

MILE THESIS

Advanced Master Program in International Law and Economics: 2019/2020

Can WTO Rules, Disciplines and Incentives Contribute to Fish Stocks Conservation?

Student: Marianna Henud Cresci

WTI ID:10014

Supervisor: Christian Häberli

Declaration

“I hereby declare that I have written this work independently and that it is my own unaided work. The ideas and opinions expressed in this paper are made independently, represent my own views and are based on my own research. I have used no other sources than the ones I have specified. All sections that include direct or indirect sources have been properly acknowledged as references. I am aware that this thesis can be examined for the use of unauthorized aid and whether the thesis as a whole or parts incorporated in it may be deemed as plagiarism. I understand that failing to meet these requirements will result in a failing grade of ‘0’ and that the Senate of the University of Bern (pursuant to UniG Art. 36, para. 1, section r. of 5. September 1996 and Art. 69 of the UniSt of 7. June 2011) has the right to withdraw the conferred title. For the purposes of assessment and compliance concerning plagiarism, I grant the University of Bern the right to enter my work into a database where it shall also remain after examination, to enable comparison with future theses submitted. I understand that my thesis will be made available in the World Trade Institute library”.

Bern, Switzerland

Marianna Henud Cresci

Abstract

This paper analyses current multilateral trade rules that interact with some aspects of fish trade. It aims to establish if the current mechanisms available at the WTO can regulate fisheries subsidies and market access for fish and fish products while simultaneously contributing to fish stocks conservation and IUU fishing reduction. First, the paper presents the challenge of fisheries subsidies as expressed in the SDG14.6. It divides fisheries subsidies according to their impact on fish stocks' conservation, establishing three categories: harmful, ambiguous or conditional, and beneficial. It then introduces the issues under market access: Differential tariffs and technical regulations can be used to increase fish stocks conservation but hamper market access. The paper follows to analyze these aspects under the respective Agreements: ASCM, GATT and ATBT. It concludes that the rules within these three Agreements cannot address the conservational aspect of disciplining fish. Therefore, this paper recommends that a *lex specialis* Fisheries Agreement is created with clear market access provisions that address process and production methods of harvesting fish. Furthermore, it suggests that the Agreement use a traffic light system to discipline the three categories of subsidies while allowing for differential treatment to small-scale fishers.

Acknowledgements

I want to express my sincere appreciation to my supervisor, Professor Christian Häberli, who had from the start, instigated my curiosity for this research. His guidance was of utmost importance for the inception and the finalization of this paper. His critical questions allowed me to step out of the box and pushed me to write an academic piece that is independent and creative. Without his dedication and support, this research would not have been possible.

I also would like to thank Professor Peter Van den Bossche for showing through his lectures in International Economic Law [and the pursuit of happiness] that the international body of law of the WTO does leave some space for environmental protection. Thus, reviving my faith that the multilateral trading system can address modern environmental concerns.

Lastly, a big thank you to the Programme's administrators that have provided us with all the support during this special year.

Table of Contents

<i>Declaration</i>	2
<i>Abstract</i>	3
<i>Acknowledgements</i>	4
<i>Table of Contents</i>	5
<i>List of Annexes, Graphs and Tables</i>	10
<i>Definitions</i>	11
<i>Introduction</i>	13
<i>Chapter 1 Issues to be Addressed by a Fisheries Subsidies Agreement</i>	20
1.1 Fisheries Subsidies	20
1.1.1 Research and Policy-Building	25
1.1.2 Management Programs and Services.....	27
1.1.3 Social Policies	28
1.1.4 Decommissioning Subsidies	34
1.1.5 Subsidies to Capital and Variable Costs	37
1.2 IUU Fishing	39
1.3 Market Access	41
1.4 Small-Scale Fishers	45
<i>Chapter 2 Relevant WTO Rules Applicable to Fisheries</i>	48

2.1 Conflicts Between the Subsidies Disciplines of the WTO with an Environmentally Sustainable Fisheries Agreement	49
2.1.1 The Injured Party and the Injurer.....	53
2.1.2 Prohibition and Adverse Effects.....	58
2.1.3 Remedies.....	61
2.2 Conflicts Between the Market Access Rules Under the GATT and the TBT with an Environmentally Sustainable Fisheries Agreement	64
2.2.1 Issues Under the GATT	67
2.2.2 Issues Under the TBT Agreement.....	76
2.3 Conflicts Between Traditional SDT and a Fisheries Agreement that Addresses the Small - Scale Fishers' Dilemma.....	79
 <i>Chapter 3 Approaches to the Prohibition and/or the Reduction of Subsidies Supporting Overcapacity, Overfishing and IUU Fishing; Exceptions for Fish Stocks Protective Measures Hindering Market Access and Small-Scale Fishers.....</i>	<i>85</i>
 3.1 Members' Proposed Approaches to Fisheries Subsidies	86
3.1.1 The Prohibition Approach	86
3.1.2 The Cap-Based Approach	88
3.2 Proposal on How to Address Subsidies Reductions, Prohibitions & the Small-Scale Fishers' Dilemma.....	89
3.2.1 Traffic Light System	89
3.2.2 An Exception Clause	93
<i>Conclusion.....</i>	<i>94</i>
 <i>Annex A: Summary of Fisheries Subsidies as Analysed in Section 1.1.....</i>	<i>112</i>

***Annex B: Data of the Atlantic Coast Commercial Landings of Cod, Shrimp and Crab from
Years 1990 to 2018 113***

Acronyms and Abbreviations

Abbreviations	Definition
AB	Appellate Body
AoA	Agreement on Agriculture
ASCM	Agreement on Subsidies and Countervailing Measures
ATBT	Agreement on Technical Barriers to Trade
CITES	Convention on International Trade of Endangered Species of Wild Fauna and Flora
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
DSB	Dispute Settlement Body
DSS	Dispute Settlement System
EC	European Communities
EEZ	Exclusive Economic Zones
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
IGO	Intergovernmental Organization
ISSF	International Seafood Sustainability Foundation
IUU	Illegal, Unreported and Unregulated Fishing
LDC	Least Developed Country
MFN	Most Favoured Nation
MMPA	US Marine Mammal Protection Act (MMPA)
MP	Marginal Productivity
MPA	Marine Protected Area
MSY	Maximum sustainable yield
NAMA	Non-Agricultural Market Access

NCARP	Northern Cod Adjustment Program
NT	National Treatment
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PNG	Papua New Guinea
PPMs	Process and Production Methods
PSMA	Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing
RFMO	Regional Fishery Management Organizations
ROO	Rules of Origin
SDG	Sustainable Development Goal
SDT	Special and Differential Treatment
SFPA	Sustainable Fishing Partnership Agreement
SPS	Sanitary and Phytosanitary
TAGS	The Atlantic Groundfish Strategy
TBTI	Too Big to Ignore
TED	Turtle Excluder Devices
TFA	Trade Facilitation Agreement
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UN	United Nations
UNCLOS	Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Program
UNFSA	United Nations Fish Stocks Agreement
US	United States
WTO	World Trade Organization
WWF	World Wide Fund for Nature

List of Annexes, Graphs and Tables

Annex A summarises fisheries subsidies as analysed in Chapter 1, section 1 of this paper. The table is named **Table 1.1** and is located on page 110.

Annex B presents the data of the Canadian's Atlantic coast commercial landings of cod, shrimp and crab from years 1990 to 2018. Annex B is on page 111-112.

Graph 1.1 is found on page 32. It shows the total commercial catch of the Canadian's Atlantic coast of cod, shrimp and crab from years 1990 to 2018. The graph was created with the data available in **Annex B**.

Table 2.1 can be found on page 82. The table demonstrates the poverty condition of small-scale fishers.

Table 3.1 is found on page 91. The table is a proposal on how to discipline fisheries subsidies through a traffic light system.

Definitions

Fisheries & Fisheries Management

Fisheries are enterprises that harvest fish.¹ Fisheries management is “the practice of analysing, making and implementing decisions to maintain or alter the structure, dynamics, and interaction of habitat, aquatic biota, and man to achieve human goals and objectives through the aquatic resources.”²

IUU Fishing

The FAO's definition of IUU fishing is: “Illegal fishing refers to activities:

- (1) conducted by national or foreign vessels in waters under the jurisdiction of a state, without the permission of that state, or in contravention of its laws and regulations;
- (2) conducted by vessels flying the flag of states that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the states are bound, or relevant provisions of the applicable international law; or
- (3) in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.

Unreported fishing refers to fishing activities:

- (1) which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
- (2) undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

¹ Definition retrieved from the Cambridge dictionary. Accessed on 1 of December 2020 at <https://dictionary.cambridge.org/dictionary/english/fishery>

² FAO Fisheries glossary. Entry: 31286 - Collection: Aquaculture. Accessed on 1 of December 2020 at <http://www.fao.org/faoterm/en/?defaultCollId=21>

Unregulated fishing refers to fishing activities:

- (1) in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a state not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or
- (2) in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.”³

Maximum Sustainable Yield (MSY)

The *Maximum Sustainable Yield* is “the maximum catch (in numbers or mass) that can be removed from a fish population over an indefinite period.”⁴

Overcapacity

Overcapacity happens when a fishing fleet has the capacity to fish above the MSY level of a fish stock.⁵

Overfishing

“Overfishing is a condition in which fishing effort is above the desired amount, usually the level that produces MSY.”⁶

3 Fao. 2001. International Plan of Action to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing. Fao, Rome. Pages 4 and 5.

4 Maunder, N. M. (2008). Maximum Sustainable Yield. Encyclopedia of Ecology.

5 Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. OECD Food, Agriculture and Fisheries Papers, No. 115. OECD Publishing. Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>

6 Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. OECD Food, Agriculture and Fisheries Papers, No. 115. OECD Publishing. Paris. Quote retrieved from page 19, paragraph 2. <http://dx.doi.org/10.1787/bd9b0dc3-en>

Introduction

Discussions on fisheries at the *World Trade Organization* (WTO) began almost twenty years ago,⁷ as early as 1999 at the Seattle Ministerial Conference where the first fisheries proposal was brought to the WTO with an ambitious mandate that, according to the conference's press pack provided by the WTO, included "the promotion of resource conservation and management, other environmental concerns, and disciplines on market access and export restrictions on logs."⁸ The proposal aimed to "eliminate subsidies that contribute to fisheries overcapacity, in view of the fact that they distort trade, seriously undermine sustainable utilization of fish stocks and hamper sustainable development."⁹

There were no concrete results from the Seattle Ministerial Conference. The topic came back to the table in 2001 during the Doha Ministerial Declaration, this time with a more modest mandate focusing solely on subsidies: "Participants shall also aim to clarify and improve WTO disciplines on fisheries subsidies, taking into account the importance of this sector to developing countries."¹⁰ "With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on (iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services."¹¹ The subsequent Ministerial Declaration in 2005 at Hong Kong reaffirmed the "Declarations and Decisions" adopted at Doha, complementing the fisheries mandate with rules

7 World Trade Organization. Negotiations on Fisheries Subsidies. Retrieved from WTO's Official Website on April 16, 2020. Link: https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_e.htm

8 World Trade Organization. (28 November 1999). Press Pack of the World Trade Organization 3rd Ministerial Conference: Seattle. Page 19.

9 World Trade Organization. (28 November 1999). Press Pack of the World Trade Organization 3rd Ministerial Conference: Seattle. Statement quoted from page 151.

10 World Trade Organization. (November 2001). Doha Ministerial Declaration. Adopted on 14 November 2001. Fourth Ministerial Conference. Doha. WT/MIN(01)/DEC/1. Page 6, paragraph 28.

11 Ibid. Pages 6 and 7, paragraph 31.

expressed in Annex D titled “Anti-dumping and Subsidies and Countervailing Measures including Fisheries Subsidies.”¹² The rules specifically addressed fisheries: “*Recall* [Members’] commitment at Doha to enhancing the mutual supportiveness of trade and environment, *note* that there is broad agreement that the Group should strengthen disciplines on subsidies in the fisheries sector, including through the prohibition of certain forms of fisheries subsidies that contribute to overcapacity and over-fishing, and *call on* Participants promptly to undertake further detailed work to, *inter alia*, establish the nature and extent of those disciplines, including transparency and enforceability. Appropriate and effective special and differential treatment for developing and least-developed Members should be an integral part of the fisheries subsidies negotiations, taking into account the importance of this sector to development priorities, poverty reduction, and livelihood and food security concerns.”¹³ Nonetheless, negotiations on fisheries disciplines continued to be stalled.

Despite the commitment to pursue a multilateral agreement at the WTO and more than 70 intergovernmental agreements, standards and monitoring programs concluded to address the topic, overfishing and other deleterious practices continued. Overfished stocks are encountered in countries’ *exclusive economic zones* (EEZs) and the high seas monitored by *Regional Fishery Management Organizations* (RFMOs). EEZs were established by the *United Nations Convention on the Law of the Sea* (UNCLOS) and are areas “beyond and adjacent to coastal states’ territorial sea to a limit of 200 nautical miles from the baseline. Within these zones, the coastal states may exercise sovereign rights over exploration, exploitation, conservation, and management of natural resources and other economic activities, such as the production of wind or tidal power.”¹⁴ They also have the right to provide access agreements to countries

12 World Trade Organization. (22 December 2005). Doha Work Program: Ministerial Declaration from the Sixth Session of Ministerial Conference. Hong Kong. WT/MIN(05)/DEC.Annex D. I.

13 Ibid. Page D2, paragraph 9.

14 Hoagland, P., Sumaila, R.U., Farrow, S. (2001). Marine Protected Areas. Doi: 10.1006/rwos.2001.0499.

wishing to exploit the fish stocks within their jurisdiction. About 96 per cent of marine catches are done within countries' EEZs.¹⁵

The rest of the ocean,¹⁶ about sixty per cent of it, is outside of a particular jurisdiction and according to the UNCLOS,¹⁷ belongs to the *high seas*.¹⁸ While the UNCLOS determined that the high seas are free to be explored, it also laid down principles to be followed such as Members' duty to adopt measures for the conservation and management of living resources in the high seas, including maintaining and restoring fish stock populations.¹⁹ A year later, an UNCLOS implementing Agreement was signed to manage the high seas and its straddling and highly migratory fish stocks, through RFMOs, the *United Nations Fish Stocks Agreement (UNFSA)*.²⁰ Countries with a fishing interest in an RFMO territory can apply to join that particular RFMO as long as they agree to comply with the conditions set out by the RFMO. The *Food and Agriculture Organization of the United Nations (FAO)* points out RFMOs as an excellent tool for fisheries sustainability, "particularly in policy coordination, financial and human resource mobilization and deployment of advanced technologies."²¹ But despite their existence and purpose, their effectiveness in

15 Schiller, L., Bailey, M., Jacquet, J., Sala, E. (2018). High seas fisheries play a negligible role in addressing global food security. *Science Advance* 4. <https://doi.org/10.1126/sciadv.aat8351>.

16 Excluding "territorial sea and internal waters of a state, or or in the archipelagic waters of an archipelagic State." – Article 86 of the UNCLOS

17 Convention on the Law of the Sea (1994). Article 87: Freedom of the high seas.

18 Cullis-Suzuki, S. Pauly, D. (2010). Failing the high seas: A global evaluation of regional fisheries management organizations. *Marine Policy* 34. Pages 1036-1042.

19 Convention on the Law of the Sea (1994). Article 117.

20 WWF, Greenpeace International and Deep-Sea Conservation Coalition. (28 March 2019). Performance reviews of regional fisheries management organizations and arrangements.

21 FAO. (2018). *The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals*. Food and Agriculture Organization of the United Nations. Rome. License: CC BY-NC-SA 3.0 IGO. Quote retrieved from Page 46, paragraph 2.

protecting the high seas' resources has been questionable as fish stocks continue to decline.²² Furthermore, RFMOs lack transparency and a deeper involvement of all stakeholders in their decision-making process, especially from small coastal states.²³

A new sense of urgency, for policymakers, came about with the creation of the Paris Agreement followed by the launch of the *United Nations (UN) Sustainable Development Goals (SDGs)* in 2016²⁴ that mandated sustainable trade practices on fisheries. The SDG 14.6 that aims to “conserve and sustainably use the oceans, seas and marine resources for sustainable development,”²⁵ specifically targeted that “by 2020, [States shall] prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to *illegal, unreported and unregulated (IUU)* fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least-developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.”²⁶ The mandate, explicitly directed at the WTO by the UN, reignited the momentum of the fisheries negotiations at the WTO. Although the WTO has missed its 2020 deadline, as of now, the organization is expected to have an agreement by the next Ministerial conference projected to take place in 2021.

Various scholars have empirically proven the interlinkages between government subsidies, IUU fishing, and fish stocks' long-term sustainability. Subsidies have been

22 Cullis-Suzuki, S. Pauly, D. (2010). Failing the high seas: A global evaluation of regional fisheries management organizations. *Marine Policy* 34. Pages 1036-1042.

23 Fischer, J. (2020). How transparent are RFMOs? Achievements and challenges. *Marine Policy*.

24 United Nations. (2015). Paris Agreement. Last accessed on December 1, 2020 from https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

25 United Nations. (2019). Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. Document number: A/RES/71/313. SDG 14 can be found on page 14/21. Last accessed on November 30th, 2020. https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202019%20refinement_Eng.pdf

26 Ibid. Page 15/21, paragraph 14.6.

directly linked with over-capacity and increase of fishing fleets. They increase a fleet's harvesting potential and frequency of its fishing activities, thus, putting more pressure on fish stocks.²⁷ Subsidies also encourage the usage and institutionalization of destructive fishing practices. When designed to reduce fishing equipment costs, including fuel, such subsidies, together with a weak governing framework, can encourage IUU fishing.²⁸ IUU fishing represents a significant threat to the world's fish stocks and has a considerable impact on the fishing sector.²⁹ The latest available studies estimate IUU catches traded every year to be valued between USD8.9 and USD17.2 billion³⁰ or between USD10 and USD23.5 billion.³¹ FAO's estimates published in 2016 support the findings from the latter study.³² The effects of IUU fishing are not only reflected in the increased depletion of fish stocks, but it also represents between 5.5 to 14 per cent of loss in legal fish trade.³³

27 See below four academic papers that link subsidies and IUU fishing with fish overexploitation and reduction of fish stock mass.

First, Tipping, A. (April 2015). A 'Clean Sheet' Approach to Fisheries Subsidies Disciplines. E15Initiative. International Centre for Trade and Sustainable Development (ICTSD) and the World Economic Forum 2015. Geneva.

Second, Sakai, Yutaro. (2017). Subsidies, Fisheries Management, and Stock Depletion. *Land Economics*. 93. 165-178. 10.3368/le.93.1.165.

Third, Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. *OECD Food, Agriculture and Fisheries Papers*, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>

Fourth, Kumar, R., Ravinesh Kumar, R., Stauvermann, J. P., Chakradhar, J. (2019). The effectiveness of fisheries subsidies as a trade policy tool to achieving sustainable development goals at the WTO. *Marine Policy*, Volume 100, Pages 132-140. ISSN 0308-597X,

28 Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. *OECD Food, Agriculture and Fisheries Papers*, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>

29 FAO. (2016). *Illegal, unreported and unregulated fishing*. Food and Agriculture Organization of the United Nations. Rome. Document number: I 6069E/1/09.16.

30 See Sumaila, R U., Zeller, D., Hood, L., Palomares, D. L. M., Li, Y., and Pauly, D. (2020). Billions lost as illicit fisheries trade hurting nations who can afford it least. *Science Advances*. DOI: 10.1126/sciadv.aaz3801.

31 See Agnew, J.D., Pearce, J., Pramod, G., Peatman, T., Watson, T., Beddington, R.J., Pitcher, J.T. (2020). Estimating the Worldwide Extent of Illegal Fishing. *PLoS ONE* 4(2): e4570. doi:10.1371/journal.pone.0004570

32 FAO. (2016). *Illegal, unreported and unregulated fishing*. Food and Agriculture Organization of the United Nations. Rome. Document number: I 6069E/1/09.16. Here FAO estimated IUU fishing to be between USD10-23billion.

33 Here the paper calculated the percentage based the data provided by FAO (2020). The report states that total trade in fish catches is USD160 billion. The paper then calculated the percentage of the lowest and the highest possible values of IUU fishing (USD8.9 and USD23.5 billion respectively). They represent from 5.5 to 14 per cent of USD160 billion. Source: FAO. (2020). *The State of the World's*

Despite the worsening of fish stocks' conditions and the economic consequences of overfishing and IUU fishing, the fisheries subsidies negotiations have been a strenuous task for the Members of the WTO. The sustainability of the world's fish stocks requires an interdisciplinary approach and several organisations' involvement and coordination. At the same time, the WTO has a major advantage in tackling the issue as "fish and fishery products remain some of the most traded food commodities in the world."³⁴ While it only "represents 1 per cent of the value of total merchandise trade," it would allow the organization to discipline about 38 per cent of the fishing market.³⁵ However, if the WTO was to discipline all of the traded fish, it would include aquaculture, a topic that is not included in the current Fisheries negotiations.³⁶ By disciplining subsidies, the organization will include traded fish and captured fish that may not be traded.

This paper acknowledges that the sustainability of the world's fisheries goes far beyond the subjects analysed here. It addresses the topics of most relevance for a Fisheries Agreement that can be disciplined at the WTO.

To this end, this paper analyses the existing WTO principles and Agreements in respect of a possible Fisheries Agreement. The paper aims to find the gaps in the existent disciplines that will need to be adjusted to create a Fisheries Agreement that

Fisheries and Aquaculture 2020. Sustainability in Action. Food and Agriculture Organization of the United Nations. Rome. Page 8, paragraph 5. <https://doi.org/10.4060/ca9229en>

34 FAO. (2020). The State of the World's Fisheries and Aquaculture 2020. Sustainability in Action. Food and Agriculture Organization of the United Nations. Rome. Page 8, paragraph 5. <https://doi.org/10.4060/ca9229en>

35 Ibid. FAO says that 38 per cent of total fisheries and aquaculture production were traded internationally.

36 Most proposals by WTO members during the fisheries negotiations exclude aquaculture. The latest available fisheries subsidies working document of the fisheries working group (hereinafter referred by 'working document') also excludes aquaculture from the disciplines. Reference for the working document: World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5.

truly increases the protection of the world's fish stocks. The hypothesis developed in the subsequent chapters is that the current body of law of the WTO may not be compatible with environmentally driven obligations arising from a possible Fisheries Agreement. Therefore, some of the current WTO disciplines on subsidies, market access and *special and differential treatment* (SDT) need to be adjusted. In addition, this paper recognizes that the SDG 14.6 mandate only demands the WTO to discipline subsidies that lead to overcapacity, overfishing, and IUU fishing. Yet, the paper suggests that a Fisheries Agreement provides the WTO with the opportunity to address long-lasting issues in market access, such as *Process and Production Methods* (PPMs), without compromising the organization's core mandate, trade. In relation to PPMs, minimum standards and eco-labels, the paper makes no distinction between captured fish or aquaculture. Lastly, the paper does not address subsidies to aquaculture, *sanitary and phytosanitary* (SPS) measures, *genetically modified organisms* (GMOs), and the *Convention on International Trade of Endangered Species of Wild Fauna and Flora* (CITES). With regarding SPS measures, despite their impact on market access on fish trade, they are a subject of its own and shall be dealt with separately in an SPS Agreement discussion. The same applies to GMOs that may affect fish trade. With regarding CITES, it deals with wild fauna and flora and *only* protects species listed in the convention. CITES may be used as a fish protection tool as it allows for trade-related measures to be used for the conservation of selected species. Nonetheless, given its harmonious relationship with other WTO Agreements, this paper does not further explore the relationship between CITES and WTO rules.

Chapter 1 of the paper introduces the issues of a Fisheries Agreement under the WTO's umbrella: (a) Fisheries subsidies types and their impact. (b) IUU fishing. (c) Market access. (d) Small-scale fishers and how disciplining Fisheries may affect this group.

Chapter 2 looks into the WTO rules relevant to a Fisheries Agreement for disciplining subsidies and certain aspects of market access. It begins analysing the *Agreement on Subsidies and Countervailing Measures* (ASCM) to understand how it would interact with the environmental nature of reducing and prohibiting fisheries subsidies. Then, it

looks into the *General Agreement on Tariffs and Trade* (GATT) and the *Agreement on Technical Barriers to Trade* (ATBT) to address some aspects of market access. It explores the conflict between opening markets and protective environmental measures to show that market access should be regulated in a Fisheries Agreement to bring more stability to fish trade. Lastly, it identifies rules within other Multilateral Trade Agreements to address concerns of small-scale fishers. The aim of this section is to provide arguments on why a Fisheries Agreement needs to have its disciplines on subsidies, market access and SDT.

Chapter 3 presents key proposals on how to regulate subsidies in a Fisheries Agreement. The chapter provides suggestions on how to discipline fisheries subsidies through a ‘traffic light’ system similar to the one used in the ASCM, an effect-prohibition approach or an exception clause. The paper concludes that the most optimal approach to disciplining fisheries subsidies is through a traffic light system. It also suggests that *least developed countries* (LDCs) and small-scale fishers are *not* exempted from the disciplines of a Fisheries Agreement. Instead, this group may receive assistance in the form of subsidies or through a WTO Fisheries grant to improve compliance with market access barriers aimed at protecting fish stocks.

Chapter 1 Issues to be Addressed by a Fisheries Subsidies Agreement

1.1 Fisheries Subsidies

As defined by the ASCM, subsidies are financial contributions by a government or public institution within a Member’s jurisdiction that confers a benefit³⁷ to an

37 World Trade Organization. Agreement on Subsidies and Countervailing Measures (SCM). Part I: General Provisions. Article 1: Definition of a Subsidy. Text is as follows: “For the purpose of this Agreement, a subsidy shall be deemed to exist if: (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as "government"), i.e. where: (i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees); (ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits); (iii) a government provides goods or services other than general infrastructure, or purchases goods; (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally

enterprise, industry or a group of enterprises or industries.³⁸ Subsidies have long been known to cause economic and price distortions.³⁹ Nonetheless, they can also be a powerful governmental tool to support enterprises, the industry and households, especially during an economic crisis.⁴⁰

About USD35.4 billion are spent on fisheries subsidies globally.⁴¹ While most of the traded fish catches are from EEZs,⁴² subsidies can be destined for fishing activity in

followed by governments; or (a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994; and (b) a benefit is thereby conferred.”

38 World Trade Organization. Agreement on Subsidies and Countervailing Measures (SCM). Part I: General Provisions. Article 11: Specificity. Text is as follows: “2.1 In order to determine whether a subsidy, as defined in paragraph 1 of Article 1, is specific to an enterprise or industry or group of enterprises or industries (referred to in this Agreement as “certain enterprises”) within the jurisdiction of the granting authority, the following principles shall apply: (a) Where the granting authority, or the legislation pursuant to which the granting authority operates, explicitly limits access to a subsidy to certain enterprises, such subsidy shall be specific. (b) Where the granting authority, or the legislation pursuant to which the granting authority operates, establishes objective criteria or conditions governing the eligibility for, and the amount of, a subsidy, specificity shall not exist, provided that the eligibility is automatic and that such criteria and conditions are strictly adhered to. The criteria or conditions must be clearly spelled out in law, regulation, or other official document, so as to be capable of verification. (c) If, notwithstanding any appearance of non-specificity resulting from the application of the principles laid down in subparagraphs (a) and (b), there are reasons to believe that the subsidy may in fact be specific, other factors may be considered. Such factors are: use of a subsidy program by a limited number of certain enterprises, predominant use by certain enterprises, the granting of disproportionately large amounts of subsidy to certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy. In applying this subparagraph, account shall be taken of the extent of diversification of economic activities within the jurisdiction of the granting authority, as well as of the length of time during which the subsidy program has been in operation. 2.2 A subsidy which is limited to certain enterprises located within a designated geographical region within the jurisdiction of the granting authority shall be specific. It is understood that the setting or change of generally applicable tax rates by all levels of government entitled to do so shall not be deemed to be a specific subsidy for the purposes of this Agreement. 2.3 Any subsidy falling under the provisions of Article 3 shall be deemed to be specific. 2.4 Any determination of specificity under the provisions of this Article shall be clearly substantiated on the basis of positive evidence.”

