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers

Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

15.4 ANALYSIS

This section will assess the performance of the Swedish system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request.

The Swedish system of fishing opportunities is currently undergoing significant reform. In light of this, measuring current performance is already dated, although it does give an indication if recent reforms are tackling the most prominent issues. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

TABLE 15.4.1: PERFORMANCE OF SWEDEN'S SYSTEM OF FISHING OPPORTUNITIES

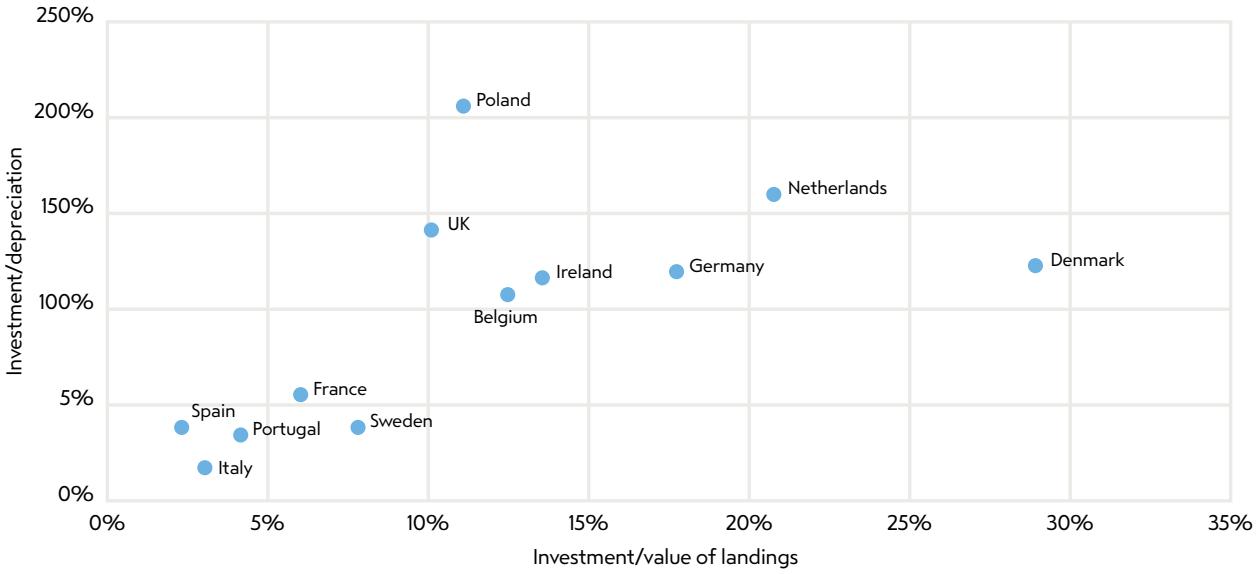
Category	Objectives	Rating
Good for Fishers	Secure	Mixed*
	Flexible	Mixed*
	Accessible	Mid-low*
	Viable	Mixed
	Equitable and fair	Mid-high
Good for Society	Publicly owned	Mid-high
	Meets government objectives	Low
	Limited public expense	Low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mid-low*
	Objective	Mid-high
	Right governance level and representative	High

** in flux*

SECURE: MIXED/IN FLUX

The security of fishing opportunities in Sweden has mixed performance across the different measures used. There appears to be confidence in the short-term security of quotas as there are few instances of 'race to fish' behaviour and not many fishery closures relative to other Member States.[4] However, the long-term security of quotas is less certain as investment is low.[5] This could be due to the rationed quota allocation system in demersal fisheries that did not provide fishers with fixed, long-term fishing opportunities.

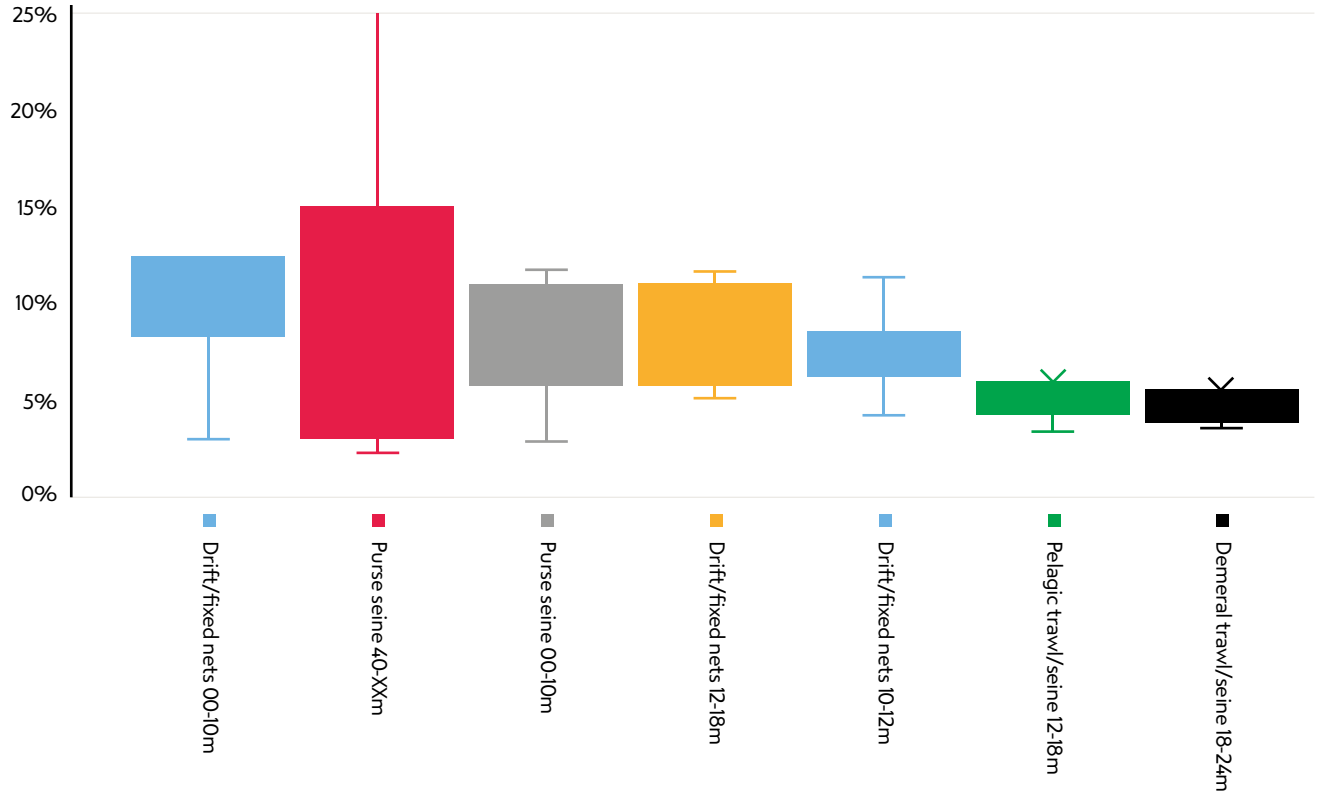
FIGURE 15.4.1: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Whilst the Swedish fishing industry is characterised by a mixture of fishing fleets with a spectrum of performance, investment as a percentage of landed income is relatively low for every fleet segment.[6] Unfortunately, the classification of fleet segments in the Data Collection Framework does not distinguish between pelagic and demersal fleets, which is a particularly important distinction for the Swedish sector.

FIGURE 15.4.2: INVESTMENT CONFIDENCE MEASURED BY INVESTMENT AS A PERCENTAGE OF FLEET DEPRECIATION AND VALUE OF LANDINGS

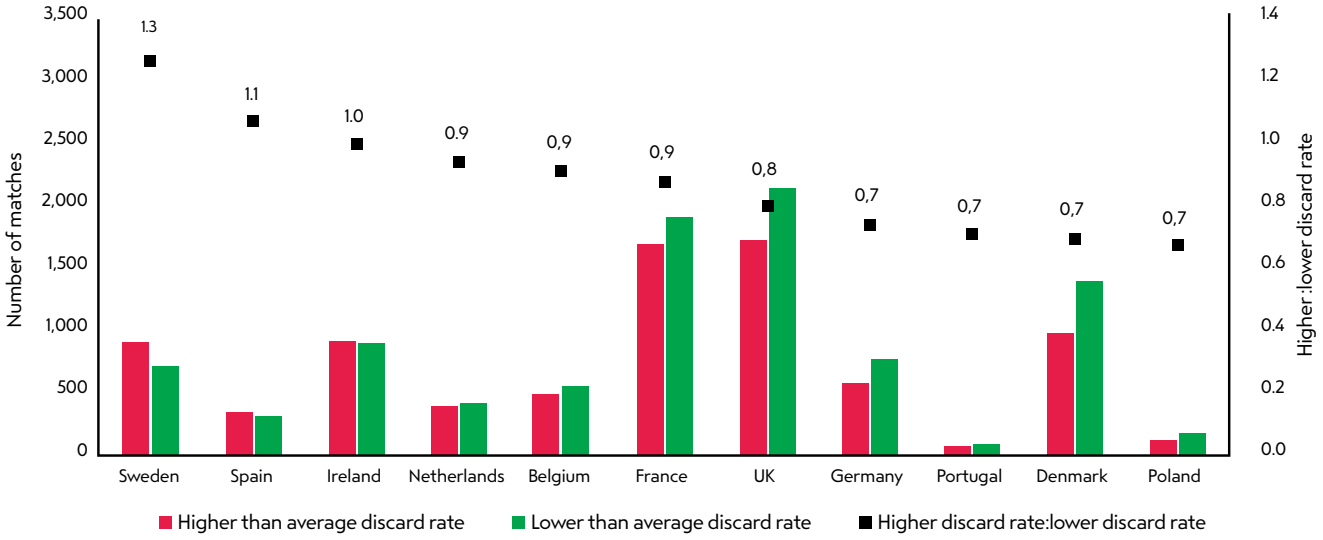


Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

FLEXIBLE: MIXED/IN FLUX

The recent reforms to the Swedish quota system were made in large part to address flexibility, specifically because of the challenges of the landing obligation and the need for fishers to access any available quotas to avoid a choke. It is thus not surprising that discard data shows comparatively high rates of discarding for Swedish fleets compared to fleets from other Member States using similar gears in the same areas.[7] As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

FIGURE 15.4.3: MEMBER STATE DISCARD RATE COMPARISON WITH GEAR/AREA/SPECIES MATCH



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Quota uptake in Sweden is moderate compared to other Member States fishing the same quotas, so there is potential to more fully utilise quotas in a more flexible system.[8]

Another indicator of fishers struggling with a lack of flexibility is quota non-compliance, but this does not appear to be an issue in Sweden as there are relatively few suspected infringements as a percentage of vessel inspections (1%).[9]

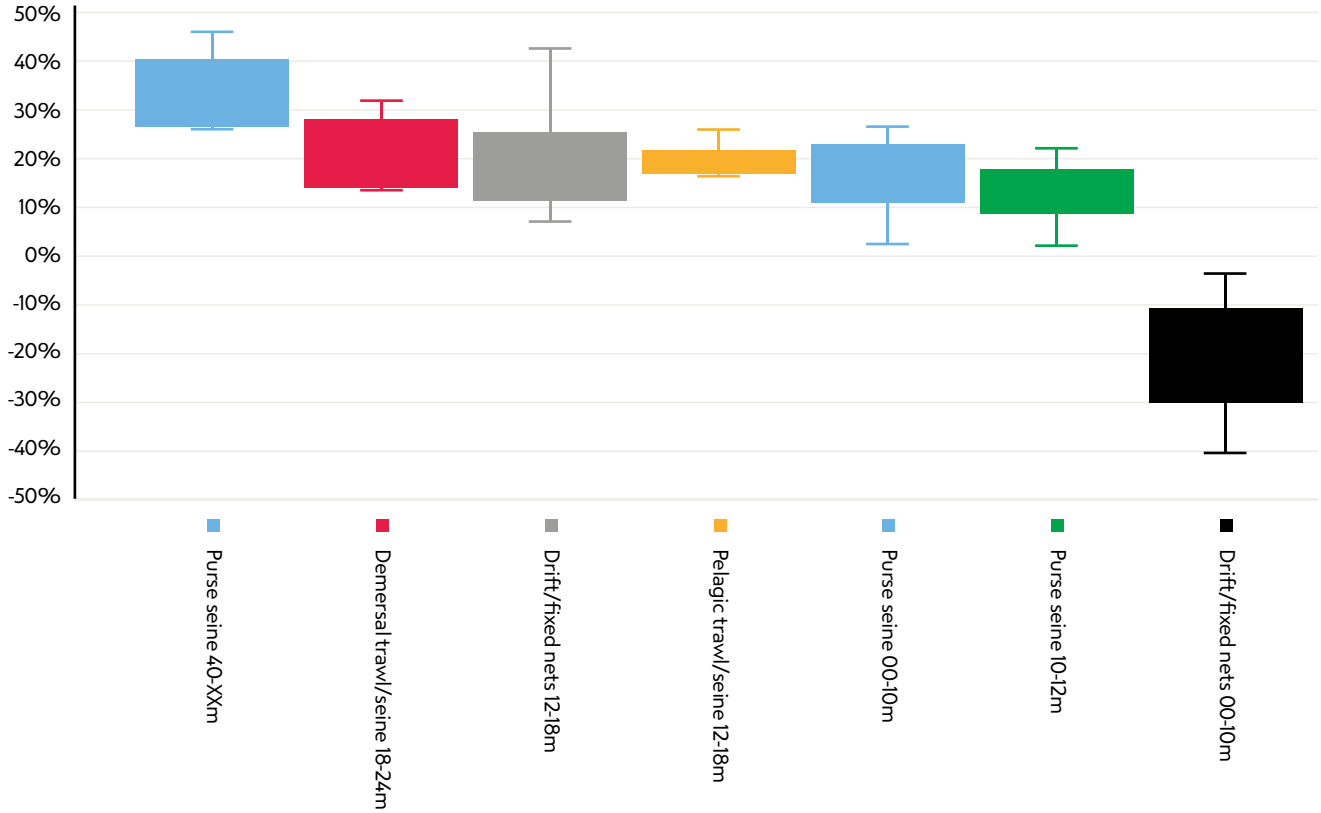
ACCESSIBLE: MID-LOW/IN FLUX

There is no specific quota reserve set aside for new fishers, however there are some ways for new fishers to get access more easily. Fishers joining the coastal fleet (where capacity controls permit) will be able to access the pelagic reserve, set aside for small-scale fishers. If they join the demersal fishery they should be able to receive quota rations, with no extra costs. The new law establishing the new demersal quota system states that starter quotas will be provided where they are available and where this does not affect the implementation of the landing obligation. It is unclear when/how quotas will be made available for starter allocations. There are no provisions in the pelagic ITQ system to accommodate new fishers.

VIABLE: MIXED

The Swedish fishing industry as a whole has high profitability, as do all of the fleets in the Data Collection Framework with the exception of the 0-10m drift/fixed nets.

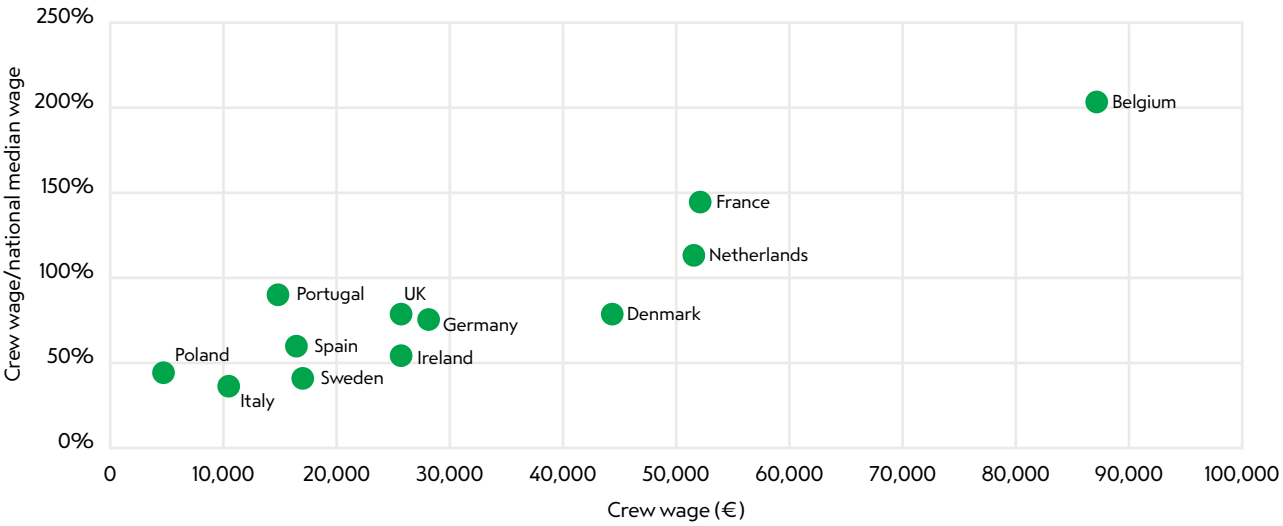
FIGURE 15.4.4: GROSS PROFIT MARGIN BY MEMBER STATES BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

Conversely, wages in the Swedish fishing industry are low compared to the national median wage and also compared to other Member States.

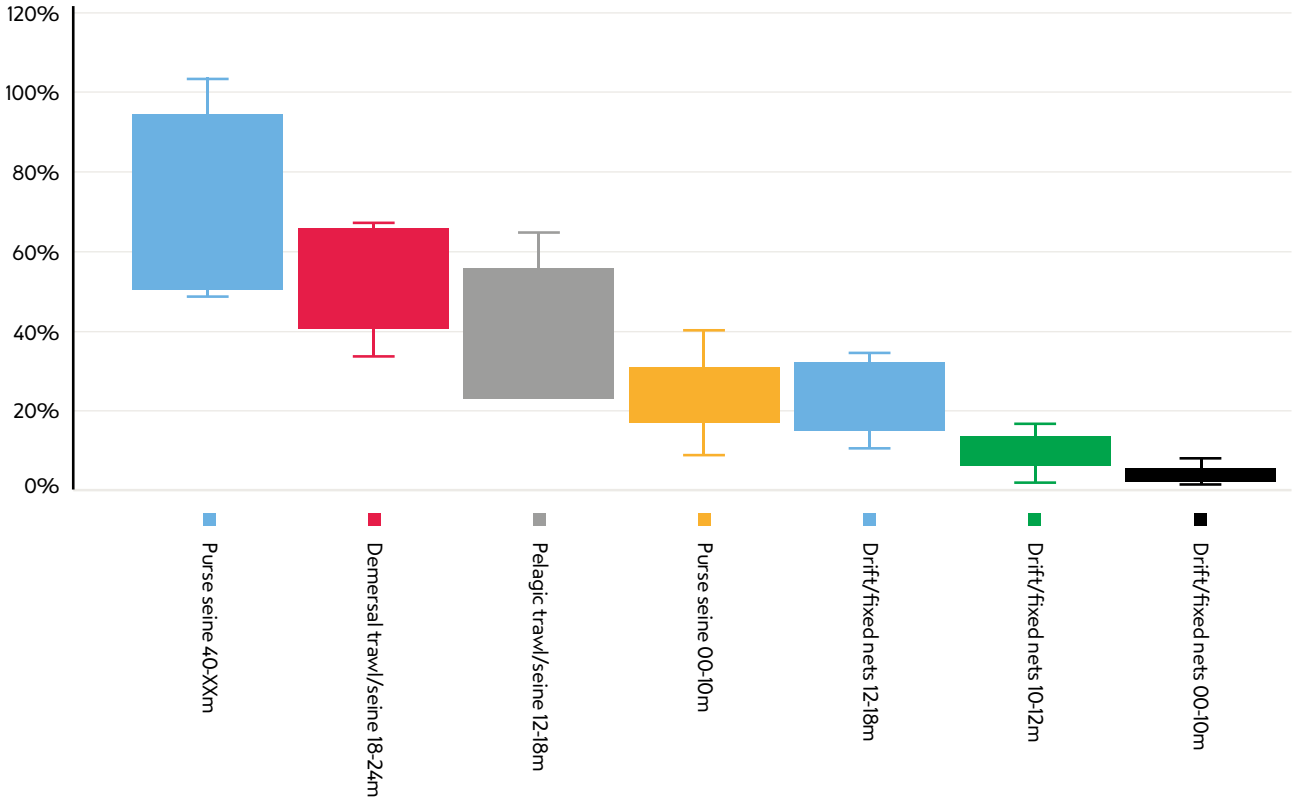
FIGURE 15.4.5: FISHING WAGE ATTRACTIVENESS BY MEMBER STATE



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database and OECD.stat. Note: Wage attractiveness as measured by crew wages as a percentage of the national median wage (y-axis) and by crew wage, € (x-axis).

At the fleet level there is a very large amount of variance in wages between the fleet segments, although even the fleet with the highest wages, the 40m+ purse seine fleet, has lower average wages than the national median wage.

FIGURE 15.4.6: CREW WAGES AS A PERCENTAGE OF THE NATIONAL MEDIAN WAGE BY FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: line= median, box = 2nd and 3rd quartiles, whiskers = range.

