Research papers

Authors
Frédéric Le Manach
Mialy Andriaahefazafy
Nadège Legroux
Laure Quentin
Coordination
Stéphanie Leyronas

FEBRUARY 2021
No. 203

Questioning Fishing Access Agreements towards Social and Ecological Health in the Global South

AFD éditions
AGENCE FRANÇAISE DE DÉVELOPPEMENT

Agence française de développement

Papiers de recherche

Les *Papiers de Recherche de l'AFD* ont pour but de diffuser rapidement les résultats de travaux en cours. Ils s'adressent principalement aux chercheurs, aux étudiants et au monde académique. Ils couvrent l'ensemble des sujets de travail de l'AFD : analyse économique, théorie économique, analyse des politiques publiques, sciences de l'ingénieur, sociologie, géographie et anthropologie. Une publication dans les *Papiers de Recherche de l'AFD* n'en exclut aucune autre.

Les opinions exprimées dans ce papier sont celles de son (ses) auteur(s) et ne reflètent pas nécessairement celles de l'AFD. Ce document est publié sous l'entière responsabilité de son (ses) auteur(s).

AFD Research Papers

AFD Research Papers are intended to rapidly disseminate findings of ongoing work and mainly target researchers, students and the wider academic community. They cover the full range of AFD work, including: economic analysis, economic theory, policy analysis, engineering sciences, sociology, geography and anthropology. *AFD Research Papers* and other publications are not mutually exclusive.

The opinions expressed in this paper are those of the author(s) and do not necessarily reflect the position of AFD. It is therefore published under the sole responsibility of its author(s).

Questioning Fishing Access Agreements towards Social and Ecological Health in the Global South

AUTEURS

Frédéric Le Manach
BLOOM

Mialy Andriamahefazafy
Université de Lausanne

Nadège Legroux
AFD

Laure Quentin
AFD

COORDINATION

Stéphanie Leyronas
AFD

Abstract
While marine ecosystems play a major role in the regulation of climate and our Planet's ability to cope with climate change, they are also critical for providing food, livelihood, and income to billions of people worldwide. Unfortunately, they face increasing threats due to anthropic activities. In many regions, various types of agreements have historically organized and commodified the access to the resources of the Exclusive Economic Zones of coastal States to distant-water fishing nations. These longstanding commercial mechanisms can take the form of either private agreements between a State and a fishing company, public agreements between two States, or joint ventures between two companies. They are used by a variety of industrialized fishing countries and blocs such as the European Union, the USA, Russia, Japan, and China to access fisheries resources in the waters of the Global South.
In Europe, these fishing agreements most often take the form of "public access agreements", i.e. agreements that are negotiated between a coastal State (e.g. Senegal or Madagascar) and the European Commission, on behalf of the European fleets. These public fishing access agreements have become an integral part of the Common Fisheries Policy, granting EU vessels access to the bountiful waters of Africa, and, to a much lower extent, Oceania. Unlike for other fishing nations such as Russia, Turkey or China — whose severe impacts on local ecosystems and coastal communities are suspected but poorly documented — the analysis of European public fishing access agreements is facilitated by a relatively high level of transparency and data availability. This paper examines and questions global fishing access agreements through the lens of the public agreements established between the European Union and African countries. Specifically, we contextualize the property and management of marine resources at sea, and provide some of the most up-to-date information regarding the state-of play of EU public fishing access agreements. The notion of "surplus", which is at the heart of many global fishing agreements, is also explored and challenged. We conclude our analysis with three avenues for researchers and policy makers: i) the development of more complex, multi-user regional models as the scientific basis for fishing access agreements, ii) the need to increase research investments and transparency in order to develop such models, and iii) an improvement in monitoring, control and surveillance necessary to drive practices in the Global South towards more sustainability and equity.

Keywords
Fisheries access agreements, surplus, commons, development

JEL Classification
Q22, F18, 013

Original version
English

Accepted
January 2021

Résumé
Alors que les écosystèmes marins jouent un rôle majeur dans la régulation du climat et la capacité de notre planète à faire face aux changements climatiques, ils sont également essentiels pour fournir de la nourriture, des moyens de subsistance et des revenus à des milliards de personnes dans le monde.
Malheureusement, ils font face à des pressions croissantes d'origine anthropique. Dans de nombreuses régions, différents types d'accords ont historiquement organisé et marchandisé l'accès aux ressources des Zones économiques exclusives d'Etats côtiers pour les pays pratiquant la pêche dans les eaux dites « lointaines ». Ces mécanismes commerciaux de longue date peuvent prendre la forme d'accords privés entre un Etat et un armateur, d'accords publics entre deux États, ou encore de sociétés mixtes (joint-ventures en anglais) entre deux entités privées. Ils sont utilisés par un éventail de pays et unions de pays pratiquant la pêche industrielle tels que l'Union européenne, les Etats-Unis, la Russie, le Japon et la Chine, afin d'accéder aux ressources halieutiques des pays « du Sud ».
En Europe, ces accords de pêche prennent généralement la forme d'accords publics négociés entre un État côtier (par exemple le Sénégal ou Madagascar) et la Commission européenne, pour le compte des flottes européennes. Ces accords de pêche sont devenus partie intégrante de la Politique commune de la pêche, permettant aux navires de l'Union européenne (UE) d'accéder aux eaux du continent africain et, dans une moindre mesure, à celles de l'Océanie, abondantes en ressources halieutiques.
Contrairement à d'autres pays disposant d'une flotte de pêche distante tels que la Russie, la Turquie ou la Chine – dont les préjudices sur les écosystèmes locaux et les communautés côtières sont suspectés mais peu documentés – l'analyse des accords de pêche européens est facilitée par une certaine transparence et disponibilité des données. Ce papier a pour objectif d'étudier et d'interroger les principes des accords de pêche à travers le prisme des accords publics établis entre l'Union européenne et certains pays africains.
Après avoir brièvement rappelé le contexte des formes de propriété en mer et de gestion des ressources marines, nous proposons de présenter un état des lieux des accords de pêche de l'UE. Suite à ce panorama, la notion de « surplus », au cœur de nombreux accords de pêche, est explorée et questionnée. Nous concluons avec trois pistes pour les chercheurs et les décideurs : i) le développement de modèles holistiques régionaux et multi-usagers pour faire évoluer la base scientifique de ces accords, ii) la nécessité d'augmenter les investissements dans la recherche et la transparence afin de développer de tels modèles, et iii) l'amélioration du suivi, du contrôle et de la surveillance indispensable pour orienter les pratiques vers davantage de durabilité et d'équité.

Mots-clés
Accords de pêche, surplus, communs, développement

Introduction

Marine ecosystems in the waters of tropical countries face increasing threats due to human pressures at sea, especially from extractive activities (e.g. fisheries, oil and gas production, mining exploration), non-extractive activities (e.g. marine traffic, renewable energies, urbanization), and global changes (e.g. warming, acidification; IPCC, 2019). In parallel, these ecosystems are also critical for providing proteins, livelihood, and income for billions of humans worldwide, especially in the Global South (FAO, 2018; Hicks *et al.*, 2019). Global ocean sustainability is therefore of paramount importance, as illustrated by different United Nations' (UN) Sustainable Developments Goals (SDGs) — SDG 2 "Zero hunger", SDG 10 "Reduced Inequalities", SDG 12 "Responsible Consumption and Production", SDG 14 "Life below water" (United Nations, 2015) — as well as by ongoing negotiations on an international, legally-binding instrument on the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction (Ortuño Crespo *et al.*, 2019).

This paper focuses on a European mechanism whose social, environmental and economic impacts at sea and for coastal communities are significant, namely the fishing access agreements that are negotiated between the European Commission and coastal States in Africa[1]. At the heart of both the European Common Fisheries Policy and the access and supply of fishery products in African-Caribbean-Pacific Group of States (ACP) countries — referred throughout as "the Global South" for readability — these fishing access agreements govern the access of European vessels to the Exclusive Economic Zone (EEZ)[2] of numerous African countries in order to catch fish (Le Manach *et al.*, 2013b; Panossian, 2014). The proportion of catches under fishing access agreements allegedly accounts for only 4% of the EU's fish consumption according to industry representatives (Europêche, 2015)[3] — a figure which does not represent the full breadth of the social and economic added-value of these agreements in Europe and Africa. The European

[1] These fishing access agreements have taken several names over time. From the essentially "pay, fish, and go" initial "Fishing Agreements" (Failler *et al.*, 2005), they became "Fisheries Partnership Agreements" in 2004 with the second reform of the Common Fisheries Policy (Gorez, 2009; Stilwell *et al.*, 2010; Walmsley *et al.*, 2007). The third reform of the Common Fisheries Policy, which entered into force in 2014, led to a new name: "Sustainable Fisheries Partnership Agreements", with the aim to reflect that these agreements are truly becoming sustainable partnerships and not just business agreements (Le Manach, 2014).
These agreements are what the European Union calls "bilateral agreements". Other such agreements exist but are out of this paper's scope: in Oceania (Cook Islands, Kiribati, Micronesia, and Solomon Islands), as well as with "Northern countries", i.e. Faroe Island, Greenland, and Norway (these latter agreements are reciprocal). See: https://ec.europa.eu/fisheries/cfp/international/agreements_en. Around the world, other agreements between neighboring countries also exist, e.g. between Canada and the US, and between Senegal and Mauritania.

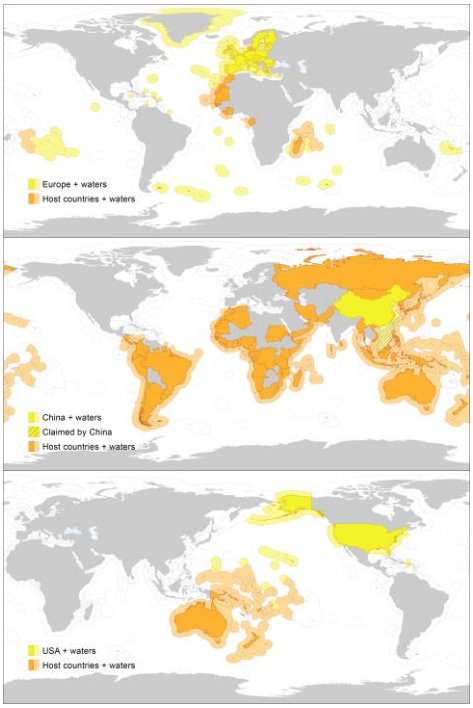
[2] "Exclusive Economic Zones" typically extend to 200 nautical miles (i.e. 370 km) from the coastline. The European Union possesses the largest EEZ in the world, with 22 million km^2, chiefly thanks to France, which has the largest EEZ in the world (almost 12 million km^2).

[3] The European Commission reports that around 8% of the European catch is taken in the waters of non-EU countries through fishing access agreements, but those include the bilateral ones with Norway, Iceland, and the Faroe Islands (European Commission, 2020).

Commission reports that "the economic impact of European public fishing access agreements is clear and contributes largely to job creation: over 6,000 direct jobs (2,500 in the EU, 3,500 in partner countries), and about 9,000 indirect jobs (mostly in processing industries)" (European Commission, 2020).

The network of EU fishing agreements is one of the largest in the world, but agreements with other distant-fishing nations such as China (by far the most important distant-fishing nation (Guttierez *et al.*, 2020)) or Russia. Other types of agreements also exist, e.g. private agreements directly negotiated between European fishing companies and coastal States where public agreements do not apply (e.g. in Kenya). Figure 1 compares the spatial extent of three wide networks of fishing access agreements: those established with i) the European Union (including agreements that are out-of-scope in the present paper, i.e. in Oceania), ii) China,[4] and iii) the United States (using the example of the "Parties to the Nauru Agreement")[5]

Figure 1. Map showing the spatial extent of current agreements (in orange) existing with the European Union (top), China (middle), and the USA (bottom; only "Parties to the Nauru Agreement")
Source: Authors (2020)



Overall the network of EU fishing agreements is certainly the most transparent, given that all texts determining fishing possibilities as well as conditions associated with them are available online, at: http://www.eurlex.europa.eu. Furthermore, recent evaluations of their implementation are regularly commissioned by the Directorate General of Fisheries and Maritime Affairs (DG MARE) of the European Commission and are available at: https://op.europa.eu

[4] China has the largest fishing fleet in the world and currently fishes in most EEZs in the world — either legally (via agreements) or illegally — except in European and North American waters (Mallory, 2013; Pauly *et al.*, 2014; Pauly *et al.*, 2012).

[5] In the Pacific Ocean, Island States have organized themselves and are collectively referred to as the "Parties to the Nauru Agreement", which allows them to levy important fees on the tuna resources they sell to distant fleets, including those from the United States. This network is often recognized as the most beneficial to the coastal countries ceding their resources (Havice, 2010, 2013; Le Manach, 2014).

or http://ec.europa.eu/fisheries/documentation/studies [6].

