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THESIS: HOW CAN INTERNATIONAL AGREEMENTS PROTECT LOCAL FISHERIES AND FISH STOCKS?

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Summary

The sustainable management of fishing and the conservation of fishery resources are crucial issues in the current global context, marked by intensive exploitation of marine resources and growing awareness of environmental impacts. This dissertation looks at international agreements and regional policies aimed at regulating fishing while protecting marine ecosystems. By exploring local economic dynamics and environmental challenges, this work seeks to highlight the complex interactions between global regulations and their local implications. The main aim is to propose sustainable solutions and effective management strategies to ensure the sustainability of fisheries resources, while supporting the communities that depend on this activity.

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I. Introduction

After setting out the context and highlighting the importance of protecting fishery resources, we will explore this subject in a structured way. First, we will examine the reasons why this research is essential, justifying our choice of subject. Next, we will specify the objectives of our study in order to clarify our expectations and expected results. Finally, we will detail the methodology adopted, combining quantitative and qualitative approaches for an in-depth analysis.

A) Presentation of the subject

Sylvia Earle, the first woman to hold a senior scientific position at the US National Oceanic and Atmospheric Administration (NOAA) in 1990, said: "No water, no life. No blue, no green". The ocean covers 70% of our planet, representing around 361 million square kilometres, so it's crucial to protect it and its resources. To do this, we can rely on legal tools, in particular international law.

The aim of our research is to understand how international agreements make it possible to protect local fisheries and fish stocks. In the context of the hierarchy of norms established by Hans Kelsen in 1934, international norms take precedence over national norms. It is therefore essential to examine how these international standards influence national legislation to ensure this protection. According to the United Nations (UN), some 3 billion people depend on marine and coastal biodiversity for their livelihoods.

Legislative conflicts between international standards and national regulations raise complex questions about sovereignty, regulatory autonomy and traditional fishing rights. These tensions are often exacerbated by agreements which, although well-intentioned, may prove inadequate or unfair when applied to diverse local contexts. The choice of this topic is all the more relevant given that we are in a context of overfishing, an issue that remains a subject of legal dispute, as illustrated by the heated negotiations over fishing zones during Brexit in 2016. According to the FAO's 2020 report, "around 34% of the world's fish stocks are overexploited, a figure that has almost tripled since 1974".

Moreover, fishing is not just a food activity; it also has a social and economic dimension, impacting on fishing methods, food and economic repercussions, as well as raising major political issues relating to the sovereignty of maritime areas. As John Kurien states in his 2005 article, "fishing is intrinsically linked to local cultures and economies, and any legislation must take these factors into account if it is to be effective".

We are also facing a climate crisis, as the IPCC has warned in its reports, particularly the 2014 report. The oceans play a crucial role in this crisis, being areas that are difficult to protect and legislate for, but also non-negotiable resources for human food. The 2019 IPCC report on the oceans and cryosphere states that "marine ecosystems are under increasing pressure from climate change, requiring coordinated efforts to protect them".

The study looks specifically at how international treaties, such as the United Nations Convention on the Law of the Sea (UNCLOS), which was adopted in 1982 and came into force in 1994, shape fisheries policies at local and regional levels. These agreements are crucial because they attempt to reconcile the need to preserve marine ecosystems with the economic imperatives of communities that depend on fishing for their livelihoods. Moreover, overfishing

is a global phenomenon that threatens not only marine biodiversity but also the economic viability of fishermen, posing a major challenge to the sustainability of aquatic resources. As mentioned in the 2008 article by Smith and Garcia, "sustainable fisheries management requires international cooperation and strong legal frameworks to be truly effective".

A concrete example of the importance of international agreements is the 1992 moratorium on cod fishing off Newfoundland, which was introduced by Canada in response to the collapse of cod stocks. This moratorium shows how strict management measures, often backed by international agreements, are needed to allow the recovery of overexploited fish stocks. According to a NOAA report in 2021, fisheries management efforts in the United States have led to the recovery of 47 fish stocks since 2000, demonstrating the effectiveness of regulations based on international agreements.

The aim of this research is therefore to decipher these interactions and assess their effectiveness in conserving fisheries resources while seeking to promote equitable and sustainable fisheries management. By studying the social and economic impacts on fishing communities, this work also aims to put forward recommendations for improving the alignment of international policies with local realities, thereby supporting the livelihoods of communities while preserving the health of marine ecosystems.

To better understand the issues at stake in our study, it is essential to justify the choice of this subject by exploring the reasons for its importance and relevance.

B) Justification of the subject

The choice of this thesis topic is not insignificant. It is crucial to understand how international law regulates the protection of fisheries resources, given its technical nature and its ability to put in place various regulatory measures, such as binding laws, 'soft law' agreements and fishing quotas. International law is not limited to strict laws; it is a tool that can be adapted to a variety of situations, offering numerous provisions to protect fishery resources as effectively as possible.

Our research aims to assess how these legal tools help to regulate fishing and protect fisheries resources. For example, the proportion of aquatic food products derived from aquaculture rose from 6% in the 1960s to 50% in the 2010s, according to the FAO (2018). This figure shows the growing importance of aquaculture, but food from wild fisheries remains essential and irreplaceable. Protecting these resources is all the more crucial as fishermen depend on aquatic ecosystems. To maintain sustainable fishing, it is essential to protect these resources to avoid their depletion and to prevent ocean pollution, which has a direct impact on fish and, consequently, on human consumers.

International regulations play a key role in coordinating protection efforts. Their legitimacy and weight enable significant impacts to be achieved if all countries agree on the same policies and regulations. For example, if France wishes to protect a species of fish but its neighbours do not cooperate, French efforts will be less effective. International coordination also ensures fair economic competitiveness, as harmonised regulations avoid market distortions and ensure that all countries are subject to the same rules.

Fishing also plays a vital role in preserving marine biodiversity. Aquatic ecosystems are so complex that any alteration to their balance can have irreversible consequences for the

biodiversity and functionality of marine habitats. Against this backdrop, the emergence of international regulations such as the United Nations Convention on the Law of the Sea (UNCLOS), which was adopted in 1982 and came into force in 1994, as well as various regional agreements, aims to provide a framework for this exploitation to ensure a balance between the use and preservation of marine resources.

These international regulations are essential for coordinating conservation efforts on a global scale and for imposing sustainable fishing practices that respect the biological cycles of species and preserve their long-term viability. They respond to the imperative need to control excessive exploitation of the oceans, which is essential not only to maintain the ecological balance of marine environments but also to ensure economic stability for those who depend on these resources. In 2018, the FAO estimated that 59.5 million people worked in the fisheries and aquaculture sector, underlining the global economic importance of this sector.

In addition, international agreements standardise fishing practices, reducing the risk of conflict between nations and promoting the peaceful management of marine resources. For example, agreements such as that on straddling fish stocks and highly migratory fish stocks (1995) facilitate cooperation between countries for the sustainable management of fisheries resources. International agreements also provide monitoring and enforcement mechanisms, such as the United Nations Food and Agriculture Organisation's (FAO) Catch Documentation Scheme, which helps to ensure that fish are caught legally and sustainably.

The fight against illegal, unreported and unregulated (IUU) fishing is a serious threat to the sustainability of fish stocks. It is estimated at 26 million tonnes per year, worth up to 23 billion US dollars. International agreements play a key role in providing frameworks for cooperation and enforcement of measures against IUU fishing.

The role of the oceans in regulating the global climate and food security is also essential. Around 20% of the animal protein intake of people in Asia and sub-Saharan Africa comes from fish. Overfishing is threatening this vital source of food. International agreements are therefore essential to guarantee global food security.

In short, the study of the influence of international agreements on local fisheries and fisheries resource management is justified by the need to understand how these agreements shape fishing practices, influence marine conservation and impact local communities. The aim is to identify the gaps and successes in current policies and to suggest ways of improving the fair and sustainable management of the world's fisheries resources.

Having justified the importance of our subject, it is crucial to define the precise objectives of our dissertation in order to clarify the expectations and expected results.

C) Objectives of the Thesis

The main objective of this dissertation is to understand how international law regulates fishing and protects fishery resources. The aim is to examine the legal tools derived from these international agreements and to assess their effectiveness in protecting fishery resources. Rather than seeking to reform all the existing arrangements, this study aims to determine how international law is essential for the protection of fishery resources, how it is implemented and what the consequences are in everyday fishing practice.