EQUITABLE AND FAIR: MID-HIGH

New fishers need to purchase vessels with existing quota entitlements in order to access fishing Systems based on historical quota allocation, and especially where quotas are transferable, are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period or whose landings were improperly recorded. New fishers without a track record will need to buy fishing rights or rely on special allocations. Historical allocation is highly favourable to incumbent fishers who are granted a free quota share. Sweden does have some measures, as detailed above, to limit some of these negative effects, including quotas reserved for coastal fishers and starter quotas for new fishers. Additionally, allocation in the new demersal system followed a long and comprehensive consultation with fishers to ensure issues surrounding allocation were solved proactively.

Transferability compounds this inequity as some fishers begin to rely on leasing quotas at increasing costs. Further, the concentration of quota through transfers of ownership increases market power and creates potential situations of oligopoly/monopoly in the quota market." Sweden limits these effects through concentration caps and requiring ministerial approval of transfers. In the demersal quota system, shares can only be transferred during the year, not affecting fishers' allocation in the following year. Sweden allocates favourably to the coastal fleets with nearly all vessels experiencing an uplift in the new demersal coastal quotas.[10] Coastal fishers receive equal allocations of fishing opportunities, with no individually differentiated allocation.

PUBLICLY OWNED: MID-HIGH

There are no easily identifiable official statements on the proprietary status of fishing opportunities. However, from government actions to reallocate quotas with no legal objections, it is clear that quotas are not considered as private possessions. In the pelagic ITQ system quota shares have a validity period of 10 years. This shows that they are not property rights allocated in perpetuity and are ultimately managed by the government.

MEETS GOVERNMENT OBJECTIVES: LOW

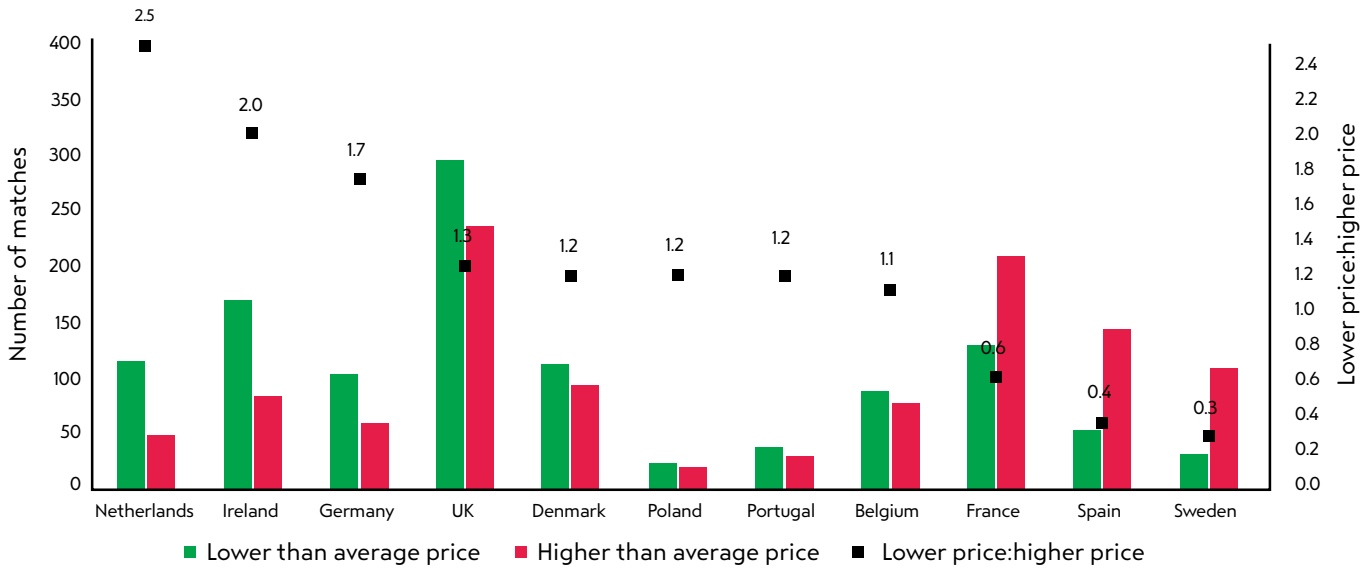
EU OBJECTIVES

Article 22 of the CFP requires Member States to balance fleet capacity with the available fishing opportunities – an elaboration of objective 2.5(d). However, there are indications of imbalance in the Swedish fleet, particularly when compared to other Member States, according to the latest STECF report on balance indicators. This imbalance is largely in the drift/fixed net fleet, although many fleet segments are showing a trend towards less balance, not more.[11]

Sweden performs few allocations on the basis of social or environmental criteria as stipulated by Article 17 of the CFP and covered in objective 2.5(i). It does reserve quotas, in a favourable manner, to coastal fishers which can be considered as demonstrating social concerns. However, this is not the same as integrating social criteria in the primary allocation mechanism. Fishers using selective grids were granted supplementary quota as part of the new demersal quota system. This is a positive move towards using quota allocation to improve environmental performance.

Lastly, on CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, Sweden has the highest prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings. This may indicate a lower amount of consumer surplus to buyers, although it may also indicate a difference in the quality of the product or a difference in markets.

FIGURE 15.4.7: COMPARISON OF MEMBER STATE FISH PRICES FOR THE SAME SPECIES IN THE SAME AREA



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated of instances of lower than average prices to higher than average prices.

NATIONAL OBJECTIVES

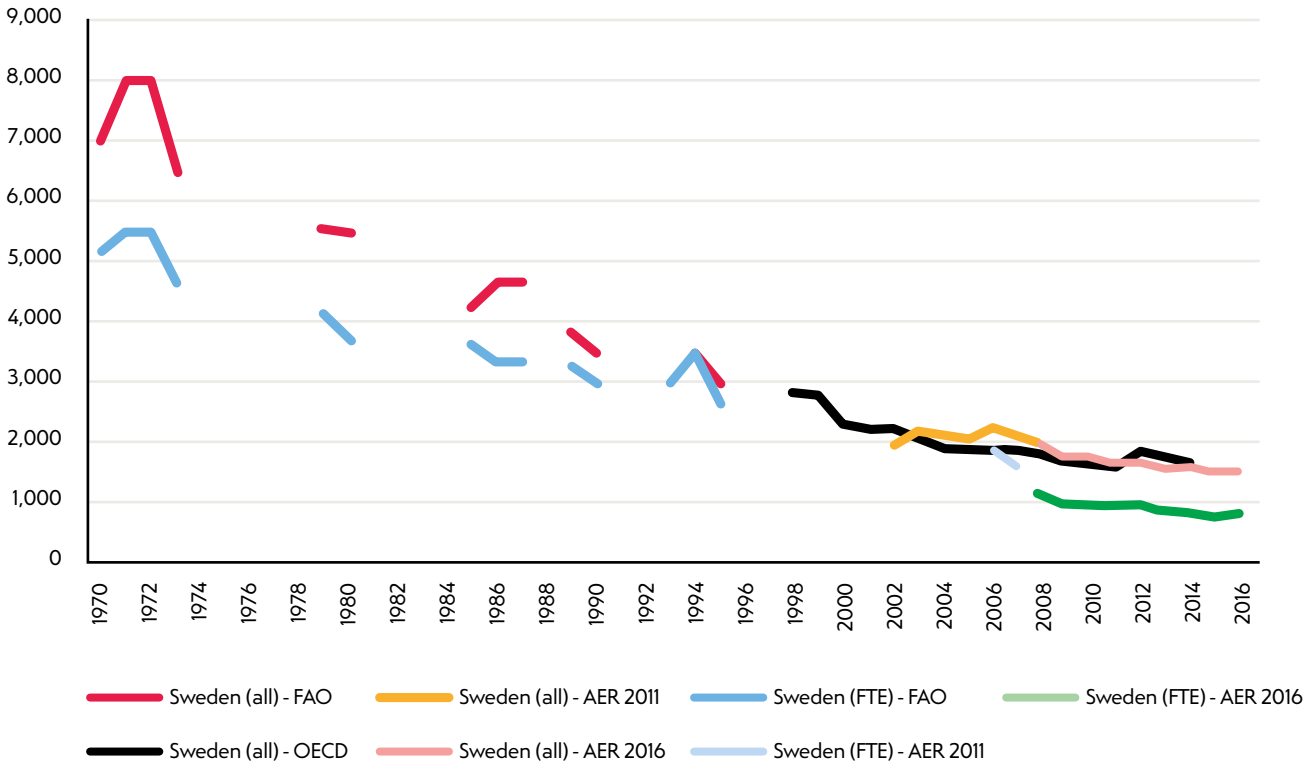
Defined national objectives for fisheries are both sparse and dated for Sweden, despite currently going through a process of management reform. The objectives relevant for an analysis of the allocation of fishing opportunities:

1. 'Develop rural areas and create and maintain employment,' National Strategic Plan;
2. 'To improve the profitability of enterprises in the fisheries sector,' National Strategic Plan;
3. 'Cultivation and conservation of coastal heritage,' Environmental Protection Agency.

Whilst the second objective is covered by the 'Viable' foundational objection, there is an additional aspect covered in the first and third objectives about maintaining employment and heritage in coastal communities. Data on fisheries employment in Sweden shows a long-term decline in employment, similar to other EU Member States.[12]

In addition, the EU Fleet register shows that many ports are close to disappearing, although this dataset only records where vessels are registered, not necessarily where they land.[13]

FIGURE 15.4.8: EMPLOYMENT IN THE SWEDISH MARINE FISHING INDUSTRY SINCE 1970



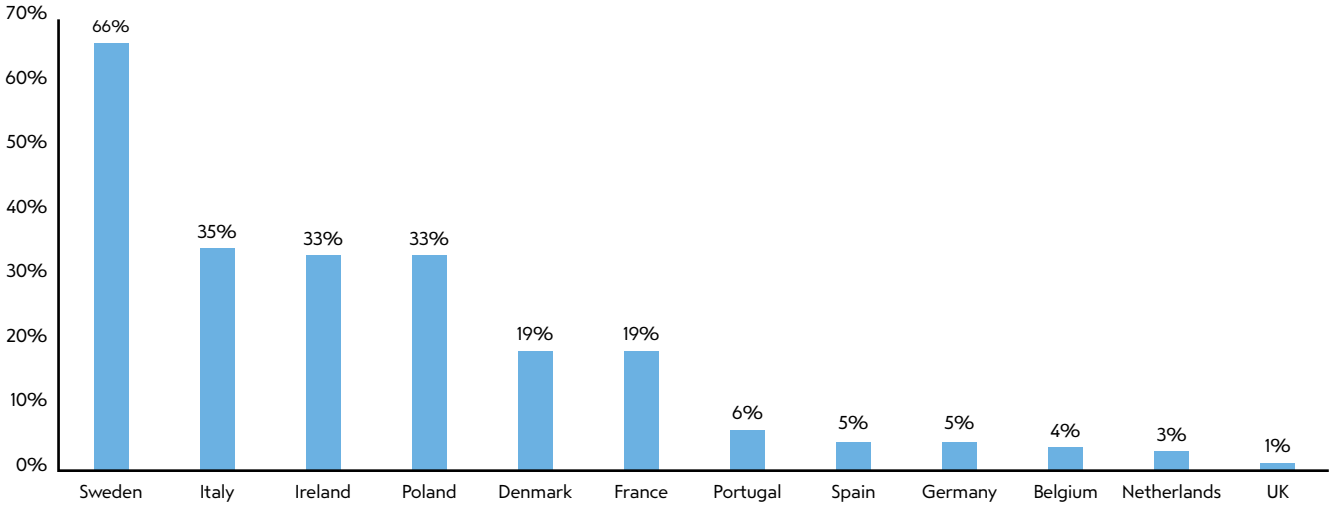
Source: Authors' calculations using data from the Food and Agriculture Organization (FAO), Organisation for Economic Co-operation and Development (OECD), and Scientific, Technical and Economic Committee for Fisheries (STECF).

Sweden does not have a designated quota reserve that can be used to pursue objectives.

LIMITED PUBLIC EXPENSE: LOW

The costs of fisheries management in Sweden are the highest of all EU Member States in this report (66% as a percentage of landed value),[14] although it is unclear why this should be the case. There is no system of direct revenue collection from the fishery to pay for management costs. Reduced management costs are sometimes used as an argument for ITQ systems, so if this is reflected in Sweden it may end up being an important secondary benefit of the recent reforms.

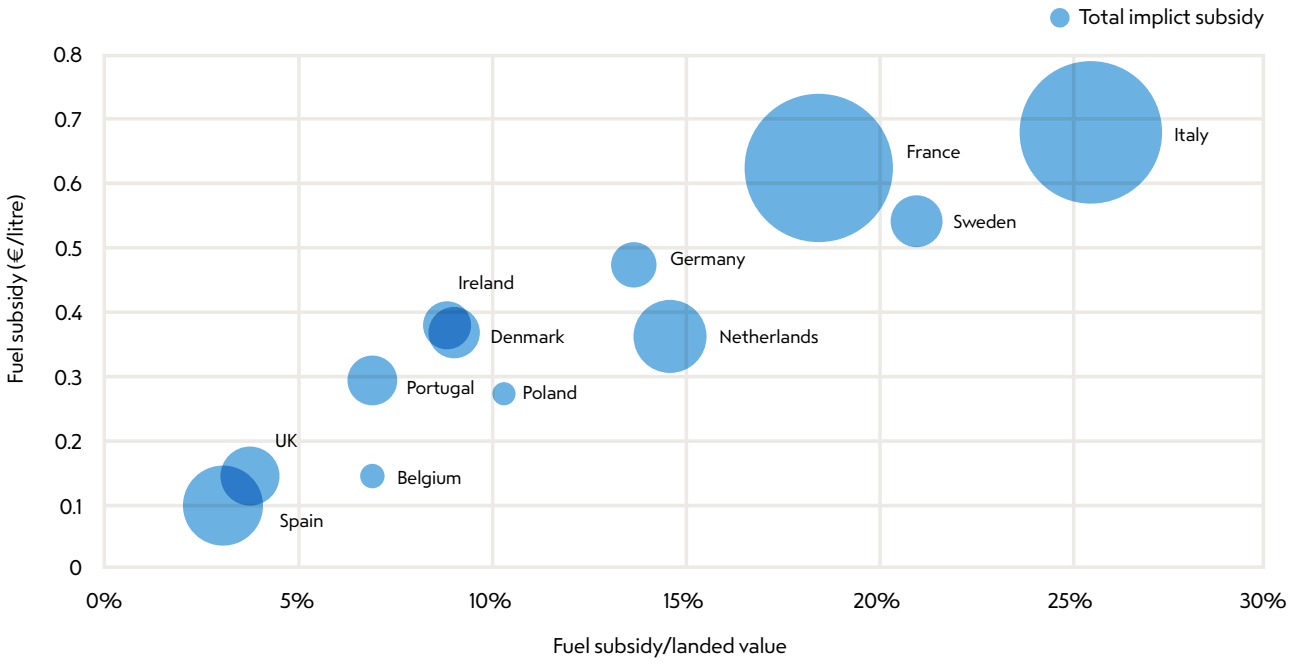
FIGURE 15.4.9: NATIONAL GOVERNMENT EXPENDITURE ON FISHERIES MANAGEMENT AS A PERCENTAGE OF LANDED VALUE



Source: Authors' calculations based on OECD.stat and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Fuel subsidies for fishing are very high in Sweden (0.54€/litre). As fishing is one of the most fuel intensive industries, these subsidies sum to large amounts in Sweden (€22 million annually), particularly when compared to the size of economic output from the industry (21% of landed value).[15] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

FIGURE 15.4.10: IMPLICIT FUEL SUBSIDY BY MEMBER STATE MEASURED IN EUROS PER LITRE OF FUEL AND AS A PERCENTAGE OF TOTAL LANDED VALUE OF THE NATIONAL FLEET.



Source: Authors' calculations based on European Parliament report and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: MID-LOW

Quota allocation is described in legislative documents, reports and also on webpages of the Agency for Marine and Water Management. The information provided by the agency is fairly comprehensive but lacks detail in some areas. There is also no publicly accessible register of individual quota holdings.

OBJECTIVE: MID-HIGH

Allocation is mostly based on historical track records which is an objective allocation method. Sweden sometimes carries out reallocations, in particular in favour of the small-scale pools in cases of shortage. It is not known whether these reallocations are based on objective criteria.

RIGHT LEVEL OF GOVERNANCE AND REPRESENTATIVE: HIGH

In the reform of the demersal quota system process Sweden, facilitated by NGOs and fishers themselves carried out an extensive consultation exercise. This included meeting fishers in their locality and deliberating on issues collectively. This form of participative stakeholder involvement is beneficial for making the system legitimate amongst fishers and practically well designed.

A comprehensive meta analysis on participative fisheries management in the EU identified nine examples of co-management. These were classified as involving 'functional' and 'interactive' participation. This indicates the widespread use of consultation in Sweden.[16]

15.5 RECOMMENDATIONS

With major reforms taking place in 2017, many of our indicators will not reflect the performance of the new system. Despite this, we can still offer a number of reforms that are aimed at making improvements that the current reforms do not address. These include introducing a peer-to-peer swapping system, fully implementing Article 17 of the CFP, applying a landings tax and cutting fuel subsidies and improving transparency on quota ownership.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

Our indicators show a mixed picture for Sweden's level of flexibility, however this should improve with the new demersal IQ system. A peer-to-peer, online swapping system could supplement ITQ transfers by providing a simple platform for short-term quota swaps, when a financial transaction is not necessary.

In an online peer-to-peer exchange, fishers can list the quotas they have in excess, the quotas they are trying to obtain, or both. The result is an online (non-monetary) marketplace with a search function to help fishers create a match. Examples of online peer-to-peer exchange is found in New Zealand (FishServe - www.fishserve.co.nz) and Denmark (Puljefiskeri - www.Puljefiskeri.dk), although these systems extend to quota exchange as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year fishing. Throughout the economy, many industries have been transformed by online peer-to-peer exchange systems and fisheries is particularly well placed to benefit. Fishing vessels are extremely heterogeneous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target – so in-year quota swaps could ensure these differences in fishing patterns are supplied with the quotas they need. By responding to the heterogeneous nature of this fishing fleet and fishing patterns, overall catch per unit of effort can also be increased.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN THE ALLOCATION METHOD

Currently Sweden does not include objective social and environmental criteria in its method of allocation. Although reserves in the coastal fleet provide fishers with a reserved amount of quotas that is equally accessible, social and environmental criteria are not included in allocations to the large-scale fleet. This is with the notable exception of supplementary quotas for fishers using 'grids' to improve selectivity. Apart from that, allocation for large-scale vessels is predominantly based on the basis of historical track records.

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to public objectives. There is no reason to expect quota systems allocated based solely on historical track records to tend towards achieving many important objectives. Instead, policies must bring about this change through changes in quota allocation that incentivise change in fishing practices in this direction. This issue is especially pronounced for unconstrained ITQ systems that are blind to social and environmental externalities and may exacerbate inequities in fishing access and trade-off economic outcomes like profitability with many of the other objectives defined in this report.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP but will often require substantial and difficult changes to current mechanisms. An alternative is to use a quota reserve that is used for criteria based allocations, leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) is set aside for criteria-based allocation.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[17] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms
Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years
Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years
Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs
Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

IMPLEMENT A LANDINGS TAX AND CUT FUEL SUBSIDIES

Currently, the management of the fishing industry costs more than is obtained in taxes and other revenue sources related to the industry. According to the OECD, fisheries management costs are equal to 66% of landed value in Sweden, the highest in Europe. This balance needs to shift. As fishing licences are capped, profits are increasing to high levels for some fleets whereas in an unmanaged industry new entry would drive profits down. The government should balance the costs of management with the industry and obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance resource payments with those using the resource (this would not be met by a quota auction as many species are not under quota management). As a landing obligation (the discard ban) is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, high discarding vessels would have avoided paying under a landings tax proposal any catch that was discarded at sea would not be accounted for, despite its harm to the stock. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[18]

Another change that would alter the balance of fisheries costs is scrapping fuel tax exemptions for the fishing sector. This tax exemption, set at €0.54 per litre for Sweden is an implicit subsidy for the sector and encourages more fuel use, not less. Removing the fuel tax exemption would affect fleets differently, with beam trawlers the most fuel per landed value and pots and traps using the least, but this is an important signal that should be reflected in the cost of fish. Whilst a natural capital accounting framework would hold that there should be an even higher tax on fuel to pay for climate and other damages (including leakage at sea), an obvious first step is to remove the tax exemption in a transition towards a more balanced division of costs and revenues between society and the fishing sector.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[19]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

MAKE QUOTA ALLOCATION MORE TRANSPARENT

Although information on quota allocation and news on regulatory changes is well provided for on the agency website, there is no register detailing vessels' quota holdings. Sweden should create a publicly available quota share register for the ITQ/IQ fisheries.

15.6 CONCLUSIONS

Sweden manages its pelagic fishery in an ITQ system and has recently reformed its demersal quota rationing system to IQs with leasing permitted. This reform was implemented primarily in response to the EU landing obligation coming into force. Although some of our analysis will not apply to the new IQ system, Sweden has mixed performance with significant differences between fleets and between the pelagic and demersal sectors. According to the OECD, Sweden has the highest management costs of the Member States reviewed. Based on our assessment and input from interviews, we recommend that Sweden:

- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Fully incorporates social and environmental and environmental criteria in its primary allocation method, or through using a national quota reserve;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduce fuel tax exemptions;
- Improves transparency by publishing a quota share register.

