Rethinking International Fisheries Law through the Lens of IUU Fishing: Pathways to Sustainable Fisheries

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Submitted in fulfillment of the requirement of the Degree of PhD in Law

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March 2021

Abstract

This thesis is a reflection on the global phenomenon that is illegal, unregulated, and unreported fishing (IUU fishing). IUU fishing is an unsustainable form of fishing that evades fisheries regulations, undermines conservation and management measures, creates unfair competition for fisheries that obey the laws, damages marine biodiversity, degrades the marine environment in general, and also has further criminal implications which can escalate into humanitarian crisis and national security issues. From these reasons, the international community has attempted to curb the wave of crime through a growing body of international law instruments and regimes. However, it is evident that most of these attempts are adopted reactively, in a crime fighting mindset that fails to tackle the problem at its roots.

This thesis aims at looking precisely at those roots, analyzing the business models of the fishing industry, our perceptions towards the ocean and fish, and the production of scientific knowledge. These elements created a socially constructed environment where IUU fishing is possible. Under the scope of international law, this can be seen in the fragmented, piecemeal regulations for fisheries that are spread across multiple regimes, and the weak efforts of implementation or enforcement of such regimes.

This thesis will also argue that in order to reverse this undesirable situation and prevent the continuation of IUU fishing, we must rethink how international law approaches the oceans, affirm the fact that fish is a part of the larger concept of marine biodiversity and marine environment, and that we humans need the fish to survive, not just in a nutritional sense, but simply as living beings that have intrinsic value just by existing.

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Acknowledgements

I would like to express my deepest gratitude to my principal supervisor Professor Christian Tams, for the acceptance of my proposal and showing great interest in my work from the very beginning of the PhD, and for the tremendous amount of academic advice and emotional support that allowed me to complete my thesis. My second supervisors Dr. James Devaney and Professor Rosa Greaves also provided invaluable feedback in different stages of my research that were extremely helpful. The same gratitude also extends to the examiners of my thesis, Dr. Giedre Jokubauskaite and Dr. Antonio Cardesa-Salzmann, for their detailed and constructive comments on my research.

I would also like to extend my thanks to the friends and colleagues at the School of Law, specifically to Jinyup Kim, who frequently shared informative conversations with me, and to Jessica Schechinger, who shared my enthusiasm for the law of the sea. Obviously it is impossible to list everyone that I met here, but I am grateful to all of the people that had to listen to my presentations regarding fishing and fish.

Last but not least, I wish to thank my parents and my brother. They always believed in me and supported me through all the ups and downs, this journey would not have been possible without the regular airdrop supplies from Taiwan, and I love you all.

Chin Chia, James, Tien

September 2021

Taipei, Taiwan

Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, that this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other Institution.

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Thesis Introduction

1. Rethinking Fisheries through the Lens of IUU Fishing

How inappropriate to call this planet Earth when it is quite clearly Ocean.[1]

Our science is a drop, our ignorance a sea.[2]

The focus of this thesis is the phenomenon that is occurring in the world's oceans known as "illegal, unreported, and unregulated fishing" (IUU fishing). The issue of IUU fishing has received increasing attention in recent years, and large volumes of relevant research has also been generated accordingly. However, it is in my opinion that there are some aspects of this issue that have been overlooked or less examined, which are actually crucial points that need to be addressed if we intend to resolve the problem in any meaningful way.

The title of this thesis and the research questions that I wish to present and explore in this thesis is also formed along the same lines according to the above opinion. In essence, I intend to examine the relation between the concepts of sustainable fishing and IUU fishing with the seemingly basic definitional questions: "What is sustainable fisheries?", "How can we achieve sustainable fishing?", and "What is IUU fishing and where does it fit into the international effort to achieve sustainable fishing?" These main questions are intertwined in

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[1] Commission of the European Communities, 'Green Paper - Towards a future Maritime Policy for the Union: A European vision for the oceans and seas - "How inappropriate to call this planet Earth when it is quite clearly Ocean" attributed to Arthur C. Clarke' COM/2006/0275 final, 7 June 2006; James Lovelock, 'Hands Up for the Gaia Hypothesis' (1990) 344 Nature 100, 102 (Both sources attribute the quote to Arthur C. Clarke, the science fiction/science writer most well-known for his work on the screenplay of the 1968 film *2001: A Space Odyssey*.).

[2] William James, *Is Life Worth Living?* (S. Burns Weston 1896) 45.

such complicated and complex manners as such they cannot be answered in a straight forward fashion, but instead need to be broken down into further components, where every aspect of each question will be separately dissected and understood. One important aspect that is essential for the answering of the questions is the fact that I intend to use the relatively new concept of "IUU fishing" as a lens to review the long existing act of fishing and the equally recent, if not even newer concept of sustainable fishing. IUU fishing as a legal concept effectively acts as a conduit between the factual and historical phenomenon of human beings extracting marine living resources from the sea, and the mostly scientific concept of sustainable fisheries[3]. I would wholeheartedly agree with the opinion that global fisheries is perhaps the biggest sustainability challenge that humanity faces after climate change[4], especially when factoring in the aspect of IUU fishing. The phenomenon of IUU fishing acts as an amplifier that magnifies the unsustainable and environmentally harmful characteristics of the fishing industry, the problematic views that law makers, scientists and consumers may hold towards fish stocks, as well as the weaknesses in the current model of international fisheries regulation. The questions asked in this paragraph not only marks the goal of the research, which is the intention to formulate a better way of regulating fisheries, but is also in itself a revealing my process of reflective thought.

In order to elaborate the above mentioned and further expand the research questions, I will start this introduction with the most basic component fundamental to this thesis: a description

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[3] The question of whether or not a certain fishery is sustainable can be assessed and measured according to certain scientific criteria, especially in the light of developments in scientific methods and technology, such assessments can be done with greater detail and accuracy than ever before. For example, the Marine Stewardship Council (MSC) has laid out the standards they adopt for measuring sustainability on their website: MSC, 'What is Sustainable Fishing?' (*MSC*) <https://www.msc.org/what-we-are-doing/our-approach/what-is-sustainable-fishing> accessed 20 September 2021.

[4] Rupert Howes, 'Sustainable Fisheries' (*Richard Sandbrook's Place*, February 2013) <http://richardsandbrooksplace.org/rupert-howes/sustainable-fisheries> accessed 20 September 2021.

of "IUU fishing". As seen in some introductory pages of websites that touch upon the issue, IUU fishing can be described abstractly as "fishing activities that contravene national laws and regulations, the conservation and management measures of Regional Fishery Management Organisations (RFMOs) and, where relevant, international law."[5] This description is straight forward and even non-professionals can easily imagine some scenarios that could count as IUU fishing, for example, a fishing vessel that is fishing without a valid license, in an area that prohibits fishing, fishing outside a designated season, or fishing with banned gear, such as dynamite or cyanide. If we approach the issue of IUU fishing from this aspect, the problem also becomes straight forward intuitively, as Hilborn and Hilborn asked the million dollar question: "*What is the point of rules and management if they are not followed?*"[6] To which they responded that compliance and enforcement are perhaps the most important elements of fisheries management.[7] I would not disagree with this statement, because enforcement and compliance are certainly important aspects, one which this thesis will also include in the overall discussion. The problem here is the assumption that we can "fight" this problem until it is resolved, very much like a war of attrition. Such an attitude can also be seen displayed in the headlines of various organizations and initiatives.[8]

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[5] IUU Watch, 'What is IUU Fishing' <http://www.iuuwatch.eu/what-is-iuu-fishing/> accessed 20 February 2021; European Commission, 'Questions and Answers – What is IUU Fishing?' <https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_2288> accessed 20 February 2021.

[6] Ray Hilborn and Ulrike Hilborn, *Ocean Recovery: A Sustainable Future for Global Fisheries?* (OUP 2019) 129.

[7] ibid 136.

[8] A few examples include: United Nations, 'International Day for the Fight against Illegal, Unreported and Unregulated Fishing 5 June' <https://www.un.org/en/observances/end-illegal-fishing-day> accessed 20 February 2021; INTERPOL, 'Fighting Illegal, Unreported and Unregulated Fishing' (*INTERPOL*, 7 December 2020) <https://www.interpol.int/en/News-and-Events/News/2020/Fighting-illegal-unreported-and-unregulated-fishing> accessed 20 February 2021; Office of International Affairs & Seafood Inspection, 'Combatting IUU Fishing in World Fisheries' (NOAA, 22 November 2019) <https://www.fisheries.noaa.gov/international/international-affairs/combating-iuu-fishing-world-fisheries> accessed 20 February 2021.

Essentially, this approach of fighting IUU fishing as a crime is a reactive response, very much in line with the way international law traditionally dealt with natural resources, looking to the past by sanctioning illegal behaviour.[9]

However, this approach is not really effective, as our current situation clearly indicates. IUU activities have not been stopped, nor has the degraded fish stocks or the damaged marine environment recovered. It is also not helpful that in reality, the shapes and forms of IUU fishing cannot be easily detected or recognized. The reason for this difficulty, I would argue, can be attributed two determinant factors, the first being the geographical characteristics of the ocean and the marine ecosystem, and the second being the long history of fishing. From this stand point, we can start to roughly identify the two academic fields required to fully understand the issue of fishing and fisheries in general, and the problem of IUU fishing in particular.

2. Fisheries at the Crossroads

2.1 The Role of Law and Science/Technology

Fisheries is fundamentally entangled in and an integral part of the overall crisis that is looming over Earth and mankind. As stipulated in the United Nations Environment Programme (UNEP) report *Making Peace with Nature*, climate change, degradation of biodiversity, and pollution are the three interconnected planetary crises that is threatening humanity.[10] Another group of scientists have also identified trends in biodiversity decline,

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[9] Leslie-Anne Duvic-Paoli, 'Prevention in International Environmental Law and the Anticipation of Risk(s): A Multifaceted Norm' in Mǫnika Ambrus, Rosemary Rayfuse and Wouter Werner (eds), *Risk and Regulation of Uncertainty in International Law* (OUP 2017) 143.

[10] UNEP, *Making Peace with Nature: A Scientific Blueprint to tackle the Climate, Biodiversity and Pollution*

climate disruption, and growth in human consumption and population that will lead to a "ghastly future".[11] Comparing the above findings to the impacts of IUU fishing that includes: overexploitation of fish stocks, hinders the recovery of fish populations and ecosystems, damages the marine environment, creates unfair competition at the detriment of legal fishing operations, and also adversely affects the social and economic well-being of coastal communities, especially the fishing communities of developing countries that are highly dependent on fish as a source of protein.[12]

In light of the dire consequences and serious implications, international law in general has struggled with the regulation of IUU fishing activity. This struggle can and should be understood under the context of the relation between law and science. As Andresen and Skjærseth concluded after observing five international regimes, scientific research is generally recognized as the major supplier of knowledge that is used as the basis of decision making, especially in the case where a regime establishes scientific/technical bodies as part of the decision making system.[13] However, this observation is not directly applicable to the problem of IUU fishing. Since IUU fishing is, by definition, an activity that intentionally avoids official monitoring, so there is always a gap between the reliable knowledge we

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Emergencies (UNEP 2021).

[11] Cohen Bradshaw and others, 'Underestimating the Challenges of Avoiding a Ghastly Future' (2021) 1 Frontiers in Conservation Science Article 615419 <https://doi.org/10.3389/fcosc.2020.615419> accessed 20 February 2021.

[12] Puneet Pathak, 'International Environmental Crime: A Growing Concern of International Environmental Governance' (2016) 13(5) US-China Law Review 382, 391; Oceana, *Transparency and Traceability: Tools to Stop Illegal Fishing* (Oceana 2021) 5 (Adding an additional impact of IUU fishing as being a driver of forced labor and human rights abuse.).

[13] Steinar Andresen and Jon Birger Skjærseth, 'Science and Technology: From Agenda Setting to Implementation' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds) *The Oxford Handbook of International Environmental Law* (OUP 2007) 189-190 (The five regimes include: the whaling regime, the acid rain regime, the climate regime, the ozone regime, and the North Sea regime on the prevention of marine pollution.).

possess and the extent of such activity in reality.[14] This uncertainty and limit on how we perceive the outside world can lead to two situations: on the one hand, insufficient knowledge may severely hinder to establish the legal elements for the application of law; on the other hand, in other fields where scientific knowledge is relatively sufficient, the experts may come to opposing or conflicting conclusions.[15] The words of Graham are also an indication of how the science in relation to fish and fisheries can be problematic, as he states: "*The trail of fishery science is strewn with the opinions of those who, while partly right, were wholly wrong.*"[16]

The problem of uncertainty, conflicting, or complete absence of scientific knowledge leads to an undesirable result of basing management measure primarily on "luck"[17] or other arbitrary notions that have no basis on reality. This is fairly common in the context of fisheries, as seen by the fact that our most basic concept in regulating fishing is "freedom of fishing", which is largely based on the misconception that fish are inexhaustible. Judging from this point, we need to improve the relation and interaction between law and science if we hope to tackle the IUU fishing problem. The scientific community has already started the process of reflection and improvement, not only on the quality of the knowledge they produce, but also on whether or not they should branch out and seek to incorporate other

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[14] Joseph Christensen, 'Illegal, Unreported and Unregulated Fishing in Historical Perspective' in Kathleen Schwerdtner Máñez and Bo Poulsen (eds), *Perspective on Oceans Past: A Handbook of Marine Environmental History* (Springer 2016) 134.

[15] Mónika Ambrus, Rosemary Rayfuse and Wouter Werner, 'Risk and International Law' in Mónika Ambrus, Rosemary Rayfuse and Wouter Werner (eds) *Risk and Regulation of Uncertainty in International Law* (OUP 2017) 3.

[16] Michael Graham, *The Fish Gate* (Faber and Faber, 1943) 129.

[17] Steinar Andresen and Jon Birger Skjærseth, 'Science and Technology: From Agenda Setting to Implementation' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds) *The Oxford Handbook of International Environmental Law* (OUP 2007) 186.

academic fields in their advice,[18] and whether they should play a more active role, a role that not only provides information, but also engages with society, converses with stakeholders, assist in creating flexible institutions, and design innovative solutions.[19] This type of reflection is seemingly missing in the mainstream body of legal research, since discussions in international fisheries regulations seldomly strays from the existing framework of international legal instruments, and I will further explore this aspect in section 2.3 below.

2.2 Understanding and Reconciliation of Historical and Contemporary Concepts

History is the second aspect that is in need of understanding, specifically, the history of fishing. There is no dispute that fishing is part of the primary sector of the economy[20], but it is often overlooked that fishing is also a crucial part of human history, as it is the last surviving ancient way of obtaining food, after the development of agriculture and stock raising rendered the other two ancient food obtaining methods of foraging and hunting obsolete.[21] It should further be noted that fishing is in its own right a powerful driver of environmental changes, which constantly leads to increased demands for conservation.[22]

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[18] Ehsan Masood, 'Fisheries Science: All at Sea when it Comes to Politics?' (1997) 386 Nature 105, 105-106.

[19] Jenna Sullivan and others, 'Bridging the Science-Policy Interface: Adaptive Solutions in the Anthropocene' in Phillip Levin and Melissa Poe (eds), *Conservation for the Anthropocene Ocean: Interdisciplinary Science in Support of Nature and People* (Academic Press 2017) 3 (Explicitly points out the role of scientists to facilitate collective movement towards an integrated culture of conservation.).

[20] Nigar Hashimzade, Gareth Miles and John Black, *A Dictionary of Economics* (5th edn, OUP 2017) (Primary Sector: The sector of an economy making direct use of natural resources. This includes agriculture, forestry and fishing, mining, and extraction of oil and gas. This is contrasted with the secondary sector, producing manufactures and other processed goods, and the tertiary sector, producing services.).

[21] Brian Fagen, *Fishing: How the Sea Fed Civilization* (Yale University Press 2017) ix (Also points out that literature concerning the history of fishing from a global perspective is lacking.).

[22] Boris Worm and others, 'Rebuilding Global Fisheries' (2009) 325 Science 578, 584 (Pointing out that marine ecosystems are subject to a varying range of exploitation rates, resulting in a mosaic of stable, declining,

This has been true since fishing started from the dawn of mankind, but damaging affects really started to manifest after the modern industrialization of fisheries, also known as the "blue revolution".

The term "blue revolution" was coined by Bailey on the basis of the technological developments in tropical fisheries in 1985[23], however, it is evidently clear that such a process of development is not limited to the third world, but in fact occurring on a global scale. As Bavinck points out, the industrialization of global fisheries can be divided into two stages, with the first stage involving the developed world in the first half of the 20th century, and the second stage centering on developing countries after the Second World War.[24] Watson and Pauly also observed the same pattern of fisheries shifting from north to south over the course of five decades between 1950 and 2000.[25]

The advancement and expansion of fishing capacity, technique, and range is obviously one fundamental element of wide spread IUU fishing today, and I will examine this aspect in more detail in later chapters.

2.3 A Multi-Disciplinary Approach to Fisheries Regulation

When thinking about fisheries and fisheries regulation, there is no doubt that the first and

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collapsed and rebuilding fish stocks and ecosystems.).

[23] Conner Bailey, 'Blue Revolution: The Impact of Technological Innovation on Third World Fisheries' (1985) 5(4) The Rural Sociologist, 259.

[24] Maarten Bavinck, 'The Megaengineering of Ocean Fisheries: A Century of Expansion and Rapidly Closing Frontiers' in Stanley Brunn (ed) *Engineering Earth: The Impacts of Megaengineering Projects* (Springer 2011) 270.

[25] Reg Watson and Daniel Pauly, 'The Changing Face of Global Fisheries – The 1950s vs. the 2000s' (2013) 42 Marine Policy 1, 3.

foremost legal regime that comes to mind would be the *United Nations Convention on the Law of the Sea* (UNCLOS), and rightly so, since the UNCLOS is intentionally designed and structured to address all issues related to the law of the sea.[26]

However, the fact that one legal regime addresses an issue does not mean other legal regimes, or other academic disciplines for that matter, are barred from addressing the same issue. In fact, as I was starting out on this project and reaching out to people, it was not uncommon to receive comments that indicated fisheries or IUU fishing as a research topic was not really law related, but instead belonged to "fisheries people". This type of reaction brings to mind the observation of Snow, where he pointed out that the intellectual life of the western society is increasingly being split into to polar groups, with scientists on one end, and literary intellectuals on the other, with a gulf of mutual incomprehension between them.[27] He also highlighted that despite the complex reasons for the existence of the divide, the most central cause was that literary intellectuals did not even try to understand the old industrial revolution or the new scientific revolution, and thus could not comprehend or accept the rapidly transforming society and human conditions.[28]

I would argue that a similar division of "cultures" has also happened specifically in the context of international fisheries that led to IUU fishing and the unsuccessful attempts of regulation. In this case, there are at least three cultures, one being the legal profession, the second being the body of non-legal academic fields, and a third culture that is the fishing industry. As indicated in the previous section, the fishing industry underwent a process of rapid industrialization, one that was brought about by scientific progress and technological

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[26] UNCLOS, preamble.

[27] C. P. Snow, *The Two Cultures and Scientific Revolution* (Martino Publishing 2013) 4.

[28] ibid 23-29.

advances. Such a process was largely unnoticed or not well understood by the legal profession until fairly recently, whereas other professions have tried to analyze and examine the underlying conditions of how this transformation occurred or attempted at identifying the possible problems that would arise. These academic fields include biology, ecology, economy, sociology, political science, and possibly more. International fisheries law may have adopted one or two concepts along the way (the tragedy of the commons as elaborated by the ecologist Garret Hardin comes to mind), but generally speaking, most of the non-legal discussions are not considered when arguments are made, or when international legal instruments are being drafted. The participants rely instead on the existing framework and past documents, sometimes even reproducing and reiterating the same text, and heralding small incremental changes in the wording as progress.

This tendency of international fisheries law suspiciously resembles the argument that D'Aspremont made, that international law is a belief system, where international law discourse is fixated on certain fundamental doctrines that invent their own origin and regulate their own function, resulting in the constrain of legal reasoning.[29] Such an restrictive approach is problematic in its own sense as it hinders the ability of the legal profession to realize where the problem lies and affectively resolve it. The problem of IUU fishing may be an opportunity for the legal profession to reclaim an active role in facing the challenges of modern times.

As the Chief Executive of the British Academy, Shah points out that contrary to the prioritizing of science and technology, governments need to utilize the expertise of the humanities and social sciences, or they will fail to tackle future challenges.[30] He also used

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[29] Jean D'Aspremont, *International Law as a Belief System* (CUP 2018) 1.

[30] Hetan Shah, 'Global Problems Need Social Science' (2020) 557 Nature 295, 295.

environmental issues as an example, elaborating that such challenges are not technical problems that can be solved by a new invention, and that scientific or technological innovations would need the insight, and even new narratives from a range of different academic fields to make an impact.[31] It is rather unfortunate that Shah did not make any reference to the role of law or the legal profession in his comment, but in the context of international law and fisheries, it should be more than enough to establish the importance of the rule of law.

3. Strengthening Fisheries Regulation through Discourse

In this last section of the thesis introduction, I will consider the importance of building a discourse around the issue of IUU fishing in order to properly understand the problem. A discourse is defined as the composition of shared concepts, categories, and ideas that enable the understanding of a certain situation.[32] Concerning the terminology, there is a general interchangeable use of terms such as "narrative"[33], "political story"[34], and of course, "paradigm"[35]. For the purpose of this thesis, there is no real difference in which term I choose,

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[31] ibid 295.

[32] John Dryzek, 'Paradigms and Discourses' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds) *The Oxford Handbook of International Environmental Law* (OUP 2007) 46.

[33] Jane Lubchenco and Steven Gaines, 'A New Narrative for the Ocean' (2019) 364(6444) Science 911.

[34] George Marshall, *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change* (Bloomsbury 2015); George Monbiot, *Out of the Wreckage: A New Politics of an Age of Crisis* (Verso 2017) 2 (While not directly related to fisheries, Monbiot quotes Marshall to explain that stories perform a fundamental cognitive function, and that when we confront a complex issue, we look for a consistent and comprehensible story in order to understand it.).

[35] Juan He, 'Unilateral Trade Measures against Illegal, Unreported and Unregulated Fishing: Unlocking a Paradigm Change in Trade-Environmental Partnerships?' (2019) 53(5) Journal of World Trade 759; Eve de Coning and Emma Witbooi, 'Towards a New "Fish Crime" Paradigm: South Africa as an Illustrative Example' (2015) 60 Marine Policy 208; J. F. Caddy, 'Fisheries Management in the Twenty-First Century: Will New Paradigms Apply?' (1999) 9 Reviews in Fish Biology and Fisheries 1.

except for the fact that most scientific discussions prefer to use “paradigm” to describe the structuring and explaining of their findings, and there is also a body of legal discussions that have adopted the term to refer to their approach to the problem, albeit the scale is relatively smaller. For these reasons, I will refer to my approach as the building of a discourse, where I attempt to place the problem of IUU fishing into our time period while recognizing the historical context; examine and understand the underlying socio-economic workings of the industry; and applying that understanding in analyzing the existing legal framework. This discourse will then lead to a solution that should incorporate both scientific knowledge and legislative techniques, and offer a method of conservation that can fairly balance the interest and needs of all relevant actors against the survival of marine life, the overall health of the marine environment, and the continuation of mankind.

4. Research Methods, Contributions and Structure of this Thesis

4.1 Research Methods

As demonstrated in the previous paragraphs, the main argument brought forth in this thesis is that our current model of international fisheries regulation is in dire need of a new approach and supporting discourse. Such an approach and discourse cannot be derived from the existing legal texts alone, but requires the input and contribution from numerous non-legal fields. This leads to the application of several different research methods, with each method establishing a certain part of the basis of this argument, which will then be combined to form a coherent discourse for future fisheries regulations.

In order to clarify the methods adopted in this thesis, I will refer to the categories as stipulated by Ratner and Slaughter, where they identified seven methods that have been applied in the

study of international law[36]. For the purpose of this thesis, I will mainly apply a combination of the methods of legal positivism, New Haven School (policy-oriented jurisprudence), and critical legal studies.

For the most part, the discussions and arguments made in this thesis will rely on the existing framework of international fisheries law as a foundation, including the various hard law and soft law international law instruments that have been formulated over the years. This part will be presented through a positivism description of the law "as it is".

However, it is also important to recognize that a description of the law itself would not be sufficient to portray the entirety of international fisheries law and stimulate further discussions, as international fisheries regulations is a field of law that is undergoing rapid change as the law adapts to the equally rapidly evolving environment of planet Earth. This is where the "policy-oriented" methods should step in, and open up the field for deeper reflections on international law as a process of decision making with the involvement of various international actors.

Lastly, the critical legal studies method is also essential for my argument to establish a new discourse for international fisheries law, as I will demonstrate in the following chapters, the focus on the importance of language, and the contradictions and failings within the current framework is the main driver for my proposal of a new discourse.

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[36] Steven Ratner and Anne-Marie Slaughter, 'Appraising the Methods of International Law: A Prospectus for Readers' (1999) 93(2) AJIL 291, 293-295 (The seven discrete methods are the following: legal positivism, the New Haven School, international legal process, critical legal studies, international law and international relations, feminist jurisprudence, and law and economics).

4.2 Contributions of this Thesis

As I have elaborated above, the purpose of this thesis is to explore the legal boundaries surrounding the issues of sustainable fisheries and IUU fishing, with the goal of formulating a new discourse for international fisheries law that is appropriate for the current age.

However, I would also like to envision that the application of the new discourse in international fisheries is just the starting point, and there should be grounds for further application of such discourse. Every human action that impacts our environment should also be subject to the same standards of scrutiny and regulation, with "sustainability" at its core. similar discussions have already emerged in the context of various forms of human economic production and consumption, such as agriculture and deep sea mining. I have chosen fisheries as the topic to expand this type of thinking, and if such a discourse can be implemented in the unique circumstances of international fisheries, it would be evidence that it could be applied to most, if not all, human activities, and collectively this movement can steer humanity towards a sustainable future.

On another note, it should also be noted that I intentionally incorporated a substantial amount of scientific research in this thesis, not just because these new advancements in science are needed for the new legal discourse, but also to indicate that law should not close itself off from other academic fields, the marine biologists are more than happy to offer policy and legislative advice when it comes to fisheries regulations, but international law scholars seem to be rather squeamish towards expressing their opinion on a topic that requires knowledge on natural science, instead confining themselves to the interpretation of existing legal texts and documents. I am not saying that the interpretation of law is unimportant, but I would like to expand legal discussion in the direction of the legislative, the scientists are experts

when providing date on a certain fish species, but lawyers can and should be experts on balancing the needs of everyone else besides the fish. the fishermen, the consumer, and the environmentalist are all human, with their needs and wishes expressed as political language. From this perspective, international law lawyers must step up to match the scientists in delivering their voices and contribute to the making of international law. This is also one of the contributions I hope to make in this thesis.

4.3 Structure of this Thesis

The structure of this thesis is divided into three parts and six chapters, with two chapters assigned to each part.

In Part 1, the focus will be on the basic components and historical background of fisheries regulation, with Chapter 1 laying out all the fundamental elements of the IUU fishing problem, including the current status of global fish stocks, the definition of IUU fishing, relevant actors and objects, and a certain element that I would call “unnaturalness”. Chapter 2 will focus on the science-policy nexus and the basic legal concepts that guide the legislative process of international fisheries law, both of these sections will be examined with reference to the historical context of fishing and fisheries. The purpose of this part is to provide the factual basis for the later legal analysis and argument building, as well as introducing the scientific and historical elements that are not necessarily legal.

The emphasis of Part 2 will be placed on the existing and developing legal instrument and measure that regulate international fisheries and IUU fishing. Chapter 3 will zoom in on the mainstream regime of the law of the sea, examining and analyzing the relevant instruments from the UNCLOS to recent developed Port State Measures Agreement and the UN

Sustainable Development Goals. Chapter 4 will look into a wide array of different practices, from the measures of the EU and US that highlight the role of flag states in controlling IUU fishing, to the species approach of CITES, and the environmental crime/maritime security approach that amplifies the severity of IUU fishing. The focus of this part is the existing legal framework, stemming from two very different legal traditions, but nonetheless converging on the issue of fisheries regulation. Through the examination of the framework, the weakness of the current model can be revealed, paving the way for the upcoming proposal in the last part.

Part 3 will be based on the discussions of the previous two parts and explore the challenges and possibilities of stopping and preventing IUU fishing, as well as facilitating sustainable fishing. The Challenge that is the lack of political will on various levels of law making will be examined in Chapter 5. A two pronged approach to establish a robust approach towards IUU fishing and fisheries in general will be considered in Chapter 6. Following the acknowledgement of our environmental crisis and the inadequate legal framework to confront that crisis, this part will return to the element of “unnaturalness”, and analyze the conditions that led to the continuation of IUU fishing, and the proposed approaches that will hopefully turn the tide on this downward spiral.

Part 1 Basic Components and Historical Background of Fisheries Regulation

Chapter 1 Laying Out the Basics

1. Introduction

> *The life of the law has not been logic: it has been experience.*[1]

> *To do law is to do theory, not incidentally or marginally but necessarily. […] To do law is, inevitably, to act philosophy.*[2]

In the first Chapter of this thesis, I will present an account on the status of fisheries and the components that make up the issue of IUU fishing that we are facing today. This examination will form the baseline for further analysis in the following chapters. In order to address the problem of IUU fishing that is now characterized as a "global crisis"[3], there are several aspects of the current regulatory effort that should be taken into consideration when approaching this issue.

Firstly, the basis and foundation of the discussion should be broadened, this is due to the fact that current approaches to fisheries regulations are largely focused on fishing activities and target fish resource.[4] However, it has become increasingly evident that the issue has

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[1] Oliver Wendell Holmes Jr., *The Common Law* (First published 1881, Dover Publications 1991) 1.

[2] Philip Allot, 'Mare Nostrum: A New International Law of the Sea' (1992) 86(4) AJIL 764, 764-765.

[3] Robin Churchill, 'The LOSC Regime for Protection of the Marie Environment – Fit for the Twenty-first Century?' in Rosemary Rayfuse (ed) *Research Handbook on International Marine Environmental Law* (Edward Elgar 2015) 19; Daniel Pauly, 'Diagnosing and Solving the Global Crisis of Fisheries: Obstacles and Rewards' (2012) 36(4) Cybium 499, 499; Erik Jaap Molenaar, 'Ecosystem-Based Fisheries Management, Commercial Fisheries, Marine Mammals and the 2001 Reykjavik Declaration in the Context of International Law' (2002) 17(4) International Journal of Marine and Coastal Law 561, 561.

[4] Garcia S.M. and others, *The Ecosystem Approach to Fisheries: Issues, Terminology, Principles, Institutional*

surpassed the two dimensional relationship between fisher and fish and expanded to include the larger context of the marine environment, climate change, and even the survival of mankind in general. As Allot adequately points out:

> "*Ideas meet material reality to produce law, but the reality itself is a product of many other meetings between human being and human being, human individual and human society, society and society, humanity and the natural world, and all these things and their conceptualizing as ideas.*"[5]

A similar sentiment and a list of elements that could be included when constructing an "experience" is also expressed by Holmes in the paragraph following the statement quoted above.[6] Concerning IUU fishing, the connection and relation between humanity and the natural world is especially crucial, this will be further demonstrated in the following sections.

Secondly, it is also important to clarify and pinpoint the specific on the fishery sectors and conditions that are subject to discussion. This is due to the fact that the image of fisheries is different in everyone's mind, as McGoodwin points out, this image can range from a romantic literary image (e.g. Hemmingway's *The Old Man of the Sea*) to massive vessels that empty the seas with huge nets, and varying types and forms of fishing in between.[7] The difference

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Foundations, Implementation and Outlook (FAO Fisheries Technical Paper No. 443, FAO 2003) 3.

[5] Philip Allot, 'Mare Nostrum: A New International Law of the Sea' (1992) 86(4) AJIL 764, 765.

[6] Oliver Wendell Holmes Jr., *The Common Law* (First published 1881, Dover Publications 1991) 1. ("*The felt necessities of the time, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious, even the prejudices which judges share with their fellow-men, have had a good deal more to do than the syllogism in determining the rules by which men should be governed. The law embodies the story of a nation's development through many centuries, and it cannot be dealt with as if it contained only the axioms and corollaries of a book of mathematics. In order to know what it is, we must know what it has been, and what it tends to become. We must alternately consult history and existing theories of legislation."*)

[7] James R. McGoodwin, *Crisis in the World's Fisheries: People, Problems, and Policies* (Stanford University Press 1990) 7.

in the imagery of fisheries has thus created a problem in regulation and management, where people talk about fisheries and the various approaches or methods to regulate this activity, but each is referring to a certain specific circumstances that are unique to that person or fishery, but may have little or even nothing in common to one another. This underlying image of fisheries is also described as the "implicit value" that effects the shaping of fisheries policies in the background and are often not subject to external critique or review.[8] Granted, it is a reality that IUU fishing can be found in all types and dimensions of fisheries, occurring in both the high seas and areas within national jurisdiction, and involving all aspects of the capture and utilization of fish.[9] But that being said, there are certain fishing sectors where illegal fishing activity inflicts more harm than others, thus warranting greater attention.

Lastly, the third aspect concerns the elements of risk and uncertainty, which is related to the interaction of scientific knowledge and law making. While it was assumed that future risks or crises could be prevented with better scientific understanding, the subsequent overproduction of knowledge and technology has only resulted in higher risks and more uncertainty, to the point that the more we know, the less certain we are.[10] It would also be relevant to recall the words of the former United States Secretary of Defense Donald Rumsfeld, which reads:

> "*As we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know.*

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[8] Griffin Carpenter, 'What are the Implicit Values We're Using in Fisheries Management?' (*Sustainable Fisheries*, 16 December 2019) <https://sustainablefisheries-uw.org/implicit-values-in-fisheries-management/> accessed 15 May 2020.

[9] OECD, *Why Fish Piracy Persists: The Economics of Illegal, Unreported and Unregulated Fishing* (OECD 2005) 21.

[10] Rosemary Rayfuse, 'Precaution and the Protection of Marine Biodiversity in Areas Beyond National Jurisdiction' in David Freestone (ed) *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 99.

But there are also unknown unknowns—the ones we don't know we don't know."[11]

The knowledge of the ocean and the fish has grown exponentially in recent times, and we now know more than ever before, but there is still much that is unknown, and there is a possibility that those unknowns may never be learned, because the expansion of human activity and exploitation may erase the delicate equilibrium of the marine ecosystem and the hidden knowledge within. In the case of IUU fishing, there will always be unknowns, either known or unknown, since it is a shady business conducted within the vast expanse of the sea. but it should be remembered that the known knowns that we now possess is already sufficient to allow us to make proper regulatory decisions required to address the issue of IUU fishing.

With the above three aspects in mind, the following account will thus be broken down into four parts. Firstly, a survey on the current status of the world's fisheries and how the statistics and scientific findings should be approached through new concepts adopted in the context of international environmental law; the second section will focus on framing and defining the core issue of this thesis: IUU fishing; thirdly, the actors and objects relevant to the regulation of fisheries will be examined; and lastly, the concept of "unnaturalness" within the context of fisheries and environmental protection will be examined, with reference to the emphasis on nature in recent environmental discourse, this may provide a viable path to further understanding and addressing the problem of IUU fishing.

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[11] Donald Rumsfeld, 'News Transcript: Department of Defense News Briefing' (12 February 2002) <https://archive.defense.gov/Transcripts/Transcript.aspx?TranscriptID=2636> accessed 14 January 2020.

2. Understanding the Current Situation

2.1 The Status of Global Fisheries

2.1.1 Statistics on Fish Stocks and Catches

In a 2018 research, one significant fact about fish stocks was revealed, among the total animal biomass of 2 gigatons of carbon (Gt C), fish accounted for 0.7 Gt C, second only to the 1 Gt C of arthropods, whereas humans and livestock (mostly cattle and pigs) each accounted for 0.06 Gt C and 0.1 Gt C, the same research also highlighted the impact of human activity on fish stocks, estimating that mankind had decreased the total fish biomass by 0.1 Gt C compared to levels before human civilization started to fish (biomass of fish at across all depths at 0.8 Gt C).[12] From a macro perspective, this finding is certainly interesting and offers an alternative scale on which we could reflect upon.

Returning to materials concerning current developments, the biennial report on the State of World Fisheries and Aquaculture (SOFIA) published by the FAO is perhaps the most authoritative source available. According to the latest 2020 Report, Global fish production reached 179 million tonnes in 2018, of which 96.4 million tonnes came from capture fisheries, with an estimated value of USD 150 billion.[13] In terms of fish consumption, it is observed that the food fish per capita consumption reached record numbers of 20.5 kg in 2018, following an consistent trend of growth since 1961.[14] The consumption of fish now

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[12] Yinon M. Bar-On, Rob Phillips and Ron Milo, 'The Biomass Distribution on Earth' (2018) 115(25) PNAS 6506, 6508. (It should be noted that for the fisheries in question, the 0.1 Gt C consists of approximately 50% of the fish biomass, meaning that humans took half of the original biomass.)

[13] FAO, *The State of World Fisheries and Aquaculture: Sustainability in Action* (FAO 2020) 2.

[14] FAO, *The State of World Fisheries and Aquaculture: Sustainability in Action* (FAO 2020) 3.

accounts for 17% of the global population's animal protein intake, providing 20% of the average per capita intake of animal proteins for 3.3 billion people worldwide, in certain countries (e.g. Bangladesh, Cambodia, the Gambia, Ghana, Indonesia, Sierra Leone, Sri Lanka and several small island developing States (SIDS)), that number is up to 50% and more.[15] Most importantly, on the status of fisheries, it is reported that in 2017, the fish stocks fished at unsustainable levels increased to 34.2%, stocks fished at biologically sustainable levels decreased to 65.8%, and the underfished stocks also decreased to 6.2%.[16] In comparison, the fraction of unsustainably fished stocks and maximally sustainably fished stocks were at 33.1% and 59.9% respectively (2015 statistics).[17] There is one perspective that is important in understanding the FAO provided statistics, as the fish are classified into two main categories: "within biologically sustainable levels" and "biologically unsustainable levels", the former contains two sub-categories: "underfished" and "maximally sustainably fished", while the latter is equivalent to "overfished". While the underfished category is not disputed as sustainable, the maximally sustainably fished category is often grouped with the overfished category, creating the notion that "around 90% of the world's fish stock is now fully or overfished", which has been commonly seen in the media.[18] This of course has been met with another set of discourse condemning such

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[15] FAO, *The State of World Fisheries and Aquaculture: Sustainability in Action* (FAO 2020) 3.

[16] FAO, *The State of World Fisheries and Aquaculture: Sustainability in Action* (FAO 2020) 47.

[17] FAO, *The State of World Fisheries and Aquaculture: Meeting the Sustainable Development Goals* (FAO 2018) 40.

[18] Todd Woody, 'The Sea is Running Out of Fish, Despite Nations' Pledges to Stop it' *National Geographic* (8 October 2019) <https://www.nationalgeographic.com/science/2019/10/sea-running-out-of-fish-despite-nations-pledges-to-stop/> accessed 30 May 2020;Arthur Nelsen, 'Global Fish Production Approaching Sustainable Limit, UN Warned' *The Guardian* (7 July 2016) <https://www.theguardian.com/environment/2016/jul/07/global-fish-production-approaching-sustainable-limit-un-warns#:~:text=Global%20fish%20production%20is%20approaching,and%20Agriculture%20Organisation%20(FAO)> accessed 30 May 2020.

categorization as wrong and spreading misinformation on the fishing industry.[19] The same type of debate also appeared when a study in 2006 predicted that all exploited fish stocks would collapse in 2048[20]

Extending beyond the statistics provided by the FAO, the results of various external research may also help to portrait the extent of human exploitation on fish stocks, while it is impossible to list every research available, I would present a few more select findings based on a range of scale, as a "snapshot".

Starting from the global level, Statistics provided in scientific studies also show that the biomass of predatory fish has decreased two thirds over the last century, with 54% of that decline happening in the past 40 years.[21] Regionally, the IPBES revealed in 2018 that the Asia Pacific region may lose all of its exploitable fish stocks by 2048, due to a combination of unsustainable aquaculture practices, overfishing, and destructive harvesting practices.[22]

On a smaller scale, the status of individual species shows the same trend of decline. For example, in 2012 the spawning stock biomass of the Pacific Bluefin Tuna was reported to be a mere 4.2% compared to the unfished levels of 1900, as a result, the IUCN moved the species to "vulnerable" (species facing high risk of extinction) category in the red list in

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[19] Sustainable Fisheries. 'How Many Fisheries are Overfished?' *Sustainable Fisheries* <https://sustainablefisheries-uw.org/fact-check/how-many-fisheries-are-overfished/> accessed 30 May 2020.

[20] Boris Worm and others, 'Impacts of Biodiversity Loss on Ocean Ecosystem Services' (2006) 314 Science 787, 790 (specifically pointing out that "*Our data highlight the societal consequences of an ongoing erosion of diversity that appears to be accelerating on a global scale. This trend is of serious concern because it projects the global collapse of all taxa currently fished by the mid–21st century (based on the extrapolation of regression […] to 100% in the year 2048)*").

[21] Villy Christensen and others, 'A Century of Fish Biomass Decline in the Ocean' (2014) 512 Marine Ecology Progress Series 155, 155.

[22] IPBES, *The Regional Assessment Report on Biodiversity and Ecosystem Services for Asia and the Pacific: Summary for Policymakers* (IPBES 2018) 25.

2014.[23] Stock Assessments conducted by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) found the spawning stocks had further declined to a mere 2.6% of unfished levels.[24] Similar situations are also observed in the Atlantic, where the Marine Stewardship Council (MSC) suspended the sustainability certifications of all North Sea Cod fisheries in September 2019.[25]

2.1.2 Reconstruction of the Extent of IUU Fishing

The main problem with IUU fishing is that there is no way to know for sure how much fish was taken. The FAO itself admitted that its capture fisheries database does not cover all fish caught in the wild, the catch that is discarded at sea and catches from IUU fishing are the two categories that are omitted.[26] In an earlier publications, the FAO estimated that IUU fishing accounts for 30% of total catches, and that in at least one instance the number of IUU catches were as high as three times the permitted catch level.[27] Recently, one widely cited numbers of IUU fishing is based on a 2009 research, revealing that roughly one in five of the fish landed comes from illegal fishing (18-21%), representing a weight between 11 and

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[23] Rob Gilhooly, 'Facing Extinction: Can the Pacific Bluefin Tuna be Saved?' (2016) Vol. 14 Issue 15 No. 9 The Asia-Pacific Journal: Japan Focus 1, 1.

[24] ISC, *2016 Pacific Bluefin Tuna Stock Assessment* (2016) 10 <http://isc.fra.go.jp/pdf/ISC16/ISC16_Annex_09_2016_Pacific_Bluefin_Tuna_Stock_Assessment.pdf> accessed 25 February 2020.

[25] MSC, 'North Sea Cod to Lose Sustainability Certification' *MSC* (24 September 2019) <https://www.msc.org/media-centre/press-releases/north-sea-cod-to-lose-sustainability-certification> accessed 25 February 2020.

[26] FAO, *The State of World Fisheries and Aquaculture: Meeting the Sustainable Development Goals* (FAO 2018) 93.

[27] FAO, *The State of World Fisheries and Aquaculture* (FAO 2000) 57; FAO, *Implementation of the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (FAO Technical Guidelines for Responsible Fishing, FAO 2002) 2 (Also noting that there are estimations that suggest IUU fishing accounting for one quarter of the total catch in the world's ocean, admitting at the same time that reliable data is scarce.).

26 million tonnes, with a value between US$10 billion and US$23.5 billion.[28]

Another attempt at estimating the scale of IUU fishing approaches the issue from a trade perspective by examining the seafood that was redirected from legitimate food suppl systems and siphoned into illicit trade, it was found that the annual trade of unreported fish was between 7.7and 14 million tonnes, with gross revenues US$8.9 and US$17.2 billion per year.[29] Similar studies were also conducted in the context of individual states. In the United States, for example, 20-30% of wild caught seafood imports to the US in 2011, with a value of between $1.3 billion and $2.1 billion (15-26% of the total import value), were from illegal and unreported catches.[30] Japan, on the other hand, was found to have imported 24-36% of the 2.15 million tonnes of seafood from illegal sources in 2015, with a value of $1.6 billion to $2.4 billion.[31]

Information on IUU fishing can also be found in within the auspices of individual RFMOs, for example, the International Commission for the Conservation of Atlantic Tuna (ICCAT) estimated that 10% of the overall catches of main Atlantic tuna species were unreported.[32] Whereas for the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), one third of the total allowable catch for southern bluefin tuna were taken by non-members in

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[28] David J. Agnew and others, 'Estimating the Worldwide Extent of Illegal Fishing' (2009) 4(2) PLoS One e4570, 4 <https://doi.org/10.1371/journal.pone.0004570> accessed 30 May 2020.

[29] U. R. Sumaila and others, 'Illicit Trade in Marine Fish Catch and Its Effects on Ecosystems and People Worldwide' (2020) 6(9) Science Advances <https://advances.sciencemag.org/content/6/9/eaaz3801> accessed 30 May 2020.

[30] Ganapathiraju Pramod and others, 'Estimates of Illegal and Unreported Fish in Seafood Imports in the USA' (2014) 48 Marine Policy 102, 105.

[31] Ganapathiraju Pramod, Tony J. Pitcher and Gopikrishna Mantha, 'Estimates of Illegal and Unreported Seafood Imports to Japan' (2019) 108 Marine Policy Article 103439.

[32] Rachel J. Baird, *Aspects of Illegal, Unreported and Unregulated Fishing in the Southern Ocean* (Review: Methods and Technologies in Fish Biology and Fisheries Vol. 5, Springer 2006) 20.

1999.[33] Regarding the toothfish stocks under the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), IUU fishing took 90,000 tonnes of toothfish between 1997-2000.[34]

2.1.3 Further Implications in Relation to Climate Change

Relying on further research done on a global scale, we now have advanced knowledge of the marine ecosystem as a whole. Starting from the fish stocks, we now understand that the dispersal and interconnectivity of fish stocks are wider and deeper than previously perceived, and that the distribution of marine fish relies on the transnational exchange of offspring (fish eggs and larvae), forming an interconnected, globally shared resource that transcends national boundaries.[35] On a more worrying note, under the impact of climate change, geographic shifts have started to occur, where the fish stocks move to new waters at a rate of 70 km per decade, a rate that is likely to continue, if not increase.[36] A subsequent research in 2020 also confirmed that the abundance of marine species were increasing in areas closer to the poles and decreasing in the equator, a change induced by the rising temperature.[37] These findings when considered in the context of the law of the sea and fisheries will only serve to further expose the fragmentation of the current regime and the weakness of current

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[33] Rachel J. Baird, *Aspects of Illegal, Unreported and Unregulated Fishing in the Southern Ocean* (Review: Methods and Technologies in Fish Biology and Fisheries Vol. 5, Springer 2006) 20.

[34] Carl-Christian Schmidt, 'Addressing Illegal, Unreported and Unregulated (IUU) Fishing' (International Fisheries Compliance 2004 Conference, Brussels, September 2004) <http://www.oecd.org/greengrowth/fisheries/34029751.pdf> accessed 30 May 2020.

[35] Nandini Ramesh and others, 'The Small World of Global Marine Fisheries: The Cross-boundary Consequences of Larval Dispersal' (2019) 364 Science 1192, 1196.

[36] Malin Pinsky and others, 'Preparing Ocean Governance for Species on the Move: Policy must anticipate conflict over Geographical Shifts' (2018) 360 Science 1189, 1189.

[37] Reuben A. Hastings and others, 'Climate Change Drives Poleward Increases and Equatorward Declines in Marine Species' (2020) 30(8) Current Biology 1572, 1572.

conservation methods, as it would not be unexpected if a certain fish stock abandoned the waters under the management of a certain state or regional fisheries management organization (RFMO) entirely and entered waters under the regulation of other entities or waters that are otherwise unregulated. This would bring a brand-new meaning to the concept of unregulated fishing, but this is just the beginning.

Turning to an even grander scale of the relation between the ocean and the earth system, two further reports should be highlighted. Firstly, the Global Assessment Report on Biodiversity and Ecosystem Services published by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES); and secondly, the Ocean and Cryosphere in a Changing Climate report by the Intergovernmental Panel on Climate Change (IPCC). These two reports both enforce the fact that we are in the Anthropocene, with the IPBES report pointing out that: "In marine ecosystems, direct exploitation of organisms (mainly fishing) has had the largest relative impact, followed by land-/sea-use change" [38], accompanied with an estimation of 33% of fish stocks now being overexploited and 60% maximally sustainably fished (2015 statistics), and more than 55% of the ocean area subject to exploitation of industrial fishing fleets.[39] From the perspective of climate change, the IPCC report estimated that due to ocean warming other factors, the "global-scale biomass of marine animals across the foodweb is projected to decrease by 15.0 ± 5.9% (very likely range) and the maximum catch potential of fisheries by 20.5–24.1% by the end of the 21st century".[40] It is also accepted that these situations are caused by cumulative human impacts,

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[38] IPBES, *The Global Assessment Report on Biodiversity and Ecosystem Services: Summary for Policy Makers* (IPBES 2019) 12 <https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf> accessed 5 June 2020.

[39] IPBES, *The Global Assessment Report on Biodiversity and Ecosystem Services: Summary for Policy Makers* (IPBES 2019) 28 <https://ipbes.net/sites/default/files/2020-02/ipbes_global_assessment_report_summary_for_policymakers_en.pdf> accessed 5 June 2020.

[40] IPCC, 'Summary for Policy Makers' in H.-O. Pörtner and others (eds) *IPCC Special Report on the Ocean*

and that if the current trajectories continue, not only will certain ocean regions by pushed beyond the tipping point of sustainability,[41] there is also a risk of triggering biosphere tipping points across entire ecosystems.[42] Although the above reports make no reference specifically to IUU fishing, the findings alone should serve as a wakeup call, because any incident of IUU fishing would only serve to worsen the situation and hasten the degradation. Combined with the estimates of IUU fishing above, we could conclude that there is certainly little room left for error.