39 World Trade Organization. (2006). Subsidies, Trade and the WTO: The Economics of Subsidies. Note: The trade economics and the understanding of impacts of subsidies are heavily based on theories developed in the 90s, therefore, the date of the Article is not of great concern here as these theories are used up to date for the analysis of subsidies impact.

40 See how government subsidies are being used to support industries, enterprises and even households to reduce the economic impact of COVID-19. Shang, B., Evans, B., and An, Z. (2020). Expenditure Support to Firms and Households. Special Series on Fiscal Policies to Respond to COVID-19. Fiscal Affairs, International Monetary Fund.

41 Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy*. Vol. 109.

42 Schiller, L. Bailey, M. Jacquet, J. Sala, E. (2018). High Seas Fisheries Play a Negligible Role in Addressing Global Food Security. *Science Advances*. In the abstract of the paper the authors point out that “total fish catch from the high seas represents only 4.2 per cent of

the subsidizing country's EEZ, another country's EEZ⁴³ or in RFMOs' territory.⁴⁴ Thus, catches coming from a particular EEZ were not necessarily harvested by the sovereign state. Several coastal states provide access agreements that allow foreigners to fish in their national waters.⁴⁵ These subsidies appear in many forms, from "grants to tax breaks, and access to below-cost goods and services, all of which can affect fishers' incomes, resource management, cessation of fishing activities, infrastructure, vessel modernization, to research and development."⁴⁶ Although some of the fisheries subsidies are beneficial for the environment, the majority of subsidies granted today⁴⁷ lead to overcapacity, overfishing, and IUU fishing.⁴⁸

Fisheries subsidies can be economically distorting as they only benefit the fishing industry and are not passed on to consumers as a price cut. They artificially reduce the cost of fishing and increase fishers' profits, allowing fishers "to continue fishing even when it would not be profitable otherwise."⁴⁹ Without subsidies, the market adjusts itself. Fishers that are no longer profitable leave the market and prices adjust

all marine capture. Only one species of fish, the Antarctic toothfish, is caught exclusively in the high seas." The paper used data from the year of 2016 FAO's fisheries database.

43 Countries pay fishing access fees to fish in other country's EEZs. For instance, the EU and China pay access fees for their vessels to fish in West African waters. These fees are considered here as subsidies as they are paid by the country and not by the vessel. Belhabib, D. Sumaila, R.U., Lam, V.W., Zeller, D., Le Billon, P., Kane, E.A., Pauly, D. (2015). Euros vs. Yuan: comparing European and Chinese fishing access in West Africa. *PLoS One* 10. e0118351.

44 Sala, E. Mayorga, J. Costello, C. Kroodsmas, D. Palomares, D.L.M., Pauly, D. Sumaila, R.U., Zeller, D. (2018). The economics of Fishing in the High Seas. *Science Advances*. Vol. 4, no. 6. DOI: 10.1126/sciadv.aat2504

45 Belhabib, D. Sumaila, R.U., Lam, V.W., Zeller, D., Le Billon, P., Kane, E.A., Pauly, D. (2015). Euros vs. Yuan: comparing European and Chinese fishing access in West Africa. *PLoS One* 10. e0118351.

46 Moerenhout, T. (December 2019). Policy Brief: Support to Fuel Consumption for Fisheries. IISD. Page 1. Paragraph 1.

47 Note that 63 per cent of the world's fisheries subsidies negatively impact the environment. This totals about USD22.2 billion in 'bad' subsidies. This information is retrieved from Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

48 FAO. (2020). Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings No. 65. Rome. <https://doi.org/10.4060/ca9165en>

49 Sumaila, R.U., Pauly, D. (2006). Catching More Bait: A Bottom-Up Re-estimation of Global Fisheries Subsidies.

according to the supply and demand of fish.⁵⁰ Furthermore, as fishers would leave the market, catch amount per fisher would likely grow.⁵¹ In the long term, as there would be less pressure in the fish stock if this effect is then passed on to consumers, the price of fish declines. On the other hand, in the presence of subsidies, in the long-term, customers are likely to see a price increase due to the decrease of catch and increase of fishing efforts. They end-up carrying a significant burden as subsidies transfer money from taxpayers to fishers. In addition, as subsidies inject capital in the fishing industry, it looks more attractive. This inflationary effect of the subsidy results in the labour movement from more efficient sectors and towards the less efficient fishing industry, resulting in an overall economic loss.⁵²

Additionally, subsidies that increase fishing effort or reduce the cost of inputs necessary for harvesting are harmful to the marine environment. They reduce the fishing cost, increasing a fleet's fishing effort up to where total cost equals total revenue, allowing fishers to fish above the *Maximum Sustainable Yield* (MSY),⁵³ that is, "the maximum catch (in numbers or mass) that can be removed from a fish population over an indefinite period."⁵⁴ According to the FAO, 65.8 per cent of fish stocks are within biologically sustainable levels compared to 90 per cent in 1990, while 34 per cent are overfished compared to 18 per cent in 1990 and only 6 per cent are under fished compared to 32 per cent in 1990.⁵⁵ By continuing to implement these

50 This assumption is made based on the basic economic principle of supply and demand.

51 If there are no strict quotas in place.

52 Gallic, L.B., and Cox, A. (2005). An economic analysis of illegal, unreported and unregulated (IUU) fishing: Key drivers and possible solutions. *Marine Policy* 30. Pages 689-695.

53 Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. OECD Food, Agriculture and Fisheries Papers, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>

54 Maunder, N.M. (2008). Maximum Sustainable Yield. *Encyclopedia of Ecology*. Quoted from the paper's abstract.

55 FAO. (2020). Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings No. 65. Rome. <https://doi.org/10.4060/ca9165en>

types of subsidies, “fishing develops to a point where resource overexploitation makes it impossible to achieve maximum sustainable long-term benefits.”⁵⁶

The total reduction of fisheries subsidies that increase fishing capacity and reduce the cost of fishing has, in economically modelled studies,⁵⁷ resulted in an “increase of fish biomass, capitalization by fisheries, in the *marginal productivity* (MP) of fishing,⁵⁸ and consumption.”⁵⁹ Such reduction can also positively impact social inequality because most of these types of subsidies are given to big fishers, thus giving them an even higher competitive advantage over small-scale fishers and increasing the inequality in the sector.⁶⁰ Lastly, as biomass recovers and increases, fishers from small to large will benefit from the fishery’s recovery.⁶¹ This result is particularly important for the selection of subsidies that may be disciplined by fisheries subsidies rules.

In this section, the paper assesses the types of fisheries subsidies and their economic and environmental impact to understand what types of subsidies must be disciplined

56 Sumaila, R.U., Pauly, D. (2006). *Catching More Bait: A Bottom-Up Re-estimation of Global Fisheries Subsidies*. Fisheries Centre. University of British Columbia. Quote taken from page 4. Paragraph 2.2.

57 See the study done by Da-Rocha, M. J., García-Cutrin, J., Pallezo, R. and Sempere, J. (September 2017). *The Social Cost of Fishery Subsidy Reforms*. *Marine Policy*. Vol. 83. Pages 236-242. The study creates a general equilibrium model for a fishery with heterogeneous vessels and tests it with data from shrimp fisheries in Mexico. The study finds that when the TOTAL removal of subsidy is done, and overtime the fish stock recovers, there is an increase in biomass, capitalization, and consumption. However, if the subsidy has no direct impact on the degradation of fish stocks, then this result is not present.

58 Marginal productive means the amount produced with the addition of one more unit of production input. When it increases, it means that with one additional unit of input, one is capable of producing more than without that input. When in scarcity, MP can actually diminish.

59 Da-Rocha, M. J., Garcia-Cutrin, J., Pallezo, R. and Sempere, J. (September 2017). *The Social Cost of Fishery Subsidy Reforms*. *Marine Policy*. Vol. 83. Pages 236-242.

60 Ibid and Schuhbauer, A. Chuenpagdee, R. Cheung, L.W.W, Greer, K., Sumaila, R.U. (2017). *How Subsidies Affect the Economic Viability of Small-scale Fishers*. *Marine Policy*. Vol. 82. Pages 114-121.

61 Da-Rocha, M. J., Garcia-Cutrin, J., Pallezo, R. and Sempere, J. (September 2017). *The Social Cost of Fishery Subsidy Reforms*. *Marine Policy*. Vol. 83. Pages 236-242.

by a Fisheries Agreement. A table with a summary of those subsidies may be encountered in Annex A.

1.1.1 Research and Policy-Building

The investment in *research and development* (R&D) of innovations is seen across the economic literature as extremely beneficial for society due to its positive spillovers and its effect on economic growth.⁶² R&D can also be beneficial to the sustainability of the world's fish stocks. It allows for the creation of innovative technologies and techniques that can develop into more environmentally friendly vessels and equipment, more sustainable fishing methods, the improvement of knowledge on fish stocks sustainability, monitoring and harvesting rates, and more. Nonetheless, R&D can also be used to improve fish targeting and increase capture, thus ultimately increasing a vessel's fishing capacity.⁶³ In terms of government subsidies, the ones directed at R&D to increase social and environmental sustainability would have a positive environmental impact, while support to R&D related to increasing fishing capacity or reducing the cost of fishing would have the opposite effect.⁶⁴

62 The *New Growth Theory* as presented by Grossman and Helpman in 1990 followed to evolve in economics. Nonetheless, it remains as one of the mainly used theories that show the positive spillovers of innovation in society. See Grossman, M. G. Helpman, R. (1990). Trade, Innovation and Growth. *The American Economic Review*. Vol. 80, No. 2. Papers and Proceedings of the Hundred and Second Annual Meeting of the American Economic Association, pages 86-91. Nonetheless a more recent paper on it is done by Uppenberg, K. (2009). Innovation and Economic Growth. *European Investment Bank Papers*, Vol.14, No. 1. EIB. <http://dx.doi.org/10.2139/ssrn.1828904>.

63 Subsidies in this category that are aimed at R&D are adapted from Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

64 This conclusion is drawn from the arguments, previously established at the beginning of this section, that show that subsidies to increase fishing capacity are environmentally harmful. Thus, if subsidies are granted for R&D that then result in increasing fishing capacity or reducing the cost of fishing, then it will have a negative environmental impact in fish stocks.

Subsidies directed at policy building, that is, directed at researching and data gathering, planning, designing, and implementing fisheries policies⁶⁵ have demonstrated to be beneficial for the environment because fisheries policies have moved from directly supporting fishers to ensuring the improvement of resource use and sustainability. “The fisheries sector has seen important policy change over the past decade. In particular, an increased focus on resource and ecosystem sustainability. Transfers of public money to the sector have been shifted from direct aid to fishers towards support for general services designed to improve the sector's sustainability and competitiveness. Policies and practices aimed at preventing IUU fishing have also largely been revised in line with internationally recognised best policies and practices.”⁶⁶ These changes came about due to a greater consensus in the international community that fish stocks sustainability is important to the maintenance of the fishing industry and especially for the livelihood of coastal communities, in which half of the employees are women.⁶⁷ Furthermore, given the current status of the world’s fish stocks⁶⁸ and the predicted effect of climate change in the oceans,⁶⁹

65 Subsidies for policy-building have been inspired by the policy-building category in the *Climate Change Toolbox for Agriculture* presented by Häberli, C. (2018). Potential conflicts between agricultural trade rules and climate change treaty commitments. The State of Agricultural Commodity Markets (SOCO) 2018: Background paper. Rome, FAO, 2018. License: CC BY-NC-SA 3.0 IGO.

66 OECD. (2019). Encouraging Policy Change for sustainable and Resilient Fisheries. Trade and Agriculture Directorate Fisheries Committee. Organization for Economic Co-operation and Development. Paris. Document number: TAD/FI(2017)13/FINAL. Quote retrieved from page 5.

67 FAO. (2018). The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Food and Agriculture Organization of the United Nations. Rome. License: CC BY-NC-SA 3.0 IGO..

68 As previously mentioned at the start of the section, according to FAO 65.8 per cent of fish stocks are within biologically sustainable levels compared to 90 per cent in 1990, while 34 per cent are overfished compared to 18 per cent in 1990 and only 6 per cent are underfished compared to 32 percent in 1990. FAO. (2020). Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings No. 65. Rome. <https://doi.org/10.4060/ca9165en>

69 FAO predicts that the MSY of fish stocks within EEZs will fall between 3 to 12 per cent by 2050 due to climate change. See Barange, M., Cochrane, K. (2018), Impacts of climate change on fisheries and aquaculture: Conclusions, in Barange, M. et al. (eds.), Impacts of Climate Change on Fisheries and Aquaculture: Synthesis of Current Knowledge, Adaptation and Mitigation Options, Food and Agricultural Organization of the United Nations. Rome.

policies are essential to ensure the sustainability of the world's fish stocks and the fishing sector.

1.1.2 Management Programs and Services

This category of subsidies includes funds allocated to the management of fish stocks, including stock assessment and control, conservation measures as enhancement and restoration and the creation of *marine protected areas* (MPAs). It also covers funds assigned to manage fisheries such as allocating resources and effort and governing fishing activities, including monitoring and controlling fishing effort and IUU fishing.⁷⁰

This category of fisheries subsidies is seen as *beneficial* in the literature.⁷¹ That is, it does not contribute to fish stocks depletion. On the contrary, the subsidies *here* contribute to the conservation of fish stocks. They also ensure that fishing enterprises are managed and do not fish more than the MSY. Management programs, such as the allocation, monitoring and enforcement of quotas, combined with effective incentive programs, have shown to eliminate the negative environmental effect of some

⁷⁰ This category includes all subsidies destined to the management of fish stocks and fisheries which have been pointed as beneficial across the years in fisheries subsidies literature. It does not include creating rules and regulations for fisheries, these are covered in category 1.1.1. *First*, refer to Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. *Second*, Sumaila, R.U., Khan, A.S., Dyck, A. J., Watson, R., Munro, G., Tydemers, P., and Pauly, D. (2010). A bottom-up re-estimation of global fisheries subsidies. *Journal of Bioeconomics*, 12. Pages 201–225. *Third*, Porter, G. (2011). Fisheries Subsidies and Overfishing: Towards a Structured Discussion. *Fourth*, Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

⁷¹ *Ibid*. Please refer to reference 49 for several papers that across the years have shown that these subsidies positively impact the health of fish stocks.

*harmful*⁷² subsidies. This happens because they limit the quantity of fish that can be harvested while providing fishers' financial incentives to *not* fish.⁷³

1.1.3 Social Policies

Social policies include direct and indirect income support programs offered by a WTO Member to one or a group of fishers, as well as worker adjustment and retraining and rural fisheries community development programs. Policies of income supplementation act by increasing income directly through a wage supplementation or indirectly through the provision of goods and services, such as insurance and disaster payments. They may be given due to unemployment, as prevention to natural disasters, as an incentive for fishers to stop fishing temporarily, with the aim of increasing fishers' income or to foster community development. Worker adjustment and retraining programs are policies aimed at placing fishers in a different fishing sector or retraining them to work in another growing sector of the economy. Rural fisheries community development are subsidies aimed at improving living conditions in rural fishing communities. They may include the improvement of these communities' infrastructure and the provision of loans and other capacity-building measures.⁷⁴ As the rural fisheries community development covers the investment in infrastructure, including processing and storage facilities, these subsidies will not be covered in a separate section as their effect in poor or more developed communities remains the same. The subsidies under this category are pointed out in the fishing

72 Here in particular I refer to direct and indirect income support subsidies and other social subsidies that could negatively impact the environment as seen in the next category, as well as vessel decommissioning, port and infrastructure investments and some forms of price support as seen in Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. And Porter, G. (2011). Fisheries Subsidies and Overfishing: Towards a Structured Discussion.

73 Refer to Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. And Porter, G. (2011). Fisheries Subsidies and Overfishing: Towards a Structured Discussion.

74 Some subsidies under the 'social policy' category were taken from either one of the following papers or from both: Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. OECD Food, Agriculture and Fisheries Papers, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en> and And from Sumaila, R.U., Lam, V., Le Manach, F., Swartz, W., Pauly, D. (2013). Global Fisheries Subsidies. Directorate-General for Internal Policies. Policy Department B: Structural and Cohesion Policies. European Parliament. Fisheries. Document requested by the European Parliament's Committee on Fisheries.

subsidies literature as *ambiguous*.⁷⁵ That is, the impact of these subsidies on the sustainability of fish stocks is ambivalent. The conditions under which they are applied affect their impact on fish stocks.⁷⁶ Subsidies that work as an input⁷⁷ for fishing, such as fuel support, are not included in this category.

Income supplementation, direct or indirect, has shown to increase fishing capacity in a *small* proportion. *Firstly*, these policies are generally given to a small number of small-scale fishers to alleviate poverty, instead of big fishers. *Secondly*, as small-scale fishers have a smaller impact on fish stocks than larger fishers, an increase in their income results in a smaller impact in the environment as their fishing efforts continue to be limited by their fishing capabilities and equipment.⁷⁸ Furthermore, income support in the presence of a strict fisheries management program and combined with retraining fishers into another sector is shown to positively impact fishers' social status and reduce the pressure on fish stocks.⁷⁹ Income supplementation alone,

75 The following paper, which is based on several previous research papers, deems these subsidies ambiguous. Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

76 These subsidies have been studied in several papers. Across the literature the impact of these subsidies can be good and can be bad depending on what conditions they are applied. *First*, the following papers only refer to the above subsidies as ambiguous, without providing further explanation under what conditions they are good or bad: Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109. And Sumaila, R.U., Lam, V., Le Manach, F., Swartz, W., Pauly, D. (2013). *Global Fisheries Subsidies*. Directorate-General for Internal Policies. Policy Department B: Structural and Cohesion Policies. European Parliament. Fisheries. Document requested by the European Parliament's Committee on Fisheries. *Second*, the following paper refers to income support subsidies as having a very small effect on fishing effort: Martini, R. Innes, J. (2018). *Relative Effects of Fisheries Support Policies*. OECD Food, Agriculture and Fisheries Papers, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>. *Third*, the two following papers noted that income support subsidies have no environmental impact if they are applied under strong management of fisheries and financial support schemes for fishers: Porter, G. (2004). *Analyzing the resource impact of fisheries subsidies: a matrix approach*. United Nations Development Program, Geneva. And Porter, G. (2011). *Fisheries Subsidies and Overfishing: Towards a Structured Discussion*.

77 Input here refers to what is put in or used for the action of harvesting fish.

78 Martini, R. Innes, J. (2018). *Relative Effects of Fisheries Support Policies*. OECD Food, Agriculture and Fisheries Papers, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>.

79 Several papers have studied the effect of income support to fishers on fish stocks and social status. *First*, Martini, R. Innes, J. (2018). *Relative Effects of Fisheries Support Policies*. OECD Food, Agriculture and Fisheries Papers, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>. *Second*, Schuhbauer, A. Chuenpagdee, R. Cheung, L.W.W, Greer, K., Sumaila, R.U. (2017). *How Subsidies Affect the Economic Viability of Small-scale Fishers*. *Marine Policy*. Vol. 82. Pages 114-121, *And third*, Teh, L., Cheung, L. W.

provided to big fishers or a high number of small fishers, can be harmful to the sustainability of fish stocks without the presence of an effective fisheries management scheme.⁸⁰ Some studies claim that these subsidies may also create community dependency on government funds; nonetheless, no further facts supporting this claim have been found by the author of this paper.⁸¹

Subsidies for fishers' replacement and training can be environmentally harmful when fishers switch sectors within the fishing industry without efficient fishery management in place. This way, fishing capacity (in the form of vessels, technology and labour) is simply transferred from fishing one particular fish stock to another. For instance, northern-cod stocks in Canada were overfished in the 1990s, collapsing the Canadian northern-cod industry and leading the Canadian authorities to introduce the *Newfoundland Moratorium* prohibiting northern-cod exploitation in Newfoundland.⁸² The moratorium was followed by the Canadian government's measures to reduce the impact of the prohibition in the northern-cod fishing industry and fishers. Canada provided \$484 million Canadian dollars for an income supplementation program called *Northern Cod Adjustment Program* (NCARP). It followed allocating \$1.9 billion Canadian dollars to *The Atlantic Groundfish Strategy* (TAGS). The program

W., Cornish, A., Chu, C. and Sumaila, R.U. (April 2008). A survey of alternative livelihood options for Hong Kong's fishers. *International Journal of social Economics*. And Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva.

80 Income support subsidies are pointed across the years in fisheries subsidies literature as environmentally harmful when placed without fisheries management and when distributed along a big group of fishers. *First*, refer to Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. *Second*, Sumaila, R.U., Khan, A.S., Dyck, A. J., Watson, R., Munro, G., Tydemers, P., and Pauly, D. (2010). A bottom-up re-estimation of global fisheries subsidies. *Journal of Bioeconomics*, 12. Pages 201–225. *Third*, Porter, G. (2011). Fisheries Subsidies and Overfishing: Towards a Structured Discussion. *Fourth*, Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

81 Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109. And Sumaila, R.U., Lam, V., Le Manach, F., Swartz, W., Pauly, D. (2013). Global Fisheries Subsidies. Directorate-General for Internal Policies. Policy Department B: Structural and Cohesion Policies. European Parliament. Fisheries. Document requested by the European Parliament's Committee on Fisheries.

82 Schrank, E. Roy, N. (2013). The Newfoundland Fishery and Economy Twenty Years after the Northern Cod Moratorium. *Marine Resource Economics*. Vol. 28, No. 4. Pages 397-417. <https://doi.org/10.5950/0738-1360-28.4.397>

aimed at supporting northern-cod fishers and people in the northern-cod fishing processing industry to train, pursue other employment opportunities or retire. Years later, the Canadian government allocated further \$730 million Canadian dollars for retraining and replacing fishers displaced by the *Moratorium*.⁸³

Simultaneously, there was a worldwide boom in the crab and shrimp industries,⁸⁴ allowing the Canadian cod industry to switch to the snow-crab and northern-shrimp sectors. As a result of the Canadian government efforts, many fishers and workers in cod-fish processing could switch to the new shrimp and crab industries. However, this transfer was not equal as many small-scale fishers were unable to acquire the knowledge and equipment to fish shrimp, which is normally found in deeper waters. Furthermore, small-scale fishers in more remote rural communities were unable to access the Canadian government programs and receive support due to the lack of institutionalization and civil engagement of these communities.⁸⁵

Due to the decline in codfish, crustaceans started to proliferate more in the Canadian waters. Shrimp and crab stocks grew since predator codfish were present in much smaller quantities. As fishing efforts switch to the shrimp and crab industries, despite

83 Hamilton, C.L., Butler, J.M. (2001). Outport Adaptions: Social Indicators through Newfoundland's Cod Crisis. *Human Ecology Review*. Vol. 8, No. 2.

84 Apostle, R., Barrett, G., Holm, P., Jentoft, S., Mazany, L., McCay, L., Mikalsen, K. (1998). *Community, States, and Market on the North Atlantic Rim: Challenges to Modernity in the Fisheries*. Toronto: University of Toronto Press.

NOTE: The paper acknowledges that *today* crabs and shrimps are vastly farmed. Nonetheless, this fact has not affected the pressure from fishing on stocks of crabs and shrimps across the world since demand for these two goods continues to grow, while supply has been similar for years. Thus, most of the new demand is what is causing the growth of farmed crustaceans. Nonetheless, when fishing effort is constant and is above the MSY, overtime, depending on the degree of exploitation, fish mass is then reduced according to this degree. Which is the case of the crab and shrimp from Canada until the Canadian government started reducing the quotas to reduce pressure on stocks. According to the *first* reference here, farmed shrimps account for about 57 per cent of total shrimp production while FAO (2020) points that about sixty percent of crustaceans (which include crabs, shrimps and other animals within this species) were farmed. Bjorndal, T. Guillen, J. (2016). *Market Competition Between Farmed and Wild Fish: A Literature Survey*. Food and Agriculture Organization of the United Nations. Rome. And FAO. (2020). *Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus*. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings No. 65. Rome. <https://doi.org/10.4060/ca9165en>

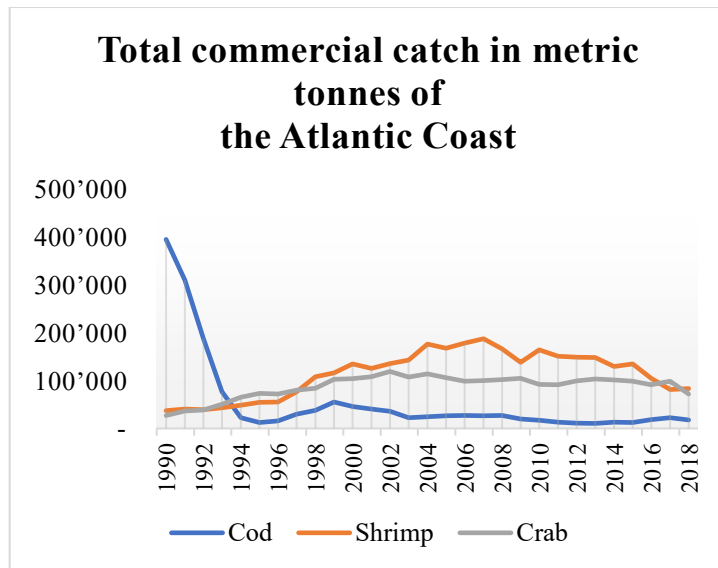
85 Hamilton, C.L., Butler, J.M. (2001). Outport Adaptions: Social Indicators through Newfoundland's Cod Crisis. *Human Ecology Review*. Vol. 8, No. 2.

the quotas schemes place by the Canadian government and the reduction of predators in the environment, “shrimp per-capita production has declined since the mid-2000s.”⁸⁶ This decline is not only attributed to fishing, but also to changes in environmental conditions, such as a recovery of the cod population and climate change. Nonetheless, this case study shows that government subsidies to supplement income and to retrain and replace fishers may not result in the equal opportunity of jobs across different social classes. Furthermore, it may reduce the pressure from one fish stock, but increase in another even in the presence of quotas.⁸⁷ Lastly, as seen below in Graph 1.1, cod-fish catches have never gone back to what they were in the 90s. Up to this date, the Northern-cod fish stock remains fragile and quotas remain small.⁸⁸

86 Fisheries and Oceans Canada. (2018). An assessment of Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Areas 4–6 and of Striped Shrimp (*Pandalus montagui*) in Shrimp Fishing Area 4 in 2016. Science Advisory Report 2018/12. Canadian Government. Retrieved from: https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2017/2017_012-eng.html. Quote is from section Environment and Ecosystem, paragraph 5.

87 As seen in Graph 1.1, shrimp and crab catches are now declining. The decline is not as steep as the one from Cod because cod was an ‘open access’ fishery which then led to the tragedy of commons, i.e., degradation of the stock. On the other hand, shrimp and crab fisheries are managed with strict quota schemes, yet, there has been a decline in the past years. Data for catches can be found in Annex B of this paper.

88 Fisheries and Oceans Canada. (2017). Stock Assessment of Nafi Subdivision 3PS Cod. Science Advisory Report 2017/002. Canadian Government. Retrieved from: <https://waves-vagues.dfo-mpo.gc.ca/Library/40597441.pdf>



Graph 1.1⁸⁹

Rural fisheries community development programs are generally aimed at alleviating poverty in poor coastal communities. While some of these policies can help to foster development in poor communities, they can also lead to fishing overcapacity when applied under certain conditions. Infrastructure⁹⁰ building provides communities with more accessibility,⁹¹ allowing fishers to better deliver their catches from the ocean to its final destination. However, it also attracts more fishers from communities that do not have a good infrastructure. If these new fishers and the growth of the fishing sector, fostered by the improvement in infrastructure, is not controlled through schemes such as strict quotas, it can lead to overfishing. This happens because it increases the fishing capacity of the community, and any subsidy that increases

89 Data is retrieved from The Government of Canada. Fisheries and Ocean Department. It can be accessed from the link: <https://www.dfo-mpo.gc.ca/stats/commercial/sea-maritimes-eng.htm>. Retrieved on 3rd of December 2020. The graphic was created by the author of this paper based on the data provided by the Canadian Government. This data may be found in Annex B of this paper.

