UiT The Arctic University of Norway

Faculty of Law

A chance for a paradigm shift in the dichotomy of common-pool resources management and biodiversity protection? The examples of bottom trawling, the Baltic Sea, and the EU Biodiversity Strategy for 2030

Carlos Alberto Pina Menezes

Master's thesis in Joint Nordic Master´s Programme in Environmental Law, JUR-3920-1, June 2022.

Foreword

This thesis was written as a mandatory component of the Joint Nordic Master's Programme in Environmental Law at Uppsala University, the University of Eastern Finland and UiT – The Arctic University of Norway. The thesis is related to fisheries management and its underpinning legal principles, a very fascinating research topic as it blends a multitude of fields, from the natural to social sciences, and combines theory with practice in a relentless pursuit of an answer to what is role of law in environmental matters and how effective it can be.

I would like to express my gratitude to the people that were fundamental throughout my journey up to this point. First and foremost is my family, the ones that always supported me in all my endeavours and are the foundation upon which I stand. Right next to them are my friends – particularly Bruna E., Bruna P., Elisa, Ernani, Fernanda, Gustavo, and Rodrigo – that lent me their strength to carry onwards and their ears during harsher tides. I am also very thankful to my NOMPEL colleagues that embarked on this ride with me for two long years and to all the University staff that have made this achievement possible. Finally, I would like to especially thank my supervisor, Dr. Richard Caddell, for his unwavering support during this period that went above and beyond the call of duty, a true inspiration for any that decide to call themselves Professors.

Abstract

The goal of this thesis is to explore how the law is structured to deal with the dichotomy between biodiversity protection and common-pool resources. To do so, it utilizes bottom trawling as an example of an anthropogenic activity that benefits from the exploitation of the latter but is known to be detrimental to the former. As bottom trawling is a fishing technique, it also examines how fisheries management is influenced by the international and European legal systems and what it means for the protection of biodiversity. This analysis is also timely because the BDS 2030 is being formalized inside the EU and it listed the need to address the effects of bottom trawling. Traditionally, law has used the principle of sovereignty to limit access to common-pool resources, but this thesis will demonstrate that this is not mandatory. Finally, the Baltic Sea is used in an illustrative manner to showcase the broad range of regulatory challenges that surrounds this topic and that there might be a way forward under certain conditions.

Abbreviation list

ABNJ	Areas Beyond National Jurisdiction
BaltFish	Baltic Sea Fisheries Forum
BSAP	Baltic Sea Action Plan
BDS 2030	The European Union's Biodiversity Strategy for 2030
CBD	Convention on Biological Diversity
CFP	Common Fisheries Policy
CHM	Common Heritage of Mankind
CJEU	Court of Justice of the European Union
EAP	Environmental Action Programme
EEZ	Exclusive Economic Zone
EU	European Union
FCS	Favourable Conservation Status
HD	Habitats Directive
FAO	Food and Agriculture Organization of the United Nations
FOS	Freedom of the High Seas
HELCOM	Helsinki Commission
ICES	International Council for the Exploration of the Sea
ICJ	International Court of Justice
ITLOS	International Tribunal for the Law of the Sea
MS	Member-States of the European Union

MSFD	Marine Strategy Framework Directive
MSY	Maximum Sustainable Yield
RFMO	Regional Fisheries Management Organizations
PCA	Permanent Court of Arbitration
TAC	Total Allowable Catch
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
UNCLOS	1982 United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreements
UNGA	United Nations General Assembly

Table of Contents

1 Introduction

1.1 Problem identification and objectives

It is a well-known fact that Planet Earth is – ironically – comprised mostly of bodies of water. While it is true that most of the human advancement has been done on land, marine areas, still today, play an indispensable role towards securing mankind's survivability and livelihood, as it provides for, *inter alias*, a significant share of the world's food security.[1] Fishing is one of those indispensable activities that are conducted by humans within marine areas and its socio-economic importance cannot be overstated. According to the Food and Agriculture Organization of the United Nations (FAO), protein intake from fish sources were responsible for 20-50% of the capital intake of animal protein worldwide while generating a total first sale value of USD 401 billion.[2]

There are several, tried and tested, fishing techniques and methods, but, currently, bottom trawling is one of the most widespread, covering a large spatial range worldwide and being responsible for circa 25% of all global landings.[3] In summary, bottom trawling can be described as using weighted nets that gets dragged along great depths – and penetrates – the seabed to maximize catch potential.[4] Simply put, the deeper and wider it goes into the water, the more likely it is to land something, ranging from the expected fish and molluscs to minerals and corals. On the other hand, the FAO also acknowledges that fishing is, by its very nature, hurtful towards marine species' abundance, be it the target species or those related/dependent on it.[5] Moreover, fish is not only a commonly overexploited resource – as seen in the acute decline of marine fishery resources in the last 40 years – but also heavily impacted by other anthropogenic pressures, such as habitat destruction and climate-related events.[6] Curiously enough, bottom

---

[1] Fife, R.E. "Preface" in Catherine Banet (ed.), *The Law of the Seabed*. Brill 2020, p. IX.
[2] Food and Agriculture Organization of the United Nations. "The State of World Fisheries and Aquaculture 2020". Sustainability in action. FAO, 2020. p. 2-7. Available at: <The State of World Fisheries and Aquaculture 2020>. Last access on 01.02.2022. (FAO)
[3] De Borger, E. *et al*. "Impact of bottom trawling on sediment biogeochemistry: a modelling approach". *Biogeosciences*. 18(8). 2021. p. 2539-2540.
[4] Hooper, E. (11 April 2021). "What is bottom trawling and why is it bad for the environment?". *Greenpeace*. Available at: <What is bottom trawling and why is it bad for the environment? - Greenpeace Aotearoa>. Last access on 01.02.2022
[5] See FAO, *supra* note 2. p. 138.
[6] *Ibid*.

trawling is unique in the sense that it aggregates all these drawbacks, as will be explained in section 2.

That is not to say that humans have been idle. The ever-present relevance of fishing has ensured prolific attempts at regulating this activity. Internationally, the United Nations Convention on the Law of the Sea 1982 (UNCLOS)[7], the Convention on Biological Diversity 1992 (CBD)[8] and the United Nations Fish Stocks Agreements (UNFSA)[9] are among the most important instruments as they are widely accepted treaties that define rights and obligations that can be applied to biodiversity protection in marine areas, which, by corollary, includes fisheries. As for bottom fisheries, the United Nations General Assembly (UNGA) has been the driving force behind its regulation, adopting several Resolutions – *e.g.* Resolution 57/141[10] – that, while not legally-binding, had enough political impetus to prompt its adoption by fisheries regulators, most strikingly the Regional Fisheries Management Organizations (RFMOs), in deep sea areas.[11] The regulatory attempts were not restricted to international public law. The European Union (EU) has also adopted several environmental policies aimed at ensuring sustainability and environmental protection, albeit its scope and enforceability are limited to European waters and vessels. This is better seen in the Common Fisheries Policy (CFP)[12], the primary source of fisheries law in the European Union, but also in the Marine Strategy Framework Directive (MSFD)[13] and the Habitats Directive (HD)[14], which are important components of the EU's environmental legislative package.

The latest policy-making attempt at giving legal impetus to the protection of biodiversity inside of the European Union is the EU Biodiversity Strategy for 2030[15]. The overall aim of

---

[7] United Nations Convention on the Law of the Sea. 10 December 1982. 1833 UNTS 3. Entered into force 16 November 1994. (UNCLOS).

[8] Convention on Biological Diversity. 5 June 1992. 1760 UNTS 79. Entered into force 29 December 1993. (CBD).

[9] 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 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. 4 August 1995. Entered into force 11 December 2001. 2167 UNTS 3. (UNFSA).

[10] UNGA. Resolution 57/141. *Oceans and the law of the sea*. 12 December 2002. A/RES/57/141.

[11] Caddell, R. "Deep-Sea Bottom Fisheries and the Protection of Seabed Ecosystems: Problems, Progress and Prospects" in Catherine Banet (ed.), *The Law of the Seabed*. Brill 2020, p. 258.

[12] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC. 2013. OJ L 354. (CFP).

[13] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy. 2008. OJ L 164. (MSFD).

[14] Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. 1992. OJ L 206. (HD).

[15] COM/2020/380 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions EU Biodiversity Strategy for 2030 Bringing nature back into our lives. (BDS 2030)

this policy is to create the conditions for the recovery of European biodiversity by 2050 with the foundations being laid by 2030. It recognizes that (i) biodiversity loss and ecosystem collapse are amongst the biggest threats to humankind and that it generates (ii) reduced fish catches and economic losses. The marine environment is specifically addressed in this policy, along with the need for sustainability and the implementation of fisheries management resources.[16]At first glance, this might seem like a step forward for the protection of marine ecosystems in European waters. However, this is not the first time that the EU has tried to implement a wide-reaching, long-term, policy aiming at solving the biodiversity crisis nor is it the first time that the unsustainability of fishing practices has been explicitly identified as directly contributing to biodiversity loss.[17]

Trawling, in general, has been hailed as the greatest anthropogenic threat to the marine ecosystem[18]. Yet, bottom trawling's disruptive capabilities go even further than usual as this technique not only negatively impacts biodiversity – as do all fishing activities – but, by itself, is also capable of altering the fauna and shape of the seabed and surrounding water column[19], with bottom trawls, in special, being known to target species that cannot easily recover from being commercially fished[20]. It also upsets several biochemical processes, contributing towards climate change and eutrophication.[21]

The continued use of bottom trawling, despite its grave consequences, markedly exemplifies the difficulty – or unwillingness – in regulating particular fisheries. This is directly connected to the nature of fish as a common-pool resource.[22] As the name implies, these are resources that can be characterized by (i) its availability to all, (ii) the difficulty in excluding others from its use and (iii) the decrease in availability to all when unsustainable accesses are

---

[16] *Ibid*. p. 2-3 and 11-12.

[17] COM(2011)244. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Our life insurance, our natural capital: an EU biodiversity strategy to 2020. p. 14-15.

[18] Daly, E. and White M. "Bottom trawling noise: Are fishing vessels polluting to deeper acoustic habitats?". *Marine Pollution Bulletin*. 162. 2021. Article 111877. p. 1.

[19] *Ibid.*

[20] van Denderen, P.D. "*Ecosystem effects of bottom trawl fishing*". (Doctor of Philosophy thesis, Wageningen University, 2015). p. 009. Available at: < Doctoral Thesis>. Last access on 12.06.2022.

[21] van Denderen, P.D. *et al*. "Evaluating impacts of bottom trawling and hypoxia on benthic communities at the local, habitat, and regional scale using a modelling approach". *ICES Journal of Marine Science.* 77(1). 2021. p. 278-279.

[22] Ostrom, E. "The Challenge of Common-Pool Resources*". Environment: Science and Policy for Sustainable Development*. 50(4). 2008. p. 11.

practiced.[23] Overfishing serves to display that whenever humans are confronted with an individual v. collective dilemma, free-riding wins by a landslide, a classic example of a collective action problem.[24] Therefore, it is inevitable to conclude that there is a gargantuan challenge when it comes to creating and implementing holistic legislation in respect to fisheries management, something that can be clearly seen in fisheries law, known to be highly fragmented and non-hierarchical[25]. The EU has admitted that a regulatory response alone would not be enough to solve the biodiversity crisis and that a collective response through *e.g.* partnerships between different actors of society, as well as different nations, is a necessary requirement for this new plan to succeed.[26]

The Baltic Sea[27] is a prime candidate towards exemplifying the legal, political and ecological characteristics that must be considered for the future of fisheries management, especially since its continued biodiversity crisis serves as living proof that previous European polices have been – at best – insufficient. Firstly, it has a time-honoured tradition regarding fishing, with records dating back to the Stone Age when locals used different gears at the shoreline and rivers to secure a steady supply of food.[28] In 2018 alone, it was responsible for a net profit of EUR 6.7 million by Baltic Sea fisheries with Sweden and Finland alone generating a revenue of EUR 62 million of the total EUR 215 million.[29] Secondly, the Baltic Sea is generally shallow, with depths averaging 54 meters[30], but it boasts an unexpected amount of bottom trawling vessels, especially in its southern portion and around Kattegat.[31] Thirdly, the

---

[23] Cavalcanti, C., Schläpfer, F. and Schmid, B. "Public participation and willingness to cooperate in common-pool resource management: A field experiment with fishing communities in Brazil". *Ecological Economics*. 69(3). 2010. p. 613.

[24] Jentoft, S. and Finstad, B.P. "Building fisheries institutions through collective action in Norway". *Maritime Studies*. 17. 2018. p. 13-25.

[25] Molenaar, E.J. and Caddell, R. "International Fisheries Law: Achievements, Limitations and Challenges" in R. Caddell and E.J. Molenaar (eds.) *Strengthening International Fisheries Law in an Era of Changing Oceans*. Hart Publishing, 2019. p. 5-8; Also, Blanchard, C. "Fragmentation in high seas fisheries: Preliminary reflections on a global oceans governance approach". *Marine Policy*. 84. 2017. p. 327.

[26] See BDS 2030, *supra* note 15. p. 2 and heading 2.2.6.

[27] A semi-enclosed sea that is mostly surrounded by nations that are a part of the European Union. See: International Council for the Exploration of the Sea. "Baltic Sea Ecoregion – Ecosystem overview". ICES Advice: Ecosystem Overviews. 2021. p. 1-2. Available at: https://doi.org/10.17895/ices.advice.9437. Last access on 01.02.2022. (ICES)

[28] The Baltic Marine Environment Protection Commission. "History of Catches in the Baltic Sea". Available at: <History of Catches in the Baltic Sea – HELCOM>. Last access on 01 February 2022.

[29] European Commission. Directorate-General for Maritime Affairs and Fisheries. Joint Research Centre. Guillen, J., Calvo Santos, A., Carvalho, N. *The EU fishing fleet 2020: trends and economic results*. Publications Office, 2021. p. 22. Available at: < Fishing Fleet 2020>. Last access on 12.06.2022.

[30] Finnish Metereological Institute. "Baltic Sea". Available at: <Seas - Finnish Meteorological Institute>. Last access on 02.04.2022.

[31] World Wide Fund for Nature. "Bottom Trawling Impacts in the Baltic Sea". Available at: <Bottom Trawling Impacts in the Baltic Sea>. Last access on 02.04.2022.

Baltic Sea does not possess a good environmental status[32] as it suffers from a diverse set of environmental pressures – with bottom trawling being just one of those – further enhancing the complexity of any problem-solving attempts but also accentuating the vast negative effects caused by bottom trawling. In fourth place, as a consequence of its depth, the Baltic Sea can hardly benefit from the direct application of concepts adopted by the UNGA and RFMOs, since those were made with deep seas in mind. Fifthly, it is a semi-enclosed sea that is predominantly under the jurisdiction of Member-States (MS) of the EU, which primarily translates to the application and analysis of European law. Additionally, there are states that also exploit the Baltic Sea fisheries but are not part of the EU, which enables the application and analysis of concepts found in international public law. Moreover, the Baltic Sea region has also given rise not only to its own specific marine protection treaties – as the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention)[33] proves –, but also to the attempts at coordinating fisheries management on a regional level under EU law – *e.g.* Baltic Sea Fisheries Forum (BaltFish)[34]. Finally, this concurrent use of Baltic fisheries resources is a good example of the need for cooperation while highlighting the nature and challenges of regulating common-pool resources and solving common problems. It demonstrates how management measures must go beyond implementing measures on a national level and hoping it has a positive impact for all.

On these grounds, the foremost goal of this thesis will be to establish what is the role of law inside the dichotomy of biodiversity protection and common-pool resource management. In fact, this thesis will showcase that the regulatory challenge faced by policymakers goes above drafting sectoral policies and into the legal principles surrounding fisheries management themselves – be it either inside or outside areas under national sovereignty –, their interpretation and implementation, the division of competences inside the EU and the supposedly symbiotic relationship between society, the economy and the environment, with a hint towards the influence that factors outside of the law can have inside it. This will be mainly by identifying the interlinks between bottom trawling, biodiversity loss, common-pool resources' management, and regulatory responses. These interlinkages themselves will be analysed in the context provided by international Law, EU law, and the EU Biodiversity Strategy for 2030 that

[32] See ICES., *supra* note 27. p. 3.
[33] Convention on the Protection of the Marine Environment of the Baltic Sea Area. 9 April 1992. Entered into force 17 January 2000. (Helsinki Convention).
[34] Baltic Sea Fisheries Forum. *Memorandum of Understanding: Principles and Working Methods of the Baltic Sea Fisheries Forum*. 2013. (BaltFish). Available at:<MoU BaltFish>. Last access on 12.06.2022.

has yet to be turned into concrete legislative acts. Finally, the Baltic Sea will be used as the spatial reference for the current analysis for the reasons already explored above.

The thesis will be structured in a five-chapter format. The first one corresponds to the introduction to the topic that will be discussed, as well as the methodology used and any limitations to it. The second will discourse on the history of trawling as well as the broad relationship between bottom trawling and the environment. The third will analyse how the law interacts with common-pool resources management and biodiversity in an international setting. The fourth, in turn, will approach the same matter from within the European Union and its legal system. Finally, the conclusions will concentrate the findings of each chapter onto itself.

1.2 Research questions

The objectives of this thesis will be reached by answering research questions. These questions are divided into two categories: main research question and sub-questions. The main research question sets forth a broad question that reflects the problem identified and will be answered throughout the thesis while the sub-questions will address topics of special relevance to providing the answer to the main question.

The main question is as follows: (a) How is the law employed to protected marine biodiversity within the context of common-pool resource management? In regard to the sub-questions, these will be the following: (b) What are the broad environmental impacts caused by bottom trawling and how are they a collective issue as exemplified by the Baltic Sea? (c) How are common-pool resources connected to trawling and how are they legally protected in an international setting? and finally, (d) What are the challenges that the European Union faces in reconciling biodiversity protection with the management of common-pool resources?

1.3 Methodology and Approach

The thesis will aim to provide a legal answer to the main research question by means of answering all the research sub-questions. To do so, an interdisciplinary approach will be used

throughout the dissertation.[35] This will consist of utilizing legal doctrinal research combined with other disciplines, such as the Natural Sciences and Ethics, as will be explained below.

The legal doctrinal research will call upon the Primary Authority of Law[36] and will analyse International and European law with attention given to the proposed EU Biodiversity Strategy for 2030. This analysis will consist of three key features: (i) it will demonstrate the legal principles entrenched within the International and European legal systems, with focus given to the UNCLOS, the CBD, the UNFSA, the Helsinki Convention and the CFP, (ii) it will compare and differentiate the legal provisions found in these treaties, as well as (iii) how Courts have interpreted them, in order to assess the normative content of fundamental environmental legal principles– such as the ecosystem approach, the precautionary approach and the cooperation principle – and if there are any difference interpretation/implementation. The Secondary Authority of Law – *e.g.* soft law instruments, books, and articles – will also be present in this thesis in a supportive role by identifying legal conflicts not solved by Primary sources and helping to clarify its contents.

The interpretation of the law will be done with a mixture of *de lege lata* and *de lege ferenda* considerations with the application of the textual, systematic and teleological methods.[37] This translates to interpreting legal sources in accordance to what is prescribed in the Vienna Convention on the Law of Treaties[38], especially Articles 31 and 32, but it also means taking into consideration that the BDS 2030 remains to be implemented and that previous regulatory attempts have not achieved the gargantuan goal of halting all biodiversity loss, achieving, instead, more modest and specific successes. Consequently, it is fundamental for the legal interpretation to rise above solely a descriptive and analytical analysis of the law as it stands but also to consider that external factors – such as political and socio-economic ones – can influence the content, results, and effectiveness of environmental policies.

However, it is important to mention that despite this author's choice of employing an interdisciplinary approach in writing this thesis, no claims or analysis of concepts used in other disciplines will be made. These disciplines, such as the Natural Sciences, Political Science,

---

[35] As defined by Taekema, S and Van Klink, B. "On the Border. Limits and Possibilities of Interdisciplinary Research" in Bart van Klink & Sanne Taekema (eds.), *Law and Method. Interdisciplinary Research into Law*. Mohr Siebeck, 2011. p. 7-32.

[36] See: United Nations. *Statue of the International Court of Justice*. 18th April 1946. 33 UNTS 993. Art. 38; Also, see International Court of Justice. *Military and Paramilitary Activities in and against Nicaragua*. (Nicaragua v. United States of America). Judgement of 27 June 1986. para. 56.

[37] Amman, O. "The Interpretative Methods of International Law: What Are They, and Why Use Them?" in *Domestic Courts and the Interpretation of International Law*. Brill, 2019. p. 191-222.

[38] Vienna Convention on the Law of Treaties. 23 May 1969. 1155 UNTS 331. Entered into force 27 January 1980.

Philosophy, Sociology and Ethics, will be used merely in an auxiliary manner. Their purpose within this dissertation is to lend their own authority to define key concepts that are related to the problem(s) highlighted here. This will mean, among others, defining what is biodiversity, bottom trawling, and common-pool resources. All in all, their application will be limited to relating these concepts to each other, demonstrating their impact on the marine ecosystem, and setting the background in which legal decisions/responses must be inserted.

Furthermore, due to the sheer number of fragmented, complex, treaties that can be interpreted to be applicable to fisheries in the Baltic Sea, the arguments in this thesis will be built upon instruments that deserve central attention in this debate, more specifically the UNCLOS – which is viewed as the cornerstone of the international framework for fisheries law[39] – and the CFP – which is the primary EU legislative piece for fisheries. This does not mean that other treaties, such as the CBD, the UNFSA and the Helsinki Convention, and soft law made by institutional bodies, such as ICES and the Helsinki Commission (HELCOM) will not be used, but their analysis is not the focus of this thesis, nor will it have the same depth as the ones mentioned in above. This also applies to area-specific legislation focused on the Baltic Sea alone. It is also important to mention that while case law will indeed by utilized, it is not the main aspect of study of this dissertation and jurisprudence will be utilized similarly to legal sources of Secondary Authority.

[39] See Molenaar, E.J. and Caddell, R., *supra* note 25. p. 3.

2 Bottom trawling and the environment

2.1 A brief overview of the history and key aspects of seabed fisheries

Fishing has been one of the most heavily practiced human activities since the dawn of time. It is only natural that such a long-standing practice is drastically different from its starting point. Of course, not all fishing practices are the same, there can be variations in the method, target species and location for example. That is the case of seabed or demersal fisheries – aimed at landing species that can be found close to or at the seafloor – that are known to use techniques that interact with the seabed, such as bottom trawling. To better understand the impacts of bottom trawling and its regulatory challenges, it is important to understand how seabed fishing has changed throughout time.

Originally, due to technical limitations, seabed fishing was done in shallow waters, near the coast or even inshore.[40] Needless to say, fishing intrinsically has a negative impact on fish stocks, and it is inevitable to conclude that this was also the case with pre-industrial fisheries. The surge of new technologies in the 19th century, prompted by the appearance of steam power, has revolutionized fishing practices, and allowed for a greater number of catches, potentializing stock depletion at usual fishing sites.[41] Scarcity eventually led demersal fisheries to move to deeper locations in hopes of securing a better supply of resources, a fact proven by the sizable increase not only of the average depth of fishing sites but also the quantity of fishing fleets operating in said settings. Thus, since halfway up in the 20th century, it is safe to say that deep-sea fisheries have become commonplace.[42] But, what exactly are deep waters to begin with?

Even after half a century of deep-water fishing, there is still no universally accepted definition of it and those that are applied remains rather arbitrary.[43] This stems from the fact that there are many conditions – often overlapping – that must be verified to assign a deep-water status to a location, ranging from a simple depth assessment to a complex scientific classification on species biological characteristics.[44] ICES stated that it considers all waters

[40] See Caddell, R., *supra* note 11. p. 255-256.
[41] Thurstan, R.H. *et al*. "Origins of the bottom trawling controversy in the British Isles: 19th century witness testimonies reveal evidence of early fishery declines". *Fish and Fisheries*. 15(3). 2014. p. 506.
[42] See Caddell, R., *supra* note 11.
[43] ICES. (29 September 2015). "EU request to ICES on the assessment of the deep-sea status of certain fish species". Available at: < ICES - Fish Stocks >. Last access 24 April 2022.
[44] Priede, I.G. *Deep-Sea Fishes: Biology, Diversity, Ecology and Fisheries*. Cambridge University Press, 2017. p. 1-2.

below 200 metres in depth as being deep waters, a plausible definition that takes into consideration the continental shelf break – in Atlantic EU waters – at around that mark.[45] This is corroborated by the FAO[46].

Be that as it may, the FAO also has proposed a simpler definition – which also serves to reinforce the lack of consensus – of deep waters. It stated that deep-water fisheries take place in areas extending up to 1,600 metres below the water line, both within and outside national jurisdiction, but remarkedly did not set a minimum depth limit for deep water fisheries to be classified as such.[47] Thus, by analogy, the concept of deep waters also does not have a minimum depth, nor any jurisdictional or geographic/topologic pre-conditions established in its classification. Truthfully, the FAO did acknowledge that usually deep-water fishing took place at depths well below the 200 metres mark at locations with specific topography – *e.g.* seamounts – but, again, it did not exclude deep-water fishing from happening in shallower depths anywhere else.[48] Thus, it can be concluded that the notions of deep waters and deep-water fisheries are interpretative and adaptable to specific cases, enabling bottom trawling to take place at any depths.

On the other hand, when it comes to deep-water seabed fishing the biological aspect of the targeted species' is indeed more relevant than in other types of fisheries. There is a significant gulf between biological characteristics of shallow-water demersal species and those found in deeper sites.[49] The latter often have, among others, a greater lifespan, lower fecundity, and metabolism, making these species more vulnerable to fishing. [50] This showcases how, in demersal fisheries, it is plausible for the 200-metre rule of thumb to be used since there is a direct correlation between biology, topography/geography, depth and vulnerability. Yet, this rule should not be absolute since it is possible for shallow-water species to be found at greater depths and for deep-living species to be caught on shallower areas.[51]

---

[45] See ICES, *supra* note 43.
[46] FAO. "Deep-sea fisheries". Available at: <Deep-sea fisheries>. Last access 15.04.2022.
[47] FAO. "Deep-sea fisheries in the high seas: Ensuring sustainable use of marine resources and the protection of vulnerable marine ecosystems.". FAO, 2009. p. 2. Available at: < Deep-sea Fisheries in the High Seas>. Last access on 01.02.2022
[48] *Ibid*.
[49] See Priede, I.G., *supra* note 44.
[50] Victorero, L. *et al*. "Out of Sight, But Within Reach: A Global History of Bottom-Trawled Deep-Sea Fisheries From >400 m Depth". *Frontiers in Marine Science*. 5. 2018. Article 98. p. 2.
[51] See Priede, I. G., *supra* note 40. Also exemplified by Haddock Fisheries. For this, see FAO. "Worldwide review of bottom fisheries in the high seas in 2016". *FAO Fisheries and Aquaculture Technical Paper No. 657*. FAO, 2020. p. 15. Available at: < Worldwide review of bottom fisheries in the high seas in 2016>. Last access on 01.02.2022.