2.2 An Issue that is Both Complicated and Complex

As demonstrated above, there should be no doubt that the issue of fisheries is multi-dimensioned and consists of numerous elements, or as many has commonly referred to as being "complicated", but as it turns out, the scientific definition of "complicated" and "complex (or complexity)" are quite different.[43] As a concept that originated from the natural sciences, the introduction of complexity was considered a great advance compared to science in a classical sense[44], and this progress has also expanded into the sphere of social

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and Cryosphere in a Changing Climate (IPCC 2019) 22 (para. B.5.1) <https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf> accessed 5 June 2020.

[41] Benjamin Halpern and others, 'Recent Pace of Change in Human Impact on the World's Ocean' (2019) 9 Scientific Reports 11609.

[42] Timothy Lenton and others, 'Climate tipping points-too risky to bet against' (2019) 575 Nature 592, 593.

[43] OECD Global Science Forum, *Applications of Complexity Science for Public Policy: New Tools for Finding Unanticipated Consequences and Unrealised Opportunities* (September 2009) 1-2 <https://www.oecd.org/science/publicationsdocuments/reports/24/> accessed 20 November 2019 (providing an example highlighting the difference: "An example of a *complicated* system is an automobile, composed of thousands of parts whose interactions obey precise, simple, known and unchanging cause-and-effect rules. An ensemble of cars travelling down a highway, by contrast is a *complex* system. Drivers interact and mutually adjust their behaviors based on diverse factors such as perceptions, expectations, habits, even emotions…actual traffic flow cannot be predicted with certainty, No one driver is in control and there is no single destination,").

[44] Warren Weaver, 'Science and Complexity' (1948) 36 American Scientist 536, 540 (pointing out that some

sciences and international relations in the latter part of the twentieth century.[45] For the purpose of this research, two characteristics of the complex system should be highlighted: firstly, contrary to a complicated system that can be understood through traditional science methods, a complex system can only be understood through a method that includes "non-linear and collective patterns of behaviour"[46]; secondly, international law is a complex system that "emerges from the actions and interactions of States and other…actors in their international relations"[47], and subsequently, international environmental problems are now widely considered to be complex problems as well.[48]

The introduction of complexity theory and the "non-linear" aspects of the concept is also related to the discussion of Hardin's Tragedy of the Commons that will be presented in Chapter 2, especially relating to the part of non-technical problems and the requirement of change in human values or ideas of morality, which is one of the focuses of this research. It should also be noted that this concept has already found its way into discussions concerning fisheries, for example, Lindley and Techera proposed a regulatory pluralism approach to "overcome complexity" in IUU fishing[49], while Boonstra and Österblom identified an

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modern problems cannot be solved by applying traditional statistical techniques, and that science is required to make another great advance in order to tackle problems of organized complexity).

[45] Jutta Brunée, 'The Rule of International (Environmental) Law and Complex Problems' in Heike Krieger, Georg Nolte and Andreas Zimmerman (eds), *The International Rule of Law: Rise or Decline?* (OUP 2019) 212.

[46] OECD Global Science Forum, *Applications of Complexity Science for Public Policy: New Tools for Finding Unanticipated Consequences and Unrealised Opportunities* (September 2009) 2 <https://www.oecd.org/science/publicationsdocuments/reports/24/> accessed 20 November 2019.

[47] Steven Wheatley, 'The Emergence of New States in International Law: The Insights from Complexity Theory' (2016) 15 Chinese Journal of International Law 579, 581.

[48] Jutta Brunée, 'The Rule of International (Environmental) Law and Complex Problems' in Heike Krieger, Georg Nolte and Andreas Zimmerman (eds), *The International Rule of Law: Rise or Decline?* (OUP 2019) 213.

[49] Jade Lindley and Erika J. Techera, 'Overcoming Complexity in Illegal, Unregulated and Unreported Fishing to Achieve Effective Regulatory Pluralism' (2017) 81 Marine Policy 71, 71.

"extensive, global web of interdependencies stemming from economic, political, social and ecological relations between fish, fishers, industries, governments and consumers" when analyzing the reason behind unstoppable overfishing.[50] This research certainly agrees with the identification of fisheries as a complex system, but would also stress that this system is not self-contained, which is where the concept of the Anthropocene is involved.

2.3 Acknowledging the Anthropocene

The Anthropocene is also not a novel concept of social sciences, with roots originating from the beginning of the industrial age, the impact of humans on Earth has already attracted the attention of scientists both as a celebration and a cause of concern.[51] In recent discourses, the explicit use of the term is most often associated with the Nobel laureate Paul Crutzen, first at a conference of the International Geosphere-Biosphere Programme in February 2000,[52] followed by his article two years later in the *Nature*, where he assigned the term to the "present, in many ways human-dominated, geological epoch."[53] Compared to the previous (or formally still current) epoch of the Holocene, which is characterized by the longest period of stable environmental conditions (e.g. stable sea levels) since the appearance of mankind, the Anthropocene is an age of change, uncertainty and instability in

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[50] Wiebren J. Boonstra and Henrik Österblom, 'A Chain of Fools: or, why it is so hard to stop overfishing' (2014) 13:15 Marine Studies Article Number 15, 3 (Referring to this web of interdependencies as the "*Seafood Supply Chain*").

[51] Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene* (Verso 2017) 3-5.

[52] Christophe Bonneuil and Jean-Baptiste Fressoz, *The Shock of the Anthropocene* (Verso 2017) 3; Paul J. Crutzen, 'Geology of Mankind' (2002) 415 Nature 23, 23 (pointing out that "*The Anthropocene could be said to have started in the latter part of the eighteenth century, when analyses of air trapped in polar ice showed the beginning of growing global concentrations of carbon dioxide and methane. This date also happens to coincide with James Watt's design of the steam engine in 1784.*").

[53] Paul J. Crutzen, 'Geology of Mankind' (2002) 415 Nature 23, 23.

the earth system.[54]

Starting off as a mainly scientific concept, the term has been accepted as describing the fact that "human imprint on the global environment has now become so large and active that it rivals some of the great forces of Nature in its impact on the functioning of the earth system."[55] Even though debate on the usefulness and validity of prescribing a brand new epoch still exists[56], it is also evident that the concept has transcended beyond scientific meaning and began influencing social sciences, with international environmental law at the forefront of the challenges and implications this concept represents. As Stephens points out, "the Anthropocene upends many traditional assumptions about the purposes and functions of environmental law at national, regional, and global levels."[57] Commenting on the Anthropocene and the law of the sea, Vidas also notes that the law of the sea was tailored for the Holocene, aimed at resolving changing political and economic circumstances, but unprepared for changes in natural conditions, and the arrival of the Anthropocene may result

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[54] Jan Zalasiewicz, Paul Crutzen and Will Steffen, "The Anthropocene" in Felix Gradstein and others (eds), *The Geological Time Scale 2012* (Vol. 2, Elsevier 2012) 1033-1040; Mark Williams and others, 'The Anthropocene Biosphere' (2015) 2(3) The Anthropocene Review 196, 197.

[55] Will Steffen and others, 'The Anthropocene: Conceptual and Historical Perspectives' (2011) 369(1938) Philosophical Transactions of the Royal Society A 842, 842.

[56] Peter Brannen, 'The Anthropocene is a Joke' *The Atlantic* (13 August 2019) <https://www.theatlantic.com/science/archive/2019/08/arrogance-anthropocene/595795/> accessed 25 May 2020; Scott Wing and others, 'Letters: "The Anthropocene is not Hubris"' *The Atlantic* (11 October 2019) <https://www.theatlantic.com/letters/archive/2019/10/readers-defend-the-anthropocene-epoch/597571/> accessed 25 May 2020; Peter Brannen, 'What Made Me Reconsider the Anthropocene' *The Atlantic* (11 October 2019) <https://www.theatlantic.com/science/archive/2019/10/anthropocene-epoch-after-all/599863/> accessed 25 May 2020. (The back and forth between Brannen and a group of the Anthropocene Working Group Scientists.)

[57] Tim Stephens, 'What is the Point of International Environmental Law Scholarship in the Anthropocene?' in Ole Pedersen (ed), *Perspectives on Environmental Scholarship: Essays on Purpose, Shape and Direction* (CUP 2018) 122.

in the re-evaluation of the foundations and parameters of the legal regime.[58]

Although the concept of the Anthropocene is mostly directed towards discussions concerning climate change, it is the opinion of this research that the issue of fisheries and IUU fishing would also benefit from the adoption of this concept. Firstly, the mere fact that mankind has exploited fish stocks for millennia and already in several instances caused the collapse of such stocks is proof that we are capable of altering entire ecosystems; secondly, the development of fisheries regulations is increasingly influenced by international environmental law, both directly and indirectly, and the concept of the Anthropocene would place fisheries firmly in the sphere of environmental law, this point will also be further explored in later chapters of this thesis; and lastly, through the lens of the Anthropocene, it would be possible to unify the existing regulations and future actions under a common perspective. In short, the Anthropocene will force us to rethink the relations between humans, fish, and the marine environment, where most of the reflection should be placed on humanity itself and our own actions, namely, the *Anthropos*.

As a root of the word Anthropocene, *Anthropos* simply means "human being" in ancient Greek, but it could also be assigned deeper meaning under the discourse of law and the Anthropocene. As Grear points out, law's relationship with the ecosystem and non-human beings is extremely problematic due to the fact that law is fundamentally anthropocentric, with humans being the only true beneficiary of any judicial order.[59] This "Anthropocentric" nature of law thus creates a "*crisis of human hierarchy*", in which the systematic privileging of certain human beings over other human beings and other organisms not only serves as the

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[58] Davor Vidas, 'International Law at the Convergence of Two Epochs: Sea-Level Rise and the Law of the Sea for the Anthropocene' in Carlos Espósito and others (eds), *Ocean Law and Policy: 20 Years under UNCLOS* (Brill Nijhoff 2016) 121.

[59] Anna Grear, 'Deconstructing Anthropos: A Critical Legal Reflection on "Anthropocentric" Law and Anthropocene "humanity"' (2015) 26 Law Critique 225, 225.

basis for the neoliberal global order, but also significantly undermines the ability of international law to address issues such as environmental degradation.[60] More recently, Kotzé also explicitly defined the Anthropos as: "a small part of the past and present global population that entrenches their dominance and privilege through a neoliberal capitalist and corporatized global political economy and an unjust global social and legal system", and that the current international environmental law regimes not only lack normative ambition to deal with such entrenchment of privilege, but also structurally contributes to creating, prolonging and enhancing such predatory paradigms.[61] This observation of the Anthropocene and the Anthropos thus lead to the conclusion that future attempts to address the issues of the Anthropocene in a ethically responsible manner must break away from the existing *status quo*[62] and target the oppressive structure of the Anthropos itself.[63] In other words, the role of international environmental law is not merely to confront the "negative externalities of transactions" (the environmental implications), but should also confront the "core of the underlying transactions" (the organisation of production and consumption processes), where there is potential for law to manage the processes that lead to the Anthropocene.[64]

The common focus of the critical accounts mentioned above are all addressing the earth or climate change in its entirety, but for this research, I would argue the scope of these concepts can be scaled down and applied to the problem of fisheries, for a more focused and practical

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[60] Anna Grear, 'Deconstructing Anthropos: A Critical Legal Reflection on "Anthropocentric" Law and Anthropocene "humanity"'(2015) 26 Law Critique 225, 227.

[61] Louis J. Kotzé, 'International Environmental Law's Lack of Normative Ambition: An Opportunity for the Global Pact for the Environment' (2019) 16 Journal for European Environmental & Planning Law 213, 215.

[62] Louis J. Kotzé, 'International Environmental Law's Lack of Normative Ambition: An Opportunity for the Global Pact for the Environment' (2019) 16 Journal for European Environmental & Planning Law 213, 235.

[63] Anna Grear, 'Deconstructing Anthropos: A Critical Legal Reflection on "Anthropocentric" Law and Anthropocene "humanity"'(2015) 26 Law Critique 225, 225.

[64] Jorge E. Viñuales, 'The Organisation of the Anthropocene: In Our Hands?' (2018) 1.1 International Legal Theory and Practice 1, 2.

discussion. There is no doubt that the marine environment and the fish stocks within are an integral and crucial part of the earth's ecosystem as a whole, and as the central actor of fishing activity and this research, the Anthropos of this story is undoubtedly the large-scale industrial/commercial fishing industry, especially those that operate in waters of foreign countries. Adding more to the equation, the interactions between the fishing industry and national governments have created a situation where regulation is politically undesirable, thus leading to inaction and cases of regression in regulation when pressures for strict control begin to fade.[65] It is clear that unless the fishing industry changes their ways of business, the pressure for deregulation and/or actions of illegal fishing will not disappear because of a new regulatory instruments being adopted. minimizes the impact of the industrial fishing fleets and guarantees the continued existence of the fish stocks, and in order to identify the appropriate legal approach, we would have to take a step back and re-examine the meaning of "sustainable fisheries".

2.4 The Quest for Sustainability

The concept of sustainability has proliferated throughout the entire body of international law, since its first appearance in a joint report presented by the United Nations Environmental Programme (UNEP), the World Wildlife Fund (WWF) and the International Union for

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[65] For example, after its yellow card status was lifted in early 2019, political parties in Thailand expressed intentions to relax the laws that were put in place, see: Nanchanok Wongsamuth, 'Thai coalition party vows to row back on fishing industry laws' *Reuters* (28 June 2019) <https://www.reuters.com/article/us-thailand-trafficking-business/thai-coalition-party-vows-to-row-back-on-fishing-industry-laws-idUSKCN1TT1IH> accessed 25 November 2019. Similarly, the same calls for relaxation and rollback on regulations also occurred after Taiwan was removed from the EU yellow card list in June 2018 and has become a talking point for the presidential candidates of the 2020 presidential elections. See Chen Yen Ting, 'Han Calls for Review on Distant Water Fisheries Act' *Liberty Times* (17 October 2019) <https://news.ltn.com.tw/news/politics/breakingnews/2948870> accessed 8 June 2020 (Title and content translated from Mandarin Chinese).

Conservation of Nature (IUCN) in 1980[66], to the more well-known adoption in the Brundtland Report that defined sustainable development as: "to ensure development meets the needs of the present without compromising the ability of future generations to meet their own needs."[67] The report also mentions two limits that should be imposed by the concept, the first being the status of technology and social organization on environmental resources, and the second being the ability of the biosphere to absorb human activities.[68] The concept was further adopted in the Rio declaration on Environment and Development, and became one of the leading concepts of international environmental policy.[69] Turning to recent examples, Sustainable Development Goal (SDG) 14.C set a target to:

> "*Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want.*"[70]

It is thus clear that the discussion of IUU fishing should be carried out in the context of sustainable development, although the exact term should be reconsidered.

Specifically, it should be pointed out that I will refrain from using the term "development" in all further relevant discussions related to sustainability (except when referring to the

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[66] IUCN, UNEP and WWF, *World Conservation Strategy: Living Resource Conservation for Sustainable Development* (IUCN 1980).

[67] World Commission on Environment and Development, *Our Common Future* (OUP 1987) 8.

[68] World Commission on Environment and Development, *Our Common Future* (OUP 1987) 8.

[69] Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law & the Environment* (3rd edn, OUP 2009) 53.

[70] UNGA 'Transforming Our World: The 2030 Agenda for Sustainable Development' A/RES/70/1 <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> accessed 30 May 2020.

Sustainable Development Goals), contrary to the mainstream opinions that constantly emphasize the need to consider economic growth. This is simply because we do not need more "development" in fisheries, we already possess the capability and have in fact exploited the majority of fish stocks to the full extent of its biological limits and beyond (i.e., beyond the ability of the biosphere to absorb our exploitation). It is not only a problem of legal terminology, but also an ethical decision, as Persson and Savulescu points out, while science and technology has radically altered the living conditions of mankind, our moral psychology has largely remained unchanged, and the relatively primitive morality of humans makes it easier to harm than to benefit each other, furthermore, we now possess the power to extinguish life forever, either through weapons of mass destruction or environmental degradation.[71]

In the case of fisheries, the observation fits perfectly into this research, and I would point out that many problems with fisheries today is because we are still unconsciously clinging to ancient beliefs such as the inexhaustibility of the ocean and freedom of the seas. Incidentally, the same sentiment towards resource exploitation has been expressed in discussions related to global commons and common heritage of mankind, as Feichtner and Ranganathan points out, the concept of global commons has become central in the quest for political economics that are less exploitive and less ecologically exploitive, but existing initiatives such as "blue growth" that are built on commercialization and even colonization are still considered to be a solution to conflict and environmental destruction.[72] The terms "blue growth" or "blue economy" are thus equivalent to "development", which in the case of fisheries, suggest that the fishing sector may continue to conduct business as usual, and

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[71] Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (OUP 2012) 1-2.

[72] Isabel Feichtner and Surabhi Ranganathan, 'International Law and Economic Exploitation in the Global Commons: Introduction' (2019) 30(2) European Journal of International Law 541, 541.

even maintain a certain rate of economic growth, despite various challenges that have already been identified.[73] Which is clearly an undesirable result for the regulation of IUU fishing.

Furthermore, reports published by the UN that are tracking the progress of the SDG goals, in particular Goal 17 Life below Water, have been clear that we are off track in maintaining the biological sustainable levels of fish stocks and inconclusive in the implementation of legal instruments to combat IUU fishing.[74] Including development in the discussions will always draw attention away from the basic problems and present a false hope that we may "grow out"[75] of the problem. This type of reasoning can also be seen in a report produced for the European Commission in late 2020, it is admitted in the report that the unsustainable nature of "business" will lead to illegal fishing and other activities that threaten marine eco-systems and damage biodiversity, and that one third of all blue economy investments

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[73] World Bank Group, *The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Developing States and Coastal Least Developed Countries* (World Bank 2017) ix (Highlighting challenges that limits the development of blue economy, including: (1) the current economic trends that degrade ocean resources through unsustainable extraction of marine resources; (2) the lack of investment in human capital in innovative blue economy sectors; and (3) the inadequate evaluation of marine resources, isolated sectoral management of activities in the oceans, and lack of full implementation of the UNCLOS and relevant instruments).

[74] FAO, *Tracking Progress on Food and Agriculture-related SDG Indicators: A Report on the Indicators under FAO Custodianship* (2019) 25-29 <http://www.fao.org/sdg-progress-report/en/#chapeau> accessed 20 November 2019; UN, The Sustainable Development Goals Report 2019 (United Nations 2019) 51 <https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf> accessed 20 November 2019. (It should be pointed out that despite relying on the same statistics, the tones of the two reports are drastically different, with the FAO report being cautious and less enthusiastic about the achievements, and the general UN report being significantly more optimistic and certain of success, which could also be seen as evidence of different implied values towards fisheries.).

[75] J. G. Frazier, 'Sustainable Development: Modern Elixir or Sack Dress?' (1997) 24(2) Environmental Conservation 182, 182 & 188 (pointing out that "in nearly all discourses of sustainable development is the axiom of continual growth", also referring to the concept of maximum sustainable yield (MSY) as "the ideal of taking as much as possible of a resource, essentially forever, and have a scientific stamp to do so.").

(approximately 250 billion euros) will be unsustainable by the year 2030[76], the report also pointed out the significance of subsidies in the fishing sector that contributes to IUU fishing[77], and offers an array of actions that could influence and facilitate transition towards sustainable financing in the blue economy[78], but there is no mention of limiting or withdrawing financing (such as fisheries subsidies) which is clearly the course of action that should be taken.[79] For these combined reasons above, it is the opinion of this thesis that the sustainability of fish should be considered from the perspective of the fish and the actions that endanger their sustainability, and not anything else.

In any given international law or international environmental law textbook, a detailed account on the development, content, and legal implications of sustainable development can be found.[80] It would not be necessary to repeat the entire body of work and understanding in this thesis, focus will be given to the elements of sustainable development that are most relevant to the addressing the IUU fishing problem instead. Particularly, the concept of sustainable use and the precautionary principle/approach.

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[76] Ecorys, Finance for Impact and Pescares and Habile, *Unsustainable Finance in the Blue Economy: Where does the Money Come From? Recommendations Report* (European Commission 2020) 10.

[77] Ecorys, Finance for Impact and Pescares and Habile, *Unsustainable Finance in the Blue Economy: Where does the Money Come From? Recommendations Report* (European Commission 2020) 37.

[78] Ecorys, Finance for Impact and Pescares and Habile, *Unsustainable Finance in the Blue Economy: Where does the Money Come From? Recommendations Report* (European Commission 2020) 56-57.

[79] Peter Thomson, 'Overfishing is a social injustice. To end it, we need to eliminate harmful fisheries subsidies' (*World Economic Forum*, 21 November 2020) <https://www.weforum.org/agenda/2020/11/overfishing-is-a-social-injustice-to-end-it-we-need-to-eliminate-harmful-fisheries-subsidies-world-fisheries-day/#:~:text=To%20end%20it%2C%20we%20need,and%20job%20security%20at%20risk> accessed 30 November 2020.

[80] E.g., Daniel Barstow Magraw and Lisa D. Hawke, 'Sustainable development' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds), *The Oxford Handbook of International and Environmental Law* (OUP 2007); Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law & the Environment* (3rd edn, OUP 2009) 115; Pierre-Marie Dupoy and Jorge E. Viñuales, *International Environmental Law* (2nd edn, CUP 2018) 91.

As an important element of sustainable development, sustainable use (or sustainable utilization) is thought to be is thought to be an independent concept that is best understood in the context of natural resource conservation.[81] For fisheries, both of these concepts have been conveyed within numerous relevant legal instruments. For example, the terms "conservation of living resources" and "maximum sustainable yield (MSY)" (although the effectiveness of this concept is questionable[82]) that was incorporated in the UNCLOS, or the term "long term sustainability" that was used in the UN Fish Stock Agreement is thought to contain the common notion of sustainable use.[83] On the other hand, the precautionary principle has also been found to be a deciding element in the new paradigm established by the Fish Stock Agreement where the conservation of the marine ecosystem became a basic consideration in fishing operations.[84]

The implications of the concept of sustainable use and the precautionary principle will be further elaborated in the following chapters, but here I would also turn to Pauly for an additional observation on sustainability, as he points out that mankind has rarely acted in a sustainable manner towards any natural resource, for fish, the image of sustainability in historical accounts simply meant the humans of that period lacked the technology, capital or

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[81] Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law & the Environment* (3rd edn, OUP 2009) 119.

[82] Ellen Hey, 'The Persistence of a Concept: Maximum Sustainable Yield' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 89. (Arguing that the focus on open access and catch-based management of MSY resulted in unsustainable fisheries governance.).

[83] Marion Markowski, 'The International Legal Standard for Sustainable EEZ Management' in Gerd Winter (ed), *Towards Sustainable Fisheries Law: A Comparative Analysis* (IUCN Environmental Policy and Law Paper No. 74, IUCN 2009) 4; Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law & the Environment* (3rd edn, OUP 2009) 199.

[84] David Freestone, 'International Fisheries Law since Rio: The Continued Rise of the Precautionary Principle' in Alan Boyle and David Freestone (eds), *International Law and Sustainable Development* (OUP 1999) 164.

market to expand the fishery and degrade the resource base.[85] Upon this backdrop, the quest of sustainable fishing through the elimination of IUU fishing should include one new aspect: the reshaping of how individuals act and how they relate to other people, to their surrounding environment and to the fish they are exploiting.[86]

On a further note related to IUU fishing and sustainability, Vidas and Schei also went to the extent to suggest that the current term of IUU fishing should be expanded to IUUU (illegal, unreported, unregulated and unsustainable) fishing, citing the over-capacity of fishing fleets as the root cause of quotas being set at excessive levels and the illegal taking of fish beyond such quotas.[87] It is obvious from this perspective that the substance of IUU fishing is not fully covered by the term, hence the need for expansion, but I would also argue that instead of adding more to the existing acronym, the concept of sustainability would have more effect if applied as an overarching criteria and ultimate goal for IUU fishing regulations[88], or as what Lowe describes as :"a meta-principle acting upon other legal rules and principles".[89] However, there is a disparity between the terms IUU fishing and Unsustainable fishing, which will be further elaborated in the following section below.

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[85] Daniel Pauly, *5 Easy Pieces: The Impact of Fisheries on Marine Ecosystems* (Island Press 2010) 93.

[86] Patrick Bresnihan, *Transforming the Fisheries: Neoliberalism, Nature and the Commons* (University of Nebraska Press 2016) 15.

[87] Davor Vidas and Peter Johan Schei, 'The World Ocean in Globalisation: Challenges and Responses for the Anthropocene Epoch' in Davor Vidas and Peter Johan Schei (eds), *The World Ocean in Globalisation: Climate Change, Sustainable Fisheries, Biodiversity, Shipping, Regional Issues* (Brill Nijhoff 2011) 11.

[88] Daniel Barstow Magraw and Lisa D. Hawke, 'Sustainable development' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds) *The Oxford Handbook of International and Environmental Law* (OUP 2007) 614.

[89] Vaughan Lowe, 'Sustainable Development and Unsustainable Arguments' in Alan Boyle and David Freestone (eds), *International Law and Sustainable Development: Past Achievements and Future Challenges* (OUP 1999) 31.

3. Clarifying the Concept of IUU Fishing

3.1 Overcoming the Incommensurability in Fisheries Terminology

Before engaging in the actual definition of IUU fishing, there is a conceptual issue of fisheries terminology that needs to be addressed. The terminology related to fisheries can sometimes be confusing, owing to the fact that most are originally scientific terms that have been incorporated into legislation and subsequently reiterated in academic works until their true meaning have become somewhat lost. As it is pointed out many times, language is important, especially in the legal profession.[90] I will attempt to lay out and clarify the known terminologies related to the regulation of IUU fishing, referring to both scientific and legal usages and sources.

There are roughly three groups of terms that may require clarification, and possibly, harmonization. The first group is relatively straight forward, concerning the different terms that are used interchangeably in place for the term IUU fishing, such as pirate fishing, illicit fishing, or simply, illegal fishing. There is not a real problem in substituting IUU fishing with these terms, except for the fact that these terms overlook the unreported and unregulated aspects of the problem.

A second group of terms is related to fish. In late 2019, *The Guardian* issued an update in their style guide to introduce terms that can accurately "describe the environmental crisis

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[90] Susan J. Buck, *The Global Commons: An Introduction* (Earthscan 1998) 2; Athene Richford, 'The Authority of Language in international Law: From Sovereignty to Economic Certainty' in John D. Haskell and Akbar Rasulov (eds), *New Voices and New Perspectives in International Economic Law* (European Yearbook of International Economic Law Special Issue, Springer 2020) 91; Griffin Carpenter, 'What are the Implicit Values We're Using in Fisheries Management?' (*Sustainable Fisheries*, 16 December 2019) <https://sustainablefisheries-uw.org/implicit-values-in-fisheries-management/> accessed 15 May 2020.

facing the world", among the six terms that were changed, two are specifically related to this thesis, namely, the use of "wildlife" instead of "biodiversity" and the use of "fish population" instead of "fish stocks".[91] A similar position was also taken by Pauly, where he stopped using the term "fish stock", after realizing the term "is part of the technocratic ideology that isolates us from nature".[92]

The third group of terms, perhaps most important, concerns the ones used in legal contexts to describe the characteristic of fisheries. Also seen in the discussion on FAO statistics above, fisheries can be simply divided into "sustainable fisheries" and "unsustainable fisheries". Sustainable fisheries may be straight forward enough, but the terms used to describe unsustainable fisheries occur in various forms, drawing from the vocabulary that is currently in use, we can identify at least three terms that refer to unsustainable fishing, namely, "overfishing", "illegal, unreported and unregulated fishing (IUU fishing)" and "environmentally harmful fishing". Overfishing is a scientific term that refers to the application of fishing effort beyond that which will generate a sustainable population level (i.e., at a rate that the fish cannot regenerate)[93]; IUU fishing is a legal term, created and applied in the context of international law, and also relies on regulations of the state and RFMOs to have full effect. Environmental harmful fishing on the other hand, is a term that can be applied broadly or narrowly, when applied narrowly, as seen in the *South China Sea Arbitration*, it refers to damaging fishing methods and gear[94]; on the on the other hand,

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[91] Sophie Zeldin-O'Neill, ''It's a crisis, not a change': the six Guardian language changes on climate matters' *The Guardian* (16 October 2019) <https://www.theguardian.com/environment/2019/oct/16/guardian-language-changes-climate-environment> accessed 5 June 2020 (Noting that the switch to fish populations "*emphasises that fish do not exist solely to be harvested by humans, they also play a vital role in the natural health of the oceans.*" This could be seen as an example of the shifting of implied values.)

[92] Daniel Pauly, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries* (Greystone 2019) xii.

[93] Daniel Pauly, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries* (Greystone 2019) 207.

[94] Permanent Court of Arbitration Case No. 2013-19 *In the Matter of the South China Sea Arbitration (Philippines v. China)* (2016), Award, para 826-829 <https://pcacases.com/web/sendAttach/2086> accessed 6

Tanaka suggested the use of the term in as a broad ecology based concept that can combine the goals of fishing regulation with those of marine biological diversity.[95] The disparity between the terms is also pointed out by Churchill, noting that while IUU fishing is often also unsustainable, lawful fishing can also be unsustainable in scenarios where total allowable catch or fishing effort limits are set at excessive levels, furthermore, unsustainable fishing can also refer to situations where fishing is conducted in a way that degrades the marine environment as a whole (e.g. by-catch or fishing that destroys habitats).[96]

In short, in a perfect world, the terms IUU fishing and unsustainable fishing should mean the same thing, where all unsustainable fishing should be made illegal and subject to elimination. But in our imperfect world, a fishery has to be examined under these two terms in order to determine whether it is sustainable or not. This is one of the shortcomings of the IUU concept, but it is also true that the scope of IUU fishing has been continuously expanded, and perhaps one day we could reach that perfect stage where the clarification of terminology will no longer be needed.

However, with the above analysis in mind, this thesis will continue to use the term IUU fishing in its original meaning as provided in the introduction and the section below, which is a legal concept that depicts an act of fishing in violation of certain fisheries laws, the main reason for this is to refrain from creating more confusion by injecting my own definitions

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June 2020 [Hereinafter *South China Sea Arbitration*] (refers to Chinese fishing vessels conducting environmentally harmful fishing practices with cyanide and dynamite).

[95] Yoshifumi Tanaka, 'Implications of Environmental Norms for Fishing: The Inter-Linkage between the Regulation of Fishing and the Protection of Marine Biological Diversity' (The Dynamics of Disputes over Illegal, Unreported, and Unregulated Fishing: Regime Convergence and Lex Ferenda, Luxembourg, November 2019) (Conference Presentation).

[96] Robin Churchill, 'International Trade Law Aspects of Measures to Combat IUU and Unsustainable Fishing' in Richard Caddell and Erik J. Molenaar (eds), *Strengthening International Fisheries Law in an Era of Changing Oceans* (Hart 2019) 322-323.

into a concept that is already defined and heavily used in international law.

It should also be stressed at this point that while the weakness and ambiguity of the term IUU fishing has been exposed in this paragraph, it is not the intention or suggestion of this thesis to completely discard the concept of IUU fishing for other terms or concepts, the current terminology of IUU fishing is the fruit of decades of development and slow recognition of the problematic nature of certain forms of fishing activity, and for such activities that are already outlawed, IUU fishing is an operational concept that actively counteracts those unsustainable fishing activities by allowing States to adopt and enforce fishery regulations. This is similar to the enforcement of any given administrative regulation or even criminal code, we need a law that is operational, one that can be applied to the actual harmful acts, one that can be invoked to charge an offending vessel for breaking the law.

The implementation and enforcement of a law does not contradict with the need to constantly update that law and maintain its relevance. the concept of IUU fishing is created in a way that allows States to add to or remove contents according to their needs, although for the most part, States have been rather reluctant when it comes to expanding the concept. This thesis is relying on this characteristic of IUU fishing, and proposing that instead of using isolated fisheries that may only involve a small number of species (e.g. such as the regulations for tuna, salmon, or cod), States should test the concept of IUU fishing against the concept of sustainability, and populate the concept of IUU fishing with measures and legal restrictions that are not only aimed at conserving and managing certain fisheries, but can also provide the overall marine environment with adequate protection.

In short, the incommensurability in this case is not really about the terminology, but more closely related to the underlying logic and purpose that is assigned to the concept of IUU fishing. We can always use IUU fishing in a minimal sense, as a reactive enforcement tool

that targets individual offenders; but it is also totally possible that IUU fishing can be expanded and strengthened to the point that it can be applied actively as a way to protect the marine environment to its greater extent.

3.2 The Definition of the Term "IUU Fishing"

The term IUU fishing was first used in 1997 by the commission for CCAMLR, and subsequently the FAO in 2001 in the International Plan of Action to Prevent, Deter and Eliminate Illegal Unreported and Unregulated Fishing (IPOA-IUU).[97]

The shaping of the term and concept of IUU has its roots in the 1992 United Nations Conference on Environment and Development (UNCED, Earth Summit), where various environmental documents and declarations were adopted. Along with the focus on sustainability, fishery issues also came under the spotlight. After the adoption of UNCLOS in 1982, it served as a framework and basis for the conservation of marine resources and fisheries, but it did not provide effective or detailed guidelines for states or regional bodies to follow[98]. In light of this, the FAO adopted a series of agreements, plan of actions and guidelines in the 1990s, including The Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, Code of Conduct for Responsible Fisheries, The Rome Declaration on the Implementation of the Code of Conduct for Responsible Fisheries, and four individual IPOAs, one of which is the IPOA-IUU.

The IPOAs were designed using the Code of Conduct as a framework, aiming to provide a

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[97] Jens Theilen, 'What's in a Name? The Illegality of Illegal, Unreported and Unregulated Fishing' (2013) 28 Marine & Coastal Law 533, 534.

[98] Moritaka Hayashi, 'Illegal, Unreported and Unregulated (IUU) Fishing: Global and Regional Response' in David D. Caron & Harry N. Scheiber (eds), *Bringing New Law to Ocean Waters* (Brill 2004) 96.

voluntary tool for states and regional organizations to implement measures for the management of issues related to the Code of Conduct. The negotiations for the IPOA-IUU began at the 23rd meeting of the Committee on Fisheries (COFI) of the FAO in 1999, and after two years of meetings, was endorsed at the 120th meeting of the FAO Council, finalizing it as a key instrument in the effort against IUU fishing.[99]

Currently, the most complete and widely accepted definition of IUU fishing is still the one provided in the IPOA-IUU, and although different international entities may have adopted slightly different wording, the fundamental concepts are the same. According to paragraph 3 of the IPOA-IUU, IUU fishing is divided into three prongs: Illegal Fishing, Unreported Fishing, and Unregulated Fishing, as reproduced below.[100]

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[99] Mary Ann Palma, Martin Tsamenyi and William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Legal Aspects of Sustainable Development Vol. 6, Martinus Nijhoff 2010) 29-34.

[100] Food and Agriculture Organization, IPOA-IUU:

3. In this document:

3.1 Illegal fishing refers to activities:

3.1.1 conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;

3.1.2 conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or

3.1.3 in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.

3.2 Unreported fishing refers to fishing activities:

3.2.1 which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or

3.2.2 undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

3.3 Unregulated fishing refers to fishing activities:

3.3.1 in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing

Some opinions dismiss the need for the three-pronged approach of the IPOA-IUU, favoring using "illegal fishing" as an all-encompassing term.[101] Serdy also pointed out that the drafters of the IPOA-IUU had wasted their effort put into the wording of the definition, because all the subsequent measure that were put in the instrument referred to IUU fishing without distinction.[102] This research agrees with this opinion to a certain degree because it is difficult and unnecessary to make the distinctions when discussing IUU fishing as a general issue.

However, there may still be actual need for detailed categorization when it comes to practical cases and court procedures. Firstly, the techniques and methods of IUU fishing vessels evolve constantly, and although all such activities can be considered illegal, the parties that enjoy rights or standing in court to bring a case may differ, thus it would be appropriate to define the actual acts in the legal process. Secondly, the reason for singling out unreported and unregulated fishing is unclear, but there may be certain significance for this distinction, the example of a Taiwanese distant water fishing vessel in the next section could shed some light as to why some actions should deserve their own category.

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entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or

3.3.2 in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

3.4 Notwithstanding paragraph 3.3, certain unregulated fishing may take place in a manner which is not in violation of applicable international law, and may not require the application of measures envisaged under the International Plan of Action`(IPOA).

[101] Jens Theilen, 'What's in a Name? The Illegality of Illegal, Unreported and Unregulated Fishing' (2013) 28 *Marine & Coastal Law* 533, 534.

[102] Andrew Serdy, *The New Entrants Problem in International Fisheries Law* (CUP 2016) 14.

3.3 An Evolving Concept

While most legal discussions are focused on the legal documents that specifically aimed at IUU fishing and the legal implications of those instruments, the perspective of marine biologists may offer us a new perspective to understanding IUU fishing. As Pauly points out, the events of massive fisheries collapse can be attributed to three main contributing forces that he named as the "toxic triad", which includes: (1) underreporting of catch; (2) overfishing; and (3) blaming the environment for the decrease in catch or collapse of fisheries. Since these forces existed before the catastrophic events, the collapse of fisheries only served to expose the reality, and terms such as "by-catch" and IUU fishing were invented in response to that reality.[103] A similar sentiment was also expressed by Hilborn, where he noted that rule breaking is an unavoidable aspect of fishing, and that every fisherman he knew had broken some rules during their career.[104] This thus brings us to a point where we could reflect on the phenomenon of IUU fishing, the content of IUU fishing has been constantly expanding, but instead of chasing the obvious perpetrators and adding more to the list of prohibited actions, perhaps we should acknowledge that all fishers have the tendency of violating the regulations and think about how we can get ahead in the game and minimize that possibility through different approaches and methods.

4. Identifying the Relevant Actors and Objects of Fisheries Regulation

There are three core elements that are relevant to the regulation of IUU fishing, namely, the State, the fishing industry and the fish, the perceptions we have towards them and the

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[103] Daniel Pauly, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries* (Greystone Books 2019) 3.

[104] Ray Hilborn and Ulrike Hilborn, *Overfishing: What everyone Needs to Know* (OUP 2012) 94.

interaction between them form the dynamic of IUU fishing, and some crucial aspects of each element will be discussed below.

4.1 The State

As Hey points out, international environmental law conceptualizes the States as the protectors of the concerns of the interests of both human beings and humanity in general through the focus of the functional role of the State.[105] Pauly also agrees that States (although he refers to governments) are the most central entity in preventing the fishery crisis, due to several practical reasons: (1) Only States have the research infrastructure capable of effectively managing fisheries, if they successfully resist the influence of the fishing-industrial complex; (2) The fisheries subsidies that allow the industry to continue to operate are provided by the State, and only States can phase them out; and (3) Only States have the power to designate zones within the marine environment.[106]

Under the law of the sea, the State has multiple capacities and authority to regulate fisheries that derives from different legal basis. Specifically, the role of the State can be categorized as flag State, coastal State, and port State. All of these roles have been utilized to address the IUU fishing problem and their implications will be further discussed in later chapters.

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[105] Ellen Hey, 'Global Environmental Law and Global Institutions: A System Lacking "Good Process"' in Roland Pierik and Wouter Werner (eds) *Cosmopolitanism in Context: Perspectives from International Law and Political Theory* (CUP 2010) 50.

[106] Daniel Pauly, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries* (Greystone Books 2019) 31-32.

4.2 The Fishing Industry

4.2.1 Focusing on Distant Water Commercial Fleets

One of the most confusing aspects of any fisheries related discussion is perhaps to determine the actor that carries out the actual fishing activity, or as most commonly referred to as the "fishing industry". There exists various criteria and terms on how to narrow down and pinpoint the specific group of actors that is subject to examination, for the purpose of this thesis, the focus will be placed on the sector of fisheries that is most commonly known as "distant water commercial fleets".

Distant water fleets are defined as fleets that operate in waters other than their countries domestic waters (i.e., the waters of foreign EEZ or the high seas)[107], whereas the term commercial or industrial relates to the purpose (for commercial profit) and scale (on a larger scale). This is in comparison with the concept of small-scale fisheries, which operates in its own domestic waters with relatively smaller capital commitment.[108] Among the largest fishing nations of the world, the fishing fleets of Taiwan, South Korea, Spain, and China were found to have expanded their fishing range by 2000 kilometers since 1950s, the former three had an even higher average distance of 3000 kilometers from their home ports.[109] With the expansion into 90% of the world's ocean, these distant water fisheries account for 20%

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[107] David Tickler and others, 'Far from Home: Distance Patterns of Global Fishing Fleets' (2018) 4(8) Science Advances eaar3279 <https://advances.sciencemag.org/content/4/8/eaar3279> accessed 6 June 2020.

[108] James R. McGoodwin, *Crisis in the World's Fisheries: People, Problems, and Policies* (Stanford University Press 1990) 8 (other terms that refer to this type of fisheries also include artisanal, coastal, and traditional).

[109] David Tickler and others, 'Far from Home: Distance Patterns of Global Fishing Fleets' (2018) 4(8) Science Advances eaar3279 <https://advances.sciencemag.org/content/4/8/eaar3279> accessed 6 June 2020.

of the global industrial catch.[110] The operations of Distant water fleets often compete with the people and small scale fisheries in low income countries, where the industrial players are able to negotiate preferential terms with governments in need of foreign cash, and the weak governance or enforcement in these countries also make them vulnerable to the IUU fishing activities that come with the distant water fleets.[111]

Indeed, Not only has industrial scale fishing been identified as "generally not sustainable"[112], Pauly has even gone as far as calling the industry and the way it operates a "Ponzi scheme".[113] In reality, industrial fisheries operate on the assumption that fish is a commodity where the fishermen are actually fishing for money instead of fish,[114] and this type of "destructive exploitation" would subsequently lead to the permanent degradation of the resource-base.[115] This would lead to the conclusion that if sustainability in fisheries is to be achieved, the fishing industry is the actor that needs to be controlled, or as Bundy points out: "Fisheries management means managing people, not fish."[116]

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[110] David Tickler and others, 'Far from Home: Distance Patterns of Global Fishing Fleets' (2018) 4(8) Science Advances eaar3279 <https://advances.sciencemag.org/content/4/8/eaar3279> accessed 6 June 2020.

[111] Miren Gutiérrez and others, *China's Distant Water Fleet: Scale, Impact and Governance* (Overseas Development Institute 2020) 10.

[112] Daniel Pauly and others, 'Towards Sustainability in World Fisheries' (2002) 418 Nature 689, 689.

[113] Daniel Pauly, *Vanishing Fish: Shifting Baselines and the Future of Global Fisheries* (Greystone Books 2019) 21-22 (Referring to an expanded fishing-industrial complex which includes corporate fishing fleets, lobbyists, parliamentary representatives, and fisheries economists).

[114] Fikret Berkes, 'Fishermen and "The Tragedy of the Commons"' (1985) 12(3) Environmental Conservation 199, 203-204.

[115] Fikret Berkes, 'Fishermen and "The Tragedy of the Commons"' (1985) 12(3) Environmental Conservation 199, 203.

[116] Alida Bundy, 'The Red Light and Adaptive Management' in Tony Pitcher and others (eds), *Reinventing Fisheries Management* (Kluwer 1998) 366.

4.2.2 An Example of Distant Water Commercial Fishing Operations

Here I wish to present a case of Taiwanese illegal fishing that is reflective of my personal values towards fishery regulation and also raises interesting points of fishery practice. In late February 2017, a Taiwanese longline fishing vessel operating in the Indian Ocean returned to the Taiwan, and subsequently held a demonstration with a group of fellow fishermen at the port of Donggang (東港), protesting against a piece of legislation regarding distant fisheries, specific demands include restoring and increasing fishing quotas, further instructions and information on the newly adopted regulations and how to comply, as well as a buffer period to allow the industry to react to the change. The new national regulations in question were a result of the Resolution 16/01 "On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence", in this resolution, longline catches are to be reduced by 10% from 2014 levels (paragraph 5.)[117]. The captain/owner of the fishing vessel had used up his quota of 20 tonnes of the year within a month and was forced to return to Taiwan since there was no profit in staying. He further stated that he did not understand why the government had to record the catch data of his operation in the first place, and thus had been intentionally reporting lower numbers over the years, which has now affected the total quota allocated to Taiwanese vessels. [118]

There may be several points of discussion concerning the captain's behavior in this event, but for the most part, this is an obvious case of unreported fishing, the vessel does have the licenses and registrations to fish in the areas of IOTC, which would provide the fishing

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[117] Indian Ocean Tuna Commission, Resolution 16/01 "On an Interim Plan for Rebuilding the Indian Ocean Yellowfin Tuna Stock in the IOTC Area of Competence" <https://iotc.org/cmm/resolution-1601-interim-plan-rebuilding-indian-ocean-yellowfin-tuna-stock> accessed 6 June 2020.

[118] Yi Chin Lee, 'New Fisheries Law too Strict, Fishermen returns to Taiwan in Protest' *Apple Daily* (28 February 2017) <https://tw.appledaily.com/life/20170228/HFAAOPNAKJI4L3MHYGULAL3GBQ/> accessed 6 June 2020 (Name of reporter and title translated from mandarin Chinese).

activities with a legitimate appearance, if the captain continuously reported catches within the approved quota, it would be incredibly difficult to detect this kind of violation; and if the catch reduction hadn't been implemented, this type of behavior may have gone unchecked, as it had been for many years. Thus, the wording of the IPOA-IUU may not be that redundant, perhaps it could serve as a reminder that some categories of IUU fishing are more subtle and treacherous than others, and that current measures and regulations should also be reviewed constantly in order to keep up with the illegal activities.

4.3 The Fish

4.3.1 Characteristics and Common Misconceptions

In the context of international law, fish is traditionally considered as a separate legal object[119], in the UNCLOS, they are defined as "living resources", subject to conservation and management measures. Fish is also often referred to as "commons" as in the context of "the tragedy of the commons". These characteristics and perceptions are closely related to how we approach fish with regulations and management measure, with the assumption that fish, as a resource, can and should be utilized for human consumption needs. However, while most would agree that moderate use of resources is essential and necessary for human survival, the problem of IUU fishing now pushes that limit to the brink of disaster. This comes from misconceptions towards fish and their biological features, where the numbers, ability to reproduce and the resilience of fish stocks are overestimated.

The most problematic misconception towards fish is perhaps the image of inexhaustible fish,

[119] Rosemary Rayfuse, 'Precaution and the Protection of Marine Biodiversity in Areas Beyond National Jurisdiction' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 99.

this damaging image has roots in the long history of fishing and is also the basis for certain legal concepts (e.g., the freedom of fishing) that will be discussed in the next chapter. I would, however, reproduce a paragraph found in a survey of marine fish below to highlight that such misconceptions are even in found in scientific research, and can have long lasting negative effects.

> *"Such statistics in world fisheries as are available suggest that while particular species have fluctuated in abundance, the yield of the sea fisheries as a whole or of any considerable region has not only sustained, but has generally increased with increasing human populations, and there is yet no sign that they will not continue to do so. No single species so far as we know has ever become extinct, and no regional fishery in the world has ever been exhausted."*[120]

We can now determine with overwhelming evidence that several fisheries in the world have in fact been exhausted and collapsed, with the most well-known example being the collapse of the Atlantic cod.[121] Roberts also confirmed that many marine species are on the path to extinction.[122] In a subtler form of this misconception can also be found in the concept of "commercial extinction", which means that for resources that are harvested in large quantities, there is a point where it becomes economically unviable to continue harvesting, and the commercial unviability can lead to recovery[123] (i.e. as applied to fisheries, the exploitation stops and the fish may regenerate), however, as demonstrated above, fishing

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[120] Harden F. Taylor and others, *Survey of Marine Fisheries of North Carolina* (University of North Carolina Press 1951) 314.

[121] Callum Roberts, *The Unnatural History of the Sea: The Past and Future of Humanity and Fishing* (Gaia Thinking 2007) 207.

[122] Callum M. Roberts and Julie P. Hawkins, 'Extinction Risk at Sea' (1999) 14(6) Trends in Ecology & Evolution 241, 245.

[123] Morné A du Plessis, 'CITES and the Cause of Extinction' in Jon Hutton and Barnabas Dickson (eds), *Endangered Species Threatened Convention: The Past, Present and Future of CITES* (Earthscan 2000) 14-15.

fleets often use expansion as an answer to low catches, forming a vicious cycle instead of a positive loop.

Recently, there several reported incidents that demonstrate a worrying trend in the marine environment and the survival of fish. Firstly, in the summer of 2019, large numbers of salmon died in the Kuskokwim River and Bristol Bay areas of Alaska, with the cause of death being attributed to the unusual heatwave that had hit the region.[124] Later in September, it was reported that 2.6 million salmon died in their pens off the coast of Newfoundland and Labrador, the reason for their deaths were attributed to several factors, including increased water temperatures and algal bloom in the area.[125] Similarly, the scallop fisheries in Long Island, New York was also faced with the problem that the scallops had died over the summer, leaving them with nothing to catch when the season opened, again, the reason for the loss was attributed to summer heat that surpassed the scallops tolerance.[126] Lastly, also in late 2019, a Chinese seafood supplier announced that 80% of the scallops in a farm on the Yellow Sea, with a value of $43 million, had died due to "unidentified" causes.[127] The combination of these incidents should be enough to show that we are having problems in the global marine environment, and that the fish stocks are becoming ever more fragile. Hence, the protection of fisheries should be afforded in all possible aspects, including the relieving of pressures of

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[124] Alessio Perrone, 'Unprecedented Heatwave "Kills Thousands of Fish" in Alaska' The Independent (17 August 2019) <https://www.independent.co.uk/environment/alaska-heatwave-salmon-rivers-july-temperatures-climate-change-a9063461.html> accessed 6 June 2020.