Implementing these reforms would have widespread effects on the Swedish fishery. Some reforms, such as introducing a landings tax, may increase costs for the industry. However, it is clear that with such high management costs and fuel subsidies the balance needs to shift from government to the sector.

---

1 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Organisation for Economic Co-operation and Development (OECD). 2013. Review of Fisheries: Policies and Summary Statistics. Retrieved from https://www.oecd.org/environment/oecd-review-of-fisheries-policies-and-summary-statistics-22254323.htm

3 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
Calculated result is 100%, like due to quota banking.

4 Fisheries Data Exchange System (FIDES), 2013-2015.

5 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

6 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

7 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf

8 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015.

9 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports

10 https://www.havochvatten.se/hav/fiske--fritid/yrkesfiske/nyheter/nytt-om-fiskeregler/nytt-om-fiskeregler-2013/2016-12-22-effortsystemet-upphor-och-kustkvoterna-ar-faststallda.html

11 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf

12 Authors' calculations based on Food and Agriculture Organisation (FAO). (2013). Fisheries employment. and Scientific Technical and Economic Committee for Fisheries (STECF). (2011). The 2011 annual economic report on the EU fishing fleet (STECF 11-16). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/256769/2011-11_STECF+11-16+-+2011+AER+on+the+EU+fishing+fleet_JRC67866.pdf and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

13 Authors' calculations based on European Commission. (2016). Community Fishing Fleet Register. Retrieved from http://ec.europa.eu/fisheries/fleet/index.cfm

14 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

15 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

16 Leite, L., & Pita, C. (2016). Review of participatory fisheries management arrangements in the European Union, Marine Policy, 74, 268-278. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X16304742

17 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

18 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

19 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf


SM300
SM300

The UK has a large and diverse fishing fleet with the most significant operations based in Scotland and inshore operations around the English coast. The most valuable fisheries are in mackerel and shellfish such as Norway lobster and scallops. The UK has a quota system covering 77% of the UK's landings that involves producer organisations and the four UK administrations in managing fishing access.[1] Additionally, local inshore authorities manage non-quota stocks in territorial waters.

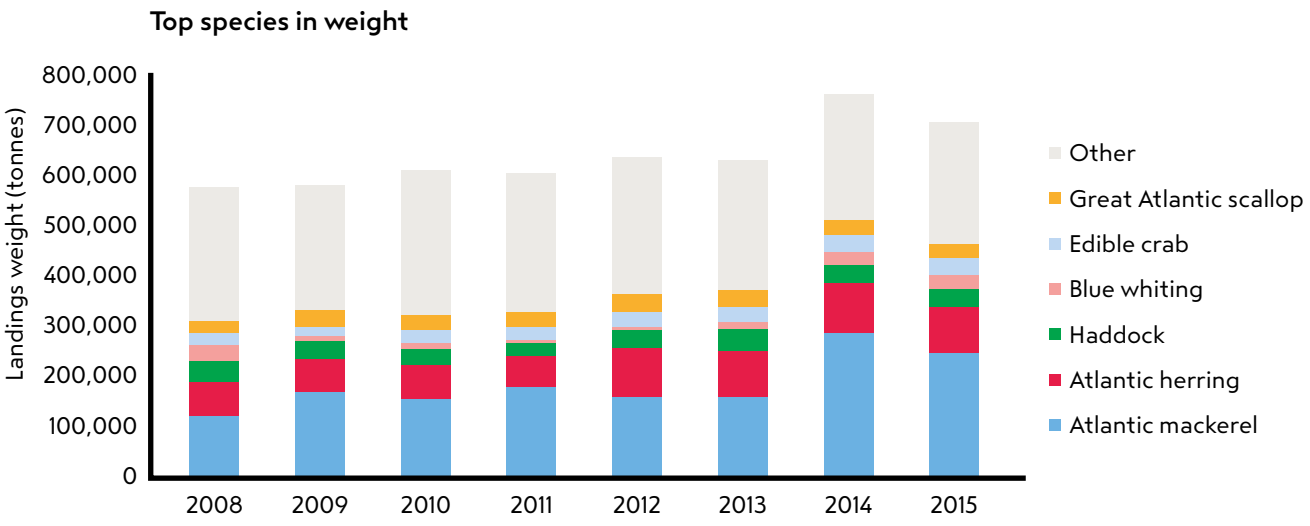
To assess the UK's system of fishing opportunities we take an objectives-based approach using a range of quantitative and qualitative indicators to measure performance. The UK has a mixed performance across our indicators showing high performance in providing secure and flexible fishing access but performing poorly in making fishing opportunities accessible to new fishers and allocating fairly to the inshore fleet. A number of reforms are proposed including fully implementing Article 17 of the CFP and reallocating quotas to the inshore fleet.

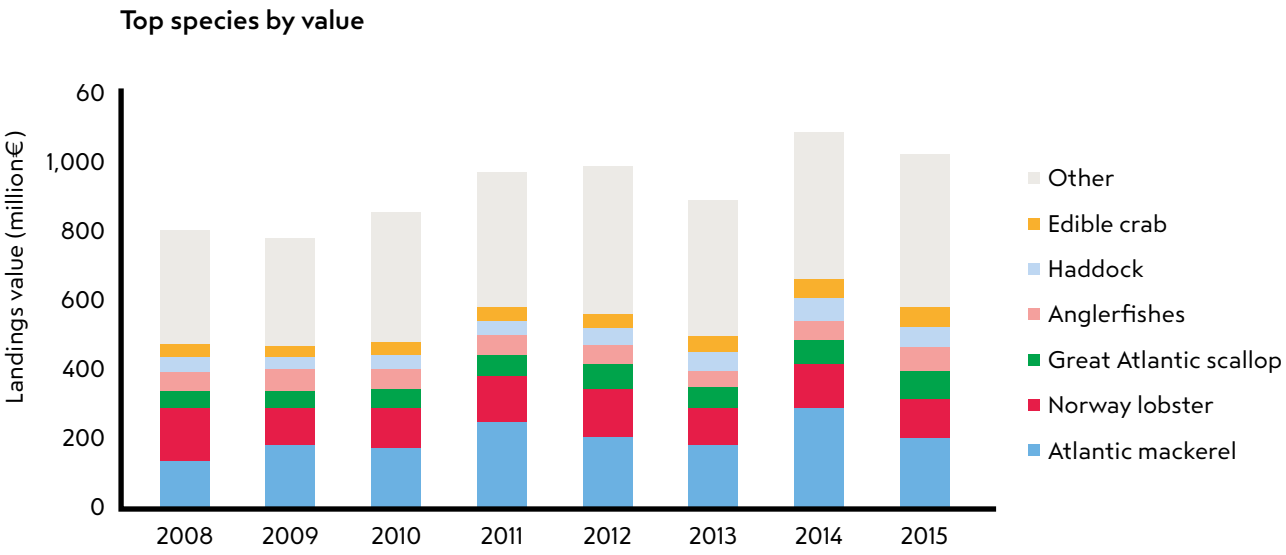
16.1 INTRODUCTION AND BACKGROUND

The UK is one of the EU's largest fishing nations with British vessels accounting for around 13% of the EU's total landed weight in 2014.[2] The UK also has the largest EEZ of any EU country, excluding overseas territories. The British fishing fleet is composed predominantly of smaller vessels, with 4,281 under 10 metre vessels and 1,252 over 10 metre vessels. At the same time, the over 10 metre fleet accounts for 88% of the UK's fishing capacity (vessel tonnage). Together these fleet segments employ over 12,000 fishers.[3,4]

Hundreds of different species are commercially fished around the UK, however, a few key species comprise most of the landed economic value. Four species: mackerel, Norway lobster, scallops, and anglerfish/monkfish make up over 50% of the total landings value.[5] The total landings value of UK fishing is just over €1 billion. Although the marine fishing industry only makes up 0.05% of the UK's GDP, many coastal communities are reliant on fishing as a source of income and employment.[6]

FIGURE 16.1.1: THE UK'S TOP 6 SPECIES BY LANDED WEIGHT AND VALUE





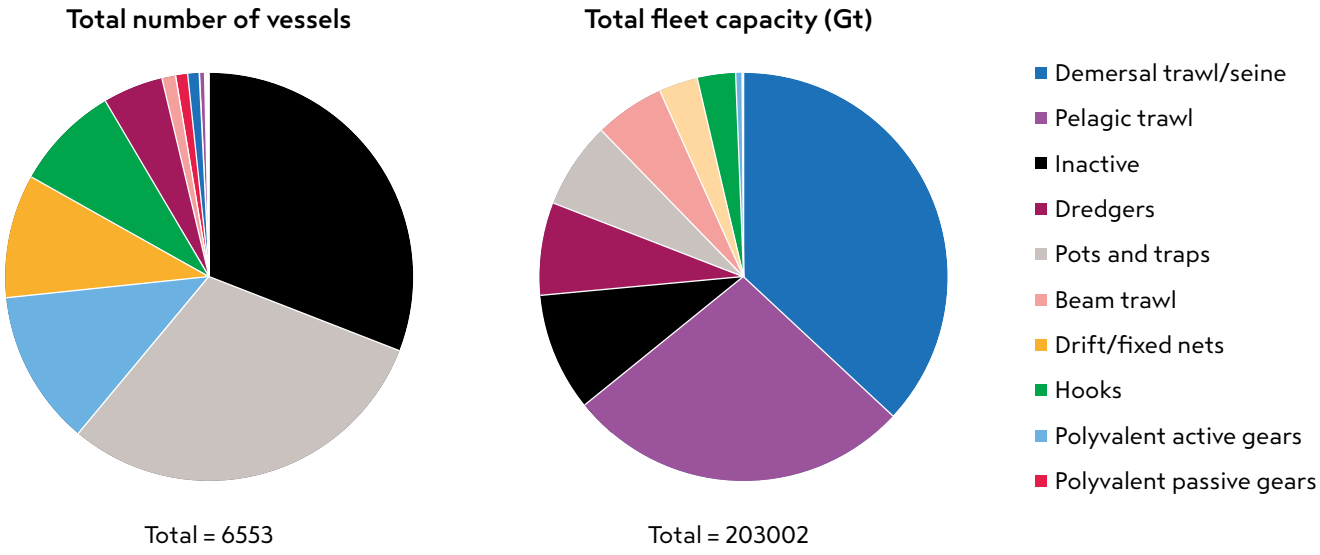
Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Fishing activity is unevenly distributed across the UK, with the Scottish industry accounting for the largest share (71%). This imbalance reflects the location of fish stocks, with Scotland having greater access to large shoals of pelagic species. Consistent with this, Scotland is home to a large over 10 metre fleet, whilst England has a much larger under 10 metre 'inshore' fleet (+1000 vessels).[7] Scottish vessels landed 167,000 tonnes of pelagic species (75% mackerel) in 2014 in comparison to England's 14,000 tonnes. English vessels landed 63,000 tonnes of shellfish versus Scotland's 53,000 tonnes. Wales and Northern Ireland have significant inshore, shellfish-oriented fishing, with an additional twin-rig Nephrops fleet in Northern Ireland.[8]

TABLE 16.1.1 – LANDINGS IN THE UK (2014)

	VALUE (£ MILLION)	LANDINGS ('000 T)
England	166.7	101.4
Scotland	402.5	314.9
Wales	13.4	8.8
N. Ireland	24.8	18.1
Total	**607.4**	**443.2**

FIGURE 16.1.2: UK'S FLEET GEAR-COMPOSITION BY NUMBER OF VESSELS AND FLEET CAPACITY (2015)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

The next sections of this chapter will describe and analyse the UK's fishing opportunities. The approach taken will be as follows: Section 2 draws on expert interviews, reports and academic literature to describe and classify the available fishing opportunities. In section 3 our methodology is described. This is based on operationalising foundational objectives (detailed in chapter 3) and the UK's national objectives. These objectives are analysed in section 4 through a set of quantitative and qualitative indicators, assessing the extent to which these objectives have been fulfilled. Based on this analysis, as well as the input of various fisheries interviewees and reviewers, recommendations are provided in section 5.

16.2 FISHING OPPORTUNITIES

PROFILE

Primary management type:	Quota management (RBM)
Types of fishing opportunities:	Individual quotas (semi-transferable), pooled quotas (PO) and rationed quotas
Main allocation criteria:	Historical catches, equal access
Differentiation in allocation:	Sector (PO), non-sector and inshore fleet
Landed weight under quota management:	77%[9]

OVERVIEW

The UK distributes a number of different types of fishing opportunities. As is common across EU Member States, fishers require a fishing licence to be allowed to fish. For quota species, fishers require access to fishing quotas to fully cover their landings. Quota species make up the largest portion of landed fish (77% by weight). For non-quota species, a range of other types of restrictions may apply depending on the specific stock. These include spatial restrictions, fishing closures and gear restrictions. This section will outline the rules in place governing UK fishing opportunities.

GOVERNANCE

The Secretary of State for Environment, Food and Rural Affairs is the national minister responsible for fisheries management. This Minister has discretion over overarching government policy, as well as representing the UK at EU Agricultural and Fisheries Council meetings. A Concordat agreed in 2012 between the four administrations of the UK (England, Scotland, Wales and Northern Ireland) devolved the management of fishing opportunities to the four countries.[10] This gives the administrations authority to make changes in how fishing opportunities are allocated and control over producer organisations and fishing licences.

Quota management in the UK is divided between the three main fleet segments that make up the marine fishing industry: the over 10 metre 'sector', 'under 10 metre', and 'non-sector' fleets, with the sector receiving approximately 98% of the quotas[11]. Sector fishers are members of producer organisations (POs) who manage their members' quotas whilst under 10 metre and non-sector fishers' quotas are managed by the respective administration. The non-sector comprises a group of larger vessels (450) that have not joined POs. The sector also includes a small number (56) of under 10 metre vessels. See Table 16.3.1. for the figures.

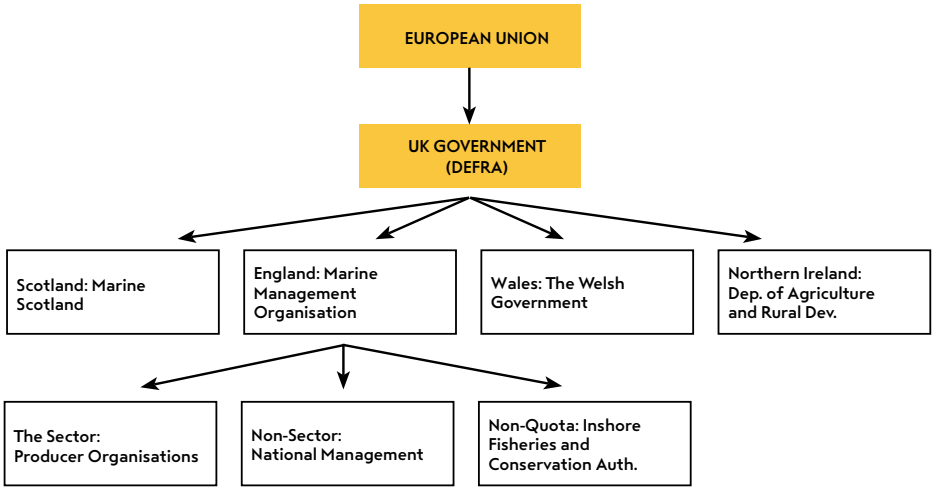
There are 24 POs that are situated around the UK coast. POs are membership-based organisations in the form of cooperatives companies that act on behalf of their members. They are set up under the Common Organisation of Markets (CMO regulation) and operate to collectively manage the activities of their members, help them match supply and demand, and support them in creating added value.[12] Administrations ensure that producer organisations comply national and EU rules. In England, Inshore Fisheries and Conservation Authorities (IFCAs) have a role in managing fisheries in the 0-6 mile zone, alongside the MMO.

TABLE 16.2.1: FLEET COMPOSITION IN NUMBERS AND CAPACITY BY OVER 10 METRES, UNDER 10 METRES, SECTOR AND NON-SECTOR SEGMENTS

		OVER 10M		UNDER 10M	TOTAL	
	NO	CAPACITY (1000 GT)	NO	CAPACITY (1000 GT)	NO	CAPACITY (1000 GT)
Sector	ITQs	147	56	0.448	858	147.5
Non-PO	IQs	16.3	4225	14.5	4675	30.8
Total	1252	163.3	4281	15	5533	178.3

Source: Marine Management Organisation (MMO)

FIGURE 16.2.1: OUTLINE OF THE ORGANISATION OF FISHING OPPORTUNITIES IN THE UK



UK'S FISHING QUOTAS IN BRIEF

Allocation	Historic	Criteria-based	National
Holder	Individual	Vessel	Collective
Transferability	Full	Limited	None
Security	Permanent	Limited	Not ensured
Duration	Year	Month(s)	Trip

Key: Sector (PO) | Inshore and non-sector | All

This table summarises five key features of the UK's quota system. It categorises each feature on three generalised options. Quota rules may be differentiated by fleet segments or stocks, in which case more than one option is highlighted. This table serves as a stylised model of the national quota system and further details are given below.

ALLOCATION

The UK's quota system is differentiated between fishers that are members of POs ('sector') and ones that are not (inshore and 'non-sector'). Allocation is performed on the basis of historical catch records for sector vessels and monthly individual catch limits are rationed equally to the non-sector.

HOLDER

Fixed quota allocation (FQAs) are attached to vessel licences but are managed by POs for vessels in the sector. For inshore and non-sector vessels, quotas are held by the each of the four regional governments of the UK in a pool.

TRANSFERABILITY

Sector fishers can easily lease and temporarily swap quotas via their producer organisation. Permanent transfers can also be made with the sale of the vessel and to a limited extent, independently. Inshore and non-sector quotas cannot be leased or transferred.

SECURITY

FQAs attached to vessels are highly secure allocations as the FQA system has existed for 18 years with minimal alteration. However, the fisheries minister has the right to make changes to allocations. Inshore and non-sector quotas are rationed at the discretion of the regional government.

DURATION

Sector quotas apply for the whole quota year, whilst inshore and non-sector quotas are allocated on a monthly basis. POs may also use impose monthly catch limits for pooled quotas.

QUOTA ALLOCATION

The UK uses a system of Fixed Quota Allocations (FQAs), in place since 1999, as the basis for distributing quotas to fishers. This is a quota-share system whereby fishers receive a fixed share (or %) of the national quota every year. FQAs are unitless values attached to fishing licences representing the share of quotas they are eligible to. Once EU total allowable catches (TACs) have been set, national TACs are converted into UK fishing quotas according to the holdings of FQAs by licence holders. FQAs were determined using the average landings of fishing vessels between 1994 and 1996. FQA ownership is published in an online FQA register.[13]

Most fishers do not manage their quotas themselves. Sector fishers often have their FQAs managed by their PO and non-sector fishers have their FQAs controlled by the fisheries administrations. POs are responsible for ensuring that by the end of the year landings are reconciled with quotas. POs may also hold FQAs on dummy licences, which allow POs to hold quotas despite those quotas not being attached to a vessel. This arrangement allows members to fish out of a pool instead of against their individual quotas for some stocks. POs are also responsible for facilitating transactions in FQAs. Fisheries administrations hold FQAs of non-sector and under 10 metre fishers collectively in a pool. They set individual monthly limits for these fishers throughout the year in accordance with the annual quotas.

There are some nuances added to this method of quota allocation. In order to give some assurance of quota availability to the inshore and non-sector vessels, an 'underpinning arrangement' is in place. This guarantees a certain tonnage or percentage of quotas to the under 10 metre and over 10 metre non-sector fleets. There are special allocations for mackerel handline fishers in England and Scotland that are made separately to the FQA system.

There have also been a small number of adjustments to the allocations of FQAs.[14] Most notably, in 2012 the Department for Environment, Food and Rural Affairs (Defra) made the decision to permanently realign 7,900 (0.4%) English FQAs from the over 10 metre sector fleet to the under 10 metre fleet. The motivation for this reallocation was the simultaneous underutilisation of some quotas in the over 10 metre fleet and quota constraints for many inshore fishers. The United Kingdom Association of Fish Productions (UKAFO) appealed this decision in court but Defra's decision was upheld, affirming the ministry's mandate to alter the FQA system.[15] At the same time, the court also recognised FQAs that were consistently utilised as a form of possession, creating uncertainty around the legal status of fishing rights and whether allocations could be challenged again in the future.

QUOTA RULES

Fishing quotas, in the form of FQAs, are attached to fishing licences, which in turn are associated with vessels. This is with the exception of FQAs held by the four administrations on behalf of the under 10 metre fleet and the non-sector. Additionally, POs can also hold FQAs on a dummy licence not associated with any vessel.

Thus, in order to fish against quotas, it is necessary to be in possession of a fishing licence and access FQAs, either held directly (sector) or through the administration. Additionally, in order to hold a UK fishing licence fishers must prove that there is a 'real economic link' between the vessels' activities and the UK. This means fulfilling at least one of three following criteria:

1. land over 50% of quota species in the UK,
2. employ a crew of whom at least half are UK residents, or
3. incur a 'certain amount' of expenditure on goods and services in UK coastal areas.

This rule intends to reduce the use of quotas by fishers that deliver little economic benefit to the UK.