There is consensus[52], however, that deep-water fishing did grow exponentially in areas beyond national jurisdiction (ABNJ), most notably the High Seas and the Area[53], and seabed fishing was not an exception. Fishing at great depths is not straightforward and that is especially true for bottom trawling demersal fisheries that had to undergo a massive upscaling of its operative machinery to adapt to those areas. Since this kind of fishing gear interacts with the seafloor, there is a need for it to be larger and heavier than usual, meaning that vessels that operated in deep-water demersal fisheries that used bottom trawls also needed to be bigger to house them. These new gears were also capable of landing more catches and deep-water demersal fishing sites can be quite far from the shore, hence, the need for storage and processing space also grew, further incentivizing the escalation of vessel dimension.[54]

The consequences of this upscaling process were harshly felt. Heavier and larger vessels meant that more species – and individuals – were able to be caught and stored, dramatically increasing the risk of unsustainability. It also meant that ships were able to generate – and dump – greater quantities of processing waste in marine areas. The new gears, when they met the seafloor, also caused more disruption than normal. On top of that, it must not be forgotten that deep-sea demersal species are also more vulnerable due to their unique biological characteristics. All in all, it came as no surprise when the revamped deep-sea demersal fisheries were identified as the greatest threat to oceanic deep-sea ecosystems and that bottom trawls were the preferred choice of fishing gear.[55] This relation will be better explained in the section below.

2.2 The destructive scale of bottom trawling

2.2.1 The impacts of bottom-trawls on fish stocks

Bottom trawling, as previously mentioned in Chapter 1, innately means dragging heavy fishing nets along the seabed to increase the probability of securing desired catches.[56] The most obvious impact caused by this practice – which is also applicable to fishing in general – is the

[52] See Caddell, R., *supra* note 11; FAO, *supra* note 47, p. 3.
[53] See UNCLOS, *supra* note 7, Parts VII and XI, respectively for definitions.
[54] See Victorero, L., *supra* note 50.
[55] Clark, M.R. *et al*. "The Impacts of Deep-Sea Fisheries on Benthic Communities: A Review". *ICES Journal of Marine Science*. 73(Supplement 1). p. i51-i52.
[56] See De Borger, E. *et al*, *supra* note 3.

potential to overfish the targeted stock(s). Simply put, the more intensively you fish the greater the chances are of unfavourably changing that species population and, considering the proportion of landings that are caught by bottom trawling[57], that is certainly a relevant drawback to be aware of solely by itself as circa 80% of the world's fish stocks are thought to be overexploited.[58] Moreover, there is also the danger of overfishing without needing to land an immense quantity of fish since a given targeted stock might be more vulnerable than others, as previously seen in Section 2.1.

Other downsides to bottom trawling are its lack of selectiveness and discards. While, customarily, each fishery will target a specific species, it is expected that any form of commercial fishing will result in individuals from other species being caught.[59] Those unwanted catches are called bycatches.[60] Bottom-fisheries are known to use trawl nets as one of its most used gears.[61] As every modern fishing gear, trawl nets are incredibly sturdy, hard to spot, and extremely proficient at catching marine life.[62] In turn, this means that when those nets are dragged along the seabed – and the water column right above it – everything in its path is snared, targeted or otherwise.[63] The sheer extent of bycatch volume can be demonstrated, for example, by shrimp trawling where it accounts for over one-third of world's total while also catching over 400 unintended species and having a 10:1 bycatch-to-shrimp ratio by mass.[64] Unwanted landings are usually discarded by being thrown overboard due to a number of motives – *e.g.* size, no economic value or inedible – and trawling fisheries are historically known for it.[65] Discarding is nothing short of an absolute wasteful use of marine resources as once those individuals are caught by the unselective trawling gears, the marine ecosystem is already irreparably damaged and, truth to be told, they are often *returned* dead or dying.[66]

---

[57] *Ibid.*
[58] FAO. "The state of world fisheries and aquaculture 2008." FAO, 2009. Available at: < FAO 2008>. Last access on 10.06.2022. p. 7.
[59] Costa, M.E., Erzini, K. and Cerveira Borges, T. "Bycatch of crustacean and fish bottom trawl fisheries from southern Portugal (Algarve)". *Scientia Marina*. 72(4). 2008. p. 802.
[60] Davies, R.W.D *et al*. "Defining and estimating global marine fisheries bycatch". *Marine Policy*. 33(4). 2009. p. 661.
[61] Kumar, A.B. and Deephti, G.R. "Trawling and by-catch: Implications on marine ecosystem". *Current Science*. 90(7). 2006. p. 922-923.
[62] World Wide Fund For Nature. "Bycatch". Available at: < What is Bycatch? >. Last access on 25 April 2022.
[63] See Kumar, A.B. and Deephti, G.R., *supra* note 61.
[64] Lobo, A.S. *et al*. "Commercializing bycatch can push a fishery beyond economic extinction". *Conservation Letters*. 3(4). 2010. p. 277.
[65] Zeller, D. *et al*. "Global marine fisheries discards: A synthesis of reconstructed data". *Fish and Fisheries.* 19(1). 2018. p. 30-31.
[66] Fondo, E.N. *et al*. "Diversity of Shallow-Water Species in Prawn Trawling: A Case Study of Malindi–Ungwana Bay, Kenya". *Diversity*. 14(3). 2022. p. 199. Also: FAO. "Why is discarding a problem?". Available at: < Why is discarding a problem?>. Last access on 25 April 2022.

While a trend of discard reduction has been noted recently, most measures enacted to address this issue have treated it as a problem of its own[67] – which it is due to the sheer volume of discards – but failed to assess it in a holistic manner as a by-product of the totality of practices associated with bottom trawling. To make this perfectly crystalline, the underlining issue of the infamous reputation that bottom trawling has for being destructive is not – only – because it throws untargeted catches overboard, but indeed because it is used in most of the world, landing a sizable amount worldwide of targeted catches while being responsible for unselectively fishing, whereby it produces untold amounts of bycatch and, thus, incentivizes discards.

2.2.2 The impacts of bottom-trawls on the seabed

Bottom trawling fisheries have another distinct aspect ingrained in its operative procedures that has ramifications of its own: bottom-contacting gears. The gears used by seabed fisheries constitutes a direct physical disturbance to the seabed and is the greatest anthropogenic threat of its kind[68], causing direct and indirect effects to the marine ecosystem and contributing to the destructiveness that is analogous to the bottom trawling industry[69], especially biodiversity of benthic communities, since its structure and function can be irreparably changed.[70]

To start off, seabed geomorphology is an important feature that can influence habitats and fisheries, but classifying it is no easy task.[71] To simplify the matter, this thesis adopts a generalist segregation of seabed types between hard-bottom and soft-sediment systems.[72] The former is composed by highly complex structures – *e.g.* coral reefs and kelp forests – that not only are living organisms part of the marine megabenthos[73] but also functions as an incredibly

---

[67] See Zeller, D. *et al*., *supra* note 65. p. 37-38.

[68] Eigaard, O.R. *et al*. "The footprint of bottom trawling in European waters: distribution, intensity, and seabed integrity". *ICES Journal of Marine Science*. 74(3). 2017. p. 848.

[69] Pitcher, C.R. *et al.* "Trawl impacts on the relative status of biotic communities of seabed sedimentary habitats in 24 regions worldwide". *Proceedings of the National Academy of Sciences*. 119(2). 2022. Article e2109449119. p. 1.

[70] Sciberras, M. *et al.* "Response of benthic fauna to experimental bottom fishing: A global meta-analysis". *Fish and Fisheries*. 19(4). 2018. p. 699.

[71] For an in-depth study on this matter, see: Bourguignon, S.N. *et al*. "Seabed Morphology and Sedimentary Regimes defining Fishing Grounds along the Eastern Brazilian Shelf". *Geosciences*. 8(3). 2018. Article 91. 17 p.

[72] Thrush, S.F. and Dayton, P.K. "Disturbance to Marine Benthic Habitats by Trawling and Dredging: Implications for Marine Biodiversity". *Annual Review of Ecology and Systematics*. 33. 2002. p. 450.

[73] Marine benthic fauna larger than 1 centimetre. For a more detailed explanation, refer to: Stratmann, T. *et al*. "The BenBioDen database, a global database for meio-, macro- and megabenthic biomass and densities." *Scientific Data*. 7(1). 2020. Article 206. 12 p.

biodiverse haven for other benthic species.[74] The latter, on the other hand, is composed of flat plains created through millennia of sediment deposit[75] that serves as habitats for many types of benthic creatures – such as those that burrow inside it[76] – and are the predominant form of seabed globally, be it either at the continental shelf or at oceanic areas.[77] Whilst the effects of bottom trawling to benthic fauna and the seabed – acutely those related to its physical and biological dimensions – are well-documented by the scientific community[78], most of the current knowledge has been restricted to deep-water sites and hard-bottom systems.[79] This is understandable considering the vast biodiversity of species found at those locations[80] and the biological vulnerability and lower resilience of organisms found at those habitats – as explained in Section 2.1. However, there is no doubt that the majority of the world's seabed is made up by soft-sediment systems regardless of depth[81] and that bottom-fisheries can also operate regardless of depth – as per the interpretation reached in Section 2.1 – which translates into trawling occurring at shallower sites as well.

Bottom trawling represents one of the many sources of direct human interference to biogeochemical cycles – such as nutrient dynamics – that have a direct contribution towards the, *inter alias*, complexity, diversity, abundance of benthic species.[82] cycles play a dual role when it comes to marine biodiversity: they are dependent on it as living organisms are partly responsible for these cycles, but, on the other, they perform a fundamental role of selecting which species can best adapt to change.[83] Its importance to life as we know transcends the limited sphere of marine biodiversity, alas, mankind's knowledge on how trawling impacts these cycles remain underdeveloped[84] – at best.

---

[74] Althaus, F. *et al*. "Impacts of bottom trawling on deep-coral ecosystems of seamounts are long-lasting". *Marine Ecology Progress Series*. 397. 2009. p. 279-280.

[75] Braathen, A. and Brekke, H. "Characterizing the Seabed: a Geoscience Perspective" in Catherine Banet (ed.), *The Law of the Seabed*. Brill, 2020. p. 24-27.

[76] Shull, D.H. "Bioturbation" in J. K. Cochran, H. J. Bokuniewicz, P. L. Yager (eds.), *Encyclopedia of Ocean Sciences (Third Edition)*. Academic Press, 2019. p. 671.

[77] See Pitcher, C.R. *et al*, *supra* note 69.

[78] For a detailed list of the diverse set of studies carried out focused on these subjects, see: De Borger, E. *et al*, *supra* note 3.

[79] Pusceddu, A. *et al*. "Chronic and intensive bottom trawling impairs deep-sea biodiversity and ecosystem functioning". *Proceedings of the National Academy of Sciences*. 111(24). 2014. p. 8861.

[80] Norse, E.A. *et al*. "Sustainability of deep-sea fisheries". *Marine Policy*. 36(2). 2012. p. 308.

[81] See Pitcher, C. R. *et al*, *supra* note 69.

[82] Morys, C., Brüchert, V. and Bradshaw, C. "Impacts of bottom trawling on benthic biogeochemistry in muddy sediments: Removal of surface sediment using an experimental field study". *Marine Environmental Research*. 169. 2020. Article 105384. p. 1.

[83] Falkowski, P.G. "Biogeochemical Cycles" in Simon A. Leven (ed.), *Encyclopedia of Biodiversity (Second Edition)*. Academic Press 2001. p. 452-453.

[84] Ferguson, A.J.P., Oakes, J. and Eyre, B.D. "Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle". *Limnology and Oceanography Letters*. 5(3). 2020. p. 238.

Biogeochemical cycles are also critical ecosystem functions that, in simple terms, have the power to alter the chemistry of the seas, land and atmosphere.[85] What this means is that while they do hold a considerable sway in the survivability of marine species, they too influence a much broader spectrum of processes that also have the capability of directly and indirectly influencing the marine ecosystem. Thus, if bottom trawling possesses internal cumulative effects by and of its own as previously established – *i.e.* they way, extent and connectivity of its practices –, then the interference it creates in biogeochemical cycles not only has the power to internally influence those cycles in a marine setting – once again enhancing its own cumulative effects and other effects felt by the aquatic ecosystem – but also has the power to contribute to external effects that can cumulate with the marine ones creating a veritable chain of linked reactions that can be represented by an *ouroboros*. Even if the long-term effects of bottom trawling cannot be currently known due to lack of data, evidence suggests that its impacts in the marine ecosystems that were heavily trawled – such as the Baltic – are more pronounced that in healthier ecosystems.[86]

A good example to illustrate this complex relationship is eutrophication, one of the most prevalent anthropogenic threats to coastal ecosystems.[87] It can be described as the accumulation of organic matter commonly resultant of excessive dispensation of nutrients – like nitrogen – in the marine ecosystem that can lead to drastic effects on, *e.g.*, water quality and oxygen levels.[88] A high concentration of nitrogen is directly linked to man-made actions, and this is better seen – and harsher felt – in coastal areas.[89] One of the most important biogeochemical processes that occur in the marine environment is called denitrification – the removal of bioavailable nitrogen – and any changes to it can have extinction-level consequences for the entire world if left unchecked.[90] Currently there is an absolute minimal amount of understanding of how trawling affects denitrification – in line with the lack of knowledge of how it interferes with biogeochemical processes in general – an important buffer against

---

[85] *Ibid.*
[86] See Morys, C., Brüchert, V. and Bradshaw, C., *supra* note 82. p. 9.
[87] Malone, T.C. and Newton, A. "The Globalization of Cultural Eutrophication in the Coastal Ocean: Causes and Consequences". *Frontiers in Marine Science*. 7. 2020. Article 670. p. 2.
[88] Rabalais, N.N. *et al*. "Global change and eutrophication of coastal waters". *ICES Journal of Marine Science*. 66(7). 2009. p. 1528.
[89] Zhou, Y. *et al*. "Eutrophication control strategies for highly anthropogenic influenced coastal waters". *Science of The Total Environment*. 705. 2020. Article 135760. p. 2.
[90] Eyre, B.D., Maher, D.T. and Sanders, C. "The contribution of denitrification and burial to the nitrogen budgets of three geomorphically distinct Australian estuaries: Importance of seagrass habitats". *Limnology and Oceanography*. 61(3). 2016. p. 1144.

eutrophication.[91] It is expected that it directly affects it by removing the benthic fauna responsible for such processes in addition to removing sediment and mixing/burying of organic matter, all of which can interfere with steps of the denitrification process.[92] Indirectly, it can also impact the oxygen cycle and carbon sequestration capabilities, which can also lead to changes to the denitrification process.[93]

The indirect pressures created by bottom trawling on the denitrification cycle are peculiarly thought-provoking since it could cement a cause-effect relation between marine processes and external ones, something that can be exemplified through climate change. Two changes induced by eutrophication in aquatic ecosystems are low-light conditions and hypoxia.[94] As a result, marine organisms that function as blue carbon sinks – like seagrass – can have their carbon fixation capabilities diminished and, so, eutrophication could be indirectly strengthening climate change.[95] Finally, climate change has been correlated – amongst many other impacts – to the decline of fish stocks.[96] This is when the snake comes to bite its own tail, as bottom fisheries are naturally aimed at landing the most amount of catches possible. With that in mind, the logical conclusion to bottom trawling induced climate change can only be more bottom trawling.

2.3 The Baltic Sea and the broader effects of trawling

The marine ecosystem in the Baltic Sea is in dire conditions at present time – and it has been like so for decades. Biodiversity levels has been assessed as inadequate on most of the food web, most of the commercial fish stocks are not in good status and the same applies to benthic habitats.[97] Amongst the many anthropogenic stressors that can be seen in that region, the most relevant for this thesis are biodiversity and seabed loss, in addition to nutrient enrichment and climate change[98], all of which can be linked to bottom trawling, as shown

---

[91] See Ferguson, A.J.P., Oakes, J. and Eyre, B.D., *supra* note 84.
[92] Sciberras, M. *et al*. "Impacts of bottom fishing on the sediment infaunal community and biogeochemistry of cohesive and non-cohesive sediments". *Limnology and Oceanography*. 61(6). 2016. p. 2076.
[93] *Ibid.*
[94] Rodgers, E.M. "Adding climate change to the mix: responses of aquatic ectotherms to the combined effects of eutrophication and warming". *Biology Letters*. 17. 2021. Article 20210442. p. 4.
[95] Jiang, Z. *et al*. "Eutrophication indirectly reduced carbon sequestration in a tropical seagrass bed". *Plant Soil*. 426. 2018. p. 135-136 and 149.
[96] Rijnsdorp, A.D. *et al*. "Resolving the effect of climate change on fish populations". *ICES Journal of Marine Science*. 66(7). 2009. p. 1571-1572.
[97] HELCOM. "State of the Baltic Sea – Second HELCOM holistic assessment 2011-2016.". Baltic Sea Environment Proceedings. 2018. Available at: < State of the Baltic Sea – Second HELCOM holistic assessment>. Last access on 10.06.2022. p. 6-9.
[98] See ICES, *supra* note 27. p. 6-14.

above. Taking into consideration the concurrent existence of all these stressors at the Baltic Sea, it becomes apparent the unique opportunity to observe their connection.

Demersal fisheries in the Baltic had its golden age in the decades spanning from the 1970s to 1990s as it corresponded with the peak abundance of its main target species: the Baltic Cod – a demersal fish.[99] Predictably, this had several grave consequences for the region's biodiversity that, unfortunately, are still felt nowadays. First, since the main goal of trawling is to land the maximum quantity of fish, it comes as no surprise that it had an unfavourable impact on the populational structure of the target species as a result of unsustainable practices.[100] Moreover, trawling also leads to a high level of bycatch and discards of other seabed-living creatures, especially flatfish species.[101] The aftermath of the bleak status that demersal species found themselves is grander than a biodiversity hit to those solely those populations. In fact, other species that feed on benthos were also harmed, such as the case of, *e.g.*, seabirds.[102]

In addition to the direct impacts it had on marine biodiversity on the Baltic, it also augments them by creating another set of problems – both direct and indirect – through its disruption of the seabed. As previously argued, when its gears contact the seafloor, trawling wreaks havoc not only directly to the habitat of marine species, but it also to biogeochemical processes via, *inter alias*, sediment suspension[103]. Since the Baltic Sea is comprised of many soft-sediment areas, so, it is only expected that the continued trawling practice has had a bigger impact there than elsewhere in spite of the lack of concrete knowledge on the matter.[104]

Coincidentally – or not – it was also during the golden age of bottom trawling that the nutrient concentration in the Baltic Sea suffered a major increase in the region and the effects of eutrophication began to be acknowledged as a man-made – and accelerated – problem in the region.[105] The eutrophication process in Baltic waters has burdened the area with a condition called hypoxia – low oxygen concentration – that is known for being directly taxing on the denitrification cycle by itself, but also indirectly by way of its singular lethality to benthic

---

[99] ICES. "Baltic Sea Ecoregion – Ecosystem overview". ICES Advice: Ecosystem Overviews. 2018. p. 1-23. Available at: <Baltic Sea Ecoregion>. Last access on 10.06.2022.

[100] See ICES, *supra* note 27. p. 16-17.

[101] Santos, J. "Bycatch reduction and alternative exploitation patterns in demersal trawl fisheries of the Baltic Sea and the North Sea". (Doctor of Philosophy thesis, UiT – The Arctic University of Norway, 2021). p. 16-19. Available at: <Doctoral Thesis>. Last access on 10.06.2022.

[102] See ICES, *supra* note 27. p. 15 and 17.

[103] Bradshaw. C. *et al*. "Physical Disturbance by Bottom Trawling Suspends Particulate Matter and Alters Biogeochemical Processes on and Near the Seafloor". *Frontiers in Marine Science*. 8. 2021. Article 683331. p. 2.

[104] *Ibid.*

[105] Voss, M. *et al*. "History and scenarios of future development of Baltic Sea eutrophication". *Estuarine, Coastal and Shelf Science*. 2011. 92(3). p. 307 and 309.

species, the very same ones that are fundamental to nutrient recycling and organic material degradation[106] and that are also destroyed by trawling. On top of that, the cumulative effects brought by the interaction between climate change and eutrophication is forecasted to have serious consequences for the biodiversity of the Baltic Sea, increasing the vulnerability of marine life, – that already exists close to their physiological tolerances due to the harsh conditions in the area – in special the habitats and reproductive capabilities of the Baltic Cod.[107]

Ultimately, it is curious that each and all the conditions present in the Baltic, from trawling to climate change, are known to be anthropogenic stressors to the marine environment by themselves, but the extent of their interaction and cumulative effects are relatively unknown. Doubly curious is that for all mankind does not realize – yet – about these complex relations, it still attempts to regulate them, and bottom trawling is no different. Taking heed of the unique environmental canvas provided by the Baltic Sea, it is essential to grasp how environmental law addresses the issue in this area. What laws regulate bottom trawling? What are the aims of such regulations? What are the means to achieve said aims? Are they successful? How is legal environmental success even measured? Those questions will be answered next.

[106] *Ibid*.
[107] Wåhlström, I. *et al*. "Combined climate change and nutrient load impacts on future habitats and eutrophication indicators in a eutrophic coastal sea". *Limnology and Oceanography*. 65(9). 2020. p. 2070-2071.

3 Common-pool resources in international environmental law

3.1 Regulation of common pool resources

It can be argued that trawling is intrinsically connected to the notion of collectiveness. This originates not only from fish being conceptualized as a common-pool resource, but, as the previous chapter demonstrated, bottom trawling is not done by a single vessel, of a single nation, operating in a singular area, creating a self-contained effect. Its wide array of effects, spanning from biodiversity impacts to climate change, have the potential to impair life on Earth as it stands. This is where environmental law comes into play. It can be described as the conjunction of principles, rules, and jurisprudence that, together, have the goal of protecting the complex system that are the basis for human life.[108] For as clear as it sounds in paper, the truth is undoubtably a harsh mistress as the legal tools chosen to enact said protection are based on interpretative ideas of what is the environment to begin with, not to mention the status of its natural resources, its ownership and responsibility.[109]

Historically, the development of environmental law is tied to the notion of sovereignty and public law, especially in the case of natural resources.[110] This is reflected through the longstanding principle of national sovereignty, the recognition that states have sovereign rights to the national resources found in their territories.[111] That is to say that environmental law has been traditionally reliant on state authorities to enforce environmental protection inside its territories, especially since sovereignty implies that other branches of national law and its doctrines – like administrative and civil law – could be applied to the environment.[112] In practice, it were those borrowed legal constructs – in special property rights – that made it easier for humans to manage – through quantification and qualification – a clouded concept like the environment.

---

[108] Cassota, S. "The Development of Environmental Law within a Changing Environmental Governance Context: Towards a New Paradigm Shift in the Anthropocene Era". *Yearbook of International Environmental Law*. 30(1). 2019. p. 54-55.

[109] *Ibid.*

[110] Ingold, A. "Commons and Environmental Regulation in History: The Water Commons Beyond Property and Sovereignty". *Theoretical inquiries in law*. 19(2). 2018. p. 433.

[111] Soto, M.V. "General Principles of International Environmental Law". *ILSA Journal of International & Comparative Law*. (1996). 3(1). p. 194-196.

[112] See Ingold, A., *supra* note 110.

On the other hand, there are some natural resources that are common pool[113], or rather those whose overexploitation can cause problems for the collective. The difficulty in restricting access to those resources if often the reason why they degrade, as individuals feel the need to exploit them for as much as possible without consideration towards other potential users. Thus, in collective problems, it is safe to say that the predominant interest to act falls to human society in general and not the individual.[114] As society is not a personifiable entity, it is only logical for the individual to empower institutions to make these decisions, and this is done through trust. Trust – the belief that people will work in a mutually-beneficial way guided by social conventions – is a critical factor behind the development of decision-making bodies and implementation of its adopted policies, particularly when the effects of collective problems are uncertain[115] – as in the case of bottom trawling.

Restricting access to these resources by using property rights – either public, private, or communal – is often the manner in which environmental law has chosen to deal with this problem.[116] When common pool resources occur singularly inside a nation's jurisdictional area, the governance is more streamlined as national laws will be applicable. Nonetheless, while it does get easier, it is not easy. This persisting difficulty arises from a state usually having many institutional bodies vested with decision-making authority and employing multiple agents with expertise to decide on the matter[117] that do not necessarily agree on which course is best. Realistically, common pool resources – and collective problems – do not need to respect any jurisdictional nor political borders[118], meaning that they can exist in more than one nation, in a region or even in larger portions of the world. This grander geographical setting is, then, responsible for turning states into individuals themselves that will inevitably seek to explore common pool resources to their heart's content. Logically, the time-tested solution of restricting access will be used, decision-making bodies will be empowered, and trust will develop between states. The structure of this interstate trust applicable to protecting biodiversity from the collective effects of bottom trawling in marine areas is going to be approached next.

---

[113] See Cavalcanti, C., Schläpfer, F. and Schmid, B., *supra* note 23.
[114] Keith Smith, E. and Mayer, A. "A social trap for the climate? Collective action, trust and climate change risk perception in 35 countries". *Global Environmental Change*. 49. 2018. p. 141.
[115] *Ibid.*
[116] Liu, J., Faure, M. and Mascini, P. *Environmental Governance of Common-Pool Resources: A Comparison of Fishery and Forestry*. Routledge, 2017. p. 2.
[117] Dunoff, J.L. "Multilevel and Polycentric Governance" in L. Rajamani and J. Peel (eds.), *The Oxford Handbook of International Environmental* Law. 2nd Edition. Oxford University Press, 2021. p. 67-68.
[118] *Ibid.*

3.2 Overarching international regulations

3.2.1 UNCLOS

Whereas mankind has been fishing for many centuries, it was only after technological progress – allowing for the industrialization of fisheries and all this implies – that a modern codification of the law of the seas came to be through the UNCLOS[119], responsible for combining customary law and introducing new legal concepts. The UNCLOS enjoys – almost – universal ratification with a scope comprehensive enough to be assumed it could integrate both current and future interests[120] and therefore it is understandably known as the Constitution of the Oceans.[121]

The UNCLOS has established a jurisdictional framework that enables states to prescribe rules and standards in all marine areas but also to enforce them, depending on the nature and location of the conducted activity.[122] Amongst these is the unqualified duty to protect and preserve the marine environment, found in Arts. 192-194, that is applicable to marine living resources[123], a conclusion corroborated by the International Tribunal for the Law of the Sea (ITLOS) during the *Southern Bluefin Tuna* cases[124]. Eventually, it was found that the logical consequence of the positive obligation to protect and preserve the marine environment of Art. 192 meant that there was a negative one to not degrade it, as seen it awards of the *South China Sea Arbitration*[125]. Recent jurisprudence has also expanded Art. 194's scope to cover measures aimed primarily on the conservation and preservation of ecosystems as seen in the awards given on the *Chagos Marine Protected Area Arbitration*[126].