[125] David Maher, 'Multiple Factors led to 2019 Salmon Die-off on South Coast of Newfoundland and Labrador: Report' *The Telegram* (20 March 2020) <https://www.thetelegram.com/news/local/multiple-factors-led-to-2019-salmon-die-off-on-south-coast-of-newfoundland-and-labrador-report-427615/> accessed 6 June 2020.

[126] Charity Robey, 'The Baymen's Nightmare: The Scallops are Dead' *New York Times* (7 November 2019) <https://www.nytimes.com/2019/11/07/nyregion/peconic-bay-scallop-season.html> accessed 6 June 2020.

[127] Alfred Cang, "A Big Chunk of World's Scallops Just Died in Mysterious Circumstances" *Bloomberg* (12 November 2019) <https://www.bloomberg.com/news/articles/2019-11-12/something-mysterious-is-killing-scallops-in-china-s-yellow-sea> accessed 6 June 2020.

IUU fishing.

4.3.2 Fish as a Food Source

Specifically related to fish as a food source, this is an aspect that was not really considered by previous fisheries regulation discussions but has gained increased attention after the realization of the interconnected world of the present day. For the most part, the link between IUU fishing and consumers was focused on the problem of mislabeling, and it is true that improved labelling and traceability is an important part of the effort to prevent IUU fishing products from entering the market.[128] However, apart from the regulation of fish trade, the actual consumption and reliance on fish is perhaps another element of fisheries, as highlighted in the FAO statistics above. Fish is considered as a food with positive health benefits and lower environmental impacts compared to red meats and processed meats,[129] and have been championed as the food source that will fulfil the needs of healthy diets envisioned by the SDGs globally.[130] This demand for fish has created a renewed pressure on fisheries that rests on not only wild fisheries, but also aquaculture.

With the mounting pressure for more fish products, there are two points that should be considered: Firstly, wild fisheries and aquaculture has been linked through the production of fishmeal and fish oil, and that this usage of wild fisheries to provide the global aquaculture

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[128] Sarah Helyar and others, 'Fish Product Mislabelling: Failings of Traceability in the Production Chain and Implications for Illegal, Unreported and Unregulated (IUU) Fishing' (2014) 9(6) PLoS One 1, 1.

[129] Michael Clark and others, 'Multiple Health and Environmental Impacts of Foods' (2019) 116(46) PNAS 23357, 23357. (However, the environmental impact factors that were considered only includes GHG emissions, land use, water use, acidification, and eutrophication, it would seem that without the consideration of biodiversity loss, the environmental impact of fishing is certainly grossly underestimated).

[130] Shakuntala Haraksingh Thilsted, 'Sustaining healthy diets: The role of capture fisheries and aquaculture for improving nutrition in the post-2015 era' (2016) 61 Food Policy 126, 130.

supply chain with the raw material it needs has led to the collapse of fish stocks.[131] This would lead to the second point that covers all global food systems, which is the fact that substantial portions of the global food system are inaccurately and insufficiently reported (including wild fisheries), which must be amended if we hope to improve the global food system and address the issues of biodiversity loss.[132] Furthermore, this link between wild fisheries and aquaculture also serves as a reckoning. Scholars have once optimistically predicted that by supplying consumer demand with the products of aquaculture, wild fisheries would become less important, and the need to manage them would also diminish[133], but this may only be wishful thinking, because the cultivation of carnivorous fish species will inevitably accelerate the further deterioration of wild fish stocks.[134]

5. Addressing the "Unnaturalness" in Fisheries

5.1 "Unnaturalness" as a Recurring Theme in Environmental Discourse

The term "unnatural" has been circulating within environmental discourses of all levels, from works of popular science[135] to environmental law publications.[136] The term has also been used in fisheries related context, specifically in describing the unintended selection of

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[131] Changing Markets Foundation, *Fishing for Catastrophe: How Global Aquaculture Supply Chains are Leading to the Destruction of Wild Fish Stocks and Depriving People of Food in India, Vietnam and the Gambia* (2019) 3 <https://changingmarkets.org/portfolio/fishing-the-feed/> accessed 25 November 2019.

[132] Benjamin Halpern and others, 'Putting all foods on the same table: Achieving Sustainable Food Systems Requires Full Accounting' (2019) 116(37) Nature 18152, 18152-18153.

[133] R. R. Churchill and A. V. Lowe, *The Law of the Sea* (3rd edn Manchester University Press 1999) 323.

[134] Vaclav Smil, *Harvesting the Biosphere: What We Have Taken from Nature* (MIT Press 2013) 230.

[135] For example: Elizabeth Kolbert, *The 6th Extinction: An Unnatural History* (Perfection Learning 2015).

[136] For example: David R. Boyd, *Unnatural Law: Rethinking Canadian Environmental Law and Policy* (UBC Press 2013); Mark Everard, *Breathing Space: The Natural and Unnatural History of Air* (Zed Books 2015).

fish caused by human exploitation in contrast to natural selection processes[137], and more generally as a blanket term that sums up the entire situation of unsustainable fisheries and the disastrous result of fisheries collapse.[138]

Although certainly not a legal term, the use of unnaturalness is surprisingly consistent, with the exception of the examples of unnatural selection, which simply refers human intervention, the other examples all express a reflection and doubt on the current system, and advocate structural changes or paradigm shifts to a varying degree. I would also like to apply this sort of logic in the case of IUU fishing, which is a result of unnaturalness on several levels, and propose alternative solutions to eliminate IUU fishing.

5.2 The Implications of Unnaturalness

One of the definitions of "unnatural", according to the Oxford English Dictionary, is "Not formed by or occurring in nature; produced or caused by human activity; artificial, man-made, synthetic."[139] The use if this term in this thesis serves as a reminder that fishing is an activity that is entirely reliant on man-made objects and devices, even the fish that are hunted have lost their natural characteristics and have been considered as "stock", as if we could

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[137] Fred Allendorf and Jeffrey Hard, 'Human-induced Evolution Caused by Unnatural Selection through Harvest of Wild Animals' (2009) Vol. 106 Suppl. 1 PNAS 9987, 9989; Anna Sturrock and others, 'Unnatural Selection of Salmon Life Histories in a Modified Riverscape' (2020) 26 Global Change Biology 1235.

[138] Callum Roberts, *The Unnatural History of the Sea: The Past and Future of Humanity and Fishing* (Gaia Thinking 2007); Dean Bavington, *Managed Annihilation: An Unnatural History of the Newfoundland Cod Collapse* (UBC Press 2010); Elizabeth Brubaker, 'Unnatural Disaster: How Politics Destroyed Canada's Atlantic Groundfisheries' in Terry L. Anderson (ed), *Political Environmentalism: Going behind the Green Curtain* (Hoover Institution Press 2000) 161; Michael Black, 'The Unnatural Policies of Natural Resources Agencies: Fishery Policy on the Sacramento River' in Frank Fischer and Michael Black (eds), *Greening Environmental Policy: The Politics of a Sustainable Future* (Paul Chapman 1995) 53.

[139] *Oxford English Dictionary* (3rd edn, 2014) <https://www-oed-com.ezproxy.lib.gla.ac.uk/view/Entry/215711> accessed 20 September 2021.

wade into the water at any given moment and retrieve any given amount of reserved resource as we see fit. The unnaturalness of fishing as a whole is linked to many concepts covered in this thesis, from the classical "inexhaustible seas", the notion that "trawling can fertilize the seafloor", the commodification of fish resources, and to the ever present "IUU fishing" that can be found in all parts of the sea. Human harvest and consumption of marine living resources is structured in an unnatural way, as in not just for the satisfaction of our need for food and nutrients, but instead based on profit. With that unnaturalness comes unsustainability. In order to correct this unnaturalness, we need to return fish to their natural place in nature and in the marine environment; we also need to change the way we perceive fish. This return to nature will be linked to the proposed change of discourse in Chapter 6.

5.3 The Unnaturalness that Leads to IUU Fishing

The question to be asked here is thus, what is unnatural in the problem of IUU fishing? We can start with the identification of a number of drivers or factors that contribute to IUU fishing from different sources, the OECD identified a group of seven economic and social drivers, including: (1) Overcapacity of fishing fleets, due to management failures; (2) Market demand and price for IUU fish; (3) monitoring, control and surveillance (MCS) levels; (4) level of sanctions (fines and non-monetary); (5) management regimes; (6) current international framework; and (7) economic and social conditions of fishermen.[140] Metuzals and others also identified a group of similar factors, with an additional point on corruption and the ease of acquiring false documentation.[141] Most of these drivers are related to the

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[140] OECD, *Why Fish Piracy Persists: The Economics of Illegal, Unreported and Unregulated Fishing* (OECD 2005) 37.

[141] Kaija Metuzals and others, 'One Fish, Two Fish, IUU, and No Fish: Unreported Fishing Worldwide' in Grafton Q. R. and others (eds), *Handbook of Marine Fisheries Conservation and Management* (OUP 2009) 166-167.

degree of management and the effort to enforce, and it seems that the ineffectiveness of management measures can be attributed to the managing entities lack of will, or the tendency of the fishing industry to maximize profits.[142] However, it is also evident that even with the knowledge of these contributing factors, IUU fishing still persists. Perhaps, this is where the unnaturalness resides. Perhaps, instead of continuing to rely on the current management paradigm that is based on simple and clear rules of ecosystem management[143] or operate on the assumption that resource management is in principle sustainable[144], we could seek to alter the concept of management, which is rooted in "the political and economic context of capitalist resource extraction"[145], and adequately address the problem of IUU fishing that is also rooted in the same capitalist context.

6. Summary

In this Chapter, I have attempted to draw a broad picture on where we stand in the task of eliminating IUU fishing. We are now standing before a background that is the teetering and increasingly volatile complex system of the Earth's marine environment in the Anthropocene, within that system, the nexus of the State (and the accompanying cluster of international instruments and organizations), the fishing industry, and the fish (also serving as the link

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[142] J. F. Caddy and J. C. Seijo, 'This is more Difficult than We Thought! The Responsibility of Scientists, Managers and Stakeholders to mitigate the Unsustainability of Marine Fisheries' (2005) 360 Phil. Trans. R. Soc. B 59, 61.

[143] Dean Bavington, *Managed Annihilation: An Unnatural History of the Newfoundland Cod Collapse* (UBC Press 2010) 117.

[144] J. F. Caddy and J. C. Seijo, 'This is more Difficult than We Thought! The Responsibility of Scientists, Managers and Stakeholders to mitigate the Unsustainability of Marine Fisheries' (2005) 360 Phil. Trans. R. Soc. B 59, 63.

[145] Paul Nadasdy, 'Adaptive Co-Management and the Gospel of Resilience' in Derek Armitage, Fikret Berkes, Nancy Doubleday (eds), *Adaptive Co-Management: Collaboration, Learning, and Multi-Level Governance* (UBC Press 2007) 223.

between mankind and nature) are struggling to reach an equilibrium where all may survive, IUU fishing is a blurry menace that chips away at the components at every possible chance, swallowing the fish, undermining the States' effort to regulate, destroying the livelihood of legitimate sectors of the industry, while sometimes, it is difficult to even distinguish the IUU fishing from the "legal fishing", and degrading the marine environment. This is where we stand, and in order to comprehend our own conditions and move forward, we would first need to look back at how we got here

Chapter 2 The Legal Concepts of Fisheries Regulation: From Classic to Contemporary

1. Introduction

> *"The development of general concepts like the freedom of the high seas or the common heritage principle reflects the spirit of a given historic period (Zeitgeist)."*[1]

> *"In a positive doctrinal sense, there is no international law of fisheries."*[2]

1.1 Returning to the Roots of the IUU Fishing Problem

Following the baseline and elements of the complex problem surrounding fisheries and the issue of IUU fishing, this chapter will turn to focus on the historical aspect of the issue. The evidence provided in the previous chapter not only presents a picture of the situation we are facing today, but also opens the gates to a deeper inquiry into the roots of the problem. Questions such as "How did we allow fish stocks to become so depleted?", "How did the fishing industry and their capabilities grow to such an extent that they now possess the ability to empty the ocean?", and "How did international law approach the problem of over exploitation before the recent introduction of the concept of IUU fishing?" should be contemplated and understood before an effective answer to the crisis and possible pathways to improve the current model can be discussed.

In order to answer the questions highlighted above, I will refer again to the words of Allott

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[1] Rüdiger Wolfrum, 'The Principle of the Common Heritage of Mankind' (1983) 43 Zeitschrift für ausländisches öffentliches Recht und Völkerrecht 312,312.

[2] Douglas M. Johnston, *The International Law of Fisheries: A Framework for Policy-Oriented Inquiries* (New Haven Press 1987) xv.

quoted in the previous chapter, specifically, the part where the collision of ideas and material reality create law, and the fact that such material reality itself is also a product of the interaction between human and nature.[3] This can also be connected to the opening quote of Judge Wolfrum and the concept of *Zeitgeist*, where I would also add to this observation, and point out that this not only applies to positive development of law, but is also true in the negative sense, in short, the decisions of not regulating or deregulating fisheries are also related to the understandings and assumptions of fish and fisheries of a certain time period. Under the two strands of thought above, international fisheries law can be seen as the product of the interaction between different ideas and constantly changing reality, which is at the same time rooted in the circumstances of specific historical periods. It should also be pointed out that the current approach of legislation is mostly one-dimensional, focusing on the relationship between fish stocks and the fishing industry. The historical context, on the other hand, is not always fully appreciated and factored into the equation. I would argue that the historical inquiry of his chapter is crucial and necessary if we intend to adequately address the problems of IUU fishing in the present.

Coincidentally, the approach of this chapter and this Thesis in general can also be supported by the actions of the United Nations (UN) in practice, as seen in the fact that the period of 2021 to 2030 has been designated as the "Decade of Ocean Science for Sustainable Development"[4] and the "Decade on Ecosystem Restoration".[5] The issue of fisheries and IUU fishing are central in both of these proclamations, and while the topic of ecosystem restoration will be discussed further in chapter 6, the topic of ocean science is obviously interlinked with this chapter. In the Intergovernmental Oceanographic Commission of UNESCO (IOC) proposal that led to the designation of the decade, it was stated that such a

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[3] Philip Allott, 'Mare Nostrum: A New International Law of the Sea' (1992) 86(4) AJIL 764, 765.

[4] UNGA Res 72/73 (5 December 2017) UN Doc A/RES/72/73.

[5] UNGA Res 73/284 (1 March 2019) UN Doc A/RES/73/284.

decade could provide the basis for science-based solutions and the systematic transformation of such solutions into informed policies and decisions.[6] In November 2019, the same topic was further developed in a conference held by the FAO, using the term "science-policy nexus", with a goal to identify pathways to enhance the science and policy interplay in fisheries production, management and trade on the basis of sustainability principles.[7] It was observed that this conference attempted to replace the often-pessimistic discourse regarding marine fisheries with a "positive narrative" for capture fisheries in the 21st century. Such a narrative should be built on a science-based vision that acknowledged the multi-faceted contributions of the fishing sector (e.g. human nutrition, environmental stewardship, gender equality, and economic prosperity, etc.) as well as allowing the sector to move towards sustainability in light of new challenges.[8] A certain emphasis was also placed on the issue of fishing subsidies that contributed to IUU fishing, however, except for an appeal that a concrete deal should be made under the negotiations of the World Trade Organization (WTO), no new insight could be gained.[9]

1.2 A Focus on the Science-Policy Nexus of Fishing

I would thus point out at this point that despite the effort of dedicating a whole decade to ocean science, the signs of the "unnaturalness" mentioned in the previous chapter is still

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[6] IOC, *The Ocean We Need for the Future We Want: Proposal for an International Decade of Ocean Science for Sustainable Development* (IOC/BRO/2017/3 UNESCO-IOC 2017).

[7] FAO, *International Symposium on Fisheries Sustainability: Strengthening the Science Policy Nexus Rome, 18-21 November 2019* (FAO 2019) 2.

[8] Jerneja Penca, 'Towards constructing a positive narrative for fisheries: Report from International Symposium on Fisheries Sustainability: Strengthening the Science-Policy Nexus' (2020) 21 Fish and Fisheries 467, 467.

[9] Jerneja Penca, 'Towards constructing a positive narrative for fisheries: Report from International Symposium on Fisheries Sustainability: Strengthening the Science-Policy Nexus' (2020) 21 Fish and Fisheries 467, 468.

showing, and solutions for addressing the IUU fishing problem is still extremely limited. For this reason, I would argue that we need to slightly expand the concept of "science-policy nexus" in both components, in order to unlock the full potential of this interactive approach.

2. Understanding the Science-Policy Nexus

2.1 Identifying the Limits of Science and Technology

Starting off with the science half of the nexus, it is straightforward and crucial that we acknowledge and commit to the fact that there are limits to science and technological advancements, and that scientific methods only cannot produce effective legal rules. This fact can be demonstrated through the three aspects below.

2.1.1 The Limits of Human Perception

The limits of science are mainly due to the limits of the perceptions of human beings, as a species that evolved and continue to reside mainly on land, our physiological mechanisms and senses are ill suited for acquiring knowledge at sea, especially when it comes to the fish species that live below the sea surface. This is opposite from the situation on land where we can observe the consequences of our actions on ecosystems and species, and subsequently form an understanding of the environment that serve as a basis for the social, economic, and legal processes of environmental protection.[10] In fact, our knowledge of the biodiversity of the sea is so minimal that we may have failed to comprehend the massive scale of extinction

[10] Elliott Norse and Larry Crowder, 'Why *Marine* Conservation Biology?' in Elliott Norse and Larry Crowder (eds), *Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity* (Island Press 2005) 1.

that is occurring in multiple areas of the ocean, which is a direct result of human activity.[11] The lack of knowledge can also be proven by the fact that "*we have better maps of the surface of Mars and the Moon than we do the bottom of the ocean*".[12] As of June 2020, only 19% of the worlds ocean floor is mapped to modern standards, a significant increase from a mere 6% in 2017, but still leaving an area twice the size of Mars for future survey, according to the Nippon Foundation-GEBCO Seabed 2030 Project that is responsible for the mapping process.[13]

So far, it is indisputable that we will always face a certain degree of uncertainty when facing fisheries or ocean related issues. However, in light of recent scientific advancement, there are some aspects that we can now observe more clearly than others. Most of these aspects fall under the category of Monitoring, Control and Surveillance (MCS) methods, which are most effective when targeted at the fishing vessels operating on the ocean surface. MCS methods now include a large arsenal of technological instruments and analytical tools,[14] with even more new ways of information gathering being developed every day.[15]

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[11] Ransom Myers and Andrea Ottensmeyer, 'Extinction Risk in Marine Species' in Elliott Norse and Larry Crowder (eds), *Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity* (Island Press 2005) 58-59. (attributing causes of extinction to bycatch, destructive fishing practices, pollution, and climate change)

[12] Dan Stillman, Interview with Dr Gene Feldman, 'Oceans: The Great Unknown' (2009) <https://www.nasa.gov/audience/forstudents/5-8/features/oceans-the-great-unknown-58.html> accessed 25 January 2021.

[13] Jonathan Amos, 'One-fifth of Earth's ocean floor is now mapped' BBC (20 June 2020) <https://www.bbc.com/news/science-environment-53119686> accessed 25 January 2021.

[14] Klaudija Cremers, Glen Wright and Julien Rochette, *Strengthening Monitoring, Control and Surveillance in Areas Beyond National Jurisdiction* (STRONG High Seas Project 2020) 17-22. (Providing a list of 16 tools for MCS, ranging for well-established methods such as vessel monitoring systems (VMS) and onboard observers, to novel technology such as satellite sensing and drones.)

[15] For Example: Henri Weimerskirch and others, 'Ocean sentinel albatrosses locate illegal vessels and provide the first estimate of the extent of nondeclared fishing' (2020) 117(6) PNAS 3006. (Using 169 albatrosses carrying GPS sensors that could detect the radar signals of fishing vessels, the research was able to track approximately 353 vessels operating in the French Crozet-Kerguelen EEZ, revealing that 28.2% of these

Corresponding to the advance of technology, a wave of optimistic opinion has arisen, placing tremendous faith on the usage of advanced MCS methods and technology in fisheries.[16] The celebration and promotion of big data and artificial intelligence not only exists in fishery specific contexts, but is also apparent in discussions related to general environmental protection.[17] Two new research published in 2020 can serve as prime examples of this movement,[18] and they indeed revealed a great deal of previously unknown IUU fishing

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vessels had switched off their Automatic identification system (AIS), which is often associated with illegal fishing activity.)

[16] Tony Long, 'For Better or Worse, Technology is Taming the High Seas' (*Global Fishing Watch*, 4 June 2019) <https://globalfishingwatch.org/impacts/technology-taming-the-high-seas/>; Husan Chowdhury, 'Drones and Self-driving Boats could Stop Illegal Fishing in Britain's Seas Post-Brexit' *The Telegraph* (19 August 2019) <https://www.telegraph.co.uk/technology/2019/08/17/satellites-drones-autonomous-boats-tech-used-combat-illegal/>; Melina Kourantidou, 'Artificial Intelligence makes Fishing more Sustainable by Tracking Illegal Activity' (*The Conversation* 11 July 2019) <https://theconversation.com/artificial-intelligence-makes-fishing-more-sustainable-by-tracking-illegal-activity-115883>; Anthony Uberti, 'Tackling Unregulated, Unreported Fishing' (Ecologist 26 June 2019) <https://theecologist.org/2019/jun/26/tackling-unregulated-unreported-fishing>; World Economic Forum, 'Within Sight: An End to Illegal Fishing in the Pacific by 2020' (5 June 2019) <https://www.weforum.org/press/2019/06/within-sight-an-end-to-illegal-fishing-in-the-pacific-by-2020>; Jim Leape, 'We have the Tools to Tackle Illegal Fishing. It's Time to Use Them' (*World Economic Forum* 18 January 2019) <https://www.weforum.org/agenda/2019/01/we-have-the-tools-to-tackle-illegal-fishing-lets-use-them/>; Aki Baihaki, 'Combatting Illegal Fishing on the High Seas' (*Walton Family Foundation* 1 November 2018) <https://www.waltonfamilyfoundation.org/stories/environment/combating-illegal-fishing-on-the-high-seas> all websites accessed 25 August 2019.

[17] Clive Thompson, 'We Need a Data-Rich Picture of What's Killing the Planet' (*Wired* 24 June 2019) <https://www.wired.com/story/we-need-data-rich-picture-climate-change/> accessed 25 August 2019 (mentioning the use of satellites to track fishing vessels globally).

[18] Jaeyoon Park and others, 'Illuminating Dark Fishing Fleets in North Korea' (2020) 6(30) Science Advances eabb1197 (Combining four satellite technologies, including AIS, Satellite synthetic aperture radar (SAR), Visible Infrared Imaging Radiometer Suite (VIIRS), and high-resolution optical imagery, the research was able to reveal 900 fishing vessels of Chinese origin that were fishing in North Korean waters from 2017-2019, in violation with UN sanctions.); Gavin McDonald and others, 'Satellites can reveal global extent of forced labor in the world's fishing fleet' (2021) 118(3) PNAS e2016238117 (With a combination of satellite data, machine learning, and expertise of human rights experts, the research was able to analyze a database of 16,000 vessels and distinguish the behavioral patterns of vessels that were at high risk of forced labor from the low risk vessels.).

activity, which will be a central part of the discussion in chapter 4. However, while these developments show that we have become increasingly skilled at tracking "human" activity at sea, it should not be ignored that two further aspects continue to elude our observation, specifically, the status of the fish stocks, and the actual impact of fisheries, as discussed individually below.

2.1.2 The Shifting Baseline Syndrome

The concept of shifting baseline syndrome was first coined by Pauly, in an attempt to describe the unreliable and sometimes problematic underlying nature of the current methods of estimating targets for management, such as MSY, annual total allowable catch (TAC), or individual transferable quotas (ITQ).[19] The syndrome occurs because each generation of fisheries scientist accept the stock size and species composition that they observe at the start of their career as the reference point by which they measure and evaluate change. When the fish stocks decline and a new generation of scientists enter the field, they will accept that declined state as their own baseline, such a downward spiral means that we gradually accommodate the disappearance of species as normal, and without an accurate reference point, we will also be unable to determine the damage or devise effective conservation measures.[20] Subsequent studies also found that fishermen were equally affected by the syndrome, as older fishermen were able to identify significantly more species and fishing sites that were once productive but were now depleted.[21] On an more emotional note,

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[19] Daniel Pauly, 'Anecdotes and the Shifting Baseline Syndrome of Fisheries' (1995) 10(10) TREE 430, 430.

[20] Daniel Pauly, 'Anecdotes and the Shifting Baseline Syndrome of Fisheries' (1995) 10(10) TREE 430, 430.

[21] Jeremy Jackson and Jennifer Jaquat, 'The Shifting Baseline Syndrome: Perception, Deception, and the Future of Our Oceans' in Villy Christensen and Jay Maclean (eds), *Ecosystem Approaches to Fisheries: A Global Perspective* (CUP 2011) 129. (A difference of four times more fish species and five times more fishing sites between older and younger Mexican fishermen.)

Roberts laments that if we were to really feel the cumulative burden of loss and damage over millennia, it would be unbearable. The shifting baseline syndrome shields us from that revelation because one cannot regret the loss of something that one never knew existed, but that is also why the syndrome is dangerous, because it also lowers our ambition to reverse the impact of our own actions and allow the damaging activities to persist.[22]

In the context of fisheries conservation, the concept is actually considered to be a "truly fundamental and revolutionary idea" that holds responsible for past destruction and for shaping the future. Most relevant to this chapter, it is a gateway which pushes for an interdisciplinary approach that utilizes a wide variety of data to estimate past changes, and to understand those changes in a social, historical, and scientific context.[23] Around the same time when Pauly created the concept, some marine scientists have expressed extremely pessimistic views on the effectiveness of fish stock assessments and the use of such data as the basis of conservation measures.[24] When we factor in the element of IUU fishing, the pessimistic views on stock assessments does seem warranted, which is why the IUU fishing problem requires the input of both science and law to succeed.

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[22] Callum Roberts, 'Shifting Baselines' (2020) 153 Granta 13, 20-21.

[23] Jeremy Jackson and Karen Alexander, 'Introduction: The Importance of Shifting Baselines' in Jeremy Jackson, Karen Alexander and Enric Sala (eds), *Shifting Baselines: The Past and the Future of Ocean Fisheries* (Island Press 2011) 3.

[24] Carl Walters, 'Designing Fisheries Management Systems that do not Depend upon Accurate Stock Assessment' in Tony Pitcher, Paul Hart and Daniel Pauly (eds), *Reinventing Fisheries Management* (Fish and Fisheries Series Vol. 22, Kluwer Academic 1998) 284-285 (pointing out that most stock assessment systems have failed because fish simply cannot be directly counted, while indirect methods often result in distorted data, and the cost of developing and implementing better survey methods often outweigh the value of the fisheries subject to assessment); Donald Ludwig, Ray Hilborn and Carl Walters, 'Uncertainty, Resource Exploitation, and Conservation: Lessons from History' (1993) 260 Science 17, 36 (Pointing out that scientific certainty does not guarantee the prevention of overexploitation and destruction of resources, and while scientists can identify the problem, we should not rely on them to remedy the problem. Furthermore, claims of sustainability should not be trusted.).

2.1.3 The Controversy of Trawling

Zooming in on this certain fishing method, the issue of trawling demonstrates the inability of science in determining the impact of fishing on the fish and the environment, which has been ongoing for centuries. Debates concerning fishing methods and their environmental impact is present in perhaps in most, if not all, of the individual methods, for example, high seas drift net fishing was one of the earlier cases where a fishing method was considered damaging and came under international scrutiny, which was concluded with a series of UN Resolutions that led to the call for a moratorium on large-scale drift net fishing,[25] despite the fact that such restrictions were considered by some to be inconsistent with customary international law and practice at that time.[26] From a legal perspective, the issue of high seas driftnets is basically concluded, what's left is the implementation and enforcement of the moratorium, which essentially condemns the fishing method as destructive and thus illegal. Trawling, on the other hand, is still locked within polarizing opinions and arguments, and has yet to receive its final verdict of its legitimacy. This gives us a chance to examine the actual process of developing scientific knowledge and how that influences policy or law making.

The first historic reference of the trawling controversy can be precisely dated to 1376 when Edward III King of England received a complaint asking for the banning of a new and

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[25] Including UNGA Res 44/225 (22 December 1989) UN Doc A/RES/44/225; UNGA Res 45/197 (21 December 1990) UN Doc A/RES/45/197; and UNGA Res 46/215 (20 December 1991) UN Doc A/RES/46/215 para. 3(c) Ensure that a global moratorium on all large-scale pelagic drift-net fishing is fully implementing on the high seas of the world's oceans and seas, including enclosed seas and semi-enclosed seas, by 31 December 1992.

[26] James Carr and Matthew Gianni, 'High Seas Fisheries, Large-Scale Drift Nets, and the Law of the Sea' in Jon Van Dyke, Durwood Zaelke and Grant Hewison (eds), *Freedom for the Seas in the 21st Century: Ocean Governance and Environmental Harmony* (Island Press 1993) 282.

destructive fishing gear called the “wondyrechaun”, with clear descriptions on how the dredging instrument destroyed the seabed while scooped up all the fish regardless of size and species, complaint led to an investigation and some loose restrictions on the usage of the instrument with no legal force.[27] After this first incident, similar complaints were raised sporadically throughout the centuries as trawling methods become more advanced and proliferated, such development is laid out in great detail also by Roberts.[28] Fast forwarding to 1863, when yet another Royal Commission was appointed to address complaints against trawling, this time including a young Thomas Huxley. After the investigation, the Commission advised to repeal all Acts of Parliament that regulate or restrict the modes of fishing in the open seas, in order to permit unrestricted freedom of fishing.[29] This led to the result of more than fifty Acts of Parliament being repealed, allowing fishing to take place whenever, wherever, and with whatever methods as the industry pleased.[30]

One specific point that was accepted by the commission in regard to the impact of trawling, was a testimony of a witness by the name of James Page, where he testified that the industry believed that “the trawl acts in the same way as a plough on land. It is just like the farmers tilling their ground. The more we turn it over the greater of food there is, and the greater quantity of fish we catch.[31] This presumption and metaphor was actually revisited in a research in 2012, and it was found that trawling did in fact resemble the ploughing of

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[27] Callum Roberts, *The Unnatural History of the Sea: The Past and Future of Humanity and Fishing* (Gaia 2007) 136-137.

[28] Callum Roberts, *The Unnatural History of the Sea: The Past and Future of Humanity and Fishing* (Gaia 2007) 138-149.

[29] *Report of the Commissioners Appointed to Inquire into the Sea Fisheries of the United Kingdom* (Vol. 1, Her Majesty’s Stationary Office 1866) cvi.

[30] Callum Roberts, *The Unnatural History of the Sea: The Past and Future of Humanity and Fishing* (Gaia 2007) 149.

[31] *Report of the Commissioners Appointed to Inquire into the Sea Fisheries of the United Kingdom* (Vol. 1, Her Majesty’s Stationary Office 1866) xxxvii-xxxviii.

farmland, but not in the positive sense. Instead, the high frequency of industrial trawling contributes to the erosion, transport, and deposition of sediment which would erase the original complex features, resulting in a smooth seabed similar to land subjected to agricultural ploughing, which can affect the functioning of the ecosystem.[32]

Other accounts on the impact of trawling are less scientific. Clover, for instance, dedicated the opening page of his book to paint a colorful picture of two immense all-terrain vehicles with a net strung between them while driving across a plain scooping up all sorts of animals along the way, like a "Mad Max movie"[33] The analogy was also picked up by Urbina when he contemplated the drastic actions (dropping boulders on the seabed) that Greenpeace had taken to try and halt the trawlers in the North Sea.[34]

This story presents the third limit of science, where even with ample evidence of damage, problematic activities have not been effectively halted. In the case of high seas drift nets, it was pointed out that the attention it attracted was not derived from scientific knowledge, but rather as a result of emotional and political considerations.[35] In the case of trawling, it seems like the complete opposite, where economic efficiency and political considerations constantly outweigh the scientific evidence. This again highlights the necessity and importance of considering the problem of IUU fishing within the nexus, because science alone is not enough.

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[32] Pere Puig and others, 'Ploughing the Deep Sea Floor' (2012) 489 Nature 286, 288-289.

[33] Charles Clover, *The End of The Line: How Overfishing is Changing the World and What We Eat* (Ebury 2004) 1.

[34] Ian Urbina, *The Outlaw Ocean: Crime and Survival in the Last Frontier* (The Bodley Head 2019) 212-213.

[35] Kazuo Sumi, 'The International Legal Issues Concerning the Use of Drift Nets with Special Emphasis on Japanese Practices and Responses' in Jon Van Dyke, Durwood Zaelke and Grant Hewison (eds), *Freedom for the Seas in the 21st Century: Ocean Governance and Environmental Harmony* (Island Press 1993) 305.

2.2 Understanding International Fisheries Regimes in Historical Context

2.2.1 The Bias of International Law

Turning to the policy/legal side of the nexus, the law possesses bias in the same sense that science has limits, as Koskenniemi points out: "*Behind every notion of universal international law there is always some particular view, expressed by a particular actor in some particular situation.*"[36] Which is why we always need to clarify be wary of the viewpoint of a certain piece of legislation. For the purpose of this thesis, several aspects of international law can be pointed out the demonstrate the fact that the law is in fact biased towards humans, the industry, or the State, instead of the objects (fish, biodiversity, marine environment etc.) that should be protected.

As a start, one could consider the principle that "the land dominates the sea", as expressed by the International Court of Justice (ICJ) in the North Sea Continental Shelf Judgement.[37] Under such a principle, the key to gaining access to marine resources, such as fish, rests first and foremost on the existence of land territory with a coast line.[38] And while this principle may be seen from a legal perspective as having positive influence on the development on the law of the sea through interaction and balancing with its counterpart (freedom of the high seas),[39] there is an inherent danger that under this line of thought, the issues concerning the exploitation, management, and scientific understanding of fish resources will be

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[36] Martti Koskenniemmi, *The Politics of International Law* (Hart 2011) 221.

[37] *North Sea Continental Shelf (Federal Republic of Germany/Netherlands)* (Merits) [1969] Rep 3 Para 96.

[38] Irini Papanicolopulu, 'The Land Dominates the Sea (Dominates the Land Dominates the Sea)' (2018) 47 QIL 39, 39-40.

[39] Bing Bing Jia, 'The Principle of the Land over the Sea: A Historical Perspective on the Adaptability of the Law of the Sea to New Challenges' (2014) 57 German Yearbook of International Law 63, 92.

foreshadowed by territorial disputes.

Secondly, there is the general notion that fish or marine species are in a category of its own, and thus deserves different treatment under the eyes of the law. The most obvious instance of this situation can be seen in textbooks, where a majority discusses fisheries under the heading of "marine resource management" or simply "fishing", instead of "marine species protection", and the heading "marine environmental protection" is mostly dedicated to the issue of pollution.[40] There is also a tendency for governments to turn a blind eye to IUU fishing, most commonly shown as reluctance to establish an inspection regime, such as a coast guard, or a dedicated court system to rule over fishing violations, due to the reasoning that "fish don't vote".[41]

Lastly, there exists a disparity between the presence of legal instruments and the actual effects of regulation. Most prominently shown by the fact that for fishery experts that are familiar with the business and science, fishing is considered to be one of the most heavily regulated industries,[42] but for the viewpoint of a neutral observer, the ocean is a dystopian place where the rule of law is fluid if it can be found at all.[43]

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[40] Alexander Proelss and Katherine Houghton, 'Protecting Marine Species' in Rosemary Rayfuse (ed), *Research Handbook on International Marine Environmental Law* (Elgar 2015) 230.

[41] Admiral James Stavridis, *Sea Power: The History and Geopolitics of the World's Oceans* (Penguin Books 2018) 289 (While the quote was originally related to the decision to stop naming U.S. submarines after fish, Admiral Stavridis points out that unless there is a way to generate political pressure, IUU fishing will unlikely be stopped).

[42] Ray Hilborn and Ulrike Hilborn, *Overfishing: What Everyone Needs to Know* (OUP 2012) 94.

[43] Ian Urbina, *The Outlaw Ocean: Crime and Survival in the Last Frontier* (The Bodley Head 2019) xi. (In comparison to the solid rule of law on land where it is "*bolstered and clarified by centuries of careful wordsmithing, hard fought jurisdictional lines, and robust enforcement regimes.*")

2.2.2 Turning to History in International Fisheries Law

Considering the nuances of the science-policy nexus highlighted above, it is necessary to include a historical analysis for a better understanding of the IUU fishing issue. Obviously, the turn to history in international law is not a new concept, being thoroughly discussed and applied in various different contexts and topics, and it is beyond the scope of this thesis to delve too deep into that rabbit hole. I would instead refer to two points of contribution that is most relevant to achieving the purpose of this thesis.

From a theoretical standpoint, the history of international legal concepts can assist us in reflecting on our own understandings, assumptions, and beliefs; aid us in realizing how those concepts emerged from past political choices, and also offer a chance to be search for alternative possibilities.[44] Furthermore, it is also an essential approach if we are to properly understand the five aspects of significance of international law as a legal system, as elaborated by Allott,[45] which also coincides with the structure workings of the science-policy nexus discussed above.

The historical inquiry of fisheries law and relevant legal concepts also has practical and personal implications, considering the opening quote from Johnston and the observation of Serdy, there exists a watershed moment when fisheries regulations evolved into positive law, marked by the UNCLOS and subsequent international instruments that lay out the management and conservation framework we have today.[46] Drawing again from the wisdom of Allott, I would like to think that the historical inquiry of this thesis as following his

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[44] Janne Nijman, *Seeking Change by Doing History* (University of Amsterdam 2017) 10-11.

[45] Philip Allott, 'International Law and the Idea of History' (1999) 1(1) Journal of the History of International Law 1, 1-3 (The five aspects being: international law legal system's particular relationship to the past, its intrinsic and extrinsic histories, and the internal and external perspectives of the idea itself.).

[46] Andrew Serdy, *The New Entrants Problem in International Fisheries Law* (CUP 2016) 1.

footsteps, with a similar intention as the motto “This cannot be how the world was meant to be.” Which he presented at the conference that marked his retirement.[47] As a student of law, I entered the field when the UNCLOS was already more than two decades old, and it was effectively the baseline and foundation for any fisheries related discussions, a reality of the world that was presented to and accepted by us. but it also became clear fairly soon that all the degradation of marine environment we face today have already been set in motion by events long before our time, and there is only so many times one can reiterate the same treaty text hoping for a new angle that can bring forth change. For me, the science-policy nexus discussed above is the present, through which we will be able to review the past, and in turn, bring about change in the future.

2.2.3 Pinpointing the Key Legal Concepts of Fisheries Regulation

The following sections will look into the legal concepts that are closely related to fisheries and which have influenced the shaping of relevant regulations. Instead of following the path of a certain theory or legal regime, this chapter will set the focal point on fisheries, and draw in the various related elements and opinions. As a preliminary observation, the stages of fishery regulation development throughout the ages have resulted in layers of interrelated elements, including broad concepts, specific rules, and detailed measures. These can and should be pieced together in a “fishery specific” sense, and it should be made clear that the concepts included in this chapter are presented entirely in the lens of fisheries and do not include other human activities in or on the seas.

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[47] Review Essay Symposium: Philip Allott’s Eunomia and The Health of Nations Thinking Another World: “This Cannot be How the World Was Meant to Be” An event to mark the retirement of Professor Philip Allott, Professor of International Public Law, University of Cambridge, 28-29 May 2004 (2005) 16(2) EJIL 255, 255-260.

For the Purpose of clarifying the development of general fishery regulations, the origins of the current IUU problem, and to reveal the possible alternative approaches that may help in addressing it, this conceptual account will highlight three main topics that would contribute to the discussion: (1) The two dominant concepts that laid down the basis for fishery regulation, namely, the freedom of the high seas and the tragedy of the commons; (2) the post-world war II expansion of coastal state jurisdiction; and (3) the emergence of international environmental law.

The two dominant concepts mentioned above could be individually linked to individual subsequent developments, and thus will be arranged in the same sections in order to better present the entire picture, as well as respective influences each element provides. It should also be noted that this chapter will not be providing an exhaustive review of the regimes, Instead, the focus will be placed on the aspects most associated with fisheries and the IUU problem on the conceptual level. Thus, each of the topics discussed below represents a strand of legal development and thinking that will eventually converge at the point of the current crisis that is IUU fishing. By looking back into certain parts of history when the regulations were not yet unified, the competing concepts and approaches could also serves as a doorway for the cooperation, integration, and harmonization of the different regimes that exist today.

3. The Traditional Approach: The Freedom of the Seas

3.1 Hugo Grotius and Mare Liberum

As a cornerstone of the modern law of the sea, it is natural to start the discussion of fisheries regulations with Hugo Grotius and his views expressed in the Mare Liberum. There are two passages in Mare Liberum where Hugo Grotius refers to fisheries, which have been quoted

in numerous works and writings. The first one is about the concept of "public", which is considered by Grotius to be "the common property of all, and the private property of none" under the laws of the law of nations.[48] He then further states:

> *"The air belongs to this class of things for two reasons. First, it is not susceptible of occupation; and the second its common use is destined for all men. For the same reasons the sea is common to all, because it is so limitless that it cannot become a possession of any one, and because it is adapted for the use of all, whether we consider it from the point of view of navigation or of fisheries."*[49]

In another passage, fishing at sea is again mentioned within the context of a comparison between the sea and land or rivers. Two points were made here: Firstly, *"in the case of the sea the same primitive right of nations regarding fisheries and navigation which existed in the earliest times, still exists undiminished and always will, and because that right was never separated from the community right of all mankind, and attached to any person or group or persons."*[50] Secondly, *"for every one admits that if a great many persons hunt on the land or fish in a river, the forest is easily exhausted of wild animals and the river of fish, but such contingency is impossible in the case of the sea."*[51]

From the writing of Grotius, one could easily summarize that fisheries are inexhaustible and

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[48] Hugo Grotius, *The Freedom of the Seas or the Right which Belongs to the Dutch to Take Part in the East Indian Trade* (Ralph Van Deman Magofin tr, OUP 1916) 28.

[49] Hugo Grotius, *The Freedom of the Seas or the Right which Belongs to the Dutch to Take Part in the East Indian Trade* (Ralph Van Deman Magofin tr, OUP 1916) 28.

[50] Hugo Grotius, *The Freedom of the Seas or the Right which Belongs to the Dutch to Take Part in the East Indian Trade* (Ralph Van Deman Magofin tr, OUP 1916) 57.

[51] Hugo Grotius, *The Freedom of the Seas or the Right which Belongs to the Dutch to Take Part in the East Indian Trade* (Ralph Van Deman Magofin tr, OUP 1916) 57.

should be enjoyed by all without restriction. But it should be acknowledged that his views on fisheries were not as adamantine as it is later believed, due to the fact that: (i) The usage or regulation of fisheries was not the main point Grotius was trying to make, it was just an example of the freedom he advocated[52], and (ii) there were plenty of responding opinions that opposed his argument, which resulted in the "Battle of the Books" that carried on for most of the 17th century[53]. However, as Grotius emerged victorious in the Battle of the Books, the regime he proposed was accepted as the paradigm during the 18th and 19th centuries.[54]

3.2 Anti-Legislation Attitudes towards Fisheries

When translated into legislation and policy, the Grotian approach to fisheries is clear and brutal: there are no, nor should there be any restrictions on fishing activities. Since the ocean was considered inexhaustible, mankind could harvest and exploit all the resources without any constraint and consequence. This logic is possibly best presented by the President of the Royal Society, Thomas Huxley. He and other prominent marine scientists at the time were responsible for the repealing of regulations that were intended to protect various species.[55] Later on at the Inaugural Address of the Fisheries Exhibition, London (1883), he stated:

> *"I believe, then, that the cod fishery, the herring fishery, the pilchard fishery, the mackerel fishery, and probably all the great sea fisheries, are inexhaustible; that is to say, that*

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[52] The first passage is located in chapter V and the second in chapter VII, which are both part of the argument on the freedom of navigation in the Indian Ocean. David J. Bederman, 'The Sea' in Bardo Fassbender & Anne Peters (eds), *The Oxford Handbook of the History of International Law* (OUP 2012) 367.

[53] David J. Bederman, 'The Sea' in Bardo Fassbender & Anne Peters (eds), *The Oxford Handbook of the History of International Law* (OUP 2012) 370.

[54] Tullio Treves, 'Historical Development of the Law of the Sea' in Donald Rothwell et. al. (eds), *The Oxford Handbook of the Law of the Sea* (OUP 2015) 5.

[55] D. G. Webster, *Beyond the Tragedy in Global Fisheries* (MIT Press 2015) 239.

nothing we do seriously affects the number of the fish. And any attempt to regulate these fisheries seems consequently, from the nature of the case, to be useless."[56]

To be fair, Huxley did distinguish between the so called "great fisheries" and some more confined fisheries such as salmon and oysters that he thought were possible to exhaust.[57] But his opinion on the legislation of fisheries which may be supported by fishery decision makers of his time may seem terrifying to their modern counterparts, also expressed in the Inaugural Address:

Now every legislative restriction means the creation of a new offence, In the case of fishery, it means that a simple man of the people, earning a scanty livelihood by hard toil, shall be liable to fine or imprisonment for doing that which he and his fathers before have, up to that time, been free to do. If the general interest clearly requires that this burden be put upon the fisherman—well and good. But, if it does not—if, indeed there is any doubt about the matter—I think that the man who has made the unnecessary law deserves a heavier punishment than the man who breaks it.[58]

The attitude towards fisheries regulation of Huxley is obviously obsolete under today's standards, and it may well have been obsolete at the time when he made this statement, since there exists clear evidence that some fisheries have already began to decline drastically under the pressure of fishing.[59] Such an absolute position towards fisheries regulations may even

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[56] International Fisheries Exhibition, *Inaugural Meeting of the Fishery Congress: Address by Professor Huxley, F. R. S.* (William Clowes and Sons 1883) 16.

[57] International Fisheries Exhibition, *Inaugural Meeting of the Fishery Congress: Address by Professor Huxley, F. R. S.* (William Clowes and Sons 1883) 16.

[58] International Fisheries Exhibition, *Inaugural Meeting of the Fishery Congress: Address by Professor Huxley, F. R. S.* (William Clowes and Sons 1883) 18-19.

[59] George Brown Goode, *The Fisheries and Fishery Industries of the United States: Section V History and*

be interpreted as self-contradictory, if we consider the more cautious attitude towards nature he expressed in his earlier work.[60]

This is where the attitude towards regulation of fisheries stands at the end of the 19th century, and as we now know, even though the concept and practice of the freedom of fishing in the seas has caused serious harm to the fish stocks, it still endured the changes and codification attempts in the 20th century, and still plays a role in high seas fishery activities.[61]

3.3 Continued Influence in the Law of the Sea

Within the context of the UNCLOS, the freedom of the seas is also generally accepted, with some changes to the context. While Grotius and his works proposed an all-encompassing "freedom of the seas", the scope of the same freedom is limited to the "high seas" in the UNCLOS. As laid out in Article 87 of the UNCLOS, the freedom of fishing is listed as one of the six freedoms of the high seas, subject to a condition that such freedom is exercised with due regard to other states and their exercise of freedoms.[62] This mode of legislation,

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Methods of the Fisheries Volume I (Government Printing Office 1887) 5. (Recording that since the start of the fisheries in 1830, the halibut in the Massachusetts Bay area was in such abundance that they were considered a nuisance by cod fishermen, had been basically exterminated in the Bay area.)

[60] Thomas Huxley, 'A Liberal Education; And Where to Find it (An Address to the South London Working Men's College)' in Thomas Huxley (ed) *Science and Education Essays* (Collected Essays Vol. 3, Macmillan and CO. 1895) 81-83. (Using chess as a metaphor with the chessboard as the world and the pieces as the phenomenon of the universe, Huxley pointed out the importance of learning the names and moves of the pieces, while also acknowledging that the "player" that we are playing against does not overlook mistakes or tolerate ignorance.)

[61] Ellen Hey, 'Conceptualizing Global Natural Resources: Global Public Goods Theory and the International Legal Concepts' in Holger P. Hestermeyer and others (eds), *Coexistence, Cooperation and Solidarity: Liber Amicorum Rüdiger Wolfrum* (Vol. 1 Martinus Nijhoff 2012) 888.

[62] Article 87 (Freedom of the high seas):

1. The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law. It comprises, inter

however, has proven to be problematic. On the one hand, lies the centuries old belief and practice of freedom to fish on the sea, which was easily accepted and followed by the fishing industry and politicians alike; on the other hand lies the abstract restriction of "due regard", which was not clarified until very recently in the ITLOS Advisory Opinion[63] and the South China Sea Arbitration[64] to include due diligence obligations of the flag state to ensure the fishing vessels flying its flag do not conduct any illegal fishing activity in any parts of the sea[65]. This essentially meant that for the couple of decades after the conclusion of the UNCLOS and before the manifestation of the IUU problem, there were no real obligation or motivation of flag states to establish or enforce strict rules on their fishing fleets, nor was there any real consequence. In light of recent developments, this situation has started to

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alia, both for coastal and land-locked States:

(a) freedom of navigation;

(b) freedom of overflight;

(c) freedom to lay submarine cables and pipelines, subject to Part VI;

(d) freedom to construct artificial islands and other installations permitted under international law, subject to Part VI;

(e) freedom of fishing, subject to the conditions laid down in section 2;

(f) freedom of scientific research, subject to Parts VI and XIII.

2. These freedoms shall be exercised by all States with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under this Convention with respect to activities in the Area.

[63] Request for an Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC Advisory Opinion), Advisory Opinion of Apr. 2, 2015, ITLOS, <https://www.itlos.org/cases/list-of-cases/case-no-21/> accessed 15 February 2021.

[64] The South China Sea Arbitration (The Republic of Philippines v. The People's Republic of China), Award of 12 July 2016, PCA, <https://www.pcacases.com/web/sendAttach/2086> accessed 15 February 2021.