90 As example, the construction of better ports and roads as well as of landing, processing and cooling facilities.

91 For literature on how infrastructure can foster development in rural communities please see: *First*, Na, K. Y., Han, C. H., Yoon, C. H. (2013). Network effect of transportation infrastructure: A dynamic panel evidence. *The Annals of Regional Science*, 50(1), 1-10. *Second*, Hong, J., Chu, Z., & Wang, Q. (2011). Transport infrastructure and regional economic growth: Evidence from China. *Transportation*, 38(5), 737-752. *Third*, Brooks, D. H., & Go, E. C. (2011). Infrastructure's role in sustaining Asia's growth. *ADB Economic Working Paper Series*, 294, 1-43.

fishing capacity under open conditions can lead to overexploitation.⁹² These subsidies can also incentivize IUU fishing, even under quota schemes. As fishing capacity increases and quotas are limited, fishers may resort to illegal activities. Investment in the form of loans can have a similar effect. It enables fishers to improve their fishing boat/vessel and equipment, possibly leading to an increase in fishing capacity.⁹³

1.1.4 Decommissioning Subsidies

Decommissioning subsidies include vessel buybacks, permit and license retirement programs, and international fisheries access. These subsidies are implemented with the aim of reducing the capacity of national fishing fleets. Decommissioning subsidies, except international fisheries access, have often originated “as a response to crisis due to the collapse or decline of stocks or a reallocation of catch rights.”⁹⁴

The immediate effect of vessel buybacks and permit and license retirement is the increase in income for the remaining fishers that do not have catch quotas or that are unable to reach their full quota. This effect happens because fish stocks have a finite amount of resources, and by using fewer vessels, the resource is distributed within a smaller number of fishers, increasing catch per fisher.⁹⁵

92 According to the problem of collective goods as explained by Ostrom, E. (1990) in *Governing the Commons: The Evolution of Institutions for Collective Action*.

93 Several papers have analyzed to some extent these types of subsidies. *First*, World Bank. (1992). A study of international fisheries research. Policy and research series 19. The World Bank, United Nations Development Program, European Commission, and United Nations Food and Agriculture Organization. Washington, DC. United States of America. *Second*, Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. *Third*, Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. OECD Food, Agriculture and Fisheries Papers, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>. *Fourth*, Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

94 Holland D., Gudmundsson E., Gates J. (1999). Do fishing vessel buyback programs work: a survey of the evidence. *Marine Policy* 23 (1). Pages 47-69. Quoted from page 59, paragraph 6.

95 Clark C.W., Munro G.R., Sumaila R.U. (2005). Subsidies, buybacks, and sustainable fisheries. *Journal of Environmental Economics and Management* 50. Pages 47-58.

The positive impact, as expected,⁹⁶ of vessel and license buybacks in the sustainability of fish stocks can be considerably small. It may seem logical that the reduction of fleet size also reduces exploitation, but without a quota limit, it simply allows the remaining vessels to increase their catch.⁹⁷ That is, in open access, when there is no exercise of property rights and control over fish stocks, these types of subsidies can be environmentally harmful. Even when implemented under strict fisheries management, such subsidies can lead to the deterioration of fish resources. This happens when the fishing industry anticipates the implementation of these subsidies, resulting in an immediate increase in fishing capacity, which happens much faster than the buyback policy. Consequently, resulting in “a threat to the resource manager’s ability to control the total harvest. The anticipated subsidy obviously intensifies the threat, until the buy-back actually comes into effect. Thus, when anticipated, the ‘good’ buy-back subsidy is, in fact, a very bad subsidy indeed.”⁹⁸

Fisheries access subsidies are those destined at supporting boats wearing a Member’s flag to exploit a fish stock located at another Member’s EEZ.⁹⁹ These include the fees paid for the license and other financial support that enables vessels to travel a long distance in order to reach the licensor’s EEZ. Those access agreements are widely spread and are permitted under Article 62(2) of the UNCLOS “Coastal state shall determine the capacity to harvest the living resources of the exclusive economic zone. Where the coastal state does not have the capacity to harvest the entire allowable catch, through agreements or other arrangements and pursuant to the terms,

96 Governments generally introduce the buyback to reduce pressure in the fish stock. Please refer to sources number 90, 91 and 94.

97 Holland D., Gudmundsson E., Gates J. (1999). Do fishing vessel buyback programs work: a survey of the evidence. *Marine Policy* 23 (1). Pages 47-69.

98 Munro G., Sumaila R.U. (2002). The impact of subsidies upon fisheries management and sustainability: The case of the North Atlantic. *Fish and Fisheries* 3. Pages 233-250. Quote retrieved from page 244, paragraph 7.

99 Adapted from Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

conditions, laws and regulations referred to in paragraph 4, give other states access to the surplus of the allowable catch...”¹⁰⁰

While enabling vessels to fish in another Member’s EEZ may reduce the fishing capacity in national waters, it may still have a negative impact in the licensor’s fish stocks.¹⁰¹ Since fishing capacity is simply transferred from one jurisdiction to another, these subsidies are within the capacity-enhancing category that leads to boat or vessel overcapacity.¹⁰² These subsidies have been pointed out as environmentally harmful by several studies.¹⁰³

The environmental impact in the licensor’s EEZ will depend on the control the licensor has over the ownership of fish within its territory. If catch schemes are in place with strict monitoring, and fish stocks are not exploited over their MSY, then the impact of the access agreement should be minimal. However, often licensor countries are poor and lack the tools and sophistication to access the conditions of fish stocks, impose catch controls and to supervise to guarantee vessels are following the rules. For example, the *European Union* (EU) has a *Sustainable Fishing Partnership Agreement* (SFPA) with countries in West Africa. While the EU subsidises its vessels to have access to West African waters, these countries “lack monitoring capability and maritime assets to measure and control the consequent exploitation of their fishery

100 UNCLOS (1982). Paragraph 46.

101 Clark C.W., Munro G.R., Sumaila R.U. (2005). Subsidies, buybacks, and sustainable fisheries. *Journal of Environmental Economics and Management* 50. Pages 47-58.

102 The following paper deems fisheries access subsidies as harmful for the environment since they are still capacity enhancing subsidies. Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

103 *First*, Witbooi E. (2011). *Fisheries and Sustainability: A Legal Analysis of EU and West African Agreements* (first ed.), Martinus Nijhoff, The Netherlands. *Second*, Le Manach, F., Andriamahefazafy, M., Harper, S., Harris, A., Hosch, G., Lange, G.M., Zeller, D., Sumaila, R.U. (2013). Who gets what? Developing a more equitable framework for EU fishing agreements, *Marine Policy*, 38. Pages 257-266. *Third*, Seto, K. (2016). West Africa and the new European common fisheries policy: impacts and implications. *Ocean Law and Policy*. Pages. 68-100

resources.”¹⁰⁴ Several fish stocks in West African waters were found to be at unsustainable levels.¹⁰⁵ However, as these countries have no marine resource management capabilities, their resources continue to be exploited over the MSY.¹⁰⁶

The harmful impact of those subsidies, which is mainly due to weak resource management in the licensor Member represents a challenge to the conservational aim of SDG14.6. While these subsidies can be regulated by the WTO, their regulation or prohibition will not necessarily result in a reduction in access agreements. After all, “revenue from fishing licenses granted to other countries comprise an essential revenue component for many small island nations.”¹⁰⁷

1.1.5 Subsidies to Capital and Variable Costs

Subsidies to capital costs include any “interventions that lower the cost of borrowing for the construction, renewal, or modernization of fishing vessels, including concessional loans from banks, guarantees against default on commercial loans, loan restructuring, loans with lower than normal interest rates and government-funded loans. They also include the direct financial support towards capital operational costs for fishing vessel (and gear) construction, renewal or modernization, and/or direct

104 Okafor-Yarwood, I. Belhabib, D. (February 2020). The duplicity of the European Union Common Fisheries Policy in third countries: Evidence from the Gulf of Guinea. *Ocean & Coastal Management*. Vol. 184. Page 2, paragraph 4. <https://doi.org/10.1016/j.ocecoaman.2019.104953>

105 First, Doumbouya, A., Camara, T.O., Manie, J., Intchama, F.J., Jarra, A., Ceesay, S., Guèye, A., Ndiaye, D., Beibou, E., Padilla, A., Belhabib, D. (March 2017). Assessing the effectiveness of monitoring control and surveillance of illegal fishing: the case of West Africa. *Frontiers in Marine Science* 4. Second, Belhabib, D., Sumaila, R.U., Le Billon, P. (2019). The fisheries of Africa: exploitation, policy, and maritime security trends. *Marine Policy*, pages 1–13. Third, Okafor-Yarwood, I. (2019). Illegal, unreported and unregulated fishing, and the complexities of the sustainable development goals (SDGs) for countries in the Gulf of Guinea. *Marine Policy* 99, pages 414-422

106 Okafor-Yarwood, I. Belhabib, D. (February 2020). The duplicity of the European Union Common Fisheries Policy in third countries: Evidence from the Gulf of Guinea. *Ocean & Coastal Management*. Vol. 184. Page 2, paragraph 4. <https://doi.org/10.1016/j.ocecoaman.2019.104953>

107 Bahety, S., Mukiibi, J. (2017). WTO Fisheries Subsidies Negotiations: Main Issues and Interests of Least Developed Countries. *CUTS International*, Geneva. Page 13, paragraph 5.

provision of equipment.”¹⁰⁸ Subsidies to variable costs include “policies that reduce fishery operating costs, including tax concessions.”¹⁰⁹ I.e., subsidies that work as an input for harvesting fish, including fuel subsidies.

Cost subsidies (capital and variable) are environmentally *harmful*. They reduce the cost of fishing, allowing fishers to increase fishing capacity and fleet that leads to resource overexploitation.¹¹⁰ These types of subsidies would only be beneficial if they were conceded to a limited category of ‘environmentally friendly goods.’ For example, for fishing gear that does not catch smaller fish or for making a vessel more environmentally friendly. A study of Chinese vessels fishing tuna and swordfish showed that without subsidies, vessels would be unable to cover their costs. In some cases, revenues covered up to 85 per cent of the cost, leaving vessels with 15 per cent of not covered expenditure and no profit. Therefore, if costs subsidies were not provided, the market would fix itself. I.e., non-profitable vessels would stop fishing, consequently, reducing pressure on fish stocks.¹¹¹ In the case of elimination of fuel subsidies, which is the subsidy most commonly provided by a government,¹¹² it could

108 Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109..

109 Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. Page xi, paragraph 6.

110 This conclusion is very consistent across fisheries subsidies literature. From papers as early as 2004 to papers published in 2020. See *First*, refer to Porter, G. (2004). Analyzing the resource impact of fisheries subsidies: a matrix approach. United Nations Development Program, Geneva. *Second*, Sumaila, R.U., Khan, A.S., Dyck, A. J., Watson, R., Munro, G., Tydemers, P., and Pauly, D. (2010). A bottom-up re-estimation of global fisheries subsidies. *Journal of Bioeconomics*, 12. Pages 201–225. *Third*, Porter, G. (2011). Fisheries Subsidies and Overfishing: Towards a Structured Discussion. *Fourth*, Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

111 Sem, S., Cartwright, I. (December 2019). Exploring the Possible Impacts of WTO Rules on Fisheries Subsidies: The Case of the Southern Longline Tuna Fishery in the Western and Central Pacific. International Institute for Sustainable Development.

112 The following paper shows that fuel subsidies are the most commonly provided subsidies. They account for 22 per cent of the total of fisheries subsidies. Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T.G., Lam, W.L.V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

even lead fishers to acquire more efficient engines. I.e., engines that use less fuel and are more environmentally friendly.¹¹³

1.2 IUU Fishing

IUU fishing is another contributor to the depletion of the world's fish stocks. That is because "IUU fishing vessels are not bound by international regulations on the excess capacity of the fishing fleet."¹¹⁴ IUU vessels' costs are lower than that of legal vessels as they tend to evade taxes and pay cheaper labour. Thus, IUU vessels will likely try to maximise their profit and fish as much as possible, completely undermining the conservation of fish stocks.¹¹⁵ When a catch is *illegally* obtained, that is, obtained in violation of national or international laws, it likely undermined the conservation measures in place such as quotas to protect fish stocks. *Unreported* catches can also contribute to fish stocks depletion as it leads to inaccurate data collection, which may affect the management of the sustainability of a particular fish stock. Furthermore, most of the time, they are also illegal catches. *Unregulated* catches, which are also inconsistent with international law and done by vessels without a nationality or under the flag of a country that is not part of international treaties on fish stocks, also undermine the laws on fish stocks conservations and management.¹¹⁶ According to the FAO, "IUU fishing can lead to the collapse of a fishery or seriously impair efforts to rebuild stocks that have already been depleted."¹¹⁷

113 This is a speculation of the author.

114 See Metzuzals, K., Baird, R., Pitcher, T., Sumaila, R.U, and Pramod, G. (2009). One Fish, Two Fish, IUU and No Fish: Unreported Fishing World-Wide. Pages 166-180 in Grafton, Q.R., Hilborn, R., Squires, D., Tait, M. and Williams, M. (eds) Handbook of Marine Fisheries Conservation and Management. Oxford University Press, UK. Page 170. Table 12.1.

115 Pitcher, T., Watson, R., Forrest, R., Valtysson, H., and Guenette, S. (2002). Estimating illegal and unreported catches from marine ecosystems: A basis for change. Fish and Fisheries 3. Pages 317–339

116 FAO. (2001). International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Food and Agriculture Organization of the United Nations. Rome.

117 Ibid. Quote from section I.1.

All fisheries subsidies that contribute to overcapacity¹¹⁸ provide an incentive to IUU fishing because they lower the cost of IUU fishing, to the point where the risks of the illegal activity are perceived lower than the financial benefits of IUU fishing.¹¹⁹ The latest study, estimating IUU fish catches possibly traded, pointed it to potentially amount between 7.7 and 14.0 million metric tons.¹²⁰ If the same amount were true for 2013,¹²¹ it would correspond to about 5.8 to 10 per cent of global fish and seafood consumption.¹²² IUU threatens the commercial viability of catches and represents a loss for the legitimate fishing market of between USD8.9 and USD17.2 billion per year.¹²³

IUU fishing can also increase unemployment in the fishing industry. As IUU vessels can target fish stocks also targeted by domestic fishers, they can negatively impact domestic fishers' livelihood as fish stocks decline. This diversion of catches from legitimate to illicit fishing market results in a potential global economic impact

118 Here the paper refers to subsidies that increase fishing capacity as studied in section of this paper. Such subsidies are: Social policy subsidies, infrastructure subsidies, decommissioning subsidies and subsidies to capital and variable costs.

119 Hutniczak, B., Delpuech, C. (30 November 2018). *Combating Illegal, Unreported and Unregulated Fishing. Where countries stand and where efforts should concentrate in the future.* Trade and Agriculture Directorate Fisheries Committee. Organisation for Economic Co-operation and Development (OECD). Paris. Document number: TAD/FI(2017)16/FINAL

120 Sumaila, R.U., Zeller, D., Hood, L., Palomares, D.L.M., Li, Y., and Pauly, D. (2020). Billions lost as illicit fisheries trade hurting nations who can afford it least. *Science Advances*. DOI: 10.1126/sciadv.aaz3801. Note that this has been the most comprehensive and latest peer-review study on the economic impact of IUU fishing, all numbers presented in this paragraph are from the study. Previous studies, including several conducted by FAO, had shown smaller impact which can be explained due to the availability of data or lack of thereof, the usage of different methodologies for analysis, or that simply IUU fishing has increased in the past years. For instance, FAO (2010) predicted IUU to have been worth about 1 billion dollars in 2005. FAO. (2010). *The State of World Fisheries and Aquaculture*. Food and Agriculture Organization of the United Nations. Rome.

121 The year of 2013 is used here because it is the latest available year with fish consumption data in the FAO fisheries database, FAOSTAT. <http://www.fao.org/fishery/statistics/global-consumption/en>

122 Calculation based on world fish and sea food consumption in 2013 (latest year available) which was of 132,828,714.38 metric tons. Data retrieved from the FAO Fisheries online database, FAOSTAT. <http://www.fao.org/fishery/statistics/global-consumption/en>

123 Sumaila, R.U., Zeller, D., Hood, L., Palomares, D.L.M., Li, Y., and Pauly, D. (2020). Billions lost as illicit fisheries trade hurting nations who can afford it least. *Science Advances*. DOI: 10.1126/sciadv.aaz3801.

between US\$25.5 and US\$49.5 billion per year. Governments are possibly losing between US\$2.2 and US\$4.3 billion per year in tax revenues. In comparison, the overall annual income of fishers involved in IUU fishing is estimated to be from US\$6.8 to US\$13.3 billion worldwide. These numbers are not equally distributed across geographic regions. For instance, 41 per cent of the overall global economic and income impacts of IUU fishing is concentrated in Asia, followed by 28 per cent in Africa.¹²⁴ Furthermore, fishers employed by IUU fishing vessels have previously reported labour and human rights violations.¹²⁵

The WTO can regulate IUU fishing in two ways: (i) Through subsidies disciplines by prohibiting subsidies that contribute to overcapacity and therefore incentivize IUU fishing. Or by prohibiting subsidies to vessels that are suspected to be involved in IUU fishing. And (ii) through regulating market access restrictions and allowing measures like labelling to be used to discriminate between legal and illegal catches.

1.3 Market Access

Under the first fisheries discussion at the WTO, at the Seattle Ministerial Conference, Members wanted to not only discipline fisheries subsidies, but also market access.¹²⁶ According to the FAO, “fish and fishery products are among the world’s most traded food commodities, and trade in the fisheries and aquaculture sector operates in an increasingly globalized environment. Applied import tariffs by developed countries

124 Sumaila, R.U., Zeller, D., Hood, L., Palomares, D.L.M., Li, Y., and Pauly, D. (2020). Billions lost as illicit fisheries trade hurting nations who can afford it least. *Science Advances*. DOI: 10.1126/sciadv.aaz3801.

125 See International Transport Workers’ Federation. (2006). *Out of sight, out of mind, seafarers, fishers & human rights*. International Transport Workers’ Federation: ITF. ISBN: 1-904676-18-9.

126 The following text was the proposal brought to the table at the Seattle Ministerial Conference: “the promotion of resource conservation and management, other environmental concerns, and disciplines on market access and export restrictions on logs.”

are usually low, but tariff peaks/tariff escalations are present, especially for value-added products. Fish trade is particularly affected by non-tariff measures.”¹²⁷

“Fish and fishery products are classified as industrial goods at the WTO and are thus grouped under *Non-Agriculture Market Access* (NAMA) negotiations. The *most-favoured-nation* (MFN) applied tariffs for fish and fishery products are between 0 and 30 per cent, with an average of 14 per cent. Bound tariffs range between 0 and 60 per cent, with an average of 35 per cent.”¹²⁸ Tariffs for value-added fish products can go as high as 50 and 30 per cent in developing and developed countries respectively.¹²⁹

Nonetheless, tariffs are not the only barriers to fish trade. Fish and fish products have 2.5 times more technical measures applied to them when compared to other manufactured goods. These measures include standards, PPMs, “SPS requirements, and procedures for import licensing and *rules of origin* (ROO).”¹³⁰ However, if barriers to fish trade decrease, fish trade grows. Consequently, increasing the pressure on fish stocks.

Market access barriers can be used to tackle overfishing and IUU fishing by hindering trade when the goods originate from overfished stocks or from IUU fishing. These measures are PPMs measures. That is, they are based on the process and production methods of *harvesting* fish.

For instance, as IUU fishing gains the headlines, importers try to guarantee that their products are not of IUU origin, creating private standards requirements such as

127 FAO. (October 2017). Trade Policy Briefs. FAO Support to the WTO Negotiations at the 11th Ministerial Conference in Buenos Aires. Report number 28. Food and Agriculture Organization of the United Nations. Rome. Quote retrieved from the summary, paragraphs 1, 2 & 3.

128 FAO. (October 2017). Trade Policy Briefs. FAO Support to the WTO Negotiations at the 11th Ministerial Conference in Buenos Aires. Report number 28. Food and Agriculture Organization of the United Nations. Rome. Page 2, paragraph 1.

129 Ibid.

130 Ibid. Page 2, paragraph 3.

certifications.¹³¹ Labelling is another issue that hinders market access as customers, especially in developed countries, seek for more environmentally friendly products.¹³² Other international agreements, such as the *Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing* (PSMA), also bring challenges to market access. For example, the PSMA allows signatory countries to impose port measures, related to trade, such as import and transshipment bans, to prevent IUU fishing.¹³³ Several countries, such as the EU and the United States (US), have already created domestic regulation to combat IUU fishing that can be trade-restrictive and impede market access in fish and fish products. For instance, the *Shared Stocks Regulation*,¹³⁴ combined with the *IUU Regulation*,¹³⁵ allows the EU to identify the flags of vessels involved in IUU fishing. Then, to contact the country and request for an action to stop the given vessel. If no action is taken to curb IUU fishing, the EU classifies the country as ‘enabling non-sustainable fishing.’ This classification allows the EU to impose quantitative restrictions on fish and fish products coming from a country classified as such. Similarly, the United States has introduced several acts¹³⁶ amending the *High Seas Driftnet Fishing Moratorium Protect Act* that allows the country to monitor fishing vessels and identify vessels involved in IUU fishing. Once identified, the nation which the vessel is registered under is then encouraged to enter a consultation process with the United States and recommended to take action to curb

131 FAO (2018). *Seafood certification and developing countries: Focus on Asia*. FAO Fisheries and Aquaculture Circular No. 1157. Rome, Italy: Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/3/i8018en/I8018EN.pdf>

132 Ibid.

133 *Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing* (PSMA). Article 11: Use of ports. Allows signatory countries “to deny vessels involved in IUU fishing from using their ports for landing, transshipping, packaging and processing of fish. As well as refuelling and resupplying, maintenance and drydocking.”

134 Council Regulation 1026/2012, OJ 2012 L 316/34.

135 Council Regulation 1005/2008, OJ 2008 L 286/1.

136 The US Public Law 94-265 also known as the *Magnuson-Stevens Act*, US Public Law 114-81 and House Report 114-112 were the measures taken by the US to “to strengthen enforcement mechanisms to stop illegal, unreported, and unregulated fishing.” Quote retrieved from the chapeau of the House Report 114-112.

IUU fishing. If the nation takes the recommended actions, it is allowed to continue exporting to the country. However, if the nation is unable to provide evidence that IUU fishing was addressed, it receives a negative certification which then may result in the denial of port access to fishing vessels wearing the nations' flag and ultimately import restrictions.¹³⁷

Market access is of relevance to this paper and to a Fisheries Agreement because many instruments that can help ensuring the sustainability of fish stocks can also hamper market access in fish and fish products. These measures, if not explicitly permitted, can be challenged at the WTO's *dispute settlement system* (DSS). Thus, the WTO has to find the appropriate balance between the conservation of the world's fish stocks and market access. That can be facilitated by a Fisheries Agreement that includes clear rules on market access provisions. Section 2 analyzes selected market access measures in relation to existing WTO rules to show that Fisheries Rules must address these issues.

The SDG 14.6's mandate does not include any aspect of market access.¹³⁸ Nevertheless, this paper covers PPMs measures such as tariffs, standards and certifications given their relevance on helping to achieve fish stocks' conservation. They are analyzed in Chapter 2 under the GATT and the ATBT. SPS measures, including GMOs, licensing, and ROO are *not* further explored in this paper. That is because SPS measures are not likely to directly address the overfishing and IUU fishing problems. While licensing and ROO requirements could help to tackle these

137 The US Public Law 94-265 also known as the *Magnuson-Stevens Act*, US Public Law 114-81 and House Report 114-112 were the measures taken by the US to "to strengthen enforcement mechanisms to stop illegal, unreported, and unregulated fishing." Quote retrieved from the chapeau of the House Report 114-112.

138 SDG14.6 mandates: "by 2020, [States shall] prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to *illegal, unreported and unregulated* (IUU) fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least-developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation." United Nations. (2019). Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. Document number: A/RES/71/313. SDG 14 can be found on page 15/21. Paragraph: 14.6. Last accessed on November 30th, 2020.

https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202019%20refinement_Eng.pdf

problems, due to this paper's word limitations and current applicability of these measures, the paper looks into fishing standards and certifications instead. Standards and certifications have been more widely applied by Members and private entities.¹³⁹ Lastly, CITES is not explored here. The Agreement can be used as an instrument to tackle overfished stocks by limiting import and export in endangered species. However, it only protects listed species after they exited commercial markets. Thus, its relationship with other WTO Agreements is not relevant *here*.

1.4 Small-Scale Fishers

The definition of small-scale fishers varies greatly. Some studies, limited to a particular geographic location, consider only the local definition of small fishers which differs substantially due to the difference in the development of the fishing industry from one country to another. Several countries use vessel size as the criteria for categorization, but vessel size alone provides an inaccurate categorization.¹⁴⁰ More recent studies have created more complex indexes for categorization. For instance, the non-profit organization *Too Big to Ignore* (TBTI) has created a small-fishers platform with an index, called the *International Seafood Sustainability Foundation* (ISSF).¹⁴¹ ISSF uses crowdsourced data from across the globe and categorizes fishers by vessel size and motorization, mechanization, refrigeration,

139 WTO Members are applying more standards and certifications measures (such as the EU IUU regulation) than ROO and licensing requirements. While some certification schemes require the origin of the fish to be specified, rules of origin would increase the complexity of analysis of this paper that has a limited scope. Thus, the paper refrains from exploring ROO and licensing. Another issue here is of private standards which are required by big importers and may work as a barrier for small-scale fishers in developing and least developed countries, given the popularity of such, the paper analysis certifications and standards in Section 2. Source regarding private standards and certification: FAO (2018). *Seafood certification and developing countries: Focus on Asia*. FAO Fisheries and Aquaculture Circular No. 1157. Rome, Italy: Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/3/i8018en/I8018EN.pdf>

140 In the following paper FAO recognizes that the current definition of small-scale fishers is vague and inadequate. The paper introduces the ISSF system as explored next in this paragraph. FAO. (2017). *Improving our knowledge on small-scale fisheries: data needs and methodologies*. Food and Agriculture Organization of the United Nations. Rome.

141 World Bank. (2012). *Hidden Harvest: The Global Contribution of Capture Fisheries*. Report number 66469-GLB.

labour size, ownership, time commitment, duration and distance of the trip, disposal and utilization of the catch, and economic integration.¹⁴² This seems to be the most comprehensive proposed definition of small fishers and more adequate than FAO's definition: "It tends to imply the use of a relatively small size gear and vessel. The term has sometimes the added connotation of low levels of technology and capital investment per fisher, although that may not always be the case."¹⁴³ Given the complexity of the issue, to this date, there has been no single agreement on the definition of small fishers internationally.¹⁴⁴

Small-scale fishers are the majority of fishers in the world,¹⁴⁵ reportedly to be about 90 per cent of the world's totals.¹⁴⁶ According to the FAO, they contribute, on average, to half of the global fish catches and to one-third of the fish catches destined to human consumption.¹⁴⁷ 86% of motorized fishing vessels with up to 12 meters in

142 Chuenpagdee, R. Rocklin, D. Bischof, D. Hynes, M. Greene, R. Lorenzi, R. M., Devillers, R. (March 2019). The global information system on small-scale fisheries (ISSF): A crowdsourced knowledge platform. *Marine Policy*, vol 101. Pages 158-166. Link to the platform <https://issfcloud.toobigtoignore.net>

143 FAO. (2017). *Improving our knowledge on small-scale fisheries: data needs and methodologies*. Food and Agriculture Organization of the United Nations. Rome.