These various types of agreements — European or not, public or not — have been a longstanding tool to bilaterally or multilaterally organize certain fisheries activities. However, one can question how they address many of a rapidly-evolving society's concerns, in particular in the face of swift and extreme global changes and biodiversity erosion. Although this paper solely focuses on public European fishing agreements in Africa — given their level of transparency and data availability compared to other agreements — its conclusions are relevant to agreements elsewhere and/or with other distant-water fishing nations such as the USA in the waters of Pacific islands, or China in the waters of South American or African countries.

This review is divided into three sections. First we provide some brief elements of context on debates regarding property and management of marine resources at sea. A short reference on the influence of the "Tragedy of the commons" model allows us to understand the origins of the State-led market in which fishing access agreements operate.

Second, we propose an overview of the emergence and establishment of fishing agreements, especially in the European Union (EU), in an attempt to gather the most up-to-date information on their state-of-play. Last, by looking more specifically into these commercial tools, we challenge the notion of "surplus" and demonstrate how this central element in fishing access agreements lacks robustness and often results in losses for local fishers and harmful impacts for marine ecosystems. Based on this analysis, our conclusions present possible ways forward for researchers and policy makers involved in the design of future fishing access agreements.

[6] These assessments – which started in 2004 with the Seychelles' (Anon, 2004a) and São Tome and Principe's agreements (Anon, 2004b) – used to be confidential, but the first sixteen of them were made publicly available in 2011 following an access request filed by "TransparentSea" (a platform created by the Brussels-based Coalition for Fair Fisheries Arrangements), along with 20 environmental NGOs. Note that at that time, these assessments were published on Transparent Sea's website, (http://transparentsea.co; no longer active), and that only recent evaluations are available via the European Commission's website.

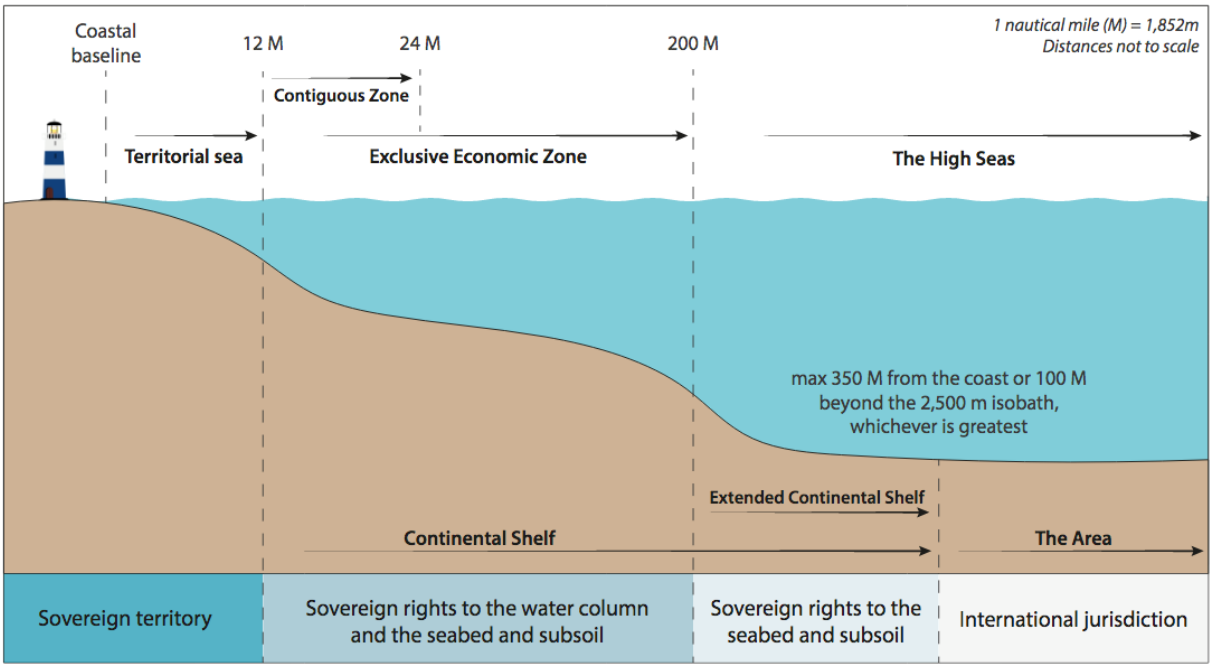
I – Who Owns Wild Marine Resources?

Society's relation to the ocean has featured debates on property configurations at sea for millennia, and different, sometimes opposing, visions have (co)existed. The sea is recognized as a res communes (owned by no one, common to all) alongside shores, water and air in the Code of Justinian, which dates back to the Roman Empire (6th century; Chardeau, 2017). Thus, it is neither a res publicae (owned by the State), a res privatae (in the hands of private owners) nor a res nullius (freely available to the first who will take possession of it; Hallé, 1980). In the 17th century, a debate tagged as the "battle of the books" framed another set of opposing views expressed by European jurists about sovereignty at sea (Steinberg, 2001). Dutch intellectual Hugo Grotius defended the "freedom of the seas" principle (mare liberum), arguing that access and use of ocean space (including navigation, fishing) could not be appropriated under any kind of sovereignty. In his own words, the ocean "is common to all, because it is so limitless that it cannot become a possession of any one, and because it is adapted for the use of all" (Grotius, 1609). English jurist John Selden disagreed, claiming that marine waters could be enclosed by States (mare closum). These historical examples serve to remind that property at sea is an ongoing social construction, still under debate, as illustrated by current discussions on the legal status of marine genetic resources in the high seas.

1.1. The extension of sovereign rights over marine resources

During the 20th century, several decades of negotiations on maritime jurisdiction and the growing need for management of marine resources led to some convergence regarding these issues. Culminating during the third round of the UN Conference on the Law of the Sea (December 1973), an international legal framework for the global ocean was agreed upon: the United Nations Convention on the Law of the Sea (UNCLOS). Signed in Montego Bay, Jamaica, by a first country in 1982 (Fiji; United Nations, 2013), UNCLOS entered into force on November 16, 1994, one year after its ratification by the 60th country (Guyana on 16 November 1993; United Nations, 2012). UNCLOS partly institutionalized Grotius' mare liberum by recognizing the "freedom of the high seas" (Article 78) in areas beyond national jurisdiction, set beyond 200 nautical miles (370 km) and covering a little over two thirds of the global ocean's surface. It also defined a gradient of legally distinct maritime jurisdictions that overall extended coastal States' sovereignty at sea (Figure 2).

Figure 2. Maritime zones according to UNCLOS



Source: Jouffray et al., 2020.

Under UNCLOS and following previous customary law, coastal States possess full sovereign rights within their territorial waters (up to 12 nautical miles; this sovereignty covers the water column, seabed and air space) while allowing for "innocent passage" (UNCLOS Section 3). In the contiguous zone situated between 12 and 24 nautical miles, they retain rights to prevent infringement of some of the laws within their territory. Up to 200 nautical miles, UNCLOS recognizes a new jurisdictional form: Exclusive Economic Zones (EEZ). In this area, a number of freedoms are granted to all (navigation, overflight, cable and pipeline-laying), but coastal States maintain sovereign rights over the exploration, exploitation, conservation and management of resources within the water column and seabed. This specific new jurisdictional regime led to significant legal changes: marine resources within EEZ became the property of the citizens of coastal nations, managed by governments, and thus can be considered as State property (Charles, 2005).

Following the adoption of UNCLOS, coastal States suddenly captured 36% of the global ocean's surface and 90% of its fisheries resources (Seto and Campbell, 2019). The "Tragedy of the Commons" was among the influential ideas that supported this extension of sovereign rights. Clarifying this model and the limits highlighted by commons scholars provides a better understanding of the context in which fishing access agreements were set up.

1.2. The "Tragedy of the Commons" in support to State-property regimes

The extension of coastal sovereign rights at sea reflects one of the solutions offered by an influential theory formulated at the end of the 1960s: the "Tragedy of the Commons" (Hardin, 1968). Writing during the Cold War and heavily inspired by Malthusian thinking, American biologist Garrett Hardin offered a grim view on the management of natural resources. He predicted the overexploitation of what he described as "commons" if such resources were not captured either by private property or by State property. Hardin based his theory on a conceptual model in which a common pasture open to all is inevitably destroyed as each herder, animated by individual economic self-interest, increases his stock. His metaphor became increasingly cited in fisheries management as its fears were echoed by the decline of fish stocks monitored in the North Atlantic (i.e. Eurasian continental shelf hake, North Sea herring, British Isles' haddock), the collapse of certain fisheries (Northwest Atlantic cod, Peruvian anchovy) and the threat of further collapses (Locher, 2019). In addition, bioeconomic fisheries models developed in the 1950s (Gordon, 1954; Schaefer, 1957) drew similar conclusions to Hardin's theory, encouraging the transfer of property rights on shared resources to States (Feeny *et al.*, 1996).

Despite the "Tragedy of the Commons'" influence to date (van Laerhoven and Ostrom, 2007), it was quickly nuanced by an array of scholars, including the neo-institutionalists led by political scientist Elinor Ostrom and her colleagues from the Bloomington School (Locher, 2013). They shed light on a number of empirical examples in which common-pool resources had been, for a long time, sustainably managed by communities under common-property regimes (Ostrom, 1990). Many such examples were found in inshore or local fisheries (Bambridge *et al.*, 2019), where resource users organized themselves, often under unwritten regulation and customary law, in order to establish common rules with regard to their fisheries' access and management (Berkes, 1985, 2006). These illustrations strongly contrast with Hardin's reasoning, which separated fishers from policy solutions, considering them unable to sustainably manage marine resources (Locher, 2019). The works of these social scientists clarify the fact that the "Tragedy of the Commons" is a regime among others: an open-access, unregulated regime, to which one may archetypically oppose private property, State property and common propreté (Berkes *et al.*, 1989) (Table 1).

Table 1. Taxonomy of the four archetypal property-rights regimes

Open access: absence of well-defined property rights; access is free and open to all, as with ocean fisheries of the past century	**Communal property**: resource is held by an identifiable community of users who can exclude others and regulate use; some shellfish beds, range lands, forests, irrigation and ground water have been managed as communal property
Private property: an individual or corporation has the right to exclude others from using the resource and to regulate its use	**State property**: rights to the resource are vested exclusively in government, which controls access and level of exploitation; examples include crown lands and resources such as fish and wildlife held in public trust

Source: Berkes et al. (1989).

1.3. Looking beyond property: the allocation of usage rights

While the common-property arrangements revealed by Ostrom and labelled "commons" are far from a panacea (Ostrom *et al.*, 1999), they represent a paradigm shift in the way governance of natural resources is understood (Leyronas and Bambridge, 2018). Through an institutional lens, what makes a "common" is not the nature of a resource, but the governance regime set up to collectively manage this resource. Studying these institutional arrangements reveals key insights on the notion of property.

In a number of empirical settings, property is far from being binary, either fully exclusive or fully absent. Rather, it tends to be organized as a "bundle of rights", where different usage rights may be granted to different users (Orsi, 2014). For example, Schlager and Ostrom (1992) distinguish five types of rights that may be distributed differentially: the right to accede, withdraw, manage, exclude and/or alienate from a common-pool resource. The analysis of these usage rights shows that their distinct allocation is not limited to common-property regimes but can be found in all property settings. For example, in the high seas, where marine resources tend to be treated as res nullius and assimilated to an open access regime, the UN Fish Stocks Agreement and regulations set up by Regional Fisheries Management Organizations may prescribe specific usage rights to pelagic fish and other wild resources (Charles, 2005). These considerations encourage us to reformulate our initial question: rather than who owns shared resources (e.g. the State, citizens, a specific community), the fundamental question is rather how the different rights to access, withdraw, manage the resources are allocated over time, and especially redistributed when a change of property regime occurs.

In light of the above, one better understands how the extension of State-property regimes over marine resources aimed to counter the institutional failures of open-access regimes fueled by the fear of the "Tragedy of the Commons". While replacing open access situations in many settings, State-property also sometimes replaced other forms of regimes, including communal (St Martin, 2007). A change in property regime draws attention to the (re)distribution of usage rights: is it socially and environmentally fair? These questions contribute to framing the analysis of fishing access agreements, as such agreements illustrate the commodification of a specific right (right to withdraw marine resources) in a State-property regime. Keeping them in mind, the following section offers to delve into a historical and geographical review of these contracts between the EU and ACP countries.

II – A Review of EU Fishing Access Agreements

2.1. The inception of fishing access agreements

"[...] Where the coastal State does not have the capacity to harvest the entire allowable catch, it shall, through agreements or other arrangements [...], give other States access to the surplus of the allowable catch" — Article 62, United Nations' Convention on the Law of the Sea (UNCLOS; 1982).

