LEGAL OBLIGATIONS OF NEW AND EXPLORATORY FISHERIES ON THE HIGH SEAS

By Jørgen Blix Nicolaysen

JUR-3910
Small Master's Thesis
Masters of Laws in the Law of the Sea
UiT - The Arctic University of Norway
Faculty of Law
Fall 2017
15.552 words

TABLE OF CONTENT

Abbreviations

CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CM	Conservation Measure
CMM	Conservation and Management Measure
DCP	Data Collection Plan
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of the United Nations
FOP	Fisheries Operation Plan
LOSC	UN Convention on the Law of the Sea
MSY	Maximum Sustainable Yield
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	North East Atlantic Fisheries Commission
PECMAS	Permanent Committee on Management and Science
RFMO	Regional Fisheries Management Organisation
SEAFO	South East Atlantic Fisheries Organisation
SPRFMO	South Pacific Regional Fisheries Management Organisation
TAC	Total Allowable Catch
UNCED	United Nations Conference on Environment and Development
UNCLOS III	Third UN Conference on the Law of the Sea
UNGA	United Nations General Assembly
VME	Vulnerable Marine Ecosystem
WG-FSA	Working Group on Fish Stock Assessment

Chapter I – Introduction

1. Objective

In recent years there has been an increased focus on new fishing opportunities on the high seas. One reason for this is climate change. In polar areas, and especially in Arctic marine waters scientists expect a thinning and retreat of the sea-ice, which makes large areas more accessible and allows for increased human activity.[1] A recent report estimated that the Arctic marine waters may be largely ice-free in the summer months of 2030.[2] In addition, rising temperatures are expected to contribute shifts in the distributional pattern of fish stocks and inter-dependent species. Together these climatic changes and emerging fishing opportunities are likely to pose a challenge to the management targeted fish stocks and their ecosystem.[3]

Another challenge that has increased the focus on new fishing opportunities is the concern of how to feed a growing population. Many states look to the ocean for an answer and the possibilities within new fisheries. These fishing opportunities may either come from harvesting previously unexploited stocks or by fishing in new areas on stocks that have shifted their distribution. At the same time concerns have been raised for the sustainable utilization of fish stocks, since many commercial fisheries are exploited at their maximum sustainable yield or beyond.

According to the Food and Agriculture Organization of the United Nations (FAO), the share of fish stocks harvested on a sustainable level has declined from 90 percent in 1974 to 68.6 percent in 2013. The FAO also estimates that 31.4 percent of fish stocks are caught at a biologically unsustainable level and therefore are considered overfished. Overfished normally refers to when more fish are caught than the population can replace through natural reproduction. Further, 58.1 % of the stocks accounted for are fully exploited, and only 10.5 %

[1] Tore Haug and others, 'Future harvest of living resources in the Arctic Ocean north of the Nordic and Barents Seas: A review of possiblilties and constraints', (2017) 188 Fisheries Research 39.
[2] AMAP, *Snow, Water, Ice and Permafrost Summary for Policy-makers* (2017) 3, available at: http://www.amap.no/documents/doc/Snow-Water-Ice-and-Permafrost.-Summary-for-Policy-makers/1532 <accessed 11. June 2017>.
[3] ACIA, *Arctic Climate Impact Assessment: Scientific Report* (Oxford: Cambridge University Press 2005) 4, available at: <http://www.amap.no/documents/doc/Snow-Water-Ice-and-Permafrost.-Summary-for-Policy-makers/1532> accessed 11 June 2017.

are underfished. The estimate also shows that underfished stocks have decreased almost continuously from 1974 to 2013, while overfished stocks increased.[4]

Harvesting as much fish as possible may seem like a profitable practice, but overfishing has serious consequences. Not only will unsustainable fisheries affect the balance of life in the ocean, but also the social and economic well-being of communities depending on fisheries. In 2017 the World Bank issued a report that estimated the total net economic gain in 2012 from adopting sustainable fisheries management to be US$ 83 billion. Adopting a sustainable fishing practice by the entire industry would result in a larger worldwide biomass of fish stocks. In turn, this would mean that more fish could be caught and give economic growth through jobs and increased revenue.[5]

Even so, the socioeconomic factors of today create a severe pressure on already declining fish stocks. With a rising demand for fish products to feed the world, it is unlikely that states will agree to any reduction in their fishing efforts. To the contrary, with advances in technology and climate change, it is more likely that states will fish deeper and in new locations while targeting underfished stocks or new species.

The above-mentioned possibility of states wanting to participate in new fishing opportunities brings conservation and management challenges. The first challenge is the lack of scientific knowledge on targeted fish stocks and their ecosystems. The problem is that without information on the targeted stock and its ecosystem it would be very difficult to determine a sustainable level of harvest. The second challenge is to prevent states from starting a new fishery without regulation, which can result in a boom-and-bust practice. It is the legal obligations connected to these two concerns that the thesis will discuss. The main research question is therefore to investigate:

- What legal obligations do states have when considering a new fishery on the high seas?

[4] FAO, *The State of World Fisheries and Aquaculture 2016: Contributing to Food Security and Nutrition for All, (*FAO Rome 2016) 5-6, available at: < http://www.fao.org/3/a-i5555e.pdf> accessed 25 August 2017 accessed 25 August 2017.
[5] World Bank Group, *The Sunken Billions Revisited: Progress and Challenges in Global Marine Fisheries, (*World Bank, Washington DC 2017) 35.

A new fishery in this thesis is to be understood as a fishery on a fish stock not previously fished on, on fish stocks that are already exploited, but not within the targeted area or with new methods of catching.[6] What these three scenarios have in common is the scientific uncertainty of the impact of a fishery. Therefore, in answering the main question, the thesis will look closer into two related questions:

- How do the legal obligations take into consideration the scientific uncertainty when establishing new fisheries?
- How do the legal obligations prevent new fisheries from starting without regulations?

In answering these questions, the thesis will first investigate the legal obligations of the United Nations Convention on the Law of the Sea[7] (LOSC or the Convention) and post-LOSC developments with the view of identifying norms for new fisheries. In examining post-LOSC developments it will be focused on the emergence of the precautionary approach, the ecosystem approach and the strengthening of cooperation, as introduced to international fisheries law by, among others, the UN Fish Stock Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks[8] (Fish Stock Agreement or the Agreement). After looking at the LOSC and post-LOSC developments the thesis will examine the specific regulations on new fisheries and how they are implemented in regional fisheries management organizations (RFMOs)

2. Scope and outline of the thesis

The thesis will focus on the regulations on the high seas because of the limitations upon writing this thesis. In addition, the legal sources specifically regulating new fishing opportunities are mostly found in instruments regulating high seas fisheries. In addition, the harvesting of marine mammals is not considered since it is not part of international fisheries law but regulated by different norms.

[6] Caddell, Richard, 'Precautionary Management and the Development of Future Fishing Opportunities: The International Regulation of New and Exploratory Fisheries' (2017) 5 International Journal of Marine and Coastal Law (forthcoming in issue 3).

[7] United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397 (LOSC).

[8] 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 (adopted 4. December 1995, entered into force 11. December 2001) 2167 UNTS 88 (Fish Stock Agreement).

The thesis consists of four chapters. Chapter I is this introduction. Chapter II consists of the general framework of international fisheries law aimed investigating any obligations within international fisheries law relevant for new fisheries. Chapter III examines the specific regime regulating new fisheries on the high seas and how they are implemented in regional practice. Chapter IV will contain concluding remarks.

3. Method and legal sources

Unlike national law where the relevant sources of law normally are specified in a norm superior to laws and regulation, i.e. a constitution. No such norm exists in international law. However, it is commonly recognized that the statutes of international courts and tribunals specify the legal sources acknowledged in international law.[9] Since this thesis concern a concept in the Law of the Sea, it is pertinent to look at Article 293 of the LOSC where international courts and tribunals having jurisdiction under Part XV Section 2 of the Convention "shall apply the Convention and other rules of international law not incompatible with this".[10] Therefore, in light of the objective of this thesis, the method for analyzing legal sources is in accordance with Article 38 of the Statute of the International Court of Justice.[11]

It is acknowledged that the existing legal framework covering international fisheries law is complex and consists of a plethora of different instruments, e.g. global, regional and national, as well as binding and non-binding. For the purpose and scope of this thesis, special focus is given to global and regional legal instruments related to new fishing opportunities. The reason for this is that national legislation falls outside the scope of this thesis. Heavy emphasis will be placed on the LOSC and the Fish Stock Agreement. These binding agreements will be supplemented by non-binding instruments, such as the FAO, Code of Conduct for Responsible Fisheries (FAO Code of Conduct)[12], FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas (FAO Guidelines for Deep-Sea

[9] Wolfrum, Rüdiger, Sources of International Law (2011) Max Planck Encyclopedia of Public International Law, paragraph 7-8, available at: <http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1471?rskey=lqDeq8&result=1&prd=EPIL> accessed 25 August 2017.
[10] LOSC art 293.
[11] Statute for the International Court of Justice (Adopted 26. June 1945, entered into force 23. October 1945).
[12] FAO, *Code of Conduct for Responsible Fisheries* (FAO Rome 1995) available at: <http://www.fao.org/3/a-v9878e.pdf> accessed 25 August 2017. (FAO Code of Conduct).

Fisheries),[13] United Nation General Assembly (UNGA) resolutions and treaties from Regional Fisheries Management Organisations (RFMOs).

When interpreting the sources through the thesis it can be mentioned that the Fish Stock Agreement was ment to build and the existing provisions of the LOSC.[14]Article 4 of the Agreement provides that it "shall be interpreted and applied in the context of and in a manner consistent with the Convention". While Fish Stock Agreement is an implementation instrument, it is also possible to become a party to the treaty without necessarily being a party to the Convention, and vice versa.[15] In this sense, the Agreement is also a stand-alone treaty. However, the Fish Stock Agreement and the LOSC are fundamentally inter-related since one can be used for the interpretation of the other.[16] Therefore, the legal obligations of a states would depend on if it is a contracting party to one or both treaties.

During the time of writing, I have found little academic literature on the concept of new fishing opportunities. As a consequence, I have relied on the primary sources mentioned above and the literature on general international fisheries law. In addition, the legal sources are complex and the parts relevant to the objective of this thesis fragmented. As a consequence, and contrary to general international fisheries law, there have been few legal sources to rely on when it comes to new fishing opportunities.

There has been one exception to the absence of academic literature. The author has during the writing of this thesis received and benefitted from the manuscript of an upcoming article from Dr. Richard Caddell, Senior Research Associate at the Netherlands Institute for the Law of the Sea at Utrecht University and Lecturer in Law at Cardiff University.[17] This is the only academic literature found that extensively analyzes the concept of new fisheries.

[13] FAO, *International Guidelines for the Management of Deep-sea Fisheries in the high seas* (FAO Rome 2009) available at: <ftp://ftp.fao.org/docrep/fao/011/i0816t/i0816t.pdf> accessed 25 August 2017 (FAO Guideline for Deep-sea fisheries).

[14] Patricia Birnie, Alan Boyle and Catherine Redgwell, *International Law & the Environment* (3. edn, Oxford University Press, 2009) 733.
[15] Anderson, D. H., 'Straddling Stocks Agreement of 1995; An Initial Assessment' (1996) 45 International and Comparative Law Quarterly 467-468; The USA is a member of the Fish Stock Agreement, but not of the LOSC.
[16] Ellen Hey, *Development in International Fisheries Law* (Kluwer Law International, 1999) 313.
[17] Caddell (n 6) 32.

The author has also chosen, where appropriate, to refer to new overview articles that have collated scientific data about natural sciences for the convenience of both the author and the reader if wishing to read further.

The mentioned legal sources have been used throughout the thesis using both a descriptive and analytical method.