144 Ibid.

145 This affirmation can be seen across the fisheries literature from the 2000's to the latest papers today, thus showing that demographics of fishing have had little changes in almost the past two decades. First, Sumaila, R.U., Bellmann, C., and Tipping, A. (21 January 2016). Fishing for the Future: An overview of challenges and opportunities. *Marine Policy* 69. Pages 173-180. Second, Guyader, O., Berthou, P., Koutsikopoulos, C., Alban, F., Demanèche, S., Gaspar, B.M., Eschbaum, R., Fahy, E. Tully, O., Reynal, L., Curtil, O., Frangoudes, K., Maynou, K. (2013). Small scale fisheries in Europe: A comparative analysis based on a selection of case studies. *Fisheries Research*. Volume 140, pages 1-13. ISSN 0165-7836. <https://doi.org/10.1016/j.fishres.2012.11.008>. Third, Jacquet, J., Pauly, D. (2008). Funding Priorities: Big Barriers to Small-Scale Fishers. *Conservation Biology*, Volume 22, No. 4, 832–835. DOI: 10.1111/j.1523-1739.2008.00978.x. Fourth, Pauly, D. (2006). Major trends in small-scale marine fisheries, with emphasis on developing countries, and some implications for the social sciences. *Maritime Studies* 4 (2). Pages 7–22.

146 Here the paper refers to capture-fishers, not to farmed fishers. Information retrieved from FAO. (2015). *Small-Scale Fishers*. Food and Agriculture Organization of the United Nations. Rome.

147 This information was retrieved from FAO family farming knowledge platform, "Small-scale fisheries and aquaculture & Family farming." <http://www.fao.org/family-farming/themes/small-scale-fisheries/en/> link accessed on October 30, 2020.

length are owned or used by small-scale fishers.¹⁴⁸ Small-scale fishers tend to not be institutionalized. That is, they end up not participating in government regulatory frameworks and reporting regimes.¹⁴⁹ This is because of the very nature of small-scale fishing. “Small-scale fishing usually involves a large number of people with fishing activities covering a wide geographical range. These fishing activities often occur in remote areas outside the mainstream economy, causing them to be frequently missed by traditional sampling methods. The diversity in fishing gears, techniques, target species, landing sites, and utilization of catches is well recognized, and the complex, dynamic, and evolving nature of small-scale fishers makes it difficult firstly to define what small-scale fishers are and then obtain accurate information about them.”¹⁵⁰ Given the nature of small-scale fishers, some market access regulations may directly negatively affect them. While they harvest the majority of fish-catches in the world, it is unlikely this group would be able to comply with more complex PPMs, labelling, certification and reporting regulations.

Although small-scale fishers are significant in numbers, they receive from 2.5 to 4¹⁵¹ times fewer subsidies than larger fishers, resulting in a disproportionate benefit for larger fishers and giving them a competitive advantage in the market. In 2009 only 16 per cent of all subsidies in the world were provided to small-scale fishers, while the remaining 84 per cent were destined for large scale ones. From the subsidies provided

148 FAO. (2018). Seafood certification and developing countries: Focus on Asia. FAO Fisheries and Aquaculture Circular No. 1157. Rome, Italy: Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/3/i8018en/I8018EN.pdf>.

149 Song, M.A., Scholtens, J., Barclay, K., Bush, R.S., Fabinyi, M., Adhuri, S.D., Haughton, M. (22 April 2020). Collateral damage? Small-scale fisheries in the global fight against IUU fishing. *Fish and Fisheries*. <https://doi.org/10.1111/faf.12462>

150 Chuenpagdee, R. Rocklin, D. Bishop, D. Hynes, M. Greene, R. Lorenzi, R. M., Devillers, R. (March 2019). The global information system on small-scale fisheries (ISSF): A crowdsourced knowledge platform. *Marine Policy*, vol 101. Pages 158-166. Quote retrieved from page 159, paragraph 2.

151 In Europe (2.5) and in Asia (4) respectively. See Schuhbauer, A., Chuenpagdee, R., Cheung W.W., L., Greer, K., and Sumaila, U. R. (2017). How subsidies affect the economic viability of small-scale fisheries. *Marine Policy* 82. Pages 114-121. .

to small fishers in 2009, ¹⁵² 41 per cent were capacity enhancing and 11 per cent ambiguous subsidies. ¹⁵³ While these subsidies may have the aim of fostering development, they can have a negative economic and environmental impact. I.e., As seen in the previous sections, capacity-enhancing subsidies ¹⁵⁴ contribute to environmental deterioration which in turn reduces the long-term fish supply available for these small-scale fishers. Thus, fisheries rules, and its ultimate purpose of reducing overfishing and IUU fishing, could be undermined if capacity enhancing subsidies were widely provided to small fishers given their large number. ¹⁵⁵ However, the challenge appears as the reduction of subsidies may affect poor coastal communities. Small-scale fishers are more vulnerable to subsidies cuts because they are part of crucial food supplies supporting the livelihoods of coastal communities. ¹⁵⁶ As subsidies are scaled back for small fishers, they may disrupt food security and social safety nets of these coastal communities. ¹⁵⁷

Chapter 2 Relevant WTO Rules Applicable to Fisheries

This section of the paper explores the possible conflicts between a Fisheries Agreement and the subsidies disciplines under the ASCM to make a case for the

152 Schuhbauer, A., Chuenpagdee, R., Cheung W.W., L., Greer, K., and Sumaila, U. R. (2017). How subsidies affect the economic viability of small-scale fisheries. *Marine Policy* 82. Pages 114-121.

153 Sumaila, R.U., Bellmann, C., and Tipping, A. (21 January 2016). Fishing for the Future: An overview of challenges and opportunities. *Marine Policy* 69. Pages 173-180.

154 Capacity-enhancing subsidies are (as seen in annex A): Subsidies to Income support when provided alone, to worker adjustment and retraining when fishers are implemented back in the fishing sector, vessel and license buybacks, access agreements, and to capital and variable cost.

155 Schuhbauer et al. (2017) affirms that as these harmful subsidies are were too small in 2009, as the author used the data of that year, however, if countries choose to support ALL small fishers with harmful subsidies, their impact will significantly grow.

156 UNEP. (December 2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. United Nations Environment Program. Geneva. Retrieved from http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Green%20economyreport_Final_Dec2011.pdf.

157 World Bank (2012). *Hidden Harvest: The Global Contribution of Capture Fisheries*. Report number 66469-GLB

creation of a *lex specialis* Fisheries Agreement. It *first* analyses three principles of the ASCM to show that its provisions are not an effective means of advancing the goal of conserving fish stocks. It follows to explore some aspects of market access that are analysed in light of the GATT and the ATBT. Lastly, it presents the arguments on why traditional *Special and Differential Treatment* (SDT) is not fit to address the concerns of small-scale fishers. This section aims to demonstrate that the Agreement will need its own rules on subsidies, market access and SDT because WTO's body of law does not provide an efficient means of achieving the SDG14.6's¹⁵⁸ mandate.

2.1 Conflicts Between the Subsidies Disciplines of the WTO with an Environmentally Sustainable Fisheries Agreement

The SDG 14.6 mandates the WTO to address fisheries subsidies.¹⁵⁹ The ASCM contains the multilateral rules on subsidies at the WTO. As seen in Chapter 1, subsidies are a financial contribution that confers benefits provided by a government or public body within the territory of a Member.¹⁶⁰ Subsidies also have to fall within the meaning of Article 2 of the ASCM. That is, subsidies need to be specific in order

158 Text from the SDG 14.6: "prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation."

159 Text from the SDG 14.6: "prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation."

160 World Trade Organization. Agreement on Subsidies and Countervailing Measures (SCM). Part I: General Provisions. Article 1: Definition of a Subsidy. Text is as follows: "For the purpose of this Agreement, a subsidy shall be deemed to exist if: (a)(1) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as "government"), i.e. where: (i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees); (ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits); (iii) a government provides goods or services other than general infrastructure, or purchases goods; (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments; or (a)(2) there is any form of income or price support in the sense of Article XVI of GATT 1994; and (b) a benefit is thereby conferred."

to be characterized as such. Thus, representing another obstacle to disciplining fisheries subsidies under the ASCM. The language of Article 2 on specificity requires the enterprise or industry or group of enterprises or industries to be within the jurisdiction of the granting authority. Thus, if the fishing vessel belongs to country X and receives a subsidy from country Y but fishes in the territory of country X and the products are then shipped to a third country Z, which is trying to challenge this subsidy, then this fishing vessel is not within the jurisdiction of the granting authority, i.e., country Y, and the specificity requirement may not have been met.¹⁶¹ While the problem of transnational subsidies is not further explored here, in the following sections, the paper looks into how a Fisheries Agreement would be unable to trigger the ASCM disciplines because of the determinants of the injurer and injured parties, the meaning of adverse effects, and how countervailing measures are inappropriate to address environmental concerns.

The ASCM categorizes subsidies as prohibited, actionable and non-actionable¹⁶² through a *traffic light* system. The subsidies in *the red box* are prohibited subsidies. As per Article 3, red box subsidies include export subsidies and local content requirements where the former is contingent on export performance and the latter on the usage of a certain quantity of domestic goods instead of imported ones in order to obtain a benefit.¹⁶³ Actionable subsidies are specific and cause adverse effects. They are included in the *amber box*. They are not prohibited; they are subject to challenge through the *dispute settlement system* (DSS) or countervailing action if they cause

161 This is the issue of transnational subsidies in the context of fisheries.

162 According to Article 31 of the SCM agreement, this category provided by Article 8 of the SCM agreement is expired since 1999.

163 Article 3 of the SCM Agreement: Prohibition. “3.1 Except as provided in the Agreement on Agriculture, the following subsidies, within the meaning of Article 1, shall be prohibited: (a) subsidies contingent, in law or in fact, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I; (b) subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods. 3.2 A Member shall neither grant nor maintain subsidies referred to in paragraph 1.”

adverse effects to a Member.¹⁶⁴ The green box included non-actionable subsidies for R&D, environment and regional aid. However, this category has expired.¹⁶⁵

Many capacity enhancing subsidies¹⁶⁶ are a form of production subsidies.¹⁶⁷ They fall under the category of actionable subsidies if they fall within the meaning of a subsidy in the ASCM and meet the specificity requirements. Thus, they could be challenged as long as adverse effects, such as (a) injury to the domestic industry, (b) nullification or impairment of a GATT 1994 right, and (c) serious prejudice to the interest of a Member, occur.¹⁶⁸ Nonetheless, the meaning of adverse effects in the ASCM is not fit to address the concern of fish stocks conservation as this chapter will explore later.

Another agreement that disciplines subsidies is the AoA. The AoA establishes special rules for specific agricultural subsidies, and it does not cover fish and fish products.¹⁶⁹ The Agreement also divides subsidies into three categories: *The green box*¹⁷⁰ disciplines government support that causes no, or minimal, trade distortions. I.e., Agricultural research. The *blue box*¹⁷¹ addresses subsidies under production limitation

164 Actionable subsidies are determined by Articles 5 and 6 on the basis of their adverse effects or serious prejudice.

165 Pursuant to Article 31 of the ASCM, Article 8 and 9 for non-actional subsidies have expired.

166 These subsidies include subsidies under the category of social policy, decommissioning and subsidies to capital and variable costs.

167 Although not all capacity enhancing subsidies work as an input to production (harvesting), they indirectly reduce the cost or add an advantage to the act of harvesting fish.

168 Article 5: Adverse Effects. “No Member should cause, through the use of any subsidy referred to in paragraphs 1 and 2 of Article 1, adverse effects to the interests of other Members, i.e.: (a) injury to the domestic industry of another Member. (b) nullification or impairment of benefits accruing directly or indirectly to other Members under GATT 1994 in particular the benefits of concessions bound under Article II of GATT 1994;(c) serious prejudice to the interests of another Member. This Article does not apply to subsidies maintained on agricultural products as provided in Article 13 of the Agreement on Agriculture.”

169 Annex I of the AoA establishes the coverage of the Agreement. According to the Annex paragraph 1.i: “HS Chapters 1 to 24 less fish and fish products.”

170 Annex 2 of AoA lists the policy criteria for the Green box.

171 Article 6.5 allow for exemptions of trade distorting subsidies under production limiting programs. Thus, laying down the rules for the blue box.

programs that are possibly trade-distorting. I.e., Domestic support to producers “to encourage diversification from growing illicit narcotic crops.”¹⁷² The *amber box*¹⁷³ disciplines subsidies that do have trade distorting effects. I.e., Price support schemes where governments commit to buy a good at a certain price to support the industry.¹⁷⁴ “Under the Agreement on Agriculture, all domestic support in favour of agricultural producers is subject to rules. In addition, the aggregate monetary value of Amber Box measures is, with certain exceptions, subject to reduction commitments as specified in the schedule of each WTO Member providing such support.”¹⁷⁵

Nonetheless, SCM rules still apply to agricultural goods, subject to the provisions of the AoA.¹⁷⁶ That is, as determined by the *Appellate Body* (AB) in *EC-Bananas III*, Article 21.1 ascertains the hierarchy between the AoA, SCM, and GATT Agreements, where the AoA prevails when in conflict with the other two Agreements. This preference is triggered because of its *lex specialis* nature as it provides more specific rules. Furthermore, Article 21.1 reinforces the prevalence of the rules specified in the

172 Article 6.2 of the AoA.

173 The Amber box includes all agricultural domestic support that are not in the green and blue boxes, as well as that are not development programs.

174 Article 3.2 establishes the basic obligation of domestic support in the AoA: “Subject to the provisions of Article 6, a Member shall not provide support in favour of domestic producers in excess of the commitment levels specified in Section I of Part IV of its *Schedule*.” Article 6.1 establishes the extent of application of reductions: “The domestic support reduction commitments of each Member contained in Part IV of its Schedule shall apply to all of its domestic support measures in favour of agricultural producers with the exception of domestic measures which are not subject to reduction in terms of the criteria set out in this Article and in Annex 2 to this Agreement. The commitments are expressed in terms of Total Aggregate Measurement of Support and “Annual and Final Bound Commitment Levels”. The following paragraph establishes exemptions from the reduction (Article 6.2): (i) Investment subsidies, (ii) Input subsidies, (iii) Domestic support to producers with the aim of encouraging diversification from growing illicit narcotic crops. Article 6.5 continues the list of exemptions for “direct payments under production-limiting programmes shall not be subject to the commitment to reduce domestic support if: (i) such payments are based on fixed area and yields; (ii) such payments are made on 85 per cent or less of the base level of production; or (iii) livestock payments are made on a fixed number of head” Annex II of the Agreement also lines up exemptions from the reduction commitments.

175 Quote retrieved from the WTO’s website, page on the Agreement of Agriculture, domestic support. Paragraph 2. Link: https://www.wto.org/english/tratop_e/agric_e/ag_intro03_domestic_e.htm

176 As per Article 21.1 of the AoA. “The provisions of GATT 1994 and of other Multilateral Trade Agreements in Annex 1A to the WTO Agreements shall apply subject to the provisions of this Agreement.”

AoA in case it contradicts the other Agreements.¹⁷⁷ Although when conflicting other Agreements, the AoA prevails, agricultural subsidies may still be subjected to the SCM rules.

While the AoA is relevant to this paper as it also addresses subsidies, given that it explicitly excludes fish and fish products, it will not be further explored here. This section of the paper instead focuses on what would happen to fisheries subsidies if they were subject to the ASCM rules.

2.1.1 The Injured Party and the Injurer

The disciplines of the SCM Agreement are triggered when adverse effects or serious prejudice, originating from a Member's subsidies (the injurer), occur, affecting another Member (the injured).¹⁷⁸ However, in a Fisheries Subsidies Agreement, the *injured and injurer parties* may not be as clear.

A WTO Member is a state or a customs union that has full autonomy over its trade policies.¹⁷⁹ Coastal WTO Members that are part of the UNCLOS have sovereignty over fish catches within their EEZs.¹⁸⁰ That is, they have their own legal fisheries.

177 World Trade Organization. (9 September 1997). European Communities – Regime for the importation, sale and distribution of bananas. (EC-Bananas). Appellate Body Report. Page 22. Document Number: WT/DS27/AB/R.

178 Article 5 and 6 of the SCM Agreement specify actionable subsidies. That is, subsidies that can trigger the SCM disciplines and possibly lead to disputes.

179 According to Article XII of the Marrakesh Agreement Establishing the WTO, “any state or separate customs territory possessing full autonomy in the conduct of its external commercial relations and of the other matters provided for in this Agreement and the Multilateral Trade Agreements may accede to this Agreement.” Besides the states that acceded after the creation of the WTO, the membership was comprised by the signatories of the GATT 1947 and the European Union, as per Article XI of the Marrakesh Agreement.

180 Article 55 of the UNCLOS determines that “the exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.” Article 56 continues to provide that: “In the exclusive economic zone, the coastal State has:(a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds; (b) jurisdiction

Fisheries in the high seas are legally mandated¹⁸¹ to be managed by RFMOs. RFMOs are the ones managing which countries are part of its body and therefore allowed to fish in its territory and determine the allowable catch for each of its Members.¹⁸² However, although legal fisheries are territorially bounded, marine fish stocks are not. A fish stock located in a lake is considered within the jurisdiction of the country because it is geographically located in its territory and it is limited to it. A fish stock in the ocean cannot be considered under any country's sovereignty since it often migrates.¹⁸³ To this day, the data on the movement of fish stocks remains poor, but “transboundary fish stocks are ubiquitous.”¹⁸⁴ Fish stocks do not only move within

as provided for in the relevant provisions of this Convention with regard to: (i) the establishment and use of artificial islands, installations and structures; (ii) marine scientific research; (iii) the protection and preservation of the marine environment;...”

181 Mandated by the UNCLOS Article 118 establishes “subregional or regional fisheries organizations” with the aim of the “onservation and management of living resources.” This Agreement was then implemented through the *Straddling Fish Stocks Agreement* where RFMOs’ mechanisms and details are established.

182 According to Article 11 of the *Straddling Fish Stocks Agreement*. *Text*: “In determining the nature and extent of participatory rights for new members of a subregional or regional fisheries management organization, or for new participants in a subregional or regional fisheries management arrangement, States shall take into account, *inter alia*: (a) the status of the straddling fish stocks and highly migratory fish stocks and the existing level of fishing effort in the fishery; (b) the respective interests, fishing patterns and fishing practices of new and existing members or participants; (c) the respective contributions of new and existing members or participants to conservation and management of the stocks, to the collection and provision of accurate data and to the conduct of scientific research on the stocks; (d) the needs of coastal fishing communities which are dependent mainly on fishing for the stocks; (e) the needs of coastal States whose economies are overwhelmingly dependent on the exploitation of living marine resources; and (f) the interests of developing States from the subregion or region in whose areas of national jurisdiction the stocks also occur.”

183 See Munro, G., Van Houtte, A., and Willmann, R. (2004). The conservation and management of shared fish stocks: Legal and economic aspects. FAO Fisheries Technical Paper No. 465, Food and Agriculture Organization, Rome. Section 2.3, paragraph 2.

184 See Munro, G., Van Houtte, A., and Willmann, R. (2004). The conservation and management of shared fish stocks: Legal and economic aspects. FAO Fisheries Technical Paper No. 465, Food and Agriculture Organization, Rome. Section 2.3, paragraph 2.

EEZs but also between EEZs and the high seas.¹⁸⁵ Thus, fish only becomes property once captured.¹⁸⁶

While there are technologies and assessment methods available to identify the status of a fish stock, its transboundary nature makes it difficult to determine which Member is the injured party. The approach used in the *Comprehensive and Progressive Agreement for Trans-Pacific Partnership* ('CPTPP') may be of use. The Agreement allows members to file a complaint even if the injury does not take place within their jurisdiction.¹⁸⁷ Since fish are a collective good¹⁸⁸ and a highly traded commodity,¹⁸⁹ and the damage to a fish stock extends beyond a coastal member's EEZ, Members may have the right to complain even when the fish stock outside of its jurisdiction is affected.

Whilst it is possible to identify a decline in fish mass in certain fish stock,¹⁹⁰ several other factors complicate the definitive determination of the decline. For instance, fish

185 Maguire, J.J., Sissenwine, M., Csirke, J., Grainger, R., Garcia, S. (2006). The state of world highly migratory, straddling and other high seas fishery resources and associated species. FAO Fisheries Technical Paper. No. 495. Rome.

186 FAO. (2000). FAO Fisheries Technical Paper 404/1 Use of Property Rights in Fisheries Management. Edited by Shotton, R. Proceedings of the FishRights99 Conference in Fremantle, Western Australia. FAO Fisheries Department. Rome. Please note that this is not TRUE for farmed fish.

187 Article 20.16 of the CPTPP does not limit its application to signatory parties or to injuries that happened within their territories. Footnote 13 of paragraph 5 says: "For the purposes of this Article, a subsidy shall be attributable to the Party conferring it, regardless of the flag of the vessel involved or the application of rules of origin to the fish involved."

188 Although the given reference is 30 years old, Ostrom wrote about the idea of governing common goods such as fish. The idea of fish as a collective good has prevailed up to today. Although as previously specified here in this paper, UNICLOS determines fishery boundaries. Fisheries and fish stocks are not the same as specified in the definitions section of this paper. Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*.

189 FAO. (2020). *The State of the World's Fisheries and Aquaculture 2020. Sustainability in Action*. Food and Agriculture Organization of the United Nations. Rome. Page 8, paragraph 5. <https://doi.org/10.4060/ca9229en>

190 Assessment of fish stocks are normally done by the country that has the jurisdiction over a particular EEZ that is the habitat of a particular fish stock, by one of more countries when the fish stock is transboundary, by RFMOs when the fish stock is in the high seas, or by non-governmental organizations. The UNICLOS, Article 55, establishes EEZs and the rights and obligations of members. Although fish stock assessment is not explicit in the text, it pertains that the country has "(a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources." Monitoring is part of a country's conservation and management policy in fisheries. Article 63(1) of the UNICLOS is the legal basis for shared stocks conservations. According to the Article countries shall enter into an agreement on

stocks may decline because of the change in the climate.¹⁹¹ For national fish stocks,¹⁹² the decline can be caused by national fishers, or by international vessels under an access agreement. For migratory fish stocks,¹⁹³ it can be difficult to place the moment and time of the act of *injury*. That is, to determine if it occurred due to exploitation within one or more of the jurisdictions the stock shares, or by a particular vessel wearing a Member flag in one of these jurisdictions. For high seas fish stocks, under the management of RFMOs, may be difficult to determine which of its Members is the injurer. Moreover, there are illegal boats that are not wearing flags from one of the RFMO's Members but yet harvesting in its territory.¹⁹⁴ Furthermore, most RFMOs do not have effective compliance, monitoring and enforcing schemes in place.¹⁹⁵ Therefore, under such a situation, it can be difficult to determine the *injurer*.

the necessary measures for conservation and exploitation. Article 63(1) is as follows: "Where the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal States, these States shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary to coordinate and ensure the conservation and development of such stocks without prejudice to the other provisions of this Part [V]."

191 Merino, G., Barange, M., Blanchard, L.J., Harle, J., Holmes, R., Allen, I., Allison, H. E., Badjeck, C.M., Dulvy, K.N., Holt, J., Jennings, S., Mullon, C., Rodwell, D.L. (2012). Can marine fisheries and aquaculture meet fish demand from a growing human population in a changing climate? *Global Environmental Change* 22. Pages 795-806. doi:10.1016/j.gloenvcha.2012.03.003

192 Here the paper refers to fish stocks within a Member's EEZ, fish stocks that are not migratory and are somewhat restricted to the EEZ's territory.

193 Here the paper refers to fish stocks that migrate between two or more Members' EEZ. These are also called transboundary fish stocks.

194 FAO. (2001). *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing*. Food and Agriculture Organization of the United Nations. Rome.

195 The following paper shows that RFMOs lack transparency and most do not require vessels to have observers on board, relying on the vessel to either follow or not conservational regulations. Thus, providing a weak framework for compliance. Ewell, C., Hocevar, J., Mitchell, E., Snowden, S., Jacquet, J. (2020). An evaluation of Regional Fisheries Management Organization at-sea compliance monitoring and observer programs. *Marine Policy*. Volume 115. ISSN 0308-597X. <https://doi.org/10.1016/j.marpol.2020.103842>. Through a literature review on the issues of RFMOs, the following paper shows that only more recently formed RFMOs have incorporated the protection of the marine ecosystem in their treaty texts. Others have not legally adhered to the precautionary and ecosystem approach to fisheries management. The paper goes further to explain other issues with the efficacy of RFMOs managing the high seas fish stocks. Haas, B., McGee, J., Fleming, A., Haward, M. (2020). Factors influencing the performance of regional fisheries management organizations. *Marine Policy* 113. 103787. ISSN 0308-597X. <https://doi.org/10.1016/j.marpol.2019.103787>.

Current monitoring techniques are improving and can be helpful in solving this problem. A company called OpenSc allows for supply chain traceability of fish. The company is able to trace through a network of *Internet of Things* (IoT)¹⁹⁶ several details of a fish in which upon being caught, received a GPS tag with their technology. In their Patagonian toothfish case study, they were able to identify the exact location the fish was caught, by which fishery, what journey the fish took (including where it was processed and where it ended up) if it was caught in a legal zone, the vessel that caught it and the carbon footprint of the fish.¹⁹⁷

This type of technology can help to determine the fishing vessel, and consequently its flag, as the *injurer*. For example, if the usage of GPS tags is mandatory for every fish caught for commercial purpose, it will be possible to determine the vessels exploiting a particular fish stock and how much fish they are harvesting. If the fish stock then presents signs of overfishing and overexploitation, one or more vessels that were harvesting fish from that fish stock are then identified. Thus, as the injurer is found, legal proceedings may begin with the injurer vessels' Member state(s). This technology could also be a helpful tool to distinguish legal and illegal catches. In the end, a Fisheries Agreement would have to contain a reporting requirement to be able to monitor the status of fish stocks within their EEZs and on RFMOs' territory. This report would ideally be supervised by an international body, like FAO, that has enough data on fish stocks and a sector dedicated to fisheries. Furthermore, Members would have to ensure that every vessel fishing using their flag is required to use the GPS tracking technology on its catches. Here, subsidies to support GPS tracking devices would be permitted.

196 IoT combines several devices that contain sensors, software and other types of technologies to collect and process data that in turn helps with traceability of a product.

197 See the Patagonian Toothfish case study ran by the company in their website: <https://opensc.org/product-example>

2.1.2 Prohibition and Adverse Effects

Under the SCM rules, as previously mentioned, Article 3 of the Agreement prohibits certain types of subsidies. Actionable subsidies can be challenged at the WTO if they cause adverse effects¹⁹⁸ or serious prejudice.¹⁹⁹ The current meaning of adverse effects as per Article 5 of the SCM Agreement is “(a) injury to the domestic industry of another Member, (b) nullification or impairment of benefits accruing directly or indirectly to other Members under GATT 1994, in particular, the benefits of concessions bound under Article II of GATT 1994, or (c) serious prejudice to the interests of another Member.”²⁰⁰ Serious prejudice, as per Article 6 “exists in case of (a) the total ad valorem subsidization of a product exceeding 5 per cent; (b) subsidies to cover operating losses sustained by an industry; (c) subsidies to cover operating losses sustained by an enterprise, other than one-time measures which are non-recurrent and cannot be repeated for that enterprise and which are given merely to provide time for the development of long-term solutions and to avoid acute social problems; (d) direct forgiveness of debt, i.e. forgiveness of government-held debt and grants to cover debt repayment.”²⁰¹

The mandate established by the SDG 14.6²⁰² does not refer to any adverse effect or serious prejudice within the meaning of the relevant provision of the SCM Agreement, nor it fits within Article 3’s prohibition. The mandate can be dissected

198 Refer to Article 5 of the SCM agreement. Text goes as follows: “No Member should cause, through the use of any subsidy referred to in paragraphs 1 and 2 of Article 1, adverse effects to the interests of other Members, i.e.: (a) injury to the domestic industry of another Member; (b) nullification or impairment of benefits accruing directly or indirectly to other Members under GATT 1994 in particular the benefits of concessions bound under Article II of GATT 1994; (c) serious prejudice to the interests of another Member.”