Fishing access agreements emerged in the late 1970s following the Law of the Sea negotiations and adoption of UNCLOS. This international convention allowed the formalization of a number of customary laws and rights that already existed in less formal or specific ways[7]. These included the concepts of "territorial seas" and "continental shelves", defined as part of the first UN Conference on the Law of the Sea (1956) and resulting Geneva Conventions dating back to 1964. As transcribed above, Article 62 of UNCLOS stipulates that coastal States may give access to any "surplus"[8] of allowable fisheries catches to other States. The establishment of UNCLOS as a novel, internationally-recognized legal instrument containing this article, key to our study, paved the way towards the widespread emergence of fishing access agreements.

The formalization of EEZs resulted in notable changes: as fishing efforts expanded in the northern hemisphere, fishing fleets increasingly moved southward following negotiations of fishing access agreements with tropical coastal countries (Bonfil *et al.*, 1998)[9]. Although UNCLOS did also include various provisions allowing countries to keep their surplus rather than cede it[10], scholars have argued that countries in the Global South were not opposed to incoming foreign vessels, as these allowed them to generate income from locally-underexploited stocks (Andriamahefazafy *et al.*, 2019b; Carroz and Savini, 1983). As a result, the EU developed a wide network of fishing access agreements (Figure 1 for entire network; Figure 3 for a more detailed focus on Africa)[11].

---

7 This approach is similar to the Common Law in the United States or Canada, which eventually recognizes a non-written law based on previous decisions made by judges in similar cases (Anon., 2014a).

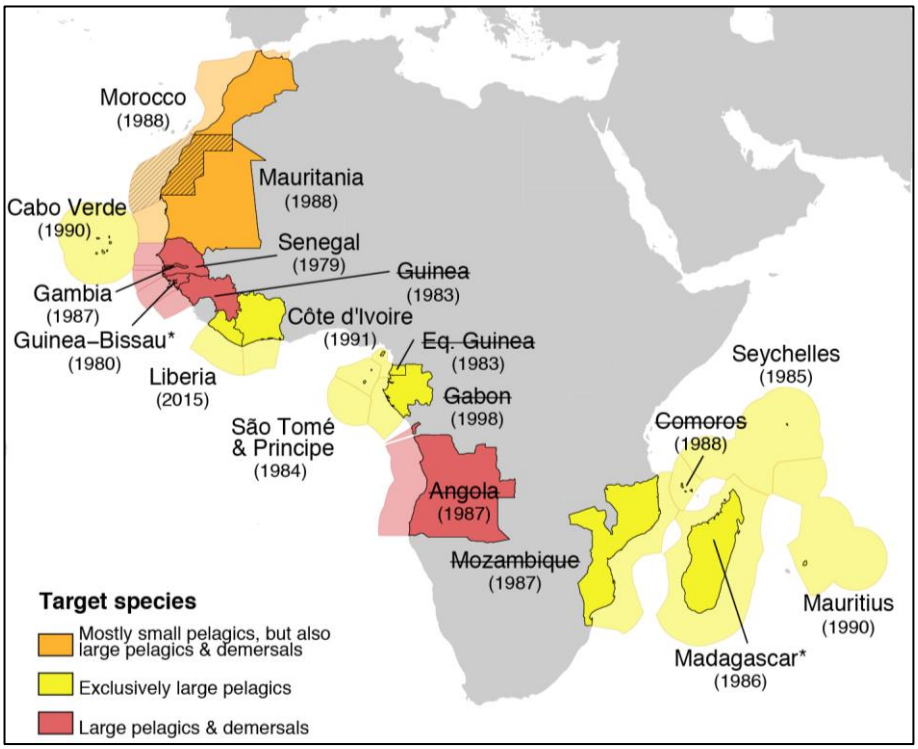
8 Refer to the glossary for the definitions of 'surplus' and 'maximum sustainable yield', which will then be addressed in detail in part III.

9 However, this southward expansion was not only the result of the EEZs' formalization. Most notably, it was also the result of intense overfishing in coastal areas, which demanded that new fishing grounds, deeper and further offshore, be found and exploited (Anon., 2002; Le Bail, 1994; Swartz *et al.*, 2010). This fishing expansion also occurred species-wise, for example with the industrialization of tuna fisheries worldwide (Coulter *et al.*, 2019).

10 This is supported, for example, by Article 297, which grants coastal nations full sovereignty over the living marine resources in their EEZ (Burke, 1994).

11 It is important to note, however, that these publicly-funded EU fishing access agreements only represent a fragment of European policies that control access and supply of fishery products in the Global South and guarantee jobs for a substantial part of EU fleets (Gorez and O'Riordan, 2004). Indeed, numerous formal economic links between EU and ACP countries date back to the colonial era, for example through the establishment of preferential trade and aid provisions as part of the 1957 Treaty of Rome (Anon., 1957; Nunn and Price, 2004), followed by the Yaoundé and Lomé Conventions (Anon., 1963, 1975, 1979, 1984, 1989). A new brand of economic ties has emerged in recent years: the Economic Partnership Agreements (EPA) are the latest

Figure 3. Map of Africa showing the historical network of European public fishing access agreements (EEZs are shown in partial transparency; color-coding indicates corresponding target species; dates indicate the year of the first signed agreement). Struck-through names indicate agreements that no longer exist or that have been denounced. Stars (*) indicate agreements with protocols that have recently expired but which are being negotiated, i.e. Guinea-Bissau and Madagascar; see Table 2 for details). Western Sahara and its EEZ — disputed (Court of Justice of the European Union, 2018) — are indicated in hatched.



Source: Authors (2020).

As part of these agreements — which can be grouped into three categories depending on the target species (Figure 3 — "host countries" have always received (except in rare instances) a financial package composed of three types of items, two of which are EU public money: i) a fee for the access to their EEZ, which is borne by the EU; ii) a sectorial support aiming to develop local fisheries and to improve monitoring, control and surveillance (also borne by the EU); and iii) a fee paid by the private sector, proportional to the fishing opportunity (e.g. annual catch volume, number of vessels), which depends on the target species and/or on the type of fishing vessel.

Note that the annual financial amounts associated with these three components can either be the same throughout the duration of the agreement or evolve on a yearly basis. However, fluctuations in actual market prices do not imply changes in the financial package. Table 2summarizes the target species, annual catch, and annual EU financial contribution of the current fishing agreements established between Europe and countries in Africa. Until the mid-2010s, the fees paid by the private sector accounted for approximately 25% of the total

commercial tools that must be established to comply with the World Trade Organization (WTO) with regards to free-trade requirements (Borrmann *et al.*, 2006).

value of the agreements (i.e. the two components corresponding to EU public money accounted for 75%)[12], which in turn consistently represented around 2% of its gross revenue generated by the fishing activities under the agreement (Le Manach *et al.*, 2013b). There is no global update for these figures yet. Table 2 provides a condensed overview of the current (or recently expired but not denounced) fishing opportunities that are offered to EU fishing fleets, as well as the financial compensation borne by the EU.

Table 2. Target species, annual catch, and annual EU financial contribution (i.e. EEZ access fee + sectorial aid) of the current fishing agreements established between Europe and countries in Africa)[a]

Host country	Historical coverage	Target species	Catch (t/year)	EU financial contribution (million EUR/year)[b]
Cabo Verde	1990 onward	Large pelagics	5 000[b]	0.5
Côte d'Ivoire	1991 onward	Large pelagics	5 500[b]	0.7
Gambia	1987-1993 & 2019 onward	Demersal species Large pelagics	750[b] 3 300[b]	0.5
Guinea-Bissau	1980-2017[c]	Demersal species Large pelagics	16 500[d] 2 200[d]	9.2
Liberia	2015 onward	Large pelagics	6 500[b]	0.6–0.7
Madagascar	1986-2019[c]	Large pelagics	15 750[b]	1.5
Mauritania	1988 onward	Demersal species Large pelagics Small pelagics	20 000[b] 20 000[b] 240 000[b]	62
Mauritius	1990 onward	Large pelagics	4 000[b]	0.6
Morocco	1988-2002, 2007-2012, 2014-2018 & 2019 onward	Demersal species Large pelagics Small pelagics	6 800[d] 235[d] 85–100 000[b]	37–42
São Tomé & Principe	1984 onward	Large pelagics	8 000[b]	0.8
Senegal	1979-2006 & 2014 onward	Demersal species Large pelagics	2 000[b] 14 000[b]	1.7–1.8
Seychelles	1985 onward	Large pelagics	50 000[b]	5–5.5
Former agreements				
Angola	1987-2004	-	-	-
Comoros	1988-2016	-	-	-
Eq. Guinea	1983-2001	-	-	-
Gabon	1998-2016	-	-	-
Guinea	1983-2012	-	-	-
Mozambique	1987-2015	-	-	-

Source: a Agreements in Oceania – i.e. with Cook Islands (the only one currently active), Kiribati, Micronesia, and Solomon Islands – are not included in this table ; b Data from https://ec.europa.eu/fisheries/cfp/international/agreements_en ; c Negotiations are underway ; d Data from latest ex-post evaluation.

Based on the information provided above and the figures presented in Table 2, it appears that: i) EU public fishing agreements remain largely commercial agreements and ii) that most of the financial package received by partner countries correspond to public subsidies,

[12] A 75-25 breakdown is also reported by the European Commission (European Commission, 2020).

whose amount is not determined by objective criteria such as sectorial needs or even market value. Therefore, the rationale behind the calculation of this public counterpart can be questioned, as well as the balance of power between the countries involved in the agreements.

2.2. Criticisms and transformation of European public fishing access agreements

Since the early 2000s, agreements and their protocols of application contained data on the agreed allocation of fishing licenses among EU countries, but — with the exception of a key but restricted external review (Anon., 2008) — accurate data on the number, name/matriculation, and fishing zone of EU fishing vessels were not readily available[13]. However, over the last decade, open data accessibility has significantly improved notably thanks to the release of the "Who Fishes Far" platform (www.whofishesfar.org) in 2015, driven by a group of environmental NGOs. Trends of EU vessels operating in third-party EEZs through fishing access agreements are now publicly accessible. Globally, public EU fishing agreements established throughout Africa are widely considered now as the most transparent and "least inequitable", compared to those developed by other nations.

Critiques have however been formulated, including regarding the lack of civil society participation during negotiations between the EU and host countries as well as the availability of social and economic data pertaining to these agreements (Anon., 2019a; Gorez, 2012). Their crosscutting weaknesses, as well as some positive aspects of their evolution, are developed below.

2.2.1. Impacts on marine resources and local communities

Public EU fishing agreements have been widely criticized for their impact on local ecosystems, as well as for their consequences on food security and political/economic stability, in particular for those that included a demersal component, using destructive fishing gears such as bottom trawls and leading to an intense competition with local fishers (Le Manach, 2014). For instance, when the first agreement with Senegal was concluded, "its justification was mainly based on the fact that Senegal had abundant resources that its national fleets were unable to exploit in an optimal way - however, this is no longer the case" (Le Roux and Noël, 2007). In 2006, the agreement between the European Union and Senegal was suspended due to a significant decrease in marine resources (Brown, 2018), and was subsequently amended. From a multi-species, "mixed" agreement, it became a tuna agreement so as to limit the extent of catches made by European vessels (although it still includes a small fishing opportunity for demersal species; 2,000 tonnes of hake for two trawlers).

The same situation happened with other agreements, e.g. with Morocco, that expressed its disagreement with the European Union's intention to renew its fishing agreement as early as 2001. A new text was eventually signed, but with several species (such as octopus) removed from its scope and/or spatial exclusions (d'Aboville, 2010). The latest agreement with

[13] Ex-post and ex-ante evaluations usually do include such data, but not in an exhaustive nor homogeneous manner.

Morocco, which entered into force in July 2019, still includes fishing opportunities for demersal species, and large and small pelagics. However, the large-scale vessels targeting the latter – by far the most important in terms of overall catch – are now excluded from the 12–15 nm coastal zone and must not engage in "reduction fisheries", i.e. the process of grinding fish into fishmeal and fish oil. This practice is increasingly criticized for its impact on marine ecosystems and food security, as most reduced fish are, in fact, edible and oftentimes a staple food for local communities (Cashion *et al.*, 2017; Changing Markets Foundation, 2019; Green, 2018; Greenpeace, 2019; Standing, 2019a). This is even more problematic due to the fact that most stocks of small pelagics in the region are already largely overfished (Ba *et al.*, 2017; Braham and Corten, 2015; FAO, 2019). The development of these small pelagics fisheries was mostly driven by the growth of the aquaculture sector, which relies on fishmeal and fish oil (Le Manach *et al.*, 2017). Although European fleets are an important actor of this sector — with, for example, 22–41% of industrial catches in the Mauritanian EEZ (the other European agreement that targets these species) between 2007 and 2012 (Anon., 2014a) — other countries such as China and Turkey are under more scrutiny and operate in a much more opaque way (Standing, 2019b)[14]. Overall, exports of small pelagics-based fishmeal from the West African region have skyrocketed in recent years, increasing from around 10,000 tonnes in 2010 to over 120,000 tonnes by 2018 for Mauritania alone (Fernandez Peralta *et al.*, 2019).