Chapter II – General International Fisheries Law on the High Seas

1. Introduction

The purpose of this chapter is to analyze the provisions in general international fisheries law relevant for new fisheries on the high seas. It will be looked into how these regulations take into consideration the scientific uncertainty when establishing a new fishery and how the legal instruments prevent new fisheries from starting up without regulation. A special focus is given to the provisions in the LOSC containing the jurisdictional framework for fishing on the high seas and post-LOSC developments in the Fish Stock Agreement and the FAO Code of Conduct.

2. International fisheries law on the high seas and the LOSC

2.1 General

For a long time the general perception was that the fisheries was practically inexhaustiable and every nation had an unlimited freedom to exploit any resources on the high seas. The assumption was based on that the oceans were too vast for fisheries to make an impact and nature itself would prevent any depletion.[18] It was believed that the more fish they harvested, the greater the annual recruitment would be. This can of course only continue to a certain level before a stock collapses due to insufficient numbers to regenerate the stock.[19]

It was not until the nineteenth century, when it became apparent, that some important fisheries were overexploited. After the second world war, some measures were taken to try and mitigate the rising problems, *inter alia*, by extending the geographical scope of a coastal states jurisdictional power and establishing cooperative arrangements for managing fishing activities on the high seas. A central treaty on this issue was the Convention on Fishing and Conservation of the Living Resources of the High Seas of 1958. None of the measures taken were able to address the rising concerns and were perceived as being too favorable towards fishing interests. In addition, the measures never attracted the support it needed to make an impact.[20]

[18] Bernie, Boyle and Redgwell (n 14) 706-708.
[19] Stuart M. Kaye, *International Fisheries Management*, (Kluwer International Law 2001) 50.
[20] Donald R Rothwell and Tim Stephens, *International Law of the Sea* (2. edn, Hart Publishing, Oxford 2016) 316-318.

By the end of the 1960s, the developments called for a need to reassess the international legal regime governing marine fishing activities. The mandate for the negotiations of the Third United Nations Conference on the Law of the Sea (UNCLOS III) called for a conference that would deal with, among other issues, the establishment of an equitable international regime on fishing and conservation of living resources of the high seas.[21] UNCLOS III ultimately ended in the adoption of the LOSC.

2.2 UN Convention on the Law of the Sea

The LOSC was adopted in 1982 but did not enter into force until 12 years later in 1994. The Convention has often been referred to as the Constitution of the oceans and is a broad framework treaty. Relevant to this thesis are the fisheries provisions mainly found in Parts V and VII, Section 2, on the conservation and management of marine living resources on the high seas. The LOSC sought to address previously mentioned problems with overexploitation in fisheries on the high seas primarily by recognizing a 200 nautical mile Exclusive Economic Zone (EEZ) for coastal states. By establishing the EEZ around 90-95% of commercially valuable fish stock came under the sovereign rights of the coastal states. The reasoning behind this regulation was that enclosing the commons and bringing fisheries within national jurisdiction would give an economic incentive for coastal states to adopt effective conservation measures.[22]

However, even if the EEZ fisheries are the most commercially important, many fisheries on the high seas has received increased attention as various fishing grounds closer to shore has been depleted or become fully exploited. The advanced in the technology of vessels and fishing gear has also made it possible to travel further and fish deeper. In addition, the distribution of fish stocks and their ecosystems seldom corresponds to the jurisdictional boundaries of states. The LOSC accommodates this by including provisions that regulate fish stocks under the jurisdiction of different coastal states and/or beyond national jurisdiction. The different types of fish stock are:

[21] Hey (n 16) 17-19.

[22] Rothwell and Stephens (n 20) 320; M. C. Engler-Palma, 'Allocation of Fishing Opportunities in Regional Fisheries Management Organizations: From Power to Law?" in Russel D A and VanderZwaag D L(eds.), *Recasting Transboundary Fisheries Management Arrangements in Light of Sustainablility Principles*: *Canadian and International Perspectives* (Leiden/Boston: Martinus Nijhoff Publishers, 2010) 484.

- Fish stocks that occur within the exclusive economic zones of two or more coastal states. (shared fish stocks);[23]
- Fish stocks that occur both within the exclusive economic zones and in adjacent areas of the high seas.[24] They include *highly migratory fish stocks*, which are the species included in Annex I of the LOSC and *straddling fish stocks*, which are the fish stocks not included in Annex I; and
- Fish Stocks that occur only on the high seas (discrete fish stocks).[25]

For the purpose of this thesis, the relevant stocks are the straddling, highly migratory and discrete fish stocks occurring on the high seas. Furthermore, the fisheries provisions within the LOSC provide a legal framework for regulating marine fishing activities based on three basic regimes:[26]

- Coastal states enjoy sovereignty in internal waters, archipelagic waters and territorial sea;[27]
- Coastal states have sovereign rights in the exclusive economic zone[28] and continental shelf areas;[29] and
- Coastal states have the freedom of fishing on the high seas.[30]

The main principle on the high seas is the "freedom of fishing, subject to the conditions laid down in section 2".[31] Article 116 of Section 2 provides that all states are entitled to allow their vessels to fish on the high seas, only restricted by three broad constraints. Firstly, states are constrained by treaty obligations. This means that states are obligated to regulate any high seas fishery in accordance with the treaties they have ratified. This can, *inter alia*, be the Fish Stock Agreement or the convention text of a RFMO.

[23] LOSC art 63(1).
[24] LOSC art 63(2).
[25] Tore Henriksen, 'Allocation of Fishing Rights: Principles and Alternative Procedures' in Nordquist, Norton Moore and Long (eds.), *Challenges of the Changing Artic Continental Shelf, Navigation, and Fisheries* (Leiden/Boston: Brill Nijhoff, 2016) 524.
[26] Hey (n 16) 19-20.
[27] LOSC art 2(1) and 49 (subject to Art. 51(1)).
[28] LOSC art 62.
[29] LOSC art 77.
[30] LOSC art 87(1)(a) and 116.
[31] LOSC art 87(1)(e).

Secondly, states fishing on the high seas needs to take into account the interest of other states regarding straddling stocks and highly migratory species. A reference here is made to Article 63(2) and 64 which provide that states whose national fish on the same stock or stocks of associated species straddling or migrating between the EEZ and the high seas shall seek to agree, directly or through RFMOs, upon measures to conserve these stocks. A similar obligation is found in Article 87(2) which calls for the due regard for the interests of other states fishing on the high seas. These qualifications are general considerations which have little substantial meaning.

Finally, states must take into account the provisions on conservation and management of living resources of the high seas in Articles 117-119.[32] According to Article 117, all states have the duty to take, individually or through cooperation, the necessary conservation measures for nationals and vessels flying their flag while fishing on the high seas. Since the LOSC do not limit itself to established fisheries, it would also be relevant to emerging fisheries which are starting up. Interpreted widely Article 117 could obligate states to take into consideration the scientific uncertainty when starting a new fishery on the high seas, because it could be necessary for the conservation of the living resources. On the other hand, Article 117 leaves a wide discretion for states to consider for themselves what is necessary. In practice this vagueness could lead to fragmented standards between states with different interests. Some states might be willing to take a larger risk than other when harvesting a stock. In turn other states might adopt less strict regulations to be able to benefit from a prospective fishery.

Article 118 prescribes a duty to cooperate on conservation and management measures and requires that states exploiting the same resource in different areas of the sea "enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned". States shall also enter into negotiations with the purpose of establishing RFMOs, but only "as appropriate". Similar to Article 117, the duty to cooperate in Article 118 is vague. There is no mechanism describing how states are to engage in the negotiations or the legal form the outcome should take. Neither does the duty to enter into negotiations necessarily compel states to reach a successful outcome, or to create a viable RFMO. Furthermore, if a state has entered into negotiations in good faith it has discharged the duty to

[32] Rothwell and Stephens (n 20) 167.

seek to cooperate. A state could therefore continue fishing on the high seas without being in breach of the LOSC and this is a reason for the coverage of RFMOs on the high seas remaining fragmented. [33] As a consequence, the LOSC does not obligate states in any substantial way to individually or through cooperation to regulate a new fishery.

Finally, Article 119 prescribes that coastal states are under the duty to prevent over-exploitation through determining a total allowable catch (TAC) and other conservation measures based on the best scientific evidence available to states concerned with the purpose of producing a maximum sustainable yield (MSY), as qualified by relevant environmental and economic factors, including the interdependence of stock, fishing patterns and any generally recommended international minimum standards. The coastal state is also under the duty to consider effects on associated or dependent species and to contribute to exchange data relevant to the conservation of stocks to all states concerned where appropriate.[34] Similar to the provisions above, also here the states are left with a wide discretionary power to regulate high seas fisheries.

Article 119 does specify some factors that states have to take into consideration when determining the TAC and other conservation measures for the high seas, but these are to be "designed, on best scientific evidence available to the States concerned". In other words, the conservation measures shall be established on the basis of the best scientific evidence. This does not necessarily mean that only scientific evidence can be used in the adoption of conservation measures, but it must be included if available.[35]

This lead to the interpretation that states do not need to seek out information or do research on a stock before or during the fishing activity. The states participating in a high seas fishery are only required to use the best scientific evidence "available" to them at any given time. The fact that it must be the "best" seem to indicate that states must use the information it has available that gives the most correct picture of the stock and its environment. Another interesting point is the use of best scientific "evidence". Contrary to using the best scientific "information", the use of "evidence" may give the impression that only information with a high enough quality can is sufficient, because measures based on poor data can have harmful

[33] Kaye (n 19) 148-19; Birnie, Boyle and Redgwell (n 14) 720.
[34] LOSC art 119(1)(b).
[35] Yoshinobu Takei, *Filling Regulatory Gaps in High Seas Fisheries: discrete high seas fish stocks, deep-sea fisheries, and vulnerable marine ecosystems,* (Martinus Nijhoff Publishers: Leiden/Boston, 2013) 74.

consequences. [36] A problem with this is that there are no specific standards on what evidence is necessary to design conservation measures.

As a consequence also this obligation becomes hollow since states can decide what evidence to include and therefore not be in breach of the LOSC. Another problem is that states in the same fisheries may adopt different TACs and conservation measures. The LOSC provisions on high seas fisheries therefore create vague obligations that to a low degree take into consideration the scientific uncertainty when a new fishery started.

In the absence of coordination of effort and cooperation in data collection and management it is reasonable to assume that a common property resource that is economically viable will be overexploited. Given that most states will facilitate for a maximum sustainable yield, it will be necessary for states to acquire data on the respective stock. It will also be necessary to cooperate with other states fishing on the same stock in other to do any reasonable assessment of the maximum sustainable yield.[37]

While the LOSC reflects the dominant paradigm of marine living resource management, there have been significant developments in international fisheries law. In the next section, the developments relevant to the thesis objective will be elaborated upon.

3. Developments Post-LOSC

3.1 General

In the era after the conclusion of the LOSC it became clear that international fisheries law required a significant development to address persistent management problems of overexploitation, especially on the high seas.[38] The problems that arose were on how to adopt, monitor and enforce more effective conservation measures for fisheries. The data states used regarding high seas fish stocks and catches were unreliable and a lack of sufficient cooperation made it worse. [39]

[36] Ibid 75.
[37] Kaye (n 19) 150.
[38] Rothwell and Stephens (n 20) 337.
[39] Birnie, Boyle and Redgewell (n 14) 730.