Fisheries governance is one of the most relevant aspects ruled by the Constitution of the Oceans, which based its legal foundation, first, in division of all ocean locations into two

---

[119] Horna, A. "Marine Genetic Resources, Including Sharing of Benefits". *Proceedings of the ASIL Annual Meeting*. 111. 2017. p. 245.
[120] Redgwell, C. "Introductory Remarks". *Proceedings of the ASIL Annual Meeting*. 111. 2017. p. 241.
[121] Diz, D. "Marine biodiversity: unravelling the intricacies of global frameworks and applicable concepts" in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law*. Volume III. Edward Elgar, 2017. p. 126.
[122] Harrison, J. *Saving the Oceans Through Law: The International Legal Framework for the Protection of the Marine Environment*. Oxford: Oxford University Press. 2017. p. 20.
[123] See Diz, D., *supra* note 121.
[124] ITLOS. "*Southern Bluefin Tuna*". (New Zealand v. Japan; Australia v. Japan). Provisional Measures. Order of 27 August 1999. ITLOS Reports 1999. para. 70.
[125] Permanent Court of Arbitration. "*South China Sea Arbitration*". (Philippines v. China). Award. PCA Case nº 2013-19. 12 July 2016. para 959.
[126] Permanent Court of Arbitration. "*Chagos Marine Protected Area Arbitration".* (Mauritius v. United Kingdom). Award. PCA Case nº 2011-03. paras. 538-541.

distinct zones: those within national jurisdiction and those beyond. The former is under the purview of a Coastal State and includes the Territorial Sea – with sovereignty conferred up to 12 nautical miles from the coast along with the seabed and subsoil[127] – and the Exclusive Economic Zone (EEZ) – sovereign rights and jurisdiction granted for 200 nautical miles counted from its shores, including the continental shelf[128]. The latter, on the other hand, is not under the control of a single state and is further split into the High Seas and the Area[129] – respectively found in Parts VII and XI –, with each of these regions having their own unique legal regime.[130] What this zonal approach meant for fisheries governance is the reaffirmation of the principle of national sovereignty in managing common-pool resources and this is perfectly exemplified in the Territorial Sea and the EEZ.

3.2.1.1 Territorial Sea and Exclusive Economic Zone

The recognition of sovereignty in the Territorial Sea cannot be understood otherwise if not as an absolute restriction of access and use of resources found in this area. The UNCLOS solidifies the national sovereignty principle in ocean waters by choosing not to set any significant fisheries obligations in the Territorial Sea, meaning that Coastal States were left virtually without any boundaries to their right of use, benefit and regulate fisheries resources in this portion of the sea.[131] One of the few rights secured by the UNCLOS for other states in the Territorial Sea is the Right of Innocent Passage[132] or rather the right to navigate in this area as long as a set of conditions are met. Yet, even this right very explicitly reinforces the absolute control that Coastal States hold over fisheries resources in the Territorial Sea as it very explicitly forbids any passing ship from fishing without permission.[133]

In the EEZ, however, a State enjoys sovereign rights to utilize its fisheries resources.[134]The International Tribunal for the Law of the Sea (ITLOS) judgement in the *M/V Virginia G Case*[135] left no room for doubts that a Coastal State's sovereign rights in the EEZ

[127] See UNCLOS, *supra* note 7. Arts. 2-3.
[128] *Ibid*. Arts. 55-57 and 76.
[129] *Ibid*. More specifically, Arts. 86 and 1(1)(1).
[130] See Harrison, J., *supra* note 122. p. 20-23.
[131] Tsamenyi, M. and Hanich, Q. "Fisheries jurisdiction under the Law of the Sea Convention: rights and obligations in maritime zones under the sovereignty of Coastal States". *International Journal of Marine and Coastal Law*. 27(4). 2012. p. 785-786.
[132] See UNCLOS, supra note 7. Art. 17 *et seq*.
[133] *Ibid*. Art. 19(2)(i).
[134] *Ibid*. Arts. 56(1) and 62.
[135] ITLOS. "*M/V Virginia G*". (Panama v. Guinea-Bissau). Judgment. ITLOS Reports 2014. para 214-216.

includes not only the competence to regulate and enforce fisheries law, but also expansively interpretated Art. 62(4) cover any other activity that could directly be linked to it. However, it is here that the difference between full sovereignty and sovereign rights rears its head for the first time. As ITLOS' judgement in the *M/V Virginia G Case* demonstrated, Coastal States' rights are also privileged in this part of the ocean[136], but the "exclusivity" of these states is more misleading than the name would suggest. In short, the exercise of sovereign rights is conditioned to various rules set in Arts. 61, 62 and 73 that can be directly related to the general requirement imposed in Art. 56(1) to conserve, exploit and manage natural resources.[137]

The simple existence of these principles and rules – be it either in the UNCLOS or derived from customary law – does not translate into adequate regulations nor that they are immediately – and correctly – implemented.[138] To make matters worse, the language chosen by the UNCLOS in combination with its framework nature – *i.e.* filled with unqualified obligations – mean that it is practically impossible to be certain whether or not said obligations were fulfilled.[139] Sure enough there is a threshold to those rights in the goal to avoid over-exploitation, but the deliberate option to use the "resources" in Art. 61(1) – instead of stocks/species – and the lack of definition on what Maximum Sustainable Yield (MSY) is and how should it be assessed beyond a vague mention of scientific data and socio-economic considerations – that are also not explained –[140] give a considerable leeway to Coastal States in meeting this very low threshold.

The duty of Art. 56(2) is of special importance when combined with the general duties of protection and it reflects an attempt by the UNCLOS at balancing the different rights granted to different states.[141] In the *South China Sea Arbitration* it was explained that the establishment of a due diligence obligation to protect and preserve the marine ecosystem, included not only the adoption and enforcement of legislation pertaining to endangered, depleted or threatened species but also the prohibition to cause any harms that can indirectly cause the destruction of

---

[136] *Ibid*. para 255.

[137] Schatz, V.J. "Combating Illegal Fishing in the Exclusive Economic Zone – Flag State Obligations in the Context of the Primary Responsibility of the Coastal State". *Goettingen Journal of International Law*. 7(2). 2016. p. 388.

[138] See Fife, R. E, *supra* note 1.

[139] Barnes, R. "The Convention on the Law of the Sea: An Effective Framework for Domestic Fisheries Conservation?" in D. Freestone, R. Barnes and D. Ong (eds.), *The Law of the Sea: Progress and Prospects*. Oxford University Press, 2006. p. 239.

[140] Markowski, M. "The International Legal Standard for Sustainable EEZ Fisheries Management" in G. Winter (ed.), *Towards Sustainable Fisheries Law: A Comparative Analysis*. IUCN, 2009. p. 4-8.

[141] Scovazzi, T. "'Due Regard' Obligations, with Particular Emphasis on Fisheries in the Exclusive Economic Zone". *The International Journal of Marine and Coastal Law*. 34. 2019. p. 58-59.

these species' habitats.[142] This means that this due diligence obligation can force Coastal States to regulate fishing activities in the EEZ that are known to be destructive – directly or indirectly – as is the case of bottom trawling. Furthermore, ITLOS' Advisory Opinion on the due diligence duty in in the EEZ makes it transparent that this obligation covers all states operating in this area – each with their respective responsibilities – and that the concept of due diligence is inherently mutant as new technological and scientific developments can change what is expected of states, not to mention that this standard is higher the riskier the activity is.[143]

With that said, the seabed – and its species – do not receive the same treatment as fish stocks do. The only specific duty found in the UNCLOS' Part VI is the duty to protect non-living resources and uniquely the seabed species that it classified as sedentary.[144] It is evident, from a teleological interpretation of the treaty, that the UNCLOS applied a rather restrictive interpretation of biodiversity as its focus was mainly aimed at protecting fish found in the water column, as if only those species found there were relevant to the marine ecosystem and that is not the case when remembering the possible extent of the impacts caused by trawling to marine life. While, admittedly, there is a provision in Art. 61(4) that can be expansively interpreted to have a holistic scope and, so, be applied to benthic fauna[145], fact is that those inclusive interpretations came much later down the timeline due to the evolution of legal concepts – such as the ecosystem approach – and were not born out of the minds of the lawmakers behind the UNCLOS, which had no intention on regulating demersal fisheries nor its practices to begin with.[146]

Conversely, notwithstanding the clear-cut omission concerning the specific protection of the continental shelf inside the EEZ, this does not mean that seabed exploitation is unregulated. Any seabed activities are covered by the general duty of protection established by Arts. 192-194, in their positive and negative dimensions.[147] The most relevant protection for the seabed is the one found in Art 194(5) that instituted a positive obligation to protect and preserve rare or fragile ecosystems and this could be certainly applied by analogy in the Baltic Sea, which is

---

[142] See Harrison, J., *supra* note 122. p. 170-171; Also: Permanent Court of Arbitration, *supra* note 125. paras. 956 and 959.

[143] ITLOS. *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*. Advisory Opinion. 2 April 2015. ITLOS Reports 2015. paras. 110-112, 115-124 and 125-140.

[144] See UNCLOS, *supra* note 7. Art. 77(1) and (4).

[145] See Harrison, J., *supra* note 122. p. 170.

[146] Borg, S. *Conservation on the High Seas: Harmonizing International Regimes for the Sustainable Use of Marine Resources*. Edward Elgar, 2012. p. 151.

[147] Mossop, J. "The relationship between the continental shelf regime and a new international instrument for protecting marine biodiversity in areas beyond national jurisdiction". *ICES Journal of Marine Science*. 75(1). 2018. p. 444-445.

not only one of the rarest types of ecosystems – being the largest body of brackish water in Earth – but also because the ecological conditions in an undisturbed environment are already at their threshold[148], thus, any seabed disruptions can bear drastic effects to the entire ecosystem. The *Chagos Marine Protected Area Arbitration* has also built upon the matter by "functionally equivaling" the duty to give due regard – in Art. 56(2) – to the concept of unjustifiable interference – found in both Arts. 78(2) and 194(4) – even if the exact definition of what constitutes due regard is heavily dependent on a case-by-case analysis as there is a need to balancing of the rights in play.[149] Considering the recent scientific research on the wider impacts of bottom trawling and applying the recent jurisprudence on the matter, arguing for a breach of the duty of due diligence might be a new legal pathway towards enacting stricter bottom trawling standards, particularly those related to the biogeochemical effects caused by this activity.

3.2.1.2 The High Seas and The Area

The constitutional role performed by the UNCLOS allows a greater range of instruments to govern fisheries and nowhere else is this better seen than in the ABNJ. If the Territorial Sea and the EEZ propagate – the varying degrees – the principle of national sovereignty, marked by its access restriction to common-pool resources, the same cannot be said about the ABNJ, which is knowingly common to all.[150]

The High Seas is one of the two maritime zones that comprise the ABNJ, and it incorporates, per Art. 86, of all marine water column areas that are not under national jurisdiction. Its guiding principle is known as the Freedom of the High Seas (FOS), and it includes the freedom of fishing alongside with a list of other non-exhaustive rights[151] that can be found in Art. 87. Albeit freedom implies no control, the International Law Commission had already commented on the issue by stating that the absence of authority would inevitably lead to chaos[152], so no freedom was absolute. By the time the UNCLOS came into being it

[148] See Section 2.3.
[149] See Caddell, R., *supra* note 11. p. 264-265 and Permanent Court of Arbitration, *supra* note 126. para 518.
[150] Grotius, H. "*The Freedom of the Seas; or, the Right Which Belongs to the Dutch to Take Part in the East Indian Trade"*. Oxford University Press, 1916. Translated by R. Magoffin. p. 24.
[151] Guilfoyle, D. "The High Seas" in D. Rothwell *et al*. (eds.), *The Oxford Handbook of the Law of the Sea*. Oxford University Press, 2016. p. 206.
[152] International Law Commission. "*Report of the International Law Commission covering the work of its eight session, 23 April-4 July 1956*". 1956. UN Doc A/3159. p. 279.

introduced the rule of flag-state jurisdiction in Art. 92, assigning "exclusive" jurisdiction over any vessels to the country correspondent to its nationality –viewed by the national colours the vessel flied. This rule was confirmed by ITLOS in the *MV Saiga (No. 2) Case.*[153] The exclusiveness, in fact, is applicable only to enforcement rights over a national ship, as established in Art. 217, because the High Seas is still founded on the FOS principle, therefore, all states can project some form of jurisdiction in this area.[154]

There are noteworthy considerations about these restrictions to the FOS principle. On one hand, it is possible to argue that it forbids states in the High Seas to be on unequal footing[155], but, on the other, the part played by Art. 116(b) can be seen as a major boon to Coastal States' rights. The wording of said clause is quite clear that the long-distance states must be mindful of Coastal States rights, in particular those found in Arts. 63(2) and 64-67. Now, these provisions deal mostly with species that can be found within the EEZ and in the ABNJ – *e.g.* straddling stocks and highly migratory species – and the one who holds sovereign rights over fisheries in the EEZ is the Coastal State, including the right – and duty – of setting the Total Allowable Catch (TAC), which, quite possibly, would hamper other states rights to fish for said stocks while in the EEZ[156] – since these states also have the power of determining their own harvest capabilities. This disparity would be abated by conditioning the TAC-setting power for High Seas fisheries to a cooperative decision, as can be concluded after reading Arts. 119(1) and 117-118 together, but that does not necessarily happen because the UNCLOS does not elaborates on how this supposed cooperation should be implemented[157] and Coastal States are – presumably – keenly aware of their position of strength afforded by the migratory nature of those species and their inevitable return to the EEZ – and national jurisdiction.

The problem may not lie, however, in the UNCLOS' lack of detailed provisions but in how its governing principle is applied nowadays. FOS can trace its roots back to the Roman legal idea of *res communes omnium* and it represents goods that are common to all and not passible of ownership by any individual or collectively.[158] Most importantly, the normative basis for *res communes* was *jus naturale*, that, in Roman law, was understood as being a

---

[153] ITLOS. "*M/V 'Saiga' (No. 2)*". (Saint Vincent and the Grenadines v. Guinea). Judgement. ITLOS Reports 1999. para 106.
[154] See Guilfoyle, D., *supra* note 151. p. 209.
[155] See Scovazzi, T., *supra* note 141. p. 58.
[156] Serdy, A. "Postmodern International Fisheries Law, or We Are All Coastal States Now". *The International and Comparative Law Quarterly*. 60(2). 2011. p. 394.
[157] *Ibid*.
[158] De Lucia, V. "Ocean Commons, Law of the Sea and Rights for the Sea". *The Canadian journal of law and jurisprudence*. 32(1). 2019. p. 48-50.

reflection of what nature taught all animals – including humans – and these observations of natural facts and inclinations can serve as foundations for any normative principles that govern society and cooperation between living beings as it has the power to adapt the law to changing conditions.[159]

The UNCLOS' FOS principle is not concerned with the observation of natural facts nor with cooperation, even if it establishes that maritime areas are common to all. Sure enough, it does set rights and – unqualified – duties, but they were not put into place because the lawmakers realized that a healthy ocean would benefit all living beings, but, instead, to solidify the UNCLOS' role as a legal framework to regulate human exploration of the oceans uniquely for the sake of humanity and humanity only. If that was the case, then bottom trawling would not be permitted in any oceanic areas due to its wide and cumulative effects to the entirety of the marine environment – and humans as well – that hampers the cooperative relationship between aquatic life and mankind.

This strict conclusion is reached when considering all the broad and profound impacts that bottom trawling can have that are not necessarily confined to one area of the seas even if argued that this activity does not always damages the environment. Trawling necessarily impacts the seabed and a "simple" sediment dispersion can have drastic effects to biogeochemical processes. But, momentarily putting aside this fact for the sake of the discussion, if does not affect the seabed, then it affects the targeted species and even those related/dependent on it. In turn, the food web is impacted, implying that the area's biodiversity will be hit. With a loss of biodiversity, it is likely that biogeochemical processes will be affected, increasing the pressure load in the environment. The only way to make sure that bottom trawling does has no impact is to ensure that it does not interact with the seabed nor overfishes, requiring a monitoring system that has never been implemented in history. So, if the long-term sustainability of the ecosystem is desired, then it is better – from an environmental standpoint – to have strict governance than a more liberalised stance. This will certainly have an immediate financial consequence in the short-term as more fishing could have been done, but, in the long-term, it makes sure that fish will always be found there, safeguarding the sustainability not only of marine resources by also the fisheries'.

This is why the current application of the FOS principle to fishing is more adequate to be labelled as a method of managing common-pool resources than a modern interpretation of *res*

[159] *Ibid*.

communes omnium. For example, in Ancient Rome the goods seen as *res communes omnium* were deemed so vital to all lifeforms that they should remain commonly available to all – *e.g.* free-flowing water –, and, so, they were granted higher protection standards because the cooperative relationship between man and nature was acknowledged.[160] With common-pool resources, the preoccupation is not the nature of the good itself but rather how to manage its consumption, usually done via access-restriction[161], and this is exactly what happens with the ocean and its resources. The flaw with this method is that usually this excludability is constructed based on a legal concept – sovereignty or rather ownership – that can promote separation in practical terms – *e.g.* setting a 200 nautical miles limit between zones – but that not necessarily alters the nature of the regulated goods.[162] The parts of the ocean that became bound to national jurisdiction did not became less vital to life on Earth because they were assigned ownership, nor did they became divisible because a treaty said so. In fact, this is indirectly recognized by the UNCLOS through, *inter alias*, the provisions of Arts. 116(b), 63(2) and 64-67 that establish the close and indivisible bonds between oceanic zones that were separated by a legal construct.

The reason why this was brought up to discussion was not to generate a debate for or against the FOS principle – nor the UNCLOS –, but rather to showcase the incongruency between what it represents and what it does. The truth is that it does not achieve any of its objectives: it does not safeguard freedoms and it does not reflect *res communes omnium.* What it does, in lieu, is covertly recognize sovereignty in a common area by privileging the rights of some nations in detriment of others because that is the way that environmental law has used to manage common-pool resources up until this point. Had the result been favourable, then there would be no reason to question this legal construction at all, however, sovereignty never did achieve its objective of preventing overexploitation of common goods or else the history of bottom trawling would have been told differently than what is written in Section 2.1. If even within a single nation's jurisdictional area fisheries resources were overused – and they only had to contend with themselves – it will not be in an area accessible to all – with a multitude of divergences on what to do and how to do it – that the ghost of sovereignty will be able to curb this phenomenon.

---

[160] *Ibid*.
[161] Barkin, J. S. and Rashchupkina, Y. "Public Goods, Common Pool Resources, and International Law". *American Journal of International Law*. 11(2). 2017. p. 379.
[162] *Ibid.*

The Area's legal regime, on the contrary, has a better connection to the classical ideas underpinning *res communes omnium* than anywhere else. Its guiding principle is called the Common Heritage of Mankind (CHM) – established by Arts. 136 and 137. In summary, this principle endows to the benefit of all humanity the use of the seabed and subsoil, alongside its resources, inasmuch as they are not within areas of national jurisdiction. In effect, the CHM principle rejects any privilege of national interests over a more transcendent notion of collectiveness of interests that it deemed as "Mankind[163], with its centrepiece element being a common management of a common area.[164] Although sounding very anthropocentric, beneath this superficial analysis of its wording lies the notion of the ecological importance of oceans, that are characterized by their complexity and integration, and the realization that sovereignty, allied to traditional legal principles, only served to fulfil self-interests leading to a right to overfish and pollute.[165] Therefore, the CHM principle is much closer to the original intent behind *res communes* than the FOS principle and can be safely regarded as its modern successor.

The Area's material scope is defined by Arts. 1(1)(3), 133(a) and 134(2), and there are two very distinct forms of interpreting it with wide consequences for biodiversity protection depending on the stance taken. The first one is another example of the restrictive interpretation of biodiversity adopted by the UNCLOS via a textual interpretation of the wordings contained in the above articles. The second interpretation supports the application of the principal rule of treaty interpretation[166] to balance what is written in the UNCLOS with its actual intent. The heart of this interpretative approach lies on Art. 136's imposition of the CHM principle on the Area and its resources and, since the UNCLOS does not provide clear definitions for the terms it uses, then it is possible to conclude that all the resources found within that zone are part of the zone as the same happens in all other maritime zones under the UNCLOS, reinforced by the use of the expression "natural resources" in Art. 145(b).[167] As a result, Art. 133 should be interpreted as providing a non-exhaustive definition of the resources that can be found in the

---

[163] Rana, H. S. "The Common Heritage of Mankind and the Final Frontier: Revaluation of Values Constituting the International Legal Regime for Outer Space Activities". *Rutgers Law Journal*. 26(1). 1994. p. 229.

[164] Tladi, D. "The Common Heritage of Mankind in the Proposed Implementing Agreement" in M. H. Nordquist, J. N. Moore and R. Long (eds.), *Legal order in the world's oceans: UN Convention on the Law of the Sea*. Brill Nijhoff, 2018. p. 83.

[165] Taylor, P. "The Common Heritage of Mankind: Expanding the Oceanic Circle" in *The Future of Ocean Governance and Capacity Development*. Leiden: Brill | Nijhoff, 2019. p. 142-143.

[166] See Vienna Convention, *supra* note 38. Art. 31(1).

[167] Elferink, A.G.O. "The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas". *The International Journal of Marine and Coastal Law*. 22(1). 2007. p. 150.

Area, especially since it does not say that Part XI should only be applicable to mineral resources, so, does not excludes living resources from being covered by it.[168]

Although the interpretation chosen varies according to each state – *i.e.* developed v. developing nation – it is interesting to note there is still much resistance to a broad interpretation of the CHM principle, be it either from a pragmatic or principle viewpoint[169], as reflected in the negotiations for new global legally binding treaty for the protection of marine biodiversity in the ABNJ that is currently being negotiated under the *aegis* of the UNGA[170]. This is because there are ideological/political/historical motivations to reject any ideas that could wrestle control over natural resources away from states[171] even when faced with growing awareness of environmental problems caused by fundamentally flawed governance. Applying the CHM principle is thought to imply a rejection of any form of sovereignty, but that is not necessarily true as they can be still play the prominent role of representatives of mankind[172], a broader part to play than just serving its own national interests, but one with similarly grander implications.

This unwillingness can be partially attributed to international environmental law failing to differentiate between the concepts of *res communes* and common-pool resources, a must have if any attempts at understanding – and changing – fisheries management are to be successful. The first distinction between these concepts is the field they originate from, with *res communes* being linked with *jus naturale* and having ties to Roman law, while the notion of common-pool resources is related to the – economic – management of natural resources, as already seen. The second distinction between them is that common-pool resources is one of the four major categorizations of resources, and it, in summary, represents goods that are considered subtractable, non-excludable, and usable by multiple individual subjects[173], while there is no such categorization under *res communes*. The confusion between those arises from a shared constituent element: non-appropriation. This element, for *res communes*, is only a part

---

[168] *Ibid*. p. 150-152.

[169] De Lucia, V. "The Question of the Common Heritage of Mankind and the Negotiations towards a Global Treaty on Marine Biodiversity in Areas Beyond National Jurisdiction: No End in Sight?". McGill Journal of Sustainable Development Law. 16(2). 2020. p. 143-153.

[170] UNGA. Resolution 69/292. *Development of an international legally binding instrument 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*. A/Res/69/292. Adopted on 9 June 2015.

[171] Treves, T. "Principles and Objectives of the Legal Regime Governing Areas Beyond National Jurisdiction," in E.J. Molenaar and A.G.O. Elferink (eds.), *The International Legal Region of Areas Beyond National Jurisdiction: Current and Future Developments*. Martinus Nijhoff, 2010. p. 12

[172] See Tladi, D. supra note 164. p. 82.

[173] Choe, H., and Yun, S. "Revisiting the concept of common pool resources: Beyond Ostrom". *Development and Society*. 46(1). 2017. p. 115-117.

of the whole – and not even its central concept – [174], but for common-pool resources this is a fundamental marker between defining one good as such or as a public one, with each categorization entailing different approaches to be taken[175].

Pertaining to ocean governance, those concepts are very much entangled, and it can be exemplified by the maritime zoning created by the UNCLOS. Water is seen both as a subtractable good – if scarce – and a non-subtractable one – if plentiful – [176] and oceans contain most of the water on our planet, so, technically, it is non-subtractable resource. If this is the case, then it cannot be a common-pool resource, but it can remain as *res communes*. Yet, the UNCLOS treats problems related to – ocean – water management in the same manner it would a true common-pool resource: it transforms it into a private good to solve the non-excludability dilemma, and this is done via zoning. However, privatizing through zoning does not disfigures water as a vital good towards life on Earth, the core concept of *res communes.* This is because this excludability is not natural nor inevitable, but one born out a socio-economic construct. Additionally, the UNCLOS interprets *res communes* as the free use of the High Seas, the Area and their respective resources by all without this use implying in any form of individual ownership.[177] What this means is that the UNCLOS reduces the differences between *res communes* and common-pool resources to non-appropriation, disregarding not only the differences between these concepts but the original meaning behind *res communes.*

To come to the point, an application of the CHM principle – built upon the Roman *res communes* – to all ocean areas is not impossible because a common good does not equal a common pool resource. A pragmatic application of the CHM principle needs not to subvert the current legal order if needs must as coexistence with sovereignty is fully possible. This would imply a shyer application of its central element – common management – but recognize the possibility for states to retain regulatory powers without replacing it entirely by an international common or joint property regime, although that power would be tempered by ecological responsibilities that serve the interests of all[178] – as is inherent to all *res communes* goods. Thus, this holistic interpretation of the CHM principle could be the basis for protecting the totality of the components of marine biodiversity – from fish to biogeochemical processes – by recognizing their integration and interdependence, resulting in a greater governance net that can

[174] See Tladi, D. *supra* note 164.
[175] See Choe, H., and Yun, S., *supra* note 173.
[176] *Ibid*. p. 118.
[177] See Tladi, D. supra note 164. p. 81.
[178] See Taylor, P., *supra* note 165. p. 146-147.

mitigate the cumulative effects of bottom-trawling worldwide, paving the way for a collective response for a collective action problem.