If fishers do not have access to sufficient quotas to cover their landings, there are a range of options open to them. To meet short-term quota needs, the fisher can lease quotas from other fishers via a PO. This gives them temporary holding over quotas but there is no permanent transfer of FQAs. This mainly occurs within POs, but non-sector under 10 metre fishers can also lease quotas from POs. The fisher could also buy a vessel with existing FQAs attached to its licence. By becoming owner of the vessel, a fisher also automatically acquires the FQAs. Quotas may also be swapped between fishers via POs. Finally, it is possible to acquire FQAs without the associated licence when another fisher leaves the industry and the vessel gets scrapped. The associated FQAs can be transferred to a holding statement and subsequently to another licence. In practice this process is frequently performed without vessels leaving being taken out of the industry, similar to a formal ITQ system.

OTHER FISHING OPPORTUNITIES

The UK has a variety of non-quota fishing opportunities in place. Many non-quota species are managed by local regulators, called Inshore Fisheries Conservation Authorities (IFCAs) in England and Regional Inshore Fisheries Groups (RIFGs) in Scotland, that are funded by local governments and the national government.[16] These authorities (which include both fishers and other stakeholders) have a mandate to regulate inshore waters (0-6nm) covering a range of non-quota stocks including shellfish. The IFCAs and RIFGs do this through management plans and byelaws that they are entitled to enforce. These include technical regulations on what can be harvested and how (e.g. allowable gears, minimum landings sizes), effort controls and spatial/temporal closures.

16.3 OBJECTIVES AND METHOD

According to our framework for analysis (chapter 3), fishing opportunities should be designed in line with to two types of objectives: foundational objectives and government-specific objectives. Our analysis (section 4) assesses the performance of the UK against these objectives. This is accomplished through operationalising each of the objectives into indicators and measures and coming to an overall ranking.

FOUNDATIONAL OBJECTIVES

Foundational objectives are goals that should be pursued in all systems of fishing opportunities. They are general, high-level objectives that we consider to be fundamental to all successful systems. Foundational objectives can be pursued in a myriad of different ways and leave room for specific, national objectives. Successful systems should include features that make the system work well for fishers, ensure that fish stocks are managed in the wider public interest, and involve democratic and accountable processes. More detailed descriptions and justifications of our foundational objectives can be found in chapter 3. A brief overview is given in the following table.

TABLE 16.3.1: SUMMARY OF THE 12 FOUNDATIONAL OBJECTIVES

Category	Objectives	Description
Good for Fishers	Secure	Fishing opportunities provide fishers with a sustained, long-term share
	Flexible	Fishers can access new fishing opportunities or exchange existing ones
	Accessible	New eligible fishers are granted fishing opportunities upon entry
	Viable	Companies are financially viable and employees are decently paid
	Equitable and fair	Fishing opportunities are distributed fairly and needs are prioritised
Good for Society	Publicly owned	Fish stocks and fishing opportunities are ultimately publicly owned
	Meets government objectives	Government uses fishing opportunities to meet national and EU policy objectives
	Limited public expense	Management costs are covered by the fishing industry
	Captures resource rent	As a public resource, some of the resource rent is captured
Good Process	Transparent and accountable	The allocation and holdings of fishing opportunities are transparent
	Objective	The allocation of fishing opportunities follows a systematic process
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation

GOVERNMENT OBJECTIVES

We identified one main source of objectives: The Department for Environment, Food and Rural Affair's Fisheries 2027 policy document.[17] The objectives most relevant to fishing opportunities have been selected here:

DEFRA FISHERIES 2027 – VISION STATEMENT

- Economic returns are optimised:
  - In most cases fish stocks and access to use them, either commercially or recreationally, are managed to maximise the long-term economic return to society;
  - Businesses in the fisheries sector take long-term strategic decisions and manage risks effectively;
  - Businesses and individuals are subject to clear and proportionate regulation which does not impose unnecessary costs;
  - The costs of fisheries management and enforcement are good value for money and shared amongst those who benefit.

- There are rights of access to fisheries coupled with clear responsibilities:
  - Recreational and commercial fishermen share access to fisheries. Economically efficient commercial operators have access to most of the resource; some of the resource is used to deliver wider social benefits and for recreational purposes;
  - There is a cost associated with accessing fisheries and this reflects the environmental cost of the activity;
  - Those who access a fishery are involved in related decision-making;
  - Those who access or manage fisheries' quotas have clear responsibilities and are held accountable for their actions.

- Fishing activity contributes to coastal communities:
  - Fisheries contribute to the local economies and culture of coastal communities;
  - Fishing communities are resilient and diverse enough to withstand fluctuations in the availability of fishing opportunities.

- Management is integrated and devolved to the most appropriate national, regional or local level:
  - Fisheries are managed as one of many activities in the marine environment, using an ecosystem-based approach, and are taken into account properly in marine planning;
  - Fisheries are managed within a flexible framework that allows local and regional managers to anticipate and respond quickly to changing circumstances;
  - Those with a stake in the marine environment have a role in decisions that affect them.

ANOTHER SECTION OF VISION 2027 STATES THAT:

> Access to fisheries continues to be available to small-scale fishing vessels, even if in some cases that is not the most economically efficient way of harvesting the resource. This is because the wider economic, social and environmental benefits of small-scale fishing can outweigh the comparative inefficiency in harvesting the resource and make a significant economic and social contribution to the lives of individuals and coastal communities, for example, by providing jobs, attracting tourists, providing high-quality fresh fish and maintaining the character and cultural identity of small ports throughout England.

METHODOLOGY

Table 16.3.2 below details the measures and sources used to assess each of the 12 foundational objectives. Our assessment of national government objectives is included as one of the measures under 'Meets government objectives', alongside three EU CFP objectives on fishing opportunities. The performance on each measure is scored based on quantitative analysis and/or relevant literature and is supplemented by interviews. The results for each measure are then combined to generate an overall ranking for the objective. The ranking is made up of four levels (high, mid-high, mid-low, low) as well as 'mixed' for cases where fleet segments or measures vary significantly and 'uncertain' for cases where not enough information is available for an informed judgment. Rankings across objectives are not necessarily comparable or equally weighted.

The measures used to assess performance are inevitably imperfect attempts to measure objectives that are abstract in nature. Additionally, performance may be primarily caused by factors beyond the system of fishing opportunities (generating a false positive). We use multiple indicators and measures wherever possible to reduce the risk of misattribution. We hope that as more information becomes available in the future and new understandings about these objectives become clear, the assessment of these objectives can be further improved.

TABLE 16.3.2: SUMMARY OF THE INDICATORS AND MEASURES USED TO ASSESS THE FOUNDATIONAL OBJECTIVES

	Objectives	Indicator	Measure	Source
Good for fishers	Secure	Long-term planning	Investment as a percentage of revenue	STECF, 2016 Annual Economic Report
		Confidence in the set duration of the fishing right	Number of fishery closures	Fisheries Data Exchange System (FIDES), 2013-2015
		Confidence in the legal security of the fishing right	Expert opinion on security and validity	MRAG Consortium, 2009 RBM in the EU. Supplemented by data on revealed practices
	Flexible	Few quota shortages	Quota non-compliance	European Fisheries Control Agency (EFCA), 2013-2015. Annual Report
			Amount of (regulatory) discarding	STECF, 2016 Data Collection Framework
		High quota usage	Quota uptake	Fisheries Data Exchange System (FIDES), 2013-2015
	Accessible	Ease of entry for new fishers	Fishing opportunities set aside for newcomers	Descriptive, multiple sources
	Viable	Economic viability	Fishing wages relative to national average	STECF, 2016 Annual Economic Report and OECD.stat database, 2014
			Profitability (gross profit margin)	STECF, 2016 Annual Economic Report
	Equitable and fair	Distribution of fishing opportunities	Fairness of initial distribution	Descriptive, multiple
			Concentration of fishing rights measured in Gini index of quota share holdings	National quota share registers
Good for society	Publicly owned	Government can reallocate	Government can reallocate quota without risk of legal challenge	Descriptive, multiple sources
		Legal clarity	Official statements from the government	Descriptive, multiple sources
	Meets government objectives	Government objectives	Varied by Member State	Descriptive, multiple sources
			CFP Article 17: submissions	Member state responses to the Commission in line with article 16.6
			CFP Article 22: capacity balance	STECF, 2016 Balance report
		Designated quota reserve	Presence of quota reserve for pursuing objectives	Descriptive, multiple sources
	Limited public expense	Effect on public finances	Costs of management compared to landings value	OECD.stat, 2008-14 and STECF 2016 Annual Economic Report
			Fuel subsidies	EU Parliament, 2013 Fuel subsidies in the EU Fisheries Sector and STECF 2016 Annual Economic Report
	Captures resource rent	Amount of resource rent captured	Amount of resource rent captured	OECD.stat, 2008-14
Good process	Transparent and accountable	Publicly accessible information	Process described in an easily accessible, public document	Descriptive, multiple sources
			A publicly available register of the ownership holdings of quota shares	Descriptive, multiple sources
	Objective	The process is non-arbitrary and rule-based	Assessment of the process	Descriptive, multiple sources
	Right governance level and representative	Subsidiarity and co-management	Wherever possible, management empowers local institutions	Descriptive, multiple sources
		Stakeholder representation	Procedures are in place for inclusive and participative stakeholder involvement in decision-making	Descriptive, multiple sources

16.4 ANALYSIS

This section will assess the performance of the UK's system of fishing opportunities against the 12 objectives that comprise our framework. The results presented here graphically are included selectively, mainly in cases of particularly high or low performance, for the sake of brevity. Full analytical results will be made available upon request. Note that the final rankings are not intended to be combined as there are likely different weightings for the 12 objectives.

TABLE 16.4.1: PERFORMANCE OF UK'S SYSTEM OF FISHING OPPORTUNITIES

Category	Objectives	Rating
Good for Fishers	Secure	High
	Flexible	Mid-high
	Accessible	Low
	Viable	Mixed
	Equitable and fair	Mid-low
Good for Society	Publicly owned	Mid-low
	Meets government objectives	Mid-low
	Limited public expense	Mid-low
	Captures resource rent	Low
Good Process	Transparent and accountable	Mid-high
	Objective	Mid-high
	Right governance level and representative	Mid-low

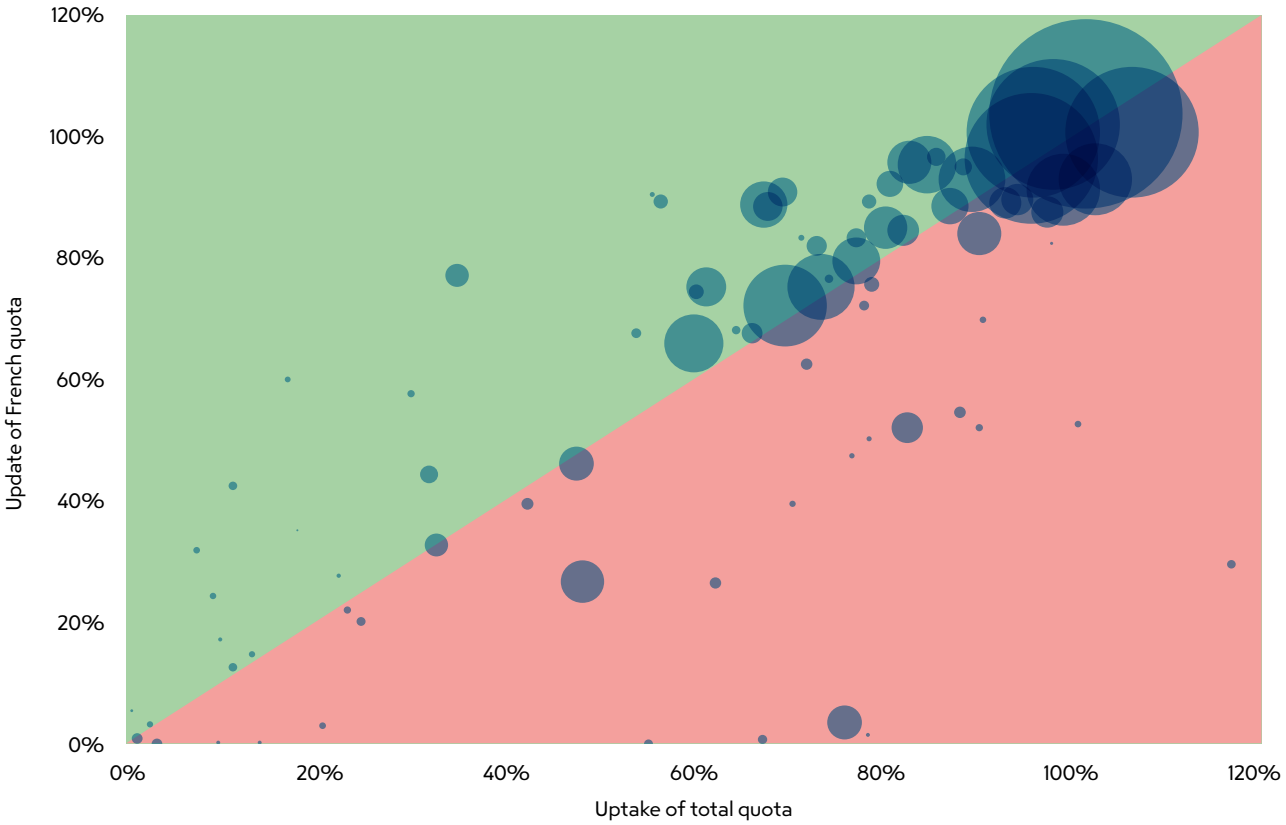
SECURE: HIGH

Fishing opportunities in the UK are among the most secure of any EU Member State, scoring highly in the MRAG et al (2009) assessment of the UK fisheries policy for security / viability.[18] Fishing opportunities in the UK have evolved into secure rights, through their use in practice rather than policy design, and are sometimes referred to as 'de facto ITQs'. This is reflected in the performance of the fishing fleet as investment as a percentage of landed value is the highest of the Member States covered in this report.[19] There are also very few fishery closures, indicating confidence regarding in-year quotas for the sector.[20] There may be more frequent closures for the inshore and non-sector fleet, which are managed separately and would not result in a closure of the national fishery.

FLEXIBLE: MID-HIGH

In terms of our performance indicators, fishing opportunities in the UK are shown to be highly flexible. The UK has relatively low levels of quota non-compliance[21] and relatively low amounts of discarding compared to other Member States fishing with the same gears for the same species in the same area ('metier'),[22] whilst quota uptake is high.[23] These three measures indicate that quotas are, at least comparatively, getting into the right hands to avoid shortages whilst promoting full utilisation. As a caveat, without fully-documented fisheries it is difficult to assess the accuracy of this discard reporting.

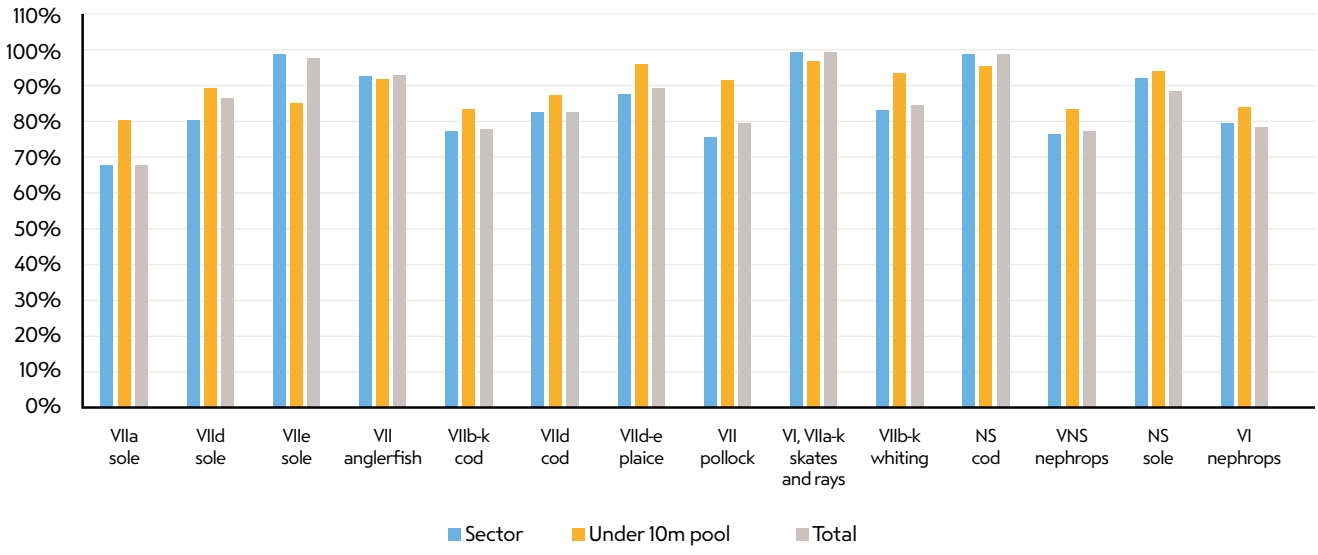
FIGURE 16.4.1: UK QUOTA UPTAKE IN COMPARISON TO TOTAL UPTAKE BY ALL MEMBER STATES UTILISING THE SAME QUOTAS



Source: Authors' calculations using data from the Fishery Data Exchange System (FIDES). Note: Quotas, represented by bubbles in the green half are utilised more than average, and in the red half, less than average.

Data on quota uptake within UK management regimes reveals that the inshore fleet has higher uptake than the large-scale fleet for many key quotas.[24] This is despite the fact that the management of the under 10 metre pool suffers from lags in the monthly allocations, a common complaint from those in the pool. For the inshore fleet, the current reliance in the UK system on quota leasing is unlikely to improve flexibility further as the inshore fleet has little to no financial capacity to pay high and increasing lease prices. This represents a challenge to the flexibility of the UK system that may become more acute as lease prices continue to rise.

FIGURE 16.4.2: QUOTA UPTAKE FOR KEY SPECIES TARGETED BY THE UNDER 10M FLEET SEGMENTS (2014-2016)



Source: Marine Management Organisation (MMO)

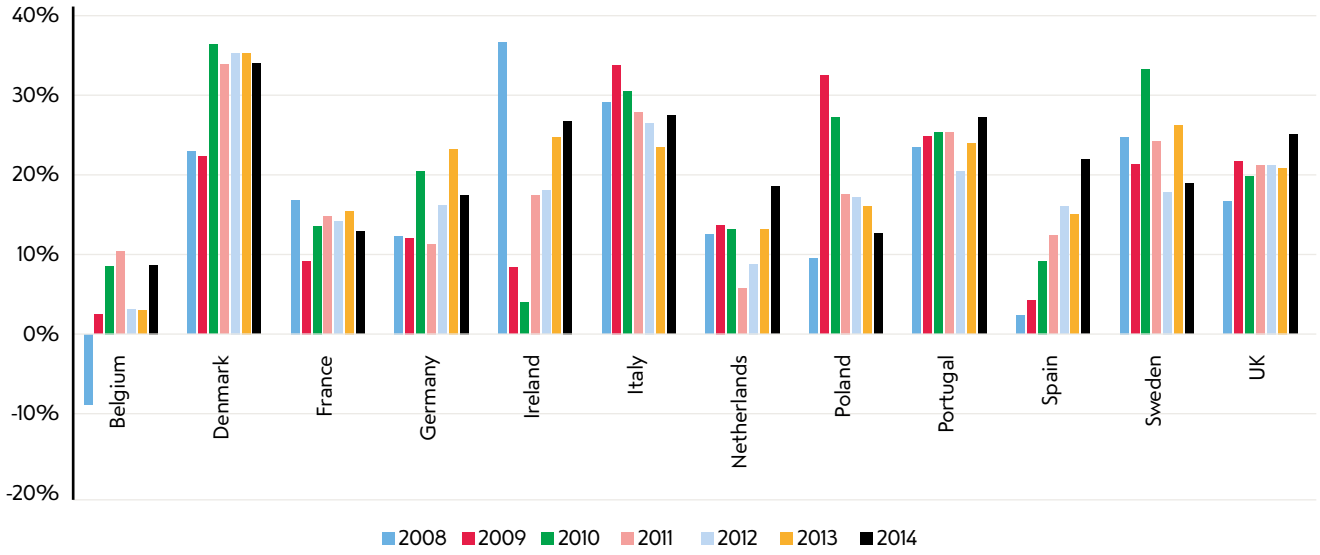
ACCESSIBLE: LOW

Fishers can obtain a licence through the purchase of a licenced vessel or through the purchase of a licence from a scrapped or sunken vessel. To obtain quotas, a prospective fisher must purchase an existing vessel with quota shares (FQAs) attached to the licence. Alternatively, FQAs can be transferred from an existing vessel to a new vessel with authorisation. There is no reserve of FQAs available to accommodate new fishers. POs do not usually accept new members that do not already have FQA holdings, thus limiting access to PO-pooled quotas. Fishers joining the under 10 metre or non-sector fleets receive monthly rationed quotas from the national quota pool, although the available number of quotas is low (see 'Equitable and fair').

VIABLE: MIXED

The UK is one of the most profitable fishing fleets in the EU and the trend in profits is upwards (see Figure 16.4.3),[25] in part due to increases in stock abundance and quotas for some key species.