The currently dominating large pelagic agreements are not free from environmental criticisms either, most notably due to the increasing and intense use of drifting fishing aggregating devices (d-FADs)[15]. According to the latest available data[16], the proportion of d-FAD-associated catch in the Spanish and French fleets of purse seiners has increased from less that 50% in the early 1990s to around 70% in 2018 in the Atlantic Ocean, and from less than 60% to 97% in the Indian Ocean over the same time-period.

2.2.2. Impacts on marine resources and local communities

Despite these critiques, EU fishing agreements are surely evolving towards a better inclusion of social and environmental clauses, away from their historical "pay, fish and go" basis. Many of their key characteristics have improved over time. For example, current requirements regarding the monitoring, control, and surveillance (MCS) of fishing activities now include the use of electronic logbooks, satellite monitoring, and possible onboard observers and/or at-sea/land inspections. Unlike for agreements with other fishing countries (e.g. China; Pauly *et al.*, 2014), catches are also generally constrained (quotas or "limits of reference"). Finally,

[14] Also see, e.g. https://www.cffacape.org/news-blog/senegalese-civil-society-protests-against-its-government-intention-to-issue-fishing-licenses-to-54-chinese-and-turkish-vessels.

[15] Manmade drifting Fishing Aggregating Devices (d-FADs) were developed in the 1980s and their use truly expanded to reach an industrial scale in the early 1990s (Campling, 2012; Miyake *et al.*, 2010; Scott and Lopez, 2014). These d-FADs are floating objects that are released at the surface of the ocean and whose structure and surrounding dynamics attract tuna and other species. As such, they greatly increase the fishing efficiency of purse seiners (Fonteneau *et al.*, 2015, 2013). Scholars have expressed concerns about the detrimental impacts of d-FADs with regards to i) tuna behavior (Hallier and Gaertner, 2008; Marsac *et al.*, 2017), ii) the high level of bycatch, including sensitive species and tuna juveniles (Dagorn *et al.*, 2013; Filmalter *et al.*, 2013; Hall and Roman, 2013; Scott and Lopez, 2014), and iii) the impacts on coastal habitats and fragile ecosystems, as around 10% of d-FADs trajectories end with beaching (Maufroy *et al.*, 2015).

[16] Data available at: https://www.iccat.int/Data/t2ce_PS91-18_bySchool.7z (Atlantic Ocean), and https://iotc.org/sites/default/files/documents/2019/09/IOTC-2019-DATASETS-CESurface.zip (Indian Ocean).

from a financial perspective, some of the European agreements are of key economic importance to national budgets (e.g. the Seychelles), fund fisheries departments' projects (e.g. Madagascar), or support key fisheries research programs (e.g. in Morocco). The use of these public funds is also increasingly scrutinized so as to ensure that they are indeed used to build and increase MCS capacity in host countries, as well as to implement sustainable fisheries programs for local communities. Although it was highlighted on several occasions in the past that it was difficult to trace the actual use of public money, e.g. in Mozambique (Anon., 2006), the situation seems to have improved in recent years despite recurrent delays and the fact that not all objectives have been fulfilled, e.g. in Côte d'Ivoire (Defaux *et al.*, 2017) or Liberia (Caillart *et al.*, 2020). For example, in Madagascar, where the use of European funds linked to fishing agreements has also been criticized (CFFA, 2020), it is important to mention that a number of specific areas are clearly identified in agreements' texts. Over time, the European sectoral support has evolved in three steps, from only two areas covered between 1986 and 1998, to up to five areas covered between 1998 and 2006 and a multiannual program with two to five priorities since 2007 (Table 3). The use of this sectoral support has been deemed satisfactory by both parties (e.g. Caillart *et al.*, 2018).

Table 3. Evolution of the use of the EU sectoral support in Madagascar
Source: Agreements and associated protocols, available at: https://eur-lex.europa.eu/homepage.html

	1986-1998	1998-2006	2007-2014	2015-2018	1986-2018
Knowledge improvement by funding attendance of international meetings	✓	✓			2,038,000
Grants to study/train abroad in field linked to fisheries	✓	✓			1,860,000
Funding for the Enseignement Maritime de Majunga (ENEM)		✓			175,000
Management of observers		✓			20,000
Fisheries Monitoring, Control and Surveillance		✓	✓	✓	4,109,834
Control of sanitary standards of products			✓	✓	2,366,400
Development and formalisation of traditional fishing		✓		✓	434,534
Institutional and Private sector Capacity building				✓	111,949
Activities of the economic observatory				✓	101,262
Activities of the Fisheries and aquaculture development Unit				✓	189,106
Activities of the *Unité Statistique Thonière d'Antsiranana* (USTA)				✓	36,625
Total (in EUR)					**11,705,710**

From Table 3, three observations can be made (Andriamahefazafy, in prep.):

- Over the past twenty years, sectoral support has largely been used to invest in monitoring, control and surveillance, and to build the capacity of the authority in charge of sanitary standards (Autorité Sanitaire Halieutique; ASH). These investments have made Madagascar an operational actor in the surveillance of the Southwest Indian Ocean and have improved the quality of exported products (mainly to Europe). However, these priorities have mainly focused on distant water fleets, chiefly those from Europe;

- There has only been limited and sporadic funding, over the 32 years of existence of European agreements, to develop the national fisheries sector, including tuna fisheries. The development and capacity-building of traditional fishing is however advertised by Europe as a major goal of these agreements[17];

- Finally, a considerable amount of public funds has also been invested in areas so as to build national capacity with regards to scientific knowledge on offshore pelagic species. This is however not reflected in the current state of knowledge at the national level, where such data and knowledge depend on catch data.

2.2.3. Weaknesses in implementing monitoring, control, and surveillance (MCS)

The improvements on paper often remain hindered by important structural weaknesses in MCS by both the EU and host countries. For example, it was reported that despite the requirements set in fishing agreements and their protocols, partner countries in Africa often do not possess the financial and logistical capacity to use electronic monitoring (e.g. in Côte d'Ivoire; Anon., 2012) or to send observers (e.g. in Cape Verde; Amador *et al.*, 2018) or inspectors (e.g. in Gambia; MacFadyen *et al.*, 2018) onboard. Data related to European fishing activities also appear not to be communicated in certain cases (e.g. in Cape Verde; Amador *et al.*, 2018). Taking advantage of this situation, some European vessels remain somehow engaged in illegal fishing activities (i.e. fishing in an area, or targeting a species/using a gear they are not legally permitted) in both West and East Africa (Amador *et al.*, 2018; Caillart *et al.*, 2018; Gorez, 2019; Vulperhorst *et al.*, 2017), and still actively participate in overfishing[18], along with vessels from other distant-water fishing fleets (Holmes, 2019; Standing, 2019a).

2.2.4. Potential future tensions around large pelagic fisheries

As highlighted in Figure 3 and Table 2, there are still a few European agreements that catch species also targeted (or caught as bycatch) by local fishers and which are often of crucial importance for local food security and coastal economies. This is the case for all agreements targeting demersal species and small pelagics, but also to a certain extent, for agreements exclusively targeting large pelagics. An increasing number of coastal countries seem to be looking forward to expanding their fishing activities offshore in order to relieve the pressure from coastal species and increase the sector's importance, although the execution of such an endeavour might prove difficult, at best, for many coastal countries. In addition, this spatial expansion of local fleets might be unavoidable in the near future given

[17] https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/2015-sfpa_en.pdf

[18] See ongoing case of Spanish fleets overfishing yellowfin tuna in the Indian Ocean (Holmes, 2019).

the impacts of climate change. In particular, it was shown by scholars that increasing ocean temperatures in the inter-tropical belt will result in fish catch in these waters to be reduced by 40%, while those in higher latitudes, e.g. in Europe, could increase by 30–70% (Cheung *et al.*, 2010; Cheung *et al.*, 2013). Such migrations further strengthen the point made above (Section 1.3.), i.e. the poor value of the question "who owns the resource (e.g. the State, citizens, a specific community)", compared to "how rights are allocated and redistributed over time", at a regional or international scale.

Velleities of offshore expansion have been reported, e.g. for Comoros (Doherty *et al.*, 2015), Kenya (Le Manach *et al.*, 2015a), Madagascar (Le Manach *et al.*, 2013a), and the Seychelles (Anon., 2014b; Le Manach *et al.*, 2015b). Should it occur, this spatial expansion of local fleets would eventually result in the same competition as for demersal species, and in turn in the denunciation of fishing agreements even for these species that were historically not targeted by local fishers. Premises of this competition are also already visible in the Indian Ocean, where the future allocation of tuna quotas among fishing countries is currently being discussed. While coastal countries in the region consider that what was historically caught, by anyone, in their EEZ should be considered as their historical catch, distant-water fishing nations such as the European Union consider that past catches by their fleets — in the high seas or in the waters of coastal countries — should be attributed to them (IOTC, 2019)[19]. Pressure is mounting and the gap between these two extreme positions threatens to jeopardize a fair allocation of natural resources to the detriment of both fish populations and coastal countries (Andriamahefazafy *et al.*, 2019b; Sinan and Bailey, 2020). As was concluded by Section I, the issue however lies not so much in these resources' property regime but rather in the allocation of different rights to access, withdraw and/or manage them. Promoting this position is particularly relevant in the case of migratory species that move between different State EEZs and into the high seas. The key point to be addressed is not who owns these resources but how and to whom the rights to fish for them are allocated at the regional level and sometimes beyond. Such discussions must not only be held but evolve as the scopes of local fleets' activities change.

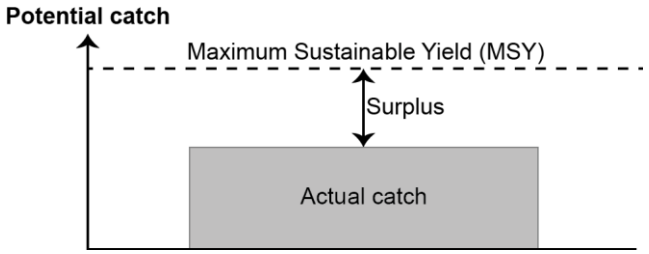
As seen in this section, numerous fishing fleets — including from the European Union — target a wide array of species in the waters of Africa through an extensive network of access agreements. Although the trends for the agreements established with the European Union are positive, criticisms are still frequent and challenge some of these ongoing agreements. Beyond these points, the theoretical basis of many agreements, European or not, chiefly those targeting demersal species, also raises questions. In the next section, we offer to explore the theoretical implications of a notion that holds a central position in fishing access agreements: the surplus.

[19] The European Union however proposes to concede that 10% of its catches made in the EEZs of African countries, through access agreements, be considered as belonging to these countries (the other 90% being European; IOTC, 2019).

III – The Ineffective Notion of "Surplus" in Fishing Access Agreements

As highlighted above, the concept of "surplus" is central in UNCLOS's Article 62. A "surplus" corresponds to the fraction of the "entire allowable catch" or "maximum sustainable yield" (MSY)[20] that is not caught and thus remains in the water (Figure 4).

Figure 4. Conceptual diagram of the notion of "surplus", i.e. the difference between the Maximum Sustainable Yield (MSY) of a given species and its actual catch
Source: Le Manach (2014)



3.1. A model of the past?

Before looking more closely at the notion of surplus, one must highlight that the MSY model was developed at a time when biodiversity conservation and management was less of a concern than it is today. In turn, its conceptual framework makes it obsolete in the face of current challenges, especially biodiversity collapse. It was deemed the "worst idea in fisheries management" by one of the founding fathers of this field of research, Dr. Sidney Holt (Holt, 2011). According to Holt, "[MSY] is inadequate and its pursuit increases the likely unprofitability, and even collapse, of fisheries" when used "as a target for management of fisheries, or even as the anchor for so-called "reference points"". Its emergence and wide acceptance appears to have been mostly rooted in political considerations rather than in ecological ones (Finley, 2009). As a result, its use as a basis for fisheries management is increasingly challenged by scientists and NGOs, including at the European level[21]. However, it seems unlikely that the concept of MSY will quickly be substituted by a more rigorous, up-to-date model (e.g. fleet-by-fleet management based on social, economic and

[20] MSY is defined as "the weight of fish the population will produce, annually on a sustainable basis when that is at its maximum level" (Chapman, 1970). After several decades of hesitation (Le Manach, 2014), the first model that was able to determine MSY was the surplus-production model developed by Schaefer (1954). Garrod (1969) and Fox (1970) later developed the 'exponential surplus-production model', and Pella and Tomlinson (1969) produced a 'generalized surplus-production model'. All of these models have the same implications with regard to the matter discussed here. Consequently, the simpler model developed by Schaefer (1954) will be used throughout for convenience.

[21] E.g. with debates at the Parliament such as "Beyond Maximum Sustainable Yield (MSY)? Ambitions for the future of the Common Fisheries Policy (CFP)". See https://www.europarl.europa.eu/meetdocs/2014_2019/plmrep/COMMITTEES/PECH/OJ/2020/01-20/1196005EN.pdf.

environmental indicators) due to existing hurdles in monitoring fisheries and collecting (and analyzing) sufficient data.