3.2.2 Semi-enclosed seas

It is relevant to make a brief mention to provisions set forth by the UNCLOS' Part IX in relation to semi-enclosed seas. Part IX represents a formal acknowledgement that there are special geographical situations and the need to regulate it.[179] The Baltic Sea qualifies as a semi-enclosed sea, as per its definition in Art. 122, which triggers the duty to cooperate under Art. 123. Regional cooperation in the Baltic Sea will be better explained in Section 4.3.1.4.

3.2.3 CBD

The CBD can be defined as a global framework for the conservation of biodiversity that also performs as an umbrella convention to other existing instruments with the same goal, to assure greater cohesion amongst its policies.[180] While the objectives of the UNCLOS and the CBD are different, they are not antagonistic and can complement each other.[181] This is because the UNCLOS was intended to have the capability to undergo further evolution, be it by amendment, soft law or the adoption of other global agreements.[182] Taking into account that the UNCLOS' idea of biodiversity is restrictive – reflected in the UNCLOS' failure to use the term "biodiversity" throughout its extensive provisions –[183] the CBD provides an evolutionary interpretation for the UNCLOS' provisions.[184]

The CBD's aims are listed in Art. 1 and can be surmised as: (i) the conservation of biodiversity, (ii) the sustainability and (iii) fair and equitable sharing of benefits.[185] The CBD endorses a broad notion of biodiversity as prescribed by Art. 2, notably including, and defining,

---

[179] Hu, N.T.A. "Semi-Enclosed Troubled Waters: A New Thinking on the Application of the 1982 UNCLOS Article 123 to the South China Sea". *Ocean Development and International Law*. 41(3). 2010. p. 281.
[180] Yzquierdo, M. "The 1992 Convention on Biological Diversity". M. Faure *et al*. (eds.), *Elgar Encyclopedia of Environmental Law*. Volume V. Edward Elgar, 2018. p. 10.
[181] Koester, V. "Environmental principles and concepts in biodiversity treaties" in M. Faure, L. Krämer, and E. Orlando (eds.), *Elgar Encyclopedia of Environmental Law*. Volume VI. Edward Elgar, 2018. p. 539-540.
[182] Boyle, A. "Further Development of the Law of the Sea Convention: Mechanisms for Change". *The International and Comparative Law Quarterly*. 54(3). 2005. p. 563-564.
[183] See: Diz, D., *supra* note 121.
[184] *Ibid*. p. 124.
[185] Techera, E. "Species-based conservation" in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law.* Volume III. Edward Elgar, 2017. p. 103.

"ecosystems" as an element of/for biodiversity. It is fundamental to note that this inclusion made it possible for regulators to grasp the interconnectedness of life on Earth, increasing the spatial scale that lawmakers had to consider to fulfil the treaty's goals and markedly rupturing with the historical notion that biodiversity was related solely to species and habitats.[186] This served to mark the start of an ecosystem-based approach to biodiversity protection that soon became the primary framework for action under the CBD[187].

Whilst an in-depth analysis of the ecosystem approach is not the objective of this thesis[188], it is necessary note that it relies on applying the appropriate scientific methodologies to all levels of biological organization inside a given environment – from organism interaction to biogeochemical processes – while also recognizing that mankind is also a part of many ecosystems.[189] In other words, it calls for a ceasefire between these competing interests by establishing the need for sustainable development as well as a paradigm shift for the existing legal standards [190], especially when it prioritized the conservation and functioning of ecosystems, in appropriate spatial and temporal scales, as a target of the ecosystem approach.[191]

Providing a definition for sustainable development is rather difficult as it is inherently abstract and can be seen through many lenses.[192] In the context of the CBD, sustainable development needs to be seen as a premise for equity, in its inter-generational and intra-generational dimensions.[193] In brief, the first of the dimensions represents the term "sustainable" – in sustainable development – by amounting to the need to preserve the environment for future generations to ensure it bequeaths it in the same conditions received, while, the second dimension represents the term "development" by requiring equity in the sharing of the benefits of development in the present generation at inter and intra-state level.[194]

---

[186] Morgera, E. "The ecosystem approach and the precautionary principle" in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law*. Volume III. Edward Elgar, 2017. p. 71.
[187] CBD. Second Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity. Decision COP II/8. 1995. Available at: < COP Decision>. Last access on 12.06.2022.
[188] See Morgera, E., *supra* note 186 for a detailed analysis of this approach.
[189] CBD. Fifth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity. Decision COP V/6. 2000. Annex. para 2. Available at:< COP Decision >. Last access on 12.06.2022.
[190] Barral, V. "Sustainable development and equity in biodiversity conservation" in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law*. Volume III. Edward Elgar, 2017. p. 62-63.
[191] See CBD, *supra* note 189. Principles 5 and 7.
[192] For more on sustainable development, refer to Barral, V. "Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm". *The European Journal of International Law*. 23(2). 2012. p. 388.
[193] See Barral, V., supra note 190.
[194] *Ibid.*

Both of these equity dimensions are explicitly mentioned in the CBD's preamble, that also states that biodiversity protection is a common concern of mankind.[195]

Having said that, the treaty concedes that ecosystems are complex, dynamic, and non-linear with humans not having complete knowledge or understanding of how they function.[196] Put another way, there is no way to comprehensively protect something that is unknown. Then, the ecosystem-based approach would need to be applicable even in cases where uncertainty was the norm, and that is how the precautionary principle was introduced in the treaty.[197] Being cautious implies being aware of a great deal of factors before setting a course to take, such as: (i) the vulnerability of the environment, (ii) the limitations of science, (iii) the availability of alternatives and (iv) the need for long-term holistic environmental considerations that will act against imperfect monitoring and unreliable information.[198] By adopting a adaptative management strategy – and applying the precautionary principle –, the ecosystem approach could respond to the ever changing environmental conditions of ecosystems as well as new scientific knowledge.[199]

The precautionary principle is heavily entrenched in environmental instruments, and it can be said that there are three main archetypal versions of this principle with varying degrees of environmental protection – ranging from soft to aggressive.[200] However, jurisprudence on its legal status has been varied, with the International Court of Justice (ICJ) recognizing it as a general principle of law in the *Pulp Mills* case[201] while ITLOS has admitted that there is a trend of making it part of customary law[202]. The consensus reached, so far, is to apply the precautionary principle as guiding tool to interpret international law[203] and, in this role, the precautionary principle can be seen in the CBD's preamble[204] but also in the UNCLOS' arts.

---

[195] See CBD, *supra* note 8. Recitals 3 and 23.
[196] See CBD, *supra* note 189. Annex. para 4.
[197] *Ibid*. Annex. Principle 6.
[198] See Morgera, E., *supra* note 186. p. 76.
[199] De Lucia, V. "Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law". *Journal of Environmental Law*. 27. 2015. p. 93.
[200] Wiener, J. B. "Precaution" in D. Bodansky, J. Brunnée, E. Hey (eds.), *The Oxford Handbook of International Environmental Law*. 1st Edition. Oxford University Press, 2008. p. 599-607.
[201] ICJ. "*Pulp Mills on the River Uruguay*". (Argentina v. Uruguay). Judgment. ICJ Reports 2010. para 164.
[202] ITLOS. "*Responsibilities and obligations of States with respect to activities in the Area*". Advisory Opinion. 1 February 2011. ITLOS Reports 2011. para. 135.
[203] Winter, G. "International Principles of Marine Environmental Protection" in M. Salomon and T. Markus (eds), *Handbook on Marine Environment Protection*. Springer, 2018. p. 596.
[204] See CBD, *supra* note 8. Recital 7.

1(1)(4) – via the term "likely to result" –, 192 – the general duty of protection – and 206 – the duty to undertake an environmental impact assessment.[205]

At the end of the day, the brightest of the CBD achievements was to unveil the fact that each individual component of an ecosystem is linked to wider inter-temporal and cross-scale processes helping to break the barrier that separated man and nature[206]– similar in spirit to the CHM principle and even *res communes*. Yet, because most of the development of its primary framework for action took the shape of soft law, its normative content has been deemed weak and unclear[207], generating a plurality – and fragmentation – of approaches that vary from treaty to treaty[208]. This is certainly the case in fisheries-specific treaties, as will be seen next.

3.2.4 UNFSA

The UNCLOS and the CBD have both codified in international law the principles and goals of the global community regarding the use of oceans and their biodiversity, however, implementation of their provisions is another concern altogether.[209] The UNFSA is a freestanding treaty that plays a supplementary role[210] to the UNCLOS' provisions concerning the protection of marine biodiversity, in specific, it details how the long-term conservation and management of straddling and highly migratory species should be pursued by States, as derived from Arts. 2 and 5(g).

Amongst the many legal tools it details regarding the protection of biodiversity are the general principles found in Art. 5, which include the precautionary principle[211], the ecosystem approach[212] and the adoption of measures in accordance with the best scientific knowledge[213].[214] The inclusion of these provisions is fundamental for framing the importance of marine

---

[205] Proelss, A. "Environmental principles and ITLOS" in L. Krämer and E. Orlando (eds.), *Principles of Environmental Law*. Edward Elgar, 2018. p. 570.
[206] See De Lucia, V., *supra* note 199.
[207] Enright, S.R. and Boteler, B. "The Ecosystem Approach in International Marine Environmental Law and Governance" in T. O'Higgins, M. Lago and T. DeWitt (eds.), *Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity*. Springer, 2020. p. 348-349.
[208] See De Lucia, V., *supra* note 199. p. 91
[209] Garcia, S.M., Rice, J. and Charles, A. "Bridging fisheries management and biodiversity conservation norms: potential and challenges of balancing harvest in ecosystem-based frameworks". *ICES Journal of Marine Science*. 76(6). 2016. p. 1660.
[210] See UNFSA, *supra* note 9. Arts. 2 and 4.
[211] *Ibid*. Arts. 5(c) and 6, combined with Annex II.
[212] *Ibid*. Art. 5(e).
[213] *Ibid*. Art. 5(d).
[214] See Diz, D., supra note 121. p. 130.

biodiversity for the long-term sustainability of fisheries[215] that is to be achieved by an ecosystem-based approach.[216] It further re-conceptualized fisheries management by stressing the importance of international cooperation[217] towards the protection of transboundary stocks, calling for the establishment of regional fisheries bodies – via agreements between states interested in particular fisheries – that would be responsible for ensuring the protection of said stocks in the ABNJ.[218] Under this new light, Art. 5 becomes especially relevant because it frames the precautionary principle as an obligation under the duty to cooperate to achieve an ecosystem-wide biodiversity protection.[219]

In other words, the UNFSA represented an effort from lawmakers to codify the strides made in international law with the intent of bridging the governance gap left by the UNCLOS[220], especially in relation to the vagueness of its provisions related to the management of transboundary stocks, seen in the UNCLOS' Arts. 63-64. As a man-made construction, fish are duly unaware of the existence of the maritime political borders instituted by the UNCLOS, with some species behaving in a manner that is – unknowingly – compliant with that territorial division, but with others that have no respect for it, as is the case of the aforementioned species. The main legal mechanism chosen by the UNFSA to deal with cooperative management is seen under Art. 8, with 8(1) creating the duty to cooperate directly or through a Regional Fisheries Management Organization (RFMO) – a type of regional fisheries body – and Art. 8(4) determining that only those states that have done so will have access to the regulated fisheries resources, perhaps the most compelling reason to cooperate under the UNFSA.[221]

Ultimately, although not black-on-white, the UNFSA did fall in the same regulatory trap as the one seen in the UNCLOS: it black-lettered modern cross-cutting concepts that should be employed to thrust fisheries management in an era of sustainability – backed by ideas of precaution and ecosystem protection – but failed in setting specific guidance of how that goal is to be operationalized, leaving great discretion to its parties by choosing to use general principles instead and by entrusting its legal mechanisms to RFMOs that are guided by them

---

[215] See UNFSA, *supra* note 9. Recital 7.
[216] See Diz, D., *supra* note 121.
[217] See UNFSA, *supra* note 9. Art. 5 *caput* and Part III.
[218] Juda, L. "Rio Plus Ten: The Evolution of International Marine Fisheries Governance". *Ocean Development and International Law*. 33(2). 2002. p. 121-122 and 130.
[219] Kingma, E. K. "*The Principle of Compatibility: Its application within the world's largest tuna fishery*". (Doctor of Philosophy thesis, University of Wollongong, 2018). p. 55-57. Available at: < The Principle of Compatibility: Its application within the world's largest tuna fishery>. Last access on 19.05.2022.
[220] See Juda, L., *supra* note 218.
[221] *Ibid*.

but remain partial to political influence. This can be best seen in its obligation of cooperation that, surely, builds upon the UNCLOS' general duty by mandating its parties to create new RFMOs – or strengthen existing ones – but provides no details on how these institutions should function, essentially having been set up for failure[222]. The result does not paint a clear picture of how successful the UNFSA was in its endeavour, as RFMOs have expanded their protective net since it came into being, but there are still challenges in concretely getting these institutions to uniformly apply the principles set by the treaty, especially the ecosystem approach, the precautionary principle and the use of the best scientific knowledge available[223], all fundamental factors to ensure the protection of marine biodiversity.

3.2.5 UNGA

The international framework for the protection of marine biodiversity has assuredly influenced fisheries management, especially regarding the overarching principles that should guide its application. Nonetheless, their implementation has been lacklustre in an international setting – as proven by the continued biodiversity loss –, despite the UNFSA's best efforts at guiding fisheries towards modernization. It is in this background that the UNGA has appeared as an unlikely regulatory forum for promoting the much-needed practical execution of those principles, with focus given to the protection of benthic ecosystems[224].A common link between all the instruments seen so far is that they aim at regulating maritime protection in a general setting, but do not pinpoint how practices should be conducted.[225] Therefore, it was left to the behest of states to negotiate how demersal fisheries should be conducted, which was done bilaterally and in a local setting, that tended to follow the lead of the international legislation on the protection of marine biodiversity, achieved through catch limits and allocation.[226] However, some of these treaties did impose – some – restrictions on bottom-trawling[227], which raised the awareness of its impacts and influenced more discussions in a global forum.

---

[222] Brooks, C.M. *et al*. "Challenging the "Right to Fish" in a Fast-Changing Ocean". *Stanford Environmental Law Journal*. 33(3). 2014. p. 322.
[223] See Harrison, J., *supra* note 122. p. 206-208.
[224] See Caddell, R., *supra* note 11. p. 265.
[225] The UNCLOS and the CBD act as framework treaties, while the UNFSA is aimed at highly migratory stocks. None govern actual fishing methods.
[226] See Caddell, R., *supra* note 224.
[227] Molenaar, E.J. "The South Tasman Rise Arrangement and Other Initiatives on Management and Conservation of Orange Roughy". *International Journal of Marine and Coastal Law*. 16(1). 2001. p. 81, 105 and 120.

The law-making process inevitably involves negotiation on various factors – *e.g.* normative content, language, institutional mechanisms – but, one of the first is its legal form, or rather, reaching a consensus on its bindingness.[228] Instruments dotted by legal bindingness are traditionally given a heightened hierarchical stature compared to other forms since they commands respect by mandating change, a rationale applicable to all of the international treaties already analysed.[229] Yet, non-binding instruments are also capable of drastically impacting state behaviour as a constitutive part of the process of law-making by providing the necessary *opinio juris* to establish the normative content of the law.[230] This can be exemplified by customary law itself – one of the sources of international environmental law[231] – which requires a reiterated state practice that is born out of the sense of legal obligation and not as a result of a codified duty, that generates an expected outcome eventually becoming binding.[232]

The UNGA was the perfect middle-term between those that wanted a global platform for those interested in regulating demersal fisheries and those that did not want to be bound by a treaty. This stems from the fact that the UNGA has almost universal membership and its powers and functions are expressly stated in Arts. 10-17 of its charter[233], with Art. 10 clarifying that its members are limited to making recommendations based on discussions held within the General Assembly, supported by the same choice of wording in Art. 13(1)(1), making any of its legal recommendations non-binding. On the flip side, this did not stop considerable weight being given to its recommendations – or Resolutions[234] – not only because the primary set of instruments and policies related to ocean governance – *e.g.* the UNCLOS – can all be traced back to the UNGA[235] but also due to its capacity of reliably representing the lowest common

---

[228] See, by analogy, the treaty architecture negotiations of the Paris Agreement in Bodansky, D., Brunnée, J. and Rajamani, L. "Paris Agreement" in D. Bodansky, J. Brunnée and L. Rajamani (eds.), *International Climate Change Law*. Oxford University Press, 2017. p. 210-215.

[229] Balton, D.A. and Zbicz, D.C. "Managing Deep-Sea Fisheries: Some Threshold Questions". *International Journal of Marine and Coastal Law*. 19(3). 2004. p. 252.

[230] Shelton, D. L. "Introduction" in D.L. Shelton (ed.), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System*. Oxford University Press, 2003. p. 1.

[231] See United Nations, *supra* note 36. Art. 38(1)(c).

[232] Schwabach, A. "A Hole in the Bottom of the Sea: Does the UNCLOS Part XI Regulatory Framework for Deep Seabed Mining Provide Adequate Protection against Strip-Mining the Ocean Floor?". *Virginia Environmental Law Journal*. 40(1). 2022. p. 51-52.

[233] United Nations. *Charter of the United Nations*. 24 October 1945. 1 UNTS XVI.

[234] United Nations. (23 March 2022). "Are UN resolutions binding?". Available at <Are UN resolutions binding?>. Last access on 20.05.2022.

[235] de la Fayette, L. "The Role of the United Nations in International Oceans Governance" in D. Freestone, R. Barnes and D. Ong (eds.), *The Law of the Sea: Progress and Prospects*. Oxford University Press, 2006. p. 69-70.

denominator between – almost – all nations in the world in a given subject, at the bare minimum.[236]

The importance of specifically regulating demersal fisheries – in the High Seas – has initially picked up steam in the early 1990s after the adoption of a series of Resolutions[237] that performed as a catalyst for spurring specific regulatory activities by RFMOs and other actors, with its proposed standards going as far as being deemed customary law[238]. It was this previous successful regulatory endeavour that helped creating a useful template to promote future policies aimed at demersal fisheries[239], such as Resolution 57/141 of 2002[240] – that recognized the value of managing risks to the marine biodiversity of seamounts – and Resolution 59/25[241] of 2004 – that highlighted the need to protect the seabed in addition to promoting the use of the precautionary principle to prohibit bottom-trawling, labelled as a destructive fishing practice, until appropriate measures were taken.[242] This latter instrument additionally responsible for urging international cooperation to create new RFMOs that would have competence to regulate demersal fisheries and called for the existing ones to update their mandates to encompass this mandate, while including an undefined reference to "vulnerable and threatened marine ecosystems and biodiversity" for the first time.[243]

Dissatisfied with the lack of progress being made on the matter, the UNGA adopted in 2006 a new Resolution[244] that insisted on immediate steps in sustainably – through the precautionary and ecosystem approaches – managing oceanic stocks and the protection of vulnerable marine ecosystems[245]. It also listed[246] a set of actions that RFMOs had to complete,

---

[236] UNGA. *In larger freedom: towards development, security and human rights for all. Report of the Secretary-General*. 21 March 2005. A/59/2005. p. 40. para. 159.

[237] For more on these precursor Resolutions, see Caddell, R. "International Fisheries Law and Interactions with Global Regimes and Processes" in R. Caddell and E.J. Molenaar (eds.), *Strengthening International Fisheries Law in an Era of Changing Oceans*. Hart Publishing, 2019. p. 135-140.

[238] Hewison, G.J. "The Legally Binding Nature of the Moratorium on Large-Scale High Seas Driftnet Fishing". *Journal of Maritime Law and Commerce*. 25(4). 1994. p. 578-580.

[239] See Caddell, R., *supra* note 11. p. 266.

[240] See UNGA, *supra* note 10. para. 56.

[241] UNGA. Resolution 59/25. *Sustainable fisheries, including through the 1995 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 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments*. 17 November 2004. A/RES/59/25.

[242] *Ibid*. para. 66.

[243] *Ibid*. paras. 67-68. Also, Caddell, R., *supra* note 11.

[244] UNGA. Resolution 61/105. *Sustainable fisheries, including through the 1995 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 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments*. 8 December 2006. A/RES/61/105.

[245] *Ibid*. para 80.

[246] *Ibid*. para 83.

including identifying vulnerable marine ecosystems, an assessment on the relation between individual activities of demersal fisheries and significant adverse impacts suffered by those vulnerable sites with the command of ceasing activities of those fisheries in areas of vulnerable ecosystems. Once again, the use of the precautionary principle – now united with the ecosystem approach – is being used as a legal argument to seek to mitigate significant adverse impacts on vulnerable marine ecosystems by demersal fisheries which showcases an embrace of terms and methods found in biodiversity treaties.

In fact, when combined with the other requirements made to RFMOs, the precautionary principle in this Resolution embodies a more strict, ecologically friendlier, version of itself, based on the fact that it specifies a particular conduct that RFMOs must undertake when faced by uncertainty of the threat of significant adverse impacts: forbid fisheries from operating until it can be proven that the activities will not pose a significant adverse impact to vulnerable marine ecosystems.[247] This stronger version of the precautionary principle is often linked to overregulation – chiefly in setting a minimum standard of proof – [248], but this does not happen in this case since neither the threshold for "vulnerable" nor "significant" were defined anywhere in this Resolution, owned to the UNGA's option to invite one of its institutions, the FAO, to work on settings standards and defining terms[249].

Albeit not a topic for discussion in this thesis[250], the FAO did elaborate an international guidelines document for the implementation of these UNGA Resolutions[251], targeted and non-targeted fish stocks in the ABNJ, but allowing Coastal States to apply it in inside their jurisdiction.[252] The goals of the guidelines are to promote sustainable fisheries and the framework for action is threefold, beginning with (i) the adoption and application of measures such as the precautionary principle alongside the ecosystem approach, passing through (ii) the identification of areas where vulnerable marine ecosystems are known or likely to occur – the wording here itself another nod to precaution –, and ending with (iii) requiring any action to be taken in accordance to the best information available.[253] Similarly to UNGA Resolutions, this document does not have binding powers on its own, but instead, together with Resolution

[247] See Wiener, J.B., *supra* note 200. p. 606-607.
[248] *Ibid*.
[249] See UNGA, *supra* note 244. para. 89.
[250] For a detailed discussion, please refer to Korseberg, L. "The Law-Making Effects of the FAO Deep-Sea Fisheries Guidelines". International and Comparative Law Quarterly. 67(4). 2018. 31p.
[251] FAO. *International Guidelines for the Management of Deep-Sea Fisheries in the High Seas*. FAO, 2008. 90 p. (FAO Guidelines).
[252] *Ibid*. paras. 5, 8 and 10.
[253] *Ibid*. paras. 11-12.

61/105, influenced the surge of commonly accepted international regulatory standards[254] that must be considered under the banner of the due diligence obligation that falls upon flag states[255].

The UNGA was quick in supporting the FAO's guidelines through Resolution 64/72[256], noting that the urgent actions it called for in Resolution 61/105 had not been sufficiently implemented in all cases.[257] This non-performance was, again, observed in Resolution 66/68[258], that strengthened assessment procedures to account for individual, collective and cumulative impacts[259], an invaluable regulatory standard that can have drastic impact in bottom-trawling operations when employed with the ambitious precautionary approach used in the UNGA's Resolutions. Once more, in 2016, the UNGA reiterated – and is likely to continue doing so annually – the criteria developed by the FAO to assess vulnerable marine ecosystems and significant adverse impacts, urging its use by states and RFMOs alike.[260]

The fact that these Resolutions have been periodically reaffirmed and championed by the UNGA[261] clearly showcase its attempt at reinforcing its international presence as a forum capable of finding common solutions to modern problems, but also of solidifying the normative content of its recommendations as akin to custom, a source of international law. If, as commented upon several times in these Resolutions, states have been – mostly – following the recommendations, then it is possible to entertain the idea that this constitutes state practice, one of the requirements of customary law. In this case, this pre-condition can also be supplemented and verified by embracing the argument that the process of drafting and voting for non-binding instruments has also been suggested as a form of state practice[262]. Moreover, if these recommendations have been followed by states due to a sense of legal obligation – as it being

---

[254] Caddell, R. "Precautionary Management and the Development of Future Fishing Opportunities: The International Regulation of New and Exploratory Fisheries". *The International Journal of Marine and Coastal Law*. 33. 2018. p. 252.

[255] See Korseberg, L., *supra* note 250. p. 830.

[256] UNGA. Resolution 64/72. *Sustainable fisheries, including through the 1995 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 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments*. 4 December 2009. A/RES/64/72.

[257] *Ibid*. para 118.

[258] UNGA. Resolution 66/68. *Sustainable fisheries, including through the 1995 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 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments*. 6 December 2011. A/RES/66/68. para 129.

[259] Ibid. para 129(a).

[260] UNGA. Resolution 71/123. *Sustainable fisheries, including through the 1995 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 Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments*. 7 December 2016. A/RES/71/123. para 180(a).

[261] See Caddell, R., *supra* note 11. p. 270.

[262] See Shelton, D.L., *supra* note 230.

seen as a component of the duty of due diligence suggests – then it is possible to form *opinio juris*, which would, indeed, transform it – and the FAO Guidelines by corollary – into binding customary law. Binding or not, they remain the most specific international instruments applicable to demersal fisheries and bottom-trawling. Although surely developed with attention given to the ABNJ, it can nevertheless be applied in national jurisdiction, either directly or by analogy. The FAO Guidelines defined "vulnerable" as variable concept that should be assessed on a case-by-case basis conditional to a set of representative characteristics that must be used in the identification process.[263]

It is interesting to note that this instrument has made "structural complexity"[264] as one of the defining criteria for ecosystem vulnerability, most likely as a response to the fishing nations' claims that bottom-trawling does not necessarily result in catastrophic benthic damage in featureless areas of the seabed beyond national jurisdiction.[265] This exemplifies how the majority of human knowledge – and focus – remain on hard-bottom deep-water areas[266] while ignoring that the majority of the world's seabed consists of soft-sediment systems[267] that are certainly susceptible to being considered vulnerable even though it does not boast the same level of biodiversity, especially when considering the impacts of bottom-trawling on biogeochemical processes that occur at any given seabed system.

The current conditions of the Baltic Sea allow for the perfect ecological, regulatory, and political setting for implementing these international – demersal – fisheries regulations in areas of national jurisdiction, not only to break the paradigm that national waters – and fish – are different from international ones because they can be treated as ownable goods and, thus, can be addressed by different legal measures, but also to grasp the cumulative impacts of bottom-trawling in a shallow, sedimentary but extremely vulnerable ecosystem[268] – be it by its natural ecological conditions as a brackish sea or by the multitude of anthropogenic stressors that have been active in it. This future is not impossible but heavily dependent on the evolution and transformation of European law and there is an open opportunity for this with the BDS 2030.