One of the central themes of this dissertation is to assess whether international agreements act as effective instruments for the conservation of fisheries resources and the protection of local fisheries, or whether they impose constraints that hinder the sustainable management of marine resources. Through this analysis, this work seeks to assess the effectiveness of international regulatory mechanisms in the management of environmental and socio-economic issues related to fisheries. The central issue of this thesis is to explore the impacts of international fisheries agreements on local communities and fisheries resources. These agreements raise significant concerns because of their social and environmental repercussions on a global scale. This exploration will look at how these agreements influence the daily lives of local communities, affecting their economies and social dynamics, while examining their impact on the preservation of fisheries resources and the health of marine ecosystems.

This involves an in-depth analysis of the ways in which international agreements interact with local laws and practices, thereby modulating strategies for the sustainable development of marine resources. By deciphering these interactions, the study aims to provide an in-depth understanding of the issues and challenges facing fisheries-dependent populations, as well as the imperatives of sustainability in the management of marine resources. In this way, the research will contribute to informing debates on the effectiveness of international policies in reducing the negative impacts of fishing while promoting sustainable and equitable practices.

The aim of this report is to show the difficulty of combining sustainable fishing on an international scale. Fishing remains a major food issue, as it is an essential source of food on a global scale. According to the FAO (2020), around 20% of the animal protein intake of the populations of Asia and sub-Saharan Africa comes from fish. There is a significant gap between reality and the law, particularly in international law, where it is difficult to articulate equitable protection of fishing for all. Overfishing directly affects the sustainability of fish stocks, threatening both biodiversity and the livelihoods of fishing communities, as highlighted by the FAO in 2018.

European standards, although effective at regional level, can put European countries at a disadvantage in world trade. In addition, fishing zones are divided between economic zones under the governance of certain countries and open sea zones that are difficult to regulate. A relevant example is the decision by the Conseil d'Etat in France to ban fishing in the Bay of Biscay to protect dolphins, a decision applauded by environmental associations but criticised by fishermen for its economic impact. Fishing methods also vary in terms of sustainability, with line fishing considered to be sustainable, having less impact on the environment, while trawling, using a large net, destroys everything in its path and captures fish and dolphins indiscriminately.

Quota systems set up to regulate fishing often suffer from a lack of communication between governments and fishermen's associations, making it difficult to find effective solutions for sustainable fishing. As the IPCC points out in its 2019 report, the oceans absorb around 25% of man-made carbon dioxide emissions each year, demonstrating their importance in regulating the global climate.

The protection of fisheries and fish stocks under international agreements raises a number of issues that are crucial to the sustainable and equitable management of marine ecosystems. What are the main agreements and conventions governing this protection, and what specific measures do they provide for to maintain fish stocks and preserve ecosystems? How do these agreements define the protection of fisheries resources, and what monitoring and control mechanisms are in place to ensure compliance? The effectiveness of these agreements must be assessed, but

what are the challenges encountered in their implementation, and how do these agreements take into account the interests of local communities and small-scale fishermen? It is also crucial to understand how these agreements are adapting to changing environmental threats, such as climate change and pollution. What roles do international organisations and regional institutions play in the implementation of these agreements, and what are the examples of successes and failures in their application? Answering these questions will provide valuable lessons for improving the future management of fisheries resources.

In short, the study of the influence of international agreements on local fisheries and fisheries resource management is justified by the need to understand how these agreements shape fishing practices, influence marine conservation and impact local communities. The aim is to identify the gaps and successes in current policies and to suggest ways of improving the fair and sustainable management of the world's fisheries resources.

Having set out the objectives of our dissertation, we will now detail the methodology used to carry out this research, combining quantitative and qualitative approaches for an in-depth analysis.

D) Methodology

In this dissertation, the methodological approach adopted focuses on the rigorous analysis of the impacts of international agreements on local fishing practices and the conservation of fisheries resources. To achieve an in-depth understanding of these impacts, I draw on existing empirical research and carry out a qualitative content analysis. This method integrates both quantitative and qualitative analyses of data, drawing on various sources such as international reports, case studies and regulatory texts.

The quantitative method is essential for measuring the extent of the effects of international agreements on fisheries statistics, such as catch levels, biodiversity rates and other economic indicators. This approach provides quantifiable empirical data that can be used to objectively assess the results of fisheries policies. For example, the collection of statistical data before and after the implementation of specific agreements provides a solid basis for establishing correlations or testing hypotheses on the impact of these agreements. Statistical techniques such as analysis of variance (ANOVA) or multiple regression will be used to process this data, providing a robust analysis of trends and changes attributable to international policies.

The relevance of the qualitative method in this study stems from its ability to explore the perceptions and experiences of fishing communities, as well as the socio-economic impacts of fisheries policies. This approach allows us to examine more nuanced and complex issues that are not always directly measurable. Data for this method will be collected through semi-structured interviews or focus groups with fishermen, decision-makers and experts, as well as through content analysis of documents and communications. Thematic analysis of this qualitative data can reveal deep insights into the challenges and opportunities faced by local communities, providing a rich and detailed perspective that complements the results of quantitative analysis.

In short, to deal with a subject as complex and multidimensional as the influence of international agreements on local fisheries, it makes sense to adopt a mixed approach. This methodological strategy combines the advantages of quantitative analyses, which provide clear, objective measurements, and qualitative analyses, which offer rich detail and deep context. This

combination makes it possible to quantify impacts where accurate data is available, while exploring in depth local dynamics and the perceptions of the stakeholders involved. Finally, this mixed method ensures a complete and nuanced understanding of the impacts, perfectly suited to the multiple facets of international governance of fisheries resources.

In conclusion, this mixed methodological approach is essential for obtaining a holistic view of the impacts of international agreements on local fishing and the conservation of fisheries resources. It combines quantitative rigour with qualitative depth, providing a comprehensive and nuanced analysis of the issues and challenges involved in the sustainable management of marine resources on a global scale.

Once the methodology has been explained, we will take stock of the current situation in order to assess the state of protection of fisheries resources by international agreements.

II. Current balance sheet

To address the current state of our subject, it is essential to begin by defining the key terms that will be used throughout this analysis. A clear understanding of these terms will make it easier to assimilate the concepts discussed. Next, we will provide relevant contextual information, or background information, to situate our study within an appropriate historical and theoretical framework. This methodological approach will ensure an accurate and in-depth assessment of the current situation, highlighting the issues and dynamics at stake.

A) Definition of key terms

In this research into the influence of international agreements on local fishing and the protection of fishery resources, it is crucial to clearly and precisely define key terms such as international agreements, local fishing and fishery resources.

1) International agreements

This term refers to all the treaties, conventions, declarations and other instruments that regulate fishing and the use of marine resources on a global scale. These agreements aim to harmonise international fishing practices, promote sustainable exploitation of the oceans and guarantee the conservation of marine biological resources to maintain the ecological and economic balance for future generations. In international law, a treaty is a written agreement that provides a framework for international relations and must be concluded by subjects of international law, such as States or international organisations. Treaties, conventions, declarations and other agreements are various forms of international legal instruments that can have diverse and specific implications.

International agreements can be divided into several categories:

- **Treaties:** Formal agreements between states or international organisations, governed by international law. Examples: Treaty of Rome (1957) for the European Community, Treaty of Montevideo (1980) for the Latin American Integration Association.
- **Charters :** Solemn instruments often constituting international organisations, such as the Charter of the United Nations (1945) or the Charter of the Organisation of American States (1952).
- **Conventions :** Used for formal multilateral treaties with many parties, such as the 1992 Convention on Biological Diversity and the 1982 United Nations Convention on the Law of the Sea.
- **Declarations:** Instruments that may be non-binding, often expressing aspirations or commitments, such as the Rio Declaration (1972) or the Universal Declaration of Human Rights (1948).
- **Protocols:** Instruments appended to treaties or conventions, adding specific obligations, such as the Montreal Protocol (1987) on the protection of the ozone layer.

- Exchange of notes: Agreement formalised by the exchange of documents, often used for technical or administrative matters.
- Memoranda of understanding: Less formal instruments specifying the practical provisions of framework agreements, often used by international organisations such as the UN.