Unlike what the name suggests, "surpluses" are not some useless biomass of fish in the sea (Gascuel, 2019). They play a crucial role in marine ecosystems, which means that not exploiting them can be beneficial from an environmental standpoint. Among other issues, the concepts of MSY and surplus solely focus on targeted species, without taking into account that fishing practices can be destructive (e.g. bottom trawls; Watling and Norse, 1998) and also usually catch a fair amount of non-targeted species (the so-called "bycatch"; Alverson *et al.*, 1994; Kelleher, 2005). Other limitations include the inability of MSY estimates to account for the age, size, and maturity of the fish, the fact that optimal catches may vary over time (Botsford *et al.*, 1997; Larkin, 1977), and, especially, that MSY varies with the size-selectivity of the gear (Beverton and Holt, 1957; Froese *et al.*, 2008). Another key point is in that multi-species fisheries — such as those operating bottom trawls or catching a diverse range of bycatch, e.g. d-FAD-associated tuna fisheries — the exploitation of one species at MSY can lead to the collapse of another. This happened in the Gulf of Thailand for demersal species (Pauly, 1979), and also likely occurred in the multi-species fisheries of West Africa.

Despite these criticisms and shortcomings, the concept of "surplus" has been widely used to justify fishing access agreements ever since, and is still referred to as the basis of fishing access agreements by the European Union (European Commission, 2020). In theory, foreign fishers could thus access such a surplus without causing detrimental impacts. In this section, we will however demonstrate that the concept of "surplus" is inappropriate to ensure that fishing access agreements are ecologically and socially legitimate, given that its use mechanically results in detrimental social and environmental impacts as soon as new fishers (foreign in this case) enter the fishery.

3.2. "Surpluses" remain largely unestimated

3.2.1. MSYs are poorly assessed worldwide

As seen above, one needs to estimate an MSY before determining if any surplus exists. However, to date, MSYs remain poorly assessed worldwide, even in highly developed regions. For instance, the French institute for the exploitation of the sea (Ifremer) reported in January 2020 that among the >330 species landed[22] by metropolitan French fishers, only 74 were assessed (accounting for 83% of landings) for one or more stocks (164 overall), and that many of these "assessed stocks" were not understood well-enough (lack of data, etc.), resulting in their status being "unknown" (Biseau, 2020)[23]. The situation is much worse in less developed regions such as Africa, where MSYs are generally not estimated for demersal

[22] These, by and large, do not cover the full range of biodiversity impacted by fishing activities in European waters. They only represent the individuals that have a commercial value.

[23] An older study had shown in 2016 that only 42 stocks (accounting for around 90% of the catch in the Northeast Atlantic) were properly assessed at that time, out of the 167 inventoried by the International Council for the Exploration of the sea (ICES; AFH, 2016).

species. In most (if not all)[24] instances, MSY estimates were (and still are) weak (STECF, 2012), e.g. in Gabon (Anon., 2015) or Côte d'Ivoire (Anon., 2012). Note that the situation for the two main groups of species currently targeted by European vessels — i.e. small and large pelagics — is different in the sense that their status is assessed at the regional level due to their migratory nature and high commercial value[25].

In line with these observations, the European Commission reported in 2011 that "in spite of several improvements, substantial shortcomings continue to affect the functioning of [fishing agreements]:

- The scientific knowledge on certain stocks in foreign waters is insufficient to establish the overall size of the surplus;

- The terms and conditions [i.e. fishing effort, catch, etc.] of fishing agreements concluded by partner countries with other (non-EU) countries are usually not known to the EU;

- Consequently it is often impossible to assess the overall fishing effort targeted at the stocks, and to determine the share of the surplus to be sustainably fished by the EU fleet" (European Commission, 2011).

3.2.2. Total catches are poorly known

On top of estimating a value of MSY, one also needs to know the actual catch before determining if any surplus exists. However, a global effort of catch reconstructions led by the Sea Around Us has recently shown severe issues of underreporting in countless cases (Pauly and Zeller, 2016). This study showed that total catch estimates are generally poor, if they exist at all. In fact, the fishery sector is rarely considered as a priority by governments in the Global South, except in Senegal or in the Seychelles, for example. Consequently, worldwide fisheries statistics often only reflect industrial, large-scale fisheries (Pauly, 1997). While these operations are "easy" to monitor[26], Illegal, Unreported and Unregulated (IUU)[27] catches are often overlooked, and this inadequacy is widely recognized as a major barrier towards sustainable fisheries management (Agnew *et al.*, 2009; Sumaila *et al.*, 2006).

---

[24] As summarized during a hearing at the French Parliament in January 2020: "there has never been any surplus estimated, anywhere, for any of the European fishing agreements" (Gascuel, 2020).

[25] Small pelagics are assessed by working groups operating under the Food and Agriculture Organization of the United Nations; large pelagics are assessed by Regional Fisheries Management Organizations (RFMOs), namely the International Commission for the Conservation of Atlantic Tunas (ICCAT) for West Africa, and the Indian Ocean Tuna Commission (IOTC) for East Africa. Although assessed on a regular basis, this does not guarantee that these species are free from overfishing. In particular, evidence suggests that most populations of small pelagics in West Africa have been (and still are) severely overfished (Ba *et al.*, 2017; Braham and Corten, 2015; FAO, 2019). Species of large pelagics such as yellowfin tuna in the Indian Ocean are also currently experiencing overfishing (Andriamahefazafy *et al.*, 2019a), and despite regular alarms regarding this species, fishing effort is still building up, most notably through the expanding use of d-FADs.

[26] Although even for industrial segments, logbooks are not always transmitted, further exacerbating the difficult task undertaken by statistical units with limited human and technical means. As a result, not all activities are covered, including as part of fishing access agreements, e.g. in Mauritania (Anon., 2019b), Côte d'Ivoire (Defaux *et al.*, 2017), Liberia (Caillart *et al.*, 2020), etc.

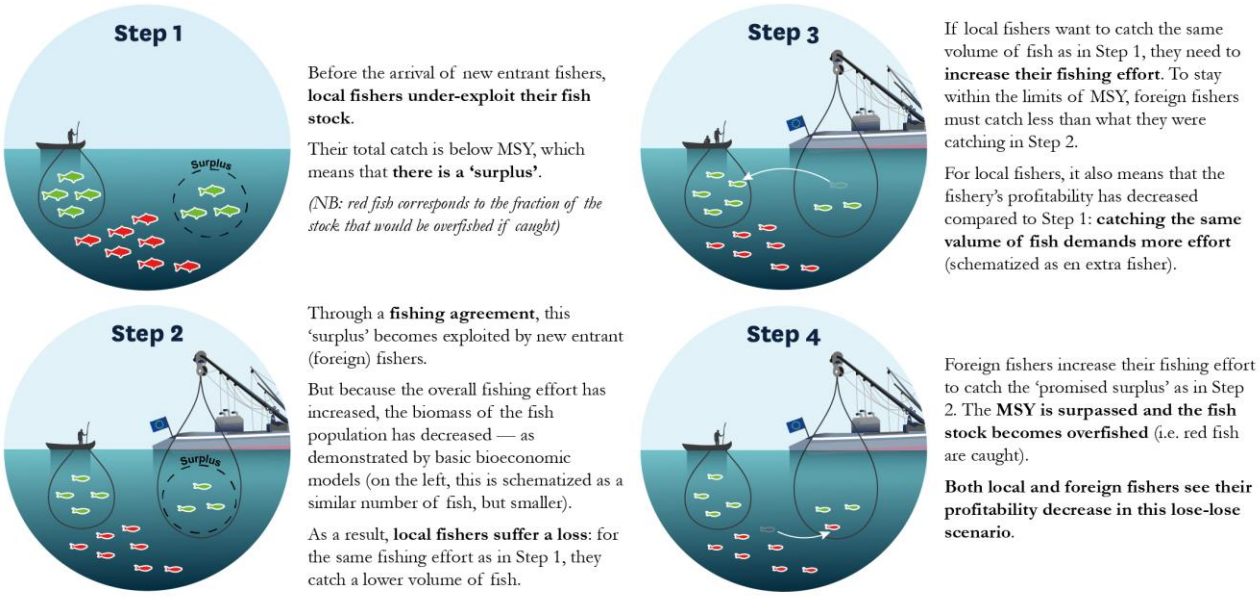
[27] Typically, IUU catches include a wide variety of missed information such as industrial discards and small-scale fisheries landings for subsistence or recreational purposes.

In contrast, small-scale fisheries, which are of critical importance in most coastal states in the Global South (Kent, 1997), are poorly accounted for and marginalized by policy makers (Pauly, 1997)[28]. In the case of fishing access agreements, this marginalization of small-scale fisheries can result in a biased view of the catch (and thus of the surplus available) for a given fishery, which ultimately has a detrimental effect on both the ecosystem and the coastal communities that rely upon these stock(s) for their livelihoods.

3.3. Foreign access to surpluses is socially and environmentally detrimental

Furthermore, even if surpluses could be estimated properly, allocating them to new entrant fishers would result in a negative outcome for historical local fishers and/or marine ecosystems. This can be explained in four steps (**Erreur ! Source du renvoi introuvable.**).

Figure 5. The impact of surplus exploitation by foreign fishers in four steps
Source: Authors (2020)



Authorizing new entrant fishers to exploit an underfished stock that is already targeted by local fishers always results in negative impacts locally (Figure 5). Therefore, one can only question the legitimacy of fishing access agreements for the shared exploitation of a stock (Garcia *et al.*, 1986), especially in regions where fish-based diets are essential for domestic food security[29].

While this concept easily applies to fishing access agreements that still target demersal and small pelagic species — including a few European ones (see Table 2) — it is more difficult to

[28] States also tend to favor the development of the industrial sector, perceived as bringing more revenue. In turn, the socio-economic and environmental impacts or benefits of small-scale fisheries remain largely unknown (Cohen *et al.*, 2019).

[29] Note that the same conclusion would be reached with new local entrant fishers.

apply it to migratory species that straddle different EEZs in larger areas, such as tunas and other large pelagics. Note, however, that i) the aforementioned goals of offshore expansion might result in similar conclusions being reached in the future, even for these large pelagic species, and ii) that interactions between offshore and inshore stocks are poorly studied and understood.

To conclude, the legal basis of fishing access agreements was forged decades ago based on concepts that have proven to be limited, when our knowledge of marine ecosystems was significantly lower and when our societal vision was radically different, given that UNCLOS was largely negotiated during the colonial era. On top of these "historical changes", other important changes such as climate change — and resulting shifts in fish distribution and abundance (Cheung *et al.*, 2010; Cheung *et al.*, 2013; Lam *et al.*, 2016) — demand that policies avoid the notion of surplus, especially with regard to fishing agreements with countries in the Global South.

IV – Ways Forward

Fishing access agreements in the Global South have been historically problematic and often imbalanced for the aforementioned reasons. From these observations, the three following issues appear crucial to guide these agreements towards sustainability and equity.

First, there is a need to improve the scientific models on which these political and commercial agreements are based. Going beyond single-resource assessments would be better adapted to ocean connectivity and the sensitivity of trophic webs. Ideally, following the Ecosystem Approach to Fisheries (EAF), other species along these webs should be encoded into models. Socioeconomic components should also be considered in order to build more robust and holistic management tools. The current design of fishing access agreements and calculations of the surplus neglect this holistic approach, especially as they are bilateral and information on other agreements are strongly lacking. Following the development of more complex, multi-user models, resources could be regionally allocated and not on a single-country basis for highly-migratory pelagic species. Such a regional distribution has already been initiated in the Pacific with the vessel day scheme (Havice, 2010; Shanks, 2010; WCPFC, 2012), and is under discussion in the Indian Ocean with the regional allocation of quotas (similarly to the allocation in the Atlantic and Southern Oceans; Allen *et al.*, 2010; IOTC, 2013; Noye and Mfodwo, 2012). Although Europe should be a driving force in constructing and promoting such a regionally allocated multi-user surplus model, this might eventually prove difficult given the European interests at stake. Furthermore, one must also keep in mind that a quota fully allocated for a given region does not ensure that it is equitably nor sustainably allocated.

The development of more complex surplus models is highly challenging, especially in a context where funding needs for research are strong and data is lacking. For this reason, increasing data transparency and research investments is a second avenue that would help address the improvement of scientific modelling raised above. These investments could contribute to expanding data collection and developing local research capabilities, both of which are necessary to refine our understanding of ecosystem and socioeconomic dynamics associated with activities under fishing access agreements. Such investments could be activated through various channels, including increased national funding for research, which could benefit from an additional part of Official Development Aid and the promotion of scientific cooperation. Sectoral aid generated from fishing access agreements could also be strengthened; as highlighted in the report, the financial package linked to EU public fishing agreements does not reflect such sectorial needs. Furthermore, the generation of more data and knowledge related to fishing access agreements would gain from "open" policies relating to data access and sharing. As noted previously, there is also an important lack of transparency on a number of aspects relating to fishing access agreements, which is not only true of the EU but also and especially of many distant fleets from Asia, Russia, etc. This is widely illustrated by the absence of knowledge on non-EU fishing agreements and joint ventures that exist in the Global South's EEZs. A major step towards transparency would therefore consist in publicizing reliable information on licenses (joint

ventures, chartering, fishing agreements, private licenses, etc.) allocated to all vessels, as well as their catch.