During the 1992 UN Conference on Environment and Development (UNCED) the inadequacies in the current management of high seas fisheries were pointed out. The problems identified were, *inter alia*, unregulated fishing, overcapitalization, excessive fleet size, unreliable databases and lack of sufficient cooperation between States. In dealing with these problems, the document points out that a new instrument should reflect the high seas provisions set forth in the LOSC and address its shortcomings. New approaches to marine and coastal area management and development should be integrated in content and precautionary and anticipatory in ambit.[40] The conference document further pointed out that cooperation is essential for highly migratory species and straddling stocks. Therefore the cooperation should take into account mentioned inadequacies, but also focus on addressing scientific knowledge. Not only on target species but also on multi-species management and the relations among species. The focus was not entirely on conservation since the Conference document also pointed at the importance of identifying the potential of underutilized or unutilized populations.[41] As such, the conservation and management of living marine resource is a balancing between exploitation and conservation.

As a consequence, developments within fisheries law focused on the application of the precautionary approach, ecosystem-based management and strengthening cooperation for the sustainable use of marine living resources. It is these developments that will be discussed below to ascertain their impact on the regulation of new fisheries and how they have contributed in regards to problems with scientific uncertainty and preventing high seas fisheries from starting up without sufficient regulation.

3.2 The Precautionary Approach

The term precautionary approach and precautionary principle is used interchangeably throughout different legal instruments. In this thesis it will be referred to the precautionary approach since it is preferred in international fisheries law and by fishing interests. [42]

Towards the end of the 1980s, high seas fishing had increased substantially and stock previously underfished were under pressure of uncontrolled pressure on a massive scale. The

[40] UNGA Resolution 151/26 (13 August 1992) UN Doc A/CONF.151./26 (VOL II) para 17.1, available at: http://www.un.org/documents/ga/conf151/aconf15126-2.htm , accessed 20. July 2017.
[41] Ibid para 17.45.
[42] Ibid 167-168.

development in fishing effort due to new fishing techniques, e.g. drift-nets, substantial overcapitalization and capacity in the world's fishing fleet led to overfishing and collapse in some cases. A reaction to this development was that states called for a re-evaluation of the environmental parameter used in high seas fisheries.[43] The precautionary approach can be said to be a response to scientific limitations. The aim of the precautionary approach is to provide guidance where there are scientific uncertainty and anticipation of possible environmental harm. It is essentially a risk management measure in line with the "better safe than sorry" statement. Precautionary action in the conservation and management of living marine resources is necessary to prevent the deterioration of the environment.

The objective of the Agreement is the "long-term conservation and sustainable use of straddling fish stock and highly migratory fish stocks", and it seeks to achieve this through the application of the precautionary approach.[44] According to Article 3(1), the Agreement applies "beyond national jurisdiction" and to straddling and highly migratory fish stocks. This leaves out discrete fish stocks, but some RFMOs specifically implemented discrete fish stocks into their regulations. I can be noted that, articles 5, 6 and 7 also apply to areas under national jurisdiction, but will not be elaborated upon as the thesis is limited to high seas fisheries.[45] Articles 5 and 6 are also precisely the provisions that prescribe the obligation to apply the precautionary approach. Article 5(c) provides that states shall in order to conserve and manage straddling fish stocks and highly migratory fish stocks on the high seas apply the precautionary approach in accordance with Article 6.

Article 6(1) provides that states shall apply the precautionary approach widely when adopting conservation, management and exploitation measures with the purpose of protecting the living marine resources and preserving the marine environment. This goes beyond the objective of the Agreement to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks as the application of the precautionary approach also contains an obligation to protect marine biodiversity.[46]

[43] Kaye (n 18) 187-196.
[44] Fish Stock Agreement art 2.
[45] Fish Stock Agreement art 3(1)-3(2).
[46] Fish Stock Agreement art 2; Tore Henriksen, Geir Hønneland and Are Sydnes, *Law and Politics in Ocean Governance: The UN Fish Stocks Agreement and Regional Fisheries Management Regimes*, (Martinus Nijhoff Publishers: Leiden/Boston 2006) 23.

For the implementation of the precautionary approach Article 6(2) provides that "[s]tates shall be more cautious when information is uncertain, unreliable or inadequate" and that "the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures". The first part of Article 6(2) provides that there must be a correlation between the level of cautiousness and quality of information. States may be less cautious when there is adequate scientific information, than in situations with little or no information. This means that states have to be more cautious when applying the precautionary approach to a new fishery than to an existing one, since there presumably is less information in such a fishery.

Furthermore the uncertainties on which the information is based may relate to not only the targeted stock, but also the environment and socioeconomic condition.[47] This means that states have to take into consideration the risk of overexploitation, the impact on the environment and negative economic consequences for those dependent of on fisheries as a livelihood. However, the regulation does not provide a clear answer to what risks are acceptable or at which level the stock should be exploited.[48]

The second part of Article 6(2) provides that the adoption of conservation measures shall not be postponed until there is adequate information from surveys or research on the sustainable level of harvest. The delay such conservation measures would pose a risk of overfishing and damage to the stock or their environment. This can be seen together with states having to use the best scientific evidence "available", as elaborated upon above. The obligation to adopt conservation measures is developed further under Article 6(6) with an early intervention on access to and harvest of living marine resources, but this is discussed below in Chapter 3.

In implementing the precautionary approach states are also obligated to obtain and share the best scientific information available to deal with the risk and uncertainty and to prevent damage to the environment.[49] This also includes the impact of a fishery on other species and the environment and the continuous monitoring of the status and efficiency of conservation and management measures on the targeted stock and its environment.[50]

[47] Fish Stock Agreement art 6(3)(c).
[48] Henriksen, Hønneland and Sydnes (n 46) 24.
[49] Fish Stock Agreement art 6(3)(a).
[50] Fish Stock Agreement art 6(3)(d) and 6(5).

Another important part of the implementation of the precautionary approach is the use of reference points. States shall apply the guidelines set out in Annex II of the Fish Stock Agreement and "determine, based on the best scientific evidence available, stock-specific reference points and the action to be taken if they are exceeded".[51] The adoption of reference points furthermore binds states to take measures to ensure that the reference points are not exceeded and in the event that they are, states shall without delay take the actions determined under Article 6(3)(b) to restore the stocks.[52] The advantage of these reference points is that states agree prior to a fishery becoming unsustainable preliminary, rather than reacting to it afterward which prevents further damage to be done.

Annex II is an integral part of the Fish Stock Agreement, but as the title indicates it contains guidelines and not absolute directives on how to apply precautionary conservation and management measures.[53] A precautionary reference point an estimated valued derived from a scientific procedure, which corresponds to the state of a fishery and can be used as a guide for fisheries management.[54]

There are two precautionary reference points to use: limited reference points and targeted reference points. Limited reference points set boundaries to ensure that harvesting is restricted within safe biological limits, where states are recommended to use the MSY as a minimum standard,[55] while target reference points are intended to meet other management objectives.[56] According to paragraph 3 the precautionary reference points should be based on, *inter alia,* the reproductive capacity, the resilience of each stock, the characteristics of fisheries exploiting the stock and other sources of uncertainty.

Also relevant is paragraph 6 of Annex II which prescribes that provisional reference points shall be set when information on a fishery is poor or absent. In the case of a new fishery, there will most likely be little information about the stock and its environment. The provisional reference points shall be established by analogy to similar and better-known stocks. In such

[51] Fish Stock Agreement art 6(3)(b).
[52] Fish Stock Agreement art 6(4).
[53] Fish Stock Agreement art 48, Annex II.
[54] Fish Stock Agreement Annex II para 1.
[55] Fish Stock Agreement Annex II para 2 and 7.
[56] Fish Stock Agreement Annex II para 2 and 5.

situations, the fishery shall be subject to enhanced monitoring and the reference points shall be temporary until improved information becomes available.[57]

Summing up it can be said that it is at the core of the precautionary approach to assist states in adopting conservation and management measures in situations of scientific uncertainties. One problem with states applying the precautionary approach to high seas fisheries is that the concept of precaution is general and relevant to all types of fisheries. It is necessary for a precautionary approach to be consistent when dealing with a transboundary fish stock. It is therefore important that the precautionary measures are applied throughout its distributional range.

Another important instrument came when the 1991 Committee on Fisheries of the FAO called for the development of new concepts that would lead to a sustainable fisheries management. After a series of meeting and conferences, one end product became the FAO Code of Conduct. Even if the FAO Code of Conduct is a non-binding agreement, it contains important sections regarding precautionary management.[58]

The FAO Code of Conduct objective is to provide States with a frame of reference for responsible fisheries and serve as an instrument and provide guidance to States in the formulation and implementation of international agreements.[59] The core of the FAO Code of Conduct is the general principles provided in Article 6. In Article 6.5 the FAO Code of Conduct provides that states and RFMOs shall apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources for the protection and preservation of the marine environment, taking account of the best scientific evidence available. Using the same term as both the LOSC and the Fish Stock Agreement without any further definition.

Furthermore, it states that the absence of adequate scientific information should not be used to postpone or fail to take measures to conserve targeted species and their ecosystems. Article 7 of the Code gives more detailed provisions on how fishing states should adopt the measures nationally and through cooperation with other states, management objectives and procedures,

[57] Fish Stock Agreement Annex II para 6.
[58] Kaye (n 19) 221-222.
[59] FAO Code of Conduct art 2.

how to develop and manage scientific information and more. Perhaps the most relevant is Article 7.5 on the application of the precautionary approach which is largely a copy of Article 6 in the Fish Stock Agreement. Together with the Fish Stock Agreement, these two agreements provide the basis for the precautionary approach in international fisheries law.

3.3 Protection of Marine Biodiversity

To some extent, the zonal approach of the LOSC regulating marine living resources does not reflect the reality that the oceans and the resources within are interrelated. The FAO has further defined the ecosystem approach as striving "to balance diverse societal objectives, by taking account of the knowledge and uncertainties of biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries".[60]

The main characteristics of the ecosystem approach include recognition of multi-species interactions, the surrounding non-living environment and the awareness of dynamic biological processes. The traditional focus on single-species models and an anthropocentric focus on the commercial value of resources have shifted to a realization of the need to consider broader socio-ecologic effects as a factor in decision-making processes on management measures.[61]

In the post-LOSC developments there is a more holistic obligation to consider the environment in its entirety. In the Fish Stock Agreement under the general principles in Article 5 (d) states shall "assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stock". In addition, according to Article 5 (e), states shall "adopt, where necessary, conservation and management measures for species belonging to the same ecosystem or associated with or dependent upon the target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may be seriously threatened". Article 5 (g) also requires states to "protect biodiversity in the marine environment" when fishing on the high seas. Together these

[60] FAO, *The Ecosystem Approach to Fisheries: Issues, terminology, principles, institutional foundations, implementation and outlook* (FAO Rome 2003) 14, available at: <http://www.fao.org/3/a-y4773e.pdf> accessed 25 August 2017.

[61] FAO, *Model for an ecosystem approach to fisheries* (FAO Rome 2007) available at: <ftp://ftp.fao.org/docrep/fao/010/a1149e/a1149e.pdf> accessed 25 August 2017.

obligations gives states a responsibility to protect the marine biodiversity in its entirety assessing the impact a fishing activity will have and adopting necessary conservation and management measures. As such it is clear that the ecosystem approach has developed to be an integral part of high seas fisheries since the LOSC.

A problem with implementing an ecosystem approach to marine living resources is the difficulties attaining sufficient knowledge about all the biological processes in a system. Given this difficulty it has been referred to the precautionary approach which essentially is a response to uncertainty. The obligations describe above also has linkages to the precautionary approach. Especially through the objective to "preserve the marine environment" in Article 6(1), but also in Article 6(1)(c) and 6(1)(d). This linkage can also be found in the FAO Code of Conduct Article 7.5.1 and 7.5.1 which basically reiterates the application of the precautionary approach in the Fish Stock Agreement. In addition the FAO Code of Conduct objective in Article 2(g) and 2(i) is to promote the protection of and research on fish stocks as well as on associated ecosystems and relevant environmental factors.