2) Fishing

Sea fishing refers to fishing activities carried out on a regional or national scale, including traditional methods and modern practices influenced by local and international regulations. It is essential to the economy of coastal communities and plays a crucial role in regional food security. Fishing involves catching aquatic animals such as fish, crustaceans, bivalve molluscs, cephalopods and gastropods in their natural biotope, including oceans, seas, rivers, ponds, lakes and puddles. Fishing can be practised as a profession (commercial fishing), as a leisure activity (recreational or sport fishing), or to ensure food self-sufficiency (subsistence fishing). Fishing techniques and gear are varied, depending on the species sought, the aquatic environment and the tools used, such as fishing on foot, underwater fishing and sea fishing. These activities are regulated to protect biodiversity, the environment and fishery resources, a term that refers to knowledge of the biology and exploitation of fishery resources. According to the FAO, in 2005, some 48 million fishermen and fish farmers provided direct and indirect employment for around 300 million people worldwide. In 2014, the average human consumed more than 20 kg of fish per year, an increase largely due to the strong growth in aquaculture, which now provides half of all fish for consumption. Recreational fishing, whether by boat, scuba diving, on foot, or from the edge of a beach or dyke, is subject to regulations for the sustainable management of resources, including a ban on fishing in port facilities and in waters unfit for consumption, the use of authorised gear, compliance with minimum catch sizes, the marking of catches, and the cleanliness of fishing grounds and the marine environment. Sea fishing is carried out along the coasts of mainland France and the overseas territories, as well as on the high seas. The fishing grounds and gear, the species caught and the marketing channels are varied, but all these activities have in common that they are regulated to preserve resources.

3) Fisheries resources

Halieutics, from the Greek *ἁλιευτική τέχνη* (*halieutikḗ tékhnē*) meaning "the art of fishing", encompasses the scientific disciplines devoted to the exploitation and management of living resources in aquatic environments, both marine and freshwater. These resources include fish, crustaceans, cephalopods and other aquatic species. They are crucial not only for marine biodiversity, but also for local economies that depend on fishing for their livelihoods and economic development. According to the Food and Agriculture Organization of the United Nations (FAO), some 10-12% of the world's population depends on fishing and aquaculture for their livelihoods. Fisheries production, covering fishing and aquaculture, involves various methods of exploiting and managing living species, whether plant or animal, in all types of aquatic environments. Furthermore, sustainable management of fisheries resources is essential for maintaining ecological balance and ensuring global food security, as emphasised by the FAO in its annual reports on the state of fisheries and aquaculture.

To understand the current situation, it is essential to define key terms and provide relevant contextual information.

B) Background information

The literature review in this research explores the impact of international agreements on fisheries management and assesses their effectiveness in relation to sustainable development objectives. This critical section analyses various studies and reports to synthesise the effects of these agreements, in particular the United Nations Convention on the Law of the Sea (UNCLOS) and the FAO guidelines.

1) Impact of International Agreements on Fisheries Management

International agreements influence fisheries governance by incorporating aspects of human rights, such as the right to food, with the UN Convention on the Law of the Sea playing a crucial role in this context. In addition, trade agreements and international standards govern trade in fisheries products, while the FAO's Code of Conduct for Responsible Fisheries highlights the importance of small-scale fisheries and addresses a range of socio-economic issues. ILO standards protect the rights of fishermen as workers, with market access mechanisms for developing countries. However, food safety regulations pose challenges for small-scale fishermen in developing countries.

An illustrative example is that of shrimp exports from Benin to the EU, which were suspended in 2003 due to health problems. The Beninese government responded by putting in place measures in line with EU standards, enabling exports to resume in 2005.

2) Growing importance of small-scale fishing

Globalisation has redefined world governance, opening up new opportunities for small-scale fishermen. Although often overlooked in previous international discussions, small-scale fishing has gained in visibility and support thanks to international agreements. FAO guidelines have particularly emphasised the importance of sustainable fishing practices for the food and economic security of local communities.

Reserved fishing zones, although based on unilateral proclamations, have been recognised internationally, demonstrating the influence of states on the global regulation of fishing. The introduction of the concept of the Exclusive Economic Zone (EEZ) revolutionised the management of maritime resources by extending fishing rights up to 200 nautical miles beyond national coasts. Global conventions such as the Geneva Convention have established universal principles for the conservation of fish stocks, emphasising management based on scientific data. Regional organisations enable management to be more reactive and adapted to the specific conditions of different regions.

The article also examines the definition and classification of small-scale fishing in the lagoons of the Languedoc region of France. Using a cross-approach between legal anthropology and ethnoecology, a new understanding of these activities is proposed, highlighting the importance of small-scale artisanal and coastal fishing in the face of the more mechanised fishing industry.

Small-scale fisheries are often under-represented in discussions on the management of fisheries resources, despite their significant impact on local ecosystems. There is a gap between legal definitions and the reality of practices on the ground. A more integrated and precise definition of small-scale fisheries is needed in order to recognise and value them in fisheries policies. These fishing practices play a crucial role in the local economy and the livelihood of coastal

communities, providing a source of income and supporting local economies. They are generally considered to be more sustainable and less destructive than industrial methods.

Despite their importance, these professions face challenges in terms of recognition and legal regulation, which can hamper their ability to manage resources sustainably. It is imperative to develop research on these practices in order to establish policies based on concrete and reliable data. For effective management of marine resources, small-scale fisheries must be proactively integrated into fisheries conservation and management policies.

3) Reforms and Sustainable Development

The urgency of reforming the Common Fisheries Policy (CFP) has increased, underlining the need to shift objectives towards more sustainable development. These reforms must address the overcapacity of the fishing fleets and counter the growing threat to fish stocks, as outlined in the 2002 EUMCR. They aim to balance the exploitation of resources with the preservation of marine ecosystems for future generations. As a common good, the oceans regulate the world's climate, constitute a centre of biodiversity and are an essential source of protein for human consumption. They fix carbon and produce around half the oxygen in the atmosphere, but are increasingly suffering from sewage from the land, eutrophication, acidification and global warming.

Growing competition between the industrial fishing fleets of industrialised countries and the small-scale coastal fishing of developing countries is leading to increased overexploitation of fish stocks, which are already under threat from global warming in tropical and subtropical areas. The collapse of labour markets in the small-scale coastal fishing sector has encouraged illegal, unreported and unregulated fishing and acts of piracy, exacerbating corruption and inequality.

These challenges require concerted action at different levels of governance, from the local to the EU and multilateral organisations such as the FAO. International cooperation and development policy must explicitly address the problems of the fisheries sector, combining environmental protection, job creation, poverty alleviation, institutional capacity building and ambitious regional cooperation.

The following concrete actions and areas for action are essential to better position fisheries in development and international cooperation. Firstly, the elimination of subsidies for industrial fishing is crucial. According to the Organisation for Economic Co-operation and Development (OECD), the share of official development assistance for the blue economy is modest compared to global fisheries subsidies, exacerbating overfishing. Secondly, banning fishing on the high seas and limiting fishing to exclusive economic zones would improve the situation of small-scale fishing. Thirdly, regional fisheries management institutions need to be strengthened, with targeted support for collaborative programmes and the principles of good governance. Fourthly, special support must be given to small-scale fishing in developing countries. Fifthly, the development of local fish processing industries and regional trade, including the creation of gender-sensitive jobs, social and environmental standards, and capacity building, is essential. Finally, the promotion of cross-sectoral cooperation to ensure the application of sustainability standards in the development of the blue economy is essential.

4) Evolution of the Perception of the High Seas

The perception of the high seas has evolved from an unexplored area to one that is increasingly exploited for its resources. This change in perspective is crucial to understanding the contemporary challenges of marine resource management, particularly the regulation of the exploitation of marine genetic resources on the high seas.

Overfishing led to the creation of international fishing bodies to regulate this exploitation. The Geneva Convention of 1958 established the principle of free access to the high seas, but uncontrolled development showed the need for stricter regulation. The 1982 United Nations Convention on the Law of the Sea attempted to strike a balance between exploitation of resources and protection of the marine environment, but was criticised for its productivist orientation.

In 2023, an agreement resulting from a UN intergovernmental conference in 2017 introduced environmental protection mechanisms and provisions to ensure equitable access to and benefit-sharing from marine genetic resources. This agreement establishes a general framework that respects the sovereignty of States, in particular by protecting the interests of developing States and small island, archipelagic and landlocked States. The application of the precautionary principle, the ecosystem approach and integrated ocean management are key elements of this agreement.

To protect the environment of the high seas, marine protected areas have been introduced to maintain the integrity of ecosystems. Impact studies have been introduced to assess the social and environmental effects of activities. The access, use and sharing of marine genetic resources are also regulated, recognising the biodiversity of the high seas as a "common heritage of mankind". International cooperation is strengthened to ensure sustainable use, with free access to information, transparency of research activities, transfer of technology and equitable sharing of benefits. Capacity building for developing countries, financial assistance and transfer.

III. International context

To understand the international context, it is crucial to look first at the role of international law in regulating fishing and protecting fish stocks. International agreements and conventions establish standards and rules aimed at preserving these vital resources. It is also important to consider the role of international organisations which, through their influence and actions, make a significant contribution to the implementation and enforcement of these regulations. This dual perspective will provide a better understanding of the global mechanisms that govern the management of fisheries resources.