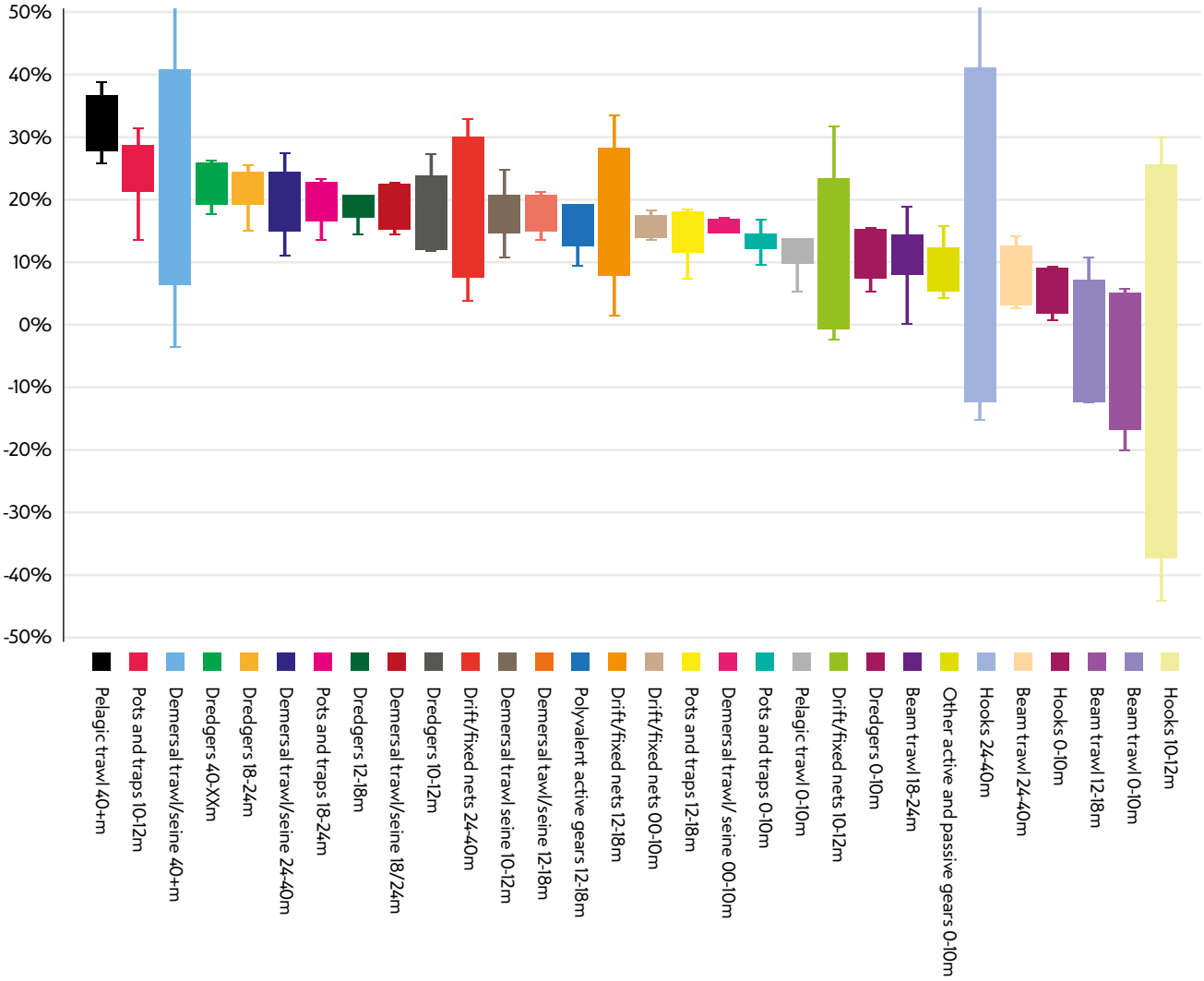
FIGURE 16.4.3: GROSS PROFIT MARGIN BY MEMBER STATE BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Profit margins at the fleet level are much more diverse, with a large spread between the most profitable and the least profitable fleets. The most profitable fleets tend to be the 40m+ trawlers and purse seiners, whereas the least profitable fleets are a combination of inshore fleets and beam trawlers (see Figure 16.4.4).[26] This low performance may be due to problems with initial allocations for the inshore fleet (see 'Equitable and fair) and the high fuel price during this period for fuel-intensive beam trawl fleet.[27] Fishing wages in the UK fleet are moderate compared to other EU Member States, but there is a similar gap in performance between the large-scale and inshore fleets.

FIGURE 16.4.4: GROSS PROFIT MARGIN BY UK FLEET SEGMENT (2008-2014)



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

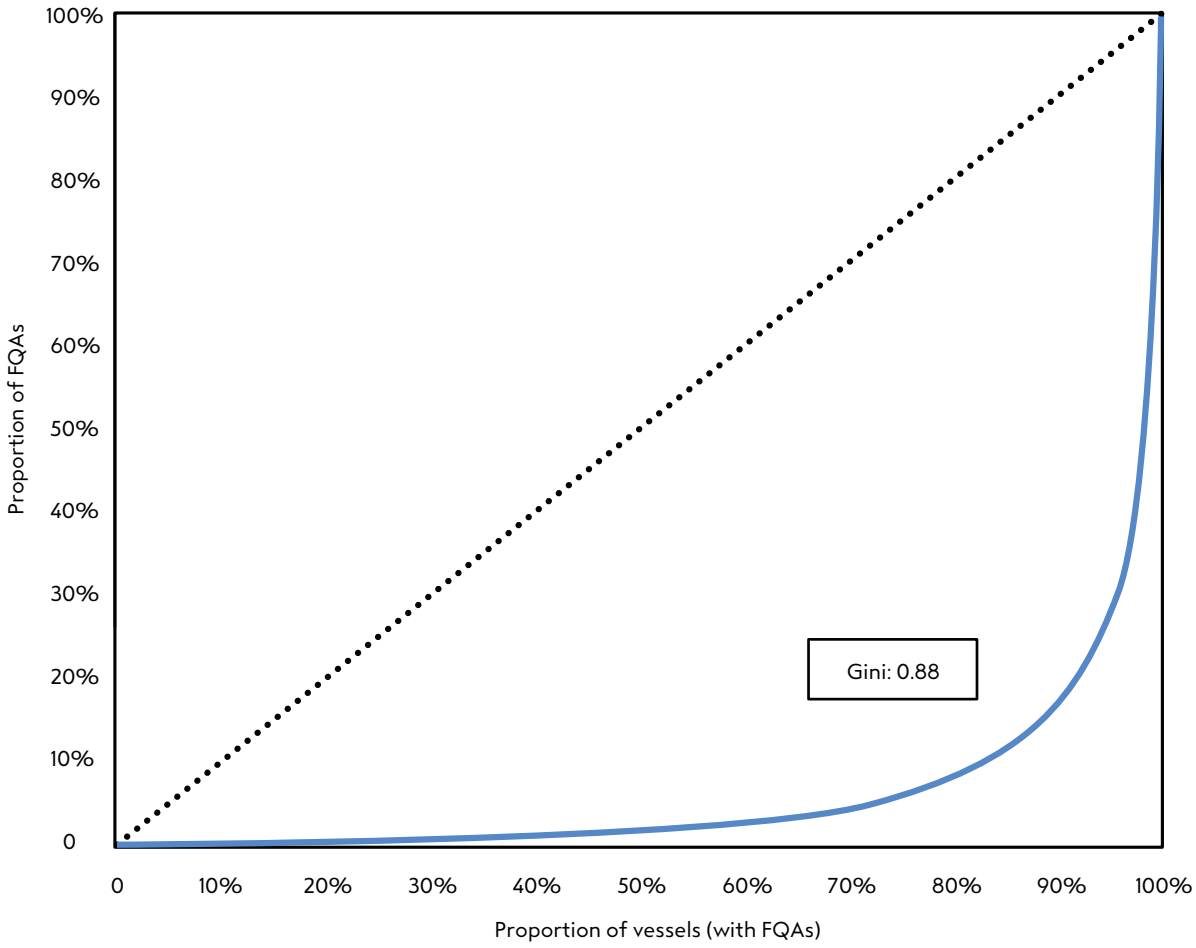
EQUITABLE AND FAIR: MID-LOW

Systems based on historical quota allocation, and especially where quotas are transferable, are particularly susceptible to problems related to equity. Historical allocation hands a long-term share to fishers solely based on their past landings, potentially disadvantaging fishers that happened to be less active during the reference period, or whose landings were improperly recorded. This latter issue is particularly significant for the UK's under 10 metre fleet. The historical reference period used for distributing FQAs (1994-1996) was a time when under 10 metre vessels were not required to record their landings. The use of stratified sampling data instead of precise landings data meant that under 10 metre landings were grossly underestimated. This lead to the under 10 metre FQA pool providing highly insufficient allocations to the fleet. The under 10 metre vessels make up 77% of the UK fleet but their quota pool only accounts for 1.5% of the national FQAs (in tonnes).

Transferability compounds this inequity as some fishers begin to rely on leasing quotas at increasing costs. Further, the concentration of quota through transfers of ownership increases market power and creates potential situations of oligopoly/monopoly in the quota market. The UK's transferable quota system has evolved without design and has no measures in place to limit excessive concentration of FQAs or restrictions on who can hold them. This means that FQAs can potentially be used by non-fishers as a financial asset or can be leased out by non-active fishers.

The recent release of the FQA register in the UK has allowed for the exploration of quota concentration in the UK. The result is a highly unequal picture of ownership, with a group of large FQA holders. The Gini coefficient for FQA concentration is 0.88 and the Herfindahl-Hirschman Index is 205.[28] These figures indicate that FQA holdings are extremely unequally divided, but it is not a case of oligopoly power. The under 10m pool is not included in this calculation as their FQAs are not held at the vessel level.

FIGURE 16.4.5: UK CONCENTRATION OF FQAS BY VESSEL

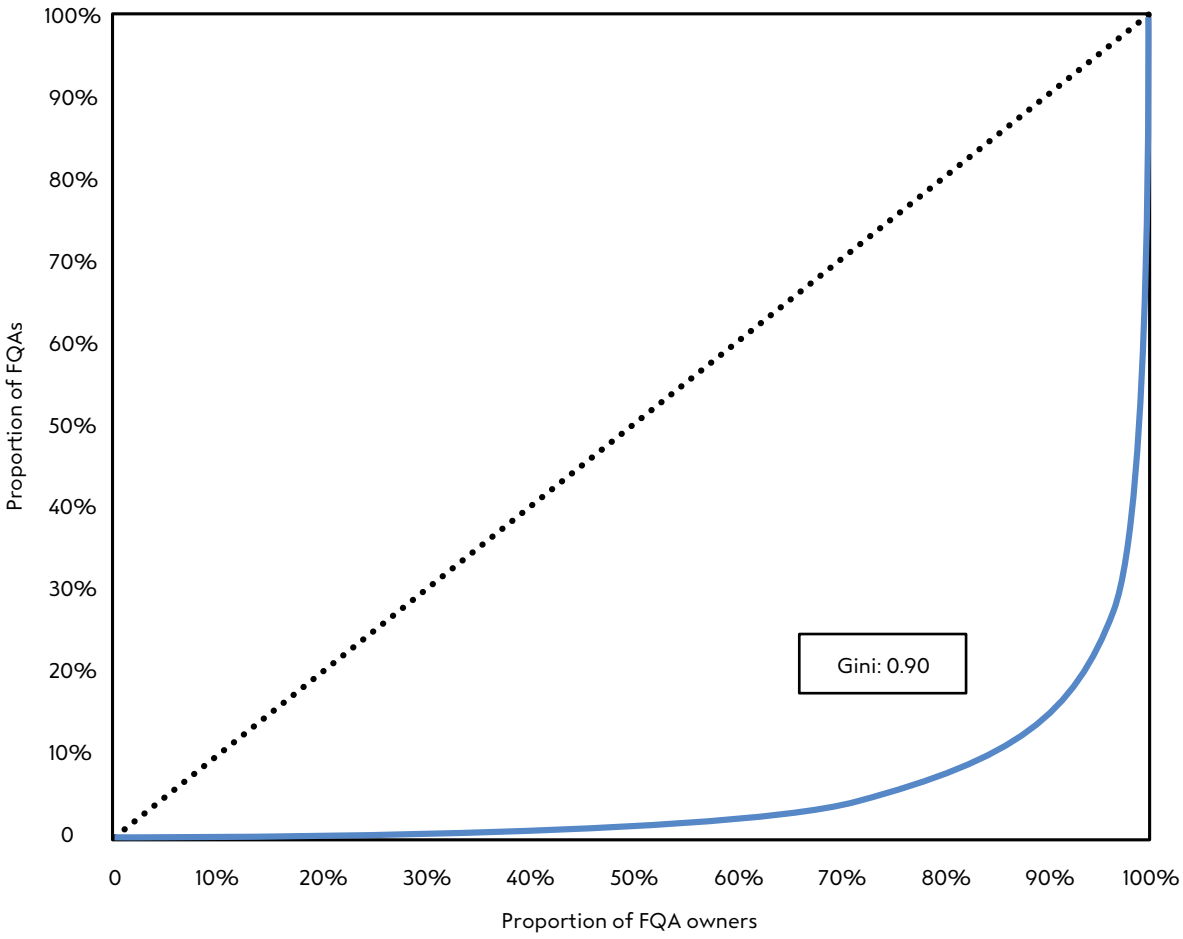


Source: Authors' calculations using Marine Management Organisation (MMO) FQA register.

A Greenpeace analysis of the FQA owners in England and Wales revealed the level of concentration in terms is much more extreme than at the vessel level because many vessles or FQA holders will have the same ultimate owner. According to their calculations, 63% of English and Welsh quotas are owned by just three companies.[29]

Taking one individual quota (here North Sea cod) shows that the same general finding holds, although the level of concentration decreases. For North Sea cod the Gini coefficient for FQA concentration is 0.75 and the Herfindahl-Hirschman Index is 180.[30]

FIGURE 16.4.6: UK CONCENTRATION OF FQAS BY VESSEL



Source: Authors' calculations using Marine Management Organisation (MMO) FQA register.

PUBLICLY OWNED: MID-LOW

The legal status of fishing opportunities, and in particular, FQAs, is ambiguous. Formally, quota management is at the discretion of the relevant minister and fish stocks are recognised as a public resource. The 2012 Concordat between the four fisheries administrations of the United Kingdom stated:

> The Administrations reiterate that FQAs do not provide any right to a share of UK quotas. Administrations acknowledge nonetheless that FQA holdings involve at present a general expectation of receiving a share of UK annual quotas.[31]

This wording indicates that in the government's view, FQAs are not considered as form of private possession that signifies a right to a share of the resource. A 'general expectation' does not rule out the possibility for ministerial intervention in allocating quotas.

In 2012, a decision by Defra to reallocate quota from the sector to the under 10 metre pool was challenged in a court case by the United Kingdom Association of Fish Producers Organisation (UKAFPO vs Defra). The case centred around the question of whether the government removing FQAs involves a deprivation of possessions under the European Convention on Human Rights.

The court ruled (paragraphs 109-113) that FQAs represent possessions because of the financial trade in FQAs that had emerged ('albeit built very much of sand'). The ruling did however conclude that the removal of consistently unused FQAs did not represent a deprivation, and thus the government's reallocation was legal (paragraphs 114-116).[32]

This ruling potentially restricts the minister's powers to reallocate quotas and thus brings into question whether FQAs are in fact publicly owned. Without clarification, this may imply that utilised FQAs are now permanently privatised, preventing the government from managing use rights in the public interest, without paying large amounts in compensation to FQA holders.

MEETS GOVERNMENT OBJECTIVES: MID-LOW

EU OBJECTIVES

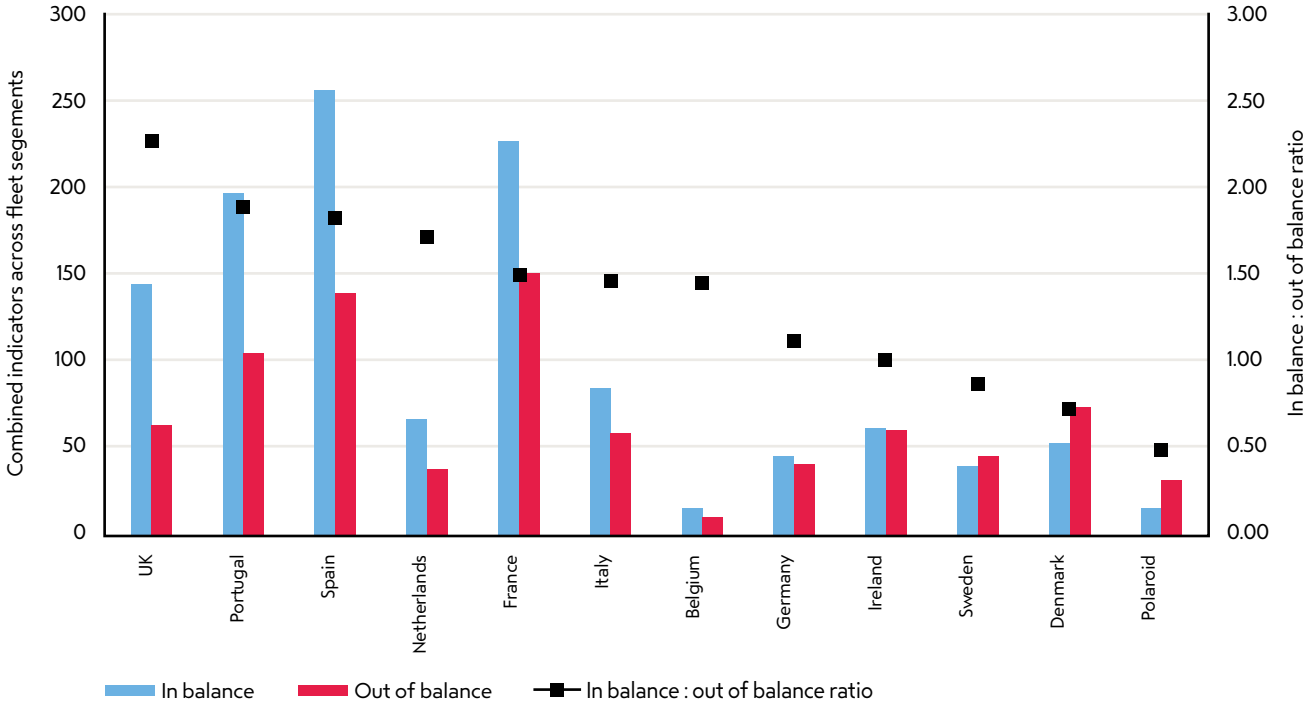
Article 16.6 of the CFP requires Member States to inform the Commission of its allocation method. In its submission to the Commission, the UK claims to be implementing Article 17.[33] It mentions that the UK is allocating the first 100 tonnes of every quota uplift from the landings obligation to the inshore fleet, is capping of licences of the inshore fleet not targeting quotas, and had reallocated underutilised FQAs to the inshore fleet in 2012. The submission also mentions the 2015 court case (Greenpeace vs Defra) that ruled that the UK's quota system is compliant with Article 17 of the CFP.[34]

The actions mentioned in the submission are all one-off measures. They do not involve integrating objective and transparent environmental and social criteria into the primary allocation mechanism of FQAs, rather, they are extraordinary measures. This cannot be considered sufficient to be in compliance with Article 17. The court ruling in Greenpeace vs Defra applied a very narrow interpretation of the CFP which considered any use of social or environmental criteria as sufficient for compliance. We believe that it was not in the 'spirit of the law' that Article 17 implied that any weighting to social and environmental criteria would be sufficient for compliance. The court ruling also did not specify which specific 'transparent and objective criteria including those of an environmental, social and economic nature' were applied by the UK that made it compliant.

We believe that the principles embodied by Article 17, reducing negative externalities and using social and environmental criteria, are worth pursuing even if not legally required. These principles are also reflected in objective 2.5(i) of the CFP.

Article 22 of the CFP states that Member States should put in place measures to ensure that their fleet capacity is in balance with the fishing opportunities available – a specification of objective 2.5(d). In its assessment of balance indicators, STECF scores the UK highly, with the majority of fleets showing indicators of balance with the fish stocks that they target. Compared to other Member States, the UK has the greatest ratio of 'in balance' indicators to 'out of balance' indicators when combined across all fishing segments.[35]

FIGURE 16.4.7: NUMBER OF INSTANCES OF IMBALANCE ACCORDING TO THE SIX STECF BALANCE INDICATORS ACROSS THE NATIONAL FLEET SEGMENTS



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database. Note: A ratio is calculated between balanced and out of balance results.

On CFP objective 2.5(c,h) covering the benefits to the processing sector and to consumers, UK has relatively moderate landings prices in comparison to other Member States fishing the same TAC species in the same area with at least €100,000 in landings.