[65] Tim Stephens, 'ITLOS Adivisory Opinion: Coastal and Flag State Duties to Ensure Sustainable Fisheries Management' (2015) 19(8) ASIL Insight <https://www.asil.org/insights/volume/19/issue/8/itlos-advisory-opinion-coastal-and-flag-state-duties-ensure> accessed 28 March 2018; Julia Gaunce, 'The South China Sea Award and the duty of "due regard" under the United Nations Law of the Sea Convention' (The JCLOS Blog, 9 September 2016) <http://site.uit.no/jclos/2016/09/09/the-south-china-sea-award-and-the-duty-of-due-regard-under-the-united-nations-law-of-the-sea-convention/> accessed 28 March 2018.

change, these changes will be further discussed in the respective chapters 4.

4. Enclosing the Seas: The Tragedy of the Commons

4.1 Post-World War II Developments

After the examination of the fundamental concept of the freedom of the seas, this section will turn to the development of the law of the sea related to the opposing concept, which is the enclosing of the seas and the establishment of the maritime zones in which coastal states enjoy different levels of sovereignty and jurisdiction. Specifically, the relevant period starts at the end of the Second World War and reaches a decisive time point in 1982 when the UNCLOS was adopted. This period can be described as the most tumultuous since the 'Grotian moment' for Mare Liberum in the early 1600s.[66] For fisheries, the turmoil is not only in a legal sense, but also in practice. The war had a great impact on commercial fishing, but at the same time allowed many of the major fish stocks to replenish.[67] Immediately after the war, the manpower, technology, and heavy state subsidies would boost the post-war fishing industry into an age of "Great Acceleration" that would last until 1975.[68] Coincidentally, it was also immediately after the war when nation states began to seek to

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[66] David J. Bederman, 'The Sea' in Bardo Fassbender and Anne Peters (eds), *The Oxford Handbook of the History of International Law* (OUP 2012) 369.

[67] Doug Beare and others, 'An Unintended Experiment in Fisheries Science: A Marine Area Protected by War Results in Mexican Waves in Fish Numbers-at -age' (2010) 97 Naturwissenschaften 797, 797-780 (The fishing effort in the North Sea dropped 97% during the six years of war, resulting in a *de facto* 575,000 square kilometres marine protected area, approximately five times the size of the Great Barrier Reef); Mark Kurlansky, *Cod: A Biography of the Fish that Changed the World* (Vintage 1999) 158 ("When World War II ended, the fish stocks in the European North Atlantic, after six years with little fishing, were at the level that has never been seen since. There were tremendous catches on the Icelandic shelf, on the North Sea banks, in the Barents Sea, in the Channel, and in the Irish box…").

[68] Poul Holm, 'World War II and the "Great Acceleration" of North Atlantic Fisheries' (2012) 10 Global Environment 66, 90-91.

expand their respective state powers, either jurisdiction or sovereignty, into the seas.

4.1.1 1945 Truman Proclamations

An important development in the regard of expanding coastal state jurisdiction and fisheries is of course the 1945 Truman Proclamation on Fisheries[69], which was issued on the same day (28, September) as the Truman Proclamation on the Continental Shelf. The Proclamation on Fisheries recognized the importance of fisheries as a food source, acknowledged fish stocks were in threat of depletion, and noted the urgent need to protect fisheries from destructive exploitation, while at the same time having due regard to "the special rights and equities of the coastal state and of any other state which may have established a legitimate interest therein".[70] The action of the United States government proposed in the proclamation would be to "establish conservation zones in those areas of the high seas contiguous to the coasts of the United States wherein fishing activities have been or in the future may be developed and maintained on a substantial scale." Looking at the text alone, the Proclamation did not alter the 3 nautical mile territorial sea that was accepted at the time, since it did not asset any United States Sovereignty or jurisdiction beyond that limit, but relied on conservation zones that would be established through agreement between the U.S. and other states.[71] It is noted that one of the reasons for this restraint was that the U.S. did not want other states to close their adjacent high seas and deny access to American fishing

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[69] United States Presidential Proclamation No. 2668, Policy of the United States with Respect to Coastal Fisheries in Certain Areas of the High Seas, Harry S. Truman Presidential Library & Museum website <https://www.trumanlibrary.org/proclamations/> accessed 15 February 2021.

[70] United States Presidential Proclamation No. 2668, Policy of the United States with Respect to Coastal Fisheries in Certain Areas of the High Seas, Harry S. Truman Presidential Library & Museum website <https://www.trumanlibrary.org/proclamations/> accessed 15 February 2021.

[71] Donald R. Rothwell and Tim Stephens, *The International Law of the Sea* (Hart 2010) 294.

fleets.[72] However, studies also show that the U.S. State Department and Department of Justice were in fact directed (in 1943 when preparing to face problems that would occur after the war ended) to find a way of breaking the universality of the doctrine of the freedom and commonalty of the seas.[73]

The two Truman Proclamations signaled the beginning of the "great expansion of coastal state jurisdiction" beyond the traditional limit of the territorial sea.[74] Latin American States such as Mexico, Chile, Ecuador, and Peru followed the example and adopted national proclamations or actions of their own to extend national sovereignty and jurisdiction in adjacent waters up to 200 nautical miles from the coast, including both the continental shelf and the column of water above.[75] But there was a slight difference in how the claims to the continental shelf and the living resources of the water columns above the shelf were received. On the one hand, the continental shelf doctrine was deemed by Sir Hersch Lauterpacht to have become "instant customary international law" initiated by the leading maritime powers and the acquiescence by the generality of states[76], he also notes that such a practice is not

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[72] Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Hart 2010) 294-295; Lawrence Juda, *International Law and Ocean Use Management: The Evolution of Ocean Governance* (Routledge, 1996) 111.

[73] Donald Cameron Watt, 'First Steps in the Enclosure of the Oceans: The Origins of Truman's Proclamation on the Resources of the Continental Shelf, 28 September 1945' (1979) 3(3) Marine Policy 211, 224; See also: William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 4-8; Mark Kurlansky, *Cod: A Biography of the Fish that Changed the World* (Vintage 1999) 161 (Both accounts mention the U.S. adopted this position in response to fishery disputes involving Japanese fishermen that were catching Alaskan salmon from the sea before they could return to their spawning rivers).

[74] Victor Alencar Mayer Feitosa Ventura, 'Tackling Illegal, Unregulated and Unreported Fishing: The ITLOS Advisory Opinion on Flag State Responsibility for IUU Fishing and the Principle of Due Diligence' (2015) 12 Braz. J. Int'l L. 50, 54.

[75] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 7; Tullio Treves, 'Historical Development of the Law of the Sea' in Donald Rothwell and others (eds), *The Oxford Handbook of the Law of the Sea* (OUP 2015) 11-12.

[76] Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Hart 2010) 101; Hersch

only in conformity with the concept of the freedom of the seas, but also strengthens it by demonstrating the capacity of that concept to adapt to new problems and condition.[77] On the other hand, the claims to living resources were met with stronger protests, and would lead to counter-claims marked by controversy over seizures of vessels and ensuing retaliatory measures, negotiations, apparent settlements, revived disputes, seeming compromise and international agreement and a continued insistence on territorial prerogatives from the 1950s to the 70s.[78] Especially since some of the claims (Peru and Ecuador) were for a 200-nautical mile territorial sea, instead of an economic zone.[79] One example that showcases all of the struggles mentioned above would be the fisheries disputes that happened between Iceland and the UK, which not only parallel, but also anticipate the evolution of extended jurisdiction through international institutions.[80] This incident would be useful in demonstrating more aspects of the development of fishery regulations, and will be further elaborated in the following section 4.1.3 below.

4.1.2 1958 Geneva Conventions on the Law of the Sea

The swift but unsystematic expansion of jurisdiction into waters beyond the traditional territorial sea eventually came in conflict with the general principle of the freedom of the seas, and thus became one of main themes under the First United Nations Conference on the

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Lauterpacht, 'Sovereignty over Submarine Areas' (1950) 27 British Yearbook of International Law 376, 431.

[77] Hersch Lauterpacht, 'Sovereignty over Submarine Areas' (1950) 27 British Yearbook of International Law 376, 431.

[78] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 8.

[79] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 8.

[80] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 9.

Law of the Sea.[81] Held in Geneva from 24 February to 27 April. the Conference, which was tasked to "examine the law of the sea, taking account not only of the legal but also of the technical, biological, economic and political aspects of the problem and to embody the results of its work in one or more international conventions or such other instruments as it may deem appropriate", produced four documents, namely, the Convention on the Territorial Sea and the Contiguous Zone (CTS); the Convention on the High Seas (CHS); the Convention on Fishing and Conservation of the Living Resources of the High Seas (CFCLR); the Convention on the Continental Shelf (CCS).[82]

These four Conventions contributed to the law of the sea regime by facilitating a "progressive development" of international law, as for the first time, the freedom of the seas was laid down in a treaty as a basic principle, and the "zonal approach" was officially codified.[83] Each of the Conventions touched on certain aspects of fisheries, the CTS and CCS codified the rights of coastal states to fisheries in the territorial sea and continental shelf with no limitations or duty of conservation; the CHS established the freedom of fishing as one of the core freedoms of the high seas, also with no limitations except that such a freedom must be exercised "with reasonable regard to the interests of other states in their exercise of the freedom of the high seas".[84] However, the Conventions failed to determine any boundary limits on the territorial sea or exclusive fishing zone, which lead to a difference in evaluation

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[81] Victor Alencar Mayer Feitosa Ventura, 'Tackling Illegal, Unregulated and Unreported Fishing: The ITLOS Advisory Opinion on Flag State Responsibility for IUU Fishing and the Principle of Due Diligence' (2015) 12 Braz. J. Int'l L. 50, 54.

[82] Tullio Treves, 1958 Geneva Conventions on the Law of the Sea (Introductory Note) Audiovisual Library of International Law website:< http://legal.un.org/avl/ha/gclos/gclos.html> accessed 15 February 2021.

[83] Victor Alencar Mayer Feitosa Ventura, 'Tackling Illegal, Unregulated and Unreported Fishing: The ITLOS Advisory Opinion on Flag State Responsibility for IUU Fishing and the Principle of Due Diligence' (2015) 12 Braz. J. Int'l L. 50, 54.

[84] Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Hart 2010) 295.

of the results. Immediately after the Conference, Jessup observed that the Conference should be considered a success regardless of the number of ratifications, because the debates on the limit of zones have weakened the extreme positions (3-mile and 200-mile territorial sea), and have opened possibility for future negotiations and compromise[85]; but in later writings, Burke pointed out in retrospect that the main proposals with potential to affect fishery conservation and allocation were too limited in geographical and subject matter to have significant impact, thus rendering the Geneva Conventions irrelevant.[86]

However, apart from the three Conventions that are focused on the zones, the CFCLR was made with the recognition of problems such as overfishing, conflicts of coastal and fishing states, and the fact that no effective protection of marine fauna against waste or extermination existed at the time,[87] this Convention has gained contemporary significance because of its influence on subsequent law-making, including some concepts that were embodied in the 1982 UNCLOS.[88] The key provisions in the CFCLR include: (i) emphasis on the need to ensure optimum sustainable yield of high seas fisheries (Article 2), which was a reference to the notion of "Maximum Sustainable Yield (MSY)"[89]; (ii) the special interest of the coastal state in maintaining the productivity of living resources in areas of the high seas adjacent to its territorial sea, and the right to adopt unilateral measures for that purpose (Article 6 & 7); and (iii) the provisions of compulsory dispute settlement (Articles 9 to 12).[90]

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[85] Phillip C. Jessup, 'The United Nations Conference on the Law of the Sea' (1958) 59 Colum. L. Rev. 234, 264-265.

[86] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 9.

[87] Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Hart 2010) 295.

[88] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 12.

[89] Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Hart 2010) 295.

[90] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 12.

The provisions of the CFCLR bears some contemporary importance because of its influence on subsequent law-making, especially in the 1982 UNCLOS, where some are also embodied within.[91]

4.1.3 Fisheries Disputes and Conflicts

Following the above review on the making of the modern law of the sea, this section will now turn to a string of events that are generally not discussed by lawyers, namely, the disputes and conflicts caused by the allocation of fishery resources and jurisdiction of marine zones.

From a post-UNCLOS viewpoint, it is common to discuss fishery issues entirely under the established regime of the Convention and the law of the sea, but it should be acknowledged that fisheries was not always regulated (if regulated at all) as it is today, and the regulation of fisheries were considered very differently in the past, either as a separate legal subject[92] or as a process that reflects how the international community resolves different state interests and considerations.[93] Both of these observations may be true in its own sense, since the UNCLOS is a package deal that attempted to cover all human activity at sea, the requirement to conserve and manage marine living resources is at the same time an independent legal subject and a concept that is defined by other rules within the Law of the Sea. One example of this situation is the assumption that the coastal state jurisdiction in the EEZ would

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[91] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 12.

[92] Rosemary Rayfuse, 'Precaution and the Protection of Marine Biodiversity in Areas beyond National Jurisdiction' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Success, Challenges and New Agendas* (Martinus Nijhoff 2012) 100.

[93] Douglas M. Johnston, *The International Law of Fisheries: A Framework for Policy-Oriented Inquiries* (New Haven Press 1987) xv.

guarantee the conservation and management of fish stocks in this zone, and the same goal would be achieved in the high seas through state cooperation.[94] Looking back at the Truman Proclamations and the 1958 Geneva Conventions from a legal perspective, there might be a sense of peaceful progression, since the former was not strongly contested, and the latter was an attempt at codification that was also peaceful in nature, despite its various shortcomings and failures.

However, from a political perspective, the progress of fishery regulation is much more colorful and filled with tension, which I will attempt to demonstrate with the example of the events and circumstances that surrounded the 1974 International Court of Justice judgements on the *Fisheries Jurisdiction Case*. Popularly known as the "Cod Wars". Apart from the court proceedings, the fishery disputes between the UK and Iceland were in fact four distinctive stages that happened in intervals from 1952 to 1976, the first three (4-mile conflict from 1954-1956, 12-mile conflict from 1958-1961, and 50-mile conflict from 1972-1973) happened before the judgement and was the direct cause for the proceedings; but the fourth (200-mile conflict form 1975-1976) happened after the case was concluded.[95]

There is a clear distinction between the focus of legal and non-legal (international relations, history) scholarship on the incident. Legal analysis tends to zoom in on the ICJ and its reasoning in the judgement, as rightly so, since this case is one of the first cases of the ICJ that contains genuine environmental elements, even though in Boyle's opinion the decision

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[94] Rosemary Rayfuse, 'Precaution and the Protection of Marine Biodiversity in Areas beyond National Jurisdiction' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Success, Challenges and New Agendas* (Martinus Nijhoff 2012) 100.

[95] GuÐmundur J. GuÐmundsson, 'The Cod and the Cold War' (2006) 31(2) Scandinavian Journal of History 97, 97.

did not contribute much to the development of international environmental law.[96] In essence, the decision of the Court was carefully crafted to address the specific differences between the parties and at the same time avoid actually determining a limit to fishing zones.[97] This was achieved by on the one hand denying Iceland's right to extend its exclusive fishery zone to 50 nautical miles and ruling against Iceland's unilateral exclusion of UK and German fishing vessels; and on the other hand acknowledging that Iceland was especially dependent on coastal fishery resources, and thus enjoyed certain preferential fishing rights in areas beyond its territorial sea, but also recognizing the historic fishing rights of the UK and Germany.[98] The parties were thus under an obligation to negotiate and cooperate in good faith, to reach an equitable solution on their respective rights and interests in regulating catches and fulfilling conservation needs.[99] However, just three years after the decision, in 1977 it was clear that extension of coastal state jurisdiction to 200 nautical miles was accepted as customary international law[100], and the decision was again overtaken by the developments at the Third United Nations Conference on the Law of the Sea.[101]

Turning to the non-legal perspective, the tensions gradually escalated over the course of the four conflicts. Starting with the first conflict, the Royal Navy was dispatched to protect British vessels in Icelandic waters; to the following two conflicts with clashes between the Royal Navy and Icelandic coastguard vessels (cutting trawl nets and bumping into each

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[96] Alan Boyle, 'The environmental Jurisprudence of the International Tribunal for the Law of the Sea' (2007) 22 Int'l J. Marine & Coastal L. 369, 371.

[97] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 22.

[98] Philippe Sands and others, *Principles of International Environmental Law* (3rd edn CUP 2012) 402.

[99] Patricia Birnie, Alan Boyle & Catherine Redgwell, *International Law & the Environment* (3rd edn OUP 2009) 709-710.

[100] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 22-23.

[101] Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Hart 2010) 297.

other), and finally reaching the point that Iceland broke off diplomatic relations with the UK in the last conflict, the only time during the cold war that two NATO countries broke off relations.[102] The political implications of the series of incidents were enormous, not just in a cold war confrontational sense, but also as part of the background of the codification attempts of the law of the sea. It is even documented that the failure of the NATO governments to resolve the Icelandic fishery problems lead to the lack of common positions of the Bloc in the First United Nations Conference on the Law of the Sea[103], even though there was an agreement to postpone the dispute and await the outcome of the Conference that should have included new fishing zone limits.[104] The pattern of reaching temporary agreements and descending into conflict continued throughout the whole period, the third conflict that ended up in the ICJ was the result of the 1961 agreements between Iceland and the UK and Germany, that established a 12 nautical mile limit but allowed the two countries a transitional period where they could still fish between 6 and 12 nautical miles, which Iceland denounced in 1972. Subsequently, Iceland also refused to accept the jurisdiction of the Court and did not participate in any of the proceedings.[105]

In short, the story of the Icelandic-Anglo fishery dispute is also the epitome of the development of the law of the sea for fisheries after the Second World War. On one side, the British based their opposition on the freedom of the seas and historical rights to fish, as well as some residual imperial pride, and held on to that stance until the end of the 1970s; Iceland

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[102] GuÐmundur J. GuÐmundsson, 'The Cod and the Cold War' (2006) 31(2) Scandinavian Journal of History 97, 97.

[103] Phillip C. Jessup, 'The United Nations Conference on the Law of the Sea' (1958) 59 Colum. L. Rev. 234, 237.

[104] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 21.

[105] William T. Burke, *The New International Law of Fisheries: UNCLOS 1982 and Beyond* (Clarendon 1994) 21.

on the other hand, acted out of necessity since the livelihood of the newly found nation was at stake and they could not settle for anything less than a full victory.[106] Going as far as claiming the fishery limit even outweighed the defense interest of NATO in the North Atlantic, it is not hard to understand how Iceland stood victorious at the negotiating table in all four conflicts.[107] It should also be noted that while this type conflict that is based on the different understanding of coastal state sovereignty and jurisdiction over adjacent waters may have been permanently resolved after the UNCLOS clearly defined the maritime zones, the status of marine living resources will and have already begun to spark new forms of disputes and conflicts. Just as the Icelandic claims based on necessity eventually triumphed and became part of the body of international law, new approaches and methods invoked against the IUU problem may seem controversial and excessive at first sight, but by taking into account the surrounding circumstances and severity of the problem, these developments may also prove to be necessary

4.2 Garret Hardin and the Tragedy of the Commons

The second strongest concept that have influenced the push for fishery regulations has to be the "Tragedy of Commons", published in 1968. Although the publication and the enclosure of the sea movement are not chronically related, Hardin's reasoning in this article and the catchy term has been quoted and repeated in discussions related to fisheries over and over, essentially becoming a justification and standard for legislation. In the first layer of analysis, the obvious notion of the status of the commons is the better known and more often discussed

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[106] GuÐmundur J. GuÐmundsson, 'The Cod and the Cold War' (2006) 31(2) Scandinavian Journal of History 97, 111-112.

[107] GuÐmundur J. GuÐmundsson, 'The Cod and the Cold War' (2006) 31(2) Scandinavian Journal of History 97, 97, 112.

point. With the most frequently quoted passage being:

> *"Likewise, the oceans of the world continue to suffer from the survival of the philosophy of the commons. Maritime nations still respond automatically to the shibboleth of the "freedom of the seas." Professing to believe in the "inexhaustible resources of the oceans," they bring species after species of fish and whales closer to extinction."*[108]

For an article that was originally addressing the problem of over-population and proposing to restrict human reproduction, fishing was just an example of the undesirable situation that is the status of "commons", alongside other examples such as excessive cattle herds and national parks. Apart from the fact that Hardin practically took an opposing position from Grotius and all of the scholars that supported the freedom of the seas concept, there are perhaps some more lessons we can retrieve from his work than a mere quote, which may actually help with the current IUU problem. It should be noted that apart from coining a phrase, Hardin also provided insight on the characteristics of the tragedy, as well as some proposals on the methods of confronting it.

Firstly, the tragedy of commons is a "no technical solution problem", which means the problem cannot be solved in a technical way. Instead, this type of problem requires change in human values or ideas of morality.[109] For the legislator, the proper method of addressing the problem is thus system sensitive and must be allowed to be flexible in order to accommodate a "complex, crowded, changeable world."[110] In other words, instead of

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[108] Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1245.

[109] "A technical solution may be defined as one that requires a change only in the techniques of the natural sciences, demanding little or nothing in the way of change in human values or ideas of morality." Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1243.

[110] Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1245.

adopting the easier legislated (but possibly unenforceable) prohibition, Hardin suggests the use of administrative law to legislate temperance.

Secondly, Hardin discusses the use and misuse of responsibility and coercion, pointing out that the use of responsibility without supporting substantial sanctions is just a propaganda attempt that tries to get something (compliance) for nothing. In Hardin's opinion, responsibility should be the product of definite social arrangements, which are in essence arrangements that create coercion.[111] Mutual coercion, which is agreed upon by the majority of the people affected, is the way to escape the horror of the commons.[112]

Lastly, Hardin advocates the complete abandonment of all aspects of the commons, also referring to the restriction on fishing areas as an already happening abandonment of the commons in the aspect of food gathering (although it cannot be determined whether he was talking about marine or fresh water fisheries). He also clearly states that the enclosure of the commons will inevitably infringe some sort of liberty, and such infringement would be more difficult in modern times than in ancient times, due to the contemporary pursue of rights and freedom. As a counter to the argument of freedom, an alternative definition of freedom is provided: "Freedom is the recognition of necessity." By understanding the necessity of adopting mutual coercion and to make hard decisions, instead of appealing to propaganda, would be the pathway to break free from the tragedy of commons and avoid universal ruin.[113]

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[111] Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1247.

[112] Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1247.

[113] Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1248.

4.3 Reflections on the Tragedy of the Commons

With the basics of Hardin's argument in mind, it is necessary that we take a step back and consider his propositions from a critical angle. Similar to the freedom of the seas advocated by Grotius, the tragedy of the commons as a concept was not an original creation by Hardin, as he pointed out himself that the rational explanation of such ruin was already expressed by William Foster Lloyd, a political economist at Oxford University, in 1832[114]. However, there is also no doubt that it was due to Hardin's work that this concept received a check point in 1968, and from then on, all subsequent discussions on the topic are compelled to look back to that point in time as the source.

Due to this reason, it is now completely beyond the capacity of a doctoral thesis to examine the full body of work surrounding Hardin and the tragedy of the commons, but there is on certain thread that is particularly relevant to the current issue of IUU fishing, which I would like to elaborate in more detail.

This portion of the debate is related to the commons and whether or not such commons are regulated, as Hardin portrayed in his 1968 work, the assumption was that the commons are either not managed at all or extremely hard to manage[115], this assumption was later further examined by Ostrom, who refined the research concerning commons to the realization that commons usually had a certain degree of regulation, and also discovered that when the

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[114] Garret Hardin, 'Tragedy of the Commons' (*The Library of Economics and Liberty*) <https://www.econlib.org/library/Enc/TragedyoftheCommons.html> accessed 20 September 2021; The works of Lloyd can be found at: William Lloyd, *Two Lectures on the Checks to Population* (OUP 1832) <https://books.google.com.tw/books/about/Two_Lectures_on_the_Checks_to_Population.html?id=kQt9Kg-chXAC&printsec=frontcover&source=kp_read_button&hl=en&redir_esc=y#v=onepage&q&f=false> accessed 20 September 2021.

[115] Stephen Battersby, 'Can humankind escape the tragedy of the commons?' (2017) 114(1) PNAS 7, 7-8.

government intervened with the management and regulation of the commons, it often resulted in the spoilage of the local system in place[116].

For Fisheries, the question of whether or not a fishery is well managed is the constant point of debate, as I have already touched upon in the introduction. For the most part, the modern day fishery is always highly regulated, at least on paper, but when factoring in the issue of IUU fishing, those regulations seem weak and ineffective. If we delve deeper into the situation and make a comparison between long distance commercial fleets and local small-scale fisheries, it would be clear that for the commercial fleets, which are often operating under the permission of national governments, have the capacity and privilege to treat any part of the sea as a commons and selfishly plunder it in the style Hardin depicted; whereras the small-scale fisheries that lack both technology and capital can only be confined to their surroundings and accept the reality of the ruin.

From this point of view, the issue of commons and whether or not the status of commons lead to ruin is also dependent on the entity and its ability to utilize the commons. This thus brings us back to the discussions regarding sustainability, IUU fishing, and unnaturalness in Chapter 1, in a sense, the reality of modern fisheries renders the debate of the commons somewhat irrelevant. But it also provides a pathway for the justification of strengthening local small-scale fisheries and restricting long distance fleets. It also serves as a basis for reflection, especially in the context of ecosystem based management approaches, which requires going beyond traditional management and business-as-usual conducts[117]. If we seek to manage fisheries in the best way possible, perhaps it is best to trust the locals and their experience,

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[116] Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (CUP 1990).

[117] Villy Christensen, 'Introduction: Toward Ecosystem-based management of Fisheries' in Villy Christensen and Jay Maclean (eds) *Ecosystem Approaches to Fisheries: A Global Perspective* (CUP 2011) 1.

instead of relying on governments tat may or may not have the best interests of the people in mind.

4.4 From Commons to Commodity

On a second note, it should be acknowledged that Hardin's work on the Tragedy of the Commons has a lesser known second layer of interpretation, namely, "the tragedy of limitless growth".[118] It is observed that the real issue with the tragedy of the commons may not be what most critics and scholars perceive to be as status of the commons (open and free), nor would the answer to that issue be the privatization or enclosure of such commons. Instead, the real causal factor that is contributing to the problem is the "unquestioned political and economic doctrine guiding both private (market) and public (state) economic actors alike".[119] Quoting Hardin himself: "*Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit─in a world that is limited.*"[120] Not unlike the herder analogy, the modern seas and fishermen are also locked in a similar system. As the fishery resources are already confirmed to be limited, illegal fishing activities (and to some extent may also include legal fishing activities) are still driven by a firm belief that there are still untapped resources in the deep, and the force of commercial interest to further pursue the remaining fish. If the status of commons was the source of the problem, it would have been resolved by the extensive network of conservation and management measures by now, but, as we all know, IUU fishing is still happening globally.

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[118] Matthew MacLellan, 'The Tragedy of Limitless Growth: Re-interpreting the Tragedy of the Commons for a Century of Climate Change' (2015) 7 Environmental Humanities 41, 41.

[119] Matthew MacLellan, 'The Tragedy of Limitless Growth: Re-interpreting the Tragedy of the Commons for a Century of Climate Change' (2015) 7 Environmental Humanities 41, 43.

[120] Garrett Hardin, 'The Tragedy of Commons' (1968) 162 (3859) Science 1243, 1244.

It is at this point where the term "Blue Economy" that was mentioned in chapter 1 may also assist in understanding the tragedy of limitless growth. Blue Economy is supposed to be the next step in global environmental governance after the "Green Economy" that presented a vision of conservation and development based on environmentally friendly technologies and a global policy network of private and public actors.[121] Similar to the Green Economy, the content of Blue Economy may be varied and multi-dimensional, but for fisheries, it includes aspects of economic incentives and public-private partnerships, which places portions of the obligation of ocean governance on the industry itself.[122] This persisting reference to "economy" is demonstrating exactly the progressivist ethos that defines modernity. "Growth" as an idea is so deeply rooted that it cannot even be perceived as a problem, and it is believed that ecological problems caused by economic growth can be solved by expanding the same mentality of growth into new areas in hopes that extension may become inversion.[123] For fisheries and illegal fishing, it is also clear that enclosure may only be half of the problem, the actors that cause the problem, the actors that are in position to combat that problem, and the nature of the subject in question (in this case: fishery resources) should all be questioned and redefined.

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[121] Jennifer J. Silver and others, 'Blue Economy and Competing Discourses in International Oceans Governance' (2015) 24(2) JED 135, 137.

[122] Jennifer J. Silver and others, 'Blue Economy and Competing Discourses in International Oceans Governance' (2015) 24(2) JED 135, 145-146.

[123] Matthew MacLellan, 'The Tragedy of Limitless Growth: Re-interpreting the Tragedy of the Commons for a Century of Climate Change' (2015) 7 Environmental Humanities 41, 56-57.

5. An Alternative Approach: International Environmental Law

5.1 Early Examples of Fisheries as Environmental Concerns

In the last part of this chapter, the focus will turn to the development of international environmental law in relation to fisheries. It should be noted that as branches of international law, the law of the sea and international environmental law has followed their own paths in the process, and both systems had the capacity and interest to regulate fisheries. The reason for discussing the law of the sea and international environmental law as two separate regimes is primarily to highlight the difference in basic concept, and secondarily, to bring out the fact that since the adoption of UNCLOS, the law of the sea has been the primary regime that was accepted and deemed appropriate to regulate fishery issues, and international environmental law refrained from this issue almost entirely. This is not an obvious situation from a legislative perspective, since in all relevant legal instruments, the reference to protect and preserve marine living resources are always present, and there exists no expressed limitations to the application of environmental law on fisheries, nor is there any hierarchy structure that suggests the law of the sea is the prevailing law that should be applied. This separation of authority on fisheries can only be observed in practice, in the conferences and meetings of environmental law treaties that determine the scope of protection. The implied boundary could have just been a mutual acknowledgement between the members of the international community born out of necessity or practicality, but as the IUU fishing problem intensifies today, it has increasingly become an excuse to hinder the involvement of environmental law in fishery issues, particularly in the protection of the most severely depleted fish stocks, this aspect will be one of the focuses in chapter 4. Perhaps with the overall examination of this and the following sections on how international environmental law was formed, how it evolved, and how it is making its return (in terms of fishery), the whole story may be revealed,

and the possibilities of further cooperation or integration may become a reality.

While the history of international environmental law is much shorter than the law of the sea, the law related to sustainable use and conservation of marine living resources is actually some of the earliest, compared to other environmental issues. As observed by scholars, the current environmental law regime is a reflection of state practice and treaty law that dates back to the second half of the 18th century.[124]

One of the earliest milestones for environmental law concerns in fisheries would be the *Bering Sea Fur Seal Arbitration* of 1893. This arbitration was one of the three immortal trio of arbitrations which sustained international environmental law throughout most of its existence.[125] There are several reasons that this arbitration is still relevant today: firstly, it reflects the inherent difficulty in conserving natural resources beyond national jurisdiction; secondly, the regulations that were adopted by the tribunal illustrate early techniques for conservation[126]; and thirdly, it shows the role of international courts in the peaceful resolution of disputes and progressive development of international law.[127]

The second milestone for the development of international environmental law would be the

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[124] Philippe Sands et. al., *Principles of International Environmental Law* (3rd edn CUP 2012) 399.

[125] Alan Boyle, 'The environmental Jurisprudence of the International Tribunal for the Law of the Sea' (2007) 22 Int'l J. Marine & Coastal L. 369, 369 (the other two in the trio being *Trail Smelter* and *Lac Lanoux*).

[126] Patricia Birnie, Alan Boyle & Catherine Redgwell, *International Law & the Environment* (3rd edn OUP 2009) 707-708 (A nine-point plan was recommended by the tribunal, including: a prohibited zone; a closed season in a defined area of the high seas, with exceptions for indigenous people; a limitation of vessel type; a licencing system; use of special flag for sealing activity; keeping of catch records; exchange of data; government responsibility for selection of suitable crews; and the provisions to continue for 5 years or until abandoned by agreement).

[127] Philippe Sands et. al., Principles of International Environmental Law (3rd edn CUP 2012) 399.

1972 United Nations Conference on the Human Environment held at Stockholm. With 114 states attending and large numbers of international institutions and non-governmental observers, the Conference adopted three non-binding instruments: a resolution on institutional and financial arrangements, a Declaration (Stockholm Declaration) containing 26 principles, and an Action Plan with 109 Recommendations.[128] The human rights perspective of the Stockholm Declaration was an innovation, but was not repeated until two decades later at Rio.[129] For the marine environment and living resources, most of the emphasis was placed on marine pollution, with all-encompassing terms such as "natural resources" (Article 2), "capacity of the earth to produce vital renewable resources" (Article 3), and "heritage of wildlife and its habitat" (Article 4) that could be broadly interpreted to include marine living resources. However, there is a passage within Recommendation 92 of the Action Plan for the Human Environment that reflect the elements of adequate conservation and optimum utilization that constitute an appropriate international environmental law for the sea[130]:

> *"The marine environment and all the living organisms which it supports are of vital importance to humanity, and all people have an interest in assuring that this environment is so managed that its quality and resources are not impaired. This applies especially to coastal nations, which have a particular interest in the management of coastal area resources. The capacity of the sea to assimilate wastes and render them harmless and its ability to regenerate natural resources are not unlimited. Proper management is required*

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[128] Philippe Sands et. al., Principles of International Environmental Law (3rd edn CUP 2012) 30.

[129] Patricia Birnie, Alan Boyle & Catherine Redgwell, *International Law & the Environment* (3rd edn OUP 2009) 49.

[130] Jan Schneider, 'Codification and Progressive Development of International Environmental Law at the Third United Nations Conference on the Law of the Sea: The Environmental Aspects of the Treaty Review' (1981) 20 Colum. J. Trans nat'l L. 243, 245.

and measures to prevent and control marine pollution must be regarded as an essential element in this management of the oceans and seas and their natural resources"[131]

Although mainly still referring to marine pollution, it can be seen that the notions of coastal states having particular interest in management of coastal resources, and the understanding that the ability of the sea to regenerate natural resources is not unlimited have emerged.

5.2 Positive Influences of Incorporating International Environmental Law Concepts

As stated above, there was a period when international environmental law intentionally steered clear from marine fish regulation, but this did not hinder the development of environmental law in other fields of international law. Perhaps most accurately described as the "Greening" of international law by scholars[132], the development in international environmental law can be seen from different aspects, all of which strengthened the entire regime and provided a robust source for fishery regulations to draw upon.

The main influence of IEL can be roughly divided into two categories, the first is the basic concepts that have a wider scope of application to the marine environment in general but are also highly relevant to fishery regulation. These may include concepts such as sustainable development and ecosystem approach, just to name the most promising ones at the moment. With the positive attention and wide acceptance these concepts receive, they may very well become the successors of the two dominant concepts discussed above in a legislative sense and guide the subsequent efforts of fishery legislation, but it has also been observed that the

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[131] Report of the United Nations Conference on the Human Environment, Recommendation 92, < http://www.un-documents.net/aphe-b3b.htm> (last visited: 20/11/2017)

[132] Philippe Sands, 'The "Greening" of International Law: Emerging Principles and Rules (1994) 1(2) Indiana Journal of Global Legal Studies 293, 293.

binding instruments adopted in relevance with these concepts have provided intersecting and sometimes contradictory principles and goals[133], so further integration between the existing framework may be needed before a unified front emerges.

As for the second category, which is the individual incidents that show the revival of applying environmental law for fishery regulation, these may come in the form of judgements and opinions of international courts and tribunals, practice within treaty regimes, or state practices. The similarity in these actions is the subtle trend of diversion from the previously accepted mode of behaviour and trying out new approaches the combat the IUU fishing problem. Showing that, With a loose reference to the abstract concepts mentioned above, actors of international have started to reflect and experiment on alternative approaches, being driven by the necessity that is the looming IUU problem. These actions may be further divided into three types by the point of entry in which they choose to explore, namely, the expansion and clarification of flag state responsibility and liability, the redefining of the legal characteristics of "fish", and the expansion and redefining of the elements and nature of what type of fishing activity can be counted as IUU fishing. Each of these three categories will be further elaborated in chapter 4.

6. Summary

"*The past is never dead. It's not even past.*"[134] The entirety of this chapter may perhaps be summarized by the famous line from Faulkner. Following the metaphor at the end of chapter 1, this chapter adds an additional layer of complexity to the picture, consisting of the science-

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[133] Serge M. Garcia and Kevern L. Cochrane, 'Ecosystem Approach to Fisheries: A Review of Implementation Guidelines' (2005) 62 ICES Journal of Marine Science 311, 311.

[134] William Faulkner, *Requiem for a Nun* (Chatto & Windus 1919) 85.

policy nexus that consists of our past perceptions, assumptions, and misconceptions concerning fish and fisheries, which in turn created the basic legal concepts that laid the foundation for the codification of the law of the sea. The basic legal concepts have long-lasting effects on the approaches and methods of positive law regulations that are subsequently developed, and old habits really die hard. The freedom of the high seas as a principle may have applied to fisheries before, but the circumstances have definitely changed. As the relatively new concept of the tragedy of commons suggests, the problem with fishery regulation and illegal fishing may not be entirely technical. To successfully address the IUU problem, a fundamental shift in the basic perception towards the marine environment and fish stocks is as important as well conceived conservation measures. The battle between old and new concepts will continue to be highlighted in the following chapters as a theme that constantly reflects the spirit and leading issues of the given point of time.

Some debated aspects of the law of the sea in this period, such as the zonal approach and the allocation of rights and obligations, which were later codified into the UNCLOS, are of great importance. As a legal construct, the UNCLOS did effectively end the turmoil and conflicts that rose because of differences over fishery resources by dividing the seas and allowing states to take control and enjoy exclusive rights on some parts of the ocean. Similarly, IUU fishing can also be seen as one of the new sources of conflict in the fishing arena, and the situation may call for action that are similar in innovation. There are certainly feasible methods that may help mediate the current problems. Another element that should also be noted is the effects of strong political will, as seen in the example of Latin America and Iceland. Future regulations should also consider enhancing mechanisms that would facilitate the cooperation and compliance of state actors.

Special emphasis should and will be placed on the contributions of international

environmental law, which was developed in parallel to the new order of the law of the sea. The two legal fields overlapped in several issues, which were addressed individually in their own respect. While fisheries would also fall under the general obligation to protect and preserve the marine environment, the fact is as that while the UNCLOS regime developed specialized instruments and regional bodies of conservation for the purpose of conserving and managing marine living resources, environmental law was backing away from the issue. However, international environmental law regimes have since begun a new phase of legislation where emphasis is placed specifically on marine fish species, and there is also abundant research on the potential application and effect of these treaties.

It should also be noted at this point that although this chapter does examine different regimes and treaties, the goal is not to determine one single set of rules that can solve the IUU fishing problem once and for all, because that is impossible. The law of the sea has used the extension of coastal state jurisdiction method to evade the hard confrontation that is to demand the states apply self-restraint on its own fishing industry and vessels; instead, most states received an exclusive area, and the states with the ability could still exploit the more distant waters that were free. But there are no more frontiers today where we can push the excessive fishing effort, and the illegal fishing activity that exists today are those that are still operating in the name of remnants of an old freedom. This situation thus leaves us with one way out, the redefinition of the term “freedom”, which should no longer be understood as “without restriction”, but instead as “recognition of necessity”. The following chapters will continue build on this basis and look into the two branches of International law grown from the foundations of the science-policy nexus and the basic legal concepts discussed in this chapter.

Part 2 The Two Branches of Fisheries Regulation Concerning IUU Fishing

Chapter 3 The Main Branch of Law: The Law of the Sea

1. Introduction

The two chapters in this part will follow the overall observations laid out in the previous part and examine two strands of legal instruments, categorized in this research as "the law of the sea approach" in this chapter and "the second branch" in chapter 4. The two approaches can be distinguished mainly by the different international law frameworks that they stem from; as well as to some degree by the corresponding legal concepts on which they are built on. Given the structural difference, the former distinction has been acknowledged in recent discussions[1], which is hard to overlook when analyzing the laws of fisheries. But this research hopes to expand on such an acknowledgement and add the extra dimension of legal concept as examined in part 1 to the discussion. By looking at the different regimes through the scope of their basic thoughts, it may be possible to see the trajectory and direction of the development of the relevant fishery regulations more clearly, which includes the evolution from one instrument to another, and the shifting of interpretation and application within a single instrument regarding the problem of IUU fishing.

It should be noted at this point that the legal instruments discussed in this chapter is by no means a comprehensive list of all the relevant instruments. For this thesis, I will only be able

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[1] Mary Ann Palma, Martin Tsamenyi and William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 55 (distinguishes the legal framework of fisheries into "fisheries specific" and "non-fisheries specific", the latter includes environmental, trade and maritime safety instruments); Kevern Cochrane & David Doulman, 'The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat' (2005) 360 Phil. Trans. R. Soc. B 77, 78 (Outlines two different strands of law directly related to fisheries management).

to examine the instruments that are most central to the IUU fishing problem, while others have already done exceptional work in identifying and analyzing in detail, such as Palma, Tsamenyi and Edeson.[2] The FAO also provides a comprehensive overview on the international legal instruments related to fisheries in general.[3] On the other hand, Allsopp and others have taken a more restrictive approach, and identified four international instruments that they considered as having the potential to serve as comprehensive and effective measures against IUU fishing if they were properly implemented by all States, namely, the FAO Compliance Agreement, the UN Fish Stocks Agreement, the FAO Model scheme for port control (which is replaced by the Port State Measures Agreement after it entered into force in June 2016), and the IPOA-IUU.[4] I would concur with their viewpoint in this chapter, and add to that list the United Nations Sustainable Development Goals (SDG) as a new development.

2.Binding Instruments

2.1 United Nations Convention on the Law of the Sea

The United Nations Convention on the Law of the Sea (UNCLOS) is the obvious starting point for the analysis of this strand of law. Since its adoption by the Third United Nations Conference on the Law of the Sea in 1982 and entering into force in 1994, the UNCLOS has been highly praised, with well-known descriptions such as “Constitution for the Oceans”[5]

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[2] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010).

[3] FAO, *The State of World Fisheries and Aquaculture: Sustainability in Action* (FAO 2020) 159.

[4] Michelle Allsopp and others, *State of the World’s Oceans* (Springer 2009) 187.

[5] ‘A Constitution for the Oceans’ Remarks by Tommy T.B. Koh of Singapore President of the Third United Nations Conference on the Law of the Sea

or "one of the greatest achievements of the international rule of law".[6] It should also be noted that the UNCLOS not only succeeded in addressing all of the topics covered by the four 1958 Geneva Conventions, the "package deal theory" that it adopted also created a new approach for the development of customary international law.[7]

But there is also another side of the UNCLOS, as observed by Freestone and Mangone:

> *"…despite the fact that UNCLOS III took nine years to produce the text of the Convention…there are still important issues that require future work—either because they were simply unfinished—or because of new expectations and demands. The innovatory 'consensus' procedure and the 'package deal' approach…necessitated a large number of compromises and, as a direct result, a significant number of issues were not fully resolved."*[8]

For fisheries, this observation is certainly applicable, especially if the current reality and developments surrounding IUU fishing are taken into consideration. In a sense, the UNCLOS has a dual characteristic, first as the instrument that drew the line between legal fishing and illegal fishing, secondly as the instrument that is invoked against such illegal fishing activity. From this perspective, the UNCLOS in the first instance serves as the

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<http://www.un.org/Depts/los/convention_agreements/texts/koh_english.pdf> accessed 10 November 2018.

[6] John Norton Moore, 'The United Nations Convention on the Law of the Sea: One of the Greatest Achievements in the International Rule of Law' in Myron H. Nordquist, John Norton Moore and Ronán Long (eds), *Legal Order in the World's Oceans: UN Convention on the Law of the Sea* (Brill 2017).

[7] Martin Lishexian Lee, 'The Interrelation Between the Law of the Sea Convention and Customary International law' (2006) 7 San Diego International Law Journal 405, 406.

[8] David Freestone, 'The Law of the Sea Convention at 30: Successes, Challenges and New Agendas' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 2.

fundamental legal framework governing the use of the oceans and seas, furthermore as the legal basis for the conservation and management of marine living resources[9], and as the point of reference for every international fishery regulation that have been introduced subsequently[10].

There are three aspects of the UNLCOS that are specifically related to addressing the IUU problem, first, the maritime zones; second, provisions on the conservation and management of marine living resources; and thirdly, the provisions on the protection and preservation of the marine environment. These three aspects will each be discussed below:

2.1.1 Zones of the Sea

As the first aspect, the UNCLOS divided ocean space into several maritime zones that can be categorized by the degree of state control over them, specifically: zones under sovereignty (including internal waters, archipelagic waters and territorial seas); zones under sovereign rights (the Exclusive Economic Zone and the Continental shelf); and the high seas (all parts of the sea that are not included in zones under sovereignty or sovereign rights).[11] It is apparent that in each of the maritime zones, different rights and obligations have been prescribed by the UNLOS, but the zones and the geographical limit imposed on fisheries should be recognized as a stand-alone factor for two reasons, one is that the regime created

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[9] Transform Aqorau, 'Obligations to Protect Marine Ecosystems under International Conventions and Other Legal Instruments' in Michael Sinclair and Grimur Vladimarsson (eds) *Responsible Fisheries in the Marine Ecosystem* (FAO & CABI 2003) 27.

[10] Kevern Cochrane & David Doulman, 'The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat' (2005) 360 Phil. Trans. R. Soc. B 77, 78.

[11] Martin Tsamenyi & Quentin Hanich, 'Fisheries Jurisdiction under the Law of the Sea Convention: Rights and Obligations in Maritime Zones under Sovereignty of Coastal States' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 111.

an entirely new reality for fisheries; and second, the zonal approach is a source of fragmentation and gaps in regulation.

For the zones under sovereignty, it is a fact and uniformly observed that there is no specific provision concerning the management of fisheries resources[12], leaving the issue entirely in the hands of the coastal state with a "wide margin of discretion in regulating the use of the resources"[13] and the entitlement "to the benefits to be obtained from the fisheries resources in these zones."[14] In other words, the regulation of fisheries within internal waters, archipelagic waters and territorial sea are subject to domestic law, and unless in certain circumstances[15], offer little traction for the intervention of international law. It is not to say there are no IUU fishing activities happening in these waters, but rather the line drawn by the UNCLOS at 12 nautical miles from the baseline[16] bars further discussion into the issue.

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[12] Martin Tsamenyi & Quentin Hanich, 'Fisheries Jurisdiction under the Law of the Sea Convention: Rights and Obligations in Maritime Zones under Sovereignty of Coastal States' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 111-112; Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 58; Ellen Hey, 'The Fisheries Provisions of the LOS Convention' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 20; R. R. Churchill and A.V. Lowe, The Law of the Sea (3rd edn, Manchester University Press 1999) 284.

[13] Ellen Hey, 'The Fisheries Provisions of the LOS Convention' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 20.

[14] Ellen Hey, 'The Fisheries Provisions of the LOS Convention' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 20.

[15] See in general: Martin Tsamenyi & Quentin Hanich, 'Fisheries Jurisdiction under the Law of the Sea Convention: Rights and Obligations in Maritime Zones under Sovereignty of Coastal States' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) (On the issue of the application of conservation and management measure adopted by the Western and Central Pacific Fisheries Commission within maritime zones under the sovereignty of members of the Commission).

[16] UNCLOS Art. 3 (Breadth of the Territorial Sea).

For the Zones under sovereign rights (which in this case only concerns the EEZ) and the high seas, there is also a line that will be covered in the next aspect, but there are two facts that are worth mentioning to show the fundamental impact that the EEZ regime had on fisheries and the current IUU problem: First, the establishment of the EEZ placed about 90% of marine living resources under the jurisdiction of coastal states[17]; and second, the EEZ resulted in fleet dislocation in distant water fishing States, which aggravated the problem of overcapacity that has direct links to IUU fishing.[18] It is observed that this is one of the reasons that contributed to the lack of fishery management obligations within the zones under sovereignty[19], and it is also the source of the assumption that by establishing a broad coastal state jurisdiction over an exclusive economic zone of 200 nautical miles would lead to proper management and management of the living resources within these zones.[20]

2.1.2 Conservation and Management of Marine Living Resources

Following the first aspect, the second aspect is the actual content of conservation and management measures within the UNCLOS. As seen in the Preamble, one of the goals of the UNCLOS is to establish a legal order which will "promote the equitable and efficient utilization of their resources, the conservation of their living resources, and the study,

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[17] Ellen Hey, 'The Fisheries Provisions of the LOS Convention' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 27.

[18] Douglas M. Johnston, The International Law of Fisheries: A Framework for Policy-Oriented Inquiries (New Haven 1987) LXXVII.

[19] : Martin Tsamenyi & Quentin Hanich, 'Fisheries Jurisdiction under the Law of the Sea Convention: Rights and Obligations in Maritime Zones under Sovereignty of Coastal States' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 111 (another reason of the absence of obligations is attributed to the concept of absolute sovereignty over natural resources).

[20] Rosemary Rayfuse, 'Precautionary and the Protection of Marine Biodiversity in Areas beyond National Jurisdiction' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 100.

protection and preservation of the marine environment"[21] Subsequently, the provisions relevant to the conservation and management framework of marine fisheries are laid out in Part V (Exclusive Economic Zone) and Part VII (High Seas) of the UNCLOS, with the core articles in the former part.[22]

Since the coastal State enjoys "sovereign rights for the purpose of exploring and exploiting, conserving and managing"[23] of living resources in the EEZ and the jurisdiction to "protect and preserve the marine environment"[24], the corresponding duties are mainly directed at the coastal State, the first duty of conservation is laid out in Article 61, which includes: (i) determine the allowable catch (also known as total allowable catch, TAC) of living resources in the EEZ; (ii) take into account the best scientific evidence available and ensure living resources in the EEZ is not endangered by over-exploitation through proper conservation and management measures; (iii) maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield (MSY), as qualified by relevant environmental and economic factors; (iv) take into consideration the effects on species associated with or dependent upon harvested species with a view to maintain or restore populations of such associated or dependent species; and (v) contribute and exchange available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks through competent organizations on a regular basis. Secondly, as stated in Article 62, the coastal State also has a duty to promote the objective of optimum utilization of the living resources in the EEZ, accompanied with a process of determining

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[21] UNCLOS, Preamble.