199 Refer to Article 6 of the SCM Agreement.

200 Text from Article 5 of the SCM Agreement.

201 Text from Article 6 of the SCM Agreement.

202 Mandate of SDG14.6 states: “prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation.”

into two parts: The prohibition of subsidies that *directly or indirectly*²⁰³ allow for IUU fishing, followed by the reduction of [some] subsidies that merely result in overfishing and overcapacity. *First*, in the event that a Fisheries Agreement is stricter and opts for the full prohibition on all subsidies that make IUU fishing more feasible, which are *capacity-enhancing subsidies*,²⁰⁴ they would not fall under Article 3 of the SCM Agreement. Article 3 prohibits subsidies contingent on export commitment and on the use of domestic over imported goods²⁰⁵ Subsidies that contribute to IUU fishing are not contingent on either of those two conditions. *Second*, a less strict Agreement can tackle the issue through prohibiting subsidies to vessels suspected or proven to be involved in IUU fishing. This prohibition would not fall under Article 3 either. In reference to Article 5 and 6 of the SCM Agreement, any subsidy that contributes to overfishing and overcapacity, also known as *capacity-enhancing subsidies*,²⁰⁶ in accordance with the SDG mandate, would be actionable. However, for a Fisheries Subsidies Agreement, the meaning of *adverse effect* would be to result in overfishing, overcapacity or IUU fishing. *Serious prejudice* would exist when a fish stock is in the overfishing condition due to a subsidy.

203 As seen in the above reference, the mandate does not specify the degree of contribution that these subsidies must have on IUU fishing. That is, Members may choose if they want a higher degree of protection which would in turn include subsidies that contribute to IUU fishing directly or indirectly, or a lower degree of environmental protection where Members would then choose to discipline only subsidies that directly contribute to IUU fishing.

204 Capacity-enhancing subsidies are (as seen in table 1): Subsidies to Income support when provided alone, to worker adjustment and retraining when fishers are implemented back in the fishing sector, vessel and license buybacks, access agreements, and to capital and variable cost.

205 Article 3 of the SCM Agreement. Text is as follows: “3.1 Except as provided in the Agreement on Agriculture, the following subsidies, within the meaning of Article 1, shall be prohibited: (a) subsidies contingent, in law or in fact, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I; (b) subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods. 3.2 A Member shall neither grant nor maintain subsidies referred to in paragraph 1.”

206 Capacity-enhancing subsidies are (as seen in table 1): Subsidies to Income support when provided alone, to worker adjustment and retraining when fishers are implemented back in the fishing sector, vessel and license buybacks, access agreements, and to capital and variable cost.

Nonetheless, some capacity-enhancing subsidies,²⁰⁷ by design,²⁰⁸ could result in serious prejudice, as per Article 6 of the SCM Agreement, when they cover operating losses by the industry or a particular enterprise. After all, subsidies allow fishing to continue when it would otherwise not be profitable, thus, covering operating losses.²⁰⁹ It may be possible for a Member to prove, through an economic analysis, injury to its domestic fishing industry resulting from a subsidy of another Member. For instance, suppose that two WTO coastal Members share borders, and their fish stocks migrate between both territories. The Member with a struggling fishing industry due to overfished stocks may attribute it to subsidies granted by its neighbouring country, given that those exist. The Member just has to ensure that “there must be in every case a genuine relationship between the measure at issue and its adverse impact on competitive opportunities for imported versus like domestic products to support a finding that imported products are treated less favourably.”²¹⁰ That is actually

207 Capacity-enhancing subsidies are (as seen in table 1): Subsidies to Income support when provided alone, to worker adjustment and retraining when fishers are implemented back in the fishing sector, vessel and license buybacks, access agreements, and to capital and variable cost.

208 Here the paper refers to the design of a measure as previously analyzed in several DSB decisions, also known as the ‘design test.’ The test analyses the architecture, design, structure, objective, and sometimes the result of a measure in order to understand its protective application. This analysis can be seen in several Appellate Body reports as follows:

World Trade Organization. (4 October 1997). Japan - Taxes on Alcoholic Beverages (Japan — Alcoholic Beverages II). Appellate Body Report. Document number: WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R. [Hereinafter referred as the AB report Japan — Alcoholic Beverages II]. Page 29, paragraph 2: “*Although it is true that the aim of a measure may not be easily ascertained, nevertheless its protective application can most often be discerned from the design, the architecture, and the revealing structure of a measure.*” Also in: World Trade Organization. (17 June 2011). Thailand – Customs and Fiscal Measures on Cigarettes from the Philippines. Appellate Body Report. Document number: WT/DS371/AB/R. Paragraph 134: “[A]n analysis under Article III:4 must begin with careful scrutiny of the measure, including consideration of the design, structure, and expected operation of the measure at issue. Such scrutiny may well involve—but does not require—an assessment of the contested measure in the light of evidence regarding the actual effects of that measure in the market. In any event, there must be in every case a genuine relationship between the measure at issue and its adverse impact on competitive opportunities for imported versus like domestic products to support a finding that imported products are treated less favourably.”

209 Sumaila, R.U., Pauly, D. (2006). *Catching More Bait: A Bottom-Up Re-estimation of Global Fisheries Subsidies*. Fisheries Centre. University of British Columbia.

210 World Trade Organization. (17 June 2011). Thailand – Customs and Fiscal Measures on Cigarettes from the Philippines. Appellate Body Report. Document number: WT/DS371/AB/R. Paragraph 134

possible if both Members have GPS tracking technologies in place, and share this information with all WTO's Members.

This approach to discipline fisheries subsidies is problematic since it only triggers the subsidy disciplines when there is a harm to the domestic industry; that is, the national fishing industry suffers economically. If the domestic industry does not suffer economic harm, but fish stocks do, the discipline is then not triggered. Alternatively, as mentioned in the first paragraph of this section, the subsidies disciplines can be triggered by the *injury on fish stocks*, instead of on the basis of the *injury on the domestic industry*. That is, the Fisheries Agreement could simply prohibit all subsidies within the category of *capacity-enhancing subsidies*²¹¹ which are well-known for harming fish stocks and contributing to IUU fishing while placing *ambiguous subsidies*²¹² under the actionable category. In other words, *ambiguous subsidies* can still be permitted as long as they do not cause adverse effects on fish stocks, such as overfishing. Or that they do not create serious prejudice through over-capacitating vessels and enabling vessels to engage in IUU fishing. This would thus, result in a stricter Agreement following the environmental objective of ensuring there are no aggrieved fish stocks.

2.1.3 Remedies

When a Member is in violation of its obligations under a possible Fisheries Agreement, that is, it is providing subsidies that are supporting vessels involved in IUU fishing or overfishing fish stocks, and fails to rectify them, then according to the current SCM rules, the injured party would then be allowed to implement countervailing measures in the form of countervailing duties in the subsidized

211 Capacity-enhancing subsidies are (as seen in table 1): Subsidies to Income support when provided alone, to worker adjustment and retraining when fishers are implemented back in the fishing sector, vessel and license buybacks, access agreements, and to capital and variable cost.

212 (Please see table 1) These are the two subsidies that under certain conditions are environmentally harmful. They are included in the category of social policy and are subsidies to Income support and worker adjustment and retraining. These subsidies can be allowed under particular conditions, and actionable in case they have a negative effect in the environment.

products. That is, the injured party could impose higher tariffs on fish [and fish products] coming from the injurer. However, such a measure would not rectify the damage to the fish stocks,²¹³ and as countervailing duties are applied, the price of fish increases in the territory of the Member applying the duty. Thus, customers would carry the burden of a higher price. Furthermore, since overfishing and IUU fishing may not always have an economic impact in the industry of the complaining Member, an agreement on financial compensation would only be appropriate if the money was used on recovery programs for the affected fish stocks or to prevent IUU fishing.²¹⁴

The WTO provides Members with two courses of action for remedies.²¹⁵ The multilateral approach²¹⁶ allows members to challenge actionable and prohibited subsidies through the *Dispute Settlement Body* (DSB) and the unilateral one²¹⁷ permits the domestic *investigating authority* (IA) to determine the appropriate

213 Jung, H., Jung, N.R. (2019). 'Enforcing 'Purely' Environmental Obligations Through International Trade Law: A Case of the CPTPP's Fisheries Subsidies.' *Journal of World Trade* 53, no. 6. Pages 1001–1020.

214 Jung, H., Jung, N.R. (2019). 'Enforcing 'Purely' Environmental Obligations Through International Trade Law: A Case of the CPTPP's Fisheries Subsidies.' *Journal of World Trade* 53, no. 6. Pages 1001–1020.

215 Vermulst, E. (2003). *Dispute Settlement of the World Trade Organization. Module 3.7 Subsidies and Countervailing Measures*. United Nations Conference on Trade and Development. This paper was prepared for a course on the WTO's dispute settlement provided by UNCTAD.

216 Articles 4 and 7 of the SCM Agreement establish the multilateral approach for prohibited and actionable subsidies respectively through the dispute settlement system for the implementation of remedies. Procedure shall be done similarly to those laid down by the Dispute Settlement Understanding (DSU) where consultations are initiated, if no agreement is reached, a panel request is sent, if members do not decide by consensus to not establish a panel, one is established and arbitration procedures start. The results can be appealed. Paragraph 7.8 says: "Where a panel report or an Appellate Body report is adopted in which it is determined that any subsidy has resulted in adverse effects to the interests of another Member within the meaning of Article 5, the Member granting or maintaining such subsidy shall take appropriate steps to remove the adverse effects or shall withdraw the subsidy." Paragraph 7.9 continues: "In the event the Member has not taken appropriate steps to remove the adverse effects of the subsidy or withdraw the subsidy within six months from the date when the DSB adopts the panel report or the Appellate Body report, and in the absence of agreement on compensation, the DSB shall grant authorization to the complaining Member to take countermeasures, commensurate with the degree and nature of the adverse effects determined to exist, unless the DSB decides by consensus to reject the request." In case of arbitration through Article 22 of the DSU, the arbitrator "shall determine whether the countermeasures are commensurate with the degree and nature of the adverse effects determined to exist." (paragraph 7.10)

217 Article 19 of the SCM Agreement allows for members to unilaterally impose countervailing duties after "reasonable efforts have been made to complete consultations" (paragraph 1).

remedies in the course of the investigation regarding the subsidy. With regards to the multilateral approach, when a procedural resolution by the DSB determines a subsidy in place by a Member is not in accordance with the WTO's body of law, the primary obligation of the Member is to rectify the irregularity. If the irregularity persists, and no agreement on financial compensation has been reached by the Members, then "the Member granting or maintaining a subsidy which results in adverse effects shall take appropriate steps to remove the adverse effects or shall withdraw the subsidy."²¹⁸ If this does not happen, "the DSB shall grant authorization to the complaining Member to take countervailing measures, commensurate with the degree and nature of the adverse effects determined to exist, unless the DSB decides by consensus to reject the request."²¹⁹ "If the measure in question is found to be a prohibited subsidy, the panel shall recommend that the subsidizing Member withdraw the subsidy without delay."²²⁰ If not, similar to the provisions for actionable subsidies causing adverse effects, the "DSB shall grant authorization to the complaining Member to take appropriate countermeasures, unless the DSB decides by consensus to reject the request."²²¹ "In the alternative, with respect to any specific subsidy that causes injury to the domestic industry of the importing Member, this Member may choose to unilaterally impose duties, known as countervailing duties, to offset the effect of such subsidies."²²² The system of remedies has worked well for trade measures; however, it may not be the most appropriate for environmental issues.²²³

218 Article 7.8 of the SCM Agreement.

219 Article 7.9 of the SCM Agreement.

220 Article 4.7 of the SCM Agreement.

221 Article 4.10 of the SCM Agreement.

222 Prévost, D., M. Van Den Bossche, P. (2016). *Essentials of WTO Law*. Cambridge University Press. Chapter 7. Page 170. Paragraph 5.3.5.

223 Jung, H., Jung, N.R. (2019). 'Enforcing 'Purely' Environmental Obligations Through International Trade Law: A Case of the CPTPP's Fisheries Subsidies.' *Journal of World Trade* 53, no. 6. Pages 1001–1020.

The current SCM rules are not appropriate to regulate fisheries. The rules of the Agreement are based on economic losses and are unable to account for environmental damage. Thus, failing to recognize damage to fish stocks. A Fisheries Agreement is necessary to recognize the aggrieved fish stocks and to establish a causal relation between IUU fishing, overcapacity and overfishing with the subsidies.

2.2 Conflicts Between the Market Access Rules Under the GATT and the TBT with an Environmentally Sustainable Fisheries Agreement

The WTO was created to promote free trade.²²⁴ Its body of law was designed to ensure predictability in the world's trading system²²⁵ and secure flow of trade in goods and services. The concerns of the membership have been, from its inception in 1947, mainly economic. For instance, the preamble of the GATT states that the trade relationship of its Members "should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of goods."²²⁶ Thus, market access has been at the centre of the organization, as seen in the *Marrakesh Declaration*: "Determined to build upon the success of the Uruguay Round through the participation of their economies in the world trading system, based upon *open, market-oriented policies* and the commitments set out in the Uruguay Round

224 The chapeau of the Marrakesh Agreement Establishing the World Trade Organization says "Being desirous of contributing to these objectives by entering into reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international trade relations,

Resolved, therefore, to develop an integrated, more viable and durable multilateral trading system encompassing the General Agreement on Tariffs and Trade, the results of past trade liberalization efforts, and all of the results of the Uruguay Round of Multilateral Trade Negotiations, Determined to preserve the basic principles and to further the objectives underlying this multilateral trading system."

225 The WTO states in its website that predictability is one of the principles of the world trading system. "Sometimes, promising not to raise a trade barrier can be as important as lowering one, because the promise gives businesses a clearer view of their future opportunities. With stability and predictability, investment is encouraged, jobs are created and consumers can fully enjoy the benefits of competition — choice and lower prices. The multilateral trading system is an attempt by governments to make the business environment stable and predictable." Quote can be found in the following link: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm paragraph 10.

226 General Agreement of Trade in Goods (GATT). Preamble. Paragraph 2.

Agreements and Decisions.”²²⁷ It follows to highlight “the global reduction by 40 per cent of tariffs and wider *market-opening* agreements on goods.”²²⁸

As the primary purpose of the WTO is trade, environmental measures taken by Members and affecting trade have been treated as any other discriminatory measures.²²⁹ These measures must comply with the requirements set up in the WTO Agreements. The WTO Agreements require Members to not discriminate between Members,²³⁰ and between domestic and foreign goods.²³¹ They also require that measures designed are “not more trade-restrictive than necessary to meet legitimate objectives such as prevention of deceptive practices and protection of human health, safety and the environment.”²³²

227 Marrakesh Declaration of 15 April 1994. Preamble, paragraph 5. Retrieved from https://www.wto.org/english/docs_e/legal_e/marrakesh_decl_e.pdf.

228 Marrakesh Declaration of 15 April 1994. Paragraph 1. Retrieved from https://www.wto.org/english/docs_e/legal_e/marrakesh_decl_e.pdf.

229 Haneul, J. and Nu Ri J. (2019). Enforcing ‘Purely’ Environmental Obligations Through International Trade Law: A Case of the CPTPP’s fisheries Subsidies. *Journal of World Trade* 53, no. 6. Pages 1001-1020.

230 Here the paper refers to the Most-favoured-nation principle. “Under the WTO agreements, countries cannot normally discriminate between their trading partners. Grant someone a special favour (such as a lower customs duty rate for one of their products) and you have to do the same for all other WTO members. This principle is known as most-favoured-nation (MFN) treatment. It is so important that it is the first Article of the General Agreement on Tariffs and Trade (GATT), which governs trade in goods. MFN is also a priority in the General Agreement on Trade in Services (GATS) (Article 2) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) (Article 4), although in each agreement the principle is handled slightly differently. Together, those three agreements cover all three main areas of trade handled by the WTO.” Quote can be found in the following link: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm paragraph 1.

231 Here the paper refers to the national treatment principle. “Imported and locally-produced goods should be treated equally — at least after the foreign goods have entered the market. The same should apply to foreign and domestic services, and to foreign and local trademarks, copyrights and patents.” Quote can be found in the following link: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm paragraph 3.

232 UNCTAD. (2018). *Non-Tariff Measures: Economic Assessment and Policy Options for Development*. United Nations Conference on Trade and Development. Page 30, paragraph 3. Document number: UNCTAD/DITC/TAB/2017/2

Market access for trade in selected goods²³³ is regulated mainly by the GATT. The Agreement regulates tariff²³⁴ and non-tariff measures²³⁵ in the selected goods. There are no commitments in fish and fish products at the WTO; nonetheless, they are subjected to the rules of the GATT, the *Technical Barriers to Trade* (TBT) and the *Sanitary and Phytosanitary Measures* (SPS) Agreements as non-agricultural products.²³⁶ The TBT and SPS Agreements also regulate some aspects of market access. The former ensures technical regulations, standards, and conformity assessment procedures²³⁷ do not discriminate between Members and are the least trade-restrictive possible.²³⁸ The latter regulates measures on food safety and

233 These goods can be found in each member's schedule of concessions found in the following link:
https://www.wto.org/english/tratop_e/schedules_e/goods_schedules_e.htm

234 Several Articles regulate tariffs: Article I of the GATT: Most-favoured-nation treatment eliminates any preference to a particular WTO Member in all terms covering the agreement, including of tariffs, with exceptions to LDCs and developing countries. Article II of the GATT establishes the schedule of concessions for Members. Article III: National treatment determines that foreign goods must be treated the same way as national like-goods.

235 Article V provides for freedom of transit. Article VIII and IX deal with fees, formalities and marks of origin. Article XI eliminates quantitative restrictions and Article XIII*: Non-discriminatory Administration of Quantitative Restrictions

236 Please note that these are the Agreements with relevance for this paper. Fish and fish products may be subjected to other WTO Agreements. Ruckes, E. (2000). A Resource Manual: Multilateral Trade Negotiations on Agriculture. Food and Agriculture Organization of the United Nations. FAO. Rome.

237 Annex 1 of the TBT Agreement defines technical regulations as: Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method. Standards as: Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method. And Conformity assessment procedures as: Any procedure used, directly or indirectly, to determine that relevant requirements in technical regulations or standards are fulfilled.

238 The preamble of the TBT says: "Desiring however to ensure that technical regulations and standards, including packaging, marking and labelling requirements, and procedures for assessment of conformity with technical regulations and standards do not create unnecessary obstacles to international trade;" It follows: " Recognizing that no country should be prevented from taking measures necessary to ensure the quality of its exports, or for the protection of human, animal or plant life or health, of the environment, or for the prevention of deceptive practices, at the levels it considers appropriate, subject to the requirement that they are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade, and are otherwise in accordance with the provisions of this Agreement;"

“necessary to protect human, animal or plant life and health.”²³⁹ Although the SPS Agreement is briefly mentioned here, it is not further explored because it is not relevant for the protection of fish stocks. Instead, this section focuses on the GATT and the ATBT.

2.2.1 Issues Under the GATT

For trade in goods, all tariff measures and *non-tariff-measures* (NTMs) that do not fall under one of the WTO’s *lex specialis* Agreements are regulated under the GATT. The GATT’s provisions, when applied to fish and fish products, could be a powerful instrument to reduce tariffs and other non-tariff measures in trade in fish and fish products.²⁴⁰ Consequently, increasing market access for Members may increase pressure on fish stocks worldwide. Conversely, measures aimed at ensuring the protection of fish stocks may hinder market access. Balancing the protection of exhaustible natural resources²⁴¹ and market access has been a long stand challenge to the WTO.

Article XX of the GATT provides exceptions to the market access obligations determined in the Agreement.²⁴² It covers several exceptions;²⁴³ however, the relevant

239 Preamble of the SPS Agreement, paragraph 1, states: “Reaffirming that no Member should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade;”

240 As previously mentioned in the introduction to the market access problem, fish and fish products face higher tariffs and other non-tariff barriers than other goods.

241 Such as fish stocks. Justified under Article XX(g) of the GATT. As per the AB report US-shrimps living animals are covered under Article XX(g).

242 As previous mentioned, the GATT regulates several tariff and non-tariff measures.

243 Text of Article XX of the GATT is as follows: Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: (a) necessary to protect public morals; (b) necessary to protect human, animal or plant life or health; (c) relating to the importations or exportations of gold or silver; (d) necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement, including those relating to customs enforcement, the enforcement of monopolies operated under paragraph

exceptions for this paper are when the measure is “(a) necessary to protect public morals, or (b) necessary to protect human, animal and plant life or health”²⁴⁴ or (g) “relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.”²⁴⁵ Measures falling under one or more of the Article’s exhaustible definitions must also comply with the requirements stated in the chapeau of Article XX in order to be exempted from the GATT disciplines.²⁴⁶ That is, Article XX requires measures not to be applied in a manner of arbitrary or unjustifiable discrimination or as a disguised restriction to trade.

Although this approach allows Members to impose trade measures to protect the environment, as it submits the measures to certain conditions,²⁴⁷ it can restrain Members’ ability to address environmental issues and consequently undermine

4 of Article II and Article XVII, the protection of patents, trade marks and copyrights, and the prevention of deceptive practices; (e) relating to the products of prison labour; (f) imposed for the protection of national treasures of artistic, historic or archaeological value; (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption; (h) undertaken in pursuance of obligations under any intergovernmental commodity agreement which conforms to criteria submitted to the CONTRACTING PARTIES and not disapproved by them or which is itself so submitted and not so disapproved;* (i) involving restrictions on exports of domestic materials necessary to ensure essential quantities of such materials to a domestic processing industry during periods when the domestic price of such materials is held below the world price as part of a governmental stabilization plan; Provided that such restrictions shall not operate to increase the exports of or the protection afforded to such domestic industry, and shall not depart from the provisions of this Agreement relating to non-discrimination; (j) essential to the acquisition or distribution of products in general or local short supply; Provided that any such measures shall be consistent with the principle that all contracting parties are entitled to an equitable share of the international supply of such products, and that any such measures, which are inconsistent with the other provisions of the Agreement shall be discontinued as soon as the conditions giving rise to them have ceased to exist. The CONTRACTING PARTIES shall review the need for this sub-paragraph not later than 30 June 1960.

244 GATT (1994). Article XX. Paragraph b.

245 GATT (1994). Article XX. Paragraph g.

246 World Trade Organization. (29 April 1996). United States - Standards for Reformulated and Conventional Gasoline (*US – Gasoline*). Appellate Body Report. Page 22. Document Number: WT/DS2/AB/R

247 As previously explained with the chapeau test of Article XX of the GATT.

them.²⁴⁸ That being said, it is possible that true environmental measures²⁴⁹ are able to pass the test of Article XX of the GATT. Only protectionist measures will fail the *chapeau test*. That is because the test does not prohibit discrimination, but only discrimination that is unjustifiable or arbitrary, or that represents a disguised barrier to trade.²⁵⁰

There has been one fisheries-related dispute under the GATT, *US-Tuna I*, and three at the WTO, *US-Tuna II*, *US-Shrimps* and *EC-Seal Products*. All of these disputes have invoked the exceptions in Article XX of the GATT, but in most cases, the measures have been deemed to be in violation of the Agreement.

The panel report in *US-Tuna I* and the Appellate Body (AB) report in *US-Tuna II*,²⁵¹ found that the United States, due to the US *Marine Mammal Protection Act* (MMPA), violated the GATT and that the violation was not justifiable under Article XX of the Agreement. The MMPA prohibited the importation of “commercial fish or products from fish which have been caught with commercial fishing technology which results in the incidental kill or incidental serious injury of ocean mammals in excess of United States standards.”²⁵² The panel in the first case found the measure unjustifiable due to its extritoriality²⁵³ as the United States was trying to regulate how other Members catch fish in their territories. In the subsequent case, the measures in

248 Haneul, J. and Nu Ri J. (2019). Enforcing ‘Purely’ Environmental Obligations Through International Trade Law: A Case of the CPTPP’s fisheries Subsidies. *Journal of World Trade* 53, no. 6. Pages 1001-1020.

249 I.e.: Measures that truly aim to protect the environment and are not discriminatory.

250 Skeen, R. (2004). Will the wto turn green the implications of injecting environmental issues into the multilateral trading system. *Georgetown International Environmental Law Review*, 17(1). Pages 161-200.

251 Panel Report. (3 September 1991), United States – Restrictions on Imports of Tuna. Document number: DS21/R – 39S/155. Referred as *US-Tuna I* and Appellate Body Report. (16 May 2012). United States - Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products. Document number: AB-2012-2. Referred as *US-Tuna II*.

252 Panel Report. (3 September 1991), United States – Restrictions on Imports of Tuna. Document number: DS21/R – 39S/155.

253 Ibid.

question were *The Amended Tuna Measures*;²⁵⁴ the AB ruled that the amended measures continued to be inconsistent with Article XX of the GATT.²⁵⁵

The *US-Shrimp* case was brought against the United States because of its measures prohibiting the importation of shrimp unless the exporting Member had a similar incidental catch rate and comparable regulatory program for the harvest of shrimps. “Initially, the US lost the case because it applied its import measures in a discriminatory manner; it then revised its measures to introduce flexibilities in favour of developing countries. The *Appellate Body* (AB) subsequently concluded that the US ban was consistent with WTO rules,²⁵⁶ and justifiable under Article XX(g) of the GATT. This ruling is of utmost importance because the AB set a precedent using an ‘evolutionary approach’ to the text of Article XX(g). The AB determined that exhaustible natural resources included living animals “in the light of the contemporary concerns of the community of nations about the protection and conservation of the environment.”²⁵⁷ Although the United States lost the case the first time around, the AB recognised that Members have the jurisdiction to apply measures for the purposes outlined in Article XX of the GATT as long as it passes the *chapeau* test.²⁵⁸ Thus,

254 These include the original MMPA measures plus the 2013 Final Rule according to the Appellate Body Report. (16 May 2012). United States - Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products. Document number: AB-2012-2. Paragraph 1.7.

255 Appellate Body Report. (16 May 2012). United States - Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products. Document number: AB-2012-2.

256 Quote retrieved from the WTO’s website with a brief summary of environmental disputes in GATT/WTO, link: https://www.wto.org/english/tratop_e/envir_e/edis00_e.htm

257 Appellate Body Report. (12 October 1998). United States – Import Prohibition in Certain Shrimp and Shrimp Products. Document number: AB-1998-4. or WT/DS58/AB/R Supra note 1, at para. 129. The AB continued, “From the perspective embodied in the preamble of the WTO Agreement, we note that the generic term ‘natural resources’ in Article XX(g) is not ‘static’ in its content or reference but is rather ‘by definition, evolutionary.” Quote found at paragraph 130.

258 Appellate Body Report. (12 October 1998). United States – Import Prohibition in Certain Shrimp and Shrimp Products. Document number: AB-1998-4. or WT/DS58/AB/R

measures that are truly environmental and not discriminatory are in compliance with the GATT.