In addition to transparency on other resource users and agreements, monitoring, control and surveillance (MCS) constitutes a third area of concern where improvements would strongly benefit partner countries. MCS is required for the effective application of rules and can contribute to the knowledge on resource status. The European Common Fisheries Policy (CFP) offers opportunity for improvements on the issue of cooperation on MCS, as wished by the European Commission in the "Green Paper" published ahead of the 2013 CFP reform (European Commission, 2009). But even if the EU shows good faith, there is still a need to go beyond the current state-of-play so as to ensure that everyone plays by the rules and that distant-water fleets' fishing activities are sustainable. Although still imperfect, new technological tools such as satellite surveillance (e.g. Global Fishing Watch) could be instrumental in MCS, contributing to good and fair management of resources such as tuna populations in the Indian Ocean.

To conclude, we would like to emphasize again the current alarming trends in biodiversity erosion, degradation of ecosystems and climate change highlighted in the introduction, all of which directly threaten coastal communities in the Global South. In the case of fishing access agreements, countries or blocs of countries such as the EU must guarantee the environmental and social harmlessness of their public subsidized distant fleets. This report advocates for the EU to be a leading force in this area and demands more investment in the sustainability and transparency of these agreements. Otherwise, the precautionary principle should apply and public subsidies to long-distant fishing activities be reconsidered.

References

AFH (2016), "Pêches durables en Europe : le compte n'y est pas. Une note d'analyse de l'AFH", Association française d'halieutique (AFH), Rennes (France), p. 5.

Agnew D.J., J. Pearce, G. Pramod, T. Peatman, R.A. Watson, J.R. Beddington, J.R. and T. J. Pitcher (2009), "Estimating the worldwide extent of illegal fishing", PLOS ONE 4 (2): e4570-e4570.

Allen R., J.A. Joseph and D. Squires (2010), "Conservation and management of transnational tuna fisheries", Wiley-Blackwell, Oxford (UK).

Alverson D.L., M.H. Freeberg, S.A. Murawski and J.G. Pope (1994), "A global assessment of fisheries bycatch and discards", Food and Agriculture Organization of the United Nations (FAO), Rome (Italy), p. 233.

Amador T., R. Cappell, I. Goulding and B. Caillart (2018), "Framework contract for Better Regulation related activities on the international dimension of the Common Fisheries Policy for the Directorate-General for Maritime Affairs and Fisheries - MARE/2015/23 — Specific Contract n° 4 — Ex-post and ex-ante evaluation study of the sustainable fisheries partnership agreement between the European Union and the Republic of Cabo Verde — Final report", F&S Fisheries and maritime affairs, Poseidon Aquatic Resource Management & Megapesca Lda, Brussels (Belgium), p. 185.

Andriamahefazafy M. (in prep.), "Madagascar and distant-water fishing: state of play, challenges and ways forward", BLOOM, Paris (France).

Andriamahefazafy M., M. Bailey, H. Sinan and C.A. Kull (2019a), "The paradox of sustainable tuna fisheries in the Indian Ocean: between visions of blue economy and realities of accumulation", Sustainability Science.

Andriamahefazafy M., C.A. Kull and L. Campling (2019b), "Connected by sea, disconnected by tuna? Challenges to regionalism in the Southwest Indian Ocean", *Journal of the Indian Ocean Region*, 15 (1): 58-77.

Anon. (1957), "The Treaty of Rome".

Anon. (1963), Convention of association between the European Economic Community and the African and Malagasy States associated with that Community and annexed documents (signed at Yaoundé on 20 July 1963), p. 20.

Anon. (1975), "ACP-EEC Convention of Lomé. Signed at Lomé on 28 February 1975 — Complete text", The Courier 31: 84.

Anon. (1979), "The Second ACP-EEC Convention signed in Lomé on 31 October 1979 — Complete text", The Courier 58: 111.

Anon. (1984), "Third ACP-EEC Convention signed at Lomé on 8 December 1984 — Complete text", The Courier 89: 134.

Anon. (1989), "Fourth ACP-EEC Convention signed in Lomé on 15 December 1989 — Complete test", The Courier 120: 184.

Anon. (2002), "Evaluation of the relationship between country programmes and fisheries agreements". ADE, PriceWaterhouseCoopers and EPU, Louvain-La-Neuve (Belgium) and Toronto (Canada), p. 67.

Anon. (2004a), "Convention Spécifique n° 8 : Seychelles. Evaluation ex-post du protocole d'accord de pêche entre les Seychelles et la Communauté européenne, et analyse de l'impact du futur protocole sur la durabilité, incluant une évaluation ex-ante". Oceanic Développement and MegaPesca Lda, Brussels (Belgium), p. ix + 147.

Anon. (2004b), "Specific Agreement n°07: São Tomé and Príncipe — Interim/ex post evaluation of the current Protocol to the Fisheries Agreement between the European Community and the Republic of São Tomé and Príncipe, and analysis of the impact of the future Protocol on sustainability, including ex ante evaluation". Oceanic Développement, Poseidon Aquatic Resource Management Ltd, and MegaPesca Lda, Brussels (Belgium), p. 199.

Anon. (2006), "Specific Agreement n° 31: Mozambique — Ex-post evaluation of the current Protocol to the Fisheries Agreement between the European Community and the Republic of Mozambique, and the analysis of the impact of the future Protocol on

sustainability, including ex-ante évaluation", Oceanic Développement, Poseidon Aquatic Resource Management Ltd, and MegaPesca Lda, Brussels (Belgium), p. 190.

Anon. (2012), "Contrat Spécifique n° 2 — Evaluation ex-post du protocole de l'accord de partenariat dans le domaine de la pêche entre l'Union européenne et la Côte-d'Ivoire". Cofrépêche, Marine Resources Assessment Group (MRAG), Poseidon Aquatic Resource Management Ltd, and Nordenfjeldske Development Services (NFDS), Brussels (Belgium), p. 144.

Anon. (2014a), "Contrat Spécifique n° 8 — Évaluation rétrospective et prospective du protocole de l'accord de partenariat dans le secteur de la pêche entre l'Union européenne et la République islamique de Mauritanie". Cofrépêche, Marine Resources Assessment Group (MRAG), Poseidon Aquatic Resource Management Ltd, and Nordenfjeldske Development Services (NFDS), Brussels (Belgium), p. 176.

Anon. (2014b), "An interview with Philippe Michaud, President of the Seychelles Fishing Authority".

Anon. (2015), "Contrat cadre MARE/2011/01 — Évaluation et analyse d'impacts — Lot 3 — Évaluations rétrospectives et prospectives relatives à la dimension interne de la politique commune de la pêche — Contrat spécifique n° 14 — Évaluation rétrospective et prospective du protocole de l'accord de partenariat dans le secteur de la pêche entre l'Union européenne et la République gabonaise — Rapport final". Cofrépêche, Marine Resources Assessment Group (MRAG), Poséidon Aquatic Resource Managment Ltd & Nordenfjeldske Development Services (NFDS), Brussels (Belgium), p. xxvi + 136.

Anon. (2019a), "The challenges of fisheries arrangements: the perspective of African coastal communities". Coalition for fair fisheries arrangements (CFFA-CAPE), Brussels (Belgium), p. 8.

Anon. (2019b), "Contrat cadre pour une meilleure réglementation concernant la dimension internationale de la politique commune de la pêche pour la direction générale des affaires maritimes et de la pêche — MARE/2015/23 — Contrat spécifique n° 8 — Évaluation rétrospective et prospective du Protocole à l'accord de partenariat dans le domaine de la pêche durable entre l'Union européenne et la République islamique de Mauritanie — Rapport final". F&S Fisheries Maritime Affairs, Poseidon Aquatic Resource Management & Megapesca Lda, Brussels (Belgium), p. 256.

Ba A., J. Schmidt, M. Dème, K. Lancker, C. Chaboud, P. Cury, D. Thiao, M. Diouf and P. Brehmer (2017), "Profitability and economic drivers of small pelagic fisheries in West Africa: a twenty year perspective". Marine Policy 76: 152-158.

Bambridge T., F. Gaulme, C. Montet and T. Paulais (2019), "Communs et océan: le rahui en Polynésie". Collection Pacifique — Au vent des îles.

Berkes F. (1985), "Fishermen and 'the tragedy of the commons'". Environmental Conservation 12 (3): 199-206.

Berkes F. (2006), "From community-based resource management to complex systems: the scale issue and marine commons". Ecology and Society 11 (1): 45.

Berkes F., D. Feeny, B.J. McCay and J.M. Acheson (1989), "The benefits of the commons". Nature 340 (6229): 91-93.

Beverton R.J.H. and S.J. Holt (1957), "On the dynamics of exploited fish populations". Ministry of Agriculture, Fisheries and Food, London (UK).

Biseau A. (2020), "Diagnostic 2019 sur les ressources halieutiques débarquées par la pêche française (métropolitaine)". Institut français de recherche pour l'exploitation de la mer (IFREMER), Issy-les-Moulineaux (France), p. 30.

Bonfil R., G.R. Munro, U.R. Sumaila, H. Valtysson, M. Wright, T.J. Pitcher, D. Preikshot, N. Haggan and D. Pauly (1998), "The footprint of distant water fleet on world fisheries". Endangered Seas Campaign, WWF International, Godalming (UK), p. 111.

Borrmann A., H. Grossmann and G. Koopmann (2006), "The WTO compatibility of the Economic Partnership Agreements between the EU and the ACP countries". Intereconomics: 115-120.

Botsford L.W., J.C. Castilla and C.H. Peterson (1997), "The management of fisheries and marine ecosystems". Science 277: 509-515.

Braham C.-B. and A. Corten (2015), "Pelagic fish stocks and their response to fisheries and environmental

variation in the Canary Current Large Marine Ecosystem", in: Valdés, L., Déniz-González, I. (Eds.), Oceanographic and biological features in the Canary Current Large Marine Ecosystem. IOC-UNESCO, Paris (France), pp. 197–213.

Brown K.G. (2018), "L'Afrique dépouillée de ses poissons", pp. 14–15.

Burke W.T. (1994), "The new international law of fisheries: UNCLOS 1982 and beyond. Oxford University Press, Oxford (UK).

Caillart B., V. Defaux and C. Le Grand (2018), "Contrat-cadre pour une meilleure réglementation concernant la dimension internationale de la politique commune de la pe'che pour la direction générale des affaires maritimes et de la pe'che - MARE/2015/23 — Contrat spécifique n°5 — Évaluation rétrospective et prospective du protocole à l'accord de partenariat dans le domaine de la pe'che durable entre l'Union européenne et la République de Madagascar — Rapport final". F&S Fisheries and maritime affairs, Poseidon Aquatic Resource Management & Megapesca Lda, Brussels (Belgium), p. 189.

Caillart B., K. Kelleher and M.-E. Guélé (2020), "Framework contract for Better Regulation related activities on the international dimension of the Common Fisheries Policy for the Directorate-General for Maritime Affairs and Fisheries — MARE/2015/23 — Specific Contract n° 13 — Retrospective and ex-ante evaluation study of the Protocol to the Agreement on a Sustainable Fisheries Partnership between the European Union and the Republic of Liberia — Final report". F&S Fisheries Maritime Affairs, Poseidon Aquatic Resource Management & Megapesca Lda, Brussels (Belgium), p. 153.

Carroz J. and M. Savini (1983), "Les accords de pêche conclus par les Etats africains riverains de l'Atlantique". Annuaire Français de Droit International 29: 674–709.

Cashion T., F. Le Manach, D. Zeller and D. Pauly (2017), "Most fish destined for fishmeal production are food-grade fish". Fish and Fisheries 18 (5): 837–844.

CFFA (2020), "Financial compensation, support for development and transparency, the key issues at stake in the negotiation of the EU-Madagascar SFPA.". Coalition for fair fisheries arrangements (CFFA), Brussels (Belgium), p. 4.

Changing Markets Foundation (2019), "Fishing for catastrophe". Changing Markets Foundation, Utrecht (Netherlands), p. 89.

Chapman W.M. (1970), "The theory and practice of international fishery development-management". San Diego Law Review 7: 408-454.

Chardeau M.-A. (2017), Eau (approche juridique), in: Cornu, M., Orsi, F., Rochfeld, J. (Eds.), Dictionnaire des biens communs. Presses universitaires de France, pp. 462–464.