[22] Martin Tsamenyi & Quentin Hanich, 'Fisheries Jurisdiction under the Law of the Sea Convention: Rights and Obligations in Maritime Zones under Sovereignty of Coastal States' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 110; ; R. R. Churchill and A.V. Lowe, *The Law of the Sea* (3rd edn, Manchester University Press 1999) 288-289.

[23] UNCLOS Art. 56(1)(a).

[24] UNCLOS Art. 56(1)(b)(iii).

the harvest capacity and allowing other States to access any surplus.[25]

Apart from the coastal States, there is also mentioning of "other" States in Part V, which can be understood as flag states when referring to fisheries. Article 58(2) requires other States to have due regard to the rights and duties of the coastal State and should comply with the law and regulations adopted by the coastal states. This duty is further elaborated in Article 62(4), requiring "nationals of other States" fishing in the EEZ to comply with the conservation measures and other terms and conditions established by the coastal State.[26]

One last set of rules in Part V is based on fish stock characteristics, with the exception of marine mammals[27] and sedentary species[28] that are subject to their own regimes, the four types of fish stocks that have the potential to occur within the EEZ of two States or within the EEZ and the high seas are namely: shared/straddling stocks[29]; highly migratory species[30]; anadromous species[31]; and catadromous species[32]. The shared element for the conservation and management of these fish stocks is the requirement of cooperation, either directly between States, or through the establishment of a regional organization, as seen in each of

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[25] UNCLOS Art. 62(2), (3).

[26] UNCLOS Art. 64(4) This Article also provides a non-exhaustive list of the possible content of the laws and regulations referred to in the main paragraph of the Article, which may relate to: licensing of fishers, fishing vessels and equipment; determining the type and amount of species to be caught; seasons and areas of fishing; the types, sizes, and amount of gear, and the types, sizes, and number of fishing vessels that may be used; fixing the age and size of fish that may be caught; specifying information required of fishing vessels; placing of observers on board vessels; landing of catch; terms and conditions on joint ventures and other cooperation arrangements; and enforcement procedures.

[27] UNCLOS Art. 65.

[28] UNCLOS Art. 68.

[29] UNCLOS Art. 63.

[30] UNCLOS Art. 64.

[31] UNCLOS Art. 66.

[32] UNCLOD Art. 67.

the respective Articles. This set of rules, especially for straddling stocks and highly migratory species, is closely linked with the provisions in Part VII.

Turning to the provisions on fishing on the high seas, one obvious point for the high seas is the absence of any form of sovereignty or sovereign rights over the marine area and the resources within, thus the flag State is the main actor responsible for the vessels operating on the high seas. The first relevant article would be Article 87, which stipulates that fishing is still one of the freedoms of the high seas[33] and open to all states,[34] but should be exercised with due regard for the interests of other States in their exercise of the same freedoms.[35] Three more general obligations are laid out in subsequent articles[36], including: (i) the obligation to adopt measures for the conservation of the living resources of the high seas[37]; (ii) the obligation to ensure that the nationals of States abide by those measures[38]; and (iii) to cooperate with other States to achieve the same objective.[39] For the certain categories of fish that are listed in Part V, provisions in Part IIV also provides a direct link between the Regimes of the high seas and the EEZ[40], as well as reiteration and emphasis on the requirement to cooperate with each other, enter into negotiations, and cooperate to establish relevant fisheries organizations for the purpose of taking necessary conservation and management measures.[41]This duty of cooperation has become the basis for the establishment

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[33] UNCLOS Art. 87(1)(e).

[34] R. R. Churchill & A.V. Lowe, *The Law of the Sea* (3rd edn, Manchester University Press 1999) 296.

[35] UNCLOS Art. 87(2).

[36] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 59.

[37] UNCLOS Art. 116.

[38] UNCLOS Art. 117 & 118.

[39] UNCLOS Art. 117 & 118.

[40] UNLCOS Art. 116(b).

[41] UNCLOS Art. 118.

of regional fisheries management organizations in many parts of the high seas, and also lead to the development of the Fish Stocks Agreement that will be discussed below.[42]

2.1.3 Protection and Preservation of the Marine Environment

The third and last aspect is on Part XII of the UNCLOS concerning the protection and preservation of the marine environment, and the two relevant Articles from this part would be Articles 192[43] and 193.[44] Upon examination of Part XII, it can be seen that the majority of the provisions are dealing with marine pollution, with little mentioning of other activities that may harm or degrade the marine environment. The link between the protection and preservation of the marine environment and fisheries was not clear until the International Tribunal for the Law of the Sea (ITLOS) expressed that "the conservation of the living resources of the sea is an element in the protection and preservation of the marine environment."[45] The ITLOS was able to apply the concept of precautionary approach through its wider view of the meaning of "marine environment"[46], this also opened the door to subsequent development and further application of environmental law concepts which

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[42] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 59.

[43] UNCLOS Art. 192: General Obligation: States have the obligation to protect and preserve the marine environment.

[44] UNCLOS Art. 193: States have the sovereign righto exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.

[45] *Southern Bluefin Tuna Cases* (*No*. 3 & 4) (*New Zealand v. Japan; Australia v. Japan*) (Provisional Measures, Order of August 27 1999) ITLOS website <https://www.itlos.org/cases/list-of-cases/case-no-3-4/> accessed 10 November 2018, 70.

[46] Alan Boyle, 'Southern Bluefin Tuna Cases', *Max Planck Encyclopedia of Public International Law* (July 2008) para. 7 <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e210> accessed 10 November 2018.

will be discussed in the next chapter.

Two additional points can be made in relation to Part XII that have further implications with IUU fishing. The first point is the liability provisions in Part XII[47], if indeed the conservation and management of fisheries is an element of the marine environment and part of State obligation under international law, States should also be liable for failure to fulfil such obligations. The issue here lies in the wording of Article 235(1), where it notes "States shall be liable in accordance with international law." For issues like oil pollution from ships, there exists a comprehensive network of conventions and schemes that are aimed at addressing the issue of liability, and thus can be invoked when the damage does happen.[48] This is certainly not the case for fisheries, since the division between legal and illegal fishing did not even exist before the UNCLOS. Fisheries as an economic activity has a long history, but the regulation of fisheries is a relatively new phenomenon, and the supporting international legal structure, as well as legal reasoning for the liability of flag states in certainly an aspect that can and should be further developed.

The second point would be the mechanism of prompt release in the UNCLOS, which is the requirement that in the situation of arresting or detaining of a vessel for violation of regulations, the vessel and crew should be promptly released upon the posting of reasonable bond or other security.[49] Pursuant to Article 292(1):

> *"Where the authorities of a State Party have detained a vessel flying the flag*

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[47] UNCLOS Art. 235.

[48] See generally: R. R. Churchill & A.V. Lowe, *The Law of the Sea* (3rd edn, Manchester University Press 1999) Chapter 15.

[49] UNCLOS Art. 73, 220 & 226; Seline Trevisanut, 'Twenty Years of Prompt Release of Vessels: Admissibility, Jurisdiction, and Recent Trends' (2017) 48 Ocean Development & International Law 300, 301.

> *of another State Party and it is alleged that the detaining State has not complied with the provisions of this Convention for the prompt release of the vessel or its crew upon the posting of a reasonable bond or other financial security, the question of release from detention may be submitted to any court or tribunal agreed upon by the parties or, failing such agreement within 10 days from the time of detention, to a court or tribunal accepted by the detaining State under article 287 or to the International Tribunal for the Law of the Sea, unless the parties otherwise agree."*

The procedure of prompt release is not the main focus of this point, instead it is on the mechanism itself and how this could be seen as one of the issues that need "further work" in light of the IUU fishing problem. It has been observed that the purpose of the prompt release procedure is to balance the interests of, on the one hand, coastal States in protecting their sovereign rights and, on the other, flag States in the maritime activities of their fleet. The prompt release procedure was introduced into the UNLOSC as a response to the extension of coastal States' rights in the EEZ.[50] While this position and the limits of jurisdiction in Article 292 has been strictly followed in the practice of the ITLOS, it is also not unreasonable to expect opposing opinions arising with the growing concern for the marine environment, which also leads to different approaches for coastal States when dealing with arrested vessels or vessels that are suspected for conducting illegal fishing.

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[50] Seline Trevisanut, 'Twenty Years of Prompt Release of Vessels: Admissibility, Jurisdiction, and Recent Trends' (2017) 48 Ocean Development & International Law 300, 30; David Haywood Anderson, 'Prompt Release of Vessels and Crew', *Max Planck Encyclopedia of Public International Law* (May 2008) para. 3 <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e74?rskey=CjWWKW&result=1&prd=OPIL> accessed 10 November 2018.

2.2 Compliance Agreement

Following the outcome of the United Nations Conference on Environment and Development (UNCED)[51], the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (hereinafter "Compliance Agreement") was quickly negotiated and adopted by the FAO Conference at the 27th session in November 1933 and entered into force on 24 April 2003.[52] As of July 2018, there are 42 parties to the agreement.[53] Initially, the Compliance Agreement was an effort to deal with the problem of "reflagging",[54] but the final results were slightly more than that. The aims of the Compliance Agreement are to enhance the role of flag States and ensure that States strengthen its control over its vessels to ensure compliance with international conservation and management measures,[55] as the Preamble of the Compliance Agreement recalls that "the failure of flag States to fulfil their responsibility with respect to fishing vessels entitled to fly their flag", and "the practice of flagging or reflagging vessels as a means of avoiding compliance with international conservation and management measures for living marine resources", "are among the factors that seriously undermine the effectiveness of such

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[51] David Freestone, 'Fisheries, High Seas', *Max Planck Encyclopedia of Public International Law* (March 2009) para. 7 <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1162?rskey=vAMnhT&result=2&prd=OPIL> accessed 10 November 2018.

[52] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 60.

[53] Status of the Compliance Agreement on FAO website: <http://www.fao.org/fileadmin/user_upload/legal/docs/012s-e.pdf> accessed 10 November 2018.

[54] David Balton, 'The Compliance Agreement' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 27.

[55] Kevern Cochrane & David Doulman, 'The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat' (2005) 360 Phil. Trans. R. Soc. B 77, 79.

measures".[56]

With a focus on this subject, the core articles of the Compliance Agreement can be seen in Article III on flag State responsibility, Article IV on records of fishing vessels, Article V on international cooperation and Article VI on exchange of information. As the basic obligation that the parties should comply with, the principle of flag State responsibility is that "each Party shall take such measures as may be necessary to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures."[57] Subsequent provisions in the Compliance Agreement elaborates the special responsibilities of flag States to this end. Starting with the authorization of vessels to be used for fishing on the high seas, flag States may only do so when satisfied that they are able to exercise effectively their responsibilities[58], and they must do so through appropriate authority of that State.[59] Flag States may not authorize vessels previously registered in the territory of another State that has undermined the effectiveness of international conservation and management measures to fish on the high seas.[60] Flag States are also required to apply enforcement measures against vessels acting in contravention to the agreement, which should be "of sufficient gravity as to be effective in securing compliance with the requirements of this Agreement" and "to deprive offenders of the benefits accruing from their illegal activities".[61] The Compliance Agreement also sets

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[56] Compliance Agreement, Preamble. Text of the agreement as seen in: Food and Agriculture Organization, *Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas* (FAO 1995), available at: <http://www.fao.org/documents/card/en/c/8cb30770-3145-55ed-a0db-315cbbb722a6> accessed 10 November 2018.

[57] Compliance Agreement, Art. III(1)(a).

[58] Compliance Agreement, Art. III(3).

[59] Compliance Agreement, Art. III(2).

[60] Compliance Agreement, Art. III(5)(a).

[61] Compliance Agreement, Art. III(8).

up a chain of recording and reporting procedures to enable the flag State to fulfil its obligations under the agreement, this ranges from the recording of vessels[62], the providing of operational information from the vessels[63], to most importantly, the exchange of information between Parties and/or the FAO.[64]

Article III(8) is particularly important in the sense that it obliges flag States to establish and apply sanctions relating to activities which occur on the high seas and not in waters subject to national jurisdiction[65], and the latter part of depriving offenders of illegal benefits have become increasingly emphasized in practice (one example can be found in the EU's effort to combat IUU fishing in its own capacity). Another provision that should be pointed out is Article V(2), as part of the requirement for international cooperation, the role of port States is to notify the flag State if there are reasonable grounds to believe that a vessel was used for illegal activity.

Generally speaking, the Compliance Agreement mainly reiterates the provisions of the UNCLOS related to the effective control of fishing vessels[66], providing supplement and expansion of the originally vague and broadly worded provisions of Part VII of the UNCLOS, providing precise operational duties for the flag States.[67]

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[62] Compliance Agreement, Art. III(6), IV.

[63] Compliance Agreement, Art. III(7).

[64] Compliance Agreement, Art. V, VI.

[65] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 139.

[66] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 60.

[67] Kaare Bangert, 'Fisheries Agreements', *Max Planck Encyclopedia of Public International Law* (January 2018) para. 3 <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-

But it can also be seen as implying a new approach towards the regime of fisheries on the high seas. While all States retain their right to sail ships flying their flag on the high seas that is provided under the UNCLOS (Art. 90) and the right to enable fishing vessels to fly their flag on the high seas, those rights are now subject to the conditions of flag State responsibility. Thus, to allow vessels flying the national flag to undermine the effectiveness of international conservation and management measures can now be considered as a breach of obligation under international law, which was not expressed in the UNLCOS.[68]

2.3 Fish Stocks Agreement

As discussed above, the UNCLOS contains specific provisions regarding the conservation and management of straddling fish stocks and highly migratory species, as a response to the ongoing problems and failures to prevent the overexploitation of these fish stocks[69], Agenda 21 of the UNCED called for the convening of an intergovernmental conference under United Nations auspices to promote effective implementation of these provisions.[70] The United Nations General Assembly (UNGA) subsequently adopted Resolution 47/192[71], and the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks was convened in 1993.

As a result of the negotiations, The Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the

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e1158?rskey=vAMnhT&result=4&prd=OPIL> accessed 10 November 2018.

[68] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 139.

[69] Kevern Cochrane & David Doulman, 'The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat' (2005) 360 Phil. Trans. R. Soc. B 77, 79.

[70] Agenda 21 para. 17.49(e).

[71] UNGA Res 47/192 (29 January 1993) UN Doc A/Res/47/192.

Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (hereinafter "Fish Stocks Agreement") was adopted on 4 August 1995, and entered into force on 11 December 2001. Currently, there are 89 State Parties to the Agreement, including the European Union.[72]

The first main aspect of the Fish Stocks Agreement that provides a new way of understanding fishing activities on the high seas is the expressed incorporation of the precautionary approach. The Agreement provides that "States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures."[73] It should be noted that the Fish Stocks Agreement requires the application of precautionary for both the targeted species as well as non-target species (associated and dependent species), which strengthens the effect of precautionary approach as a conservation tool. It has also lead to incorporation of precautionary requirements in the treaties of newly established regional fishery management organizations (RFMO), and the adoption or implementation of similar requirements in the framework of existing RFMOs.[74]

The second aspect of the Fish Stocks Agreement is the emphasis on the duty for States to cooperate through appropriate regional or sub-regional fisheries management organisations

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[72] Basic information on the Fish Stocks Agreement can be found at: <http://www.un.org/Depts/los/convention_agreements/convention_overview_fish_stocks.htm> accessed 15 November 2018.

[73] Fish Stocks Agreement Art. 6(2); Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 140.

[74] Rosemary Rayfuse, 'Precautionary and the Protection of Marine Biodiversity in Areas beyond National Jurisdiction' in David Freestone (ed), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agendas* (Martinus Nijhoff 2013) 101.

and arrangements.[75] The significance of such duties within the Fish Stocks Agreement is that it deviates from the traditional principle of freedom of fishing on the high seas. On the one hand, States that have a real interest in the certain fish stocks are entitled to join the competent fisheries management[76]; but on the other hand, only those States that become members of such an organization or which agree to apply the conservation and management measures established by such an organization have access to the fish stocks.[77] Furthermore, the Fish Stocks Agreement not only prescribes conditions and obligations for the flag State on the authorization of vessels flying its flag to fish on the high seas, it also attributes enforcement jurisdiction to port States and other parties to the Agreement or regional fisheries organizations, enabling the stopping, boarding and inspection of vessels on the high seas.[78]

The linkage between access to fisheries and membership in RFMOs or acceptance to apply the conservation and management measures adopted by RFMOs suggest it is the intent of the Agreement to place the competence to regulate straddling and highly migratory fish stocks in the hands of RFMOs, since States are no longer to avoid the duty to cooperate by not participating in the relevant management organizations.[79] Combined with the expansion of enforcement methods, the underlying idea of the Fish Stocks Agreement can be seen as an encroachment on the traditional principle of freedom on the high seas, in essence, the Fish

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[75] Fish Stocks Agreement Art. 5, Art. 8.

[76] Fish Stocks Agreement Art. 8(3).

[77] Fish Stocks Agreement Art. 8.

[78] Fish Stocks Agreement Art. 21(1).

[79] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 62; Tore Henriksen, Geir Honneland & Are Sydnes, *Law and Politics in Ocean Governance: The UN Fish Stocks Agreement and Regional Fisheries Management Regimes* (Martinus Nijhoff 2006) 16.

Stocks Agreement effectively introduced a change in concept and substantial regulatory innovations to the UNCLOS regime.[80] It is perhaps best summarized in a speech made by the Deputy Assistant Secretary for Oceans, Fisheries and Space of the United States of America:

> *"Let us be clear about the import of this proposition—the living resources of the sea are no longer open to 'free for all' harvesting. If a regional fisheries organization has set rules to regulate high seas fishing, only those States whose vessels abide by the rules may participate in the fishery…Today, the freedom to fish on the high seas today carries a clear duty—to cooperate in the conservation of fishery resources. In short, the Agreement is the international community's declaration that free riders whose fishing activities undermine the effectiveness of regional conservation measures will no longer be tolerated."*[81]

One additional point of interest concerning the Fish Stocks Agreement is the introduction of the "fishing entity", as stipulated, the Fish Stock Agreement "applies mutatis mutandis to other fishing entities whose vessels fish on the high seas."[82] Due to the nature of the Fish Stock Agreement as a framework agreement, the legal status of such entities and their corresponding rights and obligations under international law are not clearly defined, and it has been believed that since Taiwan is the only fishing entity, the concept itself was developed to address the political problems associated with Taiwan's status in international

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[80] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 142-143.

[81] Quote from: Sean D. Murphy (ed), 'Contemporary Practice of the United States Relating to International Law' (1999) 93 Am. J. Int'l L. 470, 494-496 (Speech titled "New International Initiatives to Restore and Sustain Fisheries" given by Mary Beth West at a Wildlife Fund Conference in Lisbon on 15 September 1998); Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 143.

[82] Fish Stock Agreement Art. 1(3).

law.[83] It is not relevant for this research to delve further into the issue of Taiwan's legal status or personality in international law. What is relevant concerning the problem of IUU fishing is the fact that Taiwan is an important actor that must be included in any attempt at fishery conservation and management on the international level for such attempt to be successful. In the case of the Fish Stocks Agreement, it can be understood that fishing entities can enjoy certain rights and assume obligations as State parties do under the Agreement.[84] On the one hand, these rights may include the establishment of and entering into RFMOs[85], and the participatory rights within such organizations (allocations of allowable catch or levels of fishing effort)[86]; on the other hand, corresponding obligations may consist of: application of key principles of conservation in areas under national jurisdiction[87]; cooperation with other States[88]; fulfilling flag States responsibilities[89]; and taking part in port State enforcement actions.[90]

Furthermore, the usage of the concept of fishing entity can also be seen in the Code of Conduct for Responsible Fisheries[91] and the IPOA-IUU.[92] The content of these two

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[83] Martin Tsamenyi, 'The Legal Substance and Status of Fishing Entities in International Law: A Note' (2006) 37 Ocean Development & International Law 123, 123.

[84] Martin Tsamenyi, 'The Legal Substance and Status of Fishing Entities in International Law: A Note' (2006) 37 Ocean Development & International Law 123, 126.

[85] Fish Stocks Agreement Art. 9.

[86] Fish Stocks Agreement Art. 10(b).

[87] Fish Stocks Agreement Art. 5.

[88] Fish Stocks Agreement Art. 8.

[89] Fish Stocks Agreement Art. 18-22.

[90] Fish Stocks Agreement Art. 23.

[91] Code of Conduct Art. 4.1: All members and non-members of FAO, fishing entities and relevant subregional, regional and global organizations, whether governmental or nongovernmental, and all persons concerned with the conservation, management and utilization of fisheries resources and trade in fish and fishery products should collaborate in the fulfillment and implementation of the objectives and principles contained in this Code.

[92] IPOA-IUU Art. 5: The IPOA is also directed as appropriate towards fishing entities as referred to in the Code of Conduct.

instruments will be discussed in the following sections, but from a structural view, the combination of these instruments, either legally binding or voluntary, has acknowledged the importance of fully including every related actor as a unified front in the effort to combat the IUU problem, and have consequently created a specific platform for that purpose.

3. Non-Binding Instruments

3.1 Code of Conduct for Responsible Fisheries

The Code of Conduct for Responsible Fisheries (Hereinafter "Code of Conduct") is a soft law instrument that was adopted unanimously by the 28th Session of the FAO Conference on 31 October 1995.[93] The Code of Conduct identified that "world fisheries have become a market-driven, dynamically developing sector of the food industry and coastal States have striven to take advantage of new opportunities by investing in modern fishing fleets and processing factories in response to growing international demand for fish and fishery products.[94]", it also noted that "by 1980s it became clear, however, that fisheries resources could no longer sustain such rapid and often uncontrolled exploitation and development, and that new approaches to fisheries management embracing conservation and environmental considerations were urgently needed"[95]. The aim of this instrument is thus to provide "a necessary framework for national and international efforts to ensure sustainable exploitation

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[93] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 142-137; Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 67; Kevern Cochrane & David Doulman, 'The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat' (2005) 360 Phil. Trans. R. Soc. B 77, 79.

[94] FAO, *Code of Conduct for Responsible Fisheries* (FAO 1995) v (Preface of the Code of Conduct).

[95] FAO, *Code of Conduct for Responsible Fisheries* (FAO 1995) v (Preface of the Code of Conduct).

of aquatic living resources in harmony with the environment".[96]

It has been observed that the Code of Conduct bears more importance for the regulation of fisheries when compared to previous voluntary instruments because of three features. Firstly, the Code of Conduct covers a wide range of issues, and is the first time the conservation and management of fisheries is approached in a systematic way, which allows it to include all aspects and activities related to fishing, such as aquaculture, processing, and the trade of fish; secondly, the Code of Conduct can potentially be expanded when necessary, through the adoption of "technical guidelines", providing detailed and technical regulations for any fishery issue that may occur; and lastly, the Code of Conduct applies to a wide range of subjects, allowing for comprehensive and effective implementation of conservation and management measures.[97]

The impact of the Code of Conduct on the IUU fishing problem can be seen in two aspects. Firstly from a technical perspective, the Code of Conduct contains provisions addressing a wide range of IUU fishing related activities, particularly illegal fishing such as destructive fishing practices[98] and fishing without authorization[99]; it also places emphasis on the precautionary approach to fisheries and stresses the need to introduce new understanding and methods to deal with uncertainties inherent to fisheries management[100]. Secondly from a perspective of general legal effect, although the Code of Conduct is a voluntary instrument, it still reflects rules that are part of customary international law or those that will acquire

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[96] FAO, *Code of Conduct for Responsible Fisheries* (FAO 1995) vi (Preface of the Code of Conduct).

[97] Gerald Moore, 'The Code of Conduct for Responsible Fisheries' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 94-95.

[98] FAO, *Code of Conduct for Responsible Fisheries* (FAO 1995) 19 (para. 8.4.2 & 8.4.5).

[99] FAO, *Code of Conduct for Responsible Fisheries* (FAO 1995) 17 (para. 8.2.2).

[100] Gerald Moore, 'The Code of Conduct for Responsible Fisheries' in Ellen Hey (ed), *Developments in the International Fisheries Law* (Kluwer Law International 1999) 95.

binding force through other international law instruments that come into effect after its adoption[101], and the ideas contained within the Code of Conduct may also influence the further progression of the law of the sea.[102] Evidence of this may be seen in the development of the IPOAs discussed in the next section, all of which point to the Code of Conduct as a source of their making.

3.2 International Plans of Action

The International Plans of Action (IPOAs) are instruments that are developed under the framework of the Code of Conduct for Responsible Fisheries with a voluntary nature. Currently, there are four IPOAs, namely: (1) International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds); (2) International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks); (3) International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity); and (4) International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU). The discussion on the IPOAs will be split into two sections, with the first three IPOAs in one and IPOA-IUU in another. As their title suggest, the first three IPOAs are not directly aimed at IUU fishing, but they still provide some information on how fishery issues may be approached, and in some instances, these IPOAs also lead to further development that reinforce the effort to combat IUU fishing.

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[101] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 138; Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 67.

[102] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 138.

3.2.1 IPOA-Seabirds, IPOA-Sharks & IPOA-Capacity

These three IPOAs were developed together as a necessary form of international agreement to manage certain issues in compliance with the Code of Conduct, which was determined as IPOAs. The texts of these three IPOAs were developed over two intergovernmental meeting in 1998. They were adopted at the 23rd Session of COFI, and later endorsed at the FAO Council.[103]

The IPOA-Seabirds apply to "States in the waters of which longline fisheries are being conducted by their own or foreign vessels and to States that conduct longline fisheries on the high seas and in the EEZ of other States",[104] and aims to reduce incidental catch of seabirds where longline fisheries occur.[105] In comparison, IPOA-Seabirds is the narrowest in scope among the four IPOAs, since it only targets a specific type of fishery and promotes best practice instead of positively placing limitations or prohibitions on fishing, this has also lead to technical solutions that can effectively address the problem (bird-scaring lines, "tori lines").

IPOA-Sharks on the other hand, have a larger scope, applying to all States with shark fisheries[106]; as well as including all species of sharks (sharks, skates, rays, and chimaeras) regardless of the form of fisheries they are taken (directed, bycatch, commercial, recreational, or other forms) and whether the catch was targeted or not.[107] Some requirements highlighted

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[103] FAO, *International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries, International Plan of Action for the Conservation and Management of Sharks, International Plan of Action for the Management of Fishing Capacity* (FAO 1999) iii.

[104] IPOA-Seabirds, para. 9.

[105] IPOA-Seabirds, para. 10.

[106] IPOA-Sharks, para. 17.

[107] IPOA-Sharks, para. 11, 12.

in the IPOA-Sharks have been adopted by RFMOs, especially on the duty to report catches and the banning of the particularly cruel and wasteful practice of "finning",[108] and there is certainly growing concern on the conservation of this group of fish, leading to new developments that will be discussed in the next chapter.

IPOA-Capacity focuses on the problem of excess fishing capacity, which could lead to overfishing, degradation of marine fisheries resources, decline of food production potential and significant economic waste.[109] The objective of this instrument is for States and regional fisheries organizations to achieve an efficient, equitable and transparent management at the global level.[110] Two sets of measures are identified within the IPOA, namely, "Urgent Actions"[111] and "Mechanisms to Promote Implementation"[112] some Urgent Actions mentioned here are similar to those adopted in the IPOA-IUU, such as the establishment of records of fishing vessels[113] and elimination of subsidies and economic incentives that build up excessive fishing capacity.[114]

3.2.2 IPOA-IUU

The issue of IUU fishing was brought up at the 23rd Session of COFI held in February 1999,

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[108] Rachel Cavanagh, Sarah Fowler & Merry Camhi, 'Pelagic Sharks and the FO International Plan of Action for Conservation and Management of Sharks' in Merry Camhi, Ellen Pikitch & Elizabeth Babcock (eds), *Sharks of the Open Ocean: Biology, Fisheries & Conservation* (Blackwell 2008) 488.

[109] IPOA-Capacity, para. 1.

[110] IPOA-Capacity, para. 7.

[111] IPOA-Capacity, Part III.

[112] IPOA-Capacity, Part IV.

[113] IPOA-Capacity, para. 16-18.

[114] IPOA –Capacity, para. 26; Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 68.

where the Committee expressed concern about "information presented indicating increases in illegal, unreported and unregulated fishing, including fishing vessels flying flags of convenience", and pointed out that "Several delegations urged that FAO convene a meeting of experts to identify suitable measures, followed by a technical consultation that would report to the Twenty-fourth Session of the Committee. Before convening such a meeting, FAO should review the activities that had been undertaken by regional fishery management organizations to deal with these problems."[115] Later in the Rome Declaration on the Implementation of the Code of Conduct for Responsible Fisheries that was adopted by the FAO Ministerial Meeting on Fisheries in March 1999, the similar concern on the "world's major marine fishery resources were subject to overfishing, destructive and wasteful fishing practices and excess capacity" and "the growing amount of illegal, unregulated and unreported fishing activities being carried out, including fishing vessels flying flags of convenience"[116] were expressed, along with the goal to "develop a global plan of action to deal effectively with all forms of illegal, unregulated and unreported fishing including fishing vessels flying flags of convenience,… through coordinated efforts by States, FAO, regional fishery management bodies and other relevant international agencies".[117]

The draft for the IPOA-IUU was later produced and discussed in three meetings[118] prior to

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[115] FAO, Report of the Twenty-Third Session of the Committee on Fisheries, Rome, Italy, 15-19 February 1999, FAO Fisheries Report No. 595 (Rome: FAO, 1999), para. 72, available at: <http://www.fao.org/docrep/meeting/X2930E.htm#PROG> accessed 20 November 2018.

[116] FAO, *The Rome Declaration on the Implementation of the Code of Conduct for Responsible Fisheries*, Rome, Italy, 10-11 March 1999, para. 2, available at: <http://www.fao.org/docrep/005/X2220E/X2220E00.HTM> accessed 20 November 2018.

[117] FAO, *The Rome Declaration on the Implementation of the Code of Conduct for Responsible Fisheries*, Rome, Italy, 10-11 March 1999, para. 12(j).

[118] Specifically, Expert Consultation on Illegal, Unreported and Unregulated Fishing organized by the Government of Australia in Cooperation with FAO (15-19 May 2000), Technical Consultation on Illegal, Unreported and Unregulated Fishing (2-6 October 2000), and the Second Technical Consultation on Illegal, Unreported and Unregulated Fishing (22-23 February 2001).

the convening of the 24th Session of COFI, where it was approved.[119] The IPOA was then endorsed by the 120th Session of the FAO Council, [120] securing it as the main international law instrument for combatting IUU fishing.

The objective of the IPOA-IUU is to "prevent, deter and eliminate IUU fishing by providing all States with comprehensive, effective and transparent measures by which to act, including through appropriate regional fisheries management organizations established in accordance with international law."[121] In this sense, the IPOA-IUU is conceived as a "toolbox", which embraces all existing measures that have been shown to be useful in combatting IUU fishing, with a flexible design to allow dynamic development of relevant international law and obligations.[122]

Apart from the definition of IUU fishing, the IPOA-IUU incorporates six principles and strategies, namely: Participation and coordination; phased implementation; comprehensive and integrated approach; conservation; transparency; and non-discrimination.[123]

Part IV of the IPOA-IUU lists the measures that should be implemented to combat IUU fishing, in six categories: All State responsibilities; flag State Responsibilities; coastal State measures; port State Measures; Internationally agreed market-related measures; and regional fisheries management organizations. All State responsibilities include ratification

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[119] FAO, Report of the Twenty-Third Session of the Committee on Fisheries, Rome, Italy, 26 February-2 March 2001, FAO Fisheries Report No. 655 (Rome: FAO, 2001).

[120] FAO, Report of the 120th Session of the Council, para. 9, <http://www.fao.org/docrep/meeting/003/Y1120e/Y1120e00.htm> accessed 20 November 2018.

[121] IPOA-IUU, para. 8.

[122] FAO, *Implementation of the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fisheries* (Rome 2002) xiii.

[123] IPOA-IUU, para. 9.

implementing of international fisheries instruments; sanctions for IUU fishing; removing economic incentives; and implementing monitoring, control and surveillance measures.[124] For flag States, responsibilities include vessel registration, recording and authorization to fish. Coastal State measures focus on monitoring, control and surveillance (MCS) of fishing activities in the EEZ, and the cooperation with other States and RFMOS.[125] Port State measures provide for the control and inspection of fishing vessels entering a port, with enforcement options such as denying entry of a vessel and refusal of landing or transshipment of fish.[126] Market-related measures provide for catch certification and trade documentation schemes, import and export controls or prohibitions may also be adopted if necessary, it is also pointed out that fish stock or species-specific measures may be necessary to remove economic incentive.[127] For RFMOs, the IPOA-IUU reiterated the duty of member States to comply and enforce established measures, and the duty of non-member States to cooperate.[128]

It is clear that the IPOA-IUU provides a broad coverage over the issues relevant to combatting IUU fishing, and while the disadvantages as a voluntary instrument means that there are no binding legal obligation for States to fulfil its requirements, it has been noted that even when an instrument is accepted voluntarily, it can still be developed into a system of well-defined uniform legal consequences, and legal effect can be created through the acceptance and application of State practice.[129] For the IPOA-IUU, it is observed that the acceptance of the instrument has risen along with the increasing interest and attention given

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[124] IPOA-IUU, para. 35, 42, 44.

[125] IPOA-IUU, para. 51.1-51.2.

[126] IPOA-IUU, para. 55-56.

[127] IPOA-IUU, para. 69-70.

[128] IPOA-IUU, para. 78-79.

[129] Peter H. Sand, *Transnational Environmental Law: Lessons in Global Change* (Kluwer 1999) 23.

by States and international organizations on the issue of IUU fishing, allowing the practical measures recommended in the IPOA-IUU to show real impact.[130]

4. Latest Developments

4.1 Port State Measures Agreement

Under the UNCLOS, States enjoy full sovereignty over their ports, with some exceptions in cases of non-discriminatory treatment and vessels in distress,[131] as such, the different standards imposed on their ports of each individual State has been see as weakening the effectiveness of international measures combatting IUU fishing.[132] The first attempt to utilize the "last untapped area" of port State measures (PSM) came in 2005 when COFI endorsed the Model Scheme on Port State Measures to Combat IUU fishing (Model Scheme), which was built upon the existing provisions in international fisheries instruments, including the IPOA-IUU.[133] Following in March 2007, the 27th Session of COFI endorsed the global call for a binding agreement on PSMs, and laid down a time table for the process to adopt such an agreement.[134]

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[130] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 62.

[131] UNCLOS, Art. 25, 218.

[132] Mary Ann Palma, Martin Tsamenyi & William Edeson, *Promoting Sustainable Fisheries: The International Legal and Policy Framework to Combat Illegal, Unreported and Unregulated Fishing* (Martinus Nijhoff 2010) 63.

[133] Judith Swan, 'Port State Measures to Combat IUU Fishing: International and Regional Developments' (2006) 7 Sustainable Development Law and Policy 38, 38.

[134] Robert Daley, 'New Agreement Establishing Global Port State Measures to Combat IUU Fishing' (2010) 2:1 Australian Journal of Maritime & Ocean Affairs 28, 29.

After negotiations in Expert Consultations and Technical Consultations held between 2007 and 2009, the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (hereinafter "Port State Agreement") was approved by the FAO Conference at its 36th Session in November 2009,[135] where the Conference referred to it as "a milestone in the international efforts to ensure responsible and sustainable fisheries" and urged the members "to sign and ratify, accept, approve or accede to the Agreement as soon as possible as to bring it in to force at the earliest possible time".[136] The Port State Agreement entered into force on 5 June 2016, currently there are 56 parties to the Agreement.[137]

Applicable to any foreign vessel used, intended or equipped for fishing or fishing-related activities (which includes container vessels and supply vessels that support IUU fishing activity)[138], the core elements of the Port State Agreement include designation of ports[139]; prior notification and authorization of entry[140]; port inspection procedures[141]; and the denial of use of ports.[142] As observed, these measures offer a relatively simple (or technical, in the view of this research) way of empowering States to play a bigger role in combatting IUU fishing, but it is also noted that the Port State Agreement still do not provide enough basis for the necessary punitive enforcement measures that are needed, and this is a gap that can

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[135] Robert Daley, 'New Agreement Establishing Global Port State Measures to Combat IUU Fishing' (2010) 2:1 Australian Journal of Maritime & Ocean Affairs 28, 29.

[136] Blaise Kuemlangen and Michael Press, 'Preventing, Deterring and Eliminating IUU Fishing: Port State Measures' (2010) 40/6 Environmental Policy and Law 262, 262.

[137] Information on FAO website: <http://www.fao.org/port-state-measures/background/parties-psma/en/> accessed 20 November 2018.

[138] Port State Agreement, Art. 3.

[139] Port State Agreement, Art. 7.

[140] Port State Agreement, Art. 8, 9.

[141] Port State Agreement, Art. 12-15.

[142] Port State Agreement, Art. 11, 18.

be filled by other complementary tools, especially those that aim to force flag States to take responsibility for the actions of vessels flying their flag.[143]

4.2 United Nations Sustainable Development Goals

Lastly, the inclusion of fisheries in the Sustainable Development Goals (SDGs) should also not be overlooked, serving as reference goals for the international community from 2015 to 2030, it has been observed that the SDGs (and their individual goals and targets) can be seen as a network that may promote integration and policy coherence across the sectors.[144] Under Goal 14: Life Below Water, targets a wide array of ocean related targets.[145] As already pointed out briefly in Chapter 1, this goal includes broad targets, such as Target 14.C, that place emphasis on the existing law of the sea framework, and aim to strengthen that framework by encouraging more states to participate and implement the requirements of the various legal instruments that are discussed above[146]; Target 14.A also focuses on the increasing marine scientific knowledge through research capacity development and marine technology transfer.[147]

Apart from the broader targets, the majority of the targets are on the other hand, specific targets that focus on different issues. Directly related to the issue of IUU fishing, Target 14.4 calls to end overfishing, IUU fishing and destructive fishing practices with the

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[143] Emma Witbooi, 'Illegal, Unreported and Unregulated Fishing on the High Seas: The Port State Measures Agreement in Context' (2014) 29 International Journal of Marine and Coastal Law 290, 320.

[144] David Leblanc, 'Towards Integration at Last? The Sustainable Development Goals as a Network of Targets' (2015) 23 Sustainable Development 176, 177.

[145] United Nations Sustainable Development Goals website, Goal 14: <https://www.un.org/sustainabledevelopment/oceans/> accessed 15 February 2021.

[146] SDG Goal 14, Target 14.C.

[147] SDG Goal 14, Target 14.A.

implementation of science-based management plans and with an aim of restoring fish stocks as quickly as possible.

Target 14.6 points out that fishery subsidies that contribute to IUU fishing should be eliminated and States should refrain from introducing new such subsidies.[148] This may seem like a relatively straight forward and clearly defined task, but this is actually a debate that has been ongoing since the start of the century, with difficulties occurring every step of the way. Starting with the Doha rounds that in 2000, the first question was whether and how the WTO disciplines could be clarified and improved regarding fisheries subsidies.[149] After the SDGs were established, the negotiations concerning fishery subsidies were re-invigorated in 2017, this time with a focus on the three pillars of substantive disciplines, namely, a prohibition of subsidies to IUU fishing; a prohibition of subsidies to the fishing of stocks that are already overfished; and a prohibition of subsidies that contribute to overcapacity and overfishing.[150] However, to the disappointment of observers[151], members of the WTO still failed to conclude the negotiations by the 2020 deadline, with a new schedule for meetings

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[148] SDG Goal 14, Target 14.6.

[149] Marc Benitah, 'Ongoing WTO Negotiations on Fisheries Subsidies' (2004) 8(12) ASIL Insights <https://www.asil.org/insights/volume/8/issue/12/ongoing-wto-negotiations-fisheries-subsidies> accessed 15 February 2021 (Pointing out three different approaches that were on the table, including the "no need" approach, the "traffic light" approach, and the "special and differential treatment" approach.).

[150] Alice Tipping, *Developmental Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries Subsidies Negotiations: A Discussion Paper by IISD* (IISD 2020) 1 (Also points out that the structure of IUU fishing and overfished stocks were very much set, with the remaining issue being overcapacity and overfishing.).

[151] Elizabeth Fitt, 'Fishing Fail: WTO Negotiators Flunk Deadline to End Harmful Fisheries Subsidies by 20200' (*Mongabay*, 15 December 2020) <https://news.mongabay.com/2020/12/fishing-fail-wto-negotiators-flunk-deadline-to-end-harmful-fisheries-subsidies-by-2020/> accessed 15 February 2021 (Two major obstacles were identified, the first being the rules of exemption for developing countries, and the second being rules for disputed waters.).

in 2021 still under development.[152]

It is also important to note the Targets 14.2[153], 14.5[154], and 14.B[155]. Although not explicitly mentioning IUU fishing, the contents of these targets are non the less interlinked with the problem. The resilience of marine ecosystems, the protection of marine areas, and the support and protection towards small scale fisheries all can benefit from the ending of the unsustainable fishing activities stated in Target 14.4, and they can also play an active role in helping to stop those activities.

This mutually beneficial holistic approach of the SDGs is also inherent between the different targets, and the problem of IUU fishing can also hinder the progress of other Goals, such as Goal 1 (No Poverty), Goal 2 (Zero Hunger), Goal 8 (Decent Work and Economic Growth), Goal 11 (Sustainable Cities and Communities), and Goal 16 (Peace, Justice and Strong Institutions).[156] In further detail, Sparks and others noticed the link between the decline of fish stocks and modern slavery in marine fisheries[157] while examining the role of SDG Goal

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[152] IISD, 'WTO Members Delay Agreement on Fisheries Subsidies to 2021' (IISD SDG Knowledge Hub, 16 December 2020) <https://sdg.iisd.org/news/wto-members-delay-agreement-on-fisheries-subsidies-to-2021/#:~:text=The%20WTO's%2011th%20Ministerial%20Conference,by%20the%20end%20of%202020> accessed 15 February 2021 (WTO Deputy Director-General Karl Brauner pointed out that "greater political will, pressure from civil society, and renewed engagement will facilitate the finalization of the agreement.).

[153] SDG Goal 14, Target 14.2: By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

[154] SDG Goal 14, Target 14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.

[155] SDG Goal 14, Target 14.B: Provide access for small-scale artisanal fishers to marine resources and markets (With an Indicator that measures progress by the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries.)

[156] Transnational Alliance to Combat Illicit Trade (TRACIT), *Mapping the Impact of Illicit Trade on the Sustainable Development Goals: Executive Summary* (TRACIT 2019) 8.

[157] Jessica Sparks and others, 'Growing Evidence of the Interconnections between Modern Slavery,

8, Target 8.7.[158] It should be not unreasonable to conclude that the Problem of IUU fishing is not and should no longer by viewed as a simple fish stock conservation problem, it is in fact, a problem of the fishing industry and its business practices. Every aspect that is touched by the seafood supply chain thus has the potential and ability to influence that practice, and IUU fishing can only be eliminated if each and every one of these aspects are onboard the same ship that is called "sustainability". Some aspects of the various indications of IUU fishing and further SDG goals beyond goal 14 will be discussed in the next chapter.

5. Summary and Analysis

From the above listing and analysis of relevant international instruments, several points on the main branch of law currently in place to combat IUU fishing may be summarized, as seen below:

5.1 Formation and Evolution of the International Fisheries Legal Regime

As seen in the examination of the relevant international instruments above, starting from the UNCLOS to the latest Port State Agreement, the trajectory of fisheries law undergone swift emergence, evolution and even erosion, for fisheries law, the majority of changes to the UNCLOS regime have been integrated into the UNCLOS itself, in a process referred to as "evolution by integration".[159] This is especially the case for the earlier instrument, namely:

Environmental Degradation, and Climate Change' (2021) 4(2) One Earth 181, 183.

[158] Goal 8, Target 8.7: Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms.

[159] Tullio Scovazzi, *The Evolution of the Law of the Sea: New Issues, New Challenges* (Brill Nijhoff 2000) 123.

The Fish Stocks Agreement, Compliance Agreement and the Code of Conduct. These instruments, especially the Fish Stocks Agreement, have altered the content of the high seas regime in accordance with the needs of conservation and management, and at the same time reiterated the requirements and obligations within the UNCLOS, strengthening the newly established regime.

The later instruments have moved slightly further, in the sense that they no longer need to define the problem or reiterate the same rules again, instead they are able to be directed to specific issues that need addressing. But they are still technical in nature, assuming the straightforward proposition that the application of certain rules can solve a certain problem. This may be true in some instance, such as the protection of seabirds, simple changes in fishing method and tools can make huge differences with relatively small cost, but for global problems that homogeneous, such as the issue of IUU fishing and fishing capacity, this approach would not be effective.

Thus, there are new approaches that seek to further erode the content of the UNCLOS, which will be discussed in the next chapter, but it should be clear that these actions will not and should not abandon the UNCLOS regime, they just need to introduce the necessary changes on a deeper level to allow the existing framework to function as they are supposed to.

5.2 The Role and Competences of States

In all of the relevant instruments, States have three possible roles, which are coastal States, port States and flag States, each with their own competences. It is clear that the emphasis of fishery regulation have mostly been directed at the flag State and the coastal State, with port

State measures being the latest result of development.[160] This research does not oppose any of these roles, but as far as their competences go, the port State and the coastal State are passive in nature, being bound by the geographic element that is a certain port or an area of the sea, whereas the competence of the flag State is active and follows the vessel wherever it goes. With the jurisdiction over vessels and the individuals that conduct the activity, the flag State is still the most prominent actor to implement the technical rules discussed in this chapter, as well as facilitate the change in perspective or value that will be discussed in the next chapter.

It is the opinion of this research that the role of flag States should still be the centre of dealing with the IUU issue, the role of the coastal State and the port State are there to ensure the flag State assumes all responsibility concerning vessels that fly their flag.

5.3 The Top Down Approach of Fisheries Regulation

Lastly, in correlation with the formation of fisheries law and despite the domestic connection of fishing activity, the effort to regulate this activity and promote conservation and management is mainly a top down effort. Starting from negotiations in the international level, producing instruments that provide rights and obligations to States, as well as detailed technical rules that should be applied to every vessel through national implementation. In short, fishery rules are administrative in nature and was not really important prior to the UNCLOS, due to the minimal breadth of the territorial sea and the majority of the ocean being the high seas. The development of international law not only brought about a new set of international law, it also resulted in the rushed expansion of State administrative powers

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[160] Judith Swan, 'Port State Measures to Combat IUU Fishing: International and Regional Developments' (2006) 7 Sustainable Development Law and Policy 38, 38.

to control its own fleets, which were not fully realized until the IUU fishing problem became serious.

This situation has led to the slow response of States to regulate their fleets, as well as the backlash of the fishing industry when confronted with the hard truth of the limitations and prohibitions placed on their trade that was unrestricted just a couple of decades ago. The consequence of this direct conflict between the fishing industry and international law is perhaps a unique clash unseen in other fields of law, with the State stuck between international obligations and the will of its own people. It is now a fact that the domestic unrest enflamed by the ever growing international pressure to control fisheries have caused turmoil in national political landscapes and may even become a serious obstacle to the effort to combat IUU fishing. This point will be further discussed in Chapter 5.

Chapter 4 The Environmental Branch

1. Introduction

> *"The conservation of the living resources of the sea is an element in the protection and preservation of the marine environment"*[1]

> *"Recently it's become clear that IUU carries with it another steep cost. In developing countries around the world […] IUU fishing has become an engine of slavery."*[2]

Following the law of the sea approach in the previous chapter, this chapter will look into what I would refer to as the "second branch" of law that addresses the IUU fishing problem. This branch contains a myriad of different approaches which are derived from sources that are not limited to the UNCLOS and the law of the sea. As the two opening quotes indicate, the first portion of this branch stems from international environmental law and is created as a result of environmental concerns which one could easily associate with the damage caused by IUU fishing. The second portion, however, comes from a mixture of human rights, humanitarian, and security concerns that at first sight does not relate directly to IUU fishing, but nonetheless has gained traction in recent years. In an attempt to present these varying and even fragmented approaches in an orderly fashion, they will be arranged according to the element of fishing where they chose to focus and apply pressure.

The three sections of this branch is thus as follows: The first being the approaches that "encourage" the flag states to take responsibility, with a focus on the unilateral actions of the

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[1] *Southern Bluefin Tuna Cases* (*No. 3 & 4*) (*New Zealand v. Japan; Australia v. Japan*) (Provisional Measures, Order of 27 August 1999) para. 70. < https://www.itlos.org/cases/list-of-cases/case-no-3-4/ > accessed 15 February 2021.

[2] Sandy Aylesworth, 'The Human Toll of Illegal Fishing' (*NRDC Expert Blog*, 27 June 2019) <https://www.nrdc.org/experts/sandy-aylesworth/human-toll-illegal-fishing> accessed 15 February 2021.

EU and the US; the second is the approach that reverses the status of "fish stocks" to "fish species" through decommodification, with a focus on the example of protection effort that has developed specifically around sharks; and the third includes approaches that alter and expand the definition of illegal fishing, with focus on human aspect of fisheries and the potential of conflict that IUU fishing imposes.

It should also be pointed out that similar to the previous chapter, this is not an exhaustive listing of all the available approaches to address IUU fishing, but rather a selected list based on the criteria that these approaches not only extend or identify further dimension of the concept of IUU fishing, but also seek to address the problem through fundamental changes to the way IUU fishing is perceived.