NATIONAL OBJECTIVES

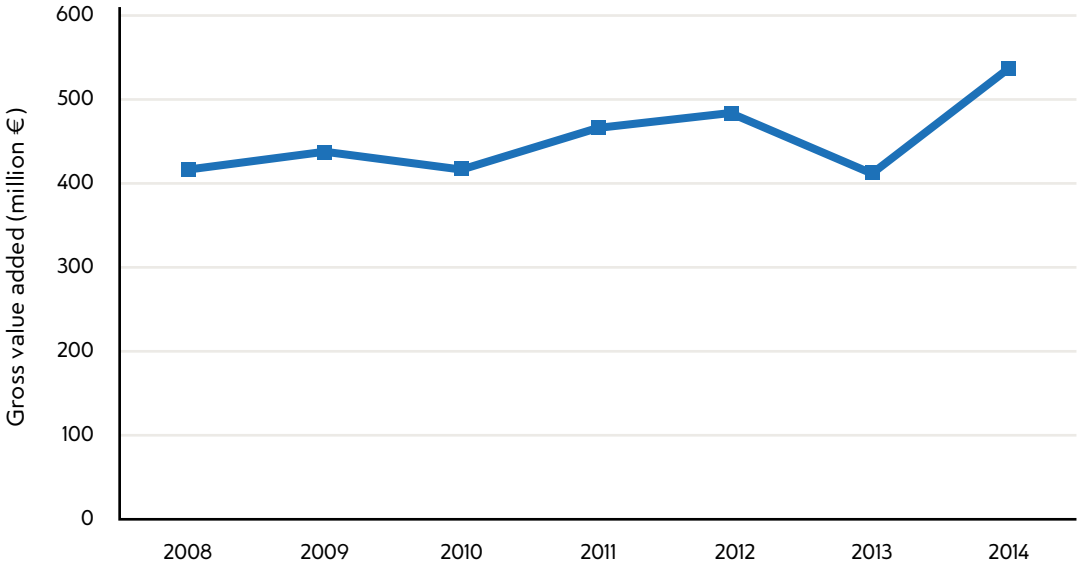
Defra's Fisheries 2027 is extremely clear in setting out the government's objectives for fisheries (in England and Wales). The objectives most closely related to managing fishing opportunities are given here [only excerpts for brevity]:

1. In most cases fish stocks and access to use them, either commercially or recreationally, are managed to maximise the long-term economic return to society.
2. The costs of fisheries management and enforcement are good value for money and shared amongst those who benefit.
3. Economically efficient commercial operators have access to most of the resource; some of the resource is used to deliver wider social benefits and for recreational purposes.
4. There is a cost associated with accessing fisheries and this reflects the environmental cost of the activity.
5. Fisheries contribute to the local economies and culture of coastal communities.
6. Fishing communities are resilient and diverse enough to withstand fluctuations in the availability of fishing opportunities.
7. Fisheries are managed within a flexible framework that allows local and regional managers to anticipate and respond quickly to changing circumstances.
8. Those with a stake in the marine environment have a role in decisions that affect them.

This extensive list overlaps significantly with our foundational objectives. The second objective is covered by both 'Limited public expense' and 'Captures resource rent' foundational objectives. The fourth objective expands on the shared costs of management by stating that fisheries should also pay for the negative externalities inflicted on the environment. The sixth objective is similar to the 'Viable' objective at the fleet segment level but also incorporates the issue of viable (and resilient) coastal communities. The seventh objective is mostly covered by the 'Right level' objective and the eighth objective is covered by the 'Representative' objective.

The first objective in the selected objectives from Defra's Fisheries 2027 specifies long-term economic return, but this is somewhat ambiguous. Economic returns could cover many aspects from jobs or wages to GVA or profits. The most common version of economic return in analytical study is to use GVA. Whilst UK fisheries are showing signs of increased GVA, the question of whether the allocation of fishing opportunities is optimised for GVA generation 'in most cases' is difficult to assess and further complicated by significant amounts of foreign ownership and foreign crew.

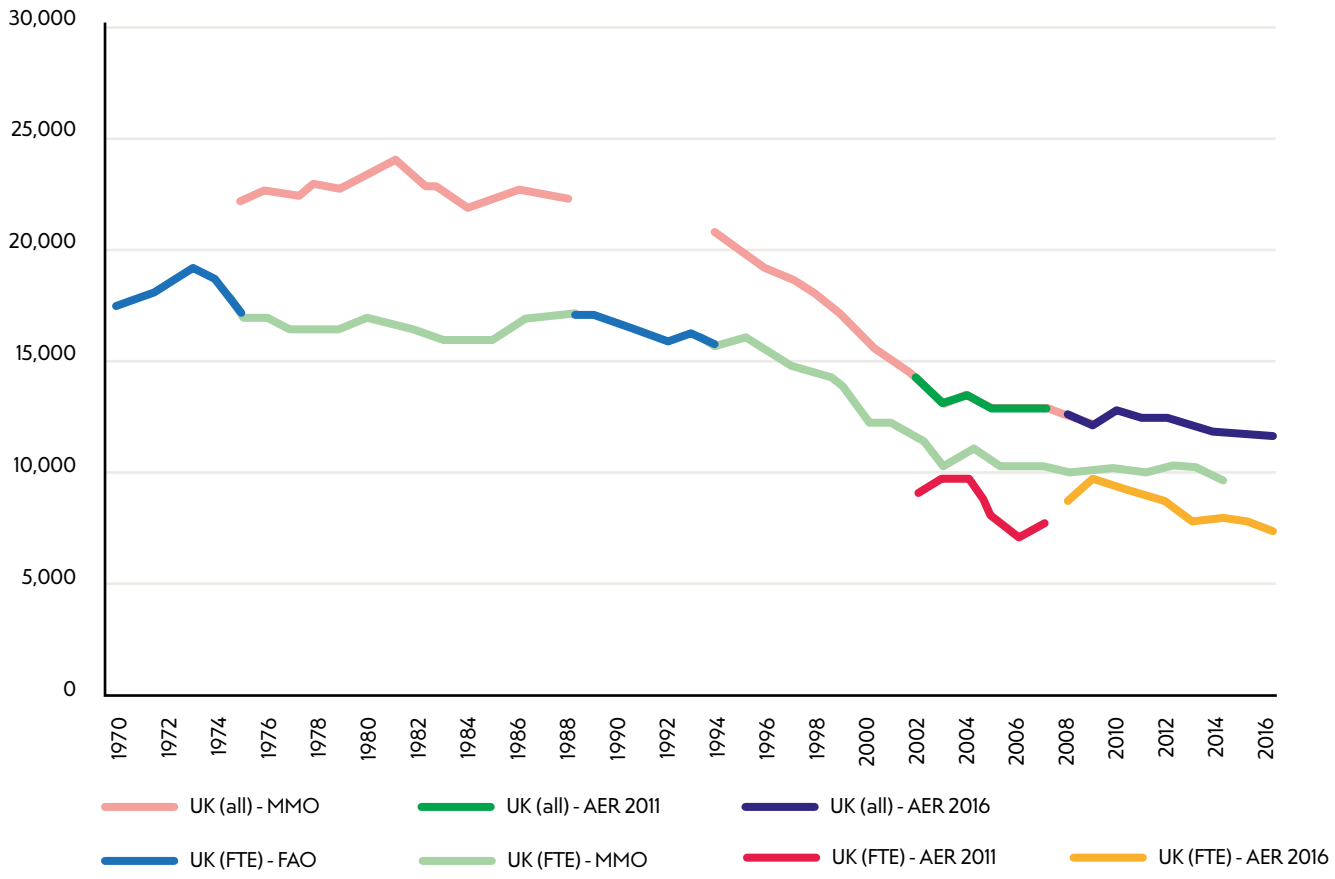
FIGURE 16.4.8: GROSS VALUE ADDED BY UK MARINE FISHERIES BETWEEN 2008 AND 2014



Source: Authors' calculations using data from Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Both the fifth and sixth objectives bring in issues of contributions to coastal communities. There are signs however that the UK (and most other Member States) are losing this link. The decline in fisheries employment is a very visible sign of this loss of connections, but there are also signs that quotas are becoming more concentrated and an associated gap between boom and bust ports.

FIGURE 16.4.9: EMPLOYMENT IN THE UK MARINE FISHING INDUSTRY SINCE 1970



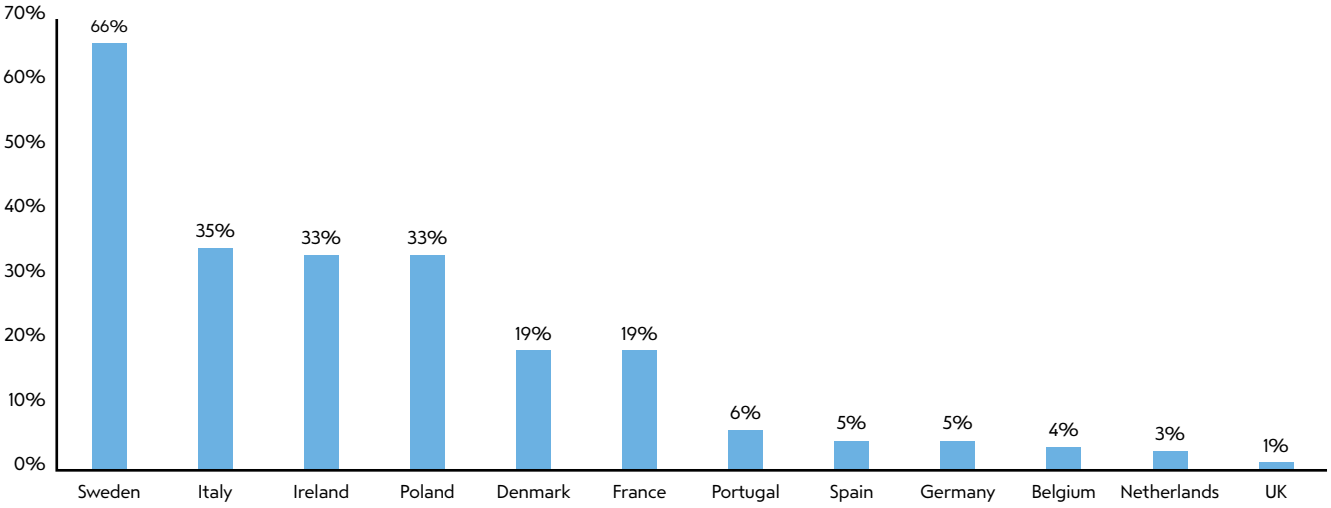
Source: Authors' calculations using data from the Food and Agriculture Organization (FAO), Marine Management Organisation (MMO), and Scientific, Technical and Economic Committee for Fisheries (STECF).

The third objective in the selected objectives from Defra's Fisheries 2027 hints at something like a quota reserve for fisheries so that social and environmental objectives can be pursued. This does not exist in the UK system.

LIMITED PUBLIC EXPENSE: MID-LOW

The costs of fisheries management in UK are the lowest of the EU Member States in this report (1% of landed value).[36] Whilst there are no forms of (direct) public revenue generation to pay for the costs of management, a levy on all first-hand purchases from landings, marine aquaculture, and imports pays for the Sea Fish Industry Authority (Seafish).[37] This organisation promotes the activities of the fishing industry, whilst also regarding the interests of consumers of sea fish and sea fish products.[38]

FIGURE 16.4.10: NATIONAL GOVERNMENT EXPENDITURE ON FISHERIES MANAGEMENT AS A PERCENTAGE OF LANDED VALUE



Source: Authors' calculations based on OECD.stat and Scientific, Technical and Economic Committee for Fisheries (STECF) database.

Fuel subsidies for fishing are also comparatively low in the UK (0.14€/litre), but these subsidies add up to a large amount (€39 million annually) as fishing is one of the most fuel intensive industries. These subsidies amount to 4% of landed value.[39] Fuel subsidies also conflict with government objectives to minimise the environmental impact of fishing.

CAPTURES RESOURCE RENT: LOW

As there is no significant system of direct revenue collection from the fishing industry, the only resource rent being captured is through the regular tax system (e.g. income and corporate taxes).

TRANSPARENT AND ACCOUNTABLE: MID-HIGH

The allocation of fishing quotas is described in annual quota management rules published on the Marine Management Organisation website. These are detailed and technical, but not accessible to the layperson. The UK maintains an online and public register of FQA holdings by vessel name, holder name, licence type and producer organisation, but the information may not indicate the ultimate owner.

OBJECTIVE: MID-HIGH

Allocations to the sector are based on the objective criterion of historical catch records, although the choice of reference period and means of calculation have been thoroughly criticised (see 'Equitable and fair'). Allocation to under 10 metre and non-sector vessels is through quota rationing, which gives all fishers equal quotas. Whilst this equal rationing can be considered arbitrary given differences in vessel capacity and specialisation, the principle of equal access is an objective criterion.

RIGHT GOVERNANCE LEVEL AND REPRESENTATIVE: MID-LOW

The UK has devolved a range of responsibilities. These include some licensing and quota allocation control to the four fisheries administrations, quota management to POs and local management of territorial waters to IFCAs and Regional Inshore Fisheries Groups (RIFGs) in Scotland. However, the majority of vessels (under 10 metre and non-sector) are not under PO management and are under monthly catch limits from their respective fisheries administration. These fishers do not have PO representation and have little control over decision affecting their access to fishing opportunities.

The UK holds numerous public consultations on a range of fisheries issues. These usually involve responding to an online survey or by post. There are complaints that not all fishers are contacted about issues of potential interest. Consultations are usually one-way, do not cater for deliberation, and in some cases, are not followed. In a meta analysis on participatory fisheries management arrangements in the EU, Leite and Pita (2016) identified research on nine UK cases. These were predominantly classified as involving functional participation. These are government driven partnerships rather than industry-driven and are not fully interactive, with government authorities setting the agenda and holding final responsibility.[40]

16.5 RECOMMENDATIONS

The UK's performance on the 12 objectives is mixed, with high performance on providing secure and flexible fishing opportunities as well good performance on objectivity and transparency. However, on many other objectives, the results are clearly unsatisfactory. We propose a number of reforms that could contribute towards improving the UK's system of fishing opportunities.

AFFIRM PUBLIC OWNERSHIP

Currently the legal status of FQAs is ambiguous, with the 2013 UKAFPO vs Defra court case potentially making it more difficult to reallocate FQAs that are being utilised, where fishers may have a legitimate expectation. Although secure access to fishing opportunities is essential, this should not compromise the public ownership and control of access to fish stocks. By privatising FQAs, the right to access this public resource is indefinitely gifted to a single group of fishers that had track records during the reference period. This means that the government is left with little control to manage fishing opportunities in the public interest.

The UK should affirm that fish stocks are a public resource and that any access rights to access those resources are revocable and subject to change. This will ensure that the current mechanism can be altered in the future while also preventing further progression to fully privatised quotas. Measures on revoking or reallocating FQAs should recognise the long-term investments that fishers have made and the need fishers have for secure access. Consequently, FQAs should only be revoked where specific conditions are met or after a sufficient notice period. For example, in Denmark, the minister has to provide a minimum of eight years' notice to reallocate quotas.

INTRODUCE A PEER-TO-PEER QUOTA SWAPPING SYSTEM

In an online peer-to-peer exchange, fishers can list the quotas they have in excess and/or the quotas they are trying to obtain. The result is an online (non-monetary) marketplace with a search function to help fishers find a match and see if the 'exchange rates' on offer are worth swapping. The idea of implementing such a system is to dramatically reduce transaction costs to better match supply and demand of available quotas. Examples of online peer-to-peer exchange are found in New Zealand (FishServe – www.fishserve.co.nz) and Denmark (Puljefiskeri – www.Puljefiskeri.dk), although these platforms extend to quota share transfers as well as quota swapping.

There are large potential benefits from a system where fishers can freely swap in-year quotas. In the past decade, many industries have been transformed by online peer-to-peer exchange systems and some characteristics of the fishing industry make it particularly well positioned to benefit. Fishing vessels are extremely heterogenous with respect to their inputs to production – namely the type of fishing gear they use, the grounds they fish, and the species they target. In-year quota swaps could ensure these differences in fishing patterns are provided for more by increasing the flexibility of quota access. Where historical allocations can lead to rigidity, quota swapping can provide greater flexibility and allow fishers to change their fishing plans.

Currently in the UK, uptake of quotas is frequently less than 100% at the end of the year, so there are surplus quotas held by fishers that can be swapped. Conversely, some fishers may need to stop fishing before the end of the season if exhaust their quotas for certain species. The resulting improvements in flexibility can contribute towards compliance with the landings obligation as fishers will have greater opportunity to cover their landings and prevent a choke species.

There are some practical hurdles and risks that need to be anticipated in introducing a peer-to-peer quota swapping system. In many cases, vessel quota holdings are not collected in an up-to-date central database and there are also cases where POs exercise full control over members' quotas. New IT systems would need to be introduced and POs may need to play a different role in quota allocations. In quota systems that are differentiated a P2P system may not be applicable across fleet segments. Lastly, there is a risk that a black market in leasing may be created outside of the platform (i.e. a side payment is offered alongside a token swap). This could be partially avoided through anonymising bidders or through an automated bidding system.

IMPROVE ACCESS FOR NEW FISHERS

Currently, new fishers wishing to join the fishing industry are required to purchase vessels with existing track records to access quotas. This creates a significant barrier to entry and has the tendency of overvaluing older vessels with larger track records. These vessel licences are likely to include the shadow price of quota shares. Fishers that were active during the reference period are hugely advantaged through the gifting of quotas over new fishers who often rely on inheriting a vessel licence. It cannot be justified that new fishers, accessing the same public resource, should have to pay significantly more.

Although it is difficult to facilitate new entry in a context of EU capacity reduction regulations, efforts can still be made to give new fishers a more equal initial footing. To improve access for new fishers, the UK should set aside quota in a national quota reserve for the purpose of accommodating new fishers. These quotas these could be lent to fishers who have demonstrated significant investment in the fishing industry (i.e. vessel purchase). The loan period could be for a number of years (8 years in the Danish model). A more equitable method would be to 'tax' quota when vessel sales take place or when vessels are removed from the fleet (the French model). Then quota shares are appropriated by the fisheries authority to be allocated to new fishers in a continual process of re-gifting, rather than in short-term loans. This initial gifting can be performed based on vessel capacity and the fishing plans of the new fishers.

INCORPORATE SOCIAL AND ENVIRONMENTAL CRITERIA IN ALLOCATION

The UK's current allocation method of FQAs is almost solely based on a track record of landings during the initial reference period. Other allocations are extraordinary and do not involve the integration of social and environmental criteria into the primary allocation method.

Criteria-based allocation recognises the diverse range of costs and benefits associated with fishing activities and allows governments to tailor allocation to pursue certain objectives. As historical track records and profit motive are not linked to many important objectives in fisheries, allocation must go beyond historical track records and incentivise changes in fishing practices to reach these outcomes.

Introducing criteria into the primary allocation method is one way of complying with Article 17 of the CFP, but such a change will often require substantial and difficult reforms to current mechanisms. An alternative is to use a quota reserve for criteria-based allocations, thereby leaving the existing mechanism intact for a large share of the available fishing opportunities. Under this scenario, a share (e.g. 10-20%) of the national quota is set aside for criteria-based allocation. This reserved allocation could be adjusted with changing performance, whilst the main allocation maintains security and continuity in the system.

Blomeyer & Sanz (2015) assessed dozens of possible criteria that can be used to implement Article 17 of the CFP.[41] Based on an extensive consultation exercise, they shortlisted the criteria in the box below.

EXAMPLES OF CRITERIA FOR ARTICLE 17 ALLOCATION (BLOMEYER & SANZ, 2015)

SOCIAL ALLOCATION CRITERIA: SUPPORT FISHING COMMUNITIES

Indicator 1: Fisheries dependency - employment measured in relative terms

Indicator 2: Revenue contribution to local economy – at the NUTS 3 level

SOCIAL ALLOCATION CRITERIA: SOCIAL CORPORATIVE RESPONSIBILITY

Indicator 1: History of fisheries compliance – using CFP Point System for the last five years

Indicator 2: History of compliance - combines fisheries compliance with other behaviour (e.g. tax duties; alignment to ILO standards on crew security and enrolment, etc.) (last five years)

ECONOMIC ALLOCATION CRITERIA: CATCH DEPENDENCY

Indicator 1: Catch records - catches of the targeted stock during the last three years

Indicator 2: Footprint - trips where catches of the targeted stock took place (last three years)

ECONOMIC ALLOCATION CRITERIA: IMPROVE ECONOMIC PERFORMANCE

Indicator 1: Gross Value Added (GVA) - net output of an individual/metier/sector after deducting intermediate inputs from all outputs

Indicator 2: Fuel efficiency - litres of fuel per kg of live fish and shellfish landed

ENVIRONMENTAL ALLOCATION CRITERIA: IMPLEMENTING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT

Indicator 1: Large Fish – the proportion of the catch larger than length at maturity (Lm50)

Indicator 2: Protected Species Index (PSI) – volumes of by-catch of protected, endangered or vulnerable species

Indicator 3: Marine Seabed Impact – extension of the bottom surface where relevant fishing activity occurred with respect to key habitats location

Implementing criteria-based allocation would inevitably require quota reallocation, which is resisted by some segments of the industry as a case of 'robbing Peter to pay Paul'.[42] Gains and losses are fundamental to public policy decisions and the current situation should not be viewed as a neutral choice between competing resource users. Going further, this idiom only makes sense if the focus is on percentages rather than quantities. In the current context of stock recovery, one group of fishers could benefit from criteria-based allocation without any other group being made worse off. Under a particularly cautious approach, a situation of stock recovery could be used as a prerequisite for the implementation of criteria-based allocation for that fishery.