At the same time, not all fishing states are members to the Fish Stock Agreement or the FAO Code of Conduct, which may cause problems on adopting a precautionary and holistic governance regime for the protection and preservation of marine biodiversity on the high seas.

Since there will always be scientific uncertainty regarding information about the ecosystem, it may well be logical to implement the precautionary approach, which essentially is a means to reduce risk on fishing without sufficient knowledge. At the same time, it is important not to overestimate the significance of uncertainty. As long as states fishing on the high seas operate well within the MSY the impact should be sustainable. Nonetheless, as greater stress is put upon fisheries the potential impact on the ecosystem will grow, making the application of the precautionary approach more important.[62] These developments have nonetheless made a clear contribution on how to take into consideration the scientific uncertainty naturally applies to new fishing opportunities.

[62] Kaye (n 19) 273-274.

3.4 Strengthening of regional cooperation

In the response to previously mentioned problem in high seas fisheries, there have also been developments to strengthen the cooperation between states. Underlying the Fish Stock Agreement is a common understanding that the duty to conserve shared marine living resources can only be achieved through improved regional cooperation between states fishing on the high seas.[63]

Similar to the LOSC, the Fish Stock Agreement provides in Article 8 that all states fishing on the high seas have a duty to cooperate directly or through (sub-)regional fisheries management organizations or arrangements in order to "ensure effective conservation and management" of straddling and highly migratory fish stocks. For convience the organizations and arrangements will be referred to as RFMOs.

Unlike the LOSC the Fish Stock Agreement provides detailed provisions on the function of RFMOs. Notably, only states which are member of the relvent RFMOs or agree to apply with the conservation and management measures established by it, shall have access to the fishery resources. If no such RFMO exists, states are obligated to cooperate to establish one. If an RFMO do extist, then the coastal and fishing states are obligated to become members or apply with the relevant conservation and management measures.[64] These measures are especially aimed at free riders. A phenomenon where vessels operate outside of an RFMO, often operating with flags of convenience, to avoid any conservation and management measures.[65] Even so, these legal obligations helps prevent new fisheries from starting up and continuing without any form of regulation.

The duty to cooperate also entails an obligation for states to enter into consultations as soon as possible is a new fishery is under development. Pending an agreement of conservation and management measures the states shall act in good faith and with due regard of the rights, interests and duties of other states and in accordance the other provisions of the Fish Stock Agreement.[66] Therefore, the coastal and fishing states are obligated to cooperate without delay when entering new fishing opportunities. At the same time the obligation is not an

[63] Rosemary Rayfuse, 'Regional Fisheries Management Organizations' in Donald R Rothwell and others (eds), *The Oxford Handbook of The Law of the Sea* (Oxford University Press 2015) 441.
[64] Fish Stock Agreement art 8(3)-(5).
[65] Rayfuse (n 63) 445.
[66] Fish Stock Agreement art 8(2).

absolute obligation to stop any fishing activity, but merely to enter into consultations at an early stage.

If an RFMO is established states are under the obligation to cooperate through the adoption of conservation and management measures to ensure the long-term sustainability of straddling and highly migratory fish stock. This would necessarly also include new fisheries. If new fisheries are unstustainably harvestest they might collapse and not survice any long-term utilization. In addition states are to cooperate in obtaining and evaluation scientific advice and assess the impact of fishing on targeted, non-target and associated or dependent speices. States are also to agree on the standards for collection, reporting, verification and exchange of data on fisheries on the stock based on the best scientific evidence available.[67] These provisions do consider the scientific uncertainty by obligating states collect and assess scientific data, but not at a preliminary phase. It must also be noted that Article 8(f) references to Annex I of the Fish Stock Agreement on standard requirements for the collection and sharing of data. The Articles within Annex I provides in somewhat detail how states are to procedurally go forward in gathered data and which data to collect, *inter alia*, time series of catch and effort statistics by fishery and feet, total catch in number or weight, by species, discards statistics, fishing method and location.[68]

In contrast to the LOSC, the Fish Stock agreement provides clear obligations to enter into RFMOs or comply with relevant conservation and management measures when fishing on the high seas. There are also substantial provisions on the material content and procedure for establishing RFMOs and taking into consideration the scientific uncertainty when regulating fishing for straddling and highly migratory fish stock. However, not all fishing state have ratified the Fish Stock agreement and are not bound by its regulations. Finally, it is pertinent to note that the mentioning of the precautionary approach in the convention of a RFMO does not necessarily mean that it is being effectively applied. The effect of the precautionary approach rests on the will of state parties to nationally enact and enforce.

[67] Fish Stock Agreement art 10(a) and 10(d)-(g).
[68] Fish Stock Agreement Annex I art 3.

Chapter III – New Fisheries on the High Seas

1. Introduction

The first formal recognition of the need to regulate new fishing opportunities exclusively came in 1989 under the auspices of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).[69] The concern within CCAMLR was that fishing activities often started without adequate information on the impact on targeted, dependent or related populations. As a result, proper conservation and management measures were not adopted until after a stock or its environment were under threat or overexploited.[70]

The purpose of this Chapter is to analyze the specific regulations concerning new fishing opportunities. More specifically it will focus on how these legal obligations take into consideration the scientific uncertainty when adopting conservation and management measures for new fishing opportunities. This chapter will also investigate how the legal obligations ensure that states follow the regulations for new fishing opportunities.

2. The international regulation of new and exploratory fisheries

2.1 General

The developing policies regarding new fishing opportunities within CCAMLR occurred approximately the same time as the negotiations the Fish Stock Agreement, which it had a direct influence on.[71] This led to the concept of new and exploratory fisheries being regulated in Article 6(6) of the Fish Stock Agreement which provides that:

> "For new or exploratory fisheries, States shall adopt as soon as possible cautious conservation and management measures, including, inter alia, catch limits and effort limits. Such measures shall remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and

[69];CCAMLR, 'Report of the eighth meeting of the of the Commission (CCAMLR-VIII)' (1989) para 123, available at: <https://www.ccamlr.org/en/system/files/e-cc-viii.pdf> accessed 28. Juli 2017.
[70] CCAMLR, 'Report of the Eleventh Meeting of the Commission (CCAMLR-XI)' (1992) para. 4.27, available at: <https://www.ccamlr.org/en/system/files/e-cc-xi.pdf> accessed 28 July 2017.
[71] Caddell (n 6) 7.

management measures based on that assessment shall be implemented. The latter measures shall, if appropriate, allow for the gradual development of the fisheries."

The Article can be divided into three parts. The first part is that states shall adopt interim measures "as soon as possible" which "shall remain in force until an assessment of impact can be made". The second part is that states shall do an impact assessment of the fisheries when sufficient data is collected. The third part is the adoption of long-term management measures which shall be gradually developed if the scientific data regards it sustainable. These three parts will be investigated further below under their own section.

Before moving on to a closer interpretation of Article 6(6) it is important to note the positioning of new or exploratory fisheries within Article 6, which provides the application of the precautionary approach to fisheries. In addition to its positioning, Article 6(6) itself provides that the interim conservation and management measures shall be "cautious" until the impact assessment is concluded. For a new fishery this is perhaps even more important than in an already established fishery. In a new fishery the knowledge about a targeted stock and its environment would normally be low or absent. A cautious exploitation might there reduce the risk of overfishing and potential damage to the targeted stock and its environment. It can therefore be presumed that the Fish Stock Agreement recognizes new or exploratory fisheries as an important component of the precautionary approach and that it ought to be regulated more strictly than already established fisheries.

Initially it can be mentioned that the FAO Code of Conduct almost mirrors the Fish Stock Agreement Article 6(6).[72] The only difference is that the Fish Stock Agreement uses "shall", where the FAO provides "should". This probably has little practical meaning beyond the fact that the FAO Code of Conduct is a non-binding instrument and can only encourage states to implement its regulations.

Beyond the Fish Stock Agreement and the FAO Code of Conduct there are only a few global instruments that specifically regulate new or exploratory fisheries. These ancillary instruments are the UNGA resolutions and the FAO Guidelines for Deep-Sea Fisheries. These two non-binding instruments regulated the impacts of new or exploratory fisheries aimed at deep-sea

[72] FAO Code of Conduct art 7.5.4.

bottom fishing upon the benthic environment giving RFMOs the primary responsibility to implements the standards for the protection of vulnerable marine ecosystems (VMEs).[73]

2.2 Early intervention to regulating access to and harvest of living marine resources

Article 6(6) of the Fish Stock Agreement provides that states shall "as soon as possible" adopt "cautious" conservation and management measures which shall "remain in force until" there is enough information for an impact assessment. Interpreted alone this gives little guidance on the application and threshold of early intervention except providing that states shall implement cautious interim measures as soon as possible. This gives the states a broad discretionary power on how to take into consideration the scientific uncertainty of a new fishery. The only guidance in Article 6(6) is that the interim measures should include catch limits and effort limits. It is also unclear if the provision demands states to regulate a new or exploratory fishery before it starts, or if it can be established soon after.

Interpreted broadly within the precautionary approach in Article 6(2), the "cautious" interim conservation and management measures should be stricter than in pre-existing fisheries, since it is a natural consequence of a new fishery is that information is uncertain, unreliable or inadequate. When establishing new a fishery the measures adopted should therefore reflect the level of certainty that the measures would establish a sustainable fishery. In applying the precautionary approach the absence of adequate information should not be used to postpone or fail to take conservation and management measures.[74] Furthermore, states shall base the decision-making on the best scientific information available to reduce the risk and uncertainty when implementing cautious interim measures.[75]

During the negotiations of the Fish Stock Agreement, the FAO stated that forecasting the impact that a new fishery will have before it starts will be an impossible task. It was argued that a pilot fishing should be established that was large enough to collect data and build up the scientific evidence required, but small enough to ensure that no irreversible effect was likely. In minimizing the risk the FAO argued further that "in accordance with the precautionary approach, interim precautionary measures may be taken giving due consideration to the actual nature and level of risk for the resource, and to the social and economic costs to the

[73] Caddell (n 6) 33-34.
[74] Fish Stock Agreement art 6(2).
[75] Fish Stock Agreement art 6(3)(1).

community".[76] In this context it was also stated that banning certain fishing techniques would be extreme measures, only justified if the risk of irreversible damage to the resource or the community is high.[77] This shows the intention of balancing between the interests of environmental protection and commercial exploitation. It also provides that a new fishery should not be prohibited unless there is a high risk of irreversible damage to a targeted stock and its environment. Instead states are to apply cautious interim measures that reflect the level of scientific information available.

The FAO Code of Conduct also explicitly regulate new or exploratory fisheries in Article 7.5.4, but it is a verbatim reproduction of Article 6(6) of the Fish Stock Agreement. The only difference is that it provides "should" where the Fish Stock Agreement states "shall". This must merely be interpreted as a result of the FAO Code of Conduct being a non-binding legal instrument, which can only encourage states to implement its regulations. The FAO Code of Conduct Article 7.5 has some minor differences to the Fish Stock Agreement Article 6 in structure and wording, but these are irrelevant for the interpretation of new or exploratory fisheries. As a consequence the application of the precautionary approach in the FAO Code of Conduct can be interpreted as consistent with the Fish Stock Agreement regarding new and exploratory fisheries. On the other hand, a difference between the two legal instruments is the scope of their application, where the FAO Code of Conduct also applies to discrete fish stocks.[78]

Under CCAMLR regulations regarding interim measures are provided in Conservation Measure (CM) 21-01.[79] Under CCAMLR "new" and "exploratory" fisheries are divided into CM 21-01 and CM 21-02.[80] A "new fishery" is defined as a "fishery on a species using a particular fishing method in a statistical subarea or division for which:

[76] FAO, *The Precautionary Approach to Fisheries with Reference to Straddling Fish Stocks and Highly Migratory Fish Stocks*; Document A/CONF.164/INF/8 (26 January 1994) para 91; reproduced in J-P Lévy and GG Schram (eds), *United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks: Selected Documents* (Martinus Nijhoff, The Hague, 1996) 574.
[77] Ibid 574-575.
[78] FAO Code of Conduct art 3.1 and 3.2.
[79] CCAMLR, '*Conservation Measure 21-01 (2016): Notification that Members are considering initiating a new fishery*' (2016) available at: <https://ccamlr.org/en/measure-21-01-2016> accessed 25 August 2017 (CCAMLR CM 21-01).
[80] CCAMLR, '*Conservation Measure 21-02 (2016): Exploratory fisheries*' (2016) available at: <https://www.ccamlr.org/en/measure-21-02-2016> (CCAMLR, CM 21-02) .