2. Focusing on the Behavior and Responsibility of the Flag State

The responsibility of flag states will be the first approach discussed of this chapter since the lack of effective flag control over vessels of the flag state is one of the fundamental causes of IUU fishing.[3] There is no doubt that the principle of flag state jurisdiction is one of the most commonly acknowledged in the law of the sea, but as Goodman points out, while the rights of flag states have remained the same, their responsibilities have expanded significantly. This growing list of responsibilities combined with the debate on flags of convenience, and the unresolved issue of genuine link have led to discussion of the effectiveness of flag state jurisdiction, and whether or not such a responsibility can even be met by flag states.[4] In an ideal setting, Flag states would of course uphold the standards as

[3] Rajesh Babu, 'State responsibility for illegal, unreported and unrelated fishing and sustainable fisheries in the EEZ: some reflections on the ITLOS Advisory Opinion of 2015' (2015) 55(2) Indian Journal of International Law 239, 264.

[4] Camille Goodman, 'The Regime for Flag State Responsibility in International Fisheries Law – Effective

stipulated in the law of the sea and the various legal instruments discussed in the previous chapter, however, as Lord Donaldson pointed out,

> *"the current system of flag state control falls well short of this ideal* […] *Regrettably it is beyond argument that not all flag states live up to their responsibilities."*[5]

The main focus of this section will thus be placed on the efforts of facilitating the flag states to fulfill their responsibilities. Two international legal actions and two state practices will be examined. The former being the SRFC Advisory Opinion and the South China Sea Arbitration; while the latter consists of state practices of the EU and the US.

2.1 International Legal Actions Concerning Flag State Responsibility

2.1.1 SRFC Advisory Opinion

The International Tribunal for the Law of the Sea (ITLOS) delivered the SRFC Advisory Opinion, the first advisory opinion in its history, on 2 April 2015.[6] The request for this advisory opinion was submitted by the Sub-Regional Fisheries Commission (SRFC), a regional fisheries management organization consisting of seven west African states member states.[7] It was expressed by these member states, that the IUU fishing activities in the region

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Fact, Creative Fiction, or Further Work Required?' (2009) 23 Australian & New Zealand Maritime Law Journal 157, 157.

[5] Quoted by: John Mansell, *Flag State Responsibility: Historical Development and Contemporary Issues* (2009 Springer) 1.

[6] *Request for an advisory opinion submitted by the Sub-Regional Fisheries Commission (SRFC)* (*No. 21*) (*Advisory Opinion, Advisory Opinion of 2 April 2015*) < https://www.itlos.org/en/main/cases/list-of-cases/case-no-21/> accessed 25 February 2021 [hereinafter "SRFC Advisory Opinion"].

[7] The seven member states are: Cabo Verde, Gambia, Guinea, Guinea Bissau, Mauritania, Senegal, and

had overexploited the fish resources, which in turn undermined their capacity to maintain local fishing industries and provide fish protein for the population, resulting in the bankruptcy of businesses and loss of jobs.[8]

The SRFC presented four questions for the consideration of the Tribunal:

> *(1) What are the obligations of the flag State in cases where illegal, unreported and unregulated (IUU) fishing activities are conducted within Exclusive Economic Zones of third party States?*
>
> *(2) To what extent shall the flag State e held liable for IUU fishing activities conducted by vessels sailing under its flag?*
>
> *(3) Where a fishing license is issued to a vessel within the framework of an international agreement with the flag State or with an international agency, shall the State or the international agency be held liable for the violation of the fisheries legislation of the coastal State by the vessel in question?*
>
> *(4) What are the rights and obligations of the coastal State in ensuring the sustainable management of shared stocks and stocks of common interest, especially the small pelagic species and tuna?*

Concerning the Tribunals opinion regarding the first question that is most relevant to this chapter, the Tribunal expresses that the flag state has an "obligation to ensure" that vessels flying under its flag aide by the law of the coastal state where fishing is conducted. This responsibility to ensure is enshrined in the provisions of the article 58(3), article 62(4), and article 192 of the UNCLOS. The joint interpretation of the articles leads to the conclusion that flag states have to take necessary measures to ensure that vessels flying its flag do not

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Sierra Leone, a list of member states can be found on the SRFC website: <https://spcsrp.org/en> accessed 25 February 2021.

[8] Rajesh Babu, 'State responsibility for illegal, unreported and unrelated fishing and sustainable fisheries in the EEZ: some reflections on the ITLOS Advisory Opinion of 2015' (2015) 55(2) Indian Journal of International Law 239, 242.

engage in IUU fishing.[9]

The Tribunal also clarified that the responsibility to ensure is an obligation of due diligence, which is not an obligation of result, but an obligation of means. As explained by the Tribunal, it is an obligation to "deploy adequate means, to exercise best possible efforts, to do the utmost" to prevent IUU fishing by ships flying their flag.[10]

On a further note, ITLOS reaffirmed its views on the importance of marine living resources conservation expressed in the Southern Bluefin Tuna Case, as quoted at the beginning of this chapter, the same position was reiterated recently in the SRFC Advisory Opinion placing emphasis on the connections between managing marine living resources and marine environmental protection.[11]

As Ventura points out, the although the Tribunal did not provide any stipulation on concrete measures that the flag state should carry out in order to fulfill its responsibility to duly ensure the vessels flying their flag do not engage in IUU fishing, the opinion of the Tribunal did in fact, reinforce the interaction between UNCLOS and other regimes, which is a shift towards an integrated approach to addressing global issues such as IUU fishing.[12]

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[9] Victor Alencar Mayer Feitosa Ventura, 'Tackling illegal, unregulated and unreported fishing: the ITLOS Advisory Opinion on Flag State Responsibility for IUU fishing and the principle of due diligence' (2015) 12 Braz. J. Int'l L. 50, 61.

[10] SRFC Advisory Opinion, para. 129.

[11] Tim Stephens, 'ITLOS Advisory Opinion: Coastal and Flag State Duties to Ensure Sustainable Fisheries Movement' (2015) 19(8) ASIL Insight <http://www.asil.org/insights/volume/19/issue/8/itlos-advisory-opinion-coastal-and-flag-state-duties-ensure> Accessed 25 February 2021; SRFC Advisory Opinion, para 120.

[12] Victor Alencar Mayer Feitosa Ventura, 'Tackling illegal, unregulated and unreported fishing: the ITLOS Advisory Opinion on Flag State Responsibility for IUU fishing and the principle of due diligence' (2015) 12

2.1.2 South China Sea Arbitration

The South China Sea is a semi-enclosed sea situated in Southeast Asia, covering an area roughly 3.5 million square kilometers, countries surrounding this body of water includes Vietnam to the west; the Philippines, Malaysia, and Brunei to the east; Malaysia and Indonesia to the south; China and Taiwan to the North.[13] The width from east to west ranging from 550-650 nautical miles, and the length from north to south is more than 1200 nautical miles.[14] The South China Sea is a home to the major international shipping route connecting the Indian Ocean and northeast Asia, leading to ports in China, Japan, Korea and Russia.[15] Ships enter the South China Sea either through the Straits of Malacca and Singapore Strait or the Sunda Strait, and exit via the Taiwan Strait or the Luzon Strait.[16]

There are three main groups of islands in this area that are the source of the disputes, namely, the Spratly Islands, the Paracel Islands, and Scarborough Shoal. For the purpose of this discussion, the focus is on the Spratly Islands, where China and the Philippines

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Braz. J. Int'l L. 50, 62-64.

[13] Permanent Court of Arbitration *Case No. 2013-19 In the Matter of the South China Sea Arbitration (Philippines v. China)* (2016), Award, para 3 <https://pcacases.com/web/view/7> accessed 25 February 2021 [Hereinafter "South China Sea Arbitration"]; Zhiguo Gao and Bing Bing Jia, 'The Nine-Dash Line in the South China Sea: History, Status, and Implications' (2013) 107 No.1 AJIL 98, 99.

[14] Robert Beckham, 'The UN Convention on the Law of the Sea and the Maritime Disputes in the South China Sea' (2013) 107 No.1 AJIL 142, 143.

[15] Clive Schofield, 'Dangerous Ground: A Geopolitical Overview of the South China Sea' in Sam Batemen and Ralf Emmers (eds.), *Security and International Politics in the South China Sea* (Routledge 2009) 18.

[16] Robert Beckham, 'The UN Convention on the Law of the Sea and the Maritime Disputes in the South China Sea' (2013) 107 No.1 AJIL 142, 143.

both occupy several features.[17]

The natural resources existing in the South China Sea has been discussed in detail by previous research, in general, it is acknowledged that the area holds possible deposits of oil and natural gas in the seabed and subsoil,[18] as well as highly productive fish stocks.[19] Related to the arbitration and conflict at hand, it is also observed that this area is home to an extensive coral reef ecosystem, which are among the most biodiverse in the world. This is especially the fact in the waters surrounding the Spratly Islands, a research in 2015 discovered that of the 571 types of coral local to the South China Sea, 333 types can be found in these waters,[20] furthermore, species such as giant clams and sea turtles that are recognized as vulnerable or endangered can also be found in the area.[21]

The tribunal also noted that the coral reefs are fragile and degrade under human pressure, such as overfishing, destructive fishing, pollution, human habitation, and construction.[22] Moreover, the ocean currents and life cycle of species forms a high degree of connectivity between different ecosystems, meaning the impact of environmental harm

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[17] Robert Beckham, 'The UN Convention on the Law of the Sea and the Maritime Disputes in the South China Sea' (2013) 107 No.1 AJIL 142, 143-144.

[18] Zhiguo Gao and Bing Bing Jia, 'The Nine-Dash Line in the South China Sea: History, Status, and Implications' (2013) 107(1) AJIL 98, 99-100.

[19] South China Sea Arbitration, para 823.

[20] Danwei Huang and others, 'Extraordinary Diversity of Reef Corals in the South China Sea' (2015) 45 Marine Biodiversity 157, 159-160.

[21] South China Sea Arbitration, para 823.

[22] South China Sea Arbitration, para 824.

in the Spratly Islands could possibly affect the health and viability of ecosystems in other parts of the South China Sea.[23]

Prior to the arbitration, China and the Philippines have already been through a series of actions and confrontations, most recently in the period of mid-2010 to 2012, with naval maneuvers, aircrafts and diplomatic objections and accusations, which culminated in 2012 with a standoff at Scarborough Shoal. This series of events were described as a confrontation between power politics and liberalism-legalism, where China applied an aggressive campaign and overwhelmed the Philippines, driving them out of the disputed feature, and the Philippines in turn files a case against China to counter and challenge its power play. [24] Thus, it is clear that the South China Sea Arbitration is a result of territorial dispute.

From the perspective of the disputes happening in the South China Sea, the South China Sea Arbitration is a distinctive and unique event, in the sense that it not only addressed the disputes through classic approaches, but also opened new possibilities for alternative dispute resolution. As observed before the conclusion of the arbitration, the main approaches to the territorial and maritime jurisdiction disputes of the area are traditionally considered to be issues of: (1) acquisition of territorial sovereignty or title over the marine features; and (2) international law of the sea.[25] However, it is also speculated that due to the complexity and uncertainty of the intersecting legal difficulties, neither of

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[23] South China Sea Arbitration, para 825.

[24] Renato De Castro, 'The Philippines Confronts China in the South China Sea: Power Politics vs. Liberalism-Legalism' (2015) 39 Asian Perspective 71, 75-76, 95.

[25] David Ong, 'A Bridge Too Far? Assessing the Prospects for International Environmental Law to Resolve the South China Sea Dispute' (2015) 22 International Journal on Minority and Group Rights 578, 579.

these established fields of international law will be successful in resolving these disputes before an international court and tribunal.[26] As we can now see, the South China Sea Arbitration did address legal issues under the law of the sea, but had no jurisdiction over issues of sovereignty and territory, which in fact is also a contributing factor in the current conflict.

Turing to the actual substance of the arbitration that is related to fishing. The Philippines asserted in Submissions No. 11 and No. 12(B) that China had violated its obligations under the UNCLOS to protect and preserve the marine environment at Scarborough Shoal, Second Thomas Shoal, Cuarteron Reef, Fiery Cross Reef, Gaven Reef, Johnson Reef, Hughes Reef and Subi Reef.[27]

The actual conducts that are in violation can be divided into two categories: harmful fishing practices, and harmful construction activities.[28] The harmful fishing practices in this case involves civilian fishermen and Chinese government vessels, evidence from the late 1990s to 2015 have shown more than a dozen incidents of Chinese fishing vessels using harmful fishing methods (dynamite, cyanide) and/or harvesting endangered or threatened species (corals, giant clams and marine turtles).[29] But the more serious aspect of these incidents is the Chinese government's "toleration, encouragement of, and failure to prevent environmentally destructive fishing practice".[30]

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[26] Bill Hayton, *The South China Sea: The Struggle for Power in Asia* (Yale University Press 2014) 99.

[27] South China Sea Arbitration, para 815-816. All of the features mentioned in the passage are situated in the Spratly Islands, with the exception of Scarborough Shoal.

[28] South China Sea Arbitration para 817.

[29] South China Sea Arbitration paras 826-851.

[30] South China Sea Arbitration, para 894.

The tribunal accepted most of the Philippines Submission, acknowledging that China "must have known of, and deliberately tolerated and protected the harmful acts", and had "no hesitation" in finding that China breached its obligations under Article 192 and 194(5) of the UNCLOS.[31]

2.2 Taking Matters into Their Own Hands: Practices of the US and the EU

2.2.1 EU IUU Fishing Regulation

The EU IUU Regulation[32] is one of the more well-known examples of IUU fishing regulation that places pressure on flag states, this is most likely due to the fact that the EU issued a yellow card to Taiwan in late 2015[33], and only lifted it in 2019.[34]

The EU IUU Regulation essentially implements the EU strategy to combat IUU fishing through the application of strict trade measures on fishing vessels and foreign states that support IUU fishing, at the core of the Regulation, there are four main elements, specifically: (1) port state control over third-country fishing vessels; (2) catch certification requirements; (3) establishment of a Community IUU vessels list; and (4) establishment of a list of non-

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[31] South China Sea Arbitration, para 964. One part that the tribunal found in favor of China is the use of cyanide and dynamite, due to the fact that in recent years there was insufficient evidence, suggesting that affective measures were taken to prevent such practices.

[32] EU Regulation (EC) No. 1005/2008 Establishing a Community System to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Amending Regulations (EEC) No. 2847/93, (EC) No. 1936/2001 and (EC) No. 601/2004 and Repealing Regulations (EC) No. 1093/94 and (EC) No. 1447/1999 [2008] OJ L 286/1 (hereinafter "EU IUU Regulation").

[33] European Commission, 'Fighting illegal fishing: Commission warns Taiwan and Comoros with yellow cards and welcomes reforms in Ghana and Papua New Guinea' (1 October 2015) <https://ec.europa.eu/commission/presscorner/detail/en/IP_15_5736> accessed 25 February 2021.

[34] European Commission, 'Illegal fishing: EU lifts Taiwan's yellow card following reforms' (27 June 2019) <https://ec.europa.eu/commission/presscorner/detail/en/IP_19_3397> accessed 25 February 2021.

cooperating third countries.[35] For the purpose of this chapter, focus will be placed on the fourth element, as this is most relevant with the responsibility of flag states and the deployment of distant water fishing fleets.

As laid out in Article 31(3), *A third country may be identified as a non-cooperating third country if it fails to discharge the duties incumbent upon it under international law as flag, port, coastal or market State, to take action to prevent, deter and eliminate IUU fishing.* The actual factors for the listing of such states further include: (1) The State's implementation of relevant international obligations; (2) the IUU fishing record of such state and its nationals; and (3) the record of the state in taking effective enforcement actions in respect of the IUU fishing activities by its vessels, nationals, and operators.[36]

When such a state is found to be in noncompliance with its international obligations, a first warning (also known as the "yellow card") will be issued to the state before a total ban on exports to the EU is applied, and the European Commission will open a formal dialogue with that state.[37] If the state fails to improve the situation after the dialogue, it will be formally identified as non-cooperating, and the *importation into the Community of fishery products caught by fishing vessels flying the flag of such countries shall be prohibited, and accordingly catch certificates accompanying such products shall not be accepted.*[38]

As my personal experience shows, the mere issuance of a yellow card is sufficient to cause

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[35] Marti Tsamenyi and others, 'The European Council Regulation on Illegal, Unreported and Unregulated Fishing: An International Fisheries Law Perspective' (2010) 25 International Journal of Marine and Coastal Law 5, 14.

[36] EU IUU Regulation Article 31.4, 31.5, 31.6.

[37] Antonia Leroy, Florence Galletti and Christian Chaboud, 'The EU restrictive trade measures against IUU fishing' (2016) 64 Marine Policy 82, 86.

[38] EU IUU Regulation Article 38.1

havoc in the receiving states administration, as is the case of Taiwan due to the fear of losing out on EU's lucrative seafood market.[39] However, as Tsamenyi and others point out, the EU does not have a clear criteria or standard to determine whether or not a state has taken effective measures in respect of its operators, or whether the sanctions applied to the non-cooperating state is sufficient to encourage them to improve.[40] Miller, Bush and Mol also pointed out that while the EU sees itself as a front runner in global IUU regulation with the implementation of the "ground-breaking" EU IUU Regulation, there are nonetheless weaknesses in the system, one of which would be the lack of a universal standard to audit country compliance against.[41] There is also the problem picking softer targets for enforcement, and not actually identifying some of the countries with the worst track record in IUU fishing.[42]

For the most part, I would agree that the EU IUU Regulation is fairly affective, since it does involve a dialogue process where yellow carded states such as Taiwan can have a chance to clean up our acts, and we certainly did. However, there is also the possibility of unintended backlash that would anger the local population and cause domestic political unrest, this will be further discussed in Chapter 5.

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[39] Frank Asche and Martin Smith, *Trade and Fisheries: Key Issues for the World Trade Organization* (WTO 2010) 62.

[40] Marti Tsamenyi and others, 'The European Council Regulation on Illegal, Unreported and Unregulated Fishing: An International Fisheries Law Perspective' (2010) 25 International Journal of Marine and Coastal Law 5, 29.

[41] Alice Miller, Simon Bush and Arthur Mol, 'Power Europe: EU and the illegal, unreported and unregulated tuna fisheries regulation in the West and Central Pacific Ocean' (2014) 45 Marine Policy 138, 140.

[42] Francisco Blaha, 'On the EU yellow cards' (IUU Watch, 16 March 2017) <http://www.iuuwatch.eu/2017/03/eu-yellow-cards/> accessed 25 February 2021.

2.2.2 Actions of the United States

In the case of the United States, there also exists several pathways where IUU fishing can be addressed in the federal legal and administrative structure. Although the actions of the US have previously attracted less attention and media coverage from a Taiwanese perspective, a series of recent events have certainly changed that image, and it is now evident that such actions does possess the ability to produce certain positive effects.

In the first instance, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the primary law governing marine fisheries management in US waters. Subsequently, the Magnuson-Stevens Reauthorization Act, which amends the High Seas Driftnet Fishing Moratorium Protection Act, requires the NOAA to identify countries whose fishing vessels engage in IUU fishing activities. If and after such identification is made, a consultation process will be initiated to encourage the country to take corrective actions. If no such action is taken, the country will receive a negative certification, and the US may prohibit imports of fisheries products from that nation.[43] The Lacey Act also authorizes the United States to impose sanctions against individuals and companies that traffic illegally taken fish and wildlife.[44]

More recently, the United States Department of Labor also published its 2020 annual report on goods produced by child labor or forced labor, and explicitly listed fish harvested by Taiwan's distant water fishing fleet as a product of forced labor.[45] The National Oceanic and

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[43] NOAA, 'Illegal, Unreported and Unregulated Fishing' <https://www.fisheries.noaa.gov/international-affairs/illegal-unreported-and-unregulated-fishing> accessed 25 February 2021

[44] ibid.

[45] Office of Child Labor, Forced Labor, and Human Trafficking, *2020 List of Goods Produced by Child Labor or Forced Labor* (United State Department of Labor 2020) 26

Atmospheric Administration (NOAA) also highlighted the same issue of forced labor in a report to Congress in late 2020, where they identified Taiwan alongside 28 other countries with high risk of human trafficking/force labor within their seafood sector.[46] It was pointed out in the NOAA report that:

> *Documented and undocumented PRC, Indonesian, Filipino, and Vietnamese fishers working on Taiwan-owned and -flagged fishing vessels experience non- or under-payment of wages, long working hours, physical abuse, lack of food or medical care, retention of identity documents, denial of sleep and substandard safety equipment, and poor living conditions. Workers have died as a result of the abuses that occur onboard. The abuses are particularly prevalent in Taiwan's distant water fleet. Migrant workers are forced to illegally fish for threatened, endangered, and protected species.*

As a result, the Fisheries Agency of Taiwan has proposed to amend and strengthen the "Regulations on the Management and Approval of Foreign Flag Fishing Vessels Entering into Ports of the Republic of China" to address the issue of vessels registered under flags of convenience which are owned by Taiwanese nationals, by basically denying them entry to Taiwanese ports.

<https://www.dol.gov/sites/dolgov/files/ILAB/child_labor_reports/tda2019/2020_TVPRA_List_Online_Final.pdf> accessed 15 February 2021.

[46] NOAA, *Report to Congress: Human Trafficking in the Seafood Supply Chain* (2020) <https://media.fisheries.noaa.gov/2020-12/DOSNOAAReport_HumanTrafficking.pdf?null> accessed 15 February 2021.

3.Redefining "Fish": The Example of Shark Protection

3.1 Protecting Fish through Decommodification

This section can be seen as an extension to the tragedy of commons discussed in chapter 2 because a lot of the subsequent development was linked to Hardin's work and how different scholars and academics attempted to resolve the impending tragedy. The most prominent response to addressing the tragedy is the proposal to "privatize" fisheries[47], which is particularly advocated by economists, who view the establishment of property rights in fisheries as an economic institution that promotes efficient use of the resource.[48] However, the consequence of introducing property rights in fisheries through quotas and catch led to the inevitable marketization and ultimately commodification of such rights and privileges.[49] The fish stocks, on the other hand, have already been commoditized and exploited for millennia, with the latest developments in technology and globalization allowing mankind to commoditize them to the point of local extinctions and global depletion.[50] Longo, Clausen,

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[47] Peter Passell, 'One Answer to Overfishing: Privatize the Fisheries' *New York Times* (New York, 11 May 1995) D2 <https://www.nytimes.com/1995/05/11/business/economic-scene-one-answer-to-overfishing-privatize-the-fisheries.html> accessed 15 February 2021 (Featuring statements for several scientists and economists, the article stated that: "If the right to catch a fixed percentage of the annual harvest were assigned to individual fishermen, the problem of the commons would be solved."); David Symes and Kevin Crean, 'Privatisation of the Commons: The Introduction of Individual Transferable Quotas in Developed Fisheries' (1995) 26(2) Geoforum 175, 183-184 (Concludes that if introduced as part of a larger management package, ITQs can contribute to the effective management of overexploited resources.).

[48] Rögnvaldur Hannseeon, *The Privatization of the Oceans* (MIT Press 2017) 1-3 (It is also intriguing to observe the obvious contempt that an economist holds towards "environmentalists", as Hannesson dismisses environmental concerns as obstacles to wealth creation (p.162) and concludes that "rampant environmentalism" is a greater threat to fisheries then overfishing or depletion of fish stocks (p.178).).

[49] Courtney Carothers and Catherine Chambers, 'Fisheries Privatization and the Remaking of Fishery Systems' (2012) 3 Environment and Society: Advances in Research 39, 39.

[50] Tony Pitcher and Mimi Lam, 'Fish Commoditization and the Historical Origins of Catching Fish for Profit' (2015) 14(1) Maritime Studies Article No. 2, 15.

and Clark furthered this point by pointing out that the modern system of fish production is structured around producing global commodities that generate the highest economic growth, but potentially undermining the ecosystem and relevant communities, creating a social-ecological relation which they called "the tragedy of the commodity" in response to Hardin.[51]

It is clear at this point that the process of commodification has damaging impacts. For the communities affected, the decline of the UK fisheries is one example of how a transferable quota system leads to the concentration of quotas in the hands of a few companies.[52] For the fish stocks, the damage can be seen in almost all commercially exploited, but sharks are in a unique position where the process of decommodification[53] has started to take hold, through the mechanisms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

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[51] Stefano Longo, Rebecca Clausen, and Brett Clark, *The Tragedy of the Commodity: Oceans, Fisheries and Aquaculture* (Rutgers University Press 2015) 8-10.

[52] Crispin Dowler, 'Privatising the Seas: How the UK Turned Fishing Rights into a Commodity' (*Unearthed*, 7 March 2019) <https://unearthed.greenpeace.org/2019/03/07/fishing-brexit-uk-fleetwood/?fbclid=IwAR1g3_MRxIJq5myUKeikbbtlB5EVDEXlcG_PSFJ5Q146M4v9IQcO4CwtNDI> accessed 15 February 2021 (Quoting Iain MacSween of the Scottish Fishermen's Association: "The confirmation of property rights in the fishing industry will do for coastal communities what highland clearances did for the agricultural sector.")

[53] Alisdair Rogers, Noel Castree, and Rob Kitchin, *A Dictionary of Human Geography* (OUP 2013) <https://www-oxfordreference-com.ezproxy.lib.gla.ac.uk/view/10.1093/acref/9780199599868.001.0001/acref-9780199599868-e-358?rskey=nDEwp3&result=1> accessed 15 February 2021 (The definition of decommodification: "*A political project designed to consciously keep various goods and services from assuming a commodity status and thus being sellable for money in order to realize a profit.*").

3.2 Sharks as the Flagship for Fish Protection

"Flagship species" are species that have charisma that can be used to raise public awareness about certain conservation issues because people are likely to care more about them, and as popular opinion has shown, sharks are the most charismatic fish.[54] When compared to terrestrial wildlife and other marine species that are not fish, marine fish are generally considered to be less "charismatic", and in turn they receive less attention, if not a lesser degree of conservation effort. It may seem arbitrary to distinguish wildlife based on popularity and lovability, but it is a fact that some animals are regarded by the public to be special and more desirable than others. There are ample examples of charismatic species, dolphins are loved because they are intelligence and capable to interact with us; whales and elephants inspire awe and wonder through their massive bulk; sea turtles are peaceful non-predatory animals that should not be harmed; and everyone has seen pictures of baby seals with big, cute eyes and fluffy white marshmallow fur.[55] This shift in the way people perceive sharks is thus interesting in its own right, and definitely beneficial for the protection of these apex predators.

One major reason for shark consumption was the infamous "shark fin soup", which is a

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[54] Céline Albert, Gloria Luque, and Frank Courchamp, 'The Twenty Most Charismatic Species' (2018) 13(7): e0199149 PLoS One <https://doi.org/10.1371/journal.pone.0199149> accessed 15 February 2021 (Charismatic animals were identified through six traits: Rare, Endangered, Beautiful, Cute Impressive, and Dangerous; with sharks ranking at 14th, higher than dolphins (16th) and whales (20th), the rest of the list is dominated by large terrestrial animals.).

[55] Grahame J. W. Webb, 'Are All Species Equal? A Comparative Assessment' in Jon Hutton and Barnabas Dickson (eds), *Endangered Species, Threatened Convention: The Past, Present and Future of CITES* (Earthscan 2000) 98.

delicacy mainly consumed within the Chinese cultural sphere of East Asia.[56]

3.3 One fish at a Time: The CITES Listing of Sharks

Turing to the protection sharks in the context of CITES, there also exists a terrestrial-marine divide. Since the beginning, the number of marine fish species protected by CITES are significantly lower than terrestrial animals and plants. It is also clear from the text of the convention that it does not impose any kind of restriction or ban on listing marine fish species in the appendices, since the convention even provided an official definition of the term "Introduction from the sea". The intentional steering away from marine fish is a practical phenomenon, one that has been observed and documented by the International Institute for Sustainable Development (IISD) as: "CITES has traditionally avoided discussing marine species, preferring to defer whale Issues to the International Whaling Commission (IWC) and fish-related issues to the Food and Agriculture Organization (FAO)."[57]

There is little discussion as to how this tradition came to be, but the reasons that were used to oppose listing marine fish could possibly shed some light on the general situation and obstacles that were present at the Conference of Parties (COPs) when discussing amendments to the appendices regarding marine fish. The main reasons of disagreement to endorsing CITES as a tool of marine fish conservation include: (1) restrictions on fish trade will harm the global food supply and fishing industry; (2) CITES is not competent to fully

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[56] Grahame J. W. Webb, 'Are All Species Equal? A Comparative Assessment' in Jon Hutton and Barnabas Dickson (eds), *Endangered Species, Threatened Convention: The Past, Present and Future of CITES* (Earthscan 2000) 107-108.

[57] International Institute for Sustainable Development (IISD), 'Summary of the Twelfth Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora' (2002) 21(30) Earth Negotiations Bulletin 15 <https://enb.iisd.org/events/12th-meeting-cites-conference-parties-cop12/summary-report-3-15-november-2002> accessed 25 February 2021.

address marine fish; and (3) CITES only regulates species truly threatened with extinction.[58] Throughout the history of CITES, whenever marine fish was brought to the negotiations, one or more of the above basic reasoning has been invoked to oppose the effort.

Discussion of listing sharks in the CITES began in 1994, when the United States Of America (USA) proposed to include the topic of "management of sharks" into the agenda of COP9. Two main subjects that the USA proposed to discuss were:

> *"(1) to encourage discussion of how best to collect data on international trade in shark parts and products, particularly how to document catches by species; and*
>
> *(2) to collect data that will provide the best information about the impact of international trade (including introduction from the sea) in shark parts and products, both on shark populations and on the ecosystems of which they are a part."*[59]

This proposal was successful and lead to the adoption of Resolution Conf. 9.17. In this resolution, two direct actions were requested by the COP:

> *(1) Urges the Parties to submit to the Secretariat all available information concerning the trade and biological status of sharks, including historical catch and trade data on shark fisheries;*

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[58] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 289.

[59] CITES Doc. 9.58 <https://www.cites.org/sites/default/files/eng/cop/09/doc/E9-Doc-57-58.pdf> Accessed 25 February 2021.

(2) Requests the FAO and other international fisheries management organizations to establish programmes to further collect and assemble the necessary biological and trade data on shark species, and that such additional information be provided no later than six months prior to the 11th meeting of the Conference of the Parties.[60]

The latter request directed to the FAO later resulted in the adoption of the IPOA-Sharks.[61] As encouraged by the resolution in the former COP, the United States, Australia and the United Kingdom each nominated a shark species for listing in the subsequent COP 11, namely, the whale shark, the great white shark and the basking shark. However, these proposals were all denied.

Moving on COP12 in 2002, the second attempt to list the whale shark and the basking shark was successful, and this was the first major breakthrough for marine fish, two years later at COP13, the great white shark was also successfully listed on Appendix II.[62]

The next breakthrough was at COP16, as seen in the table below, while there were proposals for further shark listings at COP14 and COP15, all of them failed. Yet most of the same species were again nominated and accepted for listing at COP, which brings us back to the currently listed 18 shark and ray species. There is still no clear pattern as to how the parties determine the right time of a new marine fish listing, but it is possible that any new proposal

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[60] CITES Conf. 9.17 < https://www.cites.org/sites/default/files/eng/cop/09/E9-Res.pdf > Accessed 25 February 2021.

[61] FAO Technical Guidelines for Responsible Fisheries - Fisheries Management - 4 Suppl. 1 - 1. Conservation and Management of Sharks para. 1.1 < http://www.fao.org/docrep/003/x8692e/x8692e00.HTM > Accessed 25 February 2021.

[62] As seen in the amendments to Appendix I and II at COP13 < https://www.cites.org/sites/default/files/eng/notif/2004/073.pdf > Accessed 25 February 2021.

would have to go through a couple of COPs in order to gain popularity and support.

Table 4.1: List of CITES COPs that discuss sharks

COP	Document Number	Content of Proposal	Proposing Parties	Results
9	Conf. 9.17	Urging parties to provide data and information of shark trade and fisheries; Requests FAO to conduct further research	USA	Adopted
11	Prop. 11.47	Whale shark (Appendix II)	USA	Rejected
		Great White shark (Appendix II)	USA, Australia	Rejected
		Basking shark (Appendix II)	UK	Rejected
12	Prop. 35	Whale shark (Appendix II)	India, Philippines, Madagascar	Adopted
	Prop. 36	Basking Shark (Appendix II)	UK, EU	Adopted
13	Prop.32	Great White shark (Appendix II)	Australia, Madagascar	Adopted
14	Prop. 15	Porbeagle shark (Appendix II)	Germany	Rejected
	Prop.16	Spiny dogfish (Appendix II)	Germany	Rejected
15	Prop. 15	Great hammerhead, Smooth hammerhead, sandbar shark, dusky shark (Appendix II)	USA, Palau	Rejected
	Prop. 16	Oceanic whitetip shark (Appendix II)	USA, Palau	Rejected
	Prop. 17	Porbeagle shark (Appendix II)	Sweden,	Rejected

			Palau	
	Prop. 18	Spiny dogfish (Appendix II)	Sweden, Palau	Rejected
16	Prop. 42	Oceanic whitetip shark (Appendix II)	Brazil, Colombia, USA	Adopted
	Prop. 43	Scalloped hammerhead shark, great hammerhead shark smooth hammerhead shark (Appendix II)	Brazil, Colombia, Costa Rica, Denmark, Ecuador, Honduras, Mexico	Adopted
	Prop. 44	Porbeagle shark (Appendix II)	Brazil, Comoros, Croatia, Denmark, Egypt	Adopted
	Prop. 46	Manta rays (Appendix II)	Brazil, Colombia and Ecuador	Adopted

(Source: CITES website[63])

[63] All original copies of the proposal can be found on the CITES website: <https://www.cites.org/eng/cop/index.php> Accessed 25 February 2021.

4. Expanding the Concept of IUU Fishing

The third section of this branch of law consists of three further approaches towards IUU fishing that expands the concept further beyond the one dimensional relation between the fishing industry and fish stocks; and offers the possibility of addressing illegal fishing under a whole spectrum of alternative options beyond those highlighted above.

4.1 IUU Fishing as an Environmental Crime

Environmental crime is one of the most rapidly expanding areas of criminality globally, in definition, environmental crime is "a breach of a national or international environmental law or treaty that exists to ensure the conservation and sustainability of the world's environment, biodiversity or natural resources." Which includes illegal fishing.[64] As Coning and Witbooi points out, the concept of environmental crimes provides an opportunity where the paradigm of addressing IUU fishing can be reviewed, the original IUU fishing paradigm regards violation of fisheries regulations primarily as an administrative las matter, and seeks to prevent such behaviour by strengthening management and conservation rules, and facilitating compliance through enhanced MCS measures.[65] Alternatively, the fisheries crime paradigm serves to broaden the scop of what is understood as illegal fishing, while at the same time acknowledges that the realities of organized crime adds a layer of complexity to the task of combatting IUU fishing, and that they need to be addressed by supplementary

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[64] Puneet Pathak, 'International Environmental Crime: A Growing Concern of International Environmental Governance' (2016) 13 US-China Law Review 382, 383.

[65] Eve de Coning and Emma Witbooi, 'Towards a new 'fisheries crime' paradigm: South Africa as an illustrative example' (2015) 60 Marine Policy 208, 209.

means beyond extending beyond the realm of fisheries control and enforcement.[66]

4.2 IUU Fishing as Human Rights Violation and Humanitarian Crisis

In this section, I will examine three groups of people that are caught up in the web of IUU fishing, either becoming part of the illegal operations, or suffering due the occurrence of such activities. The first group is the fishery workers, in a lot of cases migrant workers, who are exploited onboard IUU vessels. The second group is the personnel that serve onboard commercial fishing collecting data of the fishing operation, known as observers. The third group is the collective of coastal communities, which would include the people that live on the coast and depend on fish as a food source, as well as the small-scale fisheries that operate in the same coastal area.

4.2.1 Forced Labor and Slavery in IUU Fishing

The most problematic human aspect of IUU fishing is undoubtedly the issue of forced labor and slavery onboard. As shown in the first section of this chapter, Taiwanese fishing vessels are notorious for this type of behaviour, and it is one of the reasons that IUU fishing has such a personal meaning for me. As existing literature exposes, this type of cruel treatment towards fishery workers are by no means a recent addition nor uncommon. Sadly, such a practice has a long history, widespread occurrence in all parts of the ocean, and onboard fishing vessels of various nationalities.

When comparing the descriptions provided in Takiji's novel *The Crab Cannery Ship* written

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[66] Eve de Coning and Emma Witbooi, 'Towards a new 'fisheries crime' paradigm: South Africa as an illustrative example' (2015) 60 Marine Policy 208, 210.

in 1929[67], and the modern journalistic accounts of Urbina in 2019[68], it would seem as if time stood still for almost a century for the most exploited fishery workers. In both observations, the unseaworthiness of the fishing vessels, inhumane working environments and hours, and the overall unhygienic conditions onboard were all present in almost the same manner. For the purpose of illuminating the similarities, a paragraph concerning the illness of the fishermen from each work will be reproduced below.

> *At first they had been able to bath every other day. It was inevitable that their bodies would grow filthy and stink. […] Finally it came down to twice a month. […] With the men's bodies stained for days on end with crab juice, there was no way to keep the lice and bedbugs from breeding.*
> *When they untied their loincloths, black beads spilled out of them. The men's bellies were circled with a red rash where the loincloth had been tied. The itched unbearably.*[69]

> *Rashes were the most common ailment. In Indonesia, a deckhand worked without pants or underwear, just a towel around his waist because, he told me, the itchy sores on his crotch were otherwise too uncomfortable. In many cases the men asked me for help and I gave them what medicines or ointments that I thought might at least ease their symptoms.*[70]

On a grander scale, Takiji also touched upon the status of fishing vessels and fisheries being in a legal limbo when operating at sea,[71] the same situation as Urbina boldly placed in the

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[67] Kobayashi Takiji, *The Crab Cannery Ship and Other Novels of Struggle* (Željko Cipriš tr, University of Hawai'i Press 2013) 19-96 (The short novel is based on a true incident that happened in 1926).

[68] Ian Urbina, *The Outlaw Ocean: Crime and Survival in the Last Untamed Frontier* (The Bodley Head 2019) See in general Chapter 10 Sea Slavery 227-269.

[69] Kobayashi Takiji, *The Crab Cannery Ship and Other Novels of Struggle* (Željko Cipriš tr, University of Hawai'i Press 2013) 57-58.

[70] Ian Urbina, *The Outlaw Ocean: Crime and Survival in the Last Untamed Frontier* (The Bodley Head 2019) 239-240.

[71] Kobayashi Takiji, *The Crab Cannery Ship and Other Novels of Struggle* (Željko Cipriš tr, University of Hawai'i Press 2013) 35 (*Crab cannery ships were considered factories, not ships. Therefore maritime law did not apply to them.* […] *And yet factory laws did not apply to them either. Consequently, no other site offered*

title of his book.

According to accounts of Greenpeace, there is a symbiotic relationship between IUU fishing and labor rights abuse, the nature of IUU fishing operations create a condition where greed and profit comes first. This relationship is also worsened by the fact that large percentages of these people are migrant workers, which have no way of reporting the abuses after they board the fishing vessel.[72] According to 2018 Statistics, Taiwan's distant water fishing fleet consists of 1,140 vessels that fly the Taiwanese flag, and a further 250 vessels that were owned by Taiwanese interests but used foreign flags, with a total workforce of 21,000 migrant workers.[73]

The labour conditions of Taiwanese fishing vessels were placed under the spotlight when a fishing vessel by the name of *Fuh Sheng No. 11* was detained in Cape Town, South Africa in May 2018, the first detention of a fishing vessel under the provisions of the International Labour Organization's (ILO) Work in Fishing Convention (C188).[74] The vessel was released in June, following an inspection that discovered a long list of violations, including lack of documentation, poor accommodation, insufficient food, and poor safety and health conditions.[75] After the vessel returned to Taiwan, it was impounded and subjected to investigation of the Fisheries Agency and Ministry of Labor, which revealed further acts of

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such an accommodating setting for management's freedom to act with total impunity.)

[72] Tim McKinnel, Jodie Yi Chiao Lee and Dan Salmon, *Made in Taiwan: Government Failure and Illegal, Abusive and Criminal Fisheries* (Greenpeace 2016) 26.

[73] Shao-Chi Chiu, 'Blood and Water – Human Rights Abuses in the Fishing Industry' (2019) 5(2) Taiwan Human Rights Journal 137, 143.

[74] ILO, 'First fishing vessel detained under ILO Fishing Convention' (ILO News, 17 July 2018) <http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_634680/lang--en/index.htm> accessed 25 February 2021.

[75] ibid.

inaccurate catch reports and shark finning, among the already established labor law violations. The vessel operator and captain faced prosecution and the Fishery Agency also conducted its own disciplinary action which included a fine of 3.75 million New Taiwan Dollars (approximately 121,000 USD) and a five month fishing license suspension.[76]

This is the story of merely one vessel, there are numerous similar incidents happening around the world in fishing fleets of various nations, with little being done about it. The ILO's Convention is certainly one place to start, however, at the time of writing, there are only 18 ratifications of C188,[77] leaving a long road ahead for progress.

4.2.2 The Death of Observers

In May 2020, it was reported that a fishery observer onboard a Taiwanese fishing vessel named Eritara Aati Kaierua had been found dead.[78] Even though this incident was widely reported, there was still little progress in terms of investigation. This is also not an isolated incident, as it was revealed by the president of the Association of Professional Observers that they have recorded one or two deaths per year since 2015.[79] The unique working conditions and environment poses as a significant obstacle not only to the observers job, but

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[76] James Morris, 'Is This the Start of an Illegal Fishing Crackdown in Taiwan?' (The Diplomat, 25 October 2018) <https://thediplomat.com/2018/10/is-this-the-start-of-an-illegal-fishing-crackdown-in-taiwan/> accessed 25 February 2021.

[77] The 18 ratifications include: Angola, Argentina, Bosnia and Herzegovina, Congo, Denmark, Estonia, France, Lithuania, Morocco, Namibia, Netherlands, Norway, Poland, Portugal, Senega, South Africa, Thailand, and the UK. <https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:11300:0::NO:11300:P11300_INSTRUMENT_ID:312333:NO> accessed 25 February 2021.

[78] Karen Mcveigh, 'Disappearances, danger and death: what is happening to fishery observers?' (The Guardian, 22 May 2020) <https://www.theguardian.com/environment/2020/may/22/disappearances-danger-and-death-what-is-happening-to-fishery-observers> accessed 25 February 2021.

[79] ibid.

also to achieving justice for the victims of human rights abuse at sea.[80] We are supposed to rely on these people to provide accurate records and monitor the fishing vessel during its operation, but as far as the impact of IUU fishing goes, not even murder is beyond them is the person blocks their path to profit.

4.2.3 Coastal Communities Threatened by IUU Fishing

Two examples that highlight the threat of IUU fishing towards coastal communities will be presented in this paragraph.

The first one relates to North Korea, China, and Japan. As already touched upon in Chapter 2, these is a massive Chinese fleet fishing in North Korean waters, in violation of the UN sanctions imposed on North Korea. The horrific side of the story, as reported by Urbina, is that between 2015 and 2020, 500 battered wooden "ghost boats" had washed ashore in Japan, carrying nothing but the skeletal remains of North Korean fishermen. The dots were connected after the research was published, that the huge Chinese fleet had depleted the squid stocks in the region, at the same time forcing the North Korean fishermen to venture further in to the ocean, where they would become stranded and die of exposure.[81]

The second example brings us to Ghana, where the illegal "saiko" fishing is causing the decline of Ghana's marine fisheries, and destroying the artisanal fishing of local communities simultaneously. Saiko is the local name for illegal fish transshipments, where industrial trawlers transfer frozen fish to specially adapted canoes at sea. The frozen fish is

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[80] HRAS, *Fisheries Observer Deaths at Sea, Human Rights & the Role & Responsibilities of Fisheries Organisations* (HRAS 2020) 8.

[81] Ian Urbina, 'The deadly secret of China's invisible armada' (*NBC News*, 22 July 2020) <https://www.nbcnews.com/specials/china-illegal-fishing-fleet/> accessed 25 February 2021.

then landed and sold.[82] Saiko operations are problematic from several aspects, firstly, the majority of the trawlers are linked to Chinese beneficial owners, in violation of local laws prohibiting foreign ownership and control in the trawl sector.[83] Secondly, it was estimated that 100,000 tonnes of fish were landed through saiko in 2017, with a value of more than 50 million USD, this number also indicated that only about 40% of catches were legally reported and landed.[84] The combination of the above two aspects means that saiko allows the industrial trawlers to steal fish from small-scale fishermen, and sell it back to the local community for profit.[85] A further aspect is also important, as it was found that 63% of the saiko fish were undersized, exposing the ecological impact of this type of illegal fishing.[86]

4.3 IUU Fishing as an Issue of International Conflict and Security

Fishing and the utilization of fish stocks has always been a point of conflict, as seen in the discussions on the Cod Wars in Chapter 2, we have obviously entered a new era of fishing conflicts where illegal fishing is now in the spotlight, but some aspects of the old wars may still be of importance. As noted by Jóhannesson, the British was driven to confront Iceland due to the four "Ps", namely, pressure, prestige, principle and precedent; on the other hand, the decision making of Iceland was based on the five '"Cs", specifically, conservation, code of law, compassion, commitment, and Cold War.[87] Østhagen also pointed out that the distribution of fish stocks is likely to incite further conflict, highlighting the South China Sea

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[82] EJF and Hen Mpoano, *Stolen at sea. How illegal 'saiko' fishing is fuelling the collapse of Ghana's fisheries* (EJF 2019) 8.

[83] ibid 6.

[84] ibid 5.

[85] ibid 6.

[86] ibid 25.

[87] Gudni Thorlacius Jóhannesson, 'How 'cod war' came: the origins of the Anglo-Icelandic fisheries dispute, 1958-61' (2004) 77(198) Historical Research 543, 546-547.

and the Arctic Ocean as two hot spots prone to conflict, and that we are entering a new era of maritime disputes where domestic agendas are becoming the main cause.[88]

It is also scientifically proven that the frequency of international fisheries conflict has constantly risen since 1974, with the US, Canada, Japan, China, and the EU as the countries and regions involved in the most conflicts.[89] The study concluded that fisheries conflicts in the highly interconnected world today can cause rippling affects across the globe, with international relations and fishery sustainability already negatively affected, and IUU fishing is one of the major causes of recent conflicts.[90]

The recent exchanges between China and the US can serve as a good example of IUU fishing entering the arena of international conflict. The words of the former US Secretary of State Pompeo clearly demonstrate the rising attention placed on illegal fishing activities in the context of the power struggle between States. Starting from a statement in July 2020, regarding the US Position on Maritime claims in the South China Sea, He pointed out that:

> "*The United States rejects any PRC claim to waters beyond a 12-nautical mile territorial sea derived from islands it claims in the Spratly Islands. […] Any PRC action to harass other states' fishing or hydrocarbon development in these*

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[88] Andreas Østhagen, 'A Sea of Conflict? The Growing Obsession with Maritime Space' (*The Arctic Institute*, 12 February 2019) <https://www.thearcticinstitute.org/sea-conflict-growing-obsession-maritime-space/> accessed 15 February 2021.

[89] Jessica Spijkers and others, 'Global patterns of fisheries conflict: Forty years of data' (2019) 57 Global Environmental Change 101921, 4.

[90] Jessica Spijkers and others, 'Global patterns of fisheries conflict: Forty years of data' (2019) 57 Global Environmental Change 101921, 8.

waters – or to carry out such activities unilaterally – is unlawful."[91]

In August 2020, another statement was given concerning the large number of Chinese fishing vessels near the Galápagos, in which Pompeo managed to accuse the Chinese of subsidizing IUU fishing, allowing their fleet to intrude Ecuador's marine reserve to harvest shark fins, call on the international community to stand together and demand China clean up its act, and affirmed that the US would support Ecuador's efforts to prevent such illegal fishing activity.[92]

A last statement concerning the South China Sea was given before he left office in January 2021, noting that:

"*Beijing continues to send fishing fleets and energy survey vessels, along with military escorts, to operate in waters claimed by Southeast Asian nations and to harass claimant state oil and gas development in areas where it has failed to put forth a coherent, lawful maritime claim.*"[93]

Acting in coordination with his Secretary of State, President Trump also managed to slip the issue of Chinese illegal fishing in his speech at the UN General Assembly's 75th session,

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[91] Michael Pompeo, 'U.S. Position on Maritime Claims in the South China Sea' (*U.S. Department of State*, 13 July 2020) <https://2017-2021.state.gov/u-s-position-on-maritime-claims-in-the-south-china-sea/index.html> accessed 15 February 2021.

[92] Michael Pompeo, 'On China's Predatory Fishing Practices in the Galápagos' (*U.S. Department of State*, 2 August 2020) <https://2017-2021.state.gov/on-chinas-predatory-fishing-practices-in-the-galapagos/index.html> accessed 15 February 2021.

[93] Michael Pompeo, 'Protecting and Preserving a Free and Open South China Sea' (*U.S. Department of State*, 14 January 2021) <https://2017-2021.state.gov/protecting-and-preserving-a-free-and-open-south-china-sea/index.html> accessed 15 February 2021.

where he stated that China "overfishes other countries waters, destroys vast swathes of coral reef".[94]

5. Summary

5.1 Further Aspects of Flag State Responsibility

For the first approach that focuses on flag state responsibility, it is for the most part, an effective method, where the states that fail to regulate their own fishing fleets are being identified and encouraged to clean up their act. This is also reinforced by the support from citizens, as shown in a recent poll conducted by Oceana, it was found that 87% of all voters agree that seafood caught using human trafficking and slave labor should not be bought or sold in the US, 90% agree that seafood mislabeling should not be allowed,[95] and there was an overwhelmingly bipartisan agreement that the government should do more to end illegal fishing, which was utilized by Oceana to urge President Biden to increase efforts in traceability and transparency of seafood.[96]

Apart from the EU and US, Japan has also passed new legislation (Domestic Trade of Specific Marine Animals and Plants Act) that will require a "Certificate of Legal Catch" from a foreign government of imported seafood, and ban products of IUU fishing from

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[94] UN Affairs, 'US delivering 'peace through strength': President Trump tells UN' (*UN News*, 22 September 2020) <https://news.un.org/en/story/2020/09/1073002> accessed 15 February 2021.