---

[263] See FAO, *supra* note 256. paras. 14-16 and 42.
[264] *Ibid*. para. 42(iv).
[265] See Caddell, R., *supra* note 11. p. 271.
[266] See Pusceddu, A. *et al*., *supra* note 79.
[267] See Pitcher, C.R. *et al*., *supra* note 69.
[268] Ehlers, P. "Baltic Sea" in R. Wolfrum (ed.), *Max Planck Encyclopedia of Public International Law*. Online edition. MPEPIL 1252. p. 3.

4 Fisheries management inside the EU

4.1 The conflicting nature of EU environmental law

Environmental law has been experiencing a paradigm shift from its sectoral and fragmented approach to a holistic one geared towards closing the gaps between society and nature.[269] Even though its interpretation and implementation is still debated, the ecosystem-approach is one of the main drivers behind this change[270], finally recognizing the importance of ecological factors – *e.g.* marine biodiversity – as one of the pillars of sustainable development[271] and the impossibility of undermining the rules of nature in favour of mankind's socio-economic prosperity[272] – a conclusion that has been long overdue.

Marine biodiversity is undergoing a global crisis that persevered against all the legal measures used by the international community.[273] However, this crisis is not restricted to oceans, but also felt in marine areas under national jurisdiction, as represented by the abundance of ecological stressors – often of human origin – that torments the Baltic Sea, an area that, naturally, already pushes the boundaries of survivability for its native species. That being said, the environmental governance of the Baltic Sea is a good starting point to comprehend how fisheries – and environmental – law has been employed to deal with the management and protection of common-pool resources such as fish stocks, specifically in face of the broad range of impacts associated with bottom-trawling, an activity that is – and has historically been – intensively practiced in the region.

To all intents and purposes, managing common-pool resources in a sustainable way in the Baltic Sea might appear easier than it is, after all, the vast majority of the Baltic's waters are under the jurisdiction of the EU's MS, meaning that the incumbent law in the region is European, a result of the primacy that EU law enjoys over national law. To better explain it, the

---

[269] Jetoo, S. and Tynkkynen, N. "Institutional Change and the Implementation of the Ecosystem Approach: A Case Study of HELCOM and the Baltic Sea Action Plan (BSAP)". *Environments*. 8(8). 2021. Article 83. p. 1.
[270] *Ibid*.
[271] Michanek, G. and Christiernsson, A. "Adaptive Management of EU Marine Ecosystems - about Time to Include Fishery". Working paper 2013:5. Uppsala University, Department of Law, 2013. p. 4-5. Available at: <Adaptive Management of EU Marine Ecosystems>. Last access on 24.05.2022.
[272] Westerlund, S. *Fundamentals of Environmental Law Methodology*. Uppsala University, Department of Law, 2007. p. 125. Available at: <Fundamentals of Environmental Law Methodology>. Last access on 24.05.2022.
[273] Said, A., Tzanopoulos J. and MacMillan D. "The Contested Commons: The Failure of EU Fisheries Policy and Governance in the Mediterranean and the Crisis Enveloping the Small-Scale Fisheries of Malta". *Frontiers in Marine Science*. 5. 2018. Article 300. p. 1.

EU principle of primacy is perhaps the most fundamental characteristic behind the uniqueness of the EU and its law as it can be interpreted to entail that absolute and unconditional precedence must be given to EU law over national law whenever conflicts arise, a clear departure from the classic notion of international law that gave states the liberty to decide how to give effect to their international duties inside national borders and whether or not to give it priority.[274] The principle was reaffirmed multiple times, but the most notorious one is the *Van Gend en Loos* case[275] that solidified the nature of EU law as "constitutional" instead of international.[276] The spirit of the EU undoubtably expresses that human communion is indeed possible on a worldly scale and the primacy principle serves as proof that it is viable to cede sovereignty to a grander authority that functions on behalf of an entire community in order to reach goals that are acceptable to all. What is this if not the best possible embodiment – so far – of *res communes* and the CHM principle?

Be that as it may, within the EU context it is necessary to distinguish between sources of primary and secondary law. The former emanates from the EU's MS acting as constituent authority of the EU's legal order, so the EU's founding treaties are its two main sources of primary law[277] – the Treaty on the European Union, and the Treaty on the Functioning of the European Union.[278] The latter are acts adopted by European institutions based on the powers granted by primary sources and are set out non-exhaustively in Art. 288 TFEU – although recommendations and opinions are deemed as soft law due to their lack of bindingness – and there is no hierarchy between these norms, with conflicts solved through the application of the principles of *lex specialis* or *lex posterior*.[279] Additionally, international agreements – *i.e.* UNCLOS, UNFSA – are also considered sources of secondary law as per Arts 216 and 267 TFEU.[280] This contrast is relevant for fisheries management because it directly relates to regulatory competence, with environmental matters having shared competence between the EU

---

[274] Claes, M. "The Primacy of EU Law in European and National Law" in D. Chalmers and A. Arnull (eds.), *The Oxford Handbook of European Union Law*. Oxford University Press, 2015. p. 178-181.

[275] Court of Justice of the European Union. *Case C-26/62, Van Gend en Loos v. Administratie der Belastingen*. 1962. Judgement. ECLI:EU:C:1963:1.(CJEU).

[276] For more on this principle, including the discussion on the related principle of direct effect, see: Claes, M., *supra* note 274.

[277] Szudoczky, R. *The Sources of EU Law and Their Relationships*. IBFD Publications USA, 2014. p. 28.

[278] European Union. Consolidated version of the Treaty on European Union. 2012. OJ C 326. p. 13–390. (TEU); European Union. Consolidated version of the Treaty on the Functioning of the European Union. 2012. OJ C 326. p. 47–390. (TFEU).

[279] See Szudoczky, R., *supra* note 277. p. 29 and 40.

[280] *Ibid*.

and its MS, while the EU is exclusively competent to conserve marine biological resources under a common fisheries policy.[281]

However, by creating a divide between environmental matters and protection of marine biological resources, the EU has made it possible the adoption of different legislative acts in different policy areas – that are not supposed to be separated – enabling it to become a festering ground for policy disconnection and legal/political conflict, with states being duty-bound to act in one way under one such policy and being forbidden to do so by another.[282] Moreover, the exclusive competence that the EU retained in fisheries is applicable for the specific purpose of conserving marine biological resources since the TFEU institutes a shared competence on the remaining aspects of fisheries management under Art. 4(2)(d).

Consequently, there are two dimensions to governance challenge that afflicts fisheries management inside the EU: first, within its own domain, since it is not clear where the EU's exclusive competence begins and the shared competence ends and, secondly, in its relation to other norms of EU environmental law[283], that not only have the chance of overlapping but also creates heavily fragmented sectorial approaches, with each topic of environmental relevance having its own legal provisions – a stark contrast to the holistic and integrative approach preached in international forums as seen previously. It is in this overlapping and fragmented regulatory context that the BDS 2030 appears with the arduous mission of halting the loss of biodiversity on land, sea, and air.

4.2 Contextualizing the EU Biodiversity Strategy for 2030

Biodiversity conservation is a topic of interest that has been championed by the EU, particularly in the last decades. The advent of biodiversity-specific policies in the EU can be commonly associated with the adoption of general action programmes in accordance with Art. 192(3) TFEU – where one goes, the other tends to follow. The EU has adopted many Environment Action Programmes (EAP) that were responsible for guiding the development and

[281] See TFEU, *supra* note 278. Arts. 4(2)(e) and 3(1)(d), respectively, for the competences and Arts. 38-47 for legal grounds of the CFP.

[282] Christiernsson, A., Michanek, G. and Nilsson, P. "Marine Natura 2000 and Fishery – The Case of Sweden". *Journal for European Environmental & Planning Law*. 12(1). 2015. p. 38.

[283] Appleby, T. and Harrison, J. "Taking the Pulse of Environmental and Fisheries Law: The Common Fisheries Policy, the Habitats Directive, and Brexit". *Journal of Environmental Law*. 31(3). 2019. p. 450.

coordination of environmental policy as well as providing the framework for action.[284] The first experience with drafting a biodiversity strategy can be traced back to since its earliest iteration can be traced back to 1998 [285], the EU's shift toward a global approach to policymaking in the 5th EAP [286] and the need to effectively implement the CBD's provisions inside EU, in special the duties found in Art. 6 CBD.[287] This 1998 version noted that biodiversity had intrinsic values, but also that it determined human capacity to be resilient in changing times, reason why it marked biodiversity as a critical factor behind the long term viability of fisheries as a food source and, even then, it only contemplated biodiversity in terms of fish stocks and its feeding grounds.[288] In hindsight, it is clear that this first strategy could not hope to holistically protect the marine environment, however, it had major regulatory repercussions since it, *inter alias*, linked the need to frame biodiversity conservation and management inside future developments in policy-making.[289]

The next biodiversity-related policy consisted of the 2006 EU Biodiversity Action Plan[290] – that came into being during the 6th EAP[291] – that for the first time acknowledged not only that biodiversity needed to be particularly integrated into fisheries polices and the need to maintain ecosystem services, but also that fishing and aquaculture could have impacts beyond harvested fish stocks – although the extension was limited to habitats and non-targeted species only.[292] In 2011, and 7th EAP[293], a new version of the Biodiversity Strategy was adopted and it framed biodiversity inside the context of climate change and it expressly affirmed that biodiversity loss was driven mainly by human activities.[294] It also laid out a specific target for ensuring the sustainable use of fisheries resources and combat invasive alien species, with several action

---

[284] Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a General Union Environment Action Programme to 2030. OJ L 114. Recital 1.

[285] COM(1998) 42 final. Communication from the Commission to the Council and the European Parliament on a European Community Biodiversity Strategy. Not published in the Official Journal. Available at: < BDS 1998 >. Last access on 12.06.2022.

[286] European Commission. "Towards Sustainability, a Policy and Strategy for the Environment and Sustainable Development within the European Community". Official Journal of the European Communities .C138. 17 May 1993. Available at: < 5th EAP >. Last access on 12.06.2022.

[287] Baker, S. "The dynamics of European Union biodiversity policy: interactive, functional and institutional logics". *Environmental Politics*. 12(3). 2003. p. 27 and 32.

[288] See COM(1998) 42 final, *supra* note 285. paras. 1 and 17-20.

[289] See Baker, S., *supra* note 287. p. 34.

[290] COM/2006/0216 final. Communication from the Commission - Halting the loss of biodiversity by 2010 - and beyond - Sustaining ecosystem services for human well-being {SEC(2006) 607} {SEC(2006) 621.

[291] Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme. OJ L242/1.

[292] See COM/2006/0216 final. Heading 4.2.4 – *Integration into fisheries policy*. p. 4 and 8.

[293] Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'. OJ L 354.

[294] See COM(2011)244, *supra* note 17. p. 1

points to be done in order to reach those goals by 2020 or earlier, which included integration with other EU policies such as the MSFD.[295] Therefore, it comes as no surprise that, with the 8th EAP[296], there are a series of legal frameworks – *e.g.* MSFD[297] and HD[298] – , policy initiatives – *e.g.* European Green Deal[299]– and financing mechanisms – *e.g.* LIFE Programme[300] – that, in conjunction, instituted an unprecedented collective and coordinated effort on a continental scale against biodiversity loss.[301]

In any case, biodiversity loss continues despite the employment of a wide array of measures to halt it with the future looking bleak unless more ambitious goals are adopted.[302] This ongoing crisis motivated the proposal of the BDS 2030, the freshest regulatory treat baked by European lawmakers intended on "Bringing back nature into our lives"[303]. The BDS 2030 is supposed to signify a change in regulatory perspective – as a reflection of the European Green Deal[304] – that is supported by three pillars: (i) restoring and protecting nature inside European borders, (ii) the creation of a new European biodiversity governance framework and (iii) strengthening international commitments to promote EU's ambition.[305] However, whether it represents change is debatable.

In a way, much like its predecessors, the BDS 2030 brings to the table topics considered relevant by European policymakers, including, *inter alias*, (i) the acknowledgement that bottom-trawling is one of the most damaging activities to the seabed and (ii) a proposal for legally binding EU nature restoration targets.[306] However important as those two points are, they still leave a bittersweet taste in the mouth. This is because the former represents an official increase of the interest dispensed by European lawmakers into the marine environment and its pressures, symbolized by the fact that in the BDS 2030 the marine environment has been given

---

[295] *Ibid*. Targets 4 and 5. p. 14-15.
[296] See Decision (EU) 2022/591, *supra* note 284.
[297] See MSFD, *supra* note 13.
[298] See HD, *supra* note 14.
[299] COM/2019/640 final. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions The European Green Deal".
[300] Regulation (EU) 2021/783 of the European Parliament and of the Council of 29 April 2021 establishing a Programme for the Environment and Climate Action (LIFE), and repealing Regulation (EU) No 1293/2013. OJ L 172. (LIFE Programme).
[301] Hermoso, V. *et al*. "The EU Biodiversity Strategy for 2030: Opportunities and challenges on the path towards biodiversity recovery". *Environmental Science and Policy*. 127. 2021. p. 263-264.
[302] Müller, A., Schneider, U., and Jantke, K. "Evaluating and expanding the European Union's protected-area network toward potential post-2020 coverage targets". *Conservation Biology*. 34(3). 2020. p. 660.
[303] See BDS 2030, *supra* note 15.
[304] See Hermoso, V. *et al*, *supra* note 301.
[305] See BDS 2030, *supra* note 15. Headings 2, 3 and 4, respectively.
[306] *Ibid*. Headings 2.2.1 and 2.2.6.

more attention than its previous iterations. At the same time, this "increased attention" is also worrying by itself since in a 22-page long document only circa half a page is specifically dedicated to it.[307] As for the latter, the repeated failures in reaching the goals set by the past biodiversity polices has led to the need for creating legally binding targets[308], but simply black-lettering targets does not mean that they will be effectively implemented.

However, as important as those issues are by themselves, there is a more pressing one that can be argued already inherently encompasses the majority of the other matters: the confession that the EU biodiversity governance framework must change.[309] There are many reasons for this that were learned from the EU's past experiences in drafting biodiversity policies – *e.g.* insufficient coordination across and within MS, lack of multilevel cooperation, asymmetric national implementation of EU law, competing land v. sea interests and policy incompatibility[310] – but none is better to illustrate the need for renewal than the simple fact that the biodiversity crisis itself persists despite the EU's best efforts.There are many ways of judging if the BDS 2030 can be a successful biodiversity policy. For example, it can be said that a successful policy is one that reaches its goals. Similarly, it can be said that its successfulness is measured by how it can inspire the EU's MS to adopt more stringent national policies and it also can be said that a policy's true measuring rod must be how it influences the development of new policies and instruments. The EU's biodiversity strategies produce a mixed bag of results that change depending on which of these lenses is used to look at it. At this point in time, there is a dichotomy surrounding the BDS 2030 as it can be defended as a fundamental environmental policy that contains ambitious goals and at the same time gives little hope in the sense that those goals will be reached.[311]

The legacy of the BDS 2030 is at balance and it walks a very fine line between being seen as renewal or as more of the same. Its assessment will be held based on its interaction with the EU biodiversity governance framework, be it either by giving it lifeblood through the injection of new regulatory ideas – such as the legally binding restoration targets – or by how it employs the existing legislation – as is the case of the CFP, MSFD and HD[312] – to do its bidding. As

---

[307] See BDS 2030, *supra* note 15. Heading 2.2.6.
[308] Gerritsen, E. *et al*. "EU Biodiversity Strategy: Putting people and nature at the heart of restoration - IEEP's first impressions of the EU's new biodiversity strategy to 2030". 2020. Available at: <First impressions of the EU biodiversity strategy>. Last access on 12.06.2022.
[309] See BDS 2030, *supra* note 15, Heading 3.
[310] See Hermoso, V. *et al*., *supra* note 301. p. 265
[311] Rinaldi, A. "Biodiversity 2030: a road paved with good intentions". *EMBO Reports*. 22(6). 2021. Article e53130. p. 4.
[312] See BDS 2030, *supra* note 15. Headings 2.2.1 and 2.2.6. para 2.

much as the first part of this assessment is impossible to predict as it depends on concrete actions yet to be taken, it can be said that the BDS2030 is already inspiring positive change, seen in the call – that happened inside the Fisheries Committee of the European Parliament for the first time ever – for the end of bottom trawling in Marine Protected Areas[313]. Yet, in the latter topic that the BDS 2030 will have to content with a struggle that itself admitted has had grave consequences for nature conservation:[314] the coordination of mainly sectoral regulations that are assailed by governance gaps in spite of the fact that they often overlap – a direct consequence of the division of competences entrenched in the EU's founding treaties.

4.3 The complex relationship between biodiversity and fisheries in the EU

EU law must be given credit for standardizing – or trying to – a diverse set of environmental policies intending to implement a conservation-based policy setting inside areas of national jurisdiction, most notably through the Natura 2000 network.[315] However, a fundamental flaw remains in the law-making system of the EU that revolves around the aforementioned division of competences that reflects on separate regulations for fisheries and biodiversity/environment, as mentioned in section 4.1, and untangling this regulatory knot will be the BDS 2030's greatest obstacle. So, it is necessary to understand what those issues are.

4.3.1.1 The Habitats Directive

Biodiversity protection has a long legal history in the EU with several regulations[316] adopted to protect fauna and flora alongside with natural habitats, yet the turning point for conservation-focused policies came in 1992 with the HD when the material and geographical scope of the protective measures were expanded from birds.[317] These legislative acts represented a EU-wide implementation of the obligations imposed by various international biodiversity treaties – including the CBD – and the fact that those regulatory efforts were made

[313] European Parliament. "Report on Toward a sustainable blue economy in the EU: the role of the fisheries and aquaculture sectors". Report A9-0089/2022. Rapporteur: Isabel Carvalhais. 2021/2188(INI). Note that in the wider Parliament the protective language was weakened.
[314] See BDS 2030, *supra* note 15. Heading 2.2.1. para 1.
[315] See Hermoso, V. *et al*, *supra* note 301. p. 265.
[316] Such as Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. 2010. OJ L 20. (BD), first introduced in 1979.
[317] Christiernsson, A. "Is the Swedish Brown Bear Management in Compliance with EU Biodiversity Law?". *Journal for European Environmental & Planning Law*. 16. 2019. p. 240.

by the EU demonstrates the transboundary aspects of biodiversity[318] – naturally implying that management is not limited to political borders. On top of that, the adoption of those biodiversity regulations also had two other singular results: (i) it firmly planted the subject under the blanket of Environmental law – and, thus, not an individual area by itself – which invited shared competence with its MS – although tempered by the subsidiarity principle, as per Art. 5(3) TEU – and, (ii) it inserted the notion of common heritage and its management in a EU context, both confirmed by the CJEU.[319].

The HD, in particular, sets out a series of important legal duties towards biodiversity conservation that must take into account economic, social and cultural requirements but also regional and local characteristics.[320] It institutes a system of special areas of conservation – *i.e.* Natura 2000 – that comprises the natural habitats listed in Annex I and the habitats of species listed in Annex II, imposing the duty of maintaining – or restoring – those sites to favourable conservation status (FCS).[321] Art. 6 charges MS with the duty of establishing necessary conservation measures in special areas of conservation along with management plans if need be, with 6(2) adding the obligation of taking appropriate steps to avoid the deterioration and disturbance of habitats. Art. 12 further regulates the level of protection afforded by the law as it installs a system of strict protection for animal species listed in Annex IV, that is applicable within and outside of Natura 2000 areas, with specific duties listed under 12(1)(a)-(d). The *Caretta-Caretta*[322] and *Spanish Otter*[323] cases have clarified that those requirements are still applicable when activities posing potential risks of disturbing/killing/capturing those listed species and their habitats are still conducted. This article is particularly relevant for bottom-trawling since, in paragraph 4, it imposes a duty to monitor bycatch and ensure that they do not leave a negative significant impact on the protected species, albeit neglecting to take into consideration that bycatch goes beyond simply impacting one species as it also inevitable impacts the populations this species preys on and is preyed by, as well as any biogeochemical

---

[318] *Ibid.*

[319] CJEU. *Case 262/85, Commission of the European Communities v Italian Republic*. 1987. Judgement. ECR 3073. para. 9.; and CJEU. *Case C-38/99, Commission of the European Communities v. French Republic*. 2000. Judgement. ECR I-10941. para. 53.

[320] See HD, supra note 14. Art. 2(3).

[321] *Ibid*. Art. 3(1). For a definition of FCS, see: European Commission. *Guidance document on the strict protection of animal species of Community interest under Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora "The Habitats Directive."*. 2007. p. 9. Available at: <Guidance Document>. Last access on 12.06.2022.

[322] CJEU. *Case C-103/00, Commission of the European Communities v. Hellenic Republic.* 2002. Judgement. ECR I-01147. paras. 36-40.

[323] CJEU. *Case C-221/04, Commission of the European Communities v. Kingdom of Spain*. 2006. Judgement. ECR I-04515. paras. 68-75.

processes it may be responsible for, with impacts possible affecting protected habitats and even the entire ecosystem, strictly protected or not.

However, Art. 14 infers that not all species of interest must be granted the same level of protection as it allows MS to take management measures – listed in Art. 14(2) – towards the taking of species listed in Annex V. This idea is reinforced in Art. 16 that allows for MS to derogate from the system of strict species protection, with the CJEU stating in the Finnish Wolf case that the MS would need to fulfil the conditions laid by Art. 16(1) with the competent authority required to endure the burden of proof.[324] The possibility to be exempted is thought to add flexibility in the implementation of these measures as long as they are sufficiently and clearly limited to not turn the exception into rule.[325] Conversely, it appears as, once again, the ecological concerns where found lacking when weighted against the socio-economic motivations, despite the HD's goals of balancing these three pillars. The HD already clearly distinguishes between species that are in need of strict protection and those that are not, already foreseeing the exploitation of the latter. Thus, by enabling the strict system of protection to be bypassed – however supposedly strict the requirements to do so may be – it goes against the very purpose of establishing a system like that to being with.

Another distinctive aspect of the HD is that it is applicable in the marine environment as well – including the EEZ[326] – even though it clearly focuses on land-based biodiversity, proved by the sheer disparity between terrestrial species and habitats and marine ones.[327] The HD imposes, in Art. 6(3) an obligation to conduct an assessment and authorization process whenever plans or projects – directly or cumulatively – pose a likely significant risk upon Natura 2000 sites, with national authorities being bound to permit such activities only if proven that the site's integrity will not be affected and after hearing the general public. As seen in section 2, research suggests that bottom trawling can lead to effects that directly or indirectly impact the marine ecosystem – *e.g.* eutrophication – while needing not to be conducted near or inside Natura 2000 sites – nor target the particular species/habitats protected by it – to have an

[324] CJEU. *Case C-342/05, Commission of the European Communities v. Republic of Finland.* 2007. Judgement. ECR I-04713. paras. 24-25.
[325] Epstein, Y. *et al*. "When is it Legal to Hunt Strictly Protected Species in the European Union?". *Conservation Science and Practice: A journal of the Society for Conservation Biology*. 1(3). 2019. Article e18. p. 1.
[326] CJEU. *Case C-6/04, Commission of the European Communities v. United Kingdom of Great Britain and Northern Ireland*. 2005. Judgement. ECR I-09017. para 127.
[327] See HD, *supra* note 14. Annexes 1-5.

significant effect on it.[328] Once again, the risks associated with bottom-trawling – and fisheries in general – are largely ignored by national authorities and the EU as it is not common for this obligation to be met, as exemplified by Sweden[329] – a Baltic state. Worse still, knowledge of the impacts caused by bottom trawling in strictly protected marine mammals under the HD is confessedly minimal, regardless of it being remarked as a common occurrence.[330]

Albeit it is true that the HD does indeed impose – some – conservation measures in a marine setting, the influence it has on the marine ecosystem and fisheries management is frail. In 2012 it composed a common methodology for assessing the impacts of fishing activities on marine Natura 2000 where it concluded that: (i) there is little information on less vulnerable habitats for more impacting fishing methods – *e.g.* bottom trawls –, that is combined with (ii) the poor knowledge concerning the gear/habitat interaction, particularly on sedimentary systems – *e.g.* sandbanks.[331] It also listed a series of bottom-contacting gear that are used by fisheries in the Baltic Sea, a heavily stressed sedimentary system.[332] In 2014, it prepared a similar document to "identify fishing activities that could have "*a priori*" significant negative impacts on features for which Natura 2000 sites have been selected"[333] where it listed the physical, biological and chemical impacts of bottom trawls, concluding that the first two are the most apparent ones and caused changes in topography and complexity of benthic communities. Although it did not mention the chemical aspects of trawling – which is befitting the lack of scientific knowledge on the matter –, it did note that the disturbance of sediments could remobilize them, an indication that can be interpreted as a sliver of awareness of the broader impacts of trawling. Thus, it cannot be said that the problems surrounding bottom-trawling were largely unknown, but rather unexplored as not to trigger the conservation measures in the HD.

This can also be noted in the statement made by the EU Environment Commissioner Virginijus Sinkevičius regarding the relationship between bycatch and the HD, unequivocally

---

[328] For example, the broad range of effects caused by trawl damage to the seabed: Commission to the Convention for the Protection of the Marine Environment of the North-East Atlantic. *Quality Status Report 2010*. 2010. OSPAR Commission, London. p. 84; Additionally, see Section 2.

[329] See Christiernsson, A., Michanek, G. and Nilsson, P., *supra* note 271. p. 24.

[330] ICES. "Working Group on Bycatch of Protected Species (WGBYC)". *ICES Scientific Reports*. 2(81). 2020. p. 18 and 193. Available at<Working Group on Bycatch>. Last access on 12.06.2022.

[331] N2K Group - European Economic Interest Group. "Common methodology for assessing the impact of fisheries on marine Natura 2000". 2012. p. 17-18 and 46-47. Available at: < Fisheries methodology >. Last access on 26.05.2022.

[332] *Ibid*.

[333] European Commission. "Natura 2000 in the Marine Environment". Available at: <Natura 2000 >. Last access on 26.05.2022.

calling for the application of the HD towards marine mammals that are protected under the system of strict protection but failing to address the possible significant effects that other species – and habitats – may suffer from this practice.[334] Despite several references to precaution – *e.g.* likely to cause significant effect – practice shows that this is mostly wasted ink as displayed by the confession that the impacts caused by bottom-trawling bycatches to protected marine mammals is virtually unknown despite it being recognized as a common occurrence[335]. For a biodiversity-targeting regulation, the HD does not reflect the ecosystem-based approach, nor the precautionary approach, that are inherent to the commitments the EU made under the CBD. That is to say that it applies a restrictive idea of the "type" of biodiversity that needs protection – by listing species and habitats it considers relevant – and one that is primarily concerned with land biodiversity in detriment of its marine counterpart. Furthermore, when fisheries are concerned, the continued disregard for possible impacts that destructive fishing practices may cause to the marine environment – besides commercially exploited stocks – demonstrates that precaution in the EU is not applied in a consistent manner nor within the threshold its own policymakers have set.