Charles A.T. (2005), Droits d'usage et pêche responsable : limiter l'accès et les prélèvements grâce à une gestion fondée sur les droits, in: Cochrane, K.L. (Ed.), Guide du gestionnaire des pêcheries: les mesures d'aménagement et leur application. Food and Agriculture Organization of the United Nations (FAO), Rome (Italy).

Cheung W.W.L., Lam V.W.Y., Sarmiento J.L., Kearney K., Watson R.A., Zeller D. and D. Pauly (2010), "Large-scale redistribution of maximum fisheries catch potential in the global ocean under climate change". Global Change Biology 16 (1): 24-35.

Cheung W.W.L., R.A. Watson and D. Pauly (2013), "Signature of ocean warming in global fisheries catch". Nature 497 (7449): 365-368.

Cohen P.J., E.H. Allison, N.L. Andrew, J. Cinner, L.S. Evans, M. Fabinyi, L.R. Garces, S.J. Hall, C.C. Hicks, T.P. Hughes, S. Jentoft, D.J. Mills, R. Masu, E.K. Mbaru and B.D. Ratner (2019), "Securing a just space for small-scale fisheries in the Blue Economy". Frontiers in Marine Science 6 (171).

Coulter A., T. Cashion, A.M. Cisneros-Montemayor, S. Popov, G. Tsui, F. Le Manach, L. Schiller, M.L.D. Palomares, D. Zeller and D. Pauly (2019), "Using harmonized historical catch data to infer the expansion of global tuna fisheries". Fisheries Research.

Court of Justice of the European Union (2018), "Judgment of the Court (Grand Chamber) of 27 February 2018 — Western Sahara Campaign UK v Commissioners for Her Majesty's Revenue and Customs and Secretary of State for Environment, Food and Rural Affairs". Court of Justice of the European Union, Luxembourg City (Luxembourg).

D'Aboville G. (2010), "Les enjeux des accords de pêche Union européenne / pays africains". République Française, Conseil Economique et Social, Paris (France), p. 76.

Defaux V., P. Failler and H. Rey-Valette (2017), "Contrat-cadre pour une meilleure réglementation concernant la dimension internationale de la politique commune de la pêche pour la direction générale des affaires maritimes et de la pêche — MARE/2015/23 — Contrat spécifique n° 2 — Évaluation rétrospective et prospective du protocole à l'accord de partenariat dans le domaine de la pêche durable entre l'Union européenne et la République de Côte d'Ivoire — Rapport final". F&S Fisheries Maritime Affairs, Poseidon Aquatic Resource Management & Megapesca Lda, Brussels (Belgium), p. 214.

Doherty B., M. Hauzer and F. Le Manach (2015), Reconstructing catches for the Union of Comoros: uniting historical sources of catch data for Ngazidja, Ndzuwani and Mwali from 1950–2010, in: Le Manach, F., Pauly, D. (Eds.), Fisheries catch reconstructions in the Western Indian Ocean, 1950–2010. University of British Columbia, Vancouver (Canada), pp. 1–11.

European Commission (2009), "Green paper - Reform of the Common Fisheries Policy". European Commission, Brussels (Belgium), p. 27.

European Commission (2011), "Communication from the Commisson to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on External Dimension of the Common Fisheries Policy ". European Commission, Brussels (Belgium), p. 16.

European Commission (2020), "EU Sustainable Fisheries Partnership Agreements — A transparent, coherent and mutually beneficial tool that enhance fisheries governance for sustainable exploitation, fish supply and development of the fisheries sector in SFPA partner countries". European Commission, Brussels (Belgium), p. 12.

Failler P., B. Bjibril, H. Vieira, V. Pires Correia and V. Nahada (2005), "Accords de pêche et libéralisation du commerce international — Le cas de la Guinée-Bissau". Revue Congolaise des Transports et des Affaires Maritimes 3.

FAO (2018), "The state of world fisheries and aquaculture — Meeting the Sustainable Development Goals". Food and Agriculture Organization of the United Nations (FAO), Rome (Italy), p. xiv + 210.

FAO (2019), "Report of the FAO working group on the assessment of small pelagic fish off Northwest Africa — Banjul (Gambia), 26 June–1July 2018". Food and Agriculture Organization of the United Nations (FAO), Rome (Italy), p. x + 321.

Feeny D., S. Hanna and A.F. McEvoy (1996), "Questioning the assumptions of the "Tragedy of the Commons" model of fisheries". Land Economics 72 (2): 187-205.

Fernandez Peralta L., M.E.M. Bouzouma, E. Balguerias, C.-B. Braham, K. Brahim, A. Corten, M. Dia, E. Garcia-Isarch, B. Habib, P. Licandro, S. des Clers and C. Röckmann (2019), "Accords de partenariat dans le secteur de la pêche durable Union européenne - Pays tiers — Rapports des Comités scientifiques conjoints — Rapport de la réunion annuelle du Comité scientifique conjoint relatif à l'Accord de pêche signé entre la République islamique de Mauritanie et l'Union européenne — Santa Cruz de Tenerife - 11 au 14 juin 2019". 66 + 30, Brussels (Belgium).

Finley M.C. (2009), "The social construction of fishing, 1949". Ecology and Society 14 (1): 6.

Fox W.W. (1970), "An exponential surplus-yield model for optimizing exploited fish populations". Transactions of the American Fisheries Society 99 (1): 80-88.

Froese R., A. Stern-Pirlot, H. Winker and D. Gascuel (2008), "Size matters: how single-species management can contribute to ecosystem-based fisheries management". Fisheries Research 92 (2–3): 231-241.

Garcia S.M., J.A. Gulland and E.L. Miles (1986), "The new Law of the Sea, and the access to surplus fish resources - Bioeconomic reality and scientific collaboration". Marine Policy 10 (3): 192-200.

Garrod D. (1969), "Empirical assessments of catch effort relationship in the North Atlantic cod stocks". International Commission for the Northwest Atlantic Fisheries Research Bulletin 6: 26-34.

Gascuel D. (2019), Pour une révolution dans la mer — De la surpêche à la résilience. Actes Sud, Arles (France).

Gascuel D. (2020), "Table-ronde sur la politique commune de la pêche, avec M. Didier Gascuel, Directeur du pôle halieutique d'Agrocapus Ouest, M. Gérard Romiti, Président du Comité national des pêches maritimes et des élevages marins et M. Bernhard Friess, Directeur général des affaires maritimes et de la pêche de la Commission européenne — 15 janvier 2020". Commission des Affaires européennes, Assemblée nationale, Paris (France). Available at: http://videos.assemblee-nationale.fr/video.8616713_5e1f26e20be32

Gordon H.S. (1954), "The economic theory of common property resource: the fishery". Journal of Political Economy 62: 124-143.

Gorez B. (2009), "The future of Fisheries Partnership Agreements in the context of the Common Fisheries Policy reform. Presentation to the European Parliament Development Committee, September 2, 2009". European Commission, Brussels (Belgium). Available at: http://www.cape-cffa.org/spip.php?article99.

Gorez B. (2012), "EU CFP reform: towards sustainable EU-ACP fisheries relations". Coalition for fair fisheries arrangements (CFFA-CAPE), Brussels (Belgium), p. 6.

Gorez B. (2019), "African artisanal fishers and NGOs jointly complain to the EU against Italy turning a blind eye to its trawlers' illegal activities in West Africa". Coalition for fair fisheries arangements (CFFA-CAPE), Brussels (Belgium). Available at: https://cape-cffa.squarespace.com/en-blog/2019/2/6/african-artisanal-fishers-and-ngos-jointly-complain-to-the-eu-against-italy-turning-a-blind-eye-to-its-trawlers-illegal-activities-in-west-africa

Gorez B. and B. O'Riordan (2004), The future of European Union-ACP fisheries relations, in: Grynberg, R. (Ed.), Fisheries issues in WTO and ACP-EU trade negotiations. Commonwealth Secretariat, London (UK), pp. 1-57.

Green M. (2018), "Plundering Africa — Voracious fishmeal factories intensify the pressure of climate change". Reuters Investigates. Available at: https://www.reuters.com/investigates/special-report/ocean-shock-sardinella/

Greenpeace (2019), "A waste of fish — Food security under threat from the fishmeal and fish oil industry in West Africa". Greenpeace International, Amsterdam (Netherlands), p. 50.

Grotius H. (1609), "Mare Liberum, sive de jure quod Batavis competit ad Indicana commercia dissertatio".

Guttierez M., A. Daniels, G. Jobbins, G. Gutierrez Almazor and C. Montenegro (2020), "China's distant-water fishing fleet: scale, impact and governance". Overseas Development Institute (ODI), London (UK), p. 47.

Halle M. (1980), "Le pêche dans le droit romain". Les Cahiers de droit 21 (3–4): 985–992.

Hardin G. (1968), "The tragedy of the commons". Science 162 (3859): 1243-1248.

Havice E. (2010), "The structure of tuna access agreements in the Western and Central Pacific Ocean: lessons for Vessel Day Scheme planning". Marine Policy 34 (5): 979-987.

Havice E. (2013), "Rights-based management in the Western and Central Pacific Ocean tuna fishery: economic and environmental change under the Vessel Day Scheme". Marine Policy 42: 259-267.

Hicks C.C., P.J. Cohen, N.A.J. Graham, K.L. Nash, E.H. Allison, C. D'Lima, D.J. Mills, M. Roscher, S.H. Thilsted, A.L. Thorne-Lyman and M.A. MacNeil (2019), "Harnessing global fisheries to tackle micronutrient deficiencies". Nature 574 (7776): 95-98.

Holmes H. (2019), "Off the hook: how the EU is failing to police illegal fishing". Available at: https://www.thegrocer.co.uk/sourcing/off-the-hook-how-the-eu-is-failing-to-police-illegal-fishing/599486.article.

Holt S.J. (2011), "Maximum Sustainable Yield: the worst idea in fisheries management". Breaching the blue. Available at: https://breachingtheblue.com/2011/10/03/maximum-sustainable-yield-the-worst-idea-in-fisheries-management/.

IOTC (2013), "Report of the Second Technical Committee on Allocation Criteria, Muscat (Oman), February 18–20, 2013". Indian Ocean Tuna Commission (IOTC), Victoria (Seychelles), p. 81.

IOTC (2019), "5th session of the Technical Committee on Allocation Criteria (TCAC05) — Final table. 11–13 March 2019, Victoria (Seychelles)". Indian Ocean Tuna Commission (IOTC), Victoria (Seychelles), p. 17.

IPCC (2019), Summary for policymakers, in: Pörtner, H.-O., Roberts, D., Masson-Delmotte, V., Zhai, P., Tignor, M., Poloczanska, E., Mintenbeck, K., Nicolai, M., Okem, A., Petzold, J., Rama, B., Weyer, N. (Eds.), IPCC Special Report on the ocean and cryosphere in a changing climate. Intergovernmental Panel on Climate Change. The Intergovernmental Panel on Climate Change (IPCC), Geneva (Switzerland), p. 42.

Jouffray J.-B., R. Blasiak, A.V. Norström, H. Österblom and M. Nyström (2020), "The Blue Acceleration: The Trajectory of Human Expansion into the Ocean". One Earth 2 (1): 43-54.

Kelleher K. (2005), "Discards in the world's marine fisheries: an update". Food and Agriculture Organization of the United Nations (FAO), Rome (Italy), p. 152.

Kent G. (1997), "Fisheries, food security, and the poor". Food Policy 22 (5): 393-404.

Lam V.W.Y., W.W.L. Cheung, G. Reygondeau and U.R. Sumaila (2016), "Projected change in global fisheries revenues under climate change". Scientific Reports 6: 32607.

Larkin P.A. (1977), "An epitaph for the concept of Maximum Sustainable Yield". Transactions of the American Fisheries Society 106 (1): 1-11.

Le Bail J. (1994), "Les accords de pêche C.E.E.-Pays A.C.P.: Outil de développement ou facteur de crise ?". Revista de Geografía Norte Grande 21: 43-49.

Le Manach F. (2014), "Past, present and future of publicly-funded European Union's fishing access agreements in developing countries". University of British Columbia, Vancouver (Canada), p. xiii + 174.

Le Manach F., C.A. Abunge, T.R. McClanahan and D. Pauly (2015a), Tentative reconstruction of Kenya's marine fisheries catch, 1950–2010, in: Le Manach, F., Pauly, D. (Eds.), Fisheries catch reconstructions in the Western Indian Ocean, 1950–2010. University of British Columbia, Vancouver (Canada), pp. 37–51.

Le Manach F., C. Andrianaivojaona , K.L.L. Oleson , G.-M. Clausenand Lange (2013a), "Natural capital accounting and management of the Malagasy fisheries sector - A technical case study for the WAVES Global Partnership in Madagascar". The World Bank, New-York, NY (USA), p. 46.

Le Manach F., P. Bach , L. Boistol, J. Robinson and D. Pauly (2015b), Artisanal fisheries in the world's second largest tuna fishing ground — Reconstruction of the Seychelles' marine fisheries catch, 1950-2010, in: Le Manach, F., Pauly, D. (Eds.). University of British Columbia, Vancouver (Canada), pp. 99–110.