[95] Ipsos, *Oceana Illegal Fishing & Seafood Fraud Survey* (Ipsos 2021) 6, 15,

[96] Oceana, 'Americans Overwhelmingly Support Ending Illegal Fishing and Seafood Fraud, Poll Finds' (*Oceana*, 28 January 2021) <https://usa.oceana.org/press-releases/americans-overwhelmingly-support-ending-illegal-fishing-and-seafood-fraud-poll-finds> accessed 25 February 2021.

entering the Japanese market.[97]

However, there are also problematic aspects of this type of unilateral coercion method. Using the EU for example, the European fleet has not been exactly "innocent" when it comes to exploitation of fish resources. In the short period of January to March 2021, three occasions have arisen regarding EU's fishing practices. Firstly, in the fisheries protection zone surrounding Svalbard, the EU unilaterally allocated itself 28,431 tonnes of cod for 2021, which in the eyes of Norway was "completely unacceptable", as only Norway has the exclusive rights to regulate fishing in that area, and the Norwegian coastguard would treat any fishing beyond the quota allocated by Norway as illegal.[98] This same type of behaviour of the EU was also observed in previous disputes regarding snow crabs in the Barents sea in 2017.[99]

Turning to the Indian Ocean, the EU was accused of "hypocrisy and neocolonialism" for proposing weak measures for addressing the overfishing of yellowfin tuna, while being the largest fishing power of the species in the region.[100] In West Africa, EU owned cargo ships

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[97] Chris Loew, 'Japanese Legislature Passes Law to Ban Import of IUU Seafood' (*Seafoodsource*, 9 December 2020) <https://www.seafoodsource.com/news/supply-trade/japanese-legislature-passes-law-to-curb-iuu-fishing> accessed 25 February 2021.

[98] Hilde-Gunn Bye, 'Norway objects to the EU's granting cod quotas in Svalbard waters' (*Arctic Today*, 16 February 2021) <https://www.arctictoday.com/norway-objects-to-the-eus-granting-cod-quotas-in-svalbard-waters/> accessed 25 February 2021.

[99] Andreas Østhagen and Andreas Raspotnik, 'Why Is the European Union Challenging Norway Over Snow Crab? Svalbard, Special Interests, and Arctic Governance' (2019) 50(2-3) Ocean Development & International Law 190; Andreas Østhagen and Andreas Raspotnik, 'Crab! How a dispute over snow crab became a diplomatic headache between Norway and the EU' (2018) 98 Marine Policy 58.

[100] Karen McVeigh, 'EU accused of 'neocolonial' plundering of tuna in Indian Ocean' (The Guardian, 5 March 2021) <https://www.theguardian.com/environment/2021/mar/05/eu-accused-of-neocolonial-plundering-of-tuna-in-indian-ocean> accessed 12 March 2021.

were found engaging in the fish transshipment business.[101]

These incidents are all further confirmation that IUU fishing is not confined to certain countries or regions, but actually an entire chain of activities that can traverse great distances. A study in 2020 warned of the environmental impacts of growing consumption, and that the affluent life style of the rich determine and drive global and environmental impact, and the mechanisms of global trade allow the rich to displace its impact to the global poor. The study concluded that long-term human wellbeing will not be achievable if affluent overconsumption, that is supported by economic systems of exploitation, continues.[102] This is exactly the case of IUU fishing where the fish stocks of the global south are exploited for the consumption of the global north, but with a much more direct impact, where the affluence is not only the wealthy consumers of developed counties, but also the technologically advanced vessels that can out compete any local small-scale fishing operations.

5.2 The Limits of Species Based Approach and Criminal Prosecution

As Guggisberg points out, a proposal for listing a certain species in CITES will only succeed if there is enough political will. Even when there is a qualified majority for adopting the proposal, the regime will still suffer if the fishing states and main importing states are not onboard.[103] The prosecution of IUU fishing through criminal law enforcement also has a similar issue where the rate of IUU fishing can go down dramatically when enforcement is

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[101] Ben Heubl, 'How Europe's dark fishing fleets threaten West Africa' (*Engineering & Technology*, 10 March 2021) <https://eandt.theiet.org/content/articles/2021/03/europe-s-dark-fishing-fleets-in-west-africa-s-waters/> accessed 12 March 2021.

[102] Thomas Wiedmann and others, 'Scientists' warning on affluence' (2020) 11 Nature Communications Article No. 3107, 7.

[103] Soléne Guggisberg, *The Use of CITES for Commercially-exploited fish species: A Solution to Overexploitation and Illegal, Unreported and Unregulated Fishing?* (Springer 2015) 385.

strengthened, but immediately resumes as soon as the pressure of law enforcement recedes. The effectiveness of law enforcement measures is thus dependent on two elements, resource and political will, both of which are not always sufficient. However, compared to the restrictions of material resources, political will can be altered and strengthen through changing our own thoughts and ideas, the lack of political will as such is a challenge that can be overcome. This will be discussed in the next chapter.

Part 3 Challenges and Prospects for Stopping IUU Fishing

Chapter 5 Challenges: The Lack of Political Will in Fisheries Regulation

1. The Element of Political Will in International Fisheries Regulation

> *Fishery regulations can be wiped out by the stroke of an official's pen.*[1]

> *All right. So we're opening it up. Today, I'm signing a proclamation to reverse that injustice, to reverse that order from the previous administration, and we are reopening the Northeast Canyons and the Seamounts Marine region to commercial fishing. Is that okay? Is that what you want? Right? (Applause)*[2]

Following the discussion in the previous two chapters, it should be safe to conclude that there has been significant development of the body of law that governs fisheries. However, it is also true that despite the proliferation of various international instruments into every stage and aspect of fishing, these legislative efforts have not been entirely successful at conserving and managing the fish stocks.[3] This thus brings the question of assessing the effectiveness of the law, and one of the factors that determines effectiveness can be generalized into the term "political will". As a matter of fact, the realization of political will as a deciding factor can be seen in numerous researches, ranging from discussions on general international law[4], to topic specific works of fisheries law (including findings within the

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[1] Callum Roberts, *The Unnatural History of the Sea: The Past and Future of Humanity and Fishing* (Gaia 2007) 377.

[2] The White House, 'Remarks By President Trump In A Roundtable On Supporting America's Commercial Fishermen' (5 June 2020) <https://trumpwhitehouse.archives.gov/briefings-statements/remarks-president-trump-roundtable-supporting-americas-commercial-fishermen/> accessed 20 February 2021.

[3] Ellen Hey, 'The Interplay between Multilateral Environmental and Fisheries Law: A Struggle to Sustainably Regulate Economic Activity – Including a Case Study of the North Sea' (2011) 54 Japanese Y.B. Int'l L. 190, 191.

[4] Thomas Carothers, 'The Rule of Law Revival' (1998) 77(2) Foreign Affairs 95, 96 (points out the primary

IPOA-IUU and other FAO Research Papers)[5], international environmental law[6], and even scientific studies.[7]

A connection can also be made to the point Hardin advocated in "The Tragedy of the Commons" about the demand of a fundamental change in human values or ideas of morality[8], if applied to the issue of fisheries management in general and combatting IUU fishing in particular, this could essentially represent the requirement for States and fishermen alike to have to alter their established understanding of fish and fishing (as demonstrated in Chapter 4 with the new approaches), and such an alteration that deviates from the status quo (the traditional freedom of fishing approach, which is still the conceptual justification that many fisheries rely on, especially IUU fishing, even if not consciously acknowledged and expressed by the fishermen) would indeed require a substantial amount of will. As such, the concept of political will itself has the potential to become the centre of analysis, instead of a statement that ends or starts an argument for another technical solution. Thus, for a more

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obstacle to rule of law reforms are not technical or revival, but "political and human").

[5] UNFAO, *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (UNFAO 2001) 1 (existing international instruments addressing IUU fishing have not been effective due to a lack of political will, priority, capacity and resources to ratify or accede to and implement them); Clotilde Bodiguel and others, *Factors of Unsustainability and Overexploitation in Marine Fisheries: Views from the Southern Mediterranean, West Africa, Southeast Asia and the Caribbean* (FAO Fisheries and Aquaculture Circular No. 1037, UNFAO 2009) 3 (observed that lack of political will is shown in the way fisheries management was designed and implemented); Kevern Cochrane and David Doulman, 'The Rising Tide of Fisheries Instruments and the Struggle to Keep Afloat' (2005) 360 Phil. Trans. R. Soc. B 77, 85 (discusses the political will of governments and the social attitudes of society); Benjamin Carbonetti and others, 'Overcoming the Lack of Political Will in Small Scale Fisheries' (2014) 44 Marine Policy 295.

[6] UNEP, *Environmental Rule of Law: First Global Report* (UNEP 2019) 3 (One of the greatest challenges to environmental rule of law is a lack of political will.); Daniel Bodansky, *The Art and Craft of International Environmental Law* (Harvard University Press 2011) 148 (Ultimately, success in addressing environmental problems depends on the "political will" of States).

[7] Daniel Pauly and others, 'Towards Sustainability in World Fisheries' (2002) 418 Nature 689, 694 (Notes the conceptual elements for fisheries regulation are in place, but the required political will has been lacking).

[8] Garret Hardin, 'The Tragedy of the Commons' (1968) 162(3859) 1243, 1243.

effective utilization of the concept of political will, the next paragraph will focus on the definition of political will and explore its linkages to other legal concepts of international law, before moving on to actual examples of how political will influences and shapes fisheries regulations.

2. Defining and Understanding Political Will

As a concept, "political will" is not a uniformly defined term, its meaning and content varying widely depending on the user context. Originally used mostly in political discussions within a single State, it was described as "the slipperiest concept in the policy lexicon",[9] which is perhaps why this term enjoyed widespread use, especially for marking failures or lack of reform in policy decisions.[10] However, it is also acknowledged that this concept can be far more useful than just a "hollow political rhetoric", because the concept itself is situated at the crossroads of politics and policy, with a potential of implicating the most political components of a policy process, such as issue framing, agenda setting, and persuasion.[11] Thus, aiming at establishing the concept for pragmatic use, a definition that described political will as "the extent of committed support among key decision makers for a particular policy solution to a particular problem" was developed.[12] This definition can further be broken down into four components: (a) a set of decision makers; (b) a particular problem that is recognized in a formal agenda; (c) a potentially effective solution; and (d)

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[9] Linn Hammergren, *Political Will, Constituency Building, and Public Support in Rule of Law Programs* (PN-Acd-023, Center for Democracy and Governance Bureau for Global Programs, Field Support, and Research; U.S. Agency for International Development, 1998) 12 (Also referring to the term as "the sina qua non of policy success which is never defined except by its absence.").

[10] Eric Raile and others, 'Defining Political Will' (2010) 38(4) Politics & Policy 653, 654.

[11] Eric Raile and others, 'Defining Political Will' (2010) 38(4) Politics & Policy 653, 654.

[12] Eric Raile and others, 'Defining Political Will' (2010) 38(4) Politics & Policy 653, 659.

commitment to support such solution.[13] This definition is clearly not directly applicable to the political will analysis in international law, unless some modification is provided.

In a sense, international law has more dimensions to take into consideration than a national setting, thus the first component of decision makers in the definition above require a broader scope, for fisheries law, while the State is the primary decision maker, two more categories of actors also have the potential to effect the overall political will, namely, the internal governmental agencies that are responsible for implementation, and the "public", which includes non-governmental organizations, consumers, and fishermen, most commonly referred to as "non-State actors". The second component that needs clarification is the meaning of effectiveness as highlighted in point (c) of the previous paragraph.

For international law, or at least for international environmental law, the assessment of effectiveness is different from those in national legislation, mainly because the evidence of basic facts is less reliable and not easily quantified; and, because the causal link between a certain legal instrument and the alleged results, either positive or negative, cannot be easily determined.[14] It is thus important to understand the meaning of "effectiveness" in international law. There are three distinguishable meanings for the term "effectiveness", namely, (a) legal effectiveness: whether outcomes match the requirements of a legal rule; (b) Behavioral effectiveness: whether the State or individuals have modified their behaviour in the desired direction to achieve the objective designated by a legal rule; and (c) problem-solving effectiveness: whether the legal rule achieves its objectives or resolves the issue it is

[13] Eric Raile and others, 'Defining Political Will' (2010) 38(4) Politics & Policy 653, 659.

[14] Daniel Bodansky, 'Implementation of International Environmental Law' (2011) 54 Japanese Y.B. Int'l L. 62, 63.

trying to address.[15]

For fisheries law, it could perhaps be pessimistically assumed that the majority of legal instruments are ineffective, based on the overall status of the marine living resources and the failures that have been documented, including the rampant IUU fishing problem. However, by taking a further look into some of the actual events, it would be possible to isolate the exact point in the process that caused a certain unsatisfactory outcome and use that as a basis for improvement. For example, Dworkin pointed out that governments will fail the legitimate expectations of their citizens when they accept an international system that renders international cooperation impossible or difficult, especially when such cooperation is vital in preventing economic, commercial, medical, or environmental disaster.[16] This observation is true to the extent where citizens express united and strong concerns about environmental issues and pressure their governments to act accordingly, but there could also be the case there the voices of interest groups and their demands outweigh environmental concerns. There is thus a possibility that states lack political will in their actions because there is weak citizen support or that opposing voices are equally strong.

The following three sections will each examine one of the categories where the lack of political will has manifested and provide analysis for each scenario.

3. Lack of Political Will at the International Level

Starting with the compliance of the State, in this category the State is treated as a unitary

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[15] Daniel Bodansky, 'Implementation of International Environmental Law' (2011) 54 Japanese Y.B. Int'l L. 62, 63-64.

[16] Ronald Dworkin, 'A New Philosophy for International Law' (2013) 41(1) Philosophy & Public Affairs 2, 18.

actor, and the focus is placed on the State action that occurs on the international level. There are two common assumptions regarding compliance, first, As Louis Henkin pointed out, "almost all nations observe almost all principles of international law and almost all of their obligations almost all of the time";[17] and second, that States will violate international obligations whenever it is in their interests to do so.[18] For fishery regulations, most States can be found to be in compliance with the requirements, since most of the international instruments offer a framework, a wide range of regulatory tools, and a wide margin of discretion for the States to apply as they deem appropriate, it is thus rare for a State to be found in non-compliance due to its actions on the international level. However, lack of political will can be observed in the decision-making process and reporting obligations. On the one hand, since decision-making is a political process, there is basically no right or wrong to the results, but if the goal of the treaty and scientific evidence is taken into consideration, it could be said that some results are definitely "better" than others, this will be further elaborated in the discussions below; on the other hand, the poor performance of States when it comes to obligations to report to an international organization (catch statistics or status of stocks in the case of fishing) is evidence of low domestic priority or insufficient administrative capacity in the reporting State, and since the duty to report may not be central to a treaty regime, the lapse in reporting are mostly accepted as "technical"[19], despite the importance of such information in the fisheries context.

In its most extreme form, where states have absolutely no intention to abide by the requirements of international law, the result would be acts of non-compliance or violation of

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[17] Louis Henkin, *How Nations Behave* (2nd ed. Columbia University Press 1979) 47.

[18] Abrams Chayes and Antonia Handler Chayes, 'On Compliance' (1993) 47(2) International Organization 175, 176.

[19] Abrams Chayes and Antonia Handler Chayes, 'On Compliance' (1993) 47(2) International Organization 175, 200.

international law. As seen in China's actions in the South China Sea, which are examined in the discussions of the South China Sea Arbitration in Chapter 4. However, it is not really common for states being directly declared to be in violation of international law, especially in the context of fisheries.

Another form of lack of political will is expressed by the States within the procedural processes of fisheries management or environmental protection regimes. The two regimes highlighted here is first, CITES and the listing of protected species, focusing on the Atlantic Bluefin Tuna and the Patagonian Tooth Fish; and second, the setting of fishing quotas in the EU.

3.1 CITES and Atlantic Bluefin Tuna

The Atlantic Bluefin tuna (*Thunnus thynnus*) is probably the most commercially valuable fish in the current global market, prized in markets around the world, especially as raw fish in Japan. Japan is currently the biggest consumer of Atlantic Bluefin tuna, consuming 80 percent of the total catch.[20] The situation the Atlantic Bluefin is facing has been described as a classic example of the "tragedy of commons".[21]

For many years, the International Commission for the Conservation of Atlantic Tuna (ICCAT) was the primary international organization charged with the responsibility of conserving the

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[20] Amanda C. J. Vincent and others, 'The Role of CITES in the Conservation of Marine Fishes Subject to International Trade' (2014) 15(4) Fish and Fisheries 563, 569; Nicholas Assenmacher, 'Management of the Atlantic Bluefin Tuna Fishery: An International disaster' (2012) 8 J. Animal & Nat. Resource L. 139, 145-146

[21] Nicholas Assenmacher, 'Management of the Atlantic Bluefin Tuna Fishery: An International disaster' (2012) 8 J. Animal & Nat. Resource L. 139, 143.

Atlantic bluefin tuna. However, the actions and conservation measures of the ICCAT have received mostly negative reviews and were highly criticized for the lack of effort and will.[22] Over the past forty years, the stocks of Atlantic Bluefin tuna have decreased dramatically, and are still continuing to dwindle. The adult population has dropped by 74 percent in eastern Atlantic; and 82 percent in the western Atlantic.[23] The top reason of ICCAT's failure was attributed to the fact that sustainable quotas were not set, and instead of heeding the suggestion and advice of scientists, ICCAT determined the quota as it deemed fit to appeal to the member states of the commission.[24]

At COP8, 1992, Sweden proposed to list the eastern Atlantic Bluefin stock in Appendix II, and the more threatened western stock in Appendix I.[25] The two proposals were eventually dropped in exchange for the agreement that the ICCAT would take on stronger action to restore and maintain the stocks, and improve the effort of data collection and research.[26] However, the situation did not improve, partly because of the legal quota being set above the recommended quantity; and also due to illegal fishing.[27] Fast forwarding to COP15, 2010,

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[22] Nicholas Assenmacher, 'Management of the Atlantic Bluefin Tuna Fishery: An International disaster' (2012) 8 J. Animal & Nat. Resource L. 139, 157; Mellisa Blue Sky, 'Getting on the List: Politics and Procedural Maneuvering in CITES Appendix I and II Decisions for Commercially Exploited Marine and Timber Species' (2009-2010) 10 Sustainable Dev. L. & Pol'y 35, 37; D.G. Webster, 'The Irony and the Exclusivity of Atlantic Bluefin Tuna Management' (2011) 35 Marine Policy 249, 249.

[23] Nicholas Assenmacher, 'Management of the Atlantic Bluefin Tuna Fishery: An International disaster' (2012) 8 J. Animal & Nat. Resource L. 139, 143.

[24] Nicholas Assenmacher, 'Management of the Atlantic Bluefin Tuna Fishery: An International disaster' (2012) 8 J. Animal & Nat. Resource L. 139, 152.

[25] Mellisa Blue Sky, 'Getting on the List: Politics and Procedural Maneuvering in CITES Appendix I and II Decisions for Commercially Exploited Marine and Timber Species' (2009-2010) 10 Sustainable Dev. L. & Pol'y 35, 37.

[26] Amanda C. J. Vincent and others, 'The Role of CITES in the Conservation of Marine Fishes Subject to International Trade' (2014) 15(4) Fish and Fisheries 563, 574.

[27] Amanda C. J. Vincent and others, 'The Role of CITES in the Conservation of Marine Fishes Subject to International Trade' (2014) 15(4) Fish and Fisheries 563, 574.

almost two decades after the initial discussion, Monaco brought up the issue of the Atlantic Bluefin again. This time with overwhelming support, the FAO Expert Advisory Panel, the Standing Committee on Research and Statistics (SCRS, scientific committee of the ICCAT), the IUCN, as well as many national governments and NGOs all agreed that the species had met the criteria for Appendix I.[28]

However, Japan expressed its opposition at the conference, through questioning the scientific evidence regarding the decline of the stocks, indicating that it would take a reservation if the proposal were to pass, and also lobbied for support from developing countries with fishing industries.[29] As a result, despite the widespread support for listing, most of the supporters did not have a vote at the COPs,[30] and the proposal was declined, with 20 votes in favor, 68 against and 30 abstentions.[31]

The controversy of listing the Atlantic bluefin tune in Appendix I arises from two completely opposite approaches as seen in the votes. On the one hand, the opposing side is of course the fishing states that either rely on the species as a commodity in international trade or as an important food source; the supporting side, on the other hand, consist of countries and actors that had little or nothing to do with fishing.

In an analysis accepted by the SCRS, the opposing points of listing the Atlantic Bluefin tuna

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[28] Amanda C. J. Vincent and others, 'The Role of CITES in the Conservation of Marine Fishes Subject to International Trade' (2014) 15(4) Fish and Fisheries 563, 574.

[29] American Journal of International Law (AJIL), 'U.S. Efforts to gain CITES Protection for Atlantic Bluefin Tuna, Sharks, and Polar Bears Unsuccessful' (2010) 104(2) AJIL 289, 290.

[30] Amanda C. J. Vincent and others, 'The Role of CITES in the Conservation of Marine Fishes Subject to International Trade' (2014) 15(4) Fish and Fisheries 563, 574.

[31] American Journal of International Law (AJIL), 'U.S. Efforts to gain CITES Protection for Atlantic Bluefin Tuna, Sharks, and Polar Bears Unsuccessful' (2010) 104(2) AJIL 289, 290.

on CITES appendices is expressed in detail. While directly stating that the Atlantic Bluefin tuna is not threatened by extinction,[32] the further reasoning include four main points as summarized below: (1) the so called crisis of the Atlantic Bluefin is based on unreliable data and assessments, and cannot accurately predict the future of the fish stock; (2) listing the Bluefin tuna (in this case in Appendix I) would result in a total ban of fisheries in the sector for several years and seriously infringe the management of the stocks; (3) the CITES regime is not designed to deal with fishery conservation, and the regulations simply cannot be applied to fishermen or national fishery authorities in the same way it applies to other national authorities that were established in order to implement CITES; and (4) listing and banning the trade of the Atlantic Bluefin tuna would be an action that terminates the most historical traditional fishing activities (e.g. tuna traps and harpoon fishery) in the European Union and North American countries, which would cause severe cultural and socio-economic problems.[33]

3.2 CITES and Patagonia Toothfish

The Patagonian Toothfish (*Dissostichus eleginoides*), also known in markets and restaurants as "Chilean Seabass"[34], is another fish species that is facing a crisis similar to that of the

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[32] A Di Natale, 'The Eastern Atlantic Bluefin Tuna: Entangled in a Big Mess, Possibly Far From a Conservation Red Alert: Some Comments after the Proposal to Include Bluefin Tuna in CITES Appendix I' (2010) 65(3) Collect. Vol. Sci. Pap. ICCAT 1004, 1017.

[33] A Di Natale, 'The Eastern Atlantic Bluefin Tuna: Entangled in a Big Mess, Possibly Far From a Conservation Red Alert: Some Comments after the Proposal to Include Bluefin Tuna in CITES Appendix I' (2010) 65(3) Collect. Vol. Sci. Pap. ICCAT 1004, 1017-1018.

[34] It should be noted that the name Chilean seabass refers to the Patagonian toothfish and the Antarctic toothfish, the name was invented by a seafood wholesaler, in an attempt to make the fish sound attractive in American markets. This name was later approved by the United States Food and Drug Administration as an "alternative market name". Bruce Knecht, *Hooked: Pirates, Poaching and the Perfect Fish* (Rodale, 2006) 9; Emma Duncan, 'Last Chance Saloon?' (World Wildlife Fund (WWF), 23 October 2002) <http://wwf.panda.org/wwf_news/?4142/Last-chance-saloon> accessed 25 February 2021.

Atlantic Bluefin tuna. The Patagonian toothfish has become a popular dish over the years, selling at 35 USD per kilo, a single toothfish may be worth as much as 1000 USD.[35] The high valued fish is referred to as "white gold" among fishermen, but it is estimated that possibly 50% of the fish that is sold in the market comes from illegal fishing activity.[36]

There have been several incidents of illegal fishing that was reported. For example, in 2001, the fishing vessel *South Tomi* was arrested after being pursued by three states for two weeks; it had illegally taken 800,000 USD worth of toothfish from Australian waters, yet the captain was merely fined 68,000 USD for the offence.[37] In another incident, a Spanish fishing kingpin was fined for importing more than 50,000 pounds of illegally caught toothfish into Miami, Florida.[38]

Turning to more authoritative sources, the severe situation of IUU fishing for the toothfish can also be reflected from the series of prompt release cases brought before the ITLOS. To this date the ITLOS has resolved 22 contentious cases, with the majority of the cases concerning prompt release. As extracted from the facts of these cases, there are four cases that involve illegal fishing vessels arrested with Patagonian toothfish onboard. The cases and the illegal catch of toothfish involved can be seen in the table below:

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[35] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 267.

[36] Emma Duncan, 'Last Chance Saloon?' (World Wildlife Fund (WWF), 23 October 2002) <http://wwf.panda.org/wwf_news/?4142/Last-chance-saloon> accessed 25 February 2021.

[37] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 265; Mark Schulman, 'Australia Asks CITES to Safeguard Toothfish' (2002) 22 October Environmental News Service <http://www.ens-newswire.com/ens/oct2002/2002-10-22-01.html> Accessed 25 February 2021.

[38] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 266.

Table 5.1: List of ITLOS cases involving toothfish

Case No.	Vessel Name	Recorded Offence and Total Illegal Catch
5	*Camouco*	(1) Jettisoned 48 bags during pursuit, one of which is retrieved with 34 kilograms of toothfish inside. (2) 6 tonnes of fresh toothfish found in the hold.[39]
6	*Monte Confurco*	Arrested with 158 tonnes of toothfish on board, estimated total worth of 9 million French Francs.[40]
7	*Grand Prince*	18 tonnes of toothfish onboard, estimated total worth of 810,000 French Francs.[41]
11	*Volga*	Approximately 131,422 tonnes of toothfish on board, estimated total worth of 1,932,579.28 Australian Dollars.[42]

(Source: ITLOS Judgments[43])

Clearly, the facts and cases presented here are just the tip of the iceberg, and IUU fishing if rightfully considered to be the primary threat to toothfish.[44] The main international

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[39] *The "Camouco" Case* (*No. 5*) (*Panama v, France*) (Prompt Release, Judgement of 7 February 2000) para. 29.

[40] *The "Monte Confurco" Case* (*No. 6*) (*Seychelles v. France*) (Prompt Release, Judgement of 18 December 2000) para. 33.

[41] *The "Grand Prince" Case* (*No. 8*) (*Belize v. France*) (Prompt Release, Judgement of 20 April 2001) para. 39, 40.

[42] *The "Volga" Case* (*No. 11*) (*Russian Federation v. Australia*) (Prompt Release, Judgement of 23 December 2002) para. 51.

[43] All judgements can be found on ITLOS website: < https://www.itlos.org/en/main/cases/list-of-cases/> accessed 25 February 2021.

[44] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 270-271

organization that regulates the fishery of the Patagonian toothfish is the Convention for Conservation of Antarctic Marine Living Resources (CCAMLR) Commission, and while the CCAMLR commission has established fishery conservation measures

Australia proposed to list the Patagonian toothfish as Appendix II species at COP 12, 2002.[45] Australia has constantly expressed its commitment to the CCAMLR regime and the conservation of marine resources; the Environment Minister of Australia had intended to "send a very clear signal…for both the commercial sustainability of [toothfish] and responsible environment conduct."[46] However, Australia made this proposal before the CCAMLR Commission could have a formal discussion on the action, and nineteen commission members subsequently requested that Australia withdraw its proposal, which was eventually the fate of Australia's attempt.[47] One of the main concerns was voiced by Japan, stating that the "proposal may affect the reputation of CCAMLR" and "be construed as evidence that CCAMLR members were not competent to manage toothfish"; while Russia proposed that CITES should not be involved until CCAMLR has "exhausted all the options in improving methods of managing toothfish."[48]

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[45] CoP12 Prop. 39 <https://www.cites.org/sites/default/files/eng/cop/12/prop/E12-P39.pdf> Accessed 25 February 2021.

[46] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 292-293; Mark Schulman, 'Australia Asks CITES to Safeguard Toothfish' (2002) 22 October Environmental News Service <http://www.ens-newswire.com/ens/oct2002/2002-10-22-01.html> Accessed 25 February 2021.

[47] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 293; International Institute for Sustainable Development (IISD), 'Summary of the Twelfth Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora' (2002) 21(30) Earth Negotiations Bulletin 9 <https://enb.iisd.org/events/12th-meeting-cites-conference-parties-cop12/summary-report-3-15-november-2002> accessed 25 February 2021.

[48] Katherine Weber, 'Can You Eat Your Fish & Save It Too? Improving the Protection of Pirated Marine

Although the listing failed, the action of Australia was not totally in vain. The COP adopted a resolution promoting cooperation between CITES and the CCAMLR,[49] it is evident that the COP recognized the need for the two organizations to work together and exchange information regarding the conservation and sustainable management of the Patagonian toothfish.[50] While the intentions are positive in this resolution, without the actual protection provided by CITES trade regulations, the effectiveness of cooperation is still in doubt.[51]

3.3 Quota Setting in the EU

More recently, a research examined a total of 3000 individual total allowable catch (TAC) decisions in the EU, which is approximately 200 decisions a year, spanning a time range of 15 years (2001-2015).[52] The basis of this research is the fact that TACs are the main regulatory tool for the CFP in maintaining sustainable fisheries while allowing maximum extraction of the resource, and that in the past, there had been a systematic disregard for scientific advice in the process of setting such TACs.[53] The research discovered that on average, the European Council set the TACs 20% above the advised number, approximately

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Species through International Trade Measures' (2009-2010) 25 J. Land Use & Envtl. L. 265, 293.

[49] CITES Resolution Conf. 12.4 < https://cites.org/eng/res/12/12-04.php> Accessed 25 February 2021.

[50] International Institute for Sustainable Development (IISD), 'Summary of the Twelfth Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora' (2012) 21(30) Earth Negotiations Bulletin 15-16 <https://enb.iisd.org/events/12th-meeting-cites-conference-parties-cop12/summary-report-3-15-november-2002> accessed 25 February 2021.

[51] International Institute for Sustainable Development (IISD), 'Summary of the Twelfth Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora' (2012) 21(30) Earth Negotiations Bulletin 16 <https://enb.iisd.org/events/12th-meeting-cites-conference-parties-cop12/summary-report-3-15-november-2002> accessed 25 February 2021.

[52] Griffin Carpenter and others, 'Landing the Blame: The Influence of EU Member States on Quota Setting' (2016) 64 Marine Policy 9, 10.

[53] Griffin Carpenter and others, 'Landing the Blame: The Influence of EU Member States on Quota Setting' (2016) 64 Marine Policy 9, 9-10.

471,490 tonnes of excess per year,[54] and that almost half of this allocation was in Denmark, Spain and UK waters.[55]

4. Problems of Implementation and Enforcement at the National Level

Implementation is the process by which policies are translated into action.[56] States are the primary actor that is responsible for this translation, and the success of international legal instruments is dependent on the degree that they are "domesticated".[57] Subsequently, depending on the internal structure and workings of the State, there are three methods for implementation: (a) legislative implementation; (b) executive/administrative implementation; and (c) judicial implementation.[58] It is suffice to say that, for fisheries, the most important method is the administrative implementation, since this is where the international rules come into contact with the actual subjects they are aimed at regulating, and is the most difficult stage to build up political will. The difficulty lies in two main reasons, first, the material cost and resources required to implement a measure in the sea is enormous, compared to the terrestrial counterparts of environmental protection; second, implementation is not a simple, top-down process that the government can achieve through directives. It is a political process in which the industry, NGOs and every citizen involved

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[54] Griffin Carpenter and others, 'Landing the Blame: The Influence of EU Member States on Quota Setting' (2016) 64 Marine Policy 9, 11

[55] Griffin Carpenter and others, 'Landing the Blame: The Influence of EU Member States on Quota Setting' (2016) 64 Marine Policy 9, 11-12

[56] Daniel Bodansky, *The Art and Craft of International Environmental Law* (Harvard University Press 2011) 205

[57] Daniel Bodansky, 'Implementation of International Environmental Law' (2011) 54 Japanese Y.B. Int'l L. 62, 68

[58] Daniel Bodansky, 'Implementation of International Environmental Law' (2011) 54 Japanese Y.B. Int'l L. 62, 68

may participate.[59]

Failures in the stage of administrative implementation can be seen in various examples within the EU. In early 2019, Denmark and Ireland were both found by the European Commission to be in breach of their obligations to control fishing activity, and for misreporting catches.[60] A scientific research also reveals that while 29% of European territorial waters are now designated marine protected areas by the European Union, 59% of the MPAs are commercially trawled, furthermore, the intensity of fishing in the MPAs are even found to be 1.4 times higher than areas that are not protected.[61] The example of mackerel fisheries in the north Atlantic can also serve as an indication of how states can undermine efforts to cooperate through unilateral actions, such as those of Iceland in raising its own quotas despite existing framework of the North East Atlantic Fisheries Committee (NEAFC).[62]

As a last example, I will turn to the US, where the situation is not just about weak

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[59] Daniel Bodansky, 'Implementation of International Environmental Law' (2011) 54 Japanese Y.B. Int'l L. 62, 68

[60] Lorna Siggins, 'Severe Weakness in Fisheries Control' *Irish Examiner* (9 March 2019), available at: <https://www.irishexaminer.com/breakingnews/ireland/severe-weakness-in-fishery-controls-909857.html?fbclid=IwAR3uG2K3l6g7IcILBtao0i3X-hS0tSyFTRIh9KZghRRe8uGjMb1CnOIv4Tw>; Niall Sargent, 'Ireland One of Worst in Europe for Overfishing, Report Finds' *Green News.ie* (11 February 2019), available at: <https://greennews.ie/ireland-one-of-worst-overfishers-europe/>; ClientEarth, 'Commission Sends Formal Warning to Denmark for Failing to Properly Control Fisheries' *ClientEarth* (24 January 2019), available at: <https://www.clientearth.org/commission-sends-formal-warning-to-denmark-for-failing-to-properly-control-fisheries/> accessed 25 March 2019

[61] Manuel Dureuil and others, 'Elevated Trawling inside Protected Areas undermines Conservation Outcomes in Global Fishing Hot Spot' (2018) 362(6421) Science 1403, 1403

[62] Andreas Østhagen, Jessica Spijkers and Olav Anders Totland, 'Collapse of cooperation? The North-Atlantic mackerel dispute and lessons for international cooperation on transboundary fish stocks' (2020) 19 Maritime Studies 155.

implementation, but rather an outright revoking of protection measures, as indicated by the opening quotes of this chapter. In June 2020, President Trump attended a roundtable discussion with commercial fishermen in Bangor, Maine, where he signed a proclamation that removed the protection of the marine national monument in an area of 5000 km^2.[63] Using vocabulary regarding the livelihoods of the fishing community that closely resembled those of Huxley centuries ago, the decision was met with immediate opposition from environmental groups that vowed to take legal action, as it was argued that the Antiquities Act that granted the presidential power to designate national monuments did not include the power to abolish such designation.[64] In the latest developments concerning the status of the national monument, President Biden signed an executive order in January 2021 that tasked the Secretary of Interior to begin the process of reviewing the boundaries and conditions of the monuments (including the marine national monument), and determine whether their protection needed to be restored.[65]

From the events of this section, it can be seen that when the political will of protecting fish stocks and marine environment are weak, other considerations will start to infiltrate the existing regulations, making them less effective or removing protection entirely. From the viewpoint of IUU fishing, this type of fluctuation in implementation is exactly why we

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[63] Executive Office of the President, 'Modifying the Northeast Canyons and Seamounts Marine National Monument' (Proclamation 10049, 5 June 2020) <https://www.federalregister.gov/documents/2020/06/11/2020-12823/modifying-the-northeast-canyons-and-seamounts-marine-national-monument> accessed 20 February 2021.

[64] Laura Parker, 'Trump to open Atlantic marine national monument to commercial fishing' (*National Geography*, 6 June 2020) <https://www.nationalgeographic.com/science/article/trump-open-atlantic-marine-national-monument-to-commercial-fishing> accessed 25 February 2021.

[65] Joseph Biden Jr., 'Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis' (*The White House*, 20 January 2021) Sec. 3. Restoring National Monuments <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/> accessed 25 February 2021.

constantly fail to stop illegal fishing. Especially obvious in the case of the US marine national monument, fishing that is considered today is suddenly allowed and fully legal the next day, there is no consistency in protection, implementation, nor enforcement. As far as these examples show, IUU fishing is not really a serious crime, but more like a misdemeanor can be tolerated if there are better reason to act in contradiction, and may be decriminalized as the administration sees fit.

5. Public Opinion and Participation in Law Making

The last part of this chapter will focus on an aspect that is often overlooked in international law discussions. When viewing the State as a unitary actor, as common in international law contexts, the issue is generally discussed under the scope of compliance, implementation, and enforcement.[66] While environmental law has contributed to facilitating compliance, one point that should be noted here is that international law has made a move from the traditional interstate relationship into including intrastate dynamics by penetrating the sphere of domestic affairs,[67] where the true objective of treaty regimes is to regulate the behaviour of non-state actors carrying out the activities.[68] It is thus important for the discussion of fisheries to also include the people that are actually on the job, especially in in light of the rising political unrest in the current world.

This links to the use of the term "lack of political will" (as demonstrated in the examples above), and although it is mostly used as an explanation as to why a regulation effort is not

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[66] Philippe Sands and others, *Principles of International Environmental Law* (3rd edn, CUP 2012) 135.

[67] Anne-Marie Slaughter and William Burke-White, 'The Future of International Law is Domestic (or, the European Way of Law)' (2006) 47(2) Harvard International Law Journal 327, 328

[68] Abram Chayes and Antonia Handler Chayes, 'On Compliance' (1993) 47(2) International Organization 175, 193.

producing the desired outcomes. This article would like to take that term to a deeper level and actually look at the actors that are responsible for determining the "political will" of States. In democratic States, the actor that needs to be acknowledged is the fishing industry, which is consisted of citizens that enjoy the right to vote.

As a basic human right, the right to vote in democratic elections is also part of the rule of law that is most commonly discussed. Deriving from article 25 of the International Covenant on Civil and Political Rights (ICCPR), citizens should be granted the right to vote in elections (Art. 25(a)) and the right and the opportunity to take part in the conduct of public affairs, directly or through freely chosen representatives.[69] While there are discussions on whether or not this article applies to international law making processes or should be restricted to domestic legislation,[70] the events presented below will show that in the case where international law directly regulates non-State actors, such actors can and will oppose international law in a *de facto* manner by simply removing the responsible elected officials from office or by overturning unpopular policies through referendums. There are two incidents that can demonstrate this precise process, the first would by the Brexit Referendum and the UK, and the second is the local elections of Taiwan in 2018.

5.1 Examples of Backlash against International Law

5.1.1 2016 United Kingdom European Union Referendum (Brexit Referendum)

As seen in the analysis of the Cod Wars above, the UK government was willing to assert its

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[69] International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR)

[70] Nahuel Maisley, 'The International Right of Rights? Article 25(a) of the ICCPR as a Human Right to Take Part in International Law-Making' (2017) 28(1) EJIL 89, 91.

naval might on fellow allies for its fishing fleet. That determination has somewhat decreased significantly since the UK joined the European Union and the Common Fisheries Policy (CFP), even though it was seen to briefly flair up in preparation of a now deal Brexit as discussed in Chapter 4. Under the management regime of the CFP that allows all European fishing fleets equal access to EU waters and imposes catch limits, the size of the UK fishing industry has allegedly suffered. As seen in the latest statistic, the UK fishing fleet consists of 6,148 vessels in 2017, of which 80% are vessels under 10 meters, with 11,692 fishermen[71]; a significant decrease from the over 8,000 vessels and over 20,000 fishermen in 1996.[72]

The position of the fishing industry was overwhelmingly for Brexit, with 96% percent of British Fishermen voting to leave the EU[73]; even in Scotland, where the majority voted to remain, it was found in a survey that 93% of Scottish fishermen intended to vote for Brexit, reasoning that leaving the EU and the CFP would benefit their industry.[74] And even though the fishing industry may seem small in terms of voting power, this result perhaps still made some impact on the government, as when the Prime Minister Theresa May spoke about the draft Brexit deal in late 2018, fisheries was one of the topics that she specifically pointed out:

"The deal would mean we leave the Common Agricultural Policy and the Common

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[71] Marine Management Organisation, *UK Sea Fisheries Statistic 2017* (Marine Management Organisation, 2018) 1, available at: <https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2017> accessed 15 May 2019.

[72] Elise Uberoi, UK Sea Fisheries Statistics (Briefing Paper No. 2788 House of Commons Library 2017) 7-8, available at: <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN02788> accessed 15 May 2019.

[73] Claire Paccalin, 'Reporters: Brexit, a Sea of Uncertainty for fishermen' *France24* (19 October 2018) <https://www.france24.com/en/20181019-reporters-video-brexit-sea-uncertainty-fishermen-eu-uk-waters-quota-fish> accessed 15 May 2019.

[74] Craig McAngus, 'A Survey of Scottish Fishermen ahead of Brexit: Political, Social and Constitutional Attitudes' (2018) 17 Maritime Studies 41, 52.

> *Fisheries Policy. Mr. Speaker, let me be absolutely clear about what this would mean for fishing. We would become an independent coastal State, with control over our waters, so our fishermen get a fairer share of the fish in our waters. We have firmly rejected…we have firmly rejected…we have firmly rejected a link between the access to our waters and access to markets. The Fisheries Agreement is not something we will be trading off against any other priorities. We are clear that we will negotiate access and quotas on an annual basis, as for example do other independent coastal States like Norway and Iceland."*[75]

Apart from the statement above, however, as of now the situation of Brexit and how exactly the UK is going to regulate its own waters is still unclear, and it remains in deep question whether the UK may actually be able to revert to the original zonal approach of the UNCLOS and exclude the European fishing fleet from its EEZ, or if they will be compelled to enter alternative resource sharing or common management arrangements with the EU. From what can be gathered at the point of writing, while the post-Brexit trade talks did result in an agreement for fisheries (EU vessels allowed to continue fishing during an adjustment period, with reduced quotas each year),[76] negotiations in 2021 still show signs of serious problems between the two sides, with the UK facing opposition for banning fishing in protected areas, which was seen by the EU as a move to reduce their fishing rights through the guise of environmentalism.[77]

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[75] BBC News, 'Theresa May updates MPs on draft Brexit deal' (*BBC News Youtube Channel*, 22 November 2018 02:43-03:29) <https://www.youtube.com/watch?v=48Rds43Miy8&list=PLazsEPECShlHln2wK11iJTZr6MuahUjMv&t=183s&index=2> accessed 15 February 2021.

[76] Chris Morris and Oliver Barnes, 'Brexit Trade Deal: What does it mean for fishing ?' (*BBC*, 20 January 2021) <https://www.bbc.com/news/46401558> accessed 25 February 2021.

[77] Peter Foster and Jim Brunsden, 'UK and EU clash over post-Brexit fishing rights' (*Financial Times*, 13

5.1.2 2018 Taiwan Local Elections

The 2018 Local Elections of Taiwan is the second case that shows the backlash of the fishing community against hardening fishery regulations. The build up towards the 2018 elections can be traced back to 2015, when Taiwan was given a "yellow card" by the European Commission as being identified uncooperative in the fight against illegal fishing according to the EU regulations to combat IUU fishing.[78] The Taiwanese government in response started to amend legislation and tighten enforcement to combat illegal fishing, hoping to remove the Yellow Card status as soon as possible, and avoid receiving a "Red Card", which would lead to devastating consequence of Taiwanese fish products being banned from the EU market, which amounts to 7 billion NTD (170 million GBP) a year.[79] One of the main legislative efforts was to pass the new Act for Distant Water Fisheries in July 2016, and came into force January 2017. One of the main points of the Act was the severe fines that were imposed on the vessels and captains that were convicted of illegal fishing, and after the Act was enforced, the fines quickly accumulated and reached a sum of 124 million NTD (3 million GBP) in October 2018, but the EU still had not removed Taiwan from the Yellow Card list.

Just weeks before the election, on 6 November 2018, a group of fishermen and their family members (roughly 2,800 people) took to the street in protest of the new legislation that

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March 2021) <https://www.ft.com/content/4c1358d0-52df-470f-8f66-aa72464de5c2> accessed 14 March 2021.

[78] European Commission, 'Fighting illegal fishing: Commission warns Taiwan and Comoros with yellow cards and welcomes reforms in Ghana and Papua New Guinea' European Commission (Brussels, 1 October 2015) <http://europa.eu/rapid/press-release_IP-15-5736_en.htm> accessed 25 February 2021.

[79] Lin Pei-Chun, 'Thousands of Fishermen Protest strengthen Enforcement' News & Market (31 October 2018) <https://www.newsmarket.com.tw/blog/113942/> accessed 25 February 2021 (Original news article in Chinese, translated by author).

targeted illegal fishing activity of distant water fleets.[80] They argued that they were unjustly restricted by the new legislation, and the fines that were imposed were unproportionate. The protest later led to the discussion that the fishing industry which traditionally supported the Democratic Progressive Party (DPP) was going to revolt and "punish them with their votes", particularly in Kaohsiung City, where the fishing community is the largest (about 83,000 people) and most of the distant water fleets originate. In the final results, Han Kuo-yu, the Mayor Candidate of the Kuomintang (KMT) for Kaohsiung City, won the election with 890 thousand votes, receiving 150,000 more votes than his DPP counterpart, Chen Chi-Mai. The victory of KMT in Kaohsiung City not only ended twenty years of DPP rule in the city, but also served as an indicator that the support basis of the DPP has eroded, damaging the prospects of re-election for President Tsai Ing-Wen.

5.2 Analysis

For the purpose of this thesis, there is no need to delve into the details of domestic politics, but it is clear that the two democratic processes both have made an impact on the political landscape as well as the continued implementation of relevant fisheries regulations. The only thing in common between the fishing industries of the UK and Taiwan is perhaps the size and the proportion of population that they represent, even if we adopt the estimation that "each man at sea supported four jobs on land"[81], the numbers are still a fraction of the whole population, and even if 100% of the fishermen voted in unison, it is highly unlikely that they were the determining factor in the Brexit Referendum or will be a changing force in the Taiwanese presidential elections (although they did play this role in the regional elections).

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[80] 'Taiwan fishermen protest over crackdown on troubled industry' The Strait Times (Taipei, 6 November 2018) <https://www.straitstimes.com/asia/east-asia/taiwan-fishermen-protest-over-crackdown-on-troubled-industry> accessed 25 February 2021.

[81] James Meek, *Dreams of Leaving and Remaining* (Verso 2019) 25.

The point this research is trying to make is not to magnify the role of a relatively small sector, but rather to point out that this small group of people is actually 100% responsible for the sustainability of the fish and the marine environment, if the government does not even engage and try to convince these people on such an allegedly small matter like sustainable fishing, it would lead to serious doubt as to whether our current form of governance is actually capable of handling large scale problems such as plastic pollution and climate change.

The whole situation could be summarized into a simple proposition: Fisheries management means managing people, not fish.[82] And as accurately observed by McGoodwin:

> *"Fisheries policies and regulations must also be acceptable to the people whose behaviour they seek to alter or constrain. When fishers cannot understand the regulations, and especially when they feel the regulations are against their best interest, enforcement inevitably produces conflict and can be very expensive. Quite often, it is not the severity of a regulatory regime that angers fishers so much as their perception that it is being inequitably implemented or enforced."*[83]

Another quote from Bresnihan is equally compelling:

> *"Without active collaboration between them [industry and managers], even the*

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[82] Alida Bundy, 'The Red Light and Adaptive Management' in Tony Pitcher and others (eds), *Reinventing Fisheries Management* (Kluwer 1998) 366; Dean Bavington, Managed Annihilation: An Unnatural History of the Newfoundland Cod Collapse (UBC Press 2010) 71.

[83] James R. McGoodwin, *Crisis in the World's Fisheries: People, Problems, and Policies* (Stanford University Press 1990) 152.

> *best drafted regulations founded on the best researched science, and supported by carefully targeted subsidies can achieve little. Policy is only as good as its implementation. And in the final analysis, it is the people who work in the fishery who have to make that policy a reality, by adopting it fully in their daily practice."*[84]

A second observation that can be made here is the fact that fishermen in both countries reverted to an older model of the rule of law when they opposed the new one. Fishermen in the UK rejected the CFP, despite it being a unique regional fisheries management regime which they were subject to for decades and opted for the basic model of the EEZ as the UNCLOS originally established, the same regime that the older generation of fishermen (or even some that are still active) have opposed so fiercely in the cod wars. For Taiwanese fishermen, the tendency is also to object to any tightened restrictions as hard as they can, and again, holding on to the original concept of freedom of fishing in the UNCLOS, refusing to adapt to the reality that international law has evolved, and blaming the government for their misfortune of getting caught and punished. This phenomenon may be evidence that the UNCLOS did make a long-lasting imprint on the perspectives we have on the sea and marine living resources, and it further reinforces the point made above, that the development and evolution of policies and regulations are only effective when the subjects truly accept them.

6. Summary

Firstly, from the cases shown in the three levels of analysis above, it is clear that the most

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[84] Patrick Bresnihan, *Transforming Fisheries: Neoliberalism, Nature, and the Commons* (University of Nebraska Press 2016) 15; European Union, *The Common Fisheries Policy: A User's Guide* (European Union 2009) 9.

troublesome cases occur when behavioral effectiveness is lacking, and the actions of the State or fishermen have not been altered.