As mentioned previously, the BDS 2030's plans to consider instituting legally binding nature conservation targets[336] – a sound idea that has been glaringly absent from the HD so far. Under this new governance framework, the BDS 2030 highlights the need to ensure co-ownership – in line with its historical application of common heritage to biodiversity protection – and, most importantly, co-responsibility.[337] What it does not do is detail how MS will be held accountable for non-compliance when the EU's current method – *i.e.* the infringement procedure under Arts. 258 and 260 TFEU – failing to provide swift and decisive solutions – as demonstrates the volume of infringement cases opened in total and per year as well as the differences between closed and remaining procedures[338] – that only counts with financial penalties as a mild coercive tool that does not repress environmental non-compliance – that

---

[334] European Commission (25 February 2020). "Statement by Commissioner Sinkevičius on EU action on by-catch of dolphins and other marine animals". Available at: < Commissioner Sinkevičius on by-catch of dolphins >. Last access on 26.05.2022.

[335] ICES. "Bycatch of small cetaceans and other marine animals – review of national reports under Council Regulation (EC) No. 812/2004 and other information". 2016. p. 3. Available at:< Protected Species Bycatch >. Last access on 26.05.2022.

[336] European Commission. "EU nature restoration targets". Available at: <EU nature restoration targets>. Last access pm 27.05.2022. Also, see BDS 2030, *supra* note 15. Heading 3.1.

[337] *Ibid.*

[338] European Commission. *General Statistical Overview Accompanying the document Report from the Commission Monitoring the application of European Union law 2020 Annual Report*. 2021. SWD(2021)212 final. p. 21-24.

statistically continues to grow and corresponds to the larger share of infringement procedures[339] – showcasing that the actual method simply transforms these financial sanctions into freedom to exploit – as long as the fees are eventually paid at the end of the prolonged infringement procedure, of course.

4.3.1.2 The Marine Strategy Framework Directive

The BDS 2030's goal to achieve good environmental status of marine ecosystems is directly connected with the MSFD – a regulation implemented solely with the marine environment in mind, unlike the HD. This directive's goals are listed in Art. 1 – to achieve good environmental status by 2020 at the latest in the marine environment – with Art. 1(3) detailing the legal tools at disposal to do so. Moreover, its recital affirms that all measures and actions must pay homage to the ecosystem-approach and other environmental principles found in Art. 191 TFEU, in particular the precautionary principle.[340] In other words, the MSFD replicates the core ideas behind the CBD – from the ecosystem-approach to equity – albeit introducing the new concept of "good environmental status"[341].

The MSFD is a core piece of EU law since it is thought to expand the obligations found in the HD to designate Natura 2000 sites with the goal of meeting the conservation and sustainability objectives, thus, halting biodiversity loss in the marine ecosystem.[342] It introduces a sectoral approach to ocean management – better seen in Art. 4 – where it divides marine areas in regions or subregions – including the Baltic Sea. The MSFD further builds on its obligations by imposing two key duties: (i) the formulation of Marine Strategies – per Art. 5 – and (ii) the duty to cooperate – Art. 6. The latter duty is of particular relevance because it integrates regional sea conventions – such as HELCOM – into the MSFD, enabling the activities and work done under those instruments to be absorbed by an EU Directive, solidifying its overarching nature – an inherent trait of the ecosystem approach. In addition, to achieve a good environmental status, the MSFD, in Art. 8, established that MS would be the ones making assessments of their marine waters, but it also set forth characteristics and qualitative descriptors that should be taken into consideration by MS – as per Art. 9 and Annex I. After the assessments were

[339] *Ibid*.
[340] See MSFD, *supra* note 13. Recital 44.
[341] *Ibid*. Art. 3(5).
[342] Wakefield, J. "The Ecosystem Approach and the Common Fisheries Policy" in D. Langlet and R. Rayfuse (eds.), *The Ecosystem Approach in Ocean Planning and Governance*. Brill, 2019. p. 289.

concluded, the regulation instructed, via Art. 10, that environmental targets and associated indicators should be set to achieve – and maintain – good environmental status combined with the duty to implement coordinated monitoring programmes to assess the state of these obligations – as seen in Art. 11.

The critical flaw of the MSFD is that while it does introduce modern and overarching rules towards the sustainability of marine areas, it does not set how MS must achieve good environmental status, which are given considerable freedom in adopting their own form and method of doing so, especially since there is no one-size-fits-all definition of it.[343] Understandably, this lead to an incoherent implementation of the MSFD by MS in areas under national sovereignty, leading to similar results in the marine regions established by the Directive[344] – since, naturally, there are no barriers containing the effects of measures to one specific area of the ocean. Eventually, the EU introduced new common threshold values to circumvent this issue,[345] but that – regrettably – subverted the purpose of the MSFD by accepting the degradation of environmental standards[346], implying that the full recovery of ecosystem is not possible, alongside any attempts of assigning responsibility to those that gave cause to these degradations in the first place[347], not to mention neglecting to take into account the disparity between MS' maritime capacities.

However, it can be argued that the MSFD represents a cardinal change of paradigm since, from a regulatory standpoint, it shifts the spotlight from negotiating and establishing cause-and effect provisions – such as the ones mentioned above – to emphasizing the importance of gathering environmental data and acting on it through its duty to monitor the status of marine areas. Monitoring has the potential to properly identify and scale management measures in all policy areas and it can be the most efficient way to improve the status of oceans as it goes beyond simply presenting the current condition of the marine environment, but rather painting a truly holistic picture of the cumulative impacts derived from human activities that have the potential to cause changes in environmental status of those areas to begin with, surging as a powerful component to any policy-makers legal kit.[348]

---

[343] See Wakefield, J., *supra* note 342. p. 291.
[344] *Ibid*.
[345] Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU. 2017. OJ L 125.
[346] *Ibid*. Recital 13 and Article 4(1)
[347] See Wakefield, J., *supra* note 342.
[348] Nygård, H. *et al*. "Price vs. Value of Marine Monitoring". *Frontiers in Marine Science*. 3. 2016. Article 205. p. 6.

Yet, when it comes to fisheries management, the MSFD is ultimately all bark and no bite. The MSFD presents itself as a general framework for assessing good environmental status in marine areas rather than protecting marine biodiversity or regulating impactful activities. For example, its Descriptors 3, 5 and 6 – sustainability of commercial fish stocks, impacts of human-induced eutrophication and seabed integrity, respectively – could impose concrete limitations on bottom-trawling in the Baltic Sea by connecting the impacts it to the holistic idea of ecosystem health and function, but alas, it does not detail how those descriptors should be operationalized in a fisheries management context, failing to integrate broader environmental concerns inside a fisheries context[349] – or even a biodiversity conservation one – as they are only qualitative indicators. The duty to monitor it should be praised for is heavily dependent on comprehensive and coherent data-gathering by MS and political willingness to act upon it, which does not seem likely considering the concessions made in the discussion on the values behind good environmental status. Finally, the MSFD acknowledges that fisheries management falls under the competence of the CFP and not its own[350], highlighting the regulatory gaps of European law that is supposed to integrate the protection of the environment in all its policies[351], but does not.

4.3.1.3 The Common Fisheries Policy

The TFEU sets out common policies for the European Community and fisheries are included in Title III in conjunction with agriculture. The treaty does not differentiate between those two sectors – even though pointedly different in nature – and stipulates objectives for both that remained unchanged since 1957.[352] The EU's CFP underwent a myriad of formulations since first established in 1983 – eventually growing out of powers to deal with agriculture – but its standing version was updated in 2013 and it effectively linked fisheries policy in the EU with international standards in marine policy – *i.e.* UNCLOS and UNFSA – but also in biodiversity conservation – *i.e.* CBD.[353] It is here that the heart of the interwoven web of highly complex, technical and sectoral policies for marine living resources lies.

[349] See Wakefield, J., *supra* note 342. p. 293.
[350] See MSFD, *supra* note 13. Recital 39.
[351] See TFEU, *supra* note 278. Art. 11.
[352] See Wakefield, J., *supra* note 342. p. 294; Also, TFEU, *supra* note 278. Arts. 38-39.
[353] See CFP, supra note 12. Recitals 5 and 9, respectively.

To begin with, the CFP recognizes that these international agreements are primarily concerned with dishing out conservation obligations – most notably to maintain or restore the MSY of marine resources and to cooperate through the application of the precautionary approach and the obligation of due regard – and that its own purpose is to implement those measures inside its domains.[354] , as mentioned in Section 4.1, these international treaties are not seen as sources of Primary Law within the EU and, therefore, are hierarchically inferior to those that are besides being bound to the interpretation standards of EU law. This is because the TFEU – a primary source law – ascertained that the EU has exclusive competence, as per its Art. 3(1)(d), to adopt conservation measures whenever marine biological resources are concerned and that its MS have a right to exercise competence only in the extent that the EU has ceased to do it – as per the principle of conferral found in Art. 2(2) TFEU. This is confirmed by the CFP's Preamble itself when, *inter alias*, it subjected the interpretation of the precautionary principle to its formulation under Art. 191(2) of the TFEU and not on its international cousin.[355] So, just by reading the CFP's Preamble it is clear that the international agreements cited by it perform a ceremonial/aspirational role rather than justifying the legal grounds upon which the CFP's provisions will be based.

Secondly, its scope is defined in the Preamble as including "the conservation of marine biological resources and the management of fisheries targeting them"[356] and its main body adopts the precautionary and ecosystem-based approaches to fisheries[357], with Art. 3 setting good governance principles, such as the establishment of measures according to the best scientific advice. One of its main objectives is to contribute to the good environmental status of the marine ecosystem by, *inter alias*, adopting obligations laid by other EU instruments, such as the MSFD and HD – as long as the criteria of Art. 11 is met.[358] This signifies that there is a legal concern in regards to the integration and cohesion between a fisheries-specific instrument and other more general environmental regulations.[359] It was not up to chance that the BDS 2030 has named the CFP, MSFD and HD/BD as the key regulations for the restoration of good environmental status of marine ecosystems.[360] However, as mentioned before, this gives rise to

[354] *Ibid*. Recital 6.
[355] See CFP, *supra* note 12. Recital 10.
[356] *Ibid*. Recital 2.
[357] *Ibid*. Art. 2(2) and 2(3).
[358] *Ibid*. Recitals 11 and 25 as well as Art. 2(5)(j).
[359] Churchill, R. and Owen, D. "Fisheries management in Community waters" in R. Churchill and D. Owen (eds.), *The EC Common Fisheries Policy*. Oxford University Press, 2010. p. 289.
[360] See BDS 2030, *supra* note 15.

a number of conflicts between these instruments since there is a divergence of competences between the EU and its MS. For example, if the weight of the gears of bottom-trawls were limited by a MS in an attempt to reach good environmental status under the auspices of the MSFD's Art. 13 – *e.g.* disruption of biogeochemical processes that could ease eutrophication impacts –, it could be argued that this constitutes a measure that should be exclusively taken by the EU and not the MS as it could be interpreted as a measure regarding fisheries conservation/management.[361]

Thirdly, there is a disconnection behind the full meaning of "conservation" between these treaties. The CFP introduces an ecosystem-based approach to European fisheries, as defined by Arts. 2(3) and 4(1)(9) of the Basic Regulation. At the heart of this approach lies old regulatory friends such as TAC and MSY, but also novels concepts such multiannual plans, a discard ban and a degree of regionalization.[362]Yet, the CFP's interpretation of ecosystem seems rather restrictive than its environmental counterpart found in the MSFD despite mentions to other components of the marine ecosystem besides the biotic one. This is because the CFP is chiefly concerned with restoring and maintaining living marine biological resources at MSY and the "ecosystems" it is concerned with are those that these marine resources depend upon – as can be implied from Art. 8 of the Basic Regulation for example. Sure enough, it is possible to interpret that Art. 11 of the Basic Regulation opens a gap to allow broader environmental concerns that can be impactful to fisheries to be applicable in a fisheries-specific legislation, adding another protective layer to the marine ecosystem that goes beyond "living marine biological resources" and "harvested species". But it can also be ascertained from its wordings that the conservation measures to be adopted under those environmental regulations must be compatible with Art. 2 of the Basic Regulation and must not affect fishing vessels of another MS, concretely subjecting those borrowed concepts to the CFP's own ideals of ecosystem protection – that, again, sees it as protecting the broader environmental conditions that commercially-exploited species require to achieve MSY. This restrictive idea of ecosystem is explicitly seen in, *inter alias*, Art. 50 of the Basic Regulation where it imposes a duty on the European Commission to report annually on the progress of achieving MSY and on the situation of fish stocks.

---

[361] An analogous line of reasoning was used by the CJEU in the Mondiet case. See CJEU. *Case C-405/92, Etablissements Armand Mondiet SA v. Armement Islais SARL*. 1993. Judgement. ECR I-06133. para. 24.

[362] Kirkpatrick, A. "Examining the impact of institutions on common pool resource problems: the EU's Common Fisheries Policy". *Journal of European Integration*. 42(2). 2020. p. 249-250. Also, See CFP, *supra* note 12. Arts. 2(2), 2(5)(a) and (b), 4(1)(10) and (15), 4(2)(a)-(f), 9, 10 and 15.

Although the CFP black-letters the ecosystem-based approach to fisheries inside the EU, effective implementation has been impaired by the difficulties of operationalizing it by stakeholders and authorities.[363] For example, the TAC system the CFP uses has seen annual increments for decades and no matter which technique is used to set it – in the multitude of different forms of national implementation by MS – it does not diminishes overfishing, which is presumed to be worse than what the official EU records show.[364] The discard ban also further compromised the already questionable efficacy of the quota system, serving as an incentive not to land catches as required by the CFP as well as being ammunition for those clamouring for larger TACs as there is a need to consider the unwanted catches that in theory are supposed to be landed but effectively are not .[365] In addition, the quota system relies on MSY to assess the status of harvested species, yet the very concept of MSY is inadequate to fulfil both the duty to conserve fisheries resources and the one to minimize broader ecological impacts fisheries have, owing it to the difficulty of accurately determining sustainable levels of exploitation and the never-ending debate on the true nature of sustainability itself.[366]

In face of uncertainty, it falls to the precautionary principle the role of balancing overlapping and conflicting interests in EU law owing it to the fact that (i) fisheries occupy a legally grey area between the exploitation of natural resources and biodiversity conservation, (ii) critical fisheries-related standards – *e.g.* MSY – are difficult to be accurately determined and (iii) there is scientific uncertainty surrounding the debate of what constitutes and how to measure sustainability.[367] However, there are also significant differences between sectoral interpretations of "precaution" inside EU law. The wording contained in the CFP refers to a precautionary approach in lieu of a precautionary principle – used in the MSFD and the TFEU for example – that brings about a discussion on existing differences between these two concepts[368] – a phenomenon explained by the uncertainty surrounding the legal status of precaution[369]. To further complicate matters, the CFP's Preamble explicitly mentions that the precautionary approach found within its main body is derived from the precautionary principle

---

[363] Ramírez-Monsalve, P. *et al.* "Pulling mechanisms and pushing strategies: How to improve Ecosystem Approach Fisheries Management advice within the European Union's Common Fisheries Policy". *Fisheries Research*. 233. 2021. Article 105751. p. 1-2.

[364] See Kirkpatrick, A., *supra* note 362.

[365] Borges, L. "The unintended impact of the European discard ban". *ICES Journal of Marine Science*. 78(1). 2021. p. 140.

[366] Proelss, A. and Houghton, K. "The EU Common Fisheries Policy in light of the precautionary principle". *Ocean & Coastal Management*. 70. 2012. p. 23.

[367] *Ibid*.

[368] For more on this topic, see the *supra* noted article by Proelss, A. and Houghton, K.

[369] See Section 3.2.2.

used in Art. 191(2) TFEU[370] – both substantiating claims that they are not the same as well as those that differ. If we adopt the viewpoint that they are indeed the same, then another conflict ensues as Art. 191(2) TFEU dictates that the precautionary principle is applicable to environmental policy, which, as already explained, differs from conserving marine fisheries resources, lending credence to the argument that these two concepts are not equal. Moreover, in Art. 4(1)(8) the Basic Regulation clearly states that the precautionary approach is defined as referred in Art. 6 of the UNFSA, which does not use the term "principle". Yet, Article 11 TFEU puts a spanner in the works by determining that environmental protection requirements – such as Art. 191(2)'s precautionary principle – must be integrated in the definition and implementation of the Union's policies which includes the CFP. When it comes to precaution in EU fisheries law, its beauty truly lies in the eyes of its beholder and the BDS 2030 offers no solutions to this conundrum as it does not mention how it will aim to integrate the different interpretations of precaution.

The uncertainty regarding the status – and consequent strictness – of precaution in a fisheries context inevitably overflows into how scientific data is used in EU law. Neither the CFP – Art. 6(2) Basic Regulation – nor the TFEU – Art. 191(3) – determine that the best scientific advice must be the sole basis behind conservation measures nor that it should be prioritized in detriment of other considerations. There is not even a definition of what is the best scientific advice, it may be that the relevant scientific and advisory bodies mentioned in Art. 6(2) are not employing the best science available in any given matter or even that science itself is inconclusive/uncertain.[371] In other words, while science might indicate that other fishing methods might be more environmental friendly than the ones known to be damaging, if its benefits are uncertain then it does not warrant the use of the precautionary principle/approach to force lawmakers to adopt it.[372] The CJEU ruled on this matter by affirming that policymakers are entrusted with the final say on how conflicting interests are balanced in regulations and there is no breach of Art. 11 TFEU – nor Art. 2(2) Basic Regulation – by not prioritizing scientific data over other concerns since there is no obligation to do so, barring any assessment errors upon which it would be passive of judicial review.[373] In other words, this is a duty of

[370] See CFP, *supra* note 354.
[371] Penca, J. "Science, precaution and innovation for sustainable fisheries: The judgement by the Court of Justice of the EU regarding the electric pulse fishing ban". *Marine Policy*. 135. 2022. Article 104864. p. 2-4. Also, CJEU. "*C-733/19 - Netherlands v. Council and Parliament*". 2021. Judgement. Not yet published. ECLI:EU:C:2021:272. paras. 49, 52-54, 59-61 and 71-74.
[372] *Ibid.*
[373] See CJEU, *supra* note 371.

conduct and not result. To put it bluntly, if the EU legislature can demonstrate that it considered the best available science but found it lacking against more pressing – usually socio-economic – concerns, then it explains the reason why precaution has not been invoked against bottom-trawling under the confines of the CFP despite scientific data confirming the damaging nature of the practice for decades. This practice seems to be reiterated in the BDS 2030 by affirming that more selective and less damaging fishing techniques should be adopted and remarkably noting that bottom-trawling should be reconciled with biodiversity goals, yet it also mentions that it must be done in a fair and just way for all[374], which, again, implies that policymakers will continue to have a wide-margin of discretion on the matter.

Nonetheless, admitting that the CFP has several controversial points that must be discussed and addressed to effectively protect the marine environment, it is not the overall aim of this thesis to debate which/how fisheries standards must be adopted/implemented inside the EU. Instead, the goal is to argue that the legal foundation supporting the current management of common-pool resources – and thus of fisheries in general – is flawed and influences any and all debates that stems from it. The management of said resources has been built on the premise of access restriction but the CFP is built upon a community-based stance on the maritime areas under its jurisdiction.[375] This results in all its waters and its resources being treated as a common good, meaning that equal access and fishing opportunities is granted to European nationals[376], embodying the true ideal of *res communes*. Therefore, it serves as a stark contrast not only to the artificial maritime limits set in the international stage that are the consequence of socio-economic interests rather than ecological differences between marine areas, but also to the idea that the crux of the problem of common-pool resources lies in the access rather than adequate conservation/management. The argument that is often made is that there is no way to properly control how common-pool resources are exploited since all individuals – *i.e.* States – have an inherent right to use it, however, the CFP is the living proof that it can be done. By ceding sovereignty to a supranational body with *sui generis* powers, the EU's MS have entrusted the control of said resources to a central authority with decision-making powers without privatizing them, ensuring that the CFP's overarching framework is applicable in all areas, promoting – in theory – a much more cohesive and coherent implementation of conservation/management

[374] See BDS 2030, *supra* note 307.
[375] See CFP, *supra* note 12. Arts. 4(1)(1) and 5.
[376] *Ibid*. Also, Barnes, R. *et al*. "Introduction: External Aspects of the European Union Common Fisheries Policy". *The International Journal of Marine and Coastal Law*. 35(1). 2020. p. 5-6.

measures than its international counterpart that must juggle different regimes, rights, and legal interpretations.

To be fair, this community-based regime applies only to the EU's MS, so, the right of equal access also has an access-restrictive dimension to third parties that is – partially – consistent with the tried and tested perspective on the management of common-pool resources. However, even this form of access restriction is not similar to its international counterpart since there is a central divergence between them: the ceding of sovereignty to the EU's legislative. What this means is that although access is restricted to third parties, instead of each MS negotiating bilateral agreements on its own, it falls to the EU to do it instead.[377] What this means is that any third party looking for fishing opportunities inside EU waters must abide by the CFP's provisions – as they are equally applicable inside the entirety of the European waters – and, most importantly, using the same legal interpretation to the CFP's standards as the EU does, strengthening, again, a harmonized approach to fisheries management that was only possible because of the foundation laid by a *res communes*-inspired legislation. Moreover, the CFP does not completely abandons the principle of sovereignty since it envisions the possibility to derogate from the right of equal access under certain conditions[378], which also suggest that it is feasible to adopt a community-based approach to fisheries management without completely abandoning national sovereignty – a veritable carrot on a stick for States more inclined to treat marine living resources as natural resources instead of seeing them under the broader banner of the environment.

Confessedly, the CFP's community-based foundation is no bed of roses. One of the drawbacks of putting forward a legal framework that is equally applicable to all European waters is that they are treated as a whole whereas, in truth, each maritime ecosystem has its own set of ecological indicators. The Baltic Sea will not feature the same biogeochemical conditions, nor will it necessarily be under duress by the same stressors, as, for example, the Mediterranean Sea. The international legal framework created by the UNCLOS and complemented by the UNFSA has operationalized the principle of cooperation to address this issue via the RFMOs, essentially regionalizing fishing to increased interaction between States

---

[377] *Ibid*. p. 7.

[378] See CFP, *supra* note 12. Art 5(2)-(4). Note that the European Commission has submitted a proposal to extend the rule found in Art. 5(4) for another 10 years. On the matter, see: COM(2021) 356 final. "Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013, as regards restrictions to the access to Union waters".

and making it easier for common ground to be found, as complying with measures that States can get behind of is better for the marine ecosystem that creating a comprehensive legal framework that is largely ignored.[379] The CFP already flirts with the idea of regionalization, , most notably through the division of European waters into several geographical areas, and also by ensuring that different scientific bodies provide expert advice on these regional seas – *e.g.* ICES for the Baltic Sea.[380] But, the legal basis for fisheries decision-making is still entrenched in the CFP, that, as a framework legislation, does not tailor its principles and standards to every sea basins it regulates. What this means is that, for example, the legal standard for precaution might be different in the Baltic Sea than other areas due to its intrinsic factors that simply cannot be all taken into consideration by the CFP. Thus, in a sense, the CFP performs a role that is similar to the UNCLOS: it acts as a constitution for the – European – oceans but suffers from the same operationalization setback since it cannot hope to micromanage vastly different areas.

Regionalizing fisheries demands that the centralized control that the European legislative has on fisheries must be loosened as to bring decision-making closer to where actual fishing takes place. There is a lot of merit behind the argument that regionalization means changing the legislative basis of the CFP to distribute – at least a fraction – of the decision-making powers to stakeholders operating in the different European basins in hopes of quickening the legislative process and promote more flexible rules.[381] However, this centralization is a critical part of a community-based approach because it allows for the multitude of interests to be converged in a single forum, much like part the UNGA has been playing in regards to bottom-trawling in the ABNJ. This form of regionalization would imply a severe reform of the legislative basis of the CFP which would certainly hamper any immediate efforts to produce the conservation measures that marine biodiversity so desperately requires in a subject as highly politicized as fisheries.[382] The legal-political structure to answer this dilemma already exists inside European law in the form of (i) Regional Sea Conventions – such as the Helsinki Convention – that deal with multilateral environmental action in a given marine ecosystem and already function as

---

[379] Li, S. "Incorporation of Fisheries Policy into Regional Blocs? - Lessons from the EU's Common Fisheries Policy". *Fishes*. 7(3). 2022. Article 102. p. 1 and 10.

[380] See Ramírez-Monsalve, P. *et al*., *supra* note 363. p. 2-3. Also, see CFP, *supra* note 12. Arts. 4(2)(a)-(f) and 18.

[381] Penas Lado, E. *The common fisheries policy: the quest for sustainability*. John Wiley & Sons, Incorporated, 2016. p. 401.

[382] Fisheries is one of the smaller sectors of the European economy in terms of financial value and employment. However, it is one of the sectors that are most politically charged and subsidized due to its historical and cultural importance. On this matter, please refer to Kirkpatrick, A., *supra* note 362.

advisory bodies to European policymakers[383] in addition to (ii) the permission granted to EU MS to formalize joint recommendations for regional seas under Art. 18 of the Basic Regulation. An adequate integration of these regional instruments inside the EU policymaking process can indeed regionalize fisheries management inside the EU while requiring less expenditure of political capital – as there would be no need to reformulate the CFP nor it would require the central European legislator to micromanage different maritime regions. This will be seen in a Baltic context.

4.3.1.4 Fisheries management in the Baltic Sea

The adoption of an ecosystem-based approach to fisheries by the CFP marks a break from the historical geo-political boundaries to integrated regional management that within the European legal framework takes the shape of regional cooperation.[384] The Baltic Sea is one of the geographical regions expressly mentioned by Art. 4(2)(b) of the Basic Regulation as well as one of the maritime regions governed by EU law as per Art. 4(1)(a) MSFD. But, it was not the EU that introduced this concept in the region as the Baltic Sea boasts a longstanding tradition of international regional cooperation that dates to the Hanseatic League in the Middle Ages.[385] Combined with the fact that the Baltic is not under the complete jurisdiction of the EU, it is possible to affirm that regional cooperation has two dimensions in relation to EU law: (i) internal and (ii) external.