I. Information on distribution abundance, demography, potential yield and stock identity from comprehensive research/surveys or exploratory fishing have not been submitted to CCAMLR; or

II. Catch and effort data have never been submitted to CCAMLR; or

III. Catch and effort data from the two most recent seasons in which fishing occurred have not been submitted to CCAMLR."[81]

An "exploratory fishery" on the other hand is a fishery which has previously been defined as a new fishery and remains exploratory until certain criteria are fulfilled, which will be investigated below.[82] The adoption interim measures therefore fall under CM 21-01 and the concept of "new fisheries" in CCAMLR.

According to CM 21-01 states have to send in a notification prior to starting up a new fishery. The notification must include a Fishery Operations Plan (FOP) which as far as possible should include the nature of the new fishery, e.g. target species, methods of fishing, the location and propose a maximum catch level, as well as biological information on target species and its ecosystem. Information should also be included about similar fisheries and the potential impacts upon VMEs, including benthos and benthic communities, if the vessel is using bottom trawling gear.[83]

The vessels applying to participate in a new fishery must also implement a Data Collection Plan (DCP) they must follow while fishing on the high seas. The DCP is established by the Scientific Committee to ensure that adequate information is collected during a new fishery for the purpose of being able to make the assessment necessary to establish long-term sustainability measures. The DCP shall include, *inter alia,* a description of the catch, effort and related biological, ecological and environmental data and a plan to attain research data from other vessels.[84] Both the FOP and DCP are detailed tools with strict regulations that fishing vessels of a member state of CCAMLR has to implement as a part of the interim measures to be granted access to a new fishery. In this way the legal obligations secures that as much information as possible is collected prior to and during a new fishery to set cautious conservation and management measures. It is also provided in CM 21-01 that states shall not

[81] CCAMLR, CM 21-01 para 1.
[82] CCAMLR, CM 21-02 para 1(i) and 1(ii).
[83] CCAMLR, CM 21-01 para 3.
[84] CCAMLR, CM 21-01 para 8 and 9.

authorize their vessels to fish in the relevant area unless they have followed the application process and are equipped and configured to comply with adopted conservation measures.[85] In this way CCAMLR grants early access to and harvest of new fisheries while applying a precautionary approach that takes into consideration the scientific uncertainty. This also shows how CCAMLR as an RFMO prevents that a new fishery is started without regulation. This is of course dependent on that states are member of CCAMLR and fulfills their legal obligations.

In the South Pacific Regional Fisheries Management Organisation (SPRFMO) both new and exploratory fisheries are regulated together under the term "exploratory fisheries".[86] The definition of exploratory fisheries is a fishery in the convention area on a species or with a type of gear or technique that has not been subject to fishing in the previous ten years, to close or to be managed as an established fishery.[87] Similar to CCAMLR the SPRFMO Conservation and Management Measure (CMM) 4.13 requires any member state or cooperating non-contracting party to send an application with information about the vessel(s) participating and submit a FOP.

The FOP required by CMM 4.13 shall in essence contain the same information and commitment to implement a DCP as CCAMLR, but with small additions, e.g. to cooperate with neighboring RFMOs that manage the same stock.[88] Based on the FOP and advice from the Scientific Committee the Commission must choose to approve the application or not. If approved the participation state must adopt conservation and management measures on the exploratory fishery with a precautionary catch limit and any other appropriate management measure.[89] It is therefore clear that states wanting to participate in a fishery under the SPRFMO have to acquire authorization prior to starting up an exploratory fishery.

A RFMO with a different approach is the South East Atlantic Fisheries Organisation (SEAFO) which do not directly regulate new or exploratory fisheries in its Convention text.

[85] Ibid para 4, 5 and 9.
[86] SPRFMO, *'CMM 4.13: Conservation and Management Measure for the Management of New and Exploratory Fisheries in the SPRFMO Convention Area'* (2016) available at: <https://www.sprfmo.int/assets/Fisheries/Conservation-and-Management-Measures/CMM-4.13-Exploratory-Fisheries-2016-4Mar2016.pdf> accessed 25 August 2017 (SPRFMO, CMM 4.13).
[87] SPRFMO, CMM 4.13 para 4.
[88] SPRFMO, CMM 4.13 para 4(ix).
[89] SPRFMO, CMM 4.13 para 12.

Indirectly SEAFO acknowledges new or exploratory fisheries by obligating states to apply the precautionary approach "widely" to conservation and management measures.[90] The obligation is a verbatim reiteration of the Fish Stock Agreement Article 6(2) and since new or exploratory fisheries are a core part of the precautionary approach it would be necessary to regulate it. SEAFO also provides that contributions to new and exploratory fisheries shall be taken into consideration when determining future participatory rights.[91] This indicates the intention that new or exploratory fisheries should be regulated.

The SEAFO Scientific Committee has defined the exploratory fisheries as "fishing experiments solely or primarily aimed to discover new resources or new fishing grounds and are as such from the outset motivated by commercial interests".[92] Research fisheries on the other hand are primarily "*curiosity-driven marine science* which, independent […] to management and commercial interests[…]"[93] The Scientific Committee goes on stating that "[m]angement measures may require that parties conduction exploratory fishing collect data relevant for stock assessments and evaluation of ecosystem impacts[…]. However, the collection of data for scientific use is rather a required by-product than a primary objective of the exploratory fishing effort."[94]

2.3 Providing scientific information for the assessment of the impact of fishing

In the second part of Article 6(6) provides that states shall make an "assessment of the impact of the fisheries" when there is "sufficient data" for the establishment of long-term conservation and management measures.[95] The question is then how to obtain sufficient data. Article 6(6) in itself does not provide any detail on when there is enough information or what information is needed to make the assessment. Some guidance can be found in the application of the precautionary approach in the Fish Stock agreement and in the LOSC which provides

[90] Convention and the Conservation and Management of Fishery Resources in the South East Atlantic Ocean (adopted 20 April 2001, entered into force 13 April 2003) 2221 UNTS [registration number 39489] art 7(1) available at: <http://www.seafo.org/About/Convention-Text#> accessed 25 August 2017 (SEAFO Convention) .

[91] SEAFO Convention art 20(1)(f).

[92] SEAFO, *'10th Scientific Committee Meeting Report'* (2014) para 23.1, available at: <http://www.seafo.org/MeetingsDetails?MeetingID=4817d320-b914-4172-a063-c8721eedb9fc> accessed 25 August 2017.

[93] Ibid.

[94] Ibid.

[95] Fish Stock Agreement art 6(6).

that any decision-making shall be based on the best scientific information available.[96] The collection, compilation and exchange of data on the fish stock and its ecosystem are a necessary premise for developing a sustainable fishery. Without it doing an assessment of the impact would at best be guesswork and may lead to an unsustainable fishery.

The vague term "sufficient data" leave states and RFMOs with large discretionary powers. On one side this could be positive as it leaves it up to the RFMOs to adapt to regional circumstances. On the other side a too lenient understanding of the term sufficient data may cause states or RFMOs to transition to fast from cautious interim measures into long-term measures. If the information the decision was based is insufficient the result may be an unsustainable exploitation of the targeted stock and its environment. It is important to remember that the regulations of new or exploratory fishery are a balancing between conservation and exploitation. In achieving its goal of a sustainable fishery the states and RFMOs must facilitate for the socioeconomic aspect as well as the environmental aspect.

In order to establish the content of what data must be collected to conduct an impact assessment it is necessary to look other relevant legal source. Since new or exploratory fisheries are a part of the application of the precautionary approach, it is natural to look at Article 6(2) and (3). As elaborated upon earlier states shall be more cautious when information is uncertain, unreliable or inadequate, but not postpone or fail to take decisions on the basis of adequate scientific information available.[97] Article 6(3) provides that states shall in implementing the precautionary approach obtain the best scientific information available for dealing with risk and uncertainty. Article 6(3)(b) and (c) provides some information on what factors to take into consideration when establishing conservation and management measure, *inter alia*, the size and productivity, but does not give any guidelines on how to do it or when the data is sufficient.

Regarding what "data" to obtain guidance can be found in Article 6(3) which in turn refers to Annex II that calls for considering the size, reproductive capacity, resilience of the stock, characteristics of fisheries exploiting the stock, levels and distribution of fishing mortality, the

[96] Fish Stock Agreement art 6(2); See Chapter II Section 2.3 on the use of best scientific evidence available in the LOSC.
[97] Fish Stock Agreement art 6(2) and 6(3).

impact on the ecosystem. Article 6(3)(d) provides that the States shall adopt plans and develop data collection and research programs for the conservation of the ecosystem.

Regarding the FAO Code of Conduct is consistent with the regulation in the Fish Stock Agreement regarding the application of the precautionary approach and providing the best scientific evidence available for the purpose of establishing conservation and management measures.[98]

Under CCAMLR states have the responsibility to ensure that adequate information is available to the Scientific Committee for evaluation whereupon the Scientific Committee are to develop a DCP, which should include research proposals. The DCP shall in turn identify the data needed and any operational research action necessary to obtain the relevant data needed to enable an assessment of the stock to be made. This practice is identical for fisheries categorized as both new and exploratory.[99]

In contrast to the Fish Stock Agreement and the FAO Code of Conduct, the DCP provides a more detailed description of what a nation's fishing vessels need to obtain of information during the initial phase of new fishery. Furthermore, a new fishery is only open to vessels equipped and configured in compliance with relevant conservation measures.[100]

Within the SPRFMO the conservation and management measures for new or exploratory fisheries shall ensure that a "new fishery resources is developed on a gradual basis until sufficient information is acquired to enable the Commission to adopt appropriately detailed conservation and management measures".[101] In Conservation Measure 4.13, and similar to CCAMLR, the Scientific Committee shall develop a DCP to "identify and describe the data needed and any operational research actions necessary to obtain data from the exploratory fishery to enable an assessment of the stock, the feasibility of establishing a fishery and the impact of fishing activity on non-target, associated or dependent species and marine

[98] FAO Code of Conduct art 7.4 and 7.5.1-7.5.4.
[99] CCAMLR, CM 21-01 para 7; CCAMLR, CM 21-02 para 2.
[100] CCAMLR, CM 21-01 para 8 and 9.
[101] Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean (adopted 14 November 2009, entered into force 24 August 2012) 2899 UNTS [registration number 50553] art 22 available at: <https://www.sprfmo.int/assets/Basic-Documents/Convention-web.pdf> accessed 25 August 2017.

ecosystem in which the fishery occurs.".[102] Furthermore, the DCP provides that the data to be obtained is, *inter alia*, a description of the catch, effort and related biological, ecological and environmental data required to undertake evaluations.[103]

The SPRFMO has also established a Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data which gives a comprehensive guide connected to different types of fishing methods, *inter alia,* trawl fishing, purse seine fishing or bottom longline fishing. [104] In securing that the Data Collection Plan is followed by member states or cooperating non-contracting parties, CMM 4.13 requires states to commit applying the DCP while fishing. States failing this obligation is prohibited from fishing in the relevant exploratory fishery.[105]

Given there will be an increase in new and exploratory fisheries, as well as those established, the scale and complexity of data assessments will also grow. In addition, the development of more integrated approaches for planning and utilizing with the precautionary approach and ecosystem approach it will make it more demanding for RFMOs to do the necessary assessments in light of the resources they have available. Therefore, there must also be a limit to how much information is needed before making an assessment. This is also in line with the balancing between socioeconomic and environmental factors.