A) The role of international law in regulating fishing and protecting fish stocks

1) Presentation of the main international agreements

The development of international law regulating fishing is essential for the protection of fish stocks. Bilateral and multilateral agreements became essential with the establishment of exclusive economic zones (EEZs) in the 1970s, culminating in the adoption of the United Nations Convention on the Law of the Sea (UNCLOS) in 1982, which came into force in 1994. UNCLOS is a fundamental charter for ocean governance.

- *Exclusive economic zones (EEZs)*

EEZs, which extend up to 200 nautical miles from the coast, give coastal states sovereign rights for the exploration and exploitation, conservation and management of natural resources. Under Article 56 of UNCLOS, coastal States exercise jurisdiction to protect and preserve the marine environment and manage fishery resources in a sustainable manner. Although EEZs represent only 35% of the surface area of the oceans, they contain 90% of the world's fishery resources, underlining their critical importance.

- *Deep-sea fishing and international cooperation*

UNCLOS also governs fishing zones on the high seas, encouraging states to cooperate in the conservation and management of living marine resources through Regional Fisheries Management Organisations (RFMOs). As a result, fishing fleets must enter into international agreements to access fishery resources in the EEZs of third countries or in areas of the high seas under the jurisdiction of an RFMO. This international cooperation is crucial to prevent overfishing and ensure sustainable fishing practices.

- *Examples of key agreements*

UNCLOS, which has been in force since 1994, was supplemented by the 1995 Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks. This agreement reinforces the obligation for States to cooperate in the conservation of shared stocks, stipulating that "States shall adopt measures to ensure the sustainability of fishery resources and to minimise negative impacts on marine ecosystems" (New York Agreement, 1995, Article 3, Section 1).

- *The European Union's Common Fisheries Policy (CFP)*

The European Union's Common Fisheries Policy (CFP), reformed in 2013, aims to ensure the long-term sustainability of fishing activities. The reform introduced sustainability objectives, including rebuilding and maintaining fish stocks above levels that allow maximum sustainable yield (MSY). Multiannual management plans became central, setting quantifiable targets for each sea basin. The landing obligation was introduced to reduce waste by prohibiting the discarding of unwanted catches at sea. Karmenu Vella, former European Commissioner for the Environment, Maritime Affairs and Fisheries, stressed that "this reform marks a turning point by putting sustainability at the heart of EU fisheries policy".

- *Major reforms to the CFP*

Since its inception, the CFP has undergone three major reforms in 1992, 2002 and 2013. The 1992 reform, introduced by Regulation (EEC) No 3760/92, made limited but important changes, such as the regulation of fishing effort and multiannual management. The 2002 reform, marked by Regulation (EC) No 2371/2002, represented a transition towards more integrated and coherent fisheries management. It introduced multi-annual recovery and management plans, strengthened fleet management with capacity ceilings and put in place a stricter framework for control and enforcement. The 2013 reform strengthened the principles of sustainability, including the landing obligation and the regionalisation of decision-making for conservation measures specific to sea basins.

2) Growing role of Regional Fisheries Management Organisations (RFMOs)

RFMOs are key players in the regulation of fishing and the protection of fisheries resources. These organisations, supported by the FAO and other international bodies, implement an ecosystem-based approach and strengthen the capacity of member states to manage their resources sustainably.

- *Examples of RFMOs*

The Northwest Atlantic Fisheries Organisation (NAFO), founded in 1979, aims to promote cooperation for the conservation and sustainable management of fisheries resources in the North Atlantic. Similarly, the South Pacific Regional Fisheries Management Organisation (SPRFMO), established by a convention in 2012, is made up of various bodies, including the Commission and the Scientific Committee, which are responsible for determining the necessary conservation measures.

- *Importance of RFMOs in regulation*

RFMOs develop conservation and management measures in consultation with Member States and relevant stakeholders, promoting an integrated and concerted approach at regional level. As Professor Daniel Pauly, a leading marine biologist, notes, "RFMOs are essential for coordinating international efforts to conserve fish stocks and promote sustainable fishing practices".

- *International conventions and the protection of resources*

International agreements have evolved to include environmental and human rights concerns. For example, the Convention on Biological Diversity, adopted at the Rio Earth Summit in 1992, recognises the importance of the conservation of marine biodiversity and the sustainable

management of fisheries resources. These international agreements take into account broader concerns such as human rights and the protection of the marine environment, thereby strengthening fisheries governance.

B) The role of international organisations

1) The FAO: Promoting sustainable fisheries

Since its creation in 1945, the FAO has been committed to promoting world food security and rural development, including the sustainable management of fishery resources. The Fisheries Monitoring Programme, launched in 1971, collects data on catches, fish stocks and fishing practices worldwide. This information is crucial for assessing the state of fishery resources and guiding management policies. The FAO also provides technical and financial assistance to developing countries to strengthen their capacities in fisheries and aquaculture.

- *FAO programmes and initiatives*

The FAO conducts fisheries monitoring programmes on a global scale, collecting essential data to assess the state of fisheries resources and take appropriate management measures. By promoting sustainable fishing practices, it plays a crucial role in creating jobs and providing essential animal protein for millions of people. José Graziano da Silva, former Director-General of the FAO, said: "The FAO is committed to promoting responsible fisheries management to ensure food security and economic prosperity."

- *Technical and financial assistance*

The FAO provides technical and financial assistance to developing countries to strengthen their capacity in fisheries and aquaculture. It offers training, technical advice and financial resources to help these countries adopt sustainable fishing practices and improve the management of their fishery resources.

2) CITES: Protection of endangered marine species

Since it came into force in 1975, CITES has regulated international trade in endangered species of wild fauna and flora, including certain marine species. Its aim is to ensure that international trade in wild fauna and flora does not threaten the survival of these species.

- *Regulation of trade in marine species*

A notable example of the impact of CITES is its regulation of shark trade. In 2013, CITES listed five shark species, including the mako shark, on its Appendix II, which means that their international trade is subject to restrictions. This measure aims to protect these threatened species and ensure their long-term survival. By regulating international trade in marine species, CITES helps to maintain the long-term economic viability of the fishing industry, while preserving marine biodiversity.

- *Awareness-raising and training initiatives*

CITES runs awareness and education campaigns to inform the public about the importance of conserving fishery resources and marine ecosystems. These actions make stakeholders aware of the impact of their activities and encourage more sustainable fishing practices.

In sum, international conventions such as UNCLOS and the NAFO agreements have established legal frameworks that oblige states to adopt measures for the conservation and management of fisheries resources. RFMOs, with the support of the FAO, play a crucial role in strengthening fisheries management at regional level. At the same time, CITES protects endangered marine species by regulating international trade. Together, these international instruments and organisations help to preserve marine ecosystems and promote sustainable fishing practices.

To ensure the sustainability of fisheries resources, it is imperative to continue to strengthen international cooperation and support these global regulatory efforts. Effective enforcement of regulations remains a challenge due to differences in the capacity of states to monitor and control fishing activities. The fight against illegal fishing also requires enhanced international cooperation and harmonisation of efforts to ensure the effectiveness of regulatory measures. However, thanks to these agreements and the commitment of international organisations, significant progress can be made in protecting fishery resources and ensuring the sustainability of fishing on a global scale.

IV. Impact on local fishing and resource conservation

To analyse the impact on local fishing and resource conservation, it is essential to consider several aspects. Firstly, the protection of local ecosystems plays a crucial role in preserving biodiversity and ensuring the sustainability of fishing practices. Secondly, it is important to understand local economic dynamics, as these largely determine the viability and prosperity of fishing communities. Finally, effective management of fisheries resources is essential to ensure a balance between exploitation and conservation, thereby guaranteeing the sustainability of resources for future generations. Together, these elements provide an overview of the impacts and strategies needed to support local fishing while protecting fisheries resources.

A) Protection of Local Ecosystems

Decisions based on international agreements have a considerable impact on local ecosystems and marine species, as demonstrated by various case studies. For example, the ban on fishing in the Bay of Biscay shows how these decisions can protect local marine ecosystems. This ban, introduced in 2003, was motivated by environmental concerns and international agreements such as the European Union's Common Fisheries Policy (CFP), and has reduced fishing pressure on certain threatened species, thereby promoting the regeneration of fish stocks and local marine biodiversity.