Nowadays, there are more than 600 organizations dedicated to promoting cooperation in the area, each with its own policy scope and institutional depth.[386] While the international commitments made by the EU can be applicable to the Baltic – *e.g.* agreements on ship pollution – , the most relevant effort in external regional cooperation has been the adoption of the Helsinki Convention – with HELCOM acting as its governing body – that in 1992 not only was signed by all Baltic states and the EU, but gained its current bold scope to prevent and eliminate pollution for the ecological restoration and preservation of the ecological balance of

[383] See Ramírez-Monsalve, P. *et al.*, *supra* note 380.
[384] Hegland, T. J., Raakjær, J. and van Tatenhove, J. "Implementing ecosystem-based marine management as a process of regionalisation: Some lessons from the Baltic Sea". *Ocean & Coastal Management*. 117. 2015. p. 14.
[385] Gänzle, S. "'Experimental Union' and Baltic Sea cooperation: the case of the European Union's Strategy for the Baltic Sea Region (EUSBSR)". *Regional Studies, Regional Science*. 5(1). 2018. p. 343.
[386] *Ibid*. p. 339-340.

the Baltic environment.[387] The Helsinki Convention in Art. 15 sets out a comprehensive duty to protect the marine environment in its entirety and declaring that these conservation measures shall be taken to ensure the sustainability of the exploitation of natural resources in the area – although it pointedly does not define what are natural resources.

HELCOM's main framework for action is the Baltic Sea Action Plan (BSAP)[388], adopted in 2007 and aimed at achieving good environmental status in the Baltic waters by 2021 through the ecosystem approach[389] – marking an expansion of the Helsinki Convention's initial scope of regulation solely sectoral pollution. The BSAP has four major goals that addressed issues of common concern in the region – including eutrophication and biodiversity – and lays out ecological objectives that correspond to marine characteristics that define good ecological status, including restoring and maintaining seabed integrity to safeguard ecosystem functions.[390] The BSAP also divides the Baltic itself in various sub-basins and establishes quantitative targets and indicators for all of them[391], reinforcing the idea that regionalization does not mean treating the Baltic Sea as a single entity – as the CFP and MSFD do – and that even in a semi-enclosed sea such as the Baltic there are critical ecological differences depending on the area assessed, not to say on the Ocean proper. The fundamental flaw of HELCOM's BSAP is that it issues non-binding recommendations that result in the unavailability of the necessary legal tools to promote compliance and discourage violations – *e.g.* administrative and penal sanctions.[392] The BSAP was updated in 2021[393] after its goals were not reached at the end of 2021 and it was acknowledged that the conservation of the Baltic marine biodiversity was still unfavorability assessed and widespread as a result from human activity, with extinction, loss of habitats and – greater – deterioration of the food web being increasing risks.[394] It is also important to note that the updated BSAP connects bottom-trawling to broader environmental concerns by affirming that the physical disturbances it causes to the seabed alongside with its

---

[387] See Helsinki Convention, *supra* note 33. Arts. 3(1) and 19.
[388] HELCOM. "HELCOM Baltic Sea Action Plan". Adopted on 15 November 2007. Available at: <HELCOM - BSAP 2007>. Last access on 10.06.2022. (BSAP).
[389] *Ibid*. Recitals 5-9.
[390] Pyhälä, M. "HELCOM Baltic Sea Action Plan: An Ecosystem Approach to the Management of Human Activities" in K. Brander, B. MacKenzie, and A. Omstedt (eds.), *Climate Impacts on the Baltic Sea: From Science to Policy*. Springer, 2012. p. 51. Also, HELCOM, supra note 388. p. 18-21.
[391] Baltic Sea Centre – Stockholm University. "Fact Sheet - Understanding how eutrophication is quantified in the HELCOM BSAP". 2022. p. 1. Available at: < Fact Sheet - BASP >. Last access on 10.06.2022.
[392] Ringbom, H. and Marko, J. "Introduction: Multi-level regulation in the Baltic Sea region". *Marine Policy*. 98. 2018. p. 187.
[393] HELCOM. "HELCOM Baltic Sea Action Plan – 2021 Update". Adopted on 20 October 2021. Available at: <HELCOM - BSAP 2021 Update>. Last access on 10.06.2022. (BSAP 2021).
[394] *Ibid*. Recital 6-8.

interference with the food web, by-catch problems and various alterations caused in fish and other marine organisms populations.[395]

For as interesting as the BSAP could be for fisheries management in the Baltic, fact is that it does not have a fisheries mandate, performing a role similar to the EU's MSFD as a broad environmental instrument. This is why that despite mentioning that biodiversity is a holistic controlling element for the whole BSAP, as well as noting that good environmental status cannot be reached without broad consideration of human activities,[396] it distinguishes between measures that can be implemented nationally/regionally/globally and those that can be only done at EU level, as is the case of regulating fishing in areas under the EU's MS jurisdiction that inevitably falls under the competence of the EU and its CFP[397], not to mention the limitation of HELCOM's power to issue non-binding recommendations only. This is not only the consequence of the entanglement of the many complex legal-political initiatives for the region, but a continuation of the division between environmental protection and fisheries management in the Baltic Sea, whereas the latter was previously managed by the 1973 International Baltic Sea Fishery Commission – before most of the surrounding states joined the EU and it lost influence, eventually ceasing to exist.[398]

If not for their limited mandates, the Helsinki Convention and HELCOM's BSAP could perhaps be the ideal platform for a more consistent application of the ecosystem-approach to fisheries as they have a better-suited geographical scope rather than a sectoral one, they count with the participation of all Baltic states and, most importantly, the former has a very ambitious – and legally binding – interpretation of the precautionary principle[399], which could raise the standard of protection for the marine environment even when faced by scientific uncertainty as is the case with bottom-trawling. Yet, due to the fact that the EU's CFP is applicable to the majority of the Baltic – and the importance fishing has for the EU, if not financial then political – there is no incentive for the EU legislative to cede its seat of power to an international authority – such as a RFMO – this is why the EU preferred to negotiate a bilateral fisheries agreement with the Russian Federation[400], raising serious questions of what type of concessions

---

[395] *Ibid*. p. 39.
[396] See HELCOM, *supra* note 388. p. 19-21.
[397] See Pyhälä, M, *supra* note 390. p. 55.
[398] Aps, R. and Lassen, H. "Recovery of depleted Baltic Sea fish stocks: a review". *ICES Journal of Marine Science*. 67(9). 2010. p. 1856.
[399] See Enright, S.R. and Boteler, B., *supra* note 207. p. 344. Also, Helsinki Convention, *supra* note 33. Arts. 3(2).
[400] Agreement between the European Community and the Government of the Russian Federation on cooperation in fisheries and the conservation of the living marine resources in the Baltic Sea. 2009. OJ L 129.

had to be made to bring about this agreement into being. As relevant as a profound analysis on this topic would be, the overall lack of policy integration between these two entities is already visible and it can be represented by the absence of data on bottom-trawling conducted in the Russian Baltic[401], inducing seemingly holistic decisions to be made without actually having the complete picture painted. This is further compounded by the ongoing Russo-Ukrainian War that led to the suspension of HELCOM's meetings[402], impacting regional cooperation in all possible spheres.

Internally, the first EU-centric step towards regionalization took the form of the European Union Strategy for the Baltic Sea Region[403], a – mainly – broad framework for institutionalizing decision-making procedures, administrative roles, and behavioural expectations between authorities at different territorial levels of government in relation to the social, economic, and environmental challenges found in the Baltic.[404] After the latest CFP update in 2013 – creating the obligation found in Art. 18 of the Basic Regulation – BaltFish[405] was born via a non-binding instrument that sets out the principles and working methods to be applied in the coordination and cooperation of fisheries management between key stakeholders in the Baltic.[406] Whilst it is true that the Baltic Sea already had an Advisory Council that – at heart – has a very similar function and composition – as per Arts. 44-45 of the Basic Regulation –, BaltFish is structured and operates in a way that brings relevant discussions closer to the decision-makers.[407] More than that, BaltFish allows the EU's MS to have a say in fisheries matters, which would not be possible under the TFEU/Basic Regulation due to the competence conflict it would generate. It also invites other stakeholders – such as HELCOM and ICES[408] – to participate in the decision-making process, thus serving as a platform where the EU's internal and external fisheries interests can be discussed, allowing for broad environmental considerations to be contextualized inside fisheries management processes.

---

[401] ICES. "EU request on how management scenarios to reduce mobile bottom fishing disturbance on seafloor habitats affect fisheries landing and value". ICES Special Request Advice: EU ecoregions. 2021. p. 12. Available at: <ICES - Special Request Advice>. Last access on 10.06.2022.

[402] HELCOM. (29 March 2022). "HELCOM meetings remain suspended through 30 June 2022". Available at: < HELCOM meetings remain suspended through 30 June 2022 – HELCOM>. Last access on 10.06.2022.

[403] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the European Union Strategy for the Baltic Sea Region {SEC(2009) 702} {SEC(2009) 703} {SEC(2009) 712}.

[404] See Gänzle, S., *supra* note 385. p. 344.

[405] See BaltFish, *supra* note 34.

[406] *Ibid*. Arts. 1(1)-(6).

[407] Eliasen, S., Hegland, T and Raakjær, J. "Decentralising: The implementation of regionalisation and co-management under the post-2013 Common Fisheries Policy". *Marine Policy*. 62. 2015. p. 227.

[408] See BaltFish, *supra* note 405. Art. 2.

Alas, unlike Advisory Councils, BaltFish does not have the power to adopt delegated acts which is its biggest hindrance along with its non-binding nature. Whilst the UNGA has proven that non-binding provisions can have power on their own and that the importance of establishing a forum where a holistic debate can be conducted cannot be understated, BaltFish, as it stands, appears to be nothing more than another cog in the already complex regional governance mechanism of the Baltic, creating yet another bureaucratic layer of regulatory advice that does nothing to separate itself from the command-control approach that has been basis of EU fisheries management.[409] To unlock BaltFish's potential, the EU has three distinct possibilities, with different levels of viability. The first is for the EU to create a legal fiction and interpret the recommendations made by regional institutions as mandatory thus moving decision-making further down the regulatory chain[410] while also retaining the power to refuse any recommendations. In this way, it would still retain exclusive competence over fisheries resources as demanded by the TFEU but allowing it to reap the benefits of the integrated fisheries management provided by BaltFish without needing to reform its legal structure. The second option is much the same as the previous, but now without the right to veto recommendations. The problem with this approach is that the validity of the legal fiction would be tenuous as it can be interpreted as conflicting with the EU's exclusive competence under the TFEU, possibly requiring the reformulation of that treaty which does not make this a viable option since it would be easier to simply adopt the third possibility. Finally, the third possibility is to reform the TFEU to include the management of fisheries resources under shared competence, solving any questions raised over the capabilities of BaltFish to regulate fisheries. Regardless, the mantelpiece of regionalization – and the entirety of fisheries regulation really – can be found on the political commitments that relevant actors are willing to make[411] and this rises above solely legal considerations.

[409] See Eliasen, S., Hegland, T and Raakjær, J., supra note 420. p. 230-231.
[410] *Ibid*.
[411] *Ibid*.

5 Conclusion

The protection of biodiversity and the management of common-pool resources are very much like two sides of a coin: they represent different perspectives but are intrinsically connected. Biodiversity is one of the grander cogs inside the environmental machinery that sustains life on Earth. If this cog breaks, then the rest crumbles. On the other hand, mankind has been interacting with its surroundings since the dawn of times and fisheries exists just as long. Inevitably, fisheries presuppose the taking of marine life which, by consequence, implies chipping away at biodiversity.

There are many components inside biodiversity that must come together to spin itself. Assessing biodiversity does not equal assessing the status of living resources, but rather adopting a holistic view of the necessary conditions for nature to thrive. Bottom trawling has a broad and cumulative array of effects that can directly and indirectly hamper the marine environment. As with all fishing practices, it directly affects biodiversity by catching targeted species, yet, it is so effective in trapping species inside its gears that it also known for being particularly unselective with what it catches and for returning undesired species to the ocean, most commonly in fatal conditions. Bottom trawling goes further beyond directly impacting marine living organisms as it presupposes that its weighted gear will interact with the seabed and drag everything in its path. This negative interaction with the seabed gives rises to a multitude of environmental challenges that directly impact marine biodiversity, as is the case of habitat loss, but can also be responsible for the disturbance of biogeochemical processes, an indirect effect that cumulates with the other effects and, together, brings havoc to the marine environment.

Bottom trawling and its effects are inherently collective. This is linked to the nature of fisheries resources as common-pool resources, known to be accessible to all and liable to trigger a tragedy if overused. However, its collective nature also comes from the fact that the effects it causes cannot be self-contained, be it either by their very nature or the sheer scale of trawling operations worldwide. Environmental law is the tool mankind uses to ensure the integrity of the complex system of interactions that support life, and it has traditionally relied on legal concepts borrowed from other fields of law – such as property rights – to provide an answer to collective action problems. The international legal framework that currently exists is built upon the central idea of sovereignty, exemplified by the UNCLOS' zonal approach and overarching framework. However, this artificial division does not reflect the nature of water – and its

resources – as *res communes omnium*, which is contradictory to sovereignty as it implies common management – and consequently the cession of power. With the passage of time, the dominant grasp of lawmakers to the principle of sovereignty has been weakened with the advent of more environmentally minded legislation that brough with them a more comprehensive and integrative framework for action. And yet, the biodiversity loss remains rampant.

Perhaps a change of legal perspective might be necessary to look at the issue in a new light and the EU provides the perfect opportunity for it as its legal system is based on the cession of sovereignty to a central authority and equal access to all waters, a striking contrast to its international counterpart. The EU has been adopting increasingly ambitious biodiversity-specific policies in the last decades in hopes of halting biodiversity loss and ensuring the sustainability of its interactions with nature. It serves a very important purpose of highlighting the topics which policymakers considers relevant for biodiversity protection and, for the first time ever, the destructive nature of bottom trawling is mentioned. But none of them have ever reached their goals and the same is expected of the BDS 2030.

This can be explained by the way in which law-making process is conducted in the EU. By dividing the competences to regulate on biodiversity protection and the management of fisheries resources results in are fragmented and sectoral policies that still manages to overlap due to the inherent dichotomy between biodiversity and common-pool resources. There are many environmental instruments inside EU law that could help enhance the legal protection afforded to marine biodiversity – and to a certain extent they do – but that cannot be fully applied in this manner because the sectoral policy for fisheries management is the one chiefly entrusted to do it. Worst still is that it does so in a manner that is not always – at best – consistent with its environmental cousins. The HD, MSFD and CFP each paint a little piece of the picture that, if properly integrated, could produce a masterpiece and it can be said that the European policymaker has seen an opportunity for it in the Baltic Sea.

The Baltic Sea presents a unique possibility to integrate international environmental law and European environmental law inside a fisheries management context without needing to subvert the current legal order. The creation of BaltFish represents a shy attempt to do so as it brings decision-making power closer to where fishing is conducted. Also, the singular array of ecological, political, and legal characteristics found in the area make it the perfect testing ground to assess how regionalization fares against the tried and tested structure of centralized power. Yet, if the recommendations made by BaltFish are not given legal weight, then it risks being simply another bureaucratic regulatory attempt in world that is tired of them.

6 References

6.1 Literature

Althaus, F., Williams, A., Schlacher, T.A. *et al*. “Impacts of bottom trawling on deep-coral ecosystems of seamounts are long-lasting”. Marine Ecology Progress Series. 397. 2009. p. 279-294.

Amman, O. “The Interpretative Methods of International Law: What Are They, and Why Use Them?” in *Domestic Courts and the Interpretation of International Law*. Brill, 2019.

Appleby, T. and Harrison, J. “Taking the Pulse of Environmental and Fisheries Law: The Common Fisheries Policy, the Habitats Directive, and Brexit”. *Journal of Environmental Law*. 31(3). 2019. p. 443-464.

Aps, R. and Lassen, H. “Recovery of depleted Baltic Sea fish stocks: a review”. *ICES Journal of Marine Science*. 67(9). 2010. p. 1856-1860.

Baker, S. “The dynamics of European Union biodiversity policy: interactive, functional and institutional logics”. *Environmental Politics*. 12(3). 2003. p. 23-41.

Balton, D. A. and Zbicz, D. C. “Managing Deep-Sea Fisheries: Some Threshold Questions”. *International Journal of Marine and Coastal Law*. 19(3). 2004. p. 247-258.

Barkin, J. S. and Rashchupkina, Y. “Public Goods, Common Pool Resources, and International Law”. *American Journal of International Law*. 11(2). 2017. p. 376-394.

Barnes, R. “The Convention on the Law of the Sea: An Effective Framework for Domestic Fisheries Conservation?” in D. Freestone, R. Barnes and D. Ong (eds.), *The Law of the Sea: Progress and Prospects*. Oxford University Press, 2006. p. 233-260.

Barnes, R., Harrison, J., van der Marel, E. *et al*. "Introduction: External Aspects of the European Union Common Fisheries Policy". *The International Journal of Marine and Coastal Law*. 35(1). 2020. p. 5-17.

Barral, V. “Sustainable development and equity in biodiversity conservation” in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law*. Volume III. Edward Elgar, 2017. p. 58-69.

Barral, V. “Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm”. *The European Journal of International Law*. 23(2). 2012. p. 377-400.

Blanchard, C. “Fragmentation in high seas fisheries: Preliminary reflections on a global oceans governance approach”. *Marine Policy*. 84. 2017. p. 327-332.

Bodansky, D., Brunnée, J. and Rajamani, L. “Paris Agreement” in D. Bodansky, J. Brunnée and L. Rajamani (eds.), *International Climate Change Law*. Oxford University Press, 2017. p. 209-250.

Borg, S. *Conservation on the High Seas: Harmonizing International Regimes for the Sustainable Use of Marine Resources*. Edward Elgar, 2012.

Borges, L. "The unintended impact of the European discard ban". *ICES Journal of Marine Science*. 78(1). 2021. p. 134-141.

Bourguignon, S.N., Bastos, A.C., Quaresma, V.S. *et al*. "Seabed Morphology and Sedimentary Regimes defining Fishing Grounds along the Eastern Brazilian Shelf". *Geosciences*. 8(3). 2018. Article 91. p. 1-17.

Boyle, A. "Further Development of the Law of the Sea Convention: Mechanisms for Change". *The International and Comparative Law Quarterly*. 54(3). 2005. p. 563-584.

Braathen, A. and Brekke, H. "Characterizing the Seabed: a Geoscience Perspective" in Catherine Banet (ed.), *The Law of the Seabed*. Brill, 2020. p. 21-35.

Bradshaw, C., Jakobsson, M., Brüchert, V. *et al*. "Physical Disturbance by Bottom Trawling Suspends Particulate Matter and Alters Biogeochemical Processes on and Near the Seafloor". *Frontiers in Marine Science*. 8. 2021. Article 683331. p. 1-20.

Brooks, C.M., Weller, J.B., Gjerde, K. *et al*. "Challenging the "Right to Fish" in a Fast-Changing Ocean". *Stanford Environmental Law Journal*. 33(3). 2014. p. 289-324,

Caddell, R. "Deep-Sea Bottom Fisheries and the Protection of Seabed Ecosystems: Problems, Progress and Prospects" in Catherine Banet (ed.), *The Law of the Seabed*. Brill 2020, p. 255-284.

Caddell, R. "International Fisheries Law and Interactions with Global Regimes and Processes" in R. Caddell and E.J. Molenaar (eds.), *Strengthening International Fisheries Law in an Era of Changing Oceans*. Hart Publishing, 2019. p. 133-164.

Caddell, R. "Precautionary Management and the Development of Future Fishing Opportunities: The International Regulation of New and Exploratory Fisheries". *The International Journal of Marine and Coastal Law*. 33. 2018. p. 199-260.

Cassota, S. "The Development of Environmental Law within a Changing Environmental Governance Context: Towards a New Paradigm Shift in the Anthropocene Era". *Yearbook of International Environmental Law*. 30(1). 2019. p. 54–67.

Cavalcanti, C., Schläpfer, F. and Schmid, B. "Public participation and willingness to cooperate in common-pool resource management: A field experiment with fishing communities in Brazil". *Ecological Economics*. 69(3). 2010. p. 613-622.

Choe, H., and Yun, S. "Revisiting the concept of common pool resources: Beyond Ostrom". *Development and Society*. 46(1). 2017. p. 113-129.

Claes, M. "The Primacy of EU Law in European and National Law" in D. Chalmers and A. Arnull (eds.), *The Oxford Handbook of European Union Law*. Oxford University Press, 2015. p. 178-211.

Clark, M.R., Althaus, F., Schlacher, T.A. *et al.* "The Impacts of Deep-Sea Fisheries on Benthic Communities: A Review". *ICES Journal of Marine Science*. 73(Supplement 1). p. i51–i69.

Costa, M.E., Erzini, K. and Cerveira Borges, T. "Bycatch of crustacean and fish bottom trawl fisheries from southern Portugal (Algarve)". *Scientia Marina*. 72(4). 2008. p. 801-814.

Christiernsson, A., Michanek, G. and Nilsson, P. "Marine Natura 2000 and Fishery – The Case of Sweden". *Journal for European Environmental & Planning Law*. 12(1). 2015. p. 22-49.

Christiernsson, A. "Is the Swedish Brown Bear Management in Compliance with EU Biodiversity Law?". *Journal for European Environmental & Planning Law*. 16. 2019. p. 237-261.

Churchill, R. and Owen, D. "Fisheries management in Community waters" in R. Churchill and D. Owen (eds.), *The EC Common Fisheries Policy*. Oxford University Press, 2010. p. 129-299.

Daly, E. and White M. "Bottom trawling noise: Are fishing vessels polluting to deeper acoustic habitats?". *Marine Pollution Bulletin*. 162. 2021. Article 111877. p. 1-13.

Davies, R.W.D, Cripps, S.J., Nickson, A. *et al*. "Defining and estimating global marine fisheries bycatch". *Marine Policy*. 33(4). 2009. p. 661-672.

De Borger, E., Tiano, J., Braeckman, U. *et al*. "Impact of bottom trawling on sediment biogeochemistry: a modelling approach". *Biogeosciences*. 18(8). 2021. p. 2539–2557.

de la Fayette, L. "The Role of the United Nations in International Oceans Governance" in D. Freestone, R. Barnes and D. Ong (eds.), *The Law of the Sea: Progress and Prospects*. Oxford University Press, 2006. p. 63-74.

De Lucia, V. "Ocean Commons, Law of the Sea and Rights for the Sea". *The Canadian journal of law and jurisprudence*. 32(1). 2019. p. 45-57.

De Lucia, V. "The Question of the Common Heritage of Mankind and the Negotiations towards a Global Treaty on Marine Biodiversity in Areas Beyond National Jurisdiction: No End in Sight?". *McGill Journal of Sustainable Development* Law. 16(2). 2020. p. 138-157.

De Lucia, V. "Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law". *Journal of Environmental Law*. 27. 2015. p. 91–117.

Diz, D. "Marine biodiversity: unravelling the intricacies of global frameworks and applicable concepts" in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law*. Volume III. Edward Elgar, 2017. p. 123-144.

Dunoff, J.L. "Multilevel and Polycentric Governance" in L. Rajamani and J. Peel (eds.), *The Oxford Handbook of International Environmental* Law. 2nd Edition. Oxford University Press, 2021. p. 67-84.

Eigaard, O.R., Bastardie, F., Hintzen, N.T. *et al*. "The footprint of bottom trawling in European waters: distribution, intensity, and seabed integrity". *ICES Journal of Marine Science*. 74(3). 2017. p. 847–865.

Ehlers, P. "Baltic Sea" in R. Wolfrum (ed.), *Max Planck Encyclopedia of Public International Law*. Online edition. MPEPIL 1252. p. 1-13.

Elferink, A.G.O. "The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas". *The International Journal of Marine and Coastal Law*. 22(1). 2007. p. 143-176.

Eliasen, S., Hegland, T and Raakjær, J. "Decentralising: The implementation of regionalisation and co-management under the post-2013 Common Fisheries Policy". *Marine Policy*. 62. 2015. p. 224-232.

Epstein, Y., Christiernsson, A., López-Bao, J.V. *et al*. "When is it Legal to Hunt Strictly Protected Species in the European Union?". *Conservation Science and Practice: A journal of the Society for Conservation Biology*. 1(3). 2019. Article e18. p. 1-11.

Eyre, B.D., Maher, D.T. and Sanders, C. "The contribution of denitrification and burial to the nitrogen budgets of three geomorphically distinct Australian estuaries: Importance of seagrass habitats". *Limnology and Oceanography*. 61(3). 2016. p. 1144-1156.

Falkowski, P.G. "Biogeochemical Cycles" in Simon A. Leven (ed.), *Encyclopedia of Biodiversity (Second Edition)*. Academic Press 2001. p. 437-453.

Ferguson, A.J.P., Oakes, J., and Eyre, B.D. "Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle". *Limnology and Oceanography Letters*. 5(3). 2020. p. 237-245.

Fife, R.E. "Preface" in Catherine Banet (ed.), *The Law of the Seabed*. Brill 2020, p. IX-XII.

Fondo, E. N., Omukoto, J.O, Wambiji, N. *et al*. "Diversity of Shallow-Water Species in Prawn Trawling: A Case Study of Malindi–Ungwana Bay, Kenya". *Diversity*. 14(3). 2022. Article 199. p. 1-18.

Gänzle, S. "'Experimental Union' and Baltic Sea cooperation: the case of the European Union's Strategy for the Baltic Sea Region (EUSBSR)". *Regional Studies, Regional Science*. 5(1). 2018. p. 339-352.

Garcia, S.M., Rice, J. and Charles, A. "Bridging fisheries management and biodiversity conservation norms: potential and challenges of balancing harvest in ecosystem-based frameworks". *ICES Journal of Marine Science*. 76(6). 2016. p. 1659–1667.

Gerritsen, E. *et al*. "EU Biodiversity Strategy: Putting people and nature at the heart of restoration - IEEP's first impressions of the EU's new biodiversity strategy to 2030". 2020. p. 1-6. Available at: <First impressions of the EU biodiversity strategy>. Last access on 12.06.2022.

Grotius, H. "*The Freedom of the Seas; or, the Right Which Belongs to the Dutch to Take Part in the East Indian Trade"*. Oxford University Press, 1916. Translated by R. Magoffin.

Guilfoyle, D. "The High Seas" in D. Rothwell *et al.* (eds.), *The Oxford Handbook of the Law of the Sea*. Oxford University Press, 2016. p. 203-225.

Enright, S.R. and Boteler, B. "The Ecosystem Approach in International Marine Environmental Law and Governance" in T. O'Higgins, M. Lago and T. DeWitt (eds.), *Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity*. Springer, 2020. p. 333–352.