UPON EXITING THE EU AND THE COMMON FISHERIES POLICY, WITHDRAW FROM THE LONDON CONVENTION AND REFORM SPATIAL ACCESS TO INSHORE WATERS

Whilst much of the Common Fisheries Policy should be replicated into UK law with the Great Repeal Bill (see other publications from the New Economics Foundation on this topic[43]), there are a couple of changes, notably a change in relative stability and the withdrawal from the London Convention, that would benefit the system of fishing opportunities in the UK.

The 1964 London Convention set up historical rights to some inshore waters (6-12nm). Five EU Member States (France, Germany, Belgium, the Netherlands and Ireland) were granted partial access to UK and the UK was granted rights in the waters of four Member States (Ireland, France, Germany and the Netherlands). The amount of access rights was determined at the time by a reference period of fishing from 1953-1962. As the CFP superseded the London Convention in this area, the UK has continued under the Convention and the historical access rights it granted.

On leaving triggering Article 50 to exit the EU, the UK should simultaneously withdraw from the London Convention to allow new rules on spatial access (ie. spatial fishing opportunities) to inshore waters that consider more than just historical track records (for both domestic and foreign vessels). Access to foreign vessels can then be made conditional. This is especially important as these inshore waters have come to be characterised by large foreign vessels competing for space with small inshore vessels for the same grounds. There is also the opportunity that outside of the London Convention, IFCAs and the MMO could be empowered to enforce fishing regulations and inspect all vessels, regardless of national flag, within the 12nm zone to 'level the playing field'.

IMPLEMENT A LANDINGS TAX AND REMOVE THE FUEL TAX EXEMPTION

Currently, the management of the fishing industry is costly while little direct revenue is received from the industry. This balance needs to shift, particularly now that a substantial resource rent is being generated. As fishing licences are capped to restrict new entry, profits are increasing to high levels for some fleet segments, whereas in an unmanaged industry new entry would drive profits down. The government should share the costs of management with the industry and overtime shift this balance to obtain some of the resource rent it has generated.

There are a number of methods that could be used to obtain revenue from the fishing industry, although a landings tax to cover science and enforcement offers the most promise. Such a tax would be administratively simple and also roughly balance payers and users of the resource (as opposed to auction that only covers quota species). As the landings obligation is now being phased in across EU fisheries, the linkage between resource use and a landings tax is even stronger. Previously, vessels would have been able to increase discarding to avoid paying a landings tax. This tax would apply whether landings take place in domestic or foreign ports. In Iceland, a fishing fee of 6.6% is applied to revenues from commercial fishing.[44]

Another change that would alter the balance of fisheries costs is the scrapping of fuel tax exemptions for the fishing sector. This tax exemption, set at 0.14€/litre for the UK is an implicit subsidy for the sector and encourages more fuel use than the full price would imply. Removing the fuel tax exemption would affect fleets differently; generally, heavy towed gears – which tend to have higher impacts on marine habitats[45] - use the most fuel per landed value, whilst pots and traps use the least.[46] This variance in fuel use is an important price signal that should be reflected in the price of fish.[47] In a transition towards a more balanced division of costs and revenues between society and the fishing sector, the removal of the fuel tax exemption is a good first step that addresses multiple objectives.

Neither a landings tax nor the removal of the fuel tax exemption are likely to be popular policies and face a number of difficulties to implementation. In fisheries where enforcement of the landings obligation is likely to be weak, a landings tax may increase discarding. In these cases, it is clear that enforcement capabilities have to be improved (for multiple reasons). Furthermore, since unilateral application of these measures may be controversial, Member States should seek to coordinate the introduction of similar landings taxes and a scaling down of fuel tax exemptions.

If implemented by itself, a landings tax would risk the viability of fleets with low profit margins. However, other policies, including some recommendations in this section, would raise the financial viability for many of the fleets with low profit margins, thus counteracting the risk of implementing a landings tax. One option to combine proposals directly is through a landings tax that incorporates some of the issues in criteria-based allocation (i.e. a criteria-based landings tax[48]). One drawback of this approach is that Article 17 specifies that criteria should be used regarding access to fishing opportunities, so additional measures would still be required.

DIFFERENTIATE A LANDINGS TAX AS AN ALTERNATIVE TO AN ECONOMIC LINK REQUIREMENT

The UK, along with other EU Member States, has struggled with the issue of flag vessels – foreign-owned vessels that have purchased national quota and land abroad. Often with flagged vessels, the operations shift away from communities around the UK, and as a result, the national quotas are no longer delivering for local fishing communities.

Some Member States have approached the issue of flagged vessels with an 'economic link', requiring a certain percentage of landings to occur domestically or a certain percentage of the crew to be domestic residents. An evaluation of the economic link in the UK revealed that it was having some effect, although most of that effect was through a criterion for vessels landing abroad to donate quotas to the inshore fleet in the UK[49] – a policy option that has since been scrapped.

An alternative, and administratively simpler policy, is to differentiate the landings tax proposed above.[50] This tax would be lower for domestic landings either through a two-tiered rate or by netting off port and harbour dues. Seen another way, this differentiated rate means that quotas being landed abroad have a financial penalty in the form a higher levy. The degree of differentiation in the tax rate would need to be high enough to ensure that national quota is generating a national benefit by increasing value chains in the UK.

This policy approach addresses the issue of flagged vessels and national benefits while also adding to the framework of a landings tax for science and enforcement, covered previously. The revenues raised would go some of the ways towards correcting the costs of management compared to the revenues raised.

REGULATE THE DE FACTO ITQ SYSTEM

The current de facto ITQs system has some features of a 'classical' ITQ systems but is also very similar to an ordinary IQ system. The UK needs to either establish a fully-fledged and regulated ITQ system or revert back to IQs. The inshore sector should be excluded from any formal ITQ system to prevent their decline and to reflect the importance of pursuing social objectives in this fleet.

Unconstrained ITQ systems can lead to many undesirable outcomes including excessive concentration of quota ownership, slipper skippers and increased costs for many fishers, especially those that lack favourable track records and capital. Additionally, the current system, which was not designed as an ITQ system, lacks an open market and divisibility into small catch units common in designed ITQ systems.[51] We recommend introducing a number of safeguards that are in place in many ITQ systems around the world to ensure that the ITQ system works in the public interest. The recommended safeguards are:

- To establish a more open market, create an online platform for quota transfers and leasing;
- Permit FQAs to be divided, improving affordability;
- Active fisher and minimum utilisation requirements. The former ensures that quota is not held by retired fishers or non-fishers as a source of rental income. The latter further reduces the risk of 'rentier fishing' and encourages transfer of shares rather than perpetual leasing;

- Caps on the percentage of quota shares any single fishing company or association of companies may hold;
- Revocability clause – specifying the conditions under which ITQs can be revoked and the minimum number of years notice that needs to be given for revocation.

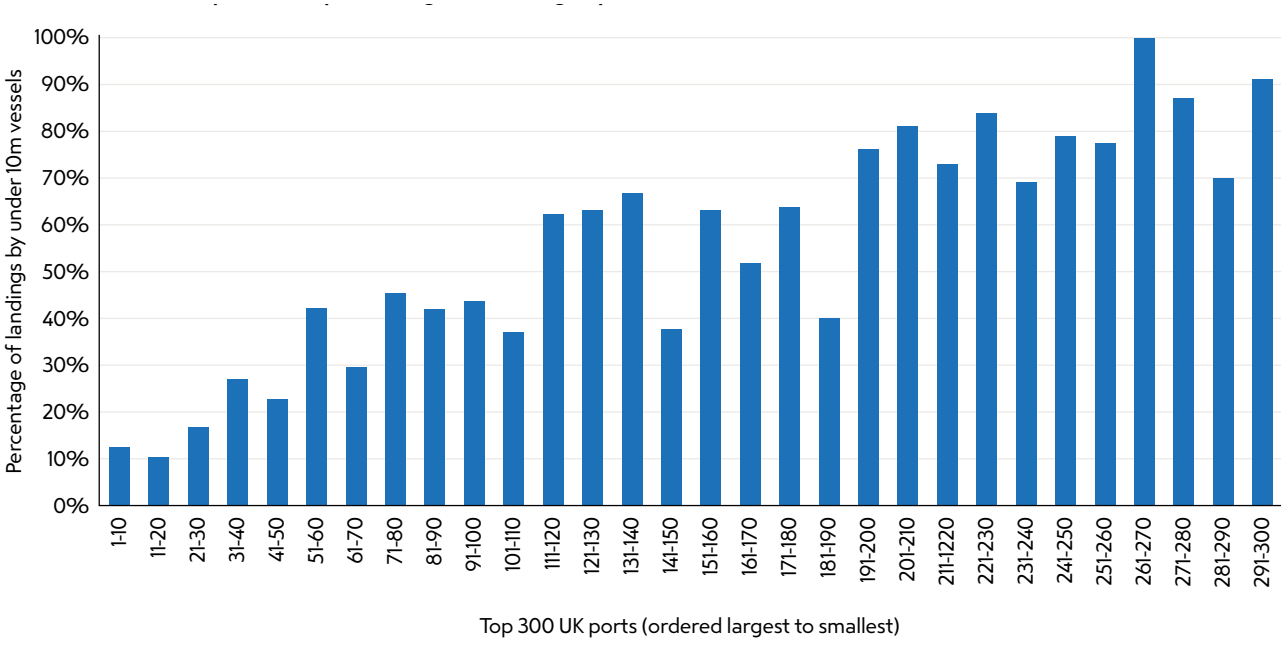
Alternatively, transferability should no longer be permitted, bringing the current arrangements back to the individual quota system it was initially designed as. In that case, regulated leasing with active fisher requirements and swapping should still be permitted to provide fishers with flexibility. FQAs should then no longer be transferred independently from vessels.

REALLOCATE QUOTA TO THE INSHORE FLEET TO IMPROVE EQUITY

The under 10 metre fleet suffers from an unfairly low initial allocation due to the way in which quota shares were initially allocated based on track records during the reference period. For many of the quotas targeted by the inshore fleet (and where reallocation might be considered), quota uptake is very high for the under 10 metre pool and often higher than the sector (see 'Flexibility' objective). As a consequence, there would likely be high usage of any additional quota for these species in the under 10 metre pool, overall quota utilisation may increase as well.

Reallocation to inshore vessels would also mostly benefit small ports and communities (see graph),[52] which, due to low vessel numbers, are often the least resilient to change. This is particularly important as one of the stated objectives of Defra's Fisheries 2027 is that 'fishing communities are resilient and diverse enough to withstand fluctuations in the availability of fishing opportunities'.[53]

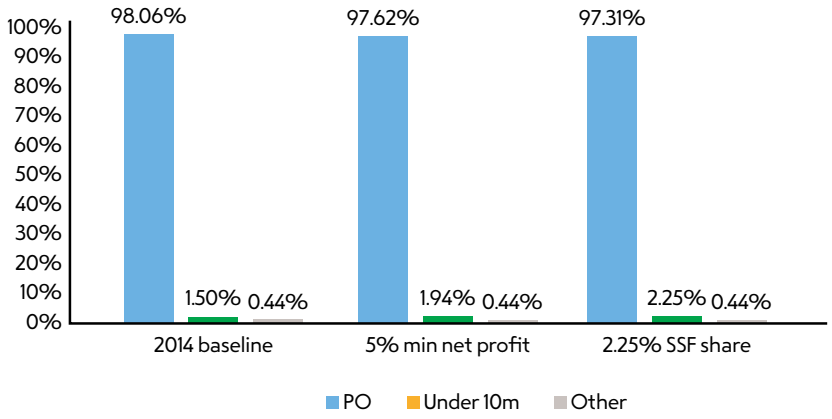
FIGURE 16.5.1: SIZE OF UK PORTS AND PERCENTAGE OF LANDINGS BY UNDER 10M VESSELS (2015)



Source: Balata & Vardakoulias (2016)

According to our calculations, even a small redistribution of quotas, bringing the under 10 metre pool to 1.94% of the national quota can bring inshore fleet segments to a minimum 5% net profit margin for viability.[54] As demonstrated by the graph below, this involves only a minor adjustment to the UK's overall distribution of quotas.

FIGURE 16.5.2: SIZE OF UK PORTS AND PERCENTAGE OF LANDINGS BY UNDER 10M VESSELS (2015)



Source: Balata & Vardakoulias (2016)

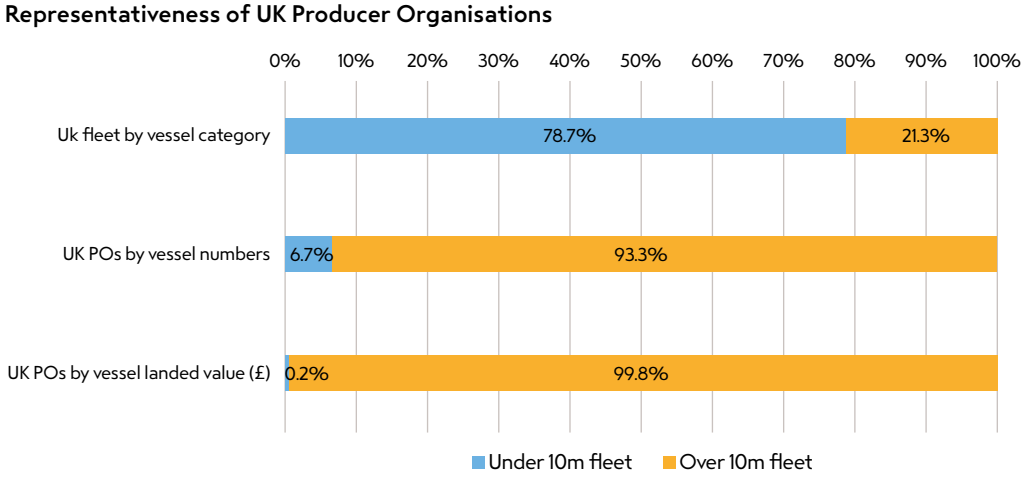
SUPPORT THE FORMATION OF A PRODUCER ORGANISATION FOR THE INSHORE FLEET

Inshore fishers have repeatedly complained that their lack of quotas makes it difficult to join POs and receive adequate representation. The under 10 metre pool, which spreads its quotas very thinly across the whole fleet is problematic in a myriad of ways. Fishers have no flexibility to obtain additional quota, unless they lease from a PO. Catch limits are currently set on a monthly basis preventing fishers from planning effectively for their own business and fishers have minimal say in how the under 10 metre pool is run. Additionally, inshore fishers do not benefit from the marketing services and international swaps that POs provide for sector fishers.

Efforts to bring under 10 metre vessels into the sector have not been successful, partly due to the lack of track records for most under 10 metre fishing vessels. The UK should now act to facilitate the creation of a national PO that can provide equivalent services and benefits for the under 10 metre fleet. This should be accompanied by a reallocation of FQAs and is not in itself a solution to quota shortages. The new inshore PO(s) could allocate quota to members in a manner of their own choosing (individual catch limits or pooling, monthly or annual). There could also be additional factors to vessel length to determine PO membership, such as vessel capacity or the use of low-impact gears.

Currently, POs represent just a tiny fraction of inshore vessels. POs under 10 metre membership is only 7% (despite forming 79% of the total fleet) and less than 1% by value.[55]

FIGURE 16.5.3: REPRESENTATIVENESS OF UK PRODUCER ORGANISATIONS



Source: Authors' calculations using data from the Marine Management Organisation (MMO).

16.6 CONCLUSIONS

The UK maintains a differentiated quota system with IQ for the sector (PO members) and pooled quotas the level of the fisheries administrations for inshore and non-sector fishers. The quota system has some resemblances of an ITQ system with an unregulated trade in FQAs occurring. Our analysis indicates that the UK performs well on security, flexibility and transparency, but performance is mixed and low for most other objectives. Based on our assessment of available information and input from interviews, we recommend that the UK:

- Affirms public ownership of fish stocks and FQAs to ensure that access to the public resource remains under government control;
- Introduces a peer-to-peer quota swapping system that could provide greater flexibility in quota access whilst not monetising transactions;
- Improves access for new fishers either through lending or granting quota to young fishers wishing to enter the industry;
- Fully incorporates social and environmental criteria in its primary allocation method, or through using the national quota reserve;
- Upon exiting the EU and the Common Fisheries Policy, withdraws from the London Convention and reform spatial access to inshore waters;
- Implements a landings tax to recover management costs - with an aim to eventually recover a share of the resource rent - and reduces fuel tax exemptions;
- Differentiates this landings tax to favour landings in national ports to ensure that the use of a national resource benefits UK communities;
- Regulates the de facto ITQ system to minimise negative impacts, or revert to an IQ system with no transfers permitted;
- Reallocates quota to the inshore fleet to address historic under-allocations and improve equity;
- Supports the formation of a Producer Organisation for the inshore fleet to improve representation of inshore fishers and allow for devolved quota management.

Some recommendations, such as applying a landings tax and cutting fuel subsidies, will increase costs for the sector. However, in a context of very high profits (25% gross profit margin in 2014) and significant public expense in management and fuel subsidies, the balance should shift. The inshore sector, which currently experiences under allocations and is under-represented, could benefit great from these reforms, bringing wider benefits to coastal communities across the UK. Taken together, these recommendations could transform the UK fishery while also keeping the general system structure and its current advantages intact.

---

1 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

2 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

3 Marine Management Organisation (MMO). (2016). UK vessel lists. MMO. Retrieved from https://www.gov.uk/government/collections/uk-vessel-lists

4 Marine Management Organisation (MMO). (2016). UK Sea Fisheries Statistics. MMO. Retrieved from https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics

5 Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf

6 Balata, F. & Vardakoulias, O. (2016). Turning back to the sea. London: New Economics Foundation. Retrieved from http://neweconomics.org/2016/11/turning-back-to-the-sea/

7 As the UK has different definition of 'small-scale' vessels than the EU, this term is not used. Instead we refer only to 'inshore'/'under 10 metre vessels'.
8 Marine Management Organisation (MMO). (2016). UK Sea Fisheries Statistics. MMO. Retrieved from https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics
9 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015 and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
10 Department for Food, Environment and Rural Affairs (Defra). (2012). A subject specific concordat between the administrations on management arrangements for fishing opportunities and fishing vessel licensing in the United Kingdom. Defra. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69547/pb13771-fish-concordat.pdf
11 Authors' calculations based on the UK Fixed Quota Allocations register. Retrieved from https://www.fqaregister.service.gov.uk/
12 European Commission. Organisation of the sector. Retrieved from: https://ec.europa.eu/fisheries/cfp/market/producer_organisations_en
13 Authors' calculations based on the UK Fixed Quota Allocations register. Retrieved from https://www.fqaregister.service.gov.uk/
14 Marine Management Organisation (MMO). Note on changes to the fixed quota allocation system. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/314691/fqa5.pdf
15 High Court of Justice Queen's Bench Division Administrative Court. Case No: CO/4796/2012. Available at: https://1exagu1grkmq3k572418odooym-wpengine.netdna-ssl.com/wp-content/uploads/2014/03/DEFRA-v-UK-fishing-association.pdf
16 Department for Environment, Food & Rural Affairs. IFCA byelaw guidance. Retrieved from https://www.gov.uk/government/publications/ifca-byelaw-guidance
17 Department for Environment, Food & Rural Affairs. Fisheries 2027 - a long-term vision for sustainable fisheries. Retrieved from https://www.gov.uk/government/publications/fisheries-2027-a-long-term-vision-for-sustainable-fisheries
18 MRAG, IFM, CEFAS, AZTI Tecnalia & PolEM. (2009). An analysis of existing rights based management (RBM) instruments in Member States and on setting up best practices in the EU. Final report: Part II. (Vol. No FISH/2007/03): European Commission. Retrieved from https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/rbm_2009_part2.pdf
19 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
20 Authors' calculations based on Fisheries Data Exchange System (FIDES), 2013-2015.
21 Authors' calculations based on European Fisheries Control Agency (EFCA). Annual Reports 2013-2015. Retrieved from http://www.efca.europa.eu/en/library-type/annual-reports
22 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Fisheries Dependent Information (STECF 16-20). Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1443008/2016-11_STECF+16-20_FDI_JRC104212.pdf
23 Authors' calculations based on Fisheries Data Exchange System (FIDES) dataset. 2013-2015.
24 Authors' calculations based on Marine Management Organisation (MMO). (2016). Quota usage statistics. MMO. Retrieved from https://www.gov.uk/government/statistical-data-sets/quota-use-statistics
25 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
26 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
27 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf
28 Authors' calculations based on the UK Fixed Quota Allocations register. Retrieved from https://www.fqaregister.service.gov.uk/
29 McClenaghan, M. & Boros, C. (2016). Investigation: Big Fish quota barons squeeze out small scale fishermen. Energydesk. Retrieved from http://energydesk.greenpeace.org/2016/05/15/investigation-big-fish-quota-barons-squeeze-out-small-scale-fishermen/
30 Authors' calculations based on the UK Fixed Quota Allocations register. Retrieved from https://www.fqaregister.service.gov.uk/
31 Department for Food, Environment and Rural Affairs (Defra). (2012). A subject specific concordat between the administrations on management arrangements for fishing opportunities and fishing vessel licensing in the United Kingdom. Defra. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69547/pb13771-fish-concordat.pdf
32 The United Kingdom Association of Fish Producer Organisations vs Secretary of State for Environment, Food and Rural Affairs. Case No: CO/4796/2012. Available at: https://1exagu1grkmq3k572418odooym-wpengine.netdna-ssl.com/wp-content/uploads/2014/03/DEFRA-v-UK-fishing-association.pdf
33 Defra, 2016. UK submission to the Commission regarding the national system of allocating fishing opportunities (Article 16.6 of the regulation 1380/2013). Obtained from the Commission via and information request.
34 Greenpeace vs The Secretary of State for Environment Food and Rural Affairs. Case No: CO/338/2015. Available at: http://www.bailii.org/ew/cases/EWHC/Admin/2016/55.html
35 Authors' calculations based on Scientific Technical and Economic Committee for Fisheries (STECF). (2016). Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities. (STECF-16-18). Luxembourg: Publications Office of the European Union. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC103772/lb-ax-16-018-en-n.pdf
36 Authors' calculations based on OECD.stat and Scientific Technical and Economic Committee for Fisheries (STECF). (2016). The 2016 annual economic report on the EU fishing fleet (STECF 16-11). Luxembourg: Publications Office of the European Union. Retrieved from https://stecf.jrc.ec.europa.eu/documents/43805/1489224/2016-07_STECF+16-11+-+AER+2016_JRCxxx.pdf
37 Sea Fish Industry Authority. Levy and funding. Retrieved from http://www.seafish.org/about-seafish/levy-and-funding
38 Sea Fish Industry Authority. What we do. Retrieved from http://www.seafish.org/about-seafish/what-we-do
39 Authors' calculations based on Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf
40 Leite, L., & Pita, C. (2016). Review of participatory fisheries management arrangements in the European Union, Marine Policy, 74, 268-278. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X16304742

41 Blomeyer, R., Nieto, F, Sanz, A, Stobberup, K, & Erzini, K. (2015). Criteria for allocating access in the EU. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/540357/IPOL_STU(2015)540357_EN.pdf

42 Gray, T., Korda, R.C., Stead, S. and Jones, E. (2011). Quota discarding and distributive justice: the case of the under 10 metre fishing fleet in Sussex, England. Marine Policy, 25, 122-129. Retrieved from http://www.sciencedirect.com/science/article/pii/S0308597X10001508

43 New Economics Foundation. (2016). Written evidence to the House of Lords EU Energy and Environment Sub-Committee. Retrieved from http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/eu-energy-and-environment-subcommittee/brexit-fisheries/written/38504.html

44 Gunnlaugsson, S. B., & Saevaldsson, H. (2016). The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system. Marine Policy, 71, 73-81. Retrieved from http://dx.doi.org/10.1016/j.marpol.2016.05.018

45 Sea Fish Industry Authority. Risk Assessment for Sourcing Seafood. Retrieved from http://www.seafish.org/rass/

46 Borrello, A., Motova, A., & Carvalho, N.D. (2013). Fuel subsidies in the EU fisheries sector. European Parliament's Committee on Fisheries. Retrieved from http://www.europarl.europa.eu/RegData/etudes/note/join/2013/513963/IPOL-PECH_NT(2013)513963_EN.pdf

47 Going further, a natural capital accounting framework would hold that instead of a fuel exemption there should actually be an additional fuel tax to pay for negative externalities of fuel use.