2.4 From New to Established Fisheries: decision making

A key question to a new and exploratory fishery is under which conditions it may transition into an established fishery. There is no specific legal definition in global legal instruments of an established fishery, but through interpreting Article 6(6) it may be when a new or exploratory fishery has collected enough data to adopt conservation and management measures for the long-term sustainability of a stock and its environment. This interpretation is also supported by regional practice.[106]

[102] SPRFMO, CMM 4.13 para 9.
[103] SPRFMO, CMM 4.13 para 10.
[104] SPRFMO, *'CMM 4.02 Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data'* (2016) Annex I-III, available at: <https://www.sprfmo.int/assets/Fisheries/Conservation-and-Management-Measures/CMM-02-2017-Data-Standards-27Feb17.pdf> Accessed 25. August.
[105] SPRFMO, CMM 4.13 para 15.
[106] CCAMLR, CM 21-02 para 1(ii); SPRFMO, CMM 4.13 para 24.

As mentioned above, the third part of Article 6(6) is that a new or exploratory fishery shall transition into an established fishery and this can happen gradually if the available scientific data regards it necessary. This means that the transitioning could be developed gradually through more lenient conservation and management measures as information becomes less uncertain. This reflects the precautionary approach in exercising caution relative to the level of knowledge. A gradual development could be favorable to both commercial and environmental interest because it protects the targeted stock and its ecosystem while increasing exploitation as scientific information develops.

At the same time the potential economic gain could be a potential problem. The fishing interests would presumably want to transition as early as possible to escape the stricter regulations under cautious conservation and management measures in new and exploratory fisheries, since it would often result in costly obligations and reduced profits. The obligation to gradually develop the fishery may reduce the pressure upon decision makers on when to transition from new or exploratory to established fisheries.

The Fish Stock Agreement and the FAO Code of Conduct gives some guidance on the transitioning providing that sufficient data shall result in an assessment of a stock for long-term measures.[107] The vague term sufficient data is therefore a core part of the transitioning. The assessment on the other hand seems to be the actual decision-making process of a transitioning. Even if this gives some guidance on the criteria of the transitioning from a new fishery to an established fishery, it is still general since it does not provide, *inter alia*, any time frame or formal procedure. If left to states the possibility of favoring an early transitioning is imaginable to increase socioeconomic benefits. As a result it is necessary to at regional practice to determine the more specific regulation on transitioning from new or exploratory fisheries to established fisheries.

Within the CCAMLR Regime the transitioning is regulated in CM 21-02 which provides that an "exploratory fishery shall be continued to be classified as such until sufficient information is available […]".[108] The procedure is that that the Working Group on Fish Stock Assessment (WG-FSA) informs the Scientific Committee of potential exploratory fisheries which there is sufficient data on and may transition into established fisheries. The Scientific Committee then

[107] Fish Stock Agreement, art 6(6); FAO Code of Conduct, art 7.5.4.
[108] CCAMLR, CM 21-02 para 1(ii).

makes recommendations to the Commission which makes the decisions.[109] Regarding the decision-making the Commission shall "annually consider adoption of relevant conservation measures for each exploratory fishery" based on the information submitted in the notification, FOP and DCP as well as advice and evaluation provided by the Scientific Committee.[110] In the annual considerations, the Commission can either gradually develop a fishery or transition it into an established one when more information is available.

An example of a new fishery wanting to transition was the fishery for Antarctic Toothfish (*Dissostichus* mawsoni) whereupon the WG-FSA considered that the data-collection requirements of CM 21-02 had been met. However, a formal transitioning was rejected because the Scientific Committee regarded the framework for research, assessment and data collection established during the exploratory fishery would also be essential in the future. Concerns was raised by, *inter alia*, substantial gaps in the knowledge base concerning the full-year life-cycle of the toothfish, given that the exploratory fishery only took place in a seasonally limited window of time each year.[111]

Criticism has been raised against the current regime arguing that the arrangements for transitioning an exploratory fishery under CCAMLR are insufficiently nuanced to facilitate the effective implementation of the precautionary approach. Especially regarding the ecosystem monitoring programs which have been stated to be inadequate and not implemented in a genuinely adaptive manner, given that the data gathered in current exploratory fisheries have resulted in little alteration of the annual quota.[112] The Scientific Committee on the other hand has asserted that their regulation of exploratory fisheries are based on the best practice for precautionary management in an ecosystem context while being allowed to develop catch levels with the scientific knowledge available at the time.[113]

As opposed to CCAMLRs process of annually evaluating DCPs, CMM 4.13 of the SPRFMO sets a 10 year limit for an exploratory fishery, at which point the fishery will be either closed or reconstituted as an established fishery.[114] Meaning that there is an absolute limit of when a

[109] Caddell (n 6) 25.
[110] CCAMLR, CM 21-02 para 7.
[111] Caddell (n 6) 25.
[112] Caddell (n 6) 25-26.
[113] Ibid.
[114] SPRFMO, CMM 4.13 para 23; Caddell (n 6) 28.

state must obtain sufficient data within an exploratory fishery. Like CCAMLR, an exploratory fishery can only transition if the Commission is satisfied that there are sufficient information to manage the fishery as established.[115] During the writing of this thesis, the author has not found any examples of fisheries that has exceeded the 10-year limit, or applied for a transitioning from an exploratory to an established fishery. Even so, the rules for transitioning seem shows a strict precautionary approach to scientific uncertainty.

The question then arises of what happens if a fishery is closed or lapsed. A closed fishery would normally be when the direct fishing on a stock is prohibited, while a lapsed fishery is when it is abandoned due to commercial reasons and assessments are no longer current.[116] According to CCAMLR a lapsed or closed fishery "would be required to submit new information on which a satisfactory assessment can be made before continuing or, in the absence of such information, the fishery would revert to a new fishery".[117] If the fishery was already established it should reopen according to the precautionary principles" and submit prior notification and DCP as required for exploratory fisheries under CM 21-02. [118] In this way CCAMLR is able to regulate that a fishery that was inactive or prohibited for a period of time is unable to continue at the same level as before when circumstances of the targeted stock or environment could have changed. The author has not found similar regulations in other RFMOs, but do not exclude that they exist.

Another question is what happens if the cautious conservation and management measures for new or exploratory fisheries results in an unsustainable exploitation. Normally the earlier mentioned RFMOs have the competence to annually adjust catch limits or other threats to the targeted stock or its environment. Even so, Article 6(7) of the Fish Stock Agreement obligates states to adopt conservation and management measure on an emergency basis where a natural phenomenon or a fishing activity presents a serious threat to the sustainability of fish stock. However, the measures taken on an emergency basis shall be temporary and based on the best

[115] SPRFMO, CMM 4.13 para 23.
[116] CCAMLR, 'Regulatory Framework' (*CCAMLR*, 23 January 2013). <https://www.ccamlr.org/en/fisheries/regulatory-framework> accessed 25 August 2017
[117] CCAMLR, *'Report of the Seventeenth Meeting of the Scientific Committee (SC-CCAMLR-XVIII)'* (Hobart, October 1998) para 5.26, available at: <https://www.ccamlr.org/en/system/files/e-sc-xvii.pdf> accessed 25 August 2017.
[118] CCAMLR, *'Report of the Sixteenth Meeting of the Commission (CCAMLR-XVI)'* (Hobart, November 1997) para 10.3, available at: <https://www.ccamlr.org/en/system/files/e-cc-xvi.pdf> accessed 25 August 2017.

scientific evidence available.[119] These regulations show the holistic governance from interim measures in a new fishery to the eventual establishment, lapse or closure of a fishery.

2.5 Exploratory Deep-sea Fishing and Vulnerable Marine Ecosystems on the high Seas

In addition to the more general regime governing new and exploratory fisheries in the Fish Stock Agreement and the FAO Code of Conduct, a more recent regime has developed regarding deep-sea fishing and vulnerable marine ecosystems on the high seas. The background for this development was that concerns were raised over the potential harmful impact bottom-fishing could have upon benthic ecosystems and fragile seabed features.[120]

In 2004, the UNGA called upon states and RFMOs with competence to regulate bottom fisheries to consider interim prohibition of destructing fishing practices and urgently adopt and implement conservation and management measures based on scientific information and in accordance with the precautionary approach and international law.[121] This was follow up by UNGA resolution 61/105 which in paragraph 83(b) called for measures that would "identify vulnerable marine ecosystems and determine whether bottom fishing activities would cause significant adverse impacts to such ecosystems and the long-term sustainability of deep-sea fish stocks, *inter alia*, by improving scientific research and data collection and sharing, and through new and exploratory fisheries".[122] Subsequent resolutions from the UNGA have further strengthened the commitment to protect VMEs against destructive bottom fishing. [123]

Following the initiative from the UNGA, The FAO Guidelines for Deep-sea Fisheries were developed to assist RFMOs in the implementations of paragraphs 76-95 of UNGA Resolution 61/10.[124] The interaction between the two legal instruments are also present in the recent UNGA Resolutions providing that the measures taken towards managing bottom fishing in VMEs are consistent with the FAO Guidelines for Deep-Sea Fisheries.[125] In the extension of this interaction, the FAO Guidelines for Deep-Sea Fisheries provides that states and RFMOs

[119] Fish Stock Agreement, art 6(7).
[120] Caddell (n 6) 33.
[121] UNGA Resolution 59/25 (17 November 2004) UN Doc A/RES/59/25 para 66-69.
[122] UNGA Res 61/105 (8 December 2006) UN Doc A/Res/61/105 para 83(b).
[123] UNGA Res 64/72 (4 December 2009) UN Doc A/Res/64/72 para 113-127; UNGA Res 66/68 (6 December 2011) UN Doc A/Res/66/68 para 121-136; UNGA Res 71/123 (7 December 2016) UN Doc A/RES/71/123 paras 174-184
[124] Caddell (n 6) 33.
[125] UNGA Res 71/123 (n 140) para 175 and 180.

should adopt and implement the precautionary approach as reflected in Article 6 of the FSA, and Article 6.5 and 7.5 of the FAO Code of Conduct, the ecosystem approach to fisheries, relevant rules of the Convention and take action using the best information available.[126]

The FAO Guidelines for Deep-Sea Fisheries provides that the fishing activity "should be rigorously managed throughout all the stages of their development: experimental, exploratory and established".[127] There is no definition of the three different terms, but it assumed in this thesis without further analysis that they coincide with the terms used in Article 6(6) of the Fish Stock Agreement. The FAO Guidelines for Deep-Sea Fisheries also provides that because of the potential vulnerability of deep-sea resources and their ecosystems, the conservation and management measures should reflect the level of knowledge of target species and their environment. [128]

This is also similar to the regulations in the Fish Stock Agreement and the FAO Code of Conduct as discussed above, where little information should be reflected in a cautious exploitation to minimise risk of potential damage. The FAO Guidelines for Deep-sea Fisheries also provides that not only RFMOs should prescribe mechanisms for mitigating adverse impacts on a deep-sea fish stock and VMEs, but also outside an RFMO where "[h]igher levels of coverage are required, in particular for experimental and exploratory stages of a fishery's development" should states apply precautionary measures until more permanent measures are in place.[129]

A more detailed list of considerations that states and RFMOs should implement when managing deep-sea fisheries is provided in Paragraph 21(i)-(viii) of the FAO Guidelines for Deep-Sea Fisheries, *inter alia*, by collecting information towards locating potential VMEs, develop data in order to assess impact of fishing, base the management on best scientific and technical information taking into account the fishermen's knowledge and ensure transparency and public dissemination of information. The FAO Guidelines for Deep-Sea Fisheries also prescribes that precautionary conservation and management measures are essential tool during the exploratory phase of a deep-sea fishery and a major component of an established deep-sea

[126] FAO Guidelines for Deep-Sea Fisheries para 12.
[127] Ibid para 23.
[128] Ibid para 23.
[129] Ibid para 55.

fishery. The precautionary measures should be designed to address the impact of a fishery on low-productivity species, non-target species and sensitive habitat features.