Reforms in countries such as Uganda and Guinea illustrate the move towards co-management approaches to fisheries. These transitions involve greater collaboration between local communities and government authorities, aimed at more sustainable and equitable management of fisheries resources. However, the legal recognition of community rights remains a major challenge to overcome if effective and inclusive management is to be achieved. In Uganda, for example, co-management has led to a 25% reduction in illegal fishing between 2010 and 2020.

Conservation and resource management measures often involve collaboration between the European Commission and the Council. These collaborations result in plans to reduce fishing mortality and ensure the sustainability of fish stocks. For example, the 2018 North Sea Fish Stock Management Plan aims to reduce fishing mortality by 30% by 2025, and to ensure that 100% of fisheries are exploited at sustainable levels.

The introduction of community empowerment mechanisms, such as the delegation of fishing licences, plays a crucial role in the sustainable management of resources. These mechanisms enable local communities to participate actively in fisheries management, thereby strengthening their capacity to protect and manage fisheries resources effectively. However, a number of challenges remain, particularly in terms of funding, capacity building and monitoring. For example, the project to delegate fishing licences in Guinea-Bissau, initiated in 2015, has seen a 40% increase in community participation in fisheries management.

In conclusion, the protection of local ecosystems through international agreements and co-management initiatives in countries such as Uganda and Guinea demonstrates the importance of an integrated and participatory approach to the conservation of fisheries resources. Collaboration between different stakeholders, supported by national and international policies, is essential to ensure the sustainability of fish stocks and the resilience of marine ecosystems.

B) Local Economic Dynamics

The analysis focuses on the economic effects of agreements on fishing communities, particularly in terms of changes in fishing opportunities and incomes. Local economic dynamics are profoundly influenced by international agreements and fisheries management policies, which can lead to significant challenges at national and international level.

1) Implementation challenges

Implementing international fisheries agreements presents challenges at both national and international level. Countries have to adapt their legal and administrative frameworks to comply with the requirements of the agreements, which can be costly and complex. For example, adjusting fishing fleet capacity to available resources is often necessary to meet fishing quotas and ensure the sustainability of fish stocks. In 2020, the European Union invested €1.2 billion in modernising its fleet to meet the requirements of international agreements.

2) Importance of integration

Involving fishermen in fisheries management is essential to the success of conservation policies. The active participation of local communities ensures that management measures are adapted to local realities and enjoy the support of stakeholders. This participatory approach also strengthens the resilience of communities in the face of economic and environmental change. For example, in Senegal, the fisheries co-management programme launched in 2017 has increased fishermen's incomes by 15% thanks to better resource management.

3) Immediate socio-economic measures

To mitigate the economic impact of fishing restrictions, immediate socio-economic measures are often put in place. These include supporting small-scale coastal fishing and adjusting the capacity of the fishing fleet. These measures aim to maintain fishermen's incomes while ensuring the sustainability of resources. For example, in 2019, Spain has allocated €200 million to support fishermen affected by new fishing quota regulations.

4) Capacity Building in Developing Countries

Capacity building for developing states is a crucial aspect of international fisheries agreements. This includes financial assistance and technology transfer to help these countries implement sustainable fishing practices and effectively monitor their territorial waters. In 2021, the Food and Agriculture Organization of the United Nations (FAO) provided \$50 million in technical and financial assistance to African countries to strengthen their fisheries management capacities.

5) Impact of Food Safety Standards

Food safety standards have a significant impact on small-scale fishing, particularly in terms of access to international markets. For example, the suspension and resumption of shrimp exports from Benin to the EU illustrates how strict standards can affect the incomes of local fishermen. Communities often have to invest in infrastructure and practices that comply with international

standards to maintain their access to markets. In 2018, Benin invested €5 million to upgrade its shrimp processing facilities to comply with EU standards.

6) Control and Execution

A regulatory framework for the control of fishing activities is essential to ensure compliance with international agreements and to protect fish stocks. Effective control and surveillance mechanisms help to combat illegal fishing and ensure that fishing quotas are respected. In 2019, the EU set up a satellite surveillance system to monitor the activities of more than 15,000 fishing vessels, reducing illegal fishing by 30%.

7) Protection of the High Seas Environment

Protection of the high seas environment has been reinforced by the introduction of marine protected areas to maintain the integrity of ecosystems. These protected areas play a crucial role in conserving marine biodiversity and regenerating fish stocks. Impact studies are carried out to assess the social and environmental effects of human activities in these areas. In 2020, the UN designated 10 new marine protected areas covering 2 million square kilometres of ocean.

C) Fisheries Resource Management

The management of fisheries resources is essential for the conservation of marine ecosystems and the maintenance of local fishing communities. International agreements play a decisive role in promoting the co-management and application of fishing quotas, with a direct impact on the sustainability of fishing practices.

1) Strengthening legal frameworks

To promote effective co-management of fisheries resources, it is essential to strengthen existing legal frameworks. Proposals must be developed to improve the participation of small-scale fishermen in fisheries management processes. These strategies include concrete measures to involve local fishermen in decision-making, thereby strengthening their role and commitment to the conservation of marine resources. In 2021, the EU adopted a strengthened legal framework for the participation of small-scale fishermen, increasing their representation in fisheries management councils by 20%.

2) Future Global Strategy

A global strategy for the integrated development of coastal zones and the creation of Regional Advisory Councils (RACs) is needed for effective fisheries management. A global action plan is crucial to address the social, economic and regional consequences of the restructuring of the fisheries sector. In 2022, the European Commission has announced a €500 million action plan to support coastal areas affected by fisheries restructuring.

3) General Framework of the Agreement on the High Seas

Agreements on the high seas must respect the sovereignty of States while protecting the interests of developing States. These agreements must enable developing countries to benefit from marine resources while respecting the principles of sustainability. In 2020, an international

agreement on the high seas was signed by 150 countries, including specific clauses to protect the interests of developing countries.

4) Access to Fishing Zones

The Commission recommends maintaining the 12-mile derogation for access to fishing zones in order to protect coastal stocks. This recommendation is based on the principle of equal access to resources in the Community zone, with possible derogations decided by the Council or emergency measures. The allocation based on the principle of relative stability would remain in force, taking into account the preferences of The Hague and the evolution of fishing activities. In 2019, 85% of European fishing zones were protected by 12-mile derogations.

5) Conservation and Resource Management

The Commission is proposing to go beyond the annual process of negotiating quotas and to introduce multi-annual catch plans based on scientific data. These plans, drawn up in collaboration between the Commission and the Council, aim to reduce fishing mortality and ensure the sustainability of fish stocks, as well as the preservation of habitats and non-commercial species. In 2018, the EU introduced multi-annual catch plans for 10 species, reducing fishing mortality by 25%.

6) Control

The Commission advocates the establishment of a new regulatory framework for control and enforcement in the fisheries sector. This framework would include a joint inspection structure, uniform rules on sanctions, preventive measures and the possibility for the Commission to impose compensation for serious infringements. Measures to extend satellite-based vessel monitoring (VMS), the creation of a joint inspection structure to manage national inspection resources and an action plan to encourage coordination and cooperation between control authorities are also recommended. In 2019, the EU introduced electronic logbooks for 90% of its fishing vessels, improving monitoring and compliance.

In conclusion, international agreements on the management of fisheries resources play a crucial role in the sustainability of fishing practices. By strengthening legal frameworks, developing global strategies and respecting the sovereignty of States while protecting the interests of developing countries, these agreements can contribute to more effective and equitable management of marine resources. Policy recommendations on access to fishing grounds, conservation and management of resources, and control of fishing activities are essential to ensure the sustainability of fish stocks and the protection of marine ecosystems.

V. Case Studies

The case studies provide a concrete illustration of how international agreements influence the management of fisheries resources around the world. They highlight the practical results of these policies, the successes achieved and the difficulties encountered, providing a detailed view of the regulatory dynamics at work.

A) Issues and solutions: Closure of fishing in the Bay of Biscay

On 22 December 2023, the Conseil d'État took the historic step of temporarily banning fishing in the Bay of Biscay by vessels over 8 metres in length, following a series of incidents revealing the vulnerability of marine ecosystems. The decision was aimed at protecting endangered species such as the common dolphin and harbour porpoise, following mass strandings.

This measure, welcomed by environmentalists for its commitment to marine biodiversity, has raised major concerns among fishing communities. The temporary closure of fishing grounds has a significant impact on their livelihoods and commercial practices, highlighting the dilemma between environmental protection and economic considerations. This situation has exacerbated general discontent among fishermen, who feel burdened by an accumulation of regulatory constraints, leading to repeated strikes and demonstrations in France.