Le Manach F., M. Bailey, T. Cashion and C. Nouvian (2017), "The dark side of aquaculture". BLOOM, Paris (France), p. 32.

Le Manach F., C. Chaboud, D. Copeland, P. Cury, D. Gascuel, K.M. Kleisner, A. Standing, U.R. Sumaila, D. Zeller and D. Pauly (2013b), "European Union's public fishing access agreements in developing countries". PLOS ONE 8 (11): e79899.

Le Roux S. and J. Noël (2007), "Mondialisation et conflits autour des ressources halieutiques". Écologie & Politique 34: 69–82.

Leyronas S. and T. Bambridge (2018), "Communs et développement : une approche renouvelée face aux défis mondiaux". Revue internationale des études du développement 233 (1): 11-29.

Locher F. (2013), "Les pâturages de la Guerre froide : Garrett Hardin et la « Tragédie des communs »". Revue d'histoire moderne & contemporaine 60 (1): 7-36.

Locher F. (2019), Les communs et la mer. Une enquête sur les savoirs de gouvernement des ressources marines (1950-1990), in: Laval, C., Sauvêtre, P., Taylan, F. (Eds.), L'alternative du commun. Hermann, Paris, pp. 151–164.

MacFadyen G., B. Caillart and V. Defaux (2018), "Framework contract for Better Regulation related activities on the international dimension of the Common Fisheries Policy for the Directorate-General for Maritime Affairs and Fisheries - MARE/2015/23 — Specific Contract nº 6 — Ex ante evaluation study of a sustainable fisheries partnership agreement between the European Union and the Republic of The Gambia — Final report". F&S Fisheries and maritime affairs, Poseidon Aquatic Resource Management & Megapesca Lda, Brussels (Belgium), p. 112.

Mallory T.G. (2013), "China's distant water fishing industry: evolving policies and implications". Marine Policy 38: 99-108.

Noye J. and K. Mfodwo (2012), "First steps towards a quota allocation system in the Indian

Ocean". Marine Policy 36 (4): 882-894.

Nunn A. and S. Price (2004), "Managing development: EU and African relations through the evolution of the Lomé and Cotonou Agreements". Historical Materialism 12 (4): 203-230.

Orsi F. (2014), "Elinor Ostrom et les faisceaux de droits: l'ouverture d'un nouvel espace pour penser la propriété commune". Revue de la régulation 14.

Ortuño Crespo G., D.C. Dunn, M. Gianni, K. Gjerde, G. Wright and P.N. Halpin (2019), "High-seas fish biodiversity is slipping through the governance net". Nature Ecology & Evolution 3 (9): 1273-1276.

Ostrom E. (1990), Governing the Commons: the evolution of institutions for collective action. Cambridge university press.

Ostrom E., J. Burger, C.B. Field, R.B. Norgaard and D. Policansky (1999), "Revisiting the Commons: local lessons, global challenges". Science 284 (5412): 278-282.

Panossian A. (2014), The EU and the negotiation of fisheries agreements with third countries, International law of the sea and EU law: cohabitation, confrontation, cooperation. Institute of economic law of the Sea (INDEMER), Monaco, pp. 47-83.

Pauly D. (1979), "Theory and management of tropical multispecies stocks - A review, with emphasis on the Southeast Asian demersal fisheries". International Center for the Living Aquatic Resources Management (ICLARM), Manila (Philippines), p. 35.

Pauly D. (1997), Small-scale fisheries in the tropics: marginality, marginalization and some implications for fisheries management, in: Pikitch, E.K., Hupper, D.D., Sissenwine, M.P. (Eds.), Global trends: fisheries management. American Fisheries Symposium 20. American Fisheries Society, Bethesda, USA.

Pauly D., D. Belhabib, R. Blomeyer, W.W.L. Cheung, A.M. Cisneros-Montemayor, D. Copeland, S. Harper, V.W.Y. Lam, Y. Mai, F. Le Manach, H. Österblom, K.M. Mok, L. van der Meer, A. Sanz, S. Shon, U.R. Sumaila, W. Swartz, R.A. Watson, Y. Zhai and D. Zeller (2014), "China's distant-water fisheries in the 21st century". Fish and Fisheries 15: 474-488.

Pauly D., D. Belhabib, W.W.L. Cheung , A. Cisneros-Montemayor, S. Harper, V. Lam, Y. Mai, F. Le Manach, K.M. Mok, L. van der Meer, S. Shon, W. Swartz, U.R. Sumaila, R.A. Watson, L. Zhaiand and D. Zeller (2012), "Catches [of the Chinese distant- water fleet]". European Parliament, Directorate General for Internal Policies, Policy Department B: Structural and Cohesion Policies - Fisheries, Brussels (Belgium), pp. 21-29 & 81-85

Pauly D. and D. Zeller (2016), "Catch reconstructions reveal that global marine fisheries catches are higher than reported and declining". Nature Communications 7: 10244.

Pella J.J. and P.K. Tomlinson (1969), "A generalized stock production model". Inter-American Tropical Tuna Commission Bulletin 13 (3): 416-497.

Schaefer M.B. (1954), "Some aspects of the dynamics of populations important to the management of the commercial marine fisheries". Inter-American Tropical Tuna Commission Bulletin 1 (2): 23-56.

Schaefer M.B. (1957), "Some considerations of population dynamics and economics in relation to the management of the commercial marine fisheries". Journal of the Fisheries Research Board of Canada 14 (5): 669-681.

Schlager E. and E. Ostrom (1992), "Property-rights regimes and natural resources: a conceptual analysis". Land Economics 68 (3): 249-262.

Seto K. and B. Campbell (2019), The last commons: (re)constructing an ocean future, in: Cisneros-Montemayor, A.M., Cheung, W.W.L., Ota, Y. (Eds.), Predicting Future Oceans. Elsevier, pp. 365-376.

Shanks S. (2010), "Introducing a transferable fishing day management regime for Pacific Island countries". Marine Policy 34 (5): 988-994.

Sinan H. and M. Bailey (2020), "Understanding barriers in Indian Ocean Tuna Commission allocation negotiations on fishing opportunities ". Sustainability 12 (16): 6665.

St Martin K. (2007), "The difference that class makes: neoliberalization and non-capitalism in the fishing industry of New England". Antipode 39 (3): 527-549.

Standing A. (2019a), "The crisis of fishmeal and fish oil in West Africa: European industries must disinvest in this blooming sector". Coalition for fair fisheries arrangements (CFFA-CAPE), Brussels (Belgium), p. 8.

Standing A. (2019b), "European industries must disinvest in West Africa's booming fishmeal and fish oil sector". Coalition for fair fisheries arrangements (CFFA), Brussels (Belgium). Available at: https://www.cffacape.org/publications-blog/european-industries-must-disinvest-in-west-africas-booming-fishmeal-and-fish-oil-sector

STECF (2012), "Scientific, technical and economic committee for fisheries (STECF) - International dimension (STECF-12-11)". Scientific, Technical and Economic Committee for Fisheries (STECF), Ispra (Italy), p. 51.

Stilwell J., A. Samba, P. Failler and F. Laloë (2010), "Sustainable development consequences of European Union participation in Senegal's marine fishery". Marine Policy 34 (3): 616-623.

Sumaila U.R., J. Alderand and H. Keith (2006), "Global scope and economics of illegal fishing". Marine Policy 30: 696-703.

Swartz W., E. Sala , S.Tracey, R.A. Watson and D. Pauly (2010), "The spatial expansion and ecological footprint of fisheries (1950 to present)". PLOS ONE 5 (12): e15143.

United Nations (1982), "United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay (Jamaica), 10 December 1982". Treaty Series 1833: 3-581.

United Nations (2012), "The United Nations Convention on the Law of the Sea (a historical perspective)". Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, New York (NY, USA). Available at: https://www.un.org/Depts/los/convention_agreements/convention_historical_perspective.htm

United Nations (2013), "Chronological lists of ratifications of, accessions and successions to the Convention and the related Agreements as at 29 October 2013". United Nations, Division for Ocean Affairs and the Law of the Sea, New York, NY (USA).

United Nations (2015), "Sustainable Development Goals". United Nations, New York, NY (USA). Available at: https://sustainabledevelopment.un.org

van Laerhoven F. and E. Ostrom (2007), "Traditions and trends in the study of the Commons". International Journal of the Commons 1 (1): 3-28.

Vulperhorst V., L. Malarky, M.J. Cornax and B. Lowell (2017), "Fishing the boundaries of law — How the exclusivity clause in EU fisheries agreements was undermined". Oceana, Madrid (Spain), p. 14.

Walmsley S.F., C.T. Barnes, I.A. Payne and C.A. Howard (2007), "Comparative study of the impact of Fisheries Partnership Agreements - technical report". Marine Resources Assessment Group Ltd (MRAG), Cambridge Resource Economics, and Natural Resources Institute, p. 183.

Watling L. and E.A. Norse (1998), "Disturbance of the seabed by mobile fishing gear: a comparison to forest clearcutting". Conservation Biology 12 (6): 1180-1197.

WCPFC (2012), "Vessel Day Scheme (VDS) report to the Eighth Regular Session of the Western and Central Pacific Fisheries Commission (WCPFC8), Tumon, GU (USA), March 26-30, 2012". Western and Central Pacific Fisheries Commission (WCPFC), Kolonia (Federated States of Micronesia), p. 2.

Appendix - 1

Glossary

African-Caribbean-Pacific Group of States (ACP) countries: resulting from the Georgetown Agreement in 1975, this organization is composed of 79 African, Caribbean and Pacific states. All of them except Cuba are signatories to the Cotonou Agreement, which binds them to the European Union.

Bycatch: part of the catch that is composed of unwanted individuals (wrong species, size, or sex).

Common Fishery Policy (CFP): set of rules that govern the management of European fishing fleets. The first CFP was implemented in 1983 and has since then been reformed three times, every ten years.

Distant-Water Fishing Nation (DWFN): describes those countries whose fishing grounds extend far beyond their Exclusive Economic Zones (see below).

Drifting Fish Aggregating Devices (d-FADs): floating objects that are released by purse seiners at the surface of the ocean and whose structure and surrounding dynamics attract tuna and other species.

Exclusive Economic Zone (EEZ): coastal band extending from the limits of the territorial sea (12 nautical miles from the coast) to 200 nautical miles, in which the coastal state has sovereign rights regarding the exploration and use of marine resources in the seabed and the water column above it.

Fishing effort: amount of capacity put in place to catch marine animals, over a given unit of time. There is no universal unit of fishing effort as the most sensible one widely varies from one fishing gear to the other. Fishing effort is often provided in terms of kilowatt, number of hooks, kilometers of nets, trawling hours etc. per day/month/year, etc.

Global South: loosely used as a synonymous of "African-Caribbean-Pacific Group of States (ACP) countries" in this report.

Joint venture: business arrangement where two or more parties, generally from two different countries (e.g. China and Senegal) pool their resources together to set up a fishing company in one of the partner's country.

Maximum Sustainable Yield (MSY): highest possible annual catch that can be sustained over time.

Monitoring, Control, and Surveillance (MCS): set of rules and tools used for the purpose of fisheries management, e.g. satellite monitoring, data collection, at-sea/port inspections, etc.

Private agreement: business arrangement that allows the access by one fishing company to the waters of a coastal country. Negotiations are conducted between the coastal country and the fishing company.

Public agreement: in contrast with private agreements, public agreements are negotiated between a coastal country and another country, often a distant-water fishing one, but not always. Many agreements exist between two neighboring, coastal countries (e.g. Mauritania-Senegal, Canada-USA, etc.)

Surplus: fraction of the MSY that is not caught and thus remains in the water.

United Nations Convention on the Law of the Sea (UNCLOS): international agreement from 1983 that lays down a comprehensive regime of law and order governing all uses of the ocean and its resources.

Agence française
de développement
5, rue Roland Barthes
75012 Paris I France
www.afd.fr

What is AFD?
Agence Française de Développement (AFD) Group implements France's policy on development and international solidarity.
Comprised of AFD, which finances the public sector and NGOs; Proparco, which finances the private sector; and soon, Expertise France for technical cooperation, the Group finances, supports and accelerates transitions towards a more resilient and sustainable world.
We are building – with our partners – shared solutions, with and for the people of the Global South. Our teams are active in more than 4,000 projects in the field, in the French overseas departments and some 115 countries, including areas in crisis.
We strive to protect the common good – promoting peace, biodiversity and a stable climate, as well as gender equality, health and education. It's our way of contributing to the commitment that France and the French people have made to fulfill the Sustainable Development Goals. Towards a world in common.

Publication Director Rémy Rioux
Editor-in-Chief Thomas Melonio

Legal deposit 1st quarter 2021
ISSN 2492 - 2846

Graphic design MeMo, Juliegilles, D. Cazeils
Layout Denise Perrin, AFD
Printed by the AFD reprography service

To browse our publications:
https://www.afd.fr/en/ressources-accueil