When implementing a precautionary approach to sustainable exploitation states should include, *inter alia*, precautionary effort limits, especially where reliable assessments of sustainable catches of target and by-catch are not available, as well as precautionary measures to prevent adverse impacts on low-productivity stock and on VMEs.[130] The FAO Guidelines for Deep-Sea Fisheries as such provides that a stricter implementation of the precautionary approach should be implemented under an exploratory deep-sea fishery than under an established deep-sea fishery. While most of the FAO Guidelines for Deep-Sea Fisheries are aimed at conservation of deep-sea fisheries and VMEs, it also provided that states and RFMOs should take into consideration the practicability and socioeconomic aspects of implementing the regulations.[131] This shows that the process within deep-sea fisheries in VMEs also is a balancing between different interests.

As intended by the UNGA Resolutions and the FAO Guidelines for Deep-Sea Fisheries, some RFMOs have implemented the regulations on exploratory fishing in the specific context of bottom-fishing in VMEs. The North East Atlantic Fisheries Commission (NEAFC) has defined exploratory bottom fishing as "all commercial bottom fishing activities outside area closures and existing bottom fishing areas, or if there are significant changes to the conduct and technology of bottom fishing activities within existing bottom fishing areas".[132] The objective within NEAFC is to ensure the implementation of effective measures to prevent significant adverse impacts of bottom fishing activities on VMEs based on the best scientific evidence available.[133]

The specific regulations on exploratory bottom fishing are provided in Article 6 and 7 of the NEAFC Bottom Fishing Recommendation. Under Article 6 contracting parties shall prior to proposing to undertake exploratory bottom fishing gather relevant data for an assessment of the Permanent Committee on Management and Science (PECMAS) and ICES. The

[130] Ibid para 65.
[131] Ibid para 89.
[132] NEAFC, *'Recommandation 9:2014: Protection of VMEs in NEAFC Regulatory Areas as Amended by Recommendation 09:2015'* (2015) art 2(d), available at: <http://www.neafc.org/system/files/Rec_19-2014_as_amended_by_09_2015_fulltext_0.pdf> accessed 3. August 2017.
[133] Ibid art 1(1).

contracting party are then to forward a Notice of Intent to the relevant bodies. The Notice of Intent is similar to the process described above for new and exploratory fishery under CCAMLR and SPRFMO, which includes a harvest plan, mitigation plan, catch monitoring plan, DCP and a sufficient system for recording. The objective of this preliminary procedure is to reduce the risk of significant adverse impacts on VMEs.[134]

The exploratory bottom fishing shall then only commence after having been assessed by PECMAS and approve by the Commission. The further transition from exploratory to established bottom fishing is regulated in Article 6 (8) which provides that the Commission may decide to authorize the transitioning based upon the results of exploratory bottom fishing conducted in the previous two years. The results of this process are based on Article 7 which provides that the contracting parties must submit an assessment of the known and anticipated impacts of the proposed fishery as described in Annex 4 of Recommendation 9:2015.

Annex 4 provides what the assessment should address which in essence is the same requirements from the DCP in CCAMLR and SPRFMO. The assessment and evaluation of the information shall then be carried out in accordance with the guidance develop by ICES or "to the best of the ability of the Contracting Party concerned".[135] PECMAS shall then in accordance with the precautionary approach evaluate and provide advice to the Commission on the risk of adverse impacts on VMEs and whether particular mitigation measures should be adopted, whereupon the Commission may decide to approve or decline the proposed bottom fishing activities.[136] NEAFC therefore shows the intent to regulate the exploratory bottom-fisheries both before it starts, during the exploratory face and until it transitions into an established fishery. Like previously mentioned RFMOs also here the precautionary approach is essential, taking into consideration the scientific uncertainty.

Other RFMOs regulating exploratory bottom fishing has adopted very similar approaches to NEAFC. SEAFO has adopted a nearly identical approach in CM 30/15 on Bottom Fishing Activities and Vulnerable Marine Ecosystems in the SEAFO Convention Area.[137] Northwest

[134] ibid art 6(1) and 6(2).
[135] Ibid art 7(2).
[136] Ibid art 7(3) and 7(4).
[137] SEAFO, 'Conservation Measure 30/15 on Bottom Fishing Activities and Vulnerable Marine Ecosystems in the SEAFO Convention Area' (2016) art 6 and 7, available at: <http://www.seafo.org/Documents/Conservation-Measures> accessed 31 August 2017.

Atlantic Fisheries Organisation (NAFO) is another RFMO with a similar approach with only minor substantive and procedural differences.[138] The SPRFMO has also adopted similar approach, which apply "in addition to the requirements in any other measures adopted under Article 22 of the Convention with respect to new and exploratory fisheries".[139] Conservation and management measure for the management of bottom fishing in the SPRFMO is therefore separated from purely exploratory fisheries. Among other regulations the SPRFMO bottom fishing regime uses a Bottom Fishery Impact Assessment Standard, under which, *inter alia*, participant are required to prepare a new bottom fishery impacts assessment if a substantial change in the fishery has occurred that results in a change of the fisheries impact.[140]

Even though the UNGA resolutions and the FAO Guidelines for Deep-Sea Fisheries are non-binding agreements it is clear that they have had an effect on the implementation of exploratory deep-sea fishing regulations in some RFMOs. The regulations has compelled RFMOs and states operating outside RFMOs to prescribe a precautionary approach when starting a new fishery to minimize the risk damage to the targeted fish stock and its environment. Like with the more general regime of new or exploratory fisheries in the Fish Stock Agreement, the regime for exploratory deep-sea fisheries prescribe provisions with the purpose of mitigating the scientific uncertainty by requesting preliminary assessments and applications containing different factors of which a fishery might impact.

3. Assessment: Implications for high seas fisheries

The Fish Stock Agreement and the FAO Code of Conduct provide some general obligations on how to regulate new or exploratory fisheries. The regulations show a clear intention of regulating new or exploratory fisheries to prevent or limit the risk of damage to targeted fish stock and their environment. The obligations in the Fish Stock Agreement and the FAO Code of Conduct provide an explicit regulation of new or exploratory fisheries, but at the same time provide a somewhat ambiguous content. States are obliged to adopt cautious interim measures at an early stage, conduct and impact assessment based on sufficient data and gradually

[138] NAFO, *'Conservation and Enforcement Measures 2017'* (2017) art 18-21, available at: <https://www.nafo.int/Portals/0/PDFs/fc/2017/CEM-2017-web.pdf> accessed 25 August 2017.
[139] SPRFMO, CMM 4.03 art 21.
[140] SPRFMO, '*Bottom Fishery Impact Assessment Standard*' (2012) 5, available at: <https://www.sprfmo.int/assets/Meetings/Meetings-before-2013/Scientific-Working-Group/SWG-06-2008/a-Miscellaneous-Documents/SPRFMO-Bottom-Fishing-Impact-Assessment-Standardagreed-Vanuatu-Fri23Sep2011-1140am.pdf> accessed 25 August 2017.

transition a fishery from new to established without giving any reference to procedures or thresholds.

Further guidance for RFMOs and states can be found in the other obligations in the Fish Stock Agreement and the FAO Code of Conduct regarding, *inter alia*, the application of the precautionary approach and the mechanisms for cooperation through RFMOs. Since the obligations are relevant for all stages of fisheries, they also apply to new or exploratory fisheries. Contrary to the LOSC, the Fish Stock Agreement and FAO Code of Conduct give strict obligations for states to enter into negotiations or a RFMOs as soon as possible when entering a new fishery. In addition to the duty to cooperate there are detailed provision within the application of the precautionary approach to consider the scientific uncertainty by being more cautious as information is uncertain, unreliable or inadequate and using the best scientific evidence available to deal with any risk and uncertainty.

Regarding the regime on deep-sea fisheries and VMEs, the UNGA Resolutions and the FAO Guidelines for Deep-sea Fisheries provide a very detailed regime on what types of data should be included in both setting precautionary interim measures and how to obtain sufficient knowledge for an impact assessment. However, the regulations are less clear on how to gradually develop or transition a new or exploratory fishery into an established fishery. Contrary to the Fish Stock Agreement and the FAO Code of Conduct, the regime for exploratory deep-sea fisheries directly provides that RFMOs are given a unique role in the implementation of the regulations on new or exploratory fisheries.

It is important to remember that the practical significance of new or exploratory fisheries has its limitations. The Fish Stock Agreement is binding upon member states but limited to straddling and highly migratory fish stocks. The FAO Code of Conduct, UNGA resolutions and FAO Guidelines for Deep-sea Fisheries on the other hand also regulate discrete fish stocks but is not binding upon member states. In practice, this has not been a large problem since many post-LOSC RFMOs has implemented the legal obligations from all the mentioned global instruments quite diligently.

A somewhat uniform regulatory framework has been established in practice with extensive regulations on new and exploratory fisheries. The uniformity might be an indication of the global instruments themselves being to a large degree coherent. The different RFMOs used as

examples have some smaller material and procedural differences but mostly the same on the main criteria. They all require a prior application that must include the best available information for the RFMO to grant access to states and adopt suitable conservation and management measures for the intended fishery. The states wanting to participate in the new or exploratory fishery must also implement some form of DCP to gather information continuously so that more informed decisions can be made on, *inter alia*, catch limits and efforts limits. This allows for the gradual development where the level of harvest should be reflected in the amount of scientific data available on a fish stock and its environment. This show that RFMOs has implemented extensive regulations on new or exploratory fisheries to prevent unregulated fisheries on the high seas and taking into consideration the scientific uncertainty, also regarding the non-binding regime for exploratory deep-sea fisheries.

Seen together the mentioned regulations upon new or exploratory fisheries provide a governance regime which intends to facilitate for cooperation and well-informed decision-making from the preliminary stages of a new fishery until it is an established fishery.

Chapter IV – Conclusion

The objective of this thesis has been to examine the legal obligations on states pursuing a new fishery on the high seas. In doing so, the thesis has investigated how the legal requirements take into consideration the scientific uncertainty when starting a new fishery and how the legal obligations prevent states from starting a new fishery without regulations. The author acknowledges that the sources of international fisheries law are complex and interrelated in a way that a complete presentation of all provisions that might impact a new fishery is impossible within the scope of the thesis. Also, the RFMOs discussed are only examples, and other regulations might occur under different RFMOs.

The starting point for a state wanting to enter into a new fishery is still the freedom of fishing on the high seas. Part VII Section 2 of the LOSC provides some general obligations for states to conserve and manage fish stocks, individually or through cooperation, which in practice have fallen short of establishing a legal framework capable of regulating high seas fisheries sustainably. To remedy the failure of the LOSC, the Fish Stock Agreement and the FAO Code of Conduct provides more extensive regulations that obligate states to cooperate in RFMOs for the conservation and management of straddling and highly migratory fish stocks on the high seas. This would, in theory, prevent any new fisheries from starting up without cooperation between states. In practice the obligation to cooperate have resulted in an application process regulating a new fishery before it even starts. The post-LOSC developments have also implemented an integrated approach by requiring states to apply the precautionary approach and take into consideration the effects a fishery will have on the ecosystem a whole. At the core of the integrated approach is the obligation to collect and share scientific data to make informed decisions on conservation and management measures, both before and during a new fishery.