Secondly, the role of the State, and particularly the flag State is pivotal in the dynamics of fisheries regulation. Situated between international law and its own citizens, the "best practice" of a State that has the political will to protect fish stocks may include: (1) the making of international law as a unitary actor; (2) implementing that law domestically, including enforcement and sanctions targeting IUU fishing, which is basically a form of coercion and restriction to the freedom of the people; and (3) persuading the people to accept changes in the law, minimizing opposition and lowering the cost of enforcement simultaneously. Furthermore, the government in power also has to bear the pressure from the people when taking these actions and risk losing power because they are no longer supported by the people. In a world where democratic states are increasingly susceptible to populism, the zeitgeist of this era does not seem to be in favor of the fishes.

Lastly, the role of the fishermen and the fishing industry is an area that is not fully explored. From the traditional international law standpoint, this is only natural. But it is also a fact that several grassroot movements have influenced societies' perspectives on fisheries, these movements include anti-shark fin soup headed by celebrity chefs[85], NGOs that provide certification to sustainable fisheries[86], education campaigns on how to choose sustainable

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[85] One good example is the documentary *Shark Bait* made by and starring chef Gordon Ramsay, where he embarks on a journey to Taiwan to explore the shark fin industry. <https://www.amazon.com/Gordon-Ramsays-Shark-Bait/dp/B005GNQ3RU> accessed 25 February 2021.

[86] The most well-known international NGO is perhaps the Marine Stewardship Council (MSC), which intends to use their ecolabel and fishery certification program to "*contribute to the health of the world's oceans by recognising and rewarding sustainable fishing practices, influencing the choices people make when buying seafood and working with our partners to transform the seafood market to a sustainable basis.*" <https://www.msc.org/about-the-msc/what-is-the-msc> accessed 25 February 2021.

seafood[87], and supermarkets that alter their fish product procurement processes in response to consumer demands, [88] etc. These are all good starts, but it can also lead to a dangerous tendency of portraying the fishermen as the villain and placing excessive blame on them, as also seen in some cases where the social movements went wrong and turned into a public bashing campaign. It is thus important that the roles and capabilities of the distant water fleet and small scale fisheries be properly understood and distinguished.

As pointed out by Akamine's insightful observation regarding the conflict between environmentalist movements and the industry or the state that is quite compelling. On the one hand, the environmentalists, whom are mostly consumers in developed countries that are not engaged in production activities and have no direct link with the wildlife they are trying to protect, invoke *digital scientific data* to promote the protection of biodiversity; on the other hand, the people that are involved with the harvesting of biological resources do not possess the scientific methods to justify their livelihood activities, and can only rely on *experience-based analog memories*. This unequal condition has led to the argument that it is acceptable and even necessary to restrict the livelihoods of locals in the name of biodiversity protection.[89]

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[87] Various NGOs and movement groups provide "sustainable seafood guides" or "sustainable fish guides" which are tailored to certain countries or areas, for example, see Oceana's website: <https://oceana.org/living-blue/sustainable-seafood-guide> accessed 25 February; or the Seafood Guide Taiwan, which is actually maintained and updated by the Academia Sinica <https://fishdb.sinica.edu.tw/seafoodguide/index.html> Accessed 25 February 2021.

[88] Jason Holland, 'Tesco Introduces New Tuna-Sourcing Approach' (*Seafoodsource*, 2 March 2021) <https://www.seafoodsource.com/news/environment-sustainability/tesco-introduces-new-tuna-sourcing-approach> accessed 5 March 2021 (Actions taken include working with its own-brand suppliers to introduce new due diligence processes within its supply chain, and joining the WWF in advocating for whole marine ecosystems to be maintained in healthy and productive ways.).

[89] Jun Akamine, *Conserving Biodiversity for Cultural Diversity: A Multi-Sited Ethnography of Sea Cucumber Wars* (Tokai University Press 2013) 4.

Fishermen and the fishing industry do have a history of maintaining a low profile, and they may also lack the scientific language and method to present their first-hand experience in parallel with the scientists or scholars, but that is not a reason to belittle, neglect, or simply allow them to slowly decline into ruin. It is time for international law to take the domestic actors into account, and this can only be done if the states are onboard as well.

Chapter 6 A Two Pronged Approach to Preventing and Reversing the Impacts of IUU Fishing

1. Introduction

> *In wildness is the preservation of the world.*[1]

> *How dare you pretend that [this] can be sold with just business-as-usual and some technical solutions?*[2]

> *There's time, but we can't do it by just pissing around at the margins of the problem. We've got to go straight to the heart of capitalism and overthrow it!"*[3]

The focus of this chapter will be to look into the possible approaches that can facilitate sustainable fisheries while at the same time restrict IUU fishing to a minimum. In order to prevent and stop IUU fishing, and ensure that there is a sustainable population of fish that can not only supply our need for food, but also to simply exist and serve their purpose as part of the natural environment. In the previous chapters, numerous factors have been discussed, from the Anthropocene, the role of science and law, the efforts and effectiveness of established regulations and management approaches, to the issue of the willingness of governments and people to carry out those established laws and regulations. These factors all need to be taken into consideration, and I am not alone on this train of thought. As indicated in the opening quotes, activists such as Monbiot, Thunberg, and many more have

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[1] Henry David Thoreau, 'Walking' (1862) Vol. IX No. LVI The Atlantic Monthly 657, 665.

[2] Greta Thunberg, 'Greta Thunberg (Young Climate Activist) at the Climate Action Summit 2019' (*UN Youtube Channel*, 23 September 2019) <https://www.youtube.com/watch?v=u9KxE4Kv9A8> accessed 20 February 2021.

[3] George Monbiot, 'Frankie Boyle's New World Order: Why Worry About Climate Change When the Earth Is A Pointless Ball of Shit?' (*BBC Two*, Series 3 Episode 3, 11 April 2019) 25:35-25:45 <https://www.bbc.co.uk/programmes/m00042g3> accessed 20 February 2021.

started to speak out, in the terms of moving away from the business as usual model and unending the neoliberal/capitalist economic order. Notwithstanding the possibility of sounding like an angry youth, there is some truth in these statements, that could contribute to the final goal of sustainability.

For the future of sustainable fish populations and fisheries, it is essential that the link between fish and biodiversity, as the connection of overfishing and loss of biodiversity is infrequent and unclear, and international fisheries law need to account for wider ecological impacts of fishing, beyond the traditional concern of sustainable yields.[4] Which can be summarized under the concept of "cumulative impacts".[5]

The Brundtland report also expressed similar concerns decades ago:

> *"Today, legal regimes are being rapidly outdistanced by the accelerating pace and expanding scale of impacts on the environmental base of development. Human laws must be reformulated to keep human activities in harmony with the unchanging and universal laws of nature."*[6]

Thus, we must now ask ourselves haw can we adjust the body of law and legal thinking to

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[4] Alison Rieser, 'International Fisheries Law, Overfishing and Marine Biodiversity' (1997) 9 The Georgetown International Environmental Law Review 251, 251.

[5] The term "cumulative impacts" have been defined in the Draft Text of an Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction UNGA A/CONF.232/2019/6, Article 1.6 as: impacts in the same ecosystem resulting from different activities, including past, present or reasonably foreseeable activities, or from the repetition of similar activities over time, including climate change, ocean acidification and related impacts. <https://undocs.org/en/a/conf.232/2019/6> (accessed 5 July 2019).

[6] World Commission on Environment and Development, *Our Common Future* (OUP 1987) 330.

accommodate and facilitate this need for transformation. One path that is often taken is the approach of "Greening"[7], but in the case of IUU fishing, more environmental law or principles, even when incorporated in every paragraph of a new legal instrument is unlikely to have significant effect, since these actions are already illegal to start with. In their reflections on what is wrong with international law in their reflective fields, Rayfuse (writing on the law of the sea) and Lammers (writing on international environmental law) came to similar conclusions. Rayfuse pointed out that in a world where everything is changing, the people who craft laws must also be proactive, acknowledge the change, and look to the future to protect the oceans as an ecosystem that supports our survival.[8] Lammers, on the other hand, concluded that: *"If anything, only those responsible in making, applying and enforcing international environmental law in those areas are failing to do so, and may, therefore, in my opinion, be regarded wrong."*[9]

It is thus clear that most of the wrongfulness, or if I my insert my own terminology, unnaturalness of international law and fisheries regulation is because of our own weaknesses and shortcomings. To rectify this unnaturalness, I would propose a two pronged approach, which combines a strong discourse with a physical regulation in a mutually enhancing relationship that can reform the fragmented status of the current legal regimes, but at the

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[7] Philippe Sands, 'The "Greening" of International Law: Emerging Principles and Rules' (1994) 1(2) Indiana Journal of Global Legal Studies 293; Joanna Mossop, 'Can We Make the Oceans Greener? The Success and Failures of UNCLOS as an Environmental Treaty' (2018) 49 VUWLR 573.

[8] Rosemary Rayfuse, 'Some Reflections on What's Wrong with the Law of the Sea' in Cedric Ryngaert, Erik Molenaar and Sarah Nouwen (eds), *What's Wrong with International Law? Liber Amicorum A.H.A. Soons* (Brill Nijhoff 2015) 29.

[9] Johan Lammers, 'What is Wrong with International Environmental Law?' in Cedric Ryngaert, Erik Molenaar and Sarah Nouwen (eds), *What's Wrong with International Law? Liber Amicorum A.H.A. Soons* (Brill Nijhoff 2015) 230 (referring to climate change as one of the areas that are not adequately covered by present international environmental law).

same time does not hinder the enforcement of existing regulations.

2. Building a New Discourse

2.1 Developments Regarding the Law of the Sea

On the discourse side of the two pronged approach, there is some existing work in the context of the law of the sea that can serve as a starting point. As early as the 1970, Ray already considered the relation of ecology and law, and pondered the possibility of a "marine revolution".[10] Fisheries, according to Ray, is and remains the most difficult aspect of the law of the sea and the marine revolution, and he agrees that it would be necessary to limit the number of fishermen in a fishery, which can only be achieved through restricting the freedom of the seas.[11] Ray also noted that we are slaves of our own history, in treating the sea as land, subject to exploitation and as a frontier to be conquered. For Ray, international law is actually a countering force, a proof of awareness for the need for change. It is also true that, if the law awaits development on this topic, it loses the opportunity to shape them.[12] A last point that links back to the discussion regarding science earlier in this thesis, *"it is true that we do not as yet have all the knowledge we might desire, but it is also true that we know enough now to be able intelligently to monitor our actions."* and that "*we can assume that every one of our actions puts some stress on the environment."*[13] If people were confident enough in 1970 to make such statements, I fail to see why the lawyers, scientists,

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[10] Carleton Ray, 'Ecology, Law, and the "Marine Revolution"' (1970) 3(1) Biological Conservation 7.

[11] ibid 10.

[12] Murray J. Belman, 'The Role of the State Department in Formulating Federal Policy Regarding Marine Resources' (1968) 1(2) Natural Resources Lawyer 14, 18 (discussing the role of law in "enabling" exploitation); Carleton Ray, 'Ecology, Law, and the "Marine Revolution"' (1970) 3(1) Biological Conservation 7, 14 (applying the quote arguing for a revolution in ocean governance).

[13] Carleton Ray, 'Ecology, Law, and the "Marine Revolution"' (1970) 3(1) Biological Conservation 7, 14.

and politicians today are always acting in a strange manner, where they are overly accommodating to those that exploit the resources (i.e. the fishing industry), but at the same time so unforgiving and hostile to those that advocate for more protection for the environment.

In recent developments, Russ and Zeller approached the overfishing problem with the concept of *Mare Reservarum* with two practical solutions, reduction of subsidies, and establishment of no-take marine reserves, while acknowledging that suggestions were also being made for a complete reversal of fishing access by treating the seas in principle as closed to fishing, only allowing small exceptions in space and time.[14] Lubchenco and Gaines proposed a "new narrative" for the ocean, which says *"The ocean is so central to our future. IT'S too important to neglect."* they also mention that fisheries should be reformed to fish smarter instead of harder, and the creation of highly protected MPAs to safeguard biodiversity.[15]

Such reflections are not limited to the research above, as the same issues are also starting to gain traction in all kinds of fields, where questions are asked, warnings are given, and suggestions are being debated.[16]

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[14] Garry Russ and Dirk Zeller, 'From Mare Liberum to Mare Reservarum' (2003) 27 Marine Policy 75, 75-76.

[15] Jane Lubchenco and Steven Gaines, 'A New Narrative for the Ocean' (2019) Science 364(6444) 911.

[16] Ida Tetsuji, 'The world must pull together to stem the urgent crisis of our ocean' (*World Economic Forum*, 29 May 2020) <https://www.weforum.org/agenda/2020/05/fighting-the-rising-tide-of-the-ocean-environmental-crisis/> accessed 25 February 2021 (Notes that the world's oceans are facing a multidimensional crisis, including that of overfishing and IUU fishing, and that we need to fundamentally change our structure of policy-making.); Crow White and Christopher Costello, 'Close the High Seas to Fishing?' (2014) 12(3) PLoS Biol. e1001826; Reg Watson, 'Should we ban fishing on international waters?' (World Economic Forum, 2015) <https://www.weforum.org/agenda/2015/02/should-we-ban-fishing-on-

2.2 Two Sides of the Same Coin: Rewilding and Degrowth

For the construction of the new discourse for fisheries, the following two concepts provide a promising vision of a sustainable world, which is surprisingly uncomplicated and straight forward.

2.2.1 Rewilding the Seas

What is rewilding? For Monbiot, it is simply the large scale restoration of the ecosystem or natural processes.[17] For the marine ecology, it is argued that the rewilding process will be easier than terrestrial ecosystem, due to the fact that few marine animals have actually become extinct, and even a small surviving population can regenerate if given the chance; and that marine species are capable of reintroducing themselves to habitats.[18]

For Jørgensen, on the other hand, the answer is much more complicated, as she meticulously examined the different meanings of rewilding when used in different contexts, and concluded a total of six different meanings, including: (1) cores, corridors, carnivores; (2) Pleistocene mega-fauna replacement; (3) island taxon replacement; (4) landscape through species reintroduction; (5) productive land abandonment; and (6)releasing captive-bred animals into the wild, where each definition has its own time reference points and geographical applicability.[19] She also pointed out that the un-scientific use of the term (i.e.

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international-waters/> accessed 25 February 2021.

[17] George Monbiot, *Feral: Rewilding the Land, the Sea, and Human Life* (University of Chicago Press 2014) 8.

[18] George Monbiot, *Feral: Rewilding the Land, the Sea, and Human Life* (University of Chicago Press 2014) 248.

[19] Dolly Jørgensen, 'Rethinking Rewilding' (2015) 65 Geoforum 482, 485.

by environmental activists), the term took on "plastic" meanings, as a term that was developed for discrete scientific ideas that was subsequently moved into daily use and took on different meanings according to context.[20] In conclusion, she noted that compared to some previous interpretations of rewilding that were based on an exclusionary approach, it would be a positive turn if the visions of a rewilded world was based on an inclusive approach, where humans and non-humans co-exist and co-inhabitat in the same space.[21]

Lastly, considering the political and ethical implications of the concept of rewilding, Jepson and Blyth pointed out that rewilding actually embodies advances in interdisciplinary conservation science. Serving as a new environmental narrative, rewilding presents the degraded status of nature as the outcome of complex long term interactions between nature, culture, politics, and economy. Through this display, we can start to take stock, reassess, and start to do something that can shape a better future.[22]

For fish and the marine environment, the most simplistic form of rewilding will suffice, as in removing the unnaturalness of human interference. This is not an exclusive

2.2.1 Degrowth in Fisheries

Turning to the concept of degrowth, the definition of this concept is much more concise, as Hickel points out, degrowth is "*a planned downscaling of energy and resource use to bring the economy back into balance with the living world in a safe, just and equitable way.*"[23]

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[20] Dolly Jørgensen, 'Rethinking Rewilding' (2015) 65 Geoforum 482, 485.

[21] ibid 487.

[22] Paul Jepson and Cain Blyth, *Rewilding: The Radical New Science of Ecological Recovery* (Icon Books 2020) 103, 109.

[23] Jason Hickel, *Less is More: How Degrowth will Save the World* (William Heinemann 2020) 29.

One aspect of degrowth, according to Hickel, is the decommodification of public goods and expansion of the commons,[24] an action that is also mentioned by Büscher and Fletcher, where they advocate that in parallel to the degrowth of global economy and the de-accumulation of political economy, communal forms must be redeveloped on a basis of egalitarian, democratic decision-making and resource allocation.[25]

Hadjimichael, on the other hand, introduced the concept of degrowth into the context of ocean governance as a counter to the term blue growth, and came up with "blue degrowth."[26] It is argued that blue degrowth is a concept that emerges from the need of confronting the blue growth imperative, and the quest for an alternative imagery for the use of , the access to, and relations with the ocean by the society, it is also a framework that can be socially and ecologically transformative.[27]

Concerning IUU fishing and fisheries, there is certainly a need for degrowth, as we have already witnessed the impact of the fishing industries excessive capacity, but this certainly does not mean we are to abandon the seas and stop eating fish. Instead, we need to reclaim the commons from the government officials and fishing industry that act like they have an established right of access to fish, and that in some sense they own the productive capability of the fish stocks, as Walters strongly advised, and reassert the public right to establish safe and sustainable management measures, regardless of how those measures may impact the

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[24] Jason Hickel, *Less is More: How Degrowth will Save the World* (William Heinemann 2020) 228-229.

[25] Bram Büscher and Robert Fletcher, *The Conservation Revolution: Radical Ideas for Saving Nature Beyond the Anthropocene* (Verso 2020) 154.

[26] Maria Hadjimichael, 'A call for blue degrowth: Unravelling the European Union's Fisheries and maritime policies' (2018) 94 Marine Policy 158, 159.

[27] Irmak Ertör and Maria Hadjimichael, 'Editorial: Blue degrowth and the politics of the sea: rethinking the blue economy' (2020) 15 Sustainability Science 1, 4.

fishermen to whom we grant the privilege of access to fishing.[28]

3. Enhancing the Narrative through Legal Restriction

3.1 The Exclusion of Human Interference

Marine Protected Areas (MPAs) are considered to be one of the most effective methods when it comes to the conservation and protection of the marine environment. It is also a fact that MPAs are gaining popularity and wide adoption in the international community. The establishment of MPAs has become more and more common, and also larger in size. This ongoing trend has received an equal amount of coverage and praise in academic research, as well as the media.[29] Such an increase is attributed to the continued depletion of fish stocks and decline in marine fish resources, which is a trend that needs to be reversed through the reduction of fishing pressure and the establishment of areas permanently or temporarily closed for fishing.[30]

MPAs are also found to be effective against IUU fishing, as it provides protection against harmful fishing practices that result in a high percentage of bycatch that cannot be achieved through single species protection. By creating a no-fishing zone, MPAs can effectively cut

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[28] Carl Walters, 'Designing Fisheries Management Systems that do not Depend upon Accurate Stock Assessment' in Tony Pitcher, Paul Hart and Daniel Pauly (eds), *Reinventing Fisheries Management* (Fish and Fisheries Series Vol. 22, Kluwer Academic 1998) 288 (Also pointing out that large closed areas and short fishing seasons are perhaps the most promising steps towards sustainable fisheries for the future.)

[29] Marine Deguignet and others, *2014 United Nations List of Protected Areas* (UNEP-WCMC Cambridge UK 2014) 13.

[30] Kjell Grip and Sven Blomqvist, 'Marine Nature Conservation and Conflicts with Fisheries' (2020) 49 Ambio 1328, 1332.

down IUU fishing in sensitive areas of the ocean.[31] As also recognized by the Convention on Biological Diversity (CBD):

> "*Protected areas are the cornerstone of biodiversity conservation; they maintain key habitats, provide refugia, allow for species migration and movement, and ensure the maintenance of natural processes across the landscape. Not only do protected areas secure biodiversity conservation, they also secure the well-being of humanity itself."*[32]

It has been observed that the zonal approach of the UNCLOS is the source of controversy over the interpretation of existing international law instruments as well as relevant issues of a new international instrument on the designation and management of MPAs at the UN BBNJ meeting over the last decade.[33] However, I would argue that by designating MPAs, the fragmentation that is created by the zonal approach could be adverted and reversed, similar to the development that led to the elimination of freedom of fishing, States and competent authorities in any given zone now have (or will have in the near future) the power to establish no-take MPAs, and after these protected areas are established, fishing would be effectively excluded from all of these areas, regardless of their original zonal status. Also taking into consideration of the development trajectory of the no-take MPA, the level of enforcement, monitoring and protection would be highly uniform, leaving little wriggle room for illegal operations. In short, neighboring MPAs in the High seas and any given EEZ would overwrite

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[31] Kirsten Selvig, 'Expensive Freedom: Establishing Marine Protected Areas on the Open Ocean Requires an End to the Freedom of the Seas' (2013) 22 Minn. J. Int'l L. Online 35, 46.

[32] CBD, 'Protected Areas – An Overview' <https://www.cbd.int/protected/overview/> accessed 25 February 2021.

[33] Su Jin Park and Ki Hyeon Kim, 'The Legal Framework and Relevant Issues on the Marine Protected Areas in the Areas beyond National Jurisdiction' in Myron Nordquist, John Morton Moore and Ronán Long (eds), *The Marine Environment and United Nations Sustainable Development Goal 14: Life Below Water* (Brill Nijhoff 2018) 173.

the legal differences prescribed by the UNCLOS, leaving one homogenous area that would simultaneously provide the highest level of protection to the fish stocks and the marine environment. This point will be further elaborated by the following paragraphs that examine some examples of current MPA development.

3.2 The Push for More MPAs and Restrictive Measures

Apart from the discussions of marine biologists and ecologists, developments in international forums also contributed to the growing utilization of MPAs. The approach of establishing MPAs have been generally accepted in international law[34], but the emphasis on no-take MPAs and the benefits of such better protected MPAs towards fisheries are the product of efforts within the past two decades. Starting with the World Summit of Sustainable Development (WSSD) in Johannesburg, 2002, the ecosystem approach, the elimination of destructive fishing practices, and the establishment of MPAs were highlighted as tools that would promote the conservation and management of oceans at all levels, this also included a goal to establish a representative network of MPAs by 2012.[35]

The CBD and the World Park Congress also played a role in creating goals for marine environment protection through MPAs. As the Strategic Plan for Biodiversity 2011-2020, Aichi Target Biodiversity 11 stipulates:

> *"By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and*

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[34] Agenda 21 and the Convention on Biological Diversity both encourage the use of area-based enclosures.

[35] WSSD, Draft Plan of Implementation of the World Summit on Sustainable Development A/CONF.199/L.1 Art. 31(c) <https://www.un.org/ga/search/view_doc.asp?symbol=A/CONF.199/L.1&Lang=E> (accessed 5 July 2019).

> *ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes."*[36]

In 2014, the 6th World Parks Congress, hosted by the IUCN in Sydney, Australia, produced "The Promise of Sydney", a statement that provides a vision for the next ten years of protected area practice. Within the Marine theme of the Congress, the first recommendation on MPAs was:

> *"Urgently increase the ocean area that is effectively and equitably managed in ecologically representative and well-connected systems of MPAs or other effective conservation measures. This network should target protection of both biodiversity and ecosystem services and should include at least 30% of each marine habitat. The ultimate aim is to create a fully sustainable ocean, at least 30% of which has no extractive activities."*[37]

In the latest development, Greenpeace and scholars from the University of Oxford and University of York produced a study that maps how to protect 30% of the world's oceans by 2030, and also explores the possibility of extending that protection to 50%.[38]

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[36] Available on the CBD website <https://www.cbd.int/sp/targets/> accessed 25 February 2021.

[37] MPA News Staff, 'World Parks Congress recommends target of 30% no-take MPA coverage worldwide' (MPA News, 31 December 2014) <https://mpanews.openchannels.org/news/mpa-news/world-parks-congress-recommends-target-30-no-take-mpa-coverage-worldwide> accessed 25 February 2021.

[38] Greenpeace, *30x30 A Blueprint for Ocean Protection: How we can protect 30% of our oceans by 2030* (Greenpeace 2019).

Subsequently, in January 2021, the High Ambition Coalition (HAC) for Nature and People, which includes more than 50 states, pledged to protect at least 30% of the planet's land and oceans, prior to the One Planet Summit in Paris.[39] United States President Joe Biden commits to protecting 30% of land and ocean, and simultaneously launches a process for stakeholder engagement (including fishermen) to identify strategies that could facilitate broad participation.[40]

In a study published in March 2021, it was also concluded that MPAs, especially highly protected areas in which resource extraction and harmful activities are banned, can be effective management tools, capable of safeguarding and restoring ocean biodiversity and associated services, complementing conventional fisheries management, and even contribute to the mitigation of climate change by protecting marine carbon stocks[41]. It was also indicated in the article that annual carbon emissions produced by bottom trawling disturbing the seafloor is equivalent to the emissions of the global aviation industry[42]. On a practical note, the study also produced a conservation planning framework and identified priority areas which when protected, would achieve a triple benefit of biodiversity protection, food provision, and carbon storage, furthermore, such benefits may be doubled if a globally

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[39] Patrick Greenfield and Fiona Harvey, 'More than 50 countries commit to protection of 30% of Earth's land and oceans' (*The Guardian*, 2021) <https://www.theguardian.com/environment/2021/jan/11/50-countries-commit-to-protection-of-30-of-earths-land-and-oceans> accessed 25 February 2021.

[40] Briefing Room, 'FACT SHEET: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government' (*The White House*, 27 January 2021) <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/> accessed 25 February 2021.

[41] Enric Sala and others, 'Protecting the Global Ocean for Biodiversity, Food and Climate' (2021) 592 Nature 397, 397.

[42] Catrin Einhorn, 'Trawling for Fish May Unleash as Much Carbon as Air Travel, Study Says' *New York Times* (17 March 2021) <https://www.nytimes.com/2021/03/17/climate/climate-change-oceans.html> accessed 20 September 2021.

coordinated effort can be implemented[43].

From the perspective of this thesis, such research is more than enough to prove the effectiveness of highly protected MPAs, as one of the researchers pointed out, "*The benefits are clear. If we want to solve the three most pressing challenges of our century – biodiversity loss, climate change and food shortages – we must protect our ocean.*"[44] Thus, the job left for international lawyers should be to promote such an approach, in a way that can be accepted by all members of the international community. The scientific community has mostly spoken in cohesion, although there will always be people that have different opinions[45], there is no real harm that can happen if we place the most important areas of the sea under protection right now, and the short term disadvantages or inconveniences will quickly be compensated by the overall rejuvenation of the marine environment.

4. Summary

The shape of the two prongs can thus be concluded based on the discussions above. It would be difficult to proceed with only one prong. For example, in the case of MPAs, it was pointed out that the performance of fishery and biodiversity management systems depends on the wellbeing of marine environment. A human-induced degradation or a natural oscillation of the marine system may impede even draconian attempts to reverse trends in species

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[43] Enric Sala and others, 'Protecting the Global Ocean for Biodiversity, Food and Climate' (2021) 592 Nature 397, 397.

[44] Chris Chase, 'Study finds protecting key ocean areas could boost total catch, fight climate change' *Seafoodsource* (19 March 2021) <https://www.seafoodsource.com/news/environment-sustainability/study-finds-protecting-key-ocean-areas-could-boost-total-catch-fight-climate-change> accessed 20 September 2021.

[45] Chris Chase, 'Ray Hilborn: MPAs aren't the answer to ocean biodiversity, sustainability efforts' *Seafoodsource* (1 June 2021) <https://www.seafoodsource.com/news/environment-sustainability/ray-hilborn-mpa-s-aren-t-the-answer-to-ocean-biodiversity-sustainability> accessed 20 September 2021.

depletion.[46] It is the same for reducing fishing efforts if there are no hard restrictions that prohibit fishing entirely. It is imperative that both prongs be deployed in a concerted effort to achieve the mutually enhancing effect.

From what I can observe, the movement for MPAs is accelerating after the new administration in the US assumed office, while the key discourses are only starting to gain attention, albeit in smaller circles of concerned individuals. But generally, it is developing in a positive direction.

Schofield also expresses optimism that while ocean issues are of international concern, the progress of subjecting areas of the ocean is evident, and it is possible that these marine protected areas become more representative, better managed, and include more parts of the high seas, hopefully through the BBNJ Agreement.[47]

This trend of establishing MPAs and protecting high profile areas of the sea may very well continue on for as long as the momentum persists, and such momentum can also be prolonged if the discourse of rewilding and degrowth can gain traction. The is already a solid scientific basis for the large scale implementation of MPAs, thus the legal side of the discourse must also seize this chance to overturn some of the archaic and unnatural notions that are persisting in the minds of fishermen and politicians. As Pauly points out, many scientists working on environmental issues have been too meek when managers, lobbyists,

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[46] Kenchington R., Kaiser M.J. and Boerder K., 'MPAs, Fishery Closures and Stock Rebuilding' in Serge M. Garcia and Yimin Ye (eds), *Rebuilding of Marine Fisheries Part 2: Case Studies* (FAO Fisheries and Aquaculture Technical Paper 630/2, FAO 2018) 199 (Also referring to the moratorium of newfoundland cod fisheries as an example).

[47] Clive Schofield, 'Geographical Dimensions to Global Oceans Governance' [2021] Geographical Review <https://doi.org/10.1080/00167428.2020.1852879> accessed 25 February 2021.

and politicians have challenged or contorted the results of their work, and that scientists must learn to combine scientific integrity and a firm stance against such attacks[48]. In my opinion, the two prongs approach proposed in this thesis is also a way of diverting such conflicts, where the scientists can focus on producing reliable scientific findings, and the international law lawyers can focus on establishing the theoretical foundation for the changes needed. The two professions should work in collaboration and mutually enforce each other in moving the discourse towards the direction of sustainability.

It should also be acknowledged that the proposals of this thesis are all made from a wholistic viewpoint, aiming at stopping the scourge of long-distance commercial fleets from emptying the oceans, and guiding the discourse in the general direction of sustainability. That is not to say that opinions and considerations from other viewpoints are not worth exploring, but it would simply be impossible for this thesis to go into the details and circumstances of specific sea areas or fisheries. Nevertheless, there are a plethora of different sub categories of fisheries that should be the subject of further research, for example, Song and others presented an interesting discussion on the role of small-scale fisheries in the global fight against IUU fishing, elaborating on how the focus on industrial fleets and the IUU fishing discourse can undermine small-scale fisheries[49]. Such discussions are crucial and essential if we hope to establish sustainable fisheries that can provide for local people, and are certainly worth the effort of future extended research.

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[48] Nancy Baron, 'The scientist as communicator' in Villy Christensen and Jay Maclean (eds), *Ecosystem Approaches to Fisheries: A Global Perspective* (CUP 2011) 302.

[49] Andrew Song and others, 'Collateral Damage? Small-scale Fisheries in the Global Fight against IUU Fishing' (2020) 21 Fish and Fisheries 831, 831.

Thesis Conclusion

> *In the end we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught.*[1]

> *The Ecosystem is not more complex than we think, it is more complex than we "can" think.*[2]

1. An Unexpected Turn of Events

In the first section of the conclusion of this thesis, I am compelled to address the global event that ravaged the world from early 2020, namely, the outbreak of the novel coronavirus (COVID-19). The global pandemic has impacted the world in every aspect imaginable, and this of course includes implications towards fisheries, regardless of legality, and the protection of the marine environment. There is a series of recently surfaced developments that could not be fitted into the main body of this thesis, which nonetheless is still closely related to the topic and the general argument I am trying to make. I will attempt to present these

Starting with one of the worst news in my opinion, in March 2020, the IUCN declared the Smooth Handfish (*Sympterichthys unipennis*) as extinct.[3] This is the first time in modern

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[1] Elliot A. Norse and Larry B. Crowder, 'Preface' in Elliot A. Norse and Larry B. Crowder (eds.), *Marine Conservation Biology: The Science of Maintaining the Sea's Biodiversity* (Island Press 2005) xix. (Quote of the Observation made by the Senegalese conservationist Baba Dioum at the 1968 triennial meeting of the IUCN.).

[2] Michael Barbour, 'Ecological Fragmentation in the Fifties' in William Cronon (ed), *Uncommon Ground: Rethinking the Human Place in Nature* (W. W. Norton & Company 1996) 247 (quoting the ecologist Frank Egler).

[3] IUCN red list entry: <https://www.iucnredlist.org/species/123423283/123424374> accessed 25 February 2021.

history that a maritime fish species was listed as extinct, as the fish had not been seen since the only specimen was collected by French biologist François Péron in 1802.[4] The possible causes of the extinction has been attributed to the cumulative effects of historical dredging for scallops and oysters, industrial sediment runoff in the region, and warming sea temperatures, as researchers at the University of Tasmania pointed out that the entire marine ecosystem in the south-east of Tasmania has been in decline for at least a century.[5] The loss of one species, one fish species in particular, may not seem so alarming, but this one clear evidence of the destructive ability of humans, and the accounts of how the early scallop fisheries ripped apart the reefs in the south-east Tasmanian seas[6] also bring back flashbacks of the events in the South China Sea. If we were to apply todays standards to the past, the scallops and oysters fisheries of the Tasmanian seas will certainly be considered as destructive and illegal, maybe also attracting the wrath environmental groups and diving enthusiasts, and it could be argued that if people were less reckless, then maybe the fish could be saved. But herein is precisely the impending doom that fisheries brought unto itself, on a long enough time frame, all fishing has the potential of becoming IUU fishing, and some fisheries are long overdue for that designation (e.g. bottom trawling). This is probably something that the lawyers, politicians, and the fishing industry needs to recognize and reconcile with.

The pandemic also created an unprecedented fishing pause similar to the unintended marine

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[4] Douglas Main, 'A Fish that Walks on the Seafloor has Gone Extinct. Can its Cousins be Saved?' (*National Geography*, 29 August 2020) <https://www.nationalgeographic.com/animals/article/smooth-handfish-extinct-other-handfishes-threatened> accessed 25 February 2021.

[5] Zoe Kean, 'Why the Death of a Small, Punk-like Fish Rocked the Marine World' (*Guardian*, 21 October 2020) <https://www.theguardian.com/environment/2020/oct/21/why-the-death-of-a-small-punk-like-fish-rocked-the-marine-world-aoe> accessed 25 February 2021.

[6] ibid.

reserve in the north sea created by the hostilities of world war II.[7] Data provide by the Global Fishing Watch also confirmed this decrease in fishing operations, with a 9% decrease in the number of active fishing vessels, and a 5% decrease in hours of fishing.[8] A report from the FAO attributed the decrease to the drop in demand that resulted in reduced prices of fish products.[9]

As the pandemic continues to obstruct activities globally, Büscher and others have seized the chance to explore the possibilities of a post COVID-19 world, and identified five (non-exhaustive) pillars that challenge the current hegemonic idea of development, among which the first pillar is "A move away from development focused on aggregate economic growth". They argue instead that there needs to be a differentiation between the sectors of economy that contribute to wellbeing *within ecological and climate boundaries*, and the sectors that need to radically degrow due to their *fundamental unsustainability or their role in driving unnecessary consumption*.[10]

The world changing pandemic provided abundant material and time for us to reflect and contemplate many things in life. For the purpose of thesis and the fish, one of those reflections should be the necessity of our previous fishing operations. It really begs the question: If the fishing stopped as soon as the market demand disappeared, is it reasonable

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[7] Shreya Dasgupta, 'Will Fish Boom amid Pandemic-Driven Fishing Bust?' (*Mongabay*, 13 May 2020) <https://news.mongabay.com/2020/05/will-fish-boom-amid-pandemic-driven-fishing-bust/> accessed 25 February 2021.

[8] Tyler Clavelle. 'COVID-19 Brings Unmatched Downturn in Global Fishing Activity' (*Global Fishing Watch*, 11 March 2021) <https://globalfishingwatch.org/data/covid-19-brings-unmatched-downturn-in-global-fishing-activity/> accessed 12 March 2021.

[9] FAO, *The Impact of COVID-19 on fisheries and aquaculture food systems: Possible responses* (FAO 2020) 10.

[10] Bram Büscher and others, 'Planning for a World beyond COVID-19: Five Pillars for Post-Neoliberal development' (2021) 140 World Development 1, 2.

to maintain and deploy such large fleets in the first place? If we can survive and supply our everyday needs, then maybe we should consider reducing the scale of the fishing industry even more, and focus on providing food to local communities, instead of sending distant water fleets to meet the exaggerated demands of unnecessary commercial activities.

2. The Continuous Struggle between IUU Fishing and Protection of Marine Environment

It was noted by Harvey that the age of neoliberalism also coincides with the age of rapid mass extinction of species in the recent history of the Earth, and the further embracement of neoliberal ethics and practices will undoubtedly transform the global environment, and result in an Earth that is unfit for human habitation.[11] IUU fishing in no doubt on of those practices that operate under that neoliberal ethic. Despite the various comments from all sides of the table, our current situation proves that it is indeed difficult to break away from the profit driven capitalist ways. However, the job of academics should be to continue promoting the desired value and approach that can best preserve our survival, especially when the tides have started to turn.

From a religious standpoint, even the Holy See expressed its views on the sustainability of oceans through its permanent observer to the UN, Archbishop Bernadito Auza, with some points that are particularly of interest: Firstly, the Archbishop noted that the Earth together with its oceans is a gift entrusted to us for our enjoyment and stewardship. This common heritage of mankind calls for care and responsibility, not exploitation and mere use. Secondly, he called for a balanced approach to both economic benefits we derive from our ocean resources and the conservation and sustainability of our oceans must be achieved, adding

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[11] David Harvey, *A Brief History of Neoliberalism* (OUP 2005) 173.

that the quest for economic benefits should not relegate obligations to safeguard the health of the oceans to secondary importance.[12] Regardless of the reference to god and divine powers, the statements are actually striking very close to home on why fisheries are still not sustainable and IUU fishing still persists. The position of the Holy See was reaffirmed by Archbishop Paul Richard Gallagher when he sent a video message to the UN Summit on Biodiversity in September 2020, in which he quoted the words of Pope Francis:

> *We cannot pretend to be healthy in a world that is sick," because the wounds inflicted on the planet "are wounds that also bleed in us. […] we cannot remain silent before […] the very high costs of the destruction and exploitation of the ecosystem.*[13]

The speech of the Archbishop also called for the examination of the root causes of biodiversity loss, made reference to the damaged equilibrium of ecosystems and human suffering due to that loss, and urged the international community to take immediate action with long term "integral ecology" strategies through the rethinking of our development paradigm.[14]

Interestingly, speaking from an ideology completely opposite from the Holy See, China's

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[12] Robin Gomes, 'Holy See urges sustainable use of ocean and marine resources' *The Vatican News* (27 July 2019) <https://www.vaticannews.va/en/vatican-city/news/2019-07/holy-see-un-auza-oceans-resources-sustainability.html> accessed 29 July 2019.

[13] Pope Francis, 'Letter of His Holiness Pope Francis to the President of the Republic of Columbia to Mark the World Environment Day' (The Holy See, 5 June 2020) <http://www.vatican.va/content/francesco/en/letters/2020/documents/papa-francesco_20200605_lettera-giornata-ambiente.html> accessed 25 February 2021.

[14] Archbishop Paul Richard Gallagher, 'Statement of the Archbishop Gallagher at the United Nations Summit on Biodiversity' (Permanent Observer Mission of the Holy See to the United Nations, 30 September 2020) <https://holyseemission.org/contents/statements/5f693fa5f3c6d.php> accessed 25 February 2021 (The full video message can also be viewed on the Mission's YouTube channel: <https://www.youtube.com/watch?v=XFP18rrJjMs&t=5s>).

President Xi Jinping also spoke at the summit via video, with slightly different implications towards the issue. He pointed out that the loss of biodiversity and the degradation of ecosystems is a major threat to human survival and development, and that we needed to "respect nature, follow its laws and protect it." Further commitments to adopt even more forceful policies and measures on environmental protection was also emphasized.[15]

From a general point of view, there is nothing wrong about president Xi's speech, despite the indication that development is still at the center. But as seen in the discussions of this thesis and other sources, the huge Chinese distant water fishing fleet is still very much at work,[16] with little to no restriction from the Chinese government.[17] The self-conflicting nature of Chinese fishery enforcement can be seen in a series of actions. In August 2020, Chinese officials instructed fishermen to refrain from entering the waters of the disputed Diaoyutai Islands (or Senkaku Islands for the Japanese), a gesture that was seen as an attempt to ease tensions between China and Japan.[18] This also clearly shows the authority and control the Chinese government has over its fishing fleet. However, in January 2021, China passed a new Coast Guard Law granting its coast guard the power to fire on foreign vessels if necessary.[19] Specifically related to illegal fishing activities, Article 47(2) of the Coast

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[15] The State Council People's Republic of China, 'Xi Calls for Enhancing Biodiversity Conservation, Global Environmental Governance' (*Xinhua*, 1 October 2020) <http://english.www.gov.cn/news/topnews/202010/01/content_WS5f752bffc6d0f7257693cf97.html> accessed 25 February 2021.

[16] Miren Gutiérrez and others, *China's Distant-Water Fishing Fleet* (ODI 2020) 15 (A total of 16,966 vessels belonging to the distant-water fleet was identified.).

[17] Adam Minter, 'China's Crackdown on Illegal Fishing Rings Hollow' (*Bloomberg*, 3 November 2020) <https://www.bloomberg.com/opinion/articles/2020-11-02/china-s-illegal-fishing-crackdown-rings-hollow> accessed 25 February 2021.

[18] 'Chinese fishermen told not to approach Senkakus as Beijing seeks to avoid frictions' (*The Japan Times*, 16 August 2020) <https://www.japantimes.co.jp/news/2020/08/16/national/chinese-fishermen-senkakus/> accessed 25 February.

[19] Yew Lun Tian, 'China authorises coast guard to fire on foreign vessels if needed' (*Reuters*, 22 January 2021)

Guard Law authorizes the use of hand-held firearms when foreign vessels enter sea areas under China's jurisdiction to conduct illegal production operations, refuse to comply with orders to stop, or resist boarding or inspection by other means, and other measures have failed to stop these illegal activities. [20] This legislation has attracted attention and concern that relevant marine disputes would be escalated and the use of force could be invoked to assert unlawful claims, not only in the eastern coast of Japan, but also in the South China Sea.[21] As I have discussed in Chapter 4, this incident is just a extension of the continued politicizing of possible IUU fishing operations, where most of the emphasis is not really fisheries related, but instead entirely centered around the struggle of power between the US and its allies, and China. For the most part, unless there is actual shooting takes place and some unfortunate fishermen is caught in the fire, the new Chinese law will have no impact on the overall situation of fisheries enforcement.

Turning further into the Pacific, a new effort of the small island states (or "large ocean states" according to Chan[22]) in the region have initiated another interesting movement concerning their remote islands and the EEZ they possess. As mentioned in Chapter 1 of this thesis, the climate change induced change of ocean temperature can cause marine fish to move into different waters that may present challenges to the zonal approach of fisheries management. In the case of pacific island states, they are now mapping their remote islands, in an attempt

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<https://www.reuters.com/article/us-china-coastguard-law-idUSKBN29R1ER> accessed 25 February 2021.

[20] Shuxian Luo, 'China's Coast Guard Law: Destabilizing or Reassuring?' (*The Diplomat*, 29 January 2021) <https://thediplomat.com/2021/01/chinas-coast-guard-law-destabilizing-or-reassuring/> accessed 25 February 2021.

[21] Reuters Staff, 'U.S. concerned China's new coast guard law could escalate maritime disputes' (*Reuters*, 20 February 2021) <https://www.reuters.com/article/us-usa-china-coastguard-idUSKBN2AJ2GN> accessed 25 February 2021.

[22] Nicholas Chan, '"Large Ocean States": Sovereignty, Small Islands, and Marine Protected Areas in Global Oceans Governance' (2018) 24(4) Global Governance: A Review of Multilateralism and International Organizations 537.

to claim and lock in permanent EEZs that will not be affected even if those islands are turned into rocks (in the sense of UNCLOS Article 121(3)) or completely submerged due to sea level rise.[23] Scholars interviewed in Doyle's article displayed an different degrees of support and caution, Schofield pointed out that this issue is not limited small island states, but concerns the global coastal community, signs of growing support that the states that contributed least to climate change should not be penalized first, and that such rights over marine resources were fundamental to the island states; Baker recognized that there are no examples of states giving up maritime zones when islands disappeared; and Freeman commented that the island states might face problems when other states challenged the EEZ claims after the islands have disappeared.[24]

From the viewpoint of deterring IUU fishing, it would be optimal if the existing EEZs were maintained, as endorsed by the International Law Association at its 78th Biennial Conference in 2018 that:

> *on the grounds of legal certainty and stability, provided that the baselines and the outer limits of maritime zones of a coastal or an archipelagic State have been properly determined in accordance with the 1982 Law of the Sea Convention, these baselines and limits [should not be required to be recalculated] should sea level change affect the geographical reality of the coastline"*[25]

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[23] Alister Doyle, 'Islands, Rocks and Tuna: Pacific Oceans Draw New Battle Lines against Rising Sea' (Thomson Reuters Foundation, 11 March 2021) <https://news.trust.org/item/20210310235713-ebsc7/> accessed 12 March 2021.

[24] ibid.

[25] Committee on International Law and Sea Level Rise, 'Resolution 5/2018' (International Law Association, Sydney 2018) <https://www.ila-hq.org/index.php/resolutions-passed-at-the-ila-78th-biennial-conference> accessed 25 February 2021.

Lastly, there are two speeches by UN Secretary-General António Guterres that also speaks volumes. The first one, delivered at Columbia University in New York, he said that *"humanity is waging war on nature"* and that nature was already *"striking back with growing force and fury."* Consequently, he also pointed out that *"making peace with nature is the defining task of the 21st century. It must be the top, top priority for everyone, everywhere."*[26]

The second speech delivered at the "One Plant Summit" hosted by the French government in cooperation with the UN and the World Bank, declared 2021 as "the year to reconcile with nature." Pointing out that we have been abusing the planet as if we had a spare one, and that nature is striking back with collapsing biodiversity.[27]

3. Deeper Understanding, Wider Acknowledgement and a Brighter Future

As a final remark, I would also stay on a positive note and end this thesis with an observation of optimism. It may be true that humans have induced and witnessed on several occasions the collapse of fisheries and decimation of a tremendous amount of marine life forms, it is also true that many are still carrying out IUU fishing activities that cause more harm and suffering than they care to admit. But there is an equally strong force pushing back against that destructive force, as already pointed out in previous chapters of this thesis. However, it is also true that we also have the ability to reflect upon and correct the course of our actions.

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[26] 'UN Secretary-General: "Making Peace with Nature is the Defining Task of the 21st century"' (*UNFCCC*, 2 December 2020) <https://unfccc.int/news/un-secretary-general-making-peace-with-nature-is-the-defining-task-of-the-21st-century> accessed 25 February 2021.

[27] 'António Guterres: 2021 Is the Year to Reconcile Humanity with Nature' (*UNFCCC*, 11 January 2021) <https://unfccc.int/news/antonio-guterres-2021-is-the-year-to-reconcile-humanity-with-nature> accessed 25 February 2021.

Fish is a part of the marine environment, an integral element to biodiversity, and an essential foundation for the continued survival of humanity. From this viewpoint, IUU fishing is a threat to our survival, and we should start treating it accordingly. I will end this thesis with quotes from three prominent figures that are very different in profession, but have produced similar or interconnected comments that can serve as guidelines. Guidelines not only for the regulation of IUU fishing, but also for the protection of the marine environment in general, and perhaps most importantly, as a responsible human being living in the Anthropocene.

In a recent blogpost, Allott discussed the power of ideas, that the human world is constructed through ideas, and we can always re-imagine ourselves, as individuals, as societies, and as species.[28] He also pointed out that the challenges we are now facing do not respect national frontiers, and those challenges are threatening our survival, but we can face those challenges by make a better world, simply by recognising the possibility of a better world.[29]

Secondly, Roberts wrote about how we should transform our approaches:

> *Many of the world's foremost scientists are calling for the safeguarding of a third to half of the planet, […] This is not utopian fantasy. The fantasists are those who […] believe we can thrive in a world of megacities and industrial agriculture alone. Our approach must shift rapidly from trying to save nature form ourselves to giving nature the space*

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[28] Philip Allott, 'Making Humanity Greater Again: Self-evolving and Self-perfecting' (*EJIL:Talk!*, 10 March 2021) <https://www.ejiltalk.org/making-humanity-greater-again-self-evolving-and-self-perfecting/> accessed 12 March 2021.

[29] Philip Allott, 'Making Humanity Greater Again: Self-evolving and Self-perfecting' (*EJIL:Talk!*, 10 March 2021) <https://www.ejiltalk.org/making-humanity-greater-again-self-evolving-and-self-perfecting/> accessed 12 March 2021.

and freedom from human impact to save us.[30]

And lastly, as the beloved Sir David Attenborough expressed in an interview:

"No generation has had an awareness of what goes on worldwide in every part of the globe from the tops of the mountains to the bottom of the seas, than we have. We have no excuse for not knowing what we're doing to the natural world. If you give the natural world just half a chance, it bounces back in an extraordinary way. That is what gives you optimism."[31]

The three comments above are all spoken on a grand scale, indicating nature, humanity, and the planet with swift and powerful strokes that should be considered overkill regarding the topic of this thesis. But it is in my opinion that fish also deserves a place among those grand subjects, simply because the fish, as a collective of species, have given so much to feed humanity. It is my wish, as should be the wish of anyone that has consumed fish, that we will continue to be able to rely on this abundant lifeform for nourishment, and that one day when it is our time to leave this world, we can gratefully and unironically utter the words:

So long, and thanks for all the fish.[32]

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[30] Callum Roberts, 'Shifting Baselines' (2020) 153 GRANTA 13, 25.

[31] David Attenborough, 'On Spiders with Personalities' (The New Yorker, 21 November 2019) <https://www.newyorker.com/video/watch/david-attenborough-on-spiders-with-personalities> accessed 25 February 2021.

[32] Douglas Adams, *So Long, And Thanks for All the Fish* (first published 1984, Pan Books 2016).

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