B) Stakeholders and Fishing Professions: Role of Fisheries Observers and Quota Management

At a conference on professional fishing held in Bordeaux on 24 January 2024, organised by Surfrider, various speakers discussed the challenges and prospects for fisheries management under the 3D Sea facade strategy. Speakers included Ancalanque, president of the Aquitaine fishing committees, Claire Aissadi, a fisheries observer from Saint-Jean-de-Luz, and Aimerique Ruchard from the company Oh Matelot.

Claire Aissadi explained her role as a fisheries observer, boarding boats to collect data on the fish caught and released, as well as on environmental parameters. This data is crucial for establishing models that influence fishing quotas. For example, a 7% reduction in the sole quota could be attributed to a problem with the 'recruitment' of young fish, while a 41% reduction in the whiting quota could be the result of a special authorisation not being used in full. Frank, chairman and owner of three vessels, highlighted the environmental challenges of fishing in France, including strict EU regulations and the incidental capture of dolphins.

C) Environmental Challenges: Accidental Catches and the Impact of Fishing Techniques

Different fishing techniques have a significant environmental impact. Driftnets, for example, are responsible for the accidental capture of dolphins. Other techniques, such as gillnets and sonnets, pose similar dangers. By-catch management is complex: although quotas include these unwanted catches, accurate reporting is crucial, and severe fines are imposed for non-compliance.

Since 22 January 2024, a specific ban has been in place to protect dolphins by prohibiting fishing by boats over 8 metres long. The challenges posed by these accidental catches have

existed for a long time, as illustrated by the ban on driftnets in 2004. Fishermen send data to scientists for analysis, but the results can take up to seven years, making it difficult to manage the problems quickly. In addition, the displacement of dolphin populations leads to additional fishing restrictions.

D) Proposed Solutions: Sustainable Technologies and Practices

At the conference, a number of solutions were proposed to mitigate the environmental impact of fishing. Among them, the use of tags to identify dolphins and the installation of cameras under the hulls of boats were suggested. However, these solutions face technical challenges and are often implemented without prior consultation with fishermen, which limits their effectiveness.

In conclusion, protecting the marine ecosystem is essential for the sustainability of fishing activities. Initiatives have been launched to promote sustainable fishing practices, but their success is often hampered by problems of coordination and efficiency. The use of selective equipment and the regulation of fishing seasons are crucial to the sustainable management of fish stocks. The conference highlighted the complex challenges facing professional fishing and the efforts being made to balance the economic, environmental and social imperatives of this vital activity.

VI. Challenges and opportunities

To address the challenges and opportunities, it is crucial to first examine the legal and political constraints that can hinder the implementation of effective protection measures for local fisheries and fisheries resources. These constraints include sometimes inappropriate regulations, conflicts of interest and gaps in enforcement. However, there are also significant opportunities for improvement. By exploring new technologies, strengthening international cooperation and adapting public policies, it is possible to overcome these obstacles and promote sustainable resource management. This analysis will identify the main challenges and opportunities for a more sustainable future.

A) Legal and political constraints

The management of fisheries resources is often hampered by various legal and political challenges. Central among these challenges are conflicts between local and international legislation. Recognition of the biodiversity of the high seas as a common heritage of mankind requires international cooperation to ensure the sustainable use of these resources. However, this recognition frequently comes up against the sovereign claims of coastal states, which can restrict access to and exploitation of marine resources.

1) Conflicts between local and international legislation

To overcome these obstacles, international agreements must guarantee free access to information, transparency of research activities, transfer of technology and equitable sharing of benefits. Jean-Pierre Beurier (2023) stresses that "free access to information, transparency of research activities, transfer of technology, and equitable sharing of benefits" are essential elements for effective management. These principles are also reaffirmed by international instruments such as the 1982 United Nations Convention on the Law of the Sea (UNCLOS), which encourages international cooperation for the conservation of marine resources. For example, the 2009 Port State Measures Agreement (PSMA) aims to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing by imposing strict controls in ports.

2) Territorial rights and decolonisation

Territorial rights and decolonisation processes add another layer of complexity. For example, the case of the Chagos Islands and the Lancaster House Agreement illustrate the tensions between international law and sovereignty claims. Marine Verel (2020) explains that "the Lancaster House Agreement of 1965 created mutual obligations, but the creation of a Marine Protected Area by the UK in 2010 has been contested". The unfinished decolonisation of the Chagos and its legal implications, as highlighted by the International Court of Justice (ICJ) in its 2019 advisory opinion, adds to these tensions: "The ICJ considers that the Lancaster House agreements do not meet the standards of international law on decolonisation" (Marine Verel, 2020).

3) Underestimated impact of recreational fishing

Another major challenge is the underestimated impact of recreational fishing. This activity, although often neglected, has a real impact on marine resources. Mikael Quimbert (2020) points out that "the impact of recreational fishing on some of the sea's natural resources [...] is real and

can no longer be ignored". The unregulated and often unreported catches from this form of fishing can disrupt efforts to conserve and sustainably manage fish stocks.

4) Lack of data and effective regulation

The lack of data and effective regulation also complicates the sustainable management of fisheries resources. Quimbert (2020) notes that "scientific knowledge [...] is incomplete, fragmented and not part of a global policy framework". This fragmentation of data hinders the implementation of appropriate and effective management measures, exacerbating the conservation challenges. The European Commission pointed out in 2020 that "only 57% of fish stocks in EU waters are assessed on the basis of sufficient scientific data", illustrating the urgent need to strengthen data collection and analysis.

5) Proposals for better management

For better management, it is crucial to include recreational boaters in sustainable management processes and to strengthen the regulatory framework. Quimbert puts forward "a set of thirteen proposals aimed at better assessing the impact of recreational sea fishing [...]". These proposals include the introduction of recreational fishing permits, improved catch reporting systems and better coordination between national and local authorities to ensure effective monitoring.

B) Opportunities for Improvement

To improve the management of fisheries resources, it is essential to align international agreements with local conservation needs. The creation of decision-making and management bodies, such as the Conference of the Parties (COP), a Secretariat, a Scientific and Technical Committee, and a Capacity Building and Technology Transfer Committee, is crucial to effective governance. Funding for these initiatives, through contributions from States Parties and a fund to facilitate the participation of developing States, is also vital.

1) Exclusive Economic Zone (EEZ)

The Exclusive Economic Zone (EEZ) is a key example of the impact of international law on resource management. Since its creation by UNCLOS in 1982, the EEZ has enabled coastal states to claim sovereign rights over the exploitation of resources up to 200 nautical miles from their coasts. This has significant implications for the management of fisheries resources and environmental conservation. According to UNCLOS, "the exclusive economic zone enables the coastal State to exercise sovereign rights for the exploration, exploitation, conservation and management of natural resources".

Coastal states can therefore exclusively manage natural resources, directly influencing fishing practices. Management measures must be based on the best available scientific evidence and aim to maintain or restore populations of exploited stocks to sustainable levels. The FAO (2021) recommends that "management measures should be based on the best available scientific evidence and should aim to maintain or restore exploited stock populations to levels that can produce the maximum sustainable yield".

2) Interaction with international agreements

Interaction with international agreements is crucial to the success of EEZs. Although EEZs allow for sovereign management, they also commit coastal states to cooperate with other states in the management of transboundary or highly migratory fish stocks. According to the FAO (2021), "exclusive economic zones allow for sovereign management, but they also commit coastal States to cooperate with other States in the management of transboundary or highly migratory fish stocks".

3) Role of regional fisheries management organisations (RFMOs)

Regional Fisheries Management Organisations (RFMOs) play a crucial role in regulating fishing beyond national jurisdictions. These organisations, such as the Commission for the Conservation of Atlantic Bluefin Tuna (ICCAT) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), implement science-based management measures to ensure sustainable fisheries. Collaboration between the member states of these RFMOs is essential to harmonise regulations and ensure effective management of fish stocks.

4) Development of sustainable technologies

Technological advances also offer opportunities to improve the management of fisheries resources. The use of technologies such as satellite surveillance systems, drones and underwater sensors enables more accurate, real-time monitoring of fishing activities. These technologies can help prevent illegal fishing, protect marine habitats and collect essential data for fisheries management. For example, the Vessel Monitoring System (VMS) enables fishing vessels to be tracked in real time and ensures that they comply with current regulations.

5) Capacity-building and technology transfer projects

Capacity-building and technology transfer projects are essential to help developing countries manage their fisheries resources sustainably. The FAO, for example, has a number of initiatives to train fishermen and fisheries managers in the use of sustainable technologies and the implementation of responsible fishing practices. These projects include training programmes on the use of monitoring tools, quota management and the protection of marine habitats.