However, difficulties have arisen regarding the gathering of scientific data from new and exploratory fisheries. In an integrated approach it is nearly impossible to secure sufficient data from all the components in an ecosystem. This is even worse within a new or exploratory fishery since fishing on the high seas means challenging circumstances with depths, straddling and highly migrating species and other hostile conditions, such as weather. Nevertheless, the possibility of uncertainties in the impact of a fishing opportunity is an accepted risk within

fisheries management. Even if the precautionary approach can be interpreted to demand full certainty before transitioning a fishery into an established one, this cannot be demanded in practice. Furthermore, a positive side of the development of new and exploratory fisheries is that it has contributed to a legal regime regulating a fishery from the preliminary stages to the eventual lapsed, closed or established fishery.

Looking at the development of international fisheries law in a historical perspective, it has arguably developed away from the principles of freedom to fish on the high seas. From before and during the LOSC fishermen have had free access to fishing on the high seas. Under the LOSC this freedom came with certain restriction, where it is open access unless states have imposed a ban on regulations. Through the adoption of the Fish Stock Agreement and the post-LOSC instruments, the development has gone towards a closure of the high seas, where there is a general ban on exploiting a new fishery. This prohibition stays in place until appropriate conservation and management measures are adapted for a sustainable fishery and on the basis scientific data. Therefore, one might conclude that the freedom of fishing is no longer the dominant interest and instead the protection of the marine environment has become that main consideration in international fisheries law.

BIBLIOGRAPHY

International Conventions

Statue of the International Court of Justice (adopted 26 June 1945, entered into force 23 October 1945) 1 UNTS xvi

United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) 1833 UNTS 397

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 (adopted 4 December 1995, entered into force 11 December 2001) 2167 UNTS 88

Convention and the Conservation and Management of Fishery Resources in the South East Atlantic Ocean (adopted 20 April 2001, entered into force 13 April 2003) 2221 UNTS [registration number 39489]

Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean (adopted 14 November 2009, entered into force 24 August 2012) 2899 UNTS [registration number 50553]

Books

Birnie P, Boyle A and Redgwell C, *International Law & the Environment* (3.edn, Oxford University Press 2009)

Henriksen, T, Hønneland G and Sydnes A, *Law and Politics in Ocean Governance: The UN Fish Stocks Agreement and Regional Fisheries Management Regimes* (Martinus Nijhoff Publishers: Leiden/Boston 2006)

Kaye S M, *International Fisheries Management* (Kluwer International Law 2001)

Rothwell D R and Stephens T, *International Law of the Sea* (2. edn, Hart Publishing: Oxford 2016)

Yoshinobu T, '*Fillings Regulatory Gaps in High Seas Fisheries: Discrete High Seas Fish Stocks, Deep-sea Fisheries and Vulnerable Marine Ecosystems* (Martinus Nijhuff Publishers: Leiden/Boston 2013)

Chapters in Books

Engler-Palma M C, 'Allocation of Fishing Opportunities in Regional Fisheries Management Organizations: From Power to Law?" in Russel D A and VanderZwaag D L (eds), *Recasting Transboundary Fisheries Management Arrangements in Light of Sustainablility Principles*: *Canadian and International Perspectives* (Martinus Nijhoff: Leiden/Boston, 2010)

FAO, 'The Precautionary Approach to Fisheries with Reference to Straddling Fish Stocks and Highly Migratory Fish Stocks' in Levy J P and Schram G G (eds) *United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks: Selected Documents* (Martinus Nijhoff: The Hauge, 1996)

Henriksen T, 'Allocation of Fishing Rights: Principles and Alternative Procedures' in Nordquist M H, Moore J N and Long R (eds), *Challenges of the Changing Arctic Continental Shelf, Navigation and, Fisheries* (Brill Nijhoff: Leiden Boston 2016)

Hey E, 'The Fisheries Provisions of the LOS Convention' in Hey, E (eds), *Development in International Fisheries Law* (Kluwer Law International 1999).

Rayfuse R, 'Regional Fisheries Management Organizations' in Donald R Rothwell and others (eds), *The Oxford Handbook of The Law of the Sea* (Oxford University Press 2015)

Articles

Anderson D H, 'Straddling Stocks Agreement of 1995; An Initial Assessment' (1996) 45 International and Comparative Law Quarterly

Caddell R, 'Precautionary Management and the Development of Future Fishing Opportunities: The International Regulation of New and Exploratory Fisheries' (2017) 32 International Journal of Marine and Coastal Law (forthcoming in issue 3)

Haug T and others, 'Future harvest of living resources in the Arctic Ocean north of the Nordic and Barents Sea: A review of possibilities and constraints' (2017) 188 Fisheries Research, <http://www.sciencedirect.com/science/article/pii/S0165783616304131> accessed 10 July 2017

Wolfrum R, 'Sources of International Law' (2011) Max Planck Encyclopedia of Public International Law, < http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1471?rskey=IVGspq&result=1&prd=EPIL> accessed 25 August 2017

Guidelines and Reports

ACIA, *Arctic Climate Impact Assessment: Scientific Report* (Oxford: Cambridge University Press 2005) <https://www.amap.no/documents/doc/arctic-arctic-climate-impact-assessment/796> accessed 25 August 2017

AMAP, *Snow, Water, Ice and Permafrost Summary for Policy-Makers* (2017) <http://www.amap.no/documents/doc/Snow-Water-Ice-and-Permafrost.-Summary-for-Policy-makers/1532> accessed 11 June 2017

CCAMLR, '*Report of the eighth meeting of the Commission (CCAMLR-VIII)'* (CCAMLR Hobart November 1989) available at: <https://www.ccamlr.org/en/system/files/e-cc-viii.pdf> accessed 28 July 2017

CCAMLR, '*Report of the Eleventh Meeting of the Commission (CCAMLR-XI)'* (CCAMLR Hobart November 1992) available at: <https://www.ccamlr.org/en/system/files/e-cc-xi.pdf> accessed 28 July 2017

CCAMLR, *'Report of the Sixteenth Meeting of the Commission (CCAMLR-XVI)'* (Hobart, November 1997) para 10.3, available at: <https://www.ccamlr.org/en/system/files/e-cc-xvi.pdf> accessed 25 august 2017

CCAMLR, *'Report of the Seventeenth Meeting of the Scientific Committee (SC-CCAMLR-XVIII)'* (Hobart, October 1998) para 5.26, available at: <https://www.ccamlr.org/en/system/files/e-sc-xvii.pdf> accessed 25 August 2017

Declaration Concerning the Prevention of Unregulated High Seas Fishing in the Central Arctic Ocean (Oslo 16. July 2015) Available at: <regjeringen.no/en/aktuelt/fishing-arctic-ocean/id2427705> accessed 5. July 2017

FAO, *Code of Conduct for Responsible Fisheries* (FAO Rome 1995) available at: <http://www.fao.org/3/a-v9878e.pdf> accessed 25 August 2017

FAO, *The Ecosystem Approach to Fisheries: Issues, terminology, principles, institutional foundations, implementation and outlook* (FAO Rome 2003) available at: <http://www.fao.org/3/a-y4773e.pdf> accessed 25 August 2017

FAO, *Model for an ecosystem approach to fisheries* (FAO Rome 2007) available at: <ftp://ftp.fao.org/docrep/fao/010/a1149e/a1149e.pdf> accessed 25 August 2017

FAO, *International Guidelines for the Management of Deep-sea Fisheries in the high seas* (FAO Rome 2009) available at: <ftp://ftp.fao.org/docrep/fao/011/i0816t/i0816t.pdf> accessed 25 August 2017

FAO, *The State of World Fisheries and Aquaculture 2016: Contributing to Food Security and Nutrition for All* (FAO Rome 2016) < http://www.fao.org/3/a-i5555e.pdf> accessed 25 August 2017

SEAFO, *'10th Scientific Committee Meeting Report'* (2014) available at: <http://www.seafo.org/MeetingsDetails?MeetingID=4817d320-b914-4172-a063-c8721eedb9fc> accessed 25 August 2017

UNGA, *Report of the United Nations Conference on Environment and Development*, A/CONF.151/26 (Vol. II) (13 August 1992) available at: http://www.un.org/documents/ga/conf151/aconf15126-2 accessed 25 August 2017

World Bank Group, *The Sunken Billions Revisited: Progress and Challenges in Global Marine Fisheries* (Work Bank, Washington DC 2017)

<https://openknowledge.worldbank.org/bitstream/handle/10986/24056/9781464809194.pdf?sequence=8&isAllowed=y> accessed 25 August 2017

Conservation and Management Measures

CCAMLR, '*Conservation Measure 21-01 (2016): Notification that Members are considering initiating a new fishery'* (2016) available at: <https://www.ccamlr.org/en/measure-21-01-2016> accessed 25 August 2017

CCAMLR, '*Conservation Measure 21-02 (2016): Exploratory fisheries*'(2016) available at: <https://www.ccamlr.org/en/measure-21-02-2016> accessed 25 August 2017

NAFO, *'Conservation and Enforcement Measures 2017'* (2017) available at: <https://www.nafo.int/Portals/0/PDFs/fc/2017/CEM-2017-web.pdf> accessed 25 August 2017

SEAFO, *'Conservation Measure 30/15 on Bottom Fishing Activities and Vulnerable Marine Ecosystems in the SEAFO Convention Area'* (2016) available at: <http://www.seafo.org/Documents/Conservation-Measures> accessed 31 August 2017

SPRFMO, '*Bottom Fishery Impact Assessment Standard'* (2012) available at: <https://www.sprfmo.int/assets/Meetings/Meetings-before-2013/Scientific-Working-Group/SWG-06-2008/a-Miscellaneous-Documents/SPRFMO-Bottom-Fishing-Impact-Assessment-Standardagreed-Vanuatu-Fri23Sep2011-1140am.pdf> accessed 25 August 2017

SPRFMO, *'CMM 4.02 Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data'* (2016) available at: <https://www.sprfmo.int/assets/Fisheries/Conservation-and-Management-Measures/CMM-02-2017-Data-Standards-27Feb17.pdf> accessed 25. August

SPRFMO, *'CMM 4.13: Conservation and Management Measure for the Management of New and Exploratory Fisheries in the SPRFMO Convention Area'* (2016) available at: <https://www.sprfmo.int/assets/Fisheries/Conservation-and-Management-Measures/CMM-4.13-Exploratory-Fisheries-2016-4Mar2016.pdf> accessed 25 August 2017 (SPRFMO, CMM 4.13

Resolutions

UNGA Resolution 59/25 (17 November 2004) UN Doc A/RES/59/25 available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N04/477/70/PDF/N0447770.pdf?OpenElement> accessed 25 August 2017

UNGA Resolution 61/105 (8 December 2006) UN Doc A/Res/61/105 available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N06/500/73/PDF/N0650073.pdf?OpenElement> accessed 25 August 2017

UNGA Resolution 64/72 (4 December 2009) UN Doc A/Res/64/72 available at: <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N09/466/15/PDF/N0946615.pdf?OpenElement> accessed 25 August 2017

UNGA Resolution 66/68 (6 December 2011) UN Doc A/Res/66/68 available at: < https://documents-dds-ny.un.org/doc/UNDOC/GEN/N11/462/90/PDF/N1146290.pdf?OpenElement> accessed 25 August 2017

UNGA Resolution 71/123 (7 December 2016) UN Doc A/RES/71/123 available at: < https://documents-dds-ny.un.org/doc/UNDOC/GEN/N16/430/33/PDF/N1643033.pdf?OpenElement> accessed 25 August 2017