



UiT The Arctic University of Norway

Norwegian College of Fisheries Science

**The Atlantic mackerel (*Scomber scombrus*) conflict in the Northeast Atlantic**

The Icelandic perspective

Kolbrún María Elfarsdóttir

Master's thesis in Fisheries and Aquaculture Science FSK-3960 May 2020

## Acknowledgement

I have learned a lot through my time at the Norwegian College of Fishery Science in Tromsø. Now my student days are over, and I am very grateful for the opportunity to be able to study in Tromsø.

I want to thank my supervisor at the University of Tromsø, Alf Håkon Hoel. Thank you for supervising me with good, supporting and helpful comments when writing this thesis.

I want to thank everyone at the Norwegian College of Fishery Science who I met and taught me in the two years I spent studying here.

Thanks to my friends and family, especially new friends I met in Tromsø while I studied here and my grandfather, Halldór Jónsson.

Thanks to those I got to meet and interview about this case.

At last I want to thank my husband, Ólafur and my son Hafsteinn for supporting me and disturbing me through the writing of this thesis.

*Tromsø, May 2020*

*Kolbrún María Elfarsdóttir*

## Abstract

The Atlantic mackerel (*Scomber scombrus*) has been the centre of attention in an ongoing conflict regarding management and allocation of quota since the distribution of the species changed and expanded to new areas. These changes in distribution have been linked to higher sea temperature, increasing stock size and changes in feeding opportunities. In this thesis a closer look is taken on the international negotiations between the coastal states regarding the mackerel and within the North-East Atlantic Fisheries Commission (NEAFC) with particular emphasis on understanding the position of Iceland. The international legal framework in the UN Convention on the Law of the Sea (UNCLOS) and UN Fish Stock Agreement (UNFSA) provided information on the considerations that need to be taken into account in the negotiations. The Tragedy of the Commons and the Two-level Game theory provided a perspective in the negotiations with special focus on the Icelandic perspective.

The research was looking to answer these three research questions:

- *What is the biological and legal context of the mackerel conflict in the Northeast Atlantic?*
- *What criteria (zonal attachment, historic fishery, economical dependency and etc.) of allocation are discussed in the negotiations or how are they valued within the North-East Atlantic Fisheries Commission (NEAFC) and the coastal state discussions?*
- *What is the Icelandic perspective regarding criteria of allocation, how did it evolve this way and why?*

Documents were collected in order to try to answer the research questions, but interviews were also conducted with respondents from Iceland, to provide a better understanding of the Icelandic perspective.

The main findings of this thesis are that Iceland has strong, influential interest groups that seem to put constraints on the international negotiations. At this time, it also seems more beneficial for Iceland to be outside of the agreement as the entire gains from the fishery falls on Iceland, while the costs, as a reduced stock, is shared among all the coastal states involved in the mackerel fishery.

**Key - words: Atlantic mackerel, legal framework, political science, international negotiations, NEAFC, Iceland.**

# Table of Contents

1	Introduction .....	1
	Theme of the thesis .....	1
	Research questions .....	2
	Concepts .....	3
	Methods.....	4
	Collection of documents.....	5
	Interviews .....	5
	Data analysis.....	7
	Structure of thesis.....	8
2	The Atlantic mackerel and the International Council for the Exploration of the Sea .....	10
	Biology.....	10
	Ecosystem and geography.....	13
	Evolving distribution and abundance.....	15
	The International Council for the Exploration of the Seas (ICES).....	17
	Provision of scientific advice .....	18
	Research and advice on mackerel.....	19
3	Perspectives on fisheries management.....	22
	The international legal framework.....	22
	United Nations Convention on the Law of the Sea (UNCLOS).....	22
	United Nations Fish Stock Agreement (UNFSA) .....	24
	Regional fisheries management organisations (RFMOs).....	27
	The Tragedy of the Commons .....	28