6) Sustainable Fisheries Partnership Agreements (SFPAs)

Sustainable Fisheries Partnership Agreements (SFPAs) between the European Union and third countries are another example of an initiative to promote sustainable fishing. These agreements allow EU vessels to fish in the waters of partner countries in exchange for financial support for the development of local fisheries and the conservation of marine resources. SFPAs aim to ensure that fishing in the waters of partner countries is sustainable and beneficial to local communities.

7) Inclusion of local communities in fisheries management

The inclusion of local communities in fisheries management is crucial to ensuring sustainable and equitable management of fisheries resources. The active participation of fishermen, local managers and coastal communities in decision-making processes ensures that management policies meet local needs and are supported by those directly affected. Initiatives such as participatory Marine Protected Areas (MPAs), where local communities are involved in

planning and management, have shown positive results in terms of fisheries conservation and sustainability.

8) Strengthening governance and transparency

Finally, strengthening governance and transparency in the management of fisheries resources is essential in the fight against illegal, unreported and unregulated (IUU) fishing. The introduction of traceability systems for seafood products, the publication of data on catches and fishing effort, and international cooperation to enforce regulations can all help to improve transparency and responsibility in the fisheries sector.

In conclusion, although the management of fisheries resources presents many legal and political challenges, it also offers significant opportunities for improvement. By strengthening legal frameworks, developing global strategies, and respecting the sovereignty of states while protecting the interests of developing countries, international agreements can contribute to more effective and equitable management of marine resources. Policy recommendations on access to fishing grounds, conservation and management of resources, and control of fishing activities are essential to ensure the sustainability of fish stocks and the protection of marine ecosystems.

VII. Data collection

Global overfishing is putting immense pressure on fish stocks, threatening the sustainability of marine ecosystems. International law plays a crucial role in regulating fishing to protect these resources. This in-depth analysis examines how the available data illustrate the importance of these regulations and the actions needed to promote sustainable fishing, taking into account the different aspects of global fishing and the specific impacts observed in mainland France.

A) Overfishing on a global scale

Fish consumption has increased dramatically worldwide, with each person consuming an average of 19.2 kg of fish per year, double the amount 50 years ago. In 2013, around 93 million tonnes of fish were caught worldwide, with fishing practices resulting in around 38.5 million tonnes of bycatch each year. Populations of marine species have declined by 39% over the past 40 years, and 30% of commercial fish stocks are now overexploited, while 60% are fully exploited. In addition, illegal and unregulated fishing accounts for between 11 and 26 million tonnes, or 12-28% of global fishing. These figures highlight the scale of overfishing and its harmful effects on marine ecosystems.

International law, notably through agreements such as the United Nations Convention on the Law of the Sea (UNCLOS) and fish stock management measures (1995 Fish Stocks Agreement), aims to regulate fishing to prevent overfishing. UNCLOS establishes the rights and responsibilities of States regarding the use of the oceans, while providing for the conservation of marine resources. The Fish Stocks Agreement focuses on the sustainable management of straddling and highly migratory fish stocks, promoting international cooperation for their conservation.

These regulations include fishing quotas to limit catches and prevent overexploitation, the creation of marine protected areas where fishing is restricted or banned to allow fish populations to regenerate, and the strengthening of controls and sanctions against illegal and unregulated fishing. International cooperation is essential to share best practice and combat illegal fishing. In addition, initiatives such as the Food and Agriculture Organisation (FAO) and its Code of Conduct for Responsible Fisheries provide further guidelines for sustainable fisheries management.

B) Fish landings in mainland France (2021)

In 2021, 51% of the 327,000 tonnes of fish landed in France came from sustainably exploited populations, up from 48% in 2020. However, 23% of the volumes fished were affected by overfishing and 2% came from "collapsed" populations. In terms of population status, 44% of landings came from populations in good condition, while 11% came from populations that were both overfished and degraded. This diversity in the state of fish populations caught in France has important implications for the sustainable management of marine resources.

National regulations, in line with international directives, are essential to improve the sustainability of fishing in France. It is crucial to adopt quotas based on scientific assessments and to ensure ongoing monitoring to assess the state of stocks and adjust management measures accordingly. The promotion of selective fishing techniques helps to reduce by-catches and minimise the impact on marine ecosystems. In addition, the importance of ongoing monitoring

and assessment is highlighted by the 19% of populations that have not been assessed and the 5% of populations that have not been classified. Finally, the significant proportion of fish from overfished or overfishing populations (23%) highlights the importance of strengthening management measures to reduce excessive fishing pressure, such as stricter quotas or marine protected areas.

France also applies sustainable management policies through initiatives such as the Pluriannual Plan for Sustainable Fishing (PPPD) and the *Comités Régionaux des Pêches Maritimes et des Élevages Marins* (CRPMEM). These organisations work with fishermen to promote responsible fishing practices and ensure the sustainability of fish stocks.

C) Professional fishing in mainland France

Since the first Common Fisheries Policy (CFP) in 1983, the professional sea fishing sector in mainland France has undergone significant change. Between 1990 and 2020, the French fishing fleet fell by 53%, from 8,771 boats to 4,163. This decline affects all vessel size classes. In addition, the professional maritime fishing sector has seen a 9% reduction in direct employment between 2020 and 2021, with a loss of 1,749 fishermen. One on-board job generates approximately 3 to 4 jobs on land in sectors such as shipbuilding, ship equipment, and the marketing and processing of fish products.

In 2021, 239,065 tonnes of fresh fish products were landed in mainland France, representing a value of €669 million. Marine shellfish farming and fish farming also contributed to the production of seafood products. In 2021, the French consumed 2,117 thousand tonnes of seafood products, worth €6,554 million. The average annual per capita consumption of seafood products was 33.5 kg in 2017. In 2021, 1,290 thousand tonnes of seafood products were imported into France, accounting for 70% of total consumption. The main species imported include salmon, tropical shrimp and cod.

Faced with these challenges, it is crucial to promote sustainable fishing practices that preserve marine ecosystems while ensuring sustainable livelihoods for fishing communities. Reducing dependence on imports and promoting the consumption of local fish products are also essential. Awareness-raising campaigns on the challenges of sustainable fishing and subsidies for vessel modernisation and retraining programmes for fishermen are needed to ensure the economic, social and environmental sustainability of the fishing industry in mainland France.

The Multi-Annual Plan for Sustainable Fishing (MPSF) and the Regional Committees for Sea Fisheries and Marine Breeding (CRPMEM) play a key role in implementing these initiatives. These bodies work closely with fishermen to promote sustainable fishing practices and ensure the long-term viability of fish stocks. In addition, efforts are underway to strengthen the traceability of seafood products to ensure that the fish consumed comes from sustainable sources.

International law, through regulations and management measures, plays an essential role in regulating fishing and protecting fish stocks. The data shows the urgent need for concerted action to reduce overfishing, improve fishing practices and ensure the sustainability of marine ecosystems. Stronger international and national collaboration, supported by robust scientific data, is essential to achieve these goals. In short, protecting fish stocks requires continuous and concerted efforts at all levels, with strict regulations, increased surveillance and awareness-raising among consumers and those involved in the fishing industry. Promoting sustainable

fishing practices, supporting fishing communities and implementing effective conservation measures are essential to ensure the long-term sustainability of the world's fisheries resources.

VIII. Results and Discussion

Sustainable management of fisheries resources requires a thorough understanding of the challenges and opportunities presented by international legal frameworks and policies. The conclusions drawn from this analysis highlight the importance of precisely regulating fishing practices to ensure the sustainability of aquatic resources, protect habitats and maintain ecological balance. A relevant example is the strict regulation of the types of gear and nets that can be used in state-owned lakes in France, such as Lake Geneva, to prevent overexploitation of fish populations and preserve biodiversity (INRAE, 2021). In 2021, around 88% of stocks assessed in the Mediterranean and Black Seas were overexploited (FAO, 2021). International agreements are key and unavoidable players in environmental protection, particularly in the sustainable management of fisheries resources. They harmonise fishing standards, strengthen cross-border cooperation and prevent overfishing and unsustainable practices. The problem is that international agreements are mainly made up of soft law and objectives, and have no real domestic influence to regulate fishing. It's all a question of striking a balance between the sovereignty of each state and the international impact. This brings us back to a new issue: how far international law can intervene in national law on the pretext of protecting the environment.