The last fisheries-related case was the *EC-Seal Products* covering the *EC seal regime* applied by the EU. “The regime prohibited the importation and sale of processed and unprocessed seal products. It contained certain exceptions that afford privileged access to the EU market to seal products originating in the EC and certain third countries.”²⁵⁹ While the EU argued that the regime was justifiable on the grounds of public morals under Article XX(a), the AB found that the EU was unable to demonstrate that the measures complied with the requirements of the Article’s *chapeau*. The measures were deemed discriminatory as they were designed in a way where particular third countries were not included in the ban.²⁶⁰

As seen above, despite the ‘evolutionary approach’ taken by the AB on Article XX,²⁶¹ not all measures aimed at protecting the environment pass the Article XX’s test. The GATT may be too trade-restrictive if Members try to impose measures, that can limit market access, to ensure fish and fish products do not originate from IUU fishing or from an overfished stock.²⁶²

259 Quote retrieved from the WTO’s website, page with the summary from the case *EC-Seal Products*. link: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds401_e.htm

260 Refer to: Appellate Body Report. (May 2014). European Communities – Measures Prohibiting the Importation and Marketing of Seal Products. (EC-Seal Products). Document number: WT/DS400/AB/R and WT/DS401/AB/R.

261 Appellate Body Report. (12 October 1998). United States – Import Prohibition in Certain Shrimp and Shrimp Products. Document number: AB-1998-4. or WT/DS58/AB/R Supra note 1, at para. 129. The AB continued, “From the perspective embodied in the preamble of the WTO Agreement, we note that the generic term ‘natural resources’ in Article XX(g) is not ‘static’ in its content or reference but is rather ‘by definition, evolutionary.” Quote found at paragraph 130.

262 This issue is further explored in the following paragraphs. Nonetheless, as environmental measures are not fully regulated by the WTO, the legal texts leave uncertainty regarding measures especially related to PPMs. In special when it comes to the likeness of products as it is judged on a case-by-case basis.

The DSB cases, briefly introduced above, are related to PPMs. These are measures associated with aspects that are not physically incorporated into a good or service.²⁶³ PPMs regulations can appear in many forms, for the purpose of this paper, it looks into differentiated tariffs, other quantitative restrictions and technical regulations.

The issue appeared at the WTO because the GATT, as per its text, prohibits any differential treatment provided to goods that present the same physical characteristics.²⁶⁴ That is, if goods are physically identical, they shall receive the same treatment regardless of where they come from.²⁶⁵ Nonetheless, measures differentiating goods based on PPMs discriminate between goods that have the exact same physical characteristics, i.e., *like products*²⁶⁶ but utilize different forms of process and production.²⁶⁷ These measures generally introduce a degree of regulatory burden to the exporting Member that is obliged, in order to export fish to the importing Member, to comply with them. For example, in the *US-Shrimp* case, the US law required foreign shrimp trawlers to use *turtle excluder devices* (TED) or to show a

263 Conrad, C. R. (2014). *Process and production methods (PPMs) in WTO law – interfacing trade and social goals*. Cambridge University Press, Cambridge

264 Article III of the GATT stipulates that Members shall not introduce regulation or taxation that will put foreign like products at a disadvantage compared to domestic goods.

265 Article III.2 of the GATT says: "The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products. Moreover, no contracting party shall otherwise apply internal taxes or other internal charges to imported or domestic products in a manner contrary to the principles set forth in paragraph 1."

266 The AB in *Japan-Alcoholic Beverages* analyzed what factors must be taken into consideration when examining whether two products were *like-products*. The AB report says: "...[T]he interpretation of the term should be examined on a case-by-case basis. This would allow a fair assessment in each case of the different elements that constitute a "similar" product. Some criteria were suggested for determining, on a case-by-case basis, whether a product is "similar": the product's end-uses in a given market; consumers' tastes and habits, which change from country to country; the product's properties, nature and quality." The text was retrieved from a Note by the Secretariat titled *Border Tax Adjustments*, issued on 11 of January 1994, document number BIDS18S/97, paragraph 18. The Panel in *US-Reformulated Gas* added a fourth criteria to the test of likeness, which has been used since then, tariff classification. Panel Report. (1999). *United States – Standards for Reformulated and Conventional Gasoline*. Document number: WT/DS2/R. Paragraph 3.22.

267 Conrad, C. R. (2014). *Process and production methods (PPMs) in WTO law – interfacing trade and social goals*. Cambridge University Press, Cambridge

certificate that showed an equivalent incidental take-rate as the US. The measure introduced a financial and regulatory burden, respectively, to foreign trawlers and foreign governments.²⁶⁸ Although the case-law in PPMs has evolved to accommodate health and environmental concerns,²⁶⁹ it still subjects PPMs that are not covered by the TBT or the SPS Agreements to the test of Article XX of the GATT. Thus, possibly limiting its applicability. This discrimination, when in conformity with the requirements²⁷⁰ of Article XX of the GATT, is legal.²⁷¹ There are also a couple of

268 Section 609 of US Public Law 101–102, enacted in 1989, amended the US Endangered Species Act of 1973 that required national trawlers to use TED, expanding it to foreign trawlers.

269 As seen in US-shrimps and EC-Asbestos. The latter, as not related to fish is not mentioned in this paper but is relevant for PPMs.

270 Here the paper refers to when the measure falls under one of the chapters of Article XX, and within the requirements of the chapeau of the Article as previously mentioned.

271 The Appellate Body (AB) in US-Shrimps set a precedent to cases related to sustainable development upon adopting an evolutionary approach when interpreting Article XX of the GATT by including living, renewable resources in the interpretation of Article XX(g). The AB emphasized the inclusion of sustainable development in the GATT 1994. Thus, allowing for exceptions under sustainable development grounds. Nonetheless, it still emphasized that they shall be seen on a case-by-case basis. Appellate Body Report. (12 October 1998). United States – Import Prohibition of Certain Shrimp and Shrimp Products. (US-Shrimp I). Document number: AB-1998-4. Quoted from *supra* note 1, at paragraphs. 127-34.

types of PPMs, in particular incorporated PPMs,²⁷² that are explicitly permitted under the SPS and TBT Agreements.²⁷³ The latter is further explored in the next section.

It is likely that more PPMs regulations will surge as more Members aim to increase the protection of fish stocks. One example is the EU Green Deal that aims at imposing a carbon border adjustment mechanism that introduces a border carbon tax to offset the impact of carbon-intensive imports.²⁷⁴ Although this example is not fish related, a similar differentiated tax scheme could be introduced in order to curb IUU fishing and to ensure fish coming from overfished stocks are not treated *like* fish coming from healthy fish stocks. Thus, allowing Members to differentiate based on the legality and sustainability of the catch. This type of border measure based on PPMs would then fall under the GATT. The measure would hinder market access to some WTO Members and thus be subjected to disputes unless explicitly allowed in a Fisheries Agreement.

272 It is not completely clear what types of PPMs are covered by the TBT Agreement, jurisprudence seems to agree that only PPMs related to the characteristics of a product are covered by the Agreement. The AB in *in EC-Seal Products*: “[A] plain reading of Annex 1.1 thus suggests that a ‘related’ PPM is one that is ‘connected’ or ‘has a relation’ to the characteristics of a product. The word ‘their’, which immediately precedes the words ‘related processes and production methods’, refers back to ‘product characteristics’. Thus, in the context of the first sentence of Annex 1.1, we understand the reference to ‘or their related processes and production methods’ to indicate that the subject matter of a technical regulation may consist of a process or production method that is related to product characteristics.” Quote from Appellate Body Reports, *EC – Seal Products*, para. 5.12.

Incorporated PPMs, i.e.: Those that alter the physical characteristic of a product, seem to be covered because of the language of Annex 1. Referring to technical regulations: “a document which lays down product characteristics or their RELATED process and production methods.” And to standards: “Rules, guidelines or characteristics for products or RELATED process and production methods.” The word related means that the PPMs should be related to the characteristics of the product. Thus, implying that PPMs that do not alter the physical characteristic of the product are not covered by the Agreement. Source: Conrad, R. C. (2011). The status of PPM measures under the TBT Agreement and the SPS Agreement. In *Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals* (Cambridge International Trade and Economic Law, pp. 374-422). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511807398.010

273 Conrad, R. C. (2011). The status of PPM measures under the TBT Agreement and the SPS Agreement. In *Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals* (Cambridge International Trade and Economic Law, pp. 374-422). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511807398.010

274 European Commission. (11 December 2019). Communication from the Commission: The European Green Deal. Brussels. Document number: COM(2019)640 final.

Given the complexity of these types of measures and the unpredictability due to a lack of an unclear framework to address environmental PPMs at the WTO, it is not possible to predict if the measure would pass the tests under Article XX of the GATT. “Despite significant “advances,” in the law, established perceptions with respect to PPMs combined with the case-based²⁷⁵ nature of recent developments have allowed confusion and uncertainty among policymakers to persist. The resulting political (and legal) indeterminacy regarding the status of PPMs under the WTO renders it difficult for policymakers to assess the international legal framework from a strategic perspective.”²⁷⁶

Explicitly addressing PPM measures in a Fisheries Subsidies Agreement would grant WTO Members more stability and clarity on the scope of PPM measures they may want to introduce. The SDG 14.6 mandate does not mention market access or PPMs. Nonetheless, PPMs provide the WTO with the opportunity to further liberalize trade while simultaneously promoting a more sustainable and ethical fish harvesting system. Trade liberalization can be fostered if Members instead of increasing tariffs on products that do not comply with PPM regulations (a scheme similar to the carbon tax), reduce tariffs in goods that do comply with them. Thus, creating an incentive towards practices that are more environmentally friendly.

Differential treatment, as proposed above, goes against WTO’s core values.²⁷⁷ However, these core values have not prevented Members from providing SDT for least developed and developing countries. Thus, if differential treatment is allowed on the grounds of development, why wouldn’t it be allowed on the grounds of environmental protection? After all, the Marrakesh Agreement in its preamble says: “Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and

²⁷⁵ Cases referred here were previously mentioned in this section.

²⁷⁶ Potts, J. (2008). *The Legality of PPMs under the GATT: Challenges and Opportunities for Sustainable Trade Policy*. International Institute for Sustainable Development. ISBN 978-1-895536-93-5.

²⁷⁷ Here the paper refers to the most-favoured-nation and national treatment principles.

a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment.”

The negative side of regulating it in a Fisheries Subsidies Agreement is that it would open a Pandora box at the WTO for PPMs, probably one of the biggest reasons why the Membership has been avoiding addressing this topic legally.

2.2.2 Issues Under the TBT Agreement

The TBT Agreement governs technical regulations and standards, including packaging, marking and labelling requirements,²⁷⁸ to ensure that they are not more trade-restrictive than necessary,²⁷⁹ and do not discriminate between Members.²⁸⁰ Measures that fall within the definition of Annex 1 of the TBT Agreement are subjected to its rules.

Regulations such as the EU's *Shared Stocks and IUU Regulation*²⁸¹ and the US' *Magnuson-Stevens Act* amending the *High Seas Driftnet Fishing Moratorium Protect Act*²⁸² can possibly²⁸³ be challenged under the TBT Agreement. They include

278 Preamble of the TBT, paragraph 5.

279 The preamble of the TBT agreement, paragraph 5, states: “Desiring however to ensure that technical regulations and standards, including packaging, marking and labelling requirements, and procedures for assessment of conformity with technical regulations and standards do not create unnecessary obstacles to international trade;”

280 TBT's preamble, paragraph 6: “subject to the requirement that they are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade..”

281 Council Regulation 1026/2012, OJ 2012 L 316/34 and Council Regulation 1005/2008, OJ 2008 L 286/1.

282 The US Public Law 94-265 also known as the *Magnuson-Stevens Act*, US Public Law 114-81 and House Report 114-112 were the measures taken by the US to “to strengthen enforcement mechanisms to stop illegal, unreported, and unregulated fishing.” Quote retrieved from the chapeau of the House Report 114-112.

283 It is unclear if these measures would truly fall under the TBT because of the language of Annex 1. Jurisprudence seems to agree that only PPMs related to the characteristics of a product are covered by the Agreement. The AB in *in EC-Seal Products*: “[A] plain reading of

specifications on the process of harvesting fish (they are PPMs measures) and could possibly be considered to fall within the meaning of technical regulations under Annex 1 of the TBT Agreement.²⁸⁴ Although they are in place as measures to protect fish stocks, they have an extraterritorial nature, as they have to be applied in the territory of the Member catching fish. Thus, representing a market access barrier, especially to small-scale fishers. *Papua New Guinea* (PNG) has previously expressed its concern and difficulties as an LDC to try to comply with the EU IUU Fishing regulation and other market access requirements such as fish traceability.²⁸⁵ For instance, the EU CMO Regulation requires all fish entering the market to be labelled with the catching method and location.²⁸⁶ Thus, increasing the regulatory burden for

Annex 1.1 thus suggests that a ‘related’ PPM is one that is ‘connected’ or ‘has a relation’ to the characteristics of a product. The word ‘their’, which immediately precedes the words ‘related processes and production methods’, refers back to ‘product characteristics’. Thus, in the context of the first sentence of Annex 1.1, we understand the reference to ‘or their related processes and production methods’ to indicate that the subject matter of a technical regulation may consist of a process or production method that is related to product characteristics.”
Quote from Appellate Body Reports, *EC – Seal Products*, para. 5.12.

Referring to technical regulations: “a document which lays down product characteristics or their RELATED process and production methods.” And to standards: “Rules, guidelines or characteristics for products or RELATED process and production methods.” The word related means that the PPMs should be related to the characteristics of the product. Thus, implying that PPMs that do not alter the physical characteristic of the product are not covered by the Agreement. The language seems to refer to PPMs that affect the characteristics of a product. Since fish is caught and generally there are no physical alternations to it, it could possibly fall outside of the scope of the Agreement. Source: Conrad, R. C. (2011). *The status of PPM measures under the TBT Agreement and the SPS Agreement. In Processes and Production Methods in WTO Law: Interfacing Trade and Social Goals* (Cambridge International Trade and Economic Law, pp. 374-422). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511807398.010

284 Annex 1.1 of the TBT Agreement defines technical regulations as: “Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”

285 UNCTAD, FAO, UN Environment and the Commonwealth. (11 December 2017). *Fish, Trade, Fisheries Subsidies and SDG 14*. High Level Session co-organized by UNCTAD, FAO, UN Environment and the Commonwealth. Remarks by: H.E. Mr. Wera Mori, Minister of Minister for Trade, Commerce and Industry, Papua New Guinea.

286 Regulation (EU) 2017/2393

WTO Members, and especially for LDCs. These labelling regulations can also be challenged under the TBT Agreement, so can standards as per Annex 1 of the TBT.²⁸⁷

The status of PPMs under the TBT Agreement has been of debate. The AB in *EC-Seals* determined that only PPMs related to the characteristics of a product are covered by the Agreement. “[A] plain reading of Annex 1.1 thus suggests that a ‘related’ PPM is one that is ‘connected’ or ‘has a relation’ to the characteristics of a product. The word ‘their’, which immediately precedes the words ‘related processes and production methods’, refers back to ‘product characteristics.’ Thus, in the context of the first sentence of Annex 1.1, we understand the reference to ‘or their related processes and production methods’ to indicate that the subject matter of a technical regulation may consist of a process or production method that is related to product characteristics.”²⁸⁸ It proceeds to clarify “whether the processes and production method prescribed by the measure has a sufficient nexus to the characteristics of a product in order to be considered related to those characteristics.”²⁸⁹

The lack of clarity on the legality of technical regulations, such as the ones exemplified above, may prevent countries from introducing regulations that can help to curb IUU fishing and overfishing. Simultaneously, as Members respond to the growing need for implementing such measures, litigation may also increase. Thus, by addressing these measures in a Fisheries Agreement, the WTO would provide more predictability to the world trading system. Furthermore, it would allow the

287 Annex 1.2 of the TBT Agreement. Text is as follows: A standard is a “document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method.”

288 Quote from Appellate Body Reports, *EC – Seal Products*, at paragraph 5.12.

289 Quote from Appellate Body Reports, *EC – Seal Products*, at paragraph 5.11.

organization to provide technical support and capacity building to LDCs, that like PNG, face difficulties complying with such regulations.²⁹⁰

2.3 Conflicts Between Traditional SDT and a Fisheries Agreement that Addresses the Small -Scale Fishers' Dilemma

Special and differential treatment (SDT) has been a fundamental mechanism at the WTO used to address differences in development between its Members and to ensure least developed and developed Members benefited from the growth of world trade.²⁹¹ The many SDT provisions in WTO agreements provide least developed and developing Members with differential and more favourable treatment “(i) for their rights in terms of exceptions, flexibilities, and differentiated rules, and (ii) for obligations relative to notification formats and deadlines, transparency, and other procedural and institutional provisions.”²⁹² SDT for developing and least-developed countries, as mandated by the SDG 14.6, shall be an integral part of the fisheries negotiations at the WTO.²⁹³

There have been a couple of proposals from Members on how to approach SDT in fisheries rules. India, for instance, has proposed to exempt developing countries from fisheries subsidies disciplines when subsidies are granted for fishing within a

290 In the following document the Minister of PNG urges for help through capacity building and technical support in order to be able to comply with stringent EU regulations. UNCTAD, FAO, UN Environment and the Commonwealth. (11 December 2017). Fish, Trade, Fisheries Subsidies and SDG 14. High Level Session co-organized by UNCTAD, FAO, UN Environment and the Commonwealth. Remarks by: H.E. Mr. Wera Mori, Minister of Minister for Trade, Commerce and Industry, Papua New Guinea.

291 World Trade Organization. (November 2001). Doha Ministerial Declaration. Adopted on 14 November 2001. Fourth Ministerial Conference. Doha. WT/MIN(01)/DEC/1.

292 Häberli, C. (2018). Potential conflicts between agricultural trade rules and climate change treaty commitments. The State of Agricultural Commodity Markets (SOCO) 2018: Background paper. Rome, FAO, 2018. License: CC BY-NC-SA 3.0 IGO. Quote retrieved from page 17, paragraph 3.

293 Mandate for the SDG 14.6 says: “recognizing that appropriate and effective special and differential treatment for developing and least-developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.”

Member's own EEZ.²⁹⁴ China proposed a cap-approach, where a fisheries green-box is created to allow subsidies that would attend the needs of developing countries.²⁹⁵ The latest published working paper of the fisheries working group also presented its own version of SDT, which included longer transitional periods for developing and least developed countries, and suggested exemption from the rules to LDCs and to developing countries fishing within national waters.²⁹⁶

Traditional SDT cannot help to address the problem of small-scale fishers. As previously mentioned, this group is likely unable to comply with PPMs, labelling, certification and reporting requirements.²⁹⁷ Furthermore, subsidy cuts may disrupt their safety net and food security. The challenge to a '*Fisheries-Smart*' *Special and Differential Treatment* provision is to address these concerns while ensuring the environmental protection required by the SDG14.

In order to accomplish that, the WTO's Membership will have to change the design of a Fisheries' SDT provision. *Firstly*, because SDT provisions are given to Members, only to self-declared developing²⁹⁸ or to least-developed countries,²⁹⁹ and not to a particular segment of a Member's market. Even though some Agreements have created alternative provisions to an *accessible to all* SDT, in the case of fisheries, such an approach may not work. For instance, the ASCM's SDT approach is based on

294 World Trade Organization. (2019): Communication from India on Special and Differential Treatment. Document number TN/RL/GEN/200.

295 World Trade Organization. (2019): Communication from China on the Cap-based approach to fisheries subsidies. Document number TN/RL/GEN/199.

296 World Trade Organization. (2018). Fisheries Subsidies Working Document Communication from the Chair. TN/RL/274/Rev.6.

297 This information is previously shared in section 1.4.

298 Häberli, C. (2018). Potential conflicts between agricultural trade rules and climate change treaty commitments. The State of Agricultural Commodity Markets (SOCO) 2018: Background paper. Rome, FAO, 2018. License: CC BY-NC-SA 3.0 IGO.

299 The WTO's website provides a list of LDCs, as designated by the UN, in the link: list of least-developed countries at https://www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm

the income of a Member, ³⁰⁰ thus funnelling Members with low income only. The problem with this approach is that the level of development of the fishing sector of a country is not correlated to the country's level of development. For example, Namibia's fish industry is highly industrialized. It has no artisanal fishers and a very small number of small-scale fishers in "a small angling community in the Linefish fishery. [This is because of] its arid climatic conditions and barren coastal zone. [The country] does not have many settlements along the coast. [Thus, despite Namibia's least developed country status] the difficult living conditions along the coast combined with the rough seas led"³⁰¹ its fishing industry to be very high tech.³⁰² Thus, if SDT was applied equally to all LDCs, Namibia could possibly benefit from it even though it does not have a fishing industry that needs support to alleviate poverty.

If SDT in a Fisheries Agreement is aimed at alleviating poverty in communities of small-scale fishers, it would not only benefit the given segment in developing and least-developed Members but also in developed Members. Such an approach may be unpopular with the WTO's Membership where two-thirds are developing countries.

Secondly, only conditional tariffs and delayed implementation are provided.³⁰³ SDT provisions do not address the small-scale fishers concerns regarding the market access barriers that may surge from PPMs, labelling, certification and reporting requirements.

Thirdly, although in the literature these concerns are expressed as of concerns of all small-scale fishers, if SDT in a Fisheries Agreement was based on the very broad definition of small-scale fishers, it would be provided to about 90 per cent of fishers

300 Annex VII of the ASCM lists LDCs and 21 developing countries with GNP/capita below USD1000 per annum. These countries are exempted from the prohibition under Article 3.

301 FAO. (August 2015). Fishery and Aquaculture Country Profiles: The Republic of Namibia. Food and Agriculture Organization of the United Nations. Quote retrieved from page 17, paragraph 3.

302 Ibid.

303 Comment by Christian Häberli written in the first draft of this paper.

in the world. Instead, an approach on small-scale fishers' income, may more accurately select fishers that are below the poverty line. National poverty lines, or medium poverty lines determined for high-income, upper-middle-income, lower-middle-income and low-income countries, are widely used indicators of poverty.³⁰⁴ National poverty lines being the best option as they are adjusted for price differences between countries. This way, a poverty-based quantitative qualification to small fishers may allow support to be placed in the sub-sector that needs it the most.

Although this approach may reduce the number of fishers entitled to SDT, the number of fishers below national poverty lines can vary by region, reaching up to 53 per cent of small-scale fishers in East Asia and the Pacific when considering their net income.³⁰⁵ Thus, by granting subsidies to fishers below national poverty lines in countries with such a high percentage of poor fishers, the level of environmental protection of the fisheries agreement will be minimized.

304 Ferreira, F., Sánchez-Páramo, C. (2017). A Richer Array of International Poverty Lines. Retrieved from Let's Talk Development website: <http://blogs.worldbank.org/developmenttalk/richer-array-international-poverty-lines> and Jolliffe, D.M., Prydz, E.B. (2016). Estimating International Poverty Lines From Comparable National Thresholds. No. WPS7606. Pages 1–36. The World Bank. Retrieved from: <http://documents.worldbank.org/curated/en/837051468184454513/Estimating-international-poverty-lines-from-comparable-national-thresholds..>

305 Teh, L., Hotte, N., Sumaila, R.U. (2017). Having It All: Can Fisheries Buybacks Achieve Capacity, Economic, Ecological, And Social Objectives? *Maritime Studies* 16, 1. doi.org/10.1186/s40152-016-0055-z. You may also see it in Table 1 of this paper.

<i>Region</i>	<i>Poverty Ratio</i>	<i>% Below the Poverty Line</i>	
		<i>Gross Income</i>	<i>Net Income</i>
East Asia & Pacific	0.53	18	53
Europe & Central Asia	0.01	17	/
Latin America & Caribbean	0.33	5	13
Middle East & North Africa	1.45	40	50
North America	0.6	29	/
South Asia	0.34	15	18
Sub-Saharan Africa	0.73	22	11

For poverty ratio, values below 1 indicate that the fishers income average lower than the poverty line.

Gross and Net Income values represent the percentage in which fishers' gross and net incomes are less than the poverty line.

This table was adapted from Tch et al. (2020).

Table 2.1

Small-scale Fishers' Poverty condition

Regarding subsidies, only a small percentage of subsidies are destined to small-scale fishers, and even a smaller percentage is destined to programs for poverty alleviation.³⁰⁶ Controversially, a large part of small-scale fishers are living in precarious conditions and below national poverty lines. Most subsidies provided to small-scale fishers are aimed at increasing fishing capacity,³⁰⁷ and as seen in section 1.1, all capacity enhancing subsidies are environmentally harmful. Nonetheless, some social policies can increase the income of fishers, the knowledge and specialization in the sector and reduce the cost of fishing. While these policies may benefit fishers,

306 Schuhbauer, A., Chuenpagdee, R., Cheung W.W., L., Greer, K., and Sumaila, U. R. (2017). How subsidies affect the economic viability of small-scale fisheries. *Marine Policy* 82. Pages114-121.

307 Ibid.

they are harmful to fish stocks.³⁰⁸ Given the high number of fishers under the poverty line in specific areas, an SDT provision that addresses the SDG14 environmental concerns³⁰⁹ would not allow for special and differential treatment when it comes to the permission of harmful subsidies to small-scale fishers. However, it could allow for a differentiated phase-out timeline according to fishers' poverty status. Thus, allowing for a longer phase-out time for subsidies provided for fishers below national poverty lines.

It is recommended that a type of differential treatment is provided to help institutionalize small-scale fishers to be able to comply with PPMs and reporting requirements.³¹⁰ That is, an *official development assistance* (ODA) scheme aimed at restructuring the small-scale fishing industry. This can be done through two ways: i) By allowing government support aimed at institutionalizing fishers. I.e., government support for increasing their participation in catch documentation schemes, vessels and catch registration, surveys and all other activities that contribute to achieving these requirements. ii) Through the creation of a financial mechanism similar to the one done by the *Trade Facilitation Agreement* (TFA) that would support small-scale fishers to achieve compliance with more sophisticated requirements.

The TFA offers grants for category C provisions³¹¹ to developing and least-developed Members that are unable to acquire funds to comply with the commitments made under the Agreement. The grants can be used for the analysis of the Member's needs

308 Conclusion based on analysis from section 1.1. Please refer to Table 1 for a quick reference.

309 Here the paper refers to the broader mandate of the SDG 14: "Conserve and sustainably use the oceans, seas and marine resources for sustainable development." This mandate is accessible via: United Nations. (2019). Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. Document number: A/RES/71/313. Last accessed on November 30th, 2020. https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202019%20refinement_Eng.pdf

310 Supposing that the Fisheries Agreement would cover these issues.

311 According to Article 14 of the TFA, provisions that require assistance and support for capacity building and are to be implemented on a date after a transitional period belong to the C category. This category is applied to developing and least developed Members.

or implementation of the provisions of the Agreement and are conditional.³¹² It is financed by WTO Members on a voluntary basis.³¹³ A similar mechanism for the Fisheries Agreement would be conditional upon the income of the fisher. The support shall be used to ensure small-scale fishers' compliance with the given requirements, i.e., market access barriers necessary to protect fish stocks such as PPMs, labelling, certification and reporting requirements. Nevertheless, to do so, a Fisheries Agreement needs to directly address these market access issues.

Chapter 3 Approaches to the Prohibition and/or the Reduction of Subsidies Supporting Overcapacity, Overfishing and IUU Fishing; Exceptions for Fish Stocks Protective Measures Hindering Market Access and Small-Scale Fishers

Several WTO members have brought forward proposals on how to approach subsidies which lead to overcapacity, overfishing and IUU fishing. The proposals encompassed suggestions such as: (a) The prohibition of some harmful subsidies; (b) Actionable subsidies where a framework is designed that allows an action to be taken when subsidies contribute to overcapacity, overfishing or IUU fishing; (c) A combination of both; And (d) cap-based solutions. These proposals also contained more lenient approaches for developing and least-developed countries which are explored in section 2.3 of the paper.

The latest published working document by the fisheries working group³¹⁴ referred hereinafter as *working document*, utilized a list-based prohibition approach for subsidies in four disciplines: IUU fishing, overfished stocks, overcapacity or capacity enhancing and overfishing subsidies, and fishing and related activities in waters and

312 World Trade Organization. (April 2018). Operational Rules for the Grant Program: WTO Trade Facilitation Agreement Facility. Conditions are highlighted in paragraphs 3.13 to 3.17.

313 World Trade Organization. (April 2018). Operational Rules for the Grant Program: WTO Trade Facilitation Agreement Facility.