Harrison, J. *Saving the Oceans Through Law: The International Legal Framework for the Protection of the Marine Environment*. Oxford: Oxford University Press. 2017.

Hegland, T. J., Raakjær, J. and van Tatenhove, J. "Implementing ecosystem-based marine management as a process of regionalisation: Some lessons from the Baltic Sea". *Ocean & Coastal Management*. 117. 2015. p. 14-22.

Hermoso, V., Carvalho, S.B., Giakoumi, S. *et al*. "The EU Biodiversity Strategy for 2030: Opportunities and challenges on the path towards biodiversity recovery". *Environmental Science and Policy*. 127. 2021. p. 263-271.

Hewison, G.J. "The Legally Binding Nature of the Moratorium on Large-Scale High Seas Driftnet Fishing". *Journal of Maritime Law and Commerce*. 25(4). 1994. p. 557-580.

Horna, A. "Marine Genetic Resources, Including Sharing of Benefits". *Proceedings of the ASIL Annual Meeting*. 111. 2017. p. 245-247.

Hu, N.T.A. "Semi-Enclosed Troubled Waters: A New Thinking on the Application of the 1982 UNCLOS Article 123 to the South China Sea". *Ocean Development and International Law*. 41(3). 2010. p. 281-314.

Ingold, A. "Commons and Environmental Regulation in History: The Water Commons Beyond Property and Sovereignty". *Theoretical inquiries in law*. 19(2). 2018. p. 425-456.

Jentoft, S., Finstad, B.P. "Building fisheries institutions through collective action in Norway". *Maritime Studies*. 17. 2018. p. 13-25.

Jetoo, S. and Tynkkynen, N. "Institutional Change and the Implementation of the Ecosystem Approach: A Case Study of HELCOM and the Baltic Sea Action Plan (BSAP)". *Environments*. 8(8). 2021. Article 83. p. 1-14.

Jiang, Z. *et al*. "Eutrophication indirectly reduced carbon sequestration in a tropical seagrass bed". *Plant Soil*. 426. 2018. p. 135-152.

Juda, L. "Rio Plus Ten: The Evolution of International Marine Fisheries Governance". *Ocean Development and International Law*. 33(2). 2002. p. 109-144.

Keith Smith, E. and Mayer, A. "A social trap for the climate? Collective action, trust and climate change risk perception in 35 countries". *Global Environmental Change*. 49. 2018. p. 140-153.

Kirkpatrick, A. “Examining the impact of institutions on common pool resource problems: the EU’s Common Fisheries Policy”. *Journal of European Integration*. 42(2). 2020. p. 247-262.

Kingma, E.K. “*The Principle of Compatibility: Its application within the world’s largest tuna fishery*”. (Doctor of Philosophy thesis, University of Wollongong, 2018). p. 1-388. Available at: < The Principle of Compatibility: Its application within the world’s largest tuna fishery>. Last access on 19.05.2022.

Koester, V. “Environmental principles and concepts in biodiversity treaties” in M. Faure, L. Krämer, and E. Orlando (eds.), *Elgar Encyclopedia of Environmental Law*. Volume VI. Cheltenham: Edward Elgar, 2018. p. 538–554.

Korseberg, L. “The Law-Making Effects of the FAO Deep-Sea Fisheries Guidelines”. *International and Comparative Law Quarterly*. 67(4). 2018. 31p.

Kumar, A. B. and Deephti, G. R. “Trawling and by-catch: Implications on marine ecosystem”. *Current Science*. 90(7). 2006. p. 922-931.

Li, S. “Incorporation of Fisheries Policy into Regional Blocs? - Lessons from the EU’s Common Fisheries Policy”. *Fishes*. 7(3). 2022. Article 102. p. 1-18.

Liu, J., Faure, M. and Mascini, P. *Environmental Governance of Common-Pool Resources: A Comparison of Fishery and Forestry*. Routledge, 2017.

Lobo, A.S., Balmford, A., Arthur, R. *et al*. “Commercializing bycatch can push a fishery beyond economic extinction”. *Conservation Letters*. 3(4). 2010. p. 277-285.

Malone, T.C. and Newton, A. “The Globalization of Cultural Eutrophication in the Coastal Ocean: Causes and Consequences”. Frontiers in Marine Science. 7. 2020. Article 670. p. 1-30.

Markowski, M. “The International Legal Standard for Sustainable EEZ Fisheries Management” in G. Winter (ed.), *Towards Sustainable Fisheries Law: A Comparative Analysis*. IUCN, 2009. p. 3-27.

Michanek, G. and Christiernsson, A. “Adaptive Management of EU Marine Ecosystems - about Time to Include Fishery”. Working paper 2013:5. Uppsala University, Department of Law, 2013. p. 4-49. Available at: <Adaptive Management of EU Marine Ecosystems>. Last access on 24.05.2022.

Molenaar, E.J. and Caddell, R. “International Fisheries Law: Achievements, Limitations and Challenges” in R. Caddell and E.J. Molenaar (eds.) *Strengthening International Fisheries Law in an Era of Changing Oceans*. Hart Publishing, 2019. p. 3-10.

Molenaar, E.J. “The South Tasman Rise Arrangement and Other Initiatives on Management and Conservation of Orange Roughy”. *International Journal of Marine and Coastal Law*. 16(1). 2001. p. 77-124.

Morgera, E. “The ecosystem approach and the precautionary principle” in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law*. Volume III. Edward Elgar, 2017. p. 70-80.

Morys, C., Brüchert, V. and Bradshaw, C. “Impacts of bottom trawling on benthic biogeochemistry in muddy sediments: Removal of surface sediment using an experimental field study”. *Marine Environmental Research*. 169. 2020. Article 105384. p. 1-11.

Mossop, J. “The relationship between the continental shelf regime and a new international instrument for protecting marine biodiversity in areas beyond national jurisdiction”. *ICES Journal of Marine Science*. 75(1). 2018. p. 444-450.

Müller, A., Schneider, U., and Jantke, K. “Evaluating and expanding the European Union's protected-area network toward potential post-2020 coverage targets”. *Conservation Biology*. 34(3). 2020. p. 654-665.

Norse, E.A., Brooke, S., Cheung, W.W.L. *et al*. “Sustainability of deep-sea fisheries”. *Marine Policy*. 36(2). 2012. p. 307-320.

Nygård, H., Oinonen, S., Hällfors, H.A. *et al*. “Price vs. Value of Marine Monitoring”. *Frontiers in Marine Science*. 3. 2016. Article 205. p. 1-11.

Ostrom, E. “The Challenge of Common-Pool Resources*”. Environment: Science and Policy for Sustainable Development*. 50(4). 2008. p. 8-21.

Pitcher, C.R., Hiddink, J.G., Jennings, S. *et al*. “Trawl impacts on the relative status of biotic communities of seabed sedimentary habitats in 24 regions worldwide”. *Proceedings of the National Academy of Sciences*. 119(2). 2022. Article e2109449119. p. 1-11.

Priede, I.G. *Deep-Sea Fishes: Biology, Diversity, Ecology and Fisheries*. Cambridge University Press, 2017.

Proelss, A. “Environmental principles and ITLOS” in L. Krämer and E. Orlando (eds.), *Principles of Environmental Law*. Edward Elgar, 2018. p. 568-577.

Proelss, A. and Houghton, K. “The EU Common Fisheries Policy in light of the precautionary principle”. *Ocean & Coastal Management*. 70. 2012. p. 22-30.

Pusceddu, A., Bianchelli, S., Martín, J. *et al*. “Chronic and intensive bottom trawling impairs deep-sea biodiversity and ecosystem functioning”. *Proceedings of the National Academy of Sciences*. 111(24). 2014. p. 8861-8866.

Rabalais, N.N., Turner, E.E., Diáz, R.J. *et al*. “Global change and eutrophication of coastal waters”. *ICES Journal of Marine Science*. 66(7). 2009. p. 1528-1537.

Ramírez-Monsalve, P., Nielsen, K.N., Ballesteros, M. *et al*. “Pulling mechanisms and pushing strategies: How to improve Ecosystem Approach Fisheries Management advice within the European Union’s Common Fisheries Policy”. *Fisheries Research*. 233. 2021. Article 105751. p. 1-10.

Rana, H. S. “The Common Heritage of Mankind and the Final Frontier: Revaluation of Values Constituting the International Legal Regime for Outer Space Activities”. *Rutgers Law Journal*. 26(1). 1994. p. 225-250.

Redgwell, C. “Introductory Remarks”. *Proceedings of the ASIL Annual Meeting*. 111. 2017. p. 241-242.

Rijnsdorp, A.D. *et al*. “Resolving the effect of climate change on fish populations”. *ICES Journal of Marine Science*. 66(7). 2009. p. 1570-1583.

Rinaldi, A. “Biodiversity 2030: a road paved with good intentions”. *EMBO Reports*. 22(6). 2021. Article e53130. p. 1-7.

Ringbom, H. and Marko, J. “Introduction: Multi-level regulation in the Baltic Sea region”. *Marine Policy*. 98. 2018. p. 187-190.

Rodgers, E.M. “Adding climate change to the mix: responses of aquatic ectotherms to the combined effects of eutrophication and warming”. Biology Letters. 17. 2021. Article 20210442. p. 1-6.

Said, A., Tzanopoulos J. and MacMillan D. “The Contested Commons: The Failure of EU Fisheries Policy and Governance in the Mediterranean and the Crisis Enveloping the Small-Scale Fisheries of Malta”. *Frontiers in Marine Science*. 5. 2018. Article 300. p. 1-10.

Santos, J. “Bycatch reduction and alternative exploitation patterns in demersal trawl fisheries of the Baltic Sea and the North Sea”. (Doctor of Philosophy thesis, UiT – The Arctic University of Norway, 2021). p. 1-200. Available at: <Doctoral Thesis>. Last access on 10.06.2022.

Serdy, A. “Postmodern International Fisheries Law, or We Are All Coastal States Now”. *The International and Comparative Law Quarterly*. 60(2). 2011. p. 387-422.

Schatz, V.J. “Combating Illegal Fishing in the Exclusive Economic Zone – Flag State Obligations in the Context of the Primary Responsibility of the Coastal State”. *Goettingen Journal of International Law*. 7(2). 2016. p. 383-414.

Schwabach, A. “A Hole in the Bottom of the Sea: Does the UNCLOS Part XI Regulatory Framework for Deep Seabed Mining Provide Adequate Protection against Strip-Mining the Ocean Floor?”. *Virginia Environmental Law Journal*. 40(1). 2022. p. 39-65.

Sciberras, M., Hiddink, J.G, Jennings, S. *et al.* “Response of benthic fauna to experimental bottom fishing: A global meta-analysis”. *Fish and Fisheries*. 19(4). 2018. p. 698-715.

Scovazzi, T. “‘Due Regard’ Obligations, with Particular Emphasis on Fisheries in the Exclusive Economic Zone”. *The International Journal of Marine and Coastal Law*. 34. 2019. p. 56-72.

Shelton, D. L. “Introduction” in D. L. Shelton (ed.), *Commitment and Compliance: The Role of Non-Binding Norms in the International Legal System*. Oxford University Press, 2003. p. 1-18.

Shull, D.H. “Bioturbation” in J.K. Cochran, H.J. Bokuniewicz, P.L. Yager (eds.), *Encyclopedia of Ocean Sciences (Third Edition)*. Academic Press, 2019. p. 671-676.

Soto, M.V. “General Principles of International Environmental Law”. *ILSA Journal of International & Comparative Law*. (1996). 3(1). p. 193-209.

Stratmann, T., van Oevelen, D., Martínez Arbizu, P. *et al*. “The BenBioDen database, a global database for meio-, macro- and megabenthic biomass and densities.” *Scientific Data*. 7(1). 2020. Article 206. 12 p.

Szudoczky, R. *The Sources of EU Law and Their Relationships*. IBFD Publications USA, 2014.

Penca, J. “Science, precaution and innovation for sustainable fisheries: The judgement by the Court of Justice of the EU regarding the electric pulse fishing ban”. *Marine Policy*. 135. 2022. Article 104864. p. 1-5.

Pyhälä, M. “HELCOM Baltic Sea Action Plan: An Ecosystem Approach to the Management of Human Activities” in K. Brander, B. MacKenzie, and A. Omstedt (eds.), *Climate Impacts on the Baltic Sea: From Science to Policy*. Springer, 2012. p. 45-69.

Taylor, P. “The Common Heritage of Mankind: Expanding the Oceanic Circle" in *The Future of Ocean Governance and Capacity Development*. Leiden: Brill | Nijhoff, 2019. p. 142-150.

Techera, E. “Species-based conservation” in M. Faure, E. Morgera and J. Razzaque (eds.), *Elgar Encyclopedia of Environmental Law.* Volume III. Edward Elgar, 2017. p. 97-109.

Thrush, S.F. and Dayton, P.K. “Disturbance to Marine Benthic Habitats by Trawling and Dredging: Implications for Marine Biodiversity”. *Annual Review of Ecology and Systematics*. 33. 2002. p. 449-473.

Thurstan, R.H., Hawkins, J.P., and Roberts, C.M. “Origins of the bottom trawling controversy in the British Isles: 19th century witness testimonies reveal evidence of early fishery declines”. *Fish and Fisheries*. 15(3). 2014. p. 506-522.

Tladi, D. “The Common Heritage of Mankind in the Proposed Implementing Agreement” in M. H. Nordquist, J. N. Moore and R. Long (eds.), *Legal order in the world's oceans: UN Convention on the Law of the Sea*. Brill Nijhoff, 2018. p. 72–90.

Treves, T. “Principles and Objectives of the Legal Regime Governing Areas Beyond National Jurisdiction,” in E.J. Molenaar and A.G.O. Elferink (eds.), *The International Legal Region of Areas Beyond National Jurisdiction: Current and Future Developments*. Leiden: Martinus Nijhoff, 2010. p. 5-25.

Tsamenyi, M. and Hanich, Q. “Fisheries jurisdiction under the Law of the Sea Convention: rights and obligations in maritime zones under the sovereignty of Coastal States”. *International Journal of Marine and Coastal Law*. 27(4). 2012. p. 783-793.

van Klink, B.M.J., & Taekema, H.S. “On the Border. Limits and Possibilities of Interdisciplinary Research” in B.M.J. van Klink, and H.S. Taekema (eds.), *Law and Method. Interdisciplinary Research into Law*. Mohr Siebeck, 2011. p. 7-32.

van Denderen, P.D. “*Ecosystem effects of bottom trawl fishing*”. (Doctor of Philosophy thesis, Wageningen University, 2015). p. 009. Available at: < Doctoral Thesis>. Last access on 12.06.2022.

van Denderen, P.D., Bolam, S.G., Friedland, R. *et al*. “Evaluating impacts of bottom trawling and hypoxia on benthic communities at the local, habitat, and regional scale using a modelling approach”. *ICES Journal of Marine Science.* 77(1). 2021. p. 278–289

Victorero, L., Watling, L., Palomares, M.L.D. *et. al*. “Out of Sight, But Within Reach: A Global History of Bottom-Trawled Deep-Sea Fisheries From >400 m Depth”. *Frontiers in Marine Science*. 5. 2018. Article 98. p. 1-17.

Voss, M., Dippner, J., Humborg, C. *et al*. “History and scenarios of future development of Baltic Sea eutrophication”. *Estuarine, Coastal and Shelf Science*. 2011. 92(3). p. 307-322.

Wåhlström, I., Höglund, A., Almroth-Rosell, E. *et al*. “Combined climate change and nutrient load impacts on future habitats and eutrophication indicators in a eutrophic coastal sea”. *Limnology and Oceanography*. 65(9). 2020. p. 2170-2187.

Wakefield, J. “The Ecosystem Approach and the Common Fisheries Policy” in D. Langlet and R. Rayfuse (eds.), *The Ecosystem Approach in Ocean Planning and Governance*. Brill, 2019. p. 287-316.

Westerlund, S. *Fundamentals of Environmental Law Methodology*. Uppsala University, Department of Law, 2007. Available at: <Fundamentals of Environmental Law Methodology>. Last access on 24.05.2022.

Wiener, J. B. “Precaution” in D. Bodansky, J. Brunnée, E. Hey (eds.), *The Oxford Handbook of International Environmental Law*. 1st Edition. Oxford University Press, 2008. p. 598-612.

Winter, G. “International Principles of Marine Environmental Protection” in M. Salomon and T. Markus (eds), *Handbook on Marine Environment Protection*. Springer, 2018. p. 585–605,

Yzquierdo, M. “The 1992 Convention on Biological Diversity”. M. Faure *et al*. (eds.), *Elgar Encyclopedia of Environmental Law*. Volume V. Edward Elgar, 2018. p. 9-24.

Zeller, D., Cashion, T., Palomares, M. *et al*. “Global marine fisheries discards: A synthesis of reconstructed data”. *Fish and Fisheries.* 19(1). 2018. p. 30-39.

Zhou, Y., Wang, L., Zhou, Y. *et al*. "Eutrophication control strategies for highly anthropogenic influenced coastal waters". *Science of The Total Environment*. 705. 2020. Article 135760. p. 1-11.

6.2 Official sources

Baltic Sea Centre – Stockholm University. "Fact Sheet - Understanding how eutrophication is quantified in the HELCOM BSAP". 2022. p. 1-4. Available at: < Fact Sheet - BASP >. Last access on 10.06.2022.

CBD. Second Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity. Decision COP II/8. 1995. Available at: < COP Decision (cbd.int)>. Last access on 12.06.2022.

CBD. Fifth Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity. Decision COP V/6. 2000. Annex. Available at:< COP Decision >. Last access on 12.06.2022.

Commission to the Convention for the Protection of the Marine Environment of the North-East Atlantic. *Quality Status Report 2010*. 2010. OSPAR Commission, London

European Commission. Directorate-General for Maritime Affairs and Fisheries. Joint Research Centre. Guillen, J., Calvo Santos, A., Carvalho, N. *The EU fishing fleet 2020: trends and economic results*. Publications Office, 2021. p. 1-48. Available at: < Fishing Fleet 2020>. Last access on 12.06.2022.

European Commission. *Guidance document on the strict protection of animal species of Community interest under Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora "The Habitats Directive."*. 2007. p. 9. Available at: < Guidance Document >. Last access on 12.06.2022.

European Commission. *General Statistical Overview Accompanying the document Report from the Commission Monitoring the application of European Union law 2020 Annual Report*. 2021. SWD(2021)212 final. p. 1-32.

European Parliament. "Report on Toward a sustainable blue economy in the EU: the role of the fisheries and aquaculture sectors". Report A9-0089/2022. Rapporteur: Isabel Carvalhais. 2021/2188(INI).

Food and Agriculture Organization of the United Nations. "The State of World Fisheries and Aquaculture 2020". Sustainability in action. FAO, 2020. 1-244. Available at: <The State of World Fisheries and Aquaculture 2020>. Last access on 01.02.2022. (FAO)

FAO. "Deep-sea fisheries in the high seas: Ensuring sustainable use of marine resources and the protection of vulnerable marine ecosystems.". FAO, 2009. p. 1-12. Available at: < Deep-sea Fisheries in the High Seas>. Last access on 01.02.2022.

FAO. "Worldwide review of bottom fisheries in the high seas in 2016". *FAO Fisheries and Aquaculture Technical Paper No. 657*. FAO, 2020. p. 1-313. Available at: < Worldwide review of bottom fisheries in the high seas in 2016>. Last access on 01.02.2022.

FAO. “The state of world fisheries and aquaculture 2008.” FAO, 2009. Available at: < FAO 2008>. Last access on 10.06.2022. p. 3-176.

FAO. “Why is discarding a problem?”. Available at: < Why is discarding a problem?>. Last access on 25 April 2022.

HELCOM. “State of the Baltic Sea – Second HELCOM holistic assessment 2011-2016.”. Baltic Sea Environment Proceedings. 2018. Available at: < State of the Baltic Sea – Second HELCOM holistic assessment>. Last access on 10.06.2022. p. 1-555.

HELCOM. “HELCOM Baltic Sea Action Plan”. Adopted on 15 November 2007. p. 1-101. Available at: <HELCOM - BSAP 2007>. Last access on 10.06.2022. (BSAP).

HELCOM. “HELCOM Baltic Sea Action Plan – 2021 Update”. Adopted on 20 October 2021. p. 1-58. Available at: <HELCOM - BSAP 2021 Update>. Last access on 10.06.2022. (BSAP 2021).

International Council for the Exploration of the Sea. "Baltic Sea Ecoregion – Ecosystem overview”. ICES Advice: Ecosystem Overviews. 2021. p. 1-2. Available at: https://doi.org/10.17895/ices.advice.9437. Last access on 01.02.2022. (ICES)

ICES. (29 September 2015). “EU request to ICES on the assessment of the deep-sea status of certain fish species”. Available at: < ICES - Fish Stocks >. Last access 24 April 2022

ICES. "Baltic Sea Ecoregion – Ecosystem overview”. ICES Advice: Ecosystem Overviews. 2018. p. 1-23. Available at: <Baltic Sea Ecoregion>. Last access on 10.06.2022.

ICES. “Working Group on Bycatch of Protected Species (WGBYC)”. *ICES Scientific Reports*. 2(81). 2020. p. 1-216. Available at: <Fisheries methodology>. Last access on 26.05.2022.

ICES. “Bycatch of small cetaceans and other marine animals – review of national reports under Council Regulation (EC) No. 812/2004 and other information”. 2016. p. 1-6. Available at:< Protected Species Bycatch >. Last access on 26.05.2022.

ICES. "EU request on how management scenarios to reduce mobile bottom fishing disturbance on seafloor habitats affect fisheries landing and value”. ICES Special Request Advice: EU ecoregions. 2021. p. 1-16. Available at: <ICES - Special Request Advice>. Last access on 10.06.2022.

International Law Commission. “*Report of the International Law Commission covering the work of its eight session, 23 April-4 July 1956*”. 1956. UN Doc A/3159. p. 253-302.

N2K Group - European Economic Interest Group. “Common methodology for assessing the impact of fisheries on marine Natura 2000”. 2012. p. 1-56. Available at: < Fisheries methodology >. Last access on 26.05.2022.

6.3 Internet sources

European Commission. “Natura 2000 in the Marine Environment”. Available at: <Natura 2000 in the Marine Environment - European Commission >. Last access on 26.05.2022.

European Commission (25 February 2020). “Statement by Commissioner Sinkevičius on EU action on by-catch of dolphins and other marine animals”. Available at: < Commissioner Sinkevičius on by-catch of dolphins >. Last access on 26.05.2022.

European Commission. “EU nature restoration targets”. Available at: <EU nature restoration targets>. Last access pm 27.05.2022

HELCOM. (29 March 2022). “HELCOM meetings remain suspended through 30 June 2022”. Available at: < HELCOM meetings remain suspended through 30 June 2022 – HELCOM>. Last access on 10.06.2022.

Hooper, E. (11 April 2021). “What is bottom trawling and why is it bad for the environment?”. *Greenpeace*. Available at: <What is bottom trawling and why is it bad for the environment? - Greenpeace Aotearoa>. Last access: 01.02. 2022.

Finnish Metereological Institute. “Baltic Sea”. Available at: <Seas - Finnish Meteorological Institute>. Last access on 02.04.2022.

FAO. “Deep-sea fisheries”. Available at: <Deep-sea fisheries>. Last access 15.04.2022.

The Baltic Marine Environment Protection Commission. “History of Catches in the Baltic Sea”. Available at: <History of Catches in the Baltic Sea – HELCOM>. Last access on 01 February 2022.

United Nations. (23 March 2022). “Are UN resolutions binding?”. Available at <Are UN resolutions binding?>. Last access on 20.05.2022.

World Wide Fund for Nature. “Bottom Trawling Impacts in the Baltic Sea”. Available at: <Bottom Trawling Impacts in the Baltic Sea>. Last access on 02.04.2022.

World Wide Fund For Nature. “Bycatch”. Available at: < What is Bycatch? >. Last access on 25 April 2022.

6.4 Case law

Court of Justice of the European Union. *Case C-26/62, Van Gend en Loos v. Administratie der Belastingen*. 1962. Judgement. ECLI:EU:C:1963:1.(CJEU).

CJEU. *Case 262/85, Commission of the European Communities v Italian Republic*. 1987. Judgement. ECR 3073.

CJEU. *Case C-38/99, Commission of the European Communities v. French Republic*. 2000. Judgement. ECR I-10941.

CJEU. *Case C-103/00, Commission of the European Communities v. Hellenic Republic.* 2002. Judgement. ECR I-01147

CJEU. *Case C-221/04, Commission of the European Communities v. Kingdom of Spain*. 2006. Judgement. ECR I-04515

CJEU. *Case C-342/05, Commission of the European Communities v. Republic of Finland.* 2007. Judgement. ECR I-04713

CJEU. *Case C-6/04, Commission of the European Communities v. United Kingdom of Great Britain and Northern Ireland*. 2005. Judgement. ECR I-09017.

CJEU. *Case C-405/92, Etablissements Armand Mondiet SA v. Armement Islais SARL*. 1993. Judgement. ECR I-06133.

CJEU. "*C-733/19 - Netherlands v. Council and Parliament*". 2021. Judgement. Not yet published. ECLI:EU:C:2021:272

International Court of Justice. *Military and Paramilitary Activities in and against Nicaragua*. (Nicaragua v. United States of America). Judgement of 27 June 1986. (ICJ)

ICJ. "*Pulp Mills on the River Uruguay*". (Argentina v. Uruguay). Judgment. ICJ Reports 2010..

ITLOS. "*Southern Bluefin Tuna*". (New Zealand v. Japan; Australia v. Japan). Provisional Measures. Order of 27 August 1999. ITLOS Reports 1999.

ITLOS. "*M/V 'Saiga' (No. 2)*". (Saint Vincent and the Grenadines v. Guinea). Judgement. ITLOS Reports 1999. p. 1-76.

ITLOS. "*M/V Virginia G*". (Panama v. Guinea-Bissau). Judgment. ITLOS Reports 2014.

ITLOS. *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*. Advisory Opinion. 2 April 2015. ITLOS Reports 2015. p. 1-70.

ITLOS. "*Responsibilities and obligations of States with respect to activities in the Area*". Advisory Opinion. 1 February 2011. ITLOS Reports 2011. p. 7-78.

Permanent Court of Arbitration. "*South China Sea Arbitration*". (Philippines v. China). Award. PCA Case nº 2013-19. 12 July 2016. p. 1-471.

Permanent Court of Arbitration. "*Chagos Marine Protected Area Arbitration".* (Mauritius v. United Kingdom). Award. PCA Case nº 2011-03. p. 1-215.