48 Döring, R. (2011). CFP Reform – Resource rent extraction and a possible model to preserve small-scale fisheries. Retrieved from http://www-connexe.univ-brest.fr/gdr-amure/eafe/eafe_conf/2011/hamburg_eafe_2011/Doring_eafe11.pdf

49 Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf

50 A differentiated landings tax was one of the options for reform considered in the review of the UK's economic link in Vivid Economics. (2009). A review of the effectiveness of the Economic Link. Department of Environment, Food and Rural Affairs. Retrieved from http://randd.defra.gov.uk/Document.aspx?Document=MF1207_9064_FRP.pdf

51 Marine Scotland. (2014). Appraisal of quota options. The Scottish Government. Retrieved from: http://www.gov.scot/Resource/0045/00454500.pdf

52 Marine Mangement Organisation (2016). Landings by port. MMO. Retrieved from https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics

53 Department for Environment, Food & Rural Affairs. Fisheries 2027 - a long-term vision for sustainable fisheries. Retrieved from https://www.gov.uk/government/publications/fisheries-2027-a-long-term-vision-for-sustainable-fisheries

54 Balata, F. & Vardakoulias, O. (2016). Turning back to the sea. London: New Economics Foundation. Retrieved from http://neweconomics.org/2016/11/turning-back-to-the-sea/

55 Marine Management Organisation (MMO). (2016). UK Sea Fisheries Statistics. MMO. Retrieved from https://www.gov.uk/government/collections/uk-sea-fisheries-annual-statistics

CHAPTER 17 – SUMMARY AND CONCLUSIONS

SUMMARY OF RESULTS

With highly variable types of fisheries management across EU Member States, it is unsurprising that our analysis shows mixed results by Member State and objective. No Member State scores perfect performance, nor is performance on any one objective consistently high, although there are some patterns. Table 17.1 summarises the performance of each of the 12 foundational objectives across all 12 Member States analysed.

TABLE 17.1. FREQUENCY OF RATINGS FOR THE 12 FOUNDATIONAL OBJECTIVES

CATEGORY	OBJECTIVES	LOW	MID-LOW	OTHER	MID-HIGH	HIGH	SCORE	AVG
GOOD FOR FISHERS	Secure	2	0	5	2	3	0.8	-0.4
	Flexible	3	0	4	3	2	0.2	
	Accessible	7	3	1	1	0	-3.3	
	Viable	1	0	9	2	0	0.0	
	Equitable and Fair	1	4	1	5	1	0.2	
GOOD FOR SOCIETY	Publicly owned	1	2	1	5	3	1.5	-2.2
	Meets government objectives	1	6	2	3	0	1.0	
	Limited public expense	8	4	0	0	0	-4.2	
	Captures resource rent	12	0	0	0	0	-5	
GOOD PROCESS	Transparent and accountable	4	4	1	2	1	-1.7	-0.3
	Objective	0	4	1	6	1	0.8	
	Right governance level and representative	0	6	1	4	1	0.0	

Note: Each ranking is scored from -2 (low) to +2 (high) and then an average is calculated and put into a +/- 5-point scale. The 'other' ranking includes 'uncertain', 'mixed' and 'in-flux' assessments and are given a score of 0.

The low performance on 'Limited public expense' and 'Captures resource rent' is an interesting outcome and requires further discussion. Few Member States seek to recover management costs and those that do only account for a small proportion of total costs. Fuel subsidies are universally given through tax reductions, increasing public costs. None of the Member States analysed took efforts to recuperate economic rents, although in some Member States funding for arms-length organisations and/or management functions is provided. Whilst some non-EU countries have implemented levies to generate resource rent and pay for the cost of management, to date this has been viewed as infeasible in EU Member States. One of the frequently cited reasons that arose during our interviews was that many fleet segments are already struggling financially, although our recommendations cover both viability for all fleet segments as well as new levies to pay for management.

Accessibility for new fishers is another objective that exhibited frequent low performance. Whilst most Member States gift quota shares to incumbent fishers based on their past participation, new fishers usually need to purchase vessels with an existing track record or buy fishing rights separately. Vessels with track records tend have a quota shadow price, an additional cost new fishers have to pay for. Confounding barriers for new fishers include the CFP's measures on capacity that compel the majority of newcomers to purchase existing vessels. Relatively low wages in the fishing sector are another factor that may deter young fishers.

The objective for a 'Viable' fishing fleet is often difficult to score, due to a large number of systems with extremely mixed results across fleets segments (noted in the report as 'Mixed') as well as cases where performance is rapidly changing at present (noted in the report as 'In flux'). This rating is also explained, in some cases, by a trade-off between profitability and crew wages - the two measures used to assess this objective. Fishing revenues by fishing companies are used in a number of ways and costs (including wages) are directly subtracted from wages. This is most apparent in Belgium where the highest average crew wages are associated with some of the lowest profits at the national level, relative to other Member States. In Italy, the results are reversed.

Even the three most highly performing objectives have relatively low overall scores. Public ownership of fishing opportunities is reasonably well established in Member States with official statements or reallocations indicating government control in most cases. Despite these statements, fishers and investors across Member States frequently view fishing opportunities as private property. Since most Member States allocate fishing opportunities using historical activity, and do so on an annual basis, our objectives for 'Secure' and 'Objective' are also frequently met, albeit with some exceptions.

TYPES OF FISHING OPPORTUNITIES

Our research on the design of fishing opportunities, and in particular, the quota systems of the 12 Member States, reveals a few common practices. Most Member States have either IQs or ITQs in place for their main commercial fleet and use historical fishing activity as the sole or primary criteria for allocation. A few exceptions to this are Belgium, Ireland and Italy. Belgium and Ireland ration most of their quotas to vessels which receive equal allocations, depending on their fleet segment. Italy uses effort management to constrain fishing activity. Another common practice is the differentiation of allocation and types of fishing opportunities used between small-scale and large-scale producers. Small-scale fleets are frequently regulated through rationed quotas or a national quota whilst non-quota stocks are frequently under effort management.

Another notable finding is that, whist the latest reform of the CFP has been in force for over three years, very few changes have been made in order to allocate quotas according to social and environmental criteria, as required by Article 17. Some Member States, such as Spain and France, already included social criteria in their allocation method, and others apply extraordinary allocations to coastal fishers or for particular gear types. However, no new efforts have been made to include social and environmental criteria in the primary allocation mechanism by any of the Member States analysed here, despite a push from civil society for a section of the CFP that would encourage fishing practices that fared well on criteria beyond profitability alone. Table 17.2 summarises the systems of fishing opportunities used in the 12 Member States analysed in this report.

TABLE 17.2. SUMMARY OF FISHING OPPORTUNITIES USED IN 12 MEMBER STATES

COUNTRY	FISHING OPPORTUNITIES	ALLOCATION
Belgium	**Rationed and national quotas:** - IQs and daily catch limits - National quotas for coastal fishers	**Collective utilisation system** - Allocation based on engine power, equal access and utilisation
Denmark	**ITQs and rationed quotas** - ITQs for commercial fisheries - Rationed pool for less active fishers	**Historical and rationed allocation** - Initially allocated according to track records - Equal rationing to less active fishers
France	**IQs, pooled and national quotas** - Individual and pooled quotas for PO members - National pool for non-PO fishers	**Historical, criteria and pooled** - Allocations to POs on historical criteria - Some extraordinary socio-economic allocations and reserve allocations
Germany	**IQs and rationed quotas** - Individual quotas for full-time fishers - National pool for part-time fishers	**Historical, criteria and pooled** - Allocations based on historical criteria - Equal rationing to less-active fishers - Small quota reserve held ministry
Ireland	**Rationed quotas and IQs** - Demersal quotas rationed monthly - Pelagic quotas individually allocated	**Utilisation and historical** - Rationed in two size categories - Allocated by historical catch record
Italy	**EM, ITQs and TURFs** - EM measures in management plans - ITQs in the BFT fishery - TURFs in mollusc and artisanal fisheries	**EM and historical** - Fishing seasons and spatial restrictions for towed gears and other measures - Historical allocation in ITQ fishery
Netherlands	**ITQs, IEQs and national pool** - ITQs and IEQs for major commercial stocks - National quota for remaining TAC stocks	**Historical and pooled allocation** - Allocations based on historical criteria - Non-ITQs quotas pooled nationally
Poland	**Rationed and national quotas** - Rationed quotas in place for TAC stocks - National quotas for some segments	**Historical and size category** - Historical allocations to length-based fleet segments. Equal within segment
Portugal	**IQs and ITQs** - IQs for EU TACs - ITQS for NEAFC, NAFO and ICCAT stocks	**Historical catch record** - All quota allocated according to historical landings
Spain	**IQs, ITQs and national quotas** - IQs for EU TACs - ITQS for NEAFC, NAFO and ICCAT stock - National quotas for some artisanal fishers	**Historical and other criteria** - Quota shares determined by a number of criteria; most importantly historical catches and capacity - POs may pool quotas internally
Sweden	**ITQs, rationed and national quotas** - ITQs in place for major pelagic stocks - IQs for demersal stocks since 2017 - Pelagic and demersal pool for SSF	**Historical and equal access** - IQs and ITQs are allocated by historical track record - Equal access to national pool
United Kingdom	**IQ/ITQs, and rationed quota** - Sector quotas designed as IQ system but evolved into de facto ITQs - Small-scale/non-sector quotas rationed monthly by devolved administrations	**Historical and rationed allocation** - Quotas allocated according to historical landings to PO (sector) members - National quota pool rationed equally by licence to small-scale and non-sector

CONCLUSIONS

Fishing opportunities, the means by which public authorities distribute access to public fish stocks, are a central aspect of fisheries management with wide-ranging implications. Politicians and fisheries managers must consider a range of competing objectives and make difficult – often political – decisions about what to prioritise. In chapter 3 we described a set of foundational objectives that we consider essential to pursue. Our approach emphasises that wider societal implications need to be considered in conjunction when designing a system that works effectively for fishers. Furthermore, in order for fisheries management to be responsive and carry greater legitimacy, decision-making should be performed transparently and with interactive stakeholder engagement.

Our analysis has highlighted a number of key issues in how fishing opportunities are allocated in EU Member States today. It has shown that some responsibilities are being neglected and reforms are needed. The most important issues identified in this study are:

- The allocation of fishing opportunities often do not account for wider social and environmental outcomes (Article 17 of the CFP);
- There is frequently a lack of transparency and accountability surrounding the method of allocation and the final recipients of allocations;
- New fishers face additional barriers to entry with few Member States implementing measures to accommodate them;
- Equity concerns, particularly the needs of small-scale fishers, are often not taken into account in allocation, particularly the needs of small-scale fishers;
- Most fisheries operate at a significant public expense (particularly with costs of research and management as well as implicit fuel subsidies) but few costs are recovered;
- In a few Member States there is a risk of lost public control over allocation where fishing opportunities have been gradually privatised.

Our hope is that this report has illustrated the importance and complexities of how fishing opportunities are allocated whilst also providing a framework for thinking about what objectives are important and how systems can be assessed. That fisheries face multiple and competing objectives will not change, but our thinking about how to address these issues can progress further.

We have also identified several practices in Member States that are particularly well-suited to meeting the foundational objectives and addressing some of the key issues identified, although the specifics of some practices have discussed in the Member State chapters. These best practices include:

- Denmark and Sweden's differentiated approach in managing small-scale and large-scale fisheries means that they can pursue objectives that respond to the distinct needs of these two sectors.
- Sweden's interactive and engaging stakeholder processes are conducive to fairer outcomes in decision-making, better design and a greater legitimacy of regulations.
- Spain's criteria-based allocation in some of its fisheries are exemplary for incorporating social concerns in the allocation method.
- Denmark's use of a quota validity notice period offers greater security to fishers, whilst retaining ultimate public ownership and control of the resource.
- Belgium's transparency in publishing and disseminating information on the outcomes of its allocation decisions and informing fishers directly.
- Denmark's use of a government-controlled quota reserve to provide access to new fishers and with the potential to be expanded for other purposes, such as applying Article 17 criteria.
- The UK's FQA register and Denmark's ITQ and FKA register, which publicly detail the holding of quota shares provide greater transparency in allocation.
- Denmark's online, peer-to-peer quota swapping platform gives individual fishers more

control over their quota allocations and provides more flexibility in quota access.

- France's mechanism of recovering a portion of vessel quota back to the state when vessels are exchanged provides a means to populate quota reserves and maintain public control over allocations.
- Ireland's quota management body puts fishers at the centre of allocation decisions and provides a means to respond to timely concerns.

Our hope is that this report has illustrated the importance and complexities of how fishing opportunities are allocated whilst also providing a framework for thinking about what objectives are important and how systems can be assessed. That fisheries face multiple and competing objectives will not change, but our thinking about how to address these issues can progress further.

PERFORMANCE OF MEMBER STATES' SYSTEMS OF FISHING OPPORTUNITIES

CATEGORY	OBJECTIVES	DESCRIPTION	BELGIUM	DENMARK	FRANCE	GERMANY
GOOD FOR FISHERS	Secure	Fishing opportunities provide fishers with a sustained, long-term share of fish stock(s)	LOW	HIGH	MIXED	MID-HIGH
	Flexible	Fishers can access new fishing opportunities or exchange existing ones	LOW	MID-HIGH	LOW	MIXED
	Accessible	Newly eligible fishers are granted fishing opportunities upon entry to the industry	LOW	MID-HIGH	MID-LOW	LOW
	Viable	Operations are financially viable and employees are decently paid	MIXED	MIXED*	MIXED	MID-HIGH
	Equitable and Fair	Fishing opportunities are distributed fairly and unique needs are prioritised	HIGH	MID-LOW**	MID-LOW	MID-LOW
GOOD FOR SOCIETY	Publicly owned	Fish stocks and fishing opportunities remain publicly owned	HIGH	MIXED	MID-HIGH	MID-LOW
	Meets government objectives	Governments use fishing opportunities to meet national and EU policy objectives	MID-HIGH	MID-HIGH	MID-LOW	MID-LOW
	Limited public expense	The cost of managing the system of fishing opportunities is covered by the fishing industry	MID-LOW	LOW	LOW	LOW
	Captures resource rent	As a public resource, some of the resource rent is captured	LOW	LOW	LOW	LOW
GOOD PROCESS	Transparent and accountable	Decision making on the allocation of fishing opportunities is transparent and accountable	MID-HIGH	HIGH	LOW	LOW
	Objective	The allocation of fishing opportunities follows a systematic and fair process	MID-HIGH	MID-HIGH	MID-LOW	MID-LOW
	Right governance level and representative	Governance empowers local institutions and involves inclusive stakeholder representation	MID-HIGH	MID-LOW	MID-HIGH	MID-LOW

* IN FLUX ** INCREASING

IRELAND	ITALY	NETHERLANDS	POLAND	PORTUGAL	SPAIN	SWEDEN	UK
LOW	UNCERTAIN	HIGH	MID-HIGH	MIXED	MIXED	MIXED*	HIGH
HIGH	UNCERTAIN	MID-HIGH	HIGH	MIXED	LOW	MIXED*	MID-HIGH
MID-LOW	MID-LOW	LOW	LOW	LOW	LOW	MID-LOW*	LOW
MIXED	MIXED	MIXED**	LOW	MID-HIGH	LOW**	MIXED	MIXED
MID-HIGH	MID-HIGH	LOW	MID-HIGH	MID-LOW	MID-HIGH	MID-HIGH	MID-LOW
MID-HIGH	HIGH	LOW	HIGH	MID-HIGH	MID-HIGH	MID-HIGH	MID-LOW
MID-HIGH	MID-LOW	MIXED	MID-LOW	MID-LOW	MIXED	LOW	MID-LOW
LOW	LOW	MID-LOW	LOW	LOW	MID-LOW	LOW	MID-LOW
LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
MIXED	MID-LOW	LOW	MID-LOW	LOW	MID-LOW	MID-LOW	MID-HIGH
MID-LOW	UNCERTAIN	MID-HIGH	MID-LOW	HIGH	MID-HIGH	MID-HIGH	MID-HIGH
MID-LOW	MID-HIGH	MIXED	MID-LOW	MID-LOW	MID-HIGH	HIGH	MID-LOW

NEW ECONOMICS FOUNDATION

WWW.NEWECONOMICS.ORG
info@neweconomics.org
+44 (0)20 7820 6300 @NEF
Registered charity number 1055254

This research was made possible by generous support from the Adessium Foundation, Oak Foundation, and the Calhouste Gulbenkian Foundation – UK branch.

WRITTEN BY:
Griffin Carpenter and Richard Kleinjans

WITH THANKS TO:
Paolo Accadia, Sveinn Agnarsson, Thomas Appleby, Martin Aranda, Manuel Bellanger, Jörg Berkenhagen, Emiel Brouckaert, Jamie Bull, Anna Carlson, Natacha Carvalho, Goncalo Carvalho, Bertrand Cazalet, Igor Celic, Greig Chalmers, Scott Crosson, Ger de Ruiter, Klaas de Vos, Ralf Döring, Edward Fahy, Tom Flannery, Hans Frost, Raúl García, Miguel Gaspar, Andrea Giesecke, Chris Grieve, Jordi Guillen, Olivier Guyader, Stephen Hall, Krien Hansen, Jeppe Host, Ngaio Hotte, Barbara Hutniczak, Steve Karnicki, Ian Kinsey, Markus Knigge, Matthias Kokorsch, Erik Lindebo, Thilo Maack, Claire Macher, Carmen Martin, Sebastian Metz, Arantza Murillas-Maz, Lia ní Aodha, Fernando Nieto, Ciarán O'Driscoll, Anton Paulrud, Jerry Percy, Terri Portmann, David Powell, Raul Prellezo, Erin Priddle, Cornelie Quist, Jesper Raakjaer, Anthony Rogers, Marcin Rucinski, Rosaria Sabatella, Mogens Schou, Massimo Spagnolo, Lisa Ståhl, Edward Stern, Klaas Sys, Thomas Thøgersen, Katrien Verle, Sebastian Villasante, Johan Wagnstrom, Staffan Waldo, Lauren Weir, Lutz Wessendorf, Chris Williams, Ida Wingren, Hanne Winter and several anonymous interviewees and reviewers. Additional thanks to the countless people who helped us access and understand the information used in this report. All content and opinions are the sole responsibility of the authors.