314 World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5.

areas claimed by more than one WTO Member.³¹⁵ Furthermore, it introduced a clause that restrains Members from introducing new subsidies or extending existent ones.³¹⁶ In section 3.1, the paper analyses the proposed approaches and in section 3.2, it makes *recommendations* on how to discipline fisheries at the WTO.

3.1 Members' Proposed Approaches to Fisheries Subsidies

3.1.1 The Prohibition Approach

The prohibition approach for subsidies which result in overfishing, overcapacity and IUU fishing can be presented in many forms such as through a list or box of explicit prohibitions,³¹⁷ an effect-based prohibition where subsidies are prohibited as long as they have a particular effect³¹⁸ or a combination of both.³¹⁹ The explicit prohibition approach, as proposed by the *working document*,³²⁰ allows for the imposition of subsidies not specified in it, thus possibly allowing subsidies that result in IUU fishing, overfishing, or overcapacity to still be practised if they are not listed.³²¹ For

315 Ibid. Article 3: Prohibited Subsidies.

316 World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5. Special and Differential Treatment: Pages 13-17.

317 As done in the SCM Agreement through the prohibition clause in Article 3.

318 As the actionable subsidies in the SCM Agreement determined through Articles 5 and 6.

319 As done in the SCM Agreement.

320 World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5.

321 The following paper discusses the proposals by WTO Members on how to address fisheries subsidies. Tipping, A. (January 2020). Addressing the Development Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries

instance, under the IUU fishing discipline in the working document, there has been no mention of subsidies that contribute to the maintenance, development and transfer of fishing capacity,³²² and which thereby encourage IUU fishing by reducing its cost.³²³ Although these subsidies are likely to get caught in the overcapacity discipline if they are listed, when allowed under the condition of fisheries management, they may not result in overfishing and yet provide incentives to IUU fishing. While a prohibition-based approach specifies the subsidies restrained by the rules, there is a possibility that not all types of subsidies will be covered, thus reducing the effectiveness of the Agreement. That is, as the world and the trading system evolves, new types of harmful subsidies may be created. If those subsidies have a negative impact on fish stocks and are not included in the prohibition list, they may be allowed despite their environmental impact. Consequently, undermining the purpose of the Agreement.

In the effects-based approach, some subsidies are prohibited to the extent that they have a negative effect.³²⁴ This approach is broader and more protective as it encompasses any subsidy that members anticipate having the effects of overfishing, overcapacity or IUU fishing.³²⁵ A mixed approach, like the one used in the SCM

Subsidies Negotiations: A Discussing Paper by IISD. Global Subsidies Initiative. International Institute for Sustainable Development.

322 World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5.

323 See Gallic, L.B., Cox, A. (2005). An Economic Analysis Of Illegal, Unreported And Unregulated (IUU) Fishing: Key Drivers And Possible Solutions. Marine Policy 30. Pages 689-695.

324 According to the following paper, this proposal was brought up at the Incubator group for fisheries and it is not public. Tipping, A. (January 2020). Addressing the Development Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries Subsidies Negotiations: A Discussing Paper by IISD. Global Subsidies Initiative. International Institute for Sustainable Development.

325 This is the approach taken by the SCM Agreement with actionable subsidies.

Agreement, may be more effective as it includes an explicit prohibition and effects-based clauses for actionable subsidies.³²⁶

3.1.2 The Cap-Based Approach

Other Members proposals brought forward various cap-based approaches.³²⁷ This mechanism can be used to achieve the reduction of subsidies as outlined by the mandate of the SDG 14.6,³²⁸ similar to how it has been used in the amber box of the *Agreement on Agriculture (AoA)* to reduce agricultural subsidies. However, the latter has been criticized since it provided an advantage to big subsidizing members and has slowed down the agricultural subsidies' reduction process.³²⁹ On the other hand, it offers members more flexibility to adapt to the subsidies reductions, and as capped subsidies are simply subject to numerical limitations and not prohibited, this approach is less restrictive. But similar to the criticism levelled against Amber Box subsidies, the mechanism disregards the negative effects of some capped subsidies on IUU fishing, overfishing or overcapacity, thus allowing them to continue to negatively impact fisheries, just in a smaller proportion than before capping.³³⁰ Despite the

326 Tipping, A. (January 2020). Addressing the Development Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries Subsidies Negotiations: A Discussing Paper by IISD. Global Subsidies Initiative. International Institute for Sustainable Development.

327 Refer to World Trade Organization. (11 July 2019). A Cap-based Approach to Addressing Certain Fisheries Subsidies. Submission of Argentina, Australia, the United States and Uruguay (Revision) Document number: TN/RL/GEN/197/Rev.2. And World Trade Organization. (4 June 2019). A Cap-based Approach to Address Certain Fisheries Subsidies that Contribute to Overcapacity and Overfishing: Communication from China. Document number: TN/RL/GEN/199.

328 Mandate for the SDG 14.6 says: "recognizing that appropriate and effective special and differential treatment for developing and least-developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation."

329 Tipping, A., Irschlinger, T. (July 2020). WTO Negotiations on Fisheries Subsidies: What's the state of play? GSI Policy Brief. IISD: International Institute for Sustainable Development.

330 Tipping, A. (January 2020). Addressing the Development Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries Subsidies Negotiations: A Discussing Paper by IISD. Global Subsidies Initiative. International Institute for Sustainable Development.

limitations, when implemented in combination with a prohibition, it could be useful to achieve the reduction and the prohibitions stated in the SDG 14.6's mandate.³³¹

3.2 Proposal on How to Address Subsidies Reductions, Prohibitions & the Small-Scale Fishers' Dilemma

3.2.1 Traffic Light System

China, in a proposal to the fisheries working group of the WTO, suggested approaching a Fisheries Agreement with a cap-based solution that included a green box with subsidies exempted from the rules,³³² similar to the approach used in the AoA. The approach taken by the AoA has been criticized by specialists for its cumulative impact³³³ and because Members started moving their subsidies from the amber box to the green box.³³⁴ Also, the AoA does not have a red box with prohibited

331 The text of the SDG 14.6 is as follows: "By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies..."

332 World Trade Organization. (4 June 2019). A Cap-based Approach to Address Certain Fisheries Subsidies that Contribute to Overcapacity and Overfishing. Communication from China. Tn/RL/GEN/199.

333 This arises because there is no limitation to providing subsidies from all categories to one particular farmer, value chain or sector. Consequently, a cumulative effect is created where there is "an amplification of the same degree of distorting effect or a cumulative impact of subsidies with different degrees of distorting effects." This happens because (i) agricultural products receive more than one subsidy from one or more boxes; (ii) A Product may receive a direct subsidy and a subsidy through one of its inputs which then results on a distortion of price; (iii) A producer may benefit directly from a subsidy and then from an inflation-like effect of the demand of its product due to a subsidy is given to a product up in the value chain. Ultimately, all three types of cumulative effects distort trade and allow for intensification of the effects of a possibly harmful subsidy. The following papers both agree on the cumulative problem of the AoA subsidie. The quote in this reference is retrieved from Page 245 of Galperin, C., Miguez, D.I. (May 2010). Green Box Subsidies And Trade-Distorting Support: Is There A Cumulative Impact? Cambridge University Press. Cambridge.

DOI: <https://doi.org/10.1017/CBO9780511674587.009>. Banga, R. (2014). Do Green Box Subsidies Distort Agricultural Production and International Trade? Commonwealth Trade Hot Topics, No. 114. Commonwealth Secretariat: London. <https://doi.org/10.14217/5jxswbjhkszx-en>.

334 First, the following paper mentioned that "the reforms in CAP in the EU have over time reduced the domestic support in amber box but steadily increased the subsidies in green box." Banga, R. (2014). Do Green Box Subsidies Distort Agricultural Production and International Trade? Commonwealth Trade Hot Topics, No. 114. Commonwealth Secretariat: London. <https://doi.org/10.14217/5jxswbjhkszx-en>. Second, Musselli, I. (2016). Farm Support and Trade Rules: Towards a New Paradigm Under the 2030 Agenda. Policy Issues in International Trade Commodities, Research Study Series No. 74. United Nations Conference on Trade and Development. UNCTAD. The

subsidies which is necessary in a Fisheries Agreement in order to prevent governments from providing funds that support overfishing and IUU fishing. Furthermore, as seen above, the cap-approach is unable to provide Members with the level of environmental protection necessary for a Fisheries Agreement. Thus, this section takes a different approach and explores a traffic light system similar to the one used in the SCM Agreement. I.e., composed by a red box of prohibited subsidies, an amber box of conditional subsidies, and a green box of permitted subsidies.

A fisheries traffic light system can be extremely useful for supporting economic development in developing and least-developed countries. It can incorporate principles previously implemented in SDT provisions and help protect small-scale fishers. It can also be a powerful tool for the conservation, management and recovery of fish stocks. The traffic light system in this section is designed to achieve the highest level of environmental support while allowing for exceptions for a small group of fishers on the grounds of poverty relief. Nonetheless, other mechanisms will have to be used to address market access.

Environmental protection and social development are often at odds. Subsidies that may help foster social development, such as subsidies for rural communities' infrastructure, may negatively impact the environment.³³⁵ This paper suggests as a starting point that harmful subsidies should be prohibited, meaning, they should be added to a *red box*. Subsidies in the category of ambiguous may be applied *only* to the small-scale fishers' sector and should be included in the *amber box* (which is conditional). I.e., these subsidies may be applied as long as their effect is not environmentally harmful and upon Member's commitment to structural reform. That is, on the training and placing of fishers outside of the fishing sector. As these 'social subsidies' could have a negative impact on fish stocks if they were widely applied, this paper suggests that these subsidies are conditional on the *status of the fish stock*.

author says that it is possible to see a trend that can be characterized as "box shifting" in agricultural and other subsidies covered by the SCM Agreement where government support has moved from amber to green boxes.

335 This example is studied further in Chapter 1 and can be seen in a summarized form in Table 1.

I.e., they are prohibited if the fish stock is in an overfished condition. Thus, Members would have to report on the condition of fish stocks within their EEZs and fish stocks they are exploiting within a RFMO territory. As ambiguous subsidies could still contribute to IUU fishing, other measures,³³⁶ to prevent small-scale fishers from engaging in illegal activities still need to be taken into account to ensure that these subsidies do not contribute to IUU fishing.

The *green box* of permitted subsidies must include only beneficial subsidies. Thus, if the same pattern of *box switch* is seen in a Fisheries Agreement, government funds will be diverted to subsidies that actually have a positive environmental impact. Subsidies to support the implementation of a GPS tracking system in the supply chain of fish to ensure that it originates from a sustainable source are also allowed under the *green box*. Furthermore, subsidies from one box may not be applied in conjunction with any other type of subsidy from another box which may then result in the cumulation effect seen in the AoA. The inclusion of only beneficial subsidies in the green box aims at achieving the highest level of environmental protection possible.

The traffic light system only includes subsidies. It provides exceptions and longer phase-out time for subsidies destined to fishers below the poverty line and allows for subsidies to institutionalize small-scale fishers. Thus, including some type of differential treatment for fishers that need it. Nonetheless, the Agreement would still need to separately address market access, such as differential tariffs and technical regulations. It would also have to separately include a reporting requirement on subsidies provided by Members, vessels wearing a Member's flag and on the status of fish stocks within the Member's EEZs or RFMOs joined by the Member. Thus, such an Agreement would be able to provide the best environmental protection while still leaving room for the poverty concern of developing and least-developed countries that

336 The measures recommended by FAO's *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU)* can be extremely useful fighting IUU fishing. For instance, paragraphs 24 to 24.9 set monitoring, surveillance and controlling standards such as maintaining record of vessels, and more.

may surge due to stringent market access regulations. Below is a table summarizing this paper's suggestion for a fisheries traffic light system.

Green Box		
Subsidy	Sub-type	Condition
Research & Policy	R&D	N.A.
	Policy Advice and Creation	N.A.
Management Programs and Services	Fisheries Management	N.A.
	Fish Stocks Conservation Measures	N.A.
	Marine Protected Areas	N.A.
Market Access Support Subsidies	Subsidies aimed at institutionalizing small-scale fishers to comply with PPMs requirements, labelling, certification and reporting.	Provided to small-scale fishers below poverty line.
GPS Traceability Requirement	Subsidies aimed at buying and installing GPS traceability technologies in the supply chain of fish and fish products.	Provided one time ONLY per vessel and vessel owner.
Amber Box		
Subsidy	Sub-type	Condition
Social Policies	Income Support	(i) Provision to small-scale fishers below poverty line ONLY. (ii) MUST be combined with retraining fisher in another industry. (iii) Conditional upon fish stock status. (iv) For subsidies already in place, longer phase-out time for fishers below poverty line.
	Worker Adjustment & Retraining	(i) Provision to small-scale fishers below poverty line ONLY. (ii) All worker adjustment and retraining programs are aimed at placing fishers in another industry (outside of the fishing industry). For subsidies already in place, longer phase-out time for fishers below poverty line.
Red Box		
Subsidy	Sub-type	Condition
Decommissioning	Vessel and License Buybacks	N.A.
	Fisheries Access Agreements	N.A.
Capital and Variable Costs	Capital Cost	N.A.
	Variable Cost	N.A.

Table 3.1
Recommended *Traffic Light* system for a Fisheries Agreement

3.2.2 An Exception Clause

An alternative, that would address subsidies and market access issues, would be an exception clause. For instance, Article XX of the GATT allows members to implement a range of otherwise WTO incompatible measures to attain objectives on the protection of human, animal and plant's health, conservation of exhaustible natural resources and more. The same mechanism could be used to ensure that trade measures aimed at the protection of the environment or with poverty reduction effects are exempted from the fisheries discipline. This would thus address the concerns of conservation and the needs of developing and least-developed members. Such an approach would address the current criticisms towards SDT, as well as guarantee that measures applied for conservation are truly environmental. However, as this would not be a provision directed at developing and least-developed members, it would not be fit to substitute some benefits that the current SDT system provides, such as provisions for the exception of reciprocity, longer periods for the implementation of the new rules and technical assistance. These provisions are still necessary to ensure LDCs and small-scale fishers are able to comply with new Fisheries rules.

A fisheries exception clause would be based on the mechanisms already used in other WTO Agreements. *Firstly*, it would include subsidies, differential tariffs³³⁷ and technical regulations such as standards. These measures would have to either (i) contribute to the preservation of fish stocks, (ii) have no negative impact on fish stocks and (iii) contribute to poverty reduction while not negatively impacting the conservation of fish stocks. *Secondly*, to ensure that the subsidy in question truly has a positive impact on fish stocks and, in the case of the second objective, on poverty reduction, a similar requirement as to the risk assessment under the SPS Agreement would be necessary. For instance, a Member would have to anticipate through the usage of available or state-conducted scientific research that the subsidy benefits or

³³⁷ Here the paper refers to more advantageous border measures (tariffs) to fish that comes from a healthy fish stock and does not come from IUU fishing versus higher tariff for fish that can possibly originate from IUU fishing or from an overfished stock.

does not harm fish stocks; or that through economic evidence, such as results of past programs or economic models, the subsidy contributes to poverty reduction. The burden of proof that the measure complies with the requirements is on the Member imposing the measure. *Thirdly*, the principle of proportionality must be applied, so there is a “due balancing of competing rights.”³³⁸ That is, just like in the chapeau of Article XX of the GATT, the measure must be (i) necessary to achieve the objective and (ii) the least trade-distorting measure possible; (iii) its size (in the case of a subsidy) must also be proportionate to the objective.

An exception clause as a mechanism to provide subsidies that benefit fish stocks and reduce poverty would be a stricter approach due to the need of scientific evidence and the proportionality requirement a subsidy must undergo before its application. Thus, ensuring that the subsidy’s impact will be beneficial and the least possible trade-distorting measure that achieves the objective of the Member. However, it may not satisfy developing and least-developed Members as they would no longer be exempted from the prohibition of a subsidy that a developed country would otherwise have to prohibit. Nonetheless, such a mechanism still allows for the existence of separate provisions for SDT for developing and least-developed countries.

Conclusion

Fish has been one of the greatest examples of the *tragedy of commons*.³³⁹ Despite the progress on fish property rights and a reduction in the notion of open access through international agreements on fisheries, fish stock’s environmental sustainability continues to decline. It is not expected that the WTO will provide a solution to this problem. The sustainability of the world’s fish stocks goes beyond the issues covered in this paper and governed by WTO law. Although the organization has, slowly, increased its acceptance towards environmental measures that possibly hinder market

338 Hilf, M. (2001). Power, Rules and Principles – Which Orientation for WTO/GATT Law? *Journal of International Economic Law* 4, no. 1. Pages 120-121.

339 Tragedy of commons, developed by Garret Hardin in 1968, is a theory that says that without property rights common goods (such as open access fish) are deteriorated.

access, it is not the best venue to address purely environmental objectives.

Independently, the WTO does cover disciplines that can affect the sustainability of fish stocks; By regulating those, it can positively contribute to the conservation of fish stocks and simultaneously increase fish trade predictability. The paper makes a case for a *lex specialis* Fisheries Agreement as current WTO rules are not appropriate to regulate fish.

The first issue in fisheries covered in this paper is subsidies, as demanded by the SDG14.6 to be addressed at the WTO by 2020. It includes a range of government support that has to be disciplined according to their impact on fish stocks. The paper divided fisheries subsidies previously explored in the literature into five categories as specified in Table 1.1 in Annex A. The first two categories, research and policy, and management programs and services are beneficial to fish stocks' sustainability. Social policies subsidies which include income support and worker adjustment programs are conditional. These subsidies shall be subjected to the commitment of providing training programs for small-scale fishers to be placed into another sector. Also, in fish stocks' status to ensure they have a conservational impact on fish stocks. The two last categories, decommissioning and capital and variable costs, are harmful and shall be prohibited. Additionally, this paper later introduces two beneficial subsidies. First, subsidies to help small-scale fishers build the capacity needed to comply with strict market access requirements. Second, subsidies for the provision of GPS tracking in the supply chain of fish to ensure fish and fish products are not of IUU origin or originate from an overfished stock.

Regarding subsidies, the paper finds that the ASCM does not contain the appropriate mechanisms to address the conservational nature of the SDG14.6 mandate. It is triggered by quantifiable economic injuries, thus unable to recognize injury to fish stocks. The ASCM also allows Members to respond to the injury in the form of remedies. These *remedies* are in the form of economic retaliation and are not fit to repair fish stock injuries.

The second issue covered by this paper is market access for fish and fish products. Many fish-related market access aspects are not covered here; the paper looked into current market access regulations being implemented by developed economies that

increasingly represent a barrier to trade but benefit fish stocks conservation. These measures are differential tariffs and technical regulations. The former allows for a different tariff treatment for fish that do not come from overfished stocks or IUU fishing. The latter includes requirements such as labelling fish with the method of catch and location to ensure that the fish does not come from an illegal vessel or illegal fishing zone. These requirements are based on the process and production methods of harvesting fish and serve as tools to increase the protection of the world's fish stocks. Although these measures can contribute to fish stocks' conservation, they can hinder market access and create a massive burden, especially for small-scale fishers and LDCs.

Based on DSB decisions and the currently available provisions under the GATT and the ATBT, the paper concludes that a Fisheries Agreement must address market access. These Agreements cannot provide a clear framework to allow for environmental PPMs necessary to achieve higher protection of fish stocks. Measures based on environmental PPMs are also likely to increase due to the world's growing environmental concern. Thus, addressing them would provide WTO Members with a clear legal framework for their design and implementation. Furthermore, it would allow the organization to further liberalize trade by allowing Members to offer lower tariffs to other Members that comply with more strict market access requirement on fish and fish products.

Regarding small-scale fishers, the paper finds that given the high number of fishers within this group, it is implausible to allow for broad exceptions for subsidies to them. Small-scale fishers under the poverty line could be eligible for longer phase-out time periods. I.e., subsidies provided to small-scale fishers within this group can have longer time periods for cessation. Also, have access to the amber box subsidies as long as the Member makes structural commitments. That is, commits to train and place fishers in another growing sector of their economy. Thus, ultimately reducing the pressure on fish stocks.

When it comes to market access issues, small-scale fishers will need government support to be able to comply with regulations such as labels and traceability requirements. To address this problem, the paper suggests that a Fisheries Agreement

includes this type of government support in the *green box* of subsidies. Alternatively, small-scale fishers could have access to a financial mechanism under the Agreement. This mechanism would be similar to the one in the Trade Facilitation Agreement. It would be funded by Members and aimed at supporting institutionalizing small-scale fishers and ensuring they can comply with more stringent regulations to protect fish stocks.

Ultimately, the paper suggests that the best approach to address fisheries subsidies and fish-related market access measures is through a *lex specialis* Agreement. This Agreement would be triggered by fish stocks' injury and establish a causal relationship between subsidies and IUU fishing and overfishing through a supply chain traceability system. To establish this relationship, members would also be required to comply with reporting requirements for vessels wearing a Member's flag, fisheries subsidies and fish stock status. While the paper makes no remarks on how to address remedies, it highlighted that the current remedies approach is unable to repair fish stocks. Thus, further analysis is necessary to find a proper remedies system that would repair the environmental damage.

The Agreement would have to address fish-related market access measures based on PPMs to provide Members clarity on whether these measures are in accordance with WTO law. The lack of action in this area will likely lead to a future increase in DSB proceedings, as Members unilaterally implement these measures.

Moreover, the Agreement would contain a *traffic light system*, similar to the one used in the ASCM. The system can address environmental concerns by prohibiting all harmful subsidies while allowing beneficial ones. The *traffic light system* can also accommodate temporal exceptions for small-scale fishers and support the GPS tracking system's implementation in fish and fish products' supply chain.

While the WTO may not be the best venue to address environmental concerns due to its body of law and principles, this paper concludes that the organization can contribute to fish stocks conservation if it creates a *lex specialis* Fisheries Agreement.

Bibliography

Academic Papers:

Agnew, J.D., Pearce, J., Pramod, G., Peatman, T., Watson, T., Beddington, R.J., Pitcher, J.T. (2020). Estimating the Worldwide Extent of Illegal Fishing. *PLoS ONE* 4(2): e4570. doi:10.1371/journal.pone.0004570

Apostle, R., Barrett, G., Holm, P., Jentoft, S., Mazany, L., McCay, L., Mikalsen, K. (1998). *Community, States, and Market on the North Atlantic Rim: Challenges to Modernity in the Fisheries*. Toronto: University of Toronto Press.

Bahety, S., Mukiibi, J. (2017). *WTO Fisheries Subsidies Negotiations: Main Issues and Interests of Least Developed Countries*. CUTS International, Geneva. Page 13, paragraph 5.

Banga, R. (2014). Do Green Box Subsidies Distort Agricultural Production and International Trade? *Commonwealth Trade Hot Topics*, No. 114. Commonwealth Secretariat: London. <https://doi.org/10.14217/5jxswbjhkszx-en>.

Barange, M., Cochrane, K. (2018), Impacts of climate change on fisheries and aquaculture: Conclusions, in Barange, M. et al. (eds.), *Impacts of Climate Change on Fisheries and Aquaculture: Synthesis of Current Knowledge, Adaptation and Mitigation Options*, Food and Agricultural Organization of the United Nations. Rome.

Belhabib, D. Sumaila, R.U., Lam, V.W., Zeller, D., Le Billon, P., Kane, E.A., Pauly, D. (2015). Euros vs. Yuan: Comparing European and Chinese fishing access in West Africa. *PLoS One* 10. e0118351.

Belhabib, D., Sumaila, R.U., Le Billon, P. (2019). The fisheries of Africa: exploitation, policy, and maritime security trends. *Marine Policy*, pages 1–13.

Bjorndal, T. Guillen, J. (2016). *Market Competition Between Farmed and Wild Fish: A Literature Survey*. Food and Agriculture Organization of the United Nations. Rome.

Brooks, D. H., & Go, E. C. (2011). *Infrastructure's role in sustaining Asia's growth*. Asian Development Bank. *Economics Working Paper Series*, 294, 1-43.

Chuenpagdee, R., Rocklin, D., Bishop, D., Hynes, M., Greene, R., Lorenzi, R.M., Devillers, R. (March 2019). *The Global Information System on Small-Scale Fisheries (ISSF): A Crowdsourced Knowledge Platform*. *Marine Policy*, vol 101. Pages 158-166.

Clark C.W., Munro G.R., Sumaila R.U. (2005). Subsidies, buybacks, and sustainable fisheries. *Journal of Environmental Economics and Management* 50. Pages 47-58.

- Conrad, C. (2011). The status of PPM measures under the TBT Agreement and the SPS Agreement. In *Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals*. Cambridge International Trade and Economic Law. Pages 374-422. Cambridge University Press. Cambridge. Doi:10.1017/CBO9780511807398.010
- Conrad, C. R. (2014). *Process and production methods (PPMs) in WTO law – interfacing trade and social goals*. Cambridge University Press, Cambridge
- Cullis-Suzuki, S., Pauly, D. (2010). Failing the high seas: A global evaluation of regional fisheries management organizations. *Marine Policy* 34. Pages 1036-1042.
- Da-Rocha, M. J., García-Cutrin, J., Prellezo, R., Sempere, J. (September 2017). The Social Cost of Fishery Subsidy Reforms. *Marine Policy*. Vol. 83. Pages 236-242.
- Doumbouya, A., Camara, T.O., Manie, J., Intchama, F.J., Jarra, A., Ceesay, S., Guèye, A., Ndiaye, D., Beibou, E., Padilla, A., Belhabib, D. (?March 2017). Assessing the effectiveness of monitoring control and surveillance of illegal fishing: the case of West Africa. *Frontiers in Marine Science* 4.
- Ewell, C., Hocevar, J., Mitchell, E., Snowden, S., Jacquet, J. (2020). An evaluation of Regional Fisheries Management Organization at-sea compliance monitoring and observer programs. *Marine Policy*. Volume 115. ISSN 0308-597X. <https://doi.org/10.1016/j.marpol.2020.103842>.
- Ferreira, F., Sánchez-Páramo, C. (2017). A Richer Array of International Poverty Lines. Retrieved from Let's Talk Development website: <http://blogs.worldbank.org/developmenttalk/richer-array-international-poverty-lines>
- Fischer, J. (2020). How Transparent are RFMOs? Achievements and Challenges. *Marine Policy*.
- Gallic, L.B., Cox, A. (2005). An Economic Analysis Of Illegal, Unreported And Unregulated (IUU) Fishing: Key Drivers And Possible Solutions. *Marine Policy* 30. Pages 689-695.
- Galperín, C. Miguez, D.I. (May 2010). *Green Box Subsidies And Trade-Distorting Support: Is There A Cumulative Impact?* Cambridge University Press. Cambridge. DOI: <https://doi.org/10.1017/CBO9780511674587.009>
- Grossman, M. G. Helpman, R. (1990). Trade, Innovation and Growth. *The American Economic Review*. Vol. 80, No. 2. Papers and Proceedings of the Hundred and Second Annual Meeting of the American Economic Association. Pages 86-91.
- Guyader, O., Berthou, P., Koutsikopoulos, C., Alban, F., Demanèche, S., Gaspar, B.M., Eschbaum, R., Fahy, E. Tully, O., Reynal, L., Curtil, O., Frangoudes, K., Maynou, K. (2013).

Small scale fisheries in Europe: A comparative analysis based on a selection of case studies. *Fisheries Research*. Volume 140, pages 1-13. ISSN 0165-7836. <https://doi.org/10.1016/j.fishres.2012.11.008>.

Haas, B., McGee, J., Fleming, A., Haward, M. (2020). Factors influencing the performance of regional fisheries management organizations. *Marine Policy* 113. 103787. ISSN 0308-597X. <https://doi.org/10.1016/j.marpol.2019.103787>.

Häberli, C. (2018). Potential conflicts between agricultural trade rules and climate change treaty commitments. *The State of Agricultural Commodity Markets (SOCO) 2018: Background paper*. Rome, FAO, 2018. License: CC BY-NC-SA 3.0 IGO.