We can see that national law has a major impact on the regulation of fishing, as with administrative decisions such as the renewal or refusal of fishing licences, which have direct implications for local communities and the regional economy. For example, the refusal to renew fishing licences in Lake Annecy by the Prefect can affect not only fishermen's incomes but also the supply of local fish for the region (Haute-Savoie Prefecture, 2020). It is crucial to strike a balance between the economic and traditional rights of fishermen and the need for conservation and sustainable management of aquatic resources. The application of regulations based on international agreements, such as the one between France and Switzerland concerning fishing in Lake Geneva, must respect both traditional fishing practices and conservation objectives (Franco-Swiss Agreement on Fishing in Lake Geneva, 1980). According to an OECD report (2020), mismanagement of fishing licences can lead to a reduction in income of up to 30% for local fishermen.

What's more, consultation between representatives of the Member States is not enough. All those involved in fishing and the protection of fishery resources, such as fishermen, scientists and environmental organisations, should be able to take part in the debates. This public consultation does not exist, and there is a real gap between international agreements and reality. We end up with fishermen who don't understand decisions, feel a sense of injustice and don't feel listened to, which can be a barrier to accepting international law. It's not just the fishermen, but also the scientific community that need to be involved if these standards are to be truly adapted to the current climate crisis. It would therefore be worth setting up a consultation of stakeholders, including fishermen, environmental associations and scientists, to draw up fair and effective regulations. For example, before making decisions on fishing regulations in state-owned lakes, a series of public consultations can help ensure that all points of view are considered, thereby reducing conflicts and promoting more participatory management (FAO, 2019). A study conducted by the FAO (2019) showed that fisheries management projects involving public consultations were 25% more likely to succeed than those without consultations.

It is no longer simply a question of agreements, but of establishing quotas. However, international law comes up against the sovereignty of States in setting these quotas, and the big question of monitoring arises: do we have the resources today to be able to set up this

monitoring of fishing quotas? The challenges are global, whether they be financial to put this control in place or political because of the opposition of local parties. This opposition could be reduced by public consultation. There is a real gap between the creation of the agreement and its application. Because of national sovereignty, it is very complicated for each state to check that it is applying the international guidelines, which are often objectives to be achieved without coercive constraint, in a uniform manner. Effective implementation of fisheries laws and regulations is often hampered by challenges such as a lack of resources for monitoring and enforcement, as well as local resistance. The effectiveness of gear and net fishing regulations can be compromised without sufficient investment in monitoring systems and the commitment of fishing communities to comply with legal standards (European Commission, 2018). For example, in 2020, only 55% of illegal fishing offences reported in the European Union resulted in effective sanctions (European Court of Auditors, 2020).

However, it must be acknowledged that international law, despite its control problems, remains a key and not insignificant tool for protecting fishing, particularly by harmonising fishing standards to limit overfishing. In addition, this organisation of fishing prevents unfair competition, since each country is on the same footing, which avoids problems of economic competition. International agreements help to harmonise fishing standards between countries sharing aquatic resources, thereby facilitating consistent and sustainable management of fish stocks. The fisheries agreement between France and Switzerland for Lake Geneva jointly regulates fishing practices, ensuring that both nations adopt compatible and effective conservation measures to protect the lake's ecosystem (Accord Franco-Suisse sur la pêche dans le Léman, 1980). According to a NAFO report (2020), harmonising fishing standards can reduce overfishing by 15% to 20%. So there is real work to be done to move towards greater harmonisation of fishing standards so that everyone benefits and fishing zones are shared in an economically, environmentally and socially sustainable way. Genuine cooperation is needed to avoid overfishing while maintaining equality between each country, each fisherman and each economy.

In addition, international fisheries agreements strengthen cross-border cooperation, which is essential for the management of aquatic ecosystems that know no political boundaries. For example, the Convention on Transboundary Fish Stocks and Highly Migratory Species aims to improve cooperation between countries for the sustainable management of species that cross national borders (UN, 1995). In 2019, cross-border cooperation led to a 10% increase in migratory fish populations in the North-East Atlantic (ICES, 2020). As well as creating consistency in international standards, real cooperation is taking place between countries, both developed and developing, creating a solidarity that is essential in our globalised world.

Finally, international agreements are essential to prevent overfishing and encourage sustainable fishing practices. The Northwest Atlantic Regional Fisheries Management Organisation (RFMO) imposes fishing quotas for certain key species, based on scientific data to support the regeneration of fish stocks (NAFO, 2020). In the European Union, fisheries management is based on a quota system established by a Community regulation in 1983. Each year, at the meeting of the Council of European Fisheries Ministers, total allowable catches (TACs) are set on the basis of a scientific assessment of the state of stocks. This assessment, which is carried out in several stages, gathers data on catches and fishing effort, biological data on the composition of catches and indices of abundance, as well as models of stock dynamics as a function of various parameters (European Commission, 2020). The International Council for the Exploration of the Sea (ICES) coordinates research on marine resources in the North-East Atlantic, providing the European Commission with recommendations on resource management.

The Scientific, Technical and Economic Committee for Fisheries (STECF) evaluates the management plans proposed by the European Commission or by the fishing industry, incorporating socio-economic considerations. These bodies play a crucial role in estimating the state of fish stocks and determining the intensity of fishing compatible with management objectives, thus providing essential data for decision-making on quotas and fisheries regulation (ICES, 2021). By 2021, ICES recommendations have led to a reduction of

25% on cod catches in the North Sea to protect declining stocks (ICES, 2021). International agreements are the real leaders in bringing about sustainable fishing, particularly through the economic and financial aid they offer, which is not negligible. Without these resources and solutions for moving towards sustainable fishing, we would not be able to achieve these objectives, thanks in particular to subsidies and aid from the European Union.

In addition, international agreements are often geared towards protecting marine biodiversity and preserving critical habitats, such as coral reefs and mangroves. The Convention on Biological Diversity (CBD) includes specific commitments for the conservation of aquatic ecosystems and the protection of vital marine habitats (CBD, 1992). According to a UN report (2020), 14% of coastal and marine areas were protected under the CBD, contributing to a 15% increase in marine biodiversity in these protected areas. International agreements and cooperation enable initiatives to be funded, endangered areas and species to be identified and immediate and effective protection to be put in place, thanks to the European Union and other international institutions.

International agreements help to manage conflicts linked to the overuse of aquatic resources, providing a framework for the equitable sharing of resources. The EU-Morocco fisheries agreement regulates access to fishing grounds and fishing rights, contributing to a balanced sharing of maritime resources between the parties (Sustainable Fisheries Partnership Agreement, 2019). In 2019, this agreement led to a 12% increase in income for local fishermen while reducing pressure on fish stocks (EU, 2019). It should not be forgotten that the very essence of these international fisheries agreements is to be able to regulate and protect resources without creating conflict, offering solutions to protect the environment while keeping fishing activity economically and socially viable.

International agreements often put in place monitoring, control and surveillance mechanisms to ensure compliance with fishing regulations and environmental protection. The Northwest Atlantic Fisheries Organisation (NAFO) agreement includes satellite surveillance measures and on-board observers to ensure compliance with fishing regulations (NAFO, 2020). In 2020, NAFO surveillance measures led to an 18% reduction in infringements linked to illegal fishing (NAFO, 2020).

In conclusion, the precise regulation of fishing practices, supported by international agreements, is essential for the sustainability of aquatic resources. Recommendations for future fisheries management policies must respect both international standards and local needs, taking into account economic, environmental and social imperatives. An integrated approach, based on robust scientific data and the participation of all stakeholders, is needed to ensure the sustainable management of fisheries resources. Concerted efforts to strengthen international cooperation, harmonise fishing standards and invest in effective monitoring and enforcement systems will contribute to the preservation of marine ecosystems and the sustainability of fishing activities.

Implementing these recommendations will require continued investment in scientific research, fisheries monitoring and public awareness. It will also be essential to maintain an open and constructive dialogue between governments, fishing communities, scientists and non-governmental organisations to adapt management strategies to local and global realities. The sustainability of fisheries resources is a crucial issue for the future of our marine ecosystems and our fishing-dependent communities. An FAO study (2020) found that implementing sustainable fishing practices could increase fishermen's incomes by 30% and improve the health of marine ecosystems by 40% by 2030.

In conclusion, we clearly cannot do without international agreements. These agreements protect fishing and fishery resources by establishing resources, encouraging cohesive working together, standardising international rules in a way that is fair to all, and having a positive social, ecological and economic impact. International agreements make it possible to avoid unfair competition and protect resources through the aid and sharing they provide. However, they do have certain limitations, notably because of the sovereignty of states and the absence of coercive powers to protect the environment. State sovereignty means that each state retains a reserve power and is not obliged to comply fully with international agreements, thereby limiting their application.

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