Hamilton, C.L., Butler, J.M. (2001). Outport Adaptions: Social Indicators through Newfoundland's Cod Crisis. *Human Ecology Review*. Vol. 8, No. 2.

Haneul, J., Nu Ri, J. (2019). Enforcing 'Purely' Environmental Obligations Through International Trade Law: A Case of the CPTPP's fisheries Subsidies. *Journal of World Trade* 53, no. 6. Pages 1001-1020.

Hilf, M. (2001). Power, Rules and Principles – Which Orientation for WTO/GATT Law?' *Journal of International Economic Law* 4, no. 1. Pages 120-121.

Hoagland, P., Sumaila, R.U., Farrow, S. (2001). Marine Protected Areas. Doi: 10.1006/rwos.2001.0499.

Holland, D., Gudmundsson, E., Gates, J. (1999). Do Fishing Vessel Buyback Programs Work: A Survey Of The Evidence. *Marine Policy* 23 (1). Pages 47-69.

Hong, J., Chu, Z., & Wang, Q. (2011). Transport infrastructure and regional economic growth: Evidence from China. *Transportation*, 38(5), 737-752.

Hutniczak, B., Delpuch, C. (30 November 2018). Combatting Illegal, Unreported and Unregulated Fishing. Where countries stand and where efforts should concentrate in the future. Trade and Agriculture Directorate Fisheries Committee. Organisation for Economic Co-operation and Development (OECD). Paris. Document number: TAD/FI(2017)16/FINAL.

International Transport Workers' Federation. (2006). *Out Of Sight, Out Of Mind, Seafarers, Fishers & Human Rights*. International Transport Workers' Federation: ITF. ISBN: 1-904676-18-9.

Jacquet, J., Pauly, D. (2008). Funding Priorities: Big Barriers to Small-Scale Fishers. *Conservation Biology*, Volume 22, No. 4, 832–835. DOI: 10.1111/j.1523-1739.2008.00978.x.

Jolliffe, D.M., Prydz, E.B. (2016). Estimating International Poverty Lines From Comparable National Thresholds. No. WPS7606. Pages 1–36. The World Bank. Retrieved from: <http://documents.worldbank.org/curated/en/837051468184454513/Estimating-international-poverty-lines-from-comparable-national-thresholds>

Jung, H., Jung, N.R. (2019). ‘Enforcing ‘Purely’ Environmental Obligations Through International Trade Law: A Case of the CPTPP’s Fisheries Subsidies.’ *Journal of World Trade* 53, no. 6. Pages 1001–1020.

Kumar, R., Ravinesh Kumar, R., Stauvermann, J. P., Chakradhar, J. (2019). The Effectiveness of Fisheries Subsidies as a Trade Policy Tool to Achieving Sustainable Development Goals at the WTO. *Marine Policy*, Volume 100, Pages 132-140. ISSN 0308-597X, <https://doi.org/10.1016/j.marpol.2018.11.034>.

Le Manach, F., Andriamahefazafy, M., Harper, S., Harris, A., Hosch, G., Lange, G.M., Zeller, D., Sumaila, R.U. (2013). Who gets what? Developing a more equitable framework for EU fishing agreements. *Marine Policy*, 38. Pages 257-266.

Maguire, J.J., Sissenwine, M., Csirke, J., Grainger, R., Garcia, S. (2006). The state of world highly migratory, straddling and other high seas fishery resources and associated species. *FAO Fisheries Technical Paper*. No. 495. Rome.

Martini, R. Innes, J. (2018). Relative Effects of Fisheries Support Policies. *OECD Food, Agriculture and Fisheries Papers*, No. 115, OECD Publishing, Paris. <http://dx.doi.org/10.1787/bd9b0dc3-en>

Maunder, N.M. (2008). Maximum Sustainable Yield. *Encyclopedia of Ecology*.

Merino, G., Barange, M., Blanchard, L.J., Harle, J., Holmes, R., Allen, I., Allison, H. E., Badjeck, C.M., Dulvy, K.N., Holt, J., Jennings, S., Mullon, C., Rodwell, D.L. (2012). Can marine fisheries and aquaculture meet fish demand from a growing human population in a changing climate? *Global Environmental Change* 22. Pages 795-806. [doi:10.1016/j.gloenvcha.2012.03.003](https://doi.org/10.1016/j.gloenvcha.2012.03.003)

Metuzals, K., Baird, R., Pitcher, T., Sumaila, R.U, and Pramod, G. (2009). One Fish, Two Fish, IUU and No Fish: Unreported Fishing World-Wide. Pages 166-180 in Grafton, Q.R., Hilborn, R., Squires, D., Tait, M. and Williams, M. (eds) *Handbook of Marine Fisheries Conservation and Management*. Oxford University Press, UK.

Moerenhout, T. (December 2019). Policy Brief: Support to Fuel Consumption for Fisheries. IISD.

Munro G., Sumaila R.U. (2002). The impact of subsidies upon fisheries management and sustainability: The case of the North Atlantic. *Fish and Fisheries* 3. Pages 233-250.

Munro, G., Van Houtte, A., Willmann, R. (2004). *The Conservation and Management of Shared Fish Stocks: Legal and Economic Aspects*. FAO Fisheries Technical Paper No. 465. Food and Agriculture Organization. Rome.

Musselli, I. (2016). *Farm Support and Trade Rules: Towards a New Paradigm Under the 2030 Agenda*. Policy Issues in International Trade Commodities, Research Study Series No. 74. United Nations Conference on Trade and Development. UNCTAD.

Na, K. Y., Han, C. H., Yoon, C. H. (2013). Network effect of transportation infrastructure: A dynamic panel evidence. *The Annals of Regional Science*, 50(1), 1-10.

Okafor-Yarwood, I. (2019). Illegal, unreported and unregulated fishing, and the complexities of the sustainable development goals (SDGs) for countries in the Gulf of Guinea. *Marine Policy* 99, pages 414-422.

Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*.

Pauly, D. (2006). Major Trends in Small-Scale Marine Fisheries, with Emphasis on Developing Countries, and Some Implications for the Social Sciences. *Maritime Studies* 4 (2). Pages 7–22.

Pitcher, T., Watson, R., Forrest, R., Valtysson, H., Guenette, S. (2002). Estimating Illegal and Unreported Catches from Marine Ecosystems: A Basis for Change. *Fish and Fisheries* 3. Pages 317–339.

Porter, G. (2004). *Analyzing the resource impact of fisheries subsidies: a matrix approach*. United Nations Development Program, Geneva.

Porter, G. (2011). *Fisheries Subsidies and Overfishing: Towards a Structured Discussion*.

Potts, J. (2008). *The Legality of PPMs under the GATT: Challenges and Opportunities for Sustainable Trade Policy*. International Institute for Sustainable Development. ISBN 978-1-895536-93-5.

Prévost, D., M. Van Den Bossche, P. (2016). *Essentials of WTO Law*. Cambridge University Press.

Ruckes, E. (2000). *A Resource Manual: Multilateral Trade Negotiations on Agriculture*. Food and Agriculture Organization of the United Nations. FAO. Rome.

Sakai, Y. (2017). Subsidies, Fisheries Management, and Stock Depletion. *Land Economics*. 93. 165-178. 10.3368/le.93.1.165.

Sala, E. Mayorga, J. Costello, C. Kroodsma, D. Palomares, D.L.M., Pauly, D. Sumaila, R.U., Zeller, D. (2018). The economics of Fishing in the High Seas. *Science Advances*. Vol. 4, no. 6. DOI: 10.1126/sciadv.aat2504

Schiller, L., Bailey, M., Jacquet, J., Sala, E. (2018). High Seas Fisheries Play a Negligible Role in Addressing Global Food Security. *Science Advance* 4. <https://doi.org/10.1126/sciadv.aat8351>.

Schrank, E. Roy, N. (2013). The Newfoundland Fishery and Economy Twenty Years after the Northern Cod Moratorium. *Marine Resource Economics*. Vol. 28, No. 4. Pages 397-417. <https://doi.org/10.5950/0738-1360-28.4.397>

Schuhbauer, A., Chuenpagdee, R., Cheung W.W., L., Greer, K., Sumaila, R.U. (2017). How Subsidies Affect the Economic Viability of Small-Scale Fisheries. *Marine Policy* 82. Pages 114-121.

Sem, S., Cartwright, I. (December 2019). Exploring the Possible Impacts of WTO Rules on Fisheries Subsidies: The Case of the Southern Longline Tuna Fishery in the Western and Central Pacific. International Institute for Sustainable Development.

Seto, K. (2016). West Africa and the new European common fisheries policy: impacts and implications. *Ocean Law and Policy*. Pages. 68-100

Shang, B., Evans, B., and An, Z. (2020). Expenditure Support to Firms and Households. Special Series on Fiscal Policies to Respond to COVID-19. Fiscal Affairs, International Monetary Fund.

Skeen, R. (2004). Will the WTO Turn Green the Implications of Injecting Environmental Issues into the Multilateral Trading System. *Georgetown International Environmental Law Review*, 17(1). Pages 161-200.

Song, M.A., Scholtens, J., Barclay, K., Bush, R.S., Fabinyi, M., Adhuri, S.D., Haughton, M. (22 April 2020). Collateral damage? Small-scale fisheries in the global fight against IUU fishing. *Fish and Fisheries*. <https://doi.org/10.1111/faf.12462>

Sumaila, R.U., Bellmann, C., and Tipping, A. (21 January 2016). Fishing for the Future: An overview of challenges and opportunities. *Marine Policy* 69. Pages 173-180.

Sumaila, R.U., Ebrahim, N., Schuhbauer, A., Skerritt, D., Li, Y., Kim, S. H., Mallory, T. G., Vlam, W.L., V., and Pauly, D. (2019). Updated estimates and analysis of global fisheries subsidies. *Marine Policy* 109.

Sumaila, R.U., Lam, V., Le Manach, F., Swartz, W., Pauly, D. (2013). Global Fisheries Subsidies. Directorate-General for Internal Policies. Policy Department B: Structural and

Cohesion Policies. European Parliament. Fisheries. Document requested by the European Parliament's Committee on Fisheries.

Sumaila, R.U., Pauly, D. (2006). *Catching More Bait: A Bottom-Up Re-estimation of Global Fisheries Subsidies*. Fisheries Centre. University of British Columbia.

Sumaila, R.U., Zeller, D., Hood, L., Palomares, D.L.M., Li, Y., Pauly, D. (2020). Billions lost as illicit fisheries trade hurting nations who can afford it least. *Science Advances*. DOI: 10.1126/sciadv.aaz3801.

Teh, L., Cheung, L.W.W., Cornish, A., Chu, C. And Sumaila, R.U. (April 2008). A Survey of Alternative Livelihood Options for Hong Kong's Fishers. *International Journal of Social Economics*.

Teh, L., Hotte, N., Sumaila, R.U. (2017). Having It All: Can Fisheries Buybacks Achieve Capacity, Economic, Ecological, And Social Objectives? *Maritime Studies* 16, 1. doi.org/10.1186/s40152-016-0055-z

Teh, L., Ota, Y., Cisneros-Montemayor, M.A., Harrington, L., Swartz, W. (2020). Are Fishers Poor? Getting to the Bottom of Marine Fisheries Income Statistics. *Fish and Fisheries*.

Tipping, A. (April 2015). A 'Clean Sheet' Approach to Fisheries Subsidies Disciplines. E15 Initiative. International Centre for Trade and Sustainable Development (ICTSD) and the World Economic Forum 2015. Geneva.

Tipping, A. (January 2020). Addressing the Development Dimension of an Overcapacity and Overfishing Subsidy Discipline in the WTO Fisheries Subsidies Negotiations: A Discussing Paper by IISD. Global Subsidies Initiative. International Institute for Sustainable Development.

Tipping, A., Irschlinger, T. (July 2020). WTO Negotiations on Fisheries Subsidies: What's the state of play? GSI Policy Brief. IISD: International Institute for Sustainable Development.

Uppenberg, K. (2009). Innovation and Economic Growth. European Investment Bank Papers, Vol.14, No. 1. EIB. <http://dx.doi.org/10.2139/ssrn.1828904>.

Vermulst, E. (2003). Dispute Settlement of the World Trade Organization. Module 3.7 Subsidies and Countervailing Measures. United Nations Conference on Trade and Development. This paper was prepared for a course on the WTO's dispute settlement provided by UNCTAD.

Witbooi E. (2011). *Fisheries and Sustainability: A Legal Analysis of EU and West African Agreements* (first ed.), Martinus Nijhoff. The Netherlands.

WWF, Greenpeace International and Deep-Sea Conservation Coalition. (28 March 2019). Performance Reviews of Regional Fisheries Management Organizations and Arrangements.

Treaties:

Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).

FAO. Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing. (PSMA).

United Nations. (1994). Convention on the Law of the Sea.

United Nations. (1995). Straddling Fish Stocks Agreement.

United Nations. (2015). Paris Agreement. Last accessed on December 1, 2020 from https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf

World Trade Organization. Agreement on Agriculture.

World Trade Organization. Agreement on Sanitary and Phytosanitary Measures.

World Trade Organization. Agreement on Subsidies and Countervailing Measures.

World Trade Organization. General Agreement on Trade in Services.

World Trade Organization. The General Agreement on Tariffs and Trade.

World Trade Organization. The Technical Barriers to Trade Agreement.

World Trade Organization. Trade Facilitation Agreement.

Other International Instruments & International Organizations (IGOs)'

Publications:

FAO (2018). Seafood certification and developing countries: Focus on Asia. FAO Fisheries and Aquaculture Circular No. 1157. Rome, Italy: Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/3/i8018en/I8018EN.pdf>

FAO. (2000). FAO Fisheries Technical Paper 404/1 Use of Property Rights in Fisheries Management. Edited by Shotton, R. Proceedings of the FishRights99 Conference in Fremantle, Western Australia. FAO Fisheries Department. Rome. Please note that this is not TRUE for farmed fish.

FAO. (2001). International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. Food and Agriculture Organization of the United Nations. Rome.

FAO. (2010). The State of World Fisheries and Aquaculture. Food and Agriculture Organization of the United Nations. Rome.

FAO. (2015). Small-Scale Fishers. Food and Agriculture Organization of the United Nations. Rome.

FAO. (2016). Illegal, unreported and unregulated fishing. Food and Agriculture Organization of the United Nations. Rome. Document number: I 6069E/1/09.16.

FAO. (2017). Improving our knowledge on small-scale fisheries: data needs and methodologies. Food and Agriculture Organization of the United Nations. Rome.

FAO. (2018). The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Food and Agriculture Organization of the United Nations. Rome. License: CC BY-NC-SA 3.0 IGO.

FAO. (2020). Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings No. 65. Rome. <https://doi.org/10.4060/ca9165en>

FAO. (2020). The State of the World's Fisheries and Aquaculture 2020. Sustainability in Action. Food and Agriculture Organization of the United Nations. Rome. <https://doi.org/10.4060/ca9229en>

FAO. (August 2015). Fishery and Aquaculture Country Profiles: The Republic of Namibia. Food and Agriculture Organization of the United Nations.

FAO. (October 2017). Trade Policy Briefs. FAO Support to the WTO Negotiations at the 11th Ministerial Conference in Buenos Aires. Report number 28. Food and Agriculture Organization of the United Nations. Rome.

OECD. (2019). Encouraging Policy Change for sustainable and Resilient Fisheries. Trade and Agriculture Directorate Fisheries Committee. Organization for Economic Co-operation and Development. Paris. Document number: TAD/FI(2017)13/FINAL.

UNCTAD, FAO, UN Environment and the Commonwealth. (11 December 2017). Fish, Trade, Fisheries Subsidies and SDG 14. High Level Session co-organized by UNCTAD, FAO, UN Environment and the Commonwealth. Remarks by: H.E. Mr. Wera Mori, Minister

UNCTAD. (2018). Non-Tariff Measures: Economic Assessment and Policy Options for Development. United Nations Conference on Trade and Development. Page 30, paragraph 3. Document number: UNCTAD/DITC/TAB/2017/2

UNEP. (December 2011). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. United Nations Environment Program. Geneva. Retrieved from http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Green%20economyreport_Final_Dec2011.pdf.

United Nations. (19 January 2018). 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. Resolution adopted by the General Assembly on 5 December 2017.

United Nations. (2018). 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. Document number: A/RES/72/249. New York, USA.

United Nations. (2019). Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. Document number: A/RES/71/313. Last accessed on November 30th, 2020. https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202019%20refinement_Eng.pdf

World Bank. (1992). A study of international fisheries research. Policy and research series 19. The World Bank, United Nations Development Program, European Commission, and United Nations Food and Agriculture Organization. Washington, DC. United States of America.

World Bank. (2012). Hidden Harvest: The Global Contribution of Capture Fisheries. Report number 66469-GLB.

World Trade Organization. (2019): Communication from India on Special and Differential Treatment. Document number TN/RL/GEN/200.

World Trade Organization. (11 January 1994). Note by the Secretariat titled Border Tax Adjustments. Document number BISD18S/97.

World Trade Organization. (11 July 2019). A Cap-based Approach to Addressing Certain Fisheries Subsidies. Submission of Argentina, Australia, the United States and Uruguay (Revision). TN/RL/GEN/197/Rev.2.

World Trade Organization. (12 October 1998). Appellate Body Report: United States – Import Prohibition in Certain Shrimp and Shrimp Products. Document number: AB-1998-4. or WT/DS58/AB/R.

World Trade Organization. (16 May 2012). Appellate Body Report: United States - Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products. Document number: AB-2012-2. Referred as US-Tuna II.

World Trade Organization. (17 June 2011). Thailand – Customs and Fiscal Measures on Cigarettes from the Philippines. Appellate Body Report. Document number: WT/DS371/AB/R.

World Trade Organization. (1999). Panel Report: United States – Standards for Reformulated and Conventional Gasoline. Document number: WT/DS2/R. Paragraph 3.22.

World Trade Organization. (2006). Subsidies, Trade and the WTO: The Economics of Subsidies. Retrieved from https://www.wto.org/english/res_e/booksp_e/anrep_e/wtr06-2c_e.pdf on 2 of December 2020.

World Trade Organization. (2018). Fisheries Subsidies Working Document Communication from the Chair. TN/RL/274/Rev.6.

World Trade Organization. (22 December 2005). Doha Work Program: Ministerial Declaration from the Sixth Session of Ministerial Conference. Hong Kong. WT/MIN(05)/DEC.

World Trade Organization. (22 May 2014). Appellate Body Report: European Communities – Measures Prohibiting the Importation and Marketing of Seal Products. Referred to as EC-Seal Products. Document number: WT/DS401/AB/R.

World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5.

World Trade Organization. (26 July 2018). Fisheries Subsidies Working Documents on: Definitions; scope; prohibited subsidies relating to IUU fishing, overfished stocks, overcapacity, capacity-enhancing subsidies, and overfishing; notifications and transparency; special and differential treatment; transitional provisions; and institutional arrangements: Communication from the Chair. Document number: TN/RL/W/274/Rev.5.

World Trade Organization. (28 November 1999). Press Pack of the World Trade Organization 3rd Ministerial Conference: Seattle.

World Trade Organization. (29 April 1996). United States - Standards for Reformulated and Conventional Gasoline (*US – Gasoline*). Appellate Body Report. Page 22. Document Number: WT/DS2/AB/R

World Trade Organization. (4 June 2019). A Cap-based Approach to Address Certain Fisheries Subsidies that Contribute to Overcapacity and Overfishing: Communication from China. Document number: TN/RL/GEN/199.

World Trade Organization. (4 June 2019). A Cap-based Approach to Address Certain Fisheries Subsidies that Contribute to Overcapacity and Overfishing. Communication from China. Tn/RL/GEN/199.

World Trade Organization. (4 October 1997). Japan - Taxes on Alcoholic Beverages (Japan — Alcoholic Beverages II). Appellate Body Report. Document number: WT/DS8/AB/R, WT/DS10/AB/R, WT/DS11/AB/R.

World Trade Organization. (9 September 1997). European Communities – Regime for the importation, sale and distribution of bananas. (EC-Bananas). Appellate Body Report. Page 22. Document Number: WT/DS27/AB/R.

World Trade Organization. (April 2018). Operational Rules for the Grant Program: WTO Trade Facilitation Agreement Facility.

World Trade Organization. (May 2014). Appellate Body Report: European Communities – Measures Prohibiting the Importation and Marketing of Seal Products. Referred as EC-Seal Products. Document number: WT/DS400/AB/R and WT/DS401/AB/R.

World Trade Organization. (November 2001). Doha Ministerial Declaration. Adopted on 14 November 2001. Fourth Ministerial Conference. Doha. WT/MIN(01)/DEC/1.

World Trade Organization. Marrakesh Declaration of 15 April 1994. Retrieved from https://www.wto.org/english/docs_e/legal_e/marrakesh_decl_e.pdf.

World Trade Organization. Schedule of concessions. Link: https://www.wto.org/english/tratop_e/schedules_e/goods_schedules_e.htm

World Trade Organization. (3 September 1991). Panel Report: United States – Restrictions on Imports of Tuna. Document number: DS21/R – 39S/155. Referred as US-Tuna I

Regulations by Country:

Canada

Fisheries and Oceans Canada. (2017). Stock Assessment of Nafi Subdivision 3PS Cod. Science Advisory Report 2017/002. Canadian Government. Retrieved from: <https://waves-vagues.dfo-mpo.gc.ca/Library/40597441.pdf>

Fisheries and Oceans Canada. (2018). An assessment of Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Areas 4–6 and of Striped Shrimp (*Pandalus montagui*) in Shrimp Fishing Area 4 in 2016. Science Advisory Report 2018/12. Canadian Government. Retrieved from: https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2017/2017_012-eng.html. Quote is from section Environment and Ecosystem, paragraph 5.

European Union

Council Regulation 1005/2008, OJ 2008 L 286/1.

Council Regulation 1026/2012, OJ 2012 L 316/34.

European Commission. (11 December 2019). Communication from the Commission: The European Green Deal. Brussels. Document number: COM(2019)640 final.

Regulation 2017/2393

United States

House Report 114-112

US Endangered Species Act of 1973

US Public Law 101–102

US Public Law 114-81

US Public Law 94-265

Internet Resources:

Cambridge dictionary. Accessed on 1 of December 2020 at <https://dictionary.cambridge.org/dictionary/english/fishery>

FAO. (2016). Definition of Small-Scale Fishery. FAO Fisheries Glossary. Food and Agriculture Organization of the United Nations. Rome. Entry 98107. [Www.fao.org/faoterm/en/?Defaultcollid=21](http://www.fao.org/faoterm/en/?Defaultcollid=21)

FAO. Family farming knowledge platform, “Small-scale fisheries and aquaculture & Family farming.” <http://www.fao.org/family-farming/themes/small-scale-fisheries/en/> link accessed on October 30, 2020.

FAO. Fisheries glossary. Entry: 31286 - Collection: Aquaculture. Accessed on 1 of December 2020 at <http://www.fao.org/faoterm/en/?defaultCollId=21>

FAO. Global Fish Consumption. Retrieved from FAO fisheries database, FAOSTAT. <http://www.fao.org/fishery/statistics/global-consumption/en> on 1 December 2020.

Patagonian Toothfish case study by OpenSc. . Last accessed on 22 December 2020. Website: <https://opensc.org/product-example>

World Trade Organization. Dispute Settlement Page on Dispute: DS-401. European Communities — Measures Prohibiting the Importation and Marketing of Seal Products
Webpage link: https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds401_e.htm. Last accessed on 17 December 2020.

World Trade Organization. Environmental Disputes in GATT/WTO. Webpage link: https://www.wto.org/english/tratop_e/envir_e/edis00_e.htm. Last accessed on 17 December 2020.

World Trade Organization. Negotiations on Fisheries Subsidies. WTO's Official Website. Retrieved on April 16, 2020. Link: https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_e.htm

World Trade Organization. Principles of the Trading System. Webpage link: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm. Last accessed on 17 December 2020.

World Trade Organization. Webpage on the Agreement of Agriculture: Domestic support. Paragraph 2. Link: https://www.wto.org/english/tratop_e/agric_e/ag_intro03_domestic_e.htm last accessed on 15 December 2020.

Annex A: Summary of Fisheries Subsidies as Analysed in Section 1.1

Category	Type	Effect on Fish stocks	Social Effect	IUU Fishing Effect	Conditions
Research & Policy	R&D	Beneficial	knowledge spill overs are beneficial to society	no	Research cannot be used to improve fishing capacity
	Policy Advice and Creation	Beneficial	/	no	/
Management Programs & Services	Fisheries Management	Beneficial	/	no	/
	Fish Stocks Conservation Measures	Beneficial	As fish stocks recover, fishers have healthier stocks and more fish to fish (if no quotas are in place or if quotas are changed accordingly).	no	/
	Marine Protected Areas	Beneficial	As fish stocks recover, fishers have healthier stocks and more fish to fish (if no quotas are in place or if quotas are changed accordingly).	no	/
Social Policies	Income Support	Ambiguous. I.e.: Harmful environmental effect when implemented alone (that is when it enhances capacity of fishing) and in high quantity	Increase of income for fishers	yes when it is capacity enhancing	(i) When given in small proportion to small-scale fishers the negative effect is almost not existent. (ii) Shows positive effects when combined with retraining fisher in another industry
	Worker Adjustment & Retraining	Ambiguous. I.e.: Harmful effect when implemented alone and when retraining fishers within fishing industry (that is when it enhances capacity of fishing)	Increase of knowledge and specialization in the fisheries sector	yes when it is capacity enhancing	Beneficial when fisher is trained and replaced in another industry outside of the fishing industry.
Decommissioning	Vessel and License Buybacks	Capacity Enhancing (harmful)	Increase of income for fishers	yes	/
	Fisheries Access Agreements	Capacity Enhancing (harmful)	Increase of income for coastal state providing the license	yes	/
Capital and Variable Costs	Capital Cost	Capacity Enhancing (harmful)	Reduction of cost of fishing for fishers	yes	/
	Variable Cost	Capacity Enhancing (harmful)	Reduction of cost of fishing for fishers	yes	/

/ Means that column is not relevant for that subsidy

Table 1.1

Table 1.1 summarizes the subsidies studied in this section. The table was designed by the author of this paper.

Note: It does not include two beneficial subsidies suggested by the author of this paper in latter chapters. Those two subsidies may be encountered in table 3.1: Traffic light system.

**Annex B: Data of the Atlantic Coast Commercial Landings of Cod, Shrimp and Crab
from Years 1990 to 2018**

Year	Cod	Shrimp	Crab
1990	395'024	37'263	27'042
1991	309'923	40'626	36'406
1992	187'953	39'312	38'226
1993	76'645	42'943	50'293
1994	22'714	48'680	65'108
1995	12'489	54'587	73'244
1996	15'544	55'421	71'688
1997	29'899	76'911	79'774
1998	37'809	107'930	83'861
1999	55'478	115'875	102'974
2000	46'177	134'916	104'201
2001	40'440	125'330	108'089
2002	35'741	135'599	119'114
2003	22'768	142'547	107'454
2004	24'730	176'078	113'853
2005	26'214	167'371	105'937
2006	27'412	178'383	98'797
2007	26'732	187'541	99'976
2008	26'837	166'496	102'006
2009	19'948	137'957	104'969

2010	17'257	164'270	92'113
2011	13'038	150'807	91'651
2012	10'998	148'874	99'320
2013	10'518	148'283	103'737
2014	13'001	129'658	101'380
2015	12'234	134'603	98'686
2016	18'213	104'875	91'554
2017	22'743	81'446	98'405
2018	18'073	83'053	72'297

Volume is in metric tonnes, live weight and corresponds to the total volume of Atlantic Coast Commercial landings

Data is retrieved from The Government of Canada. Fisheries and Ocean Department.

Link for the data: <https://www.dfo-mpo.gc.ca/stats/commercial/sea-maritimes-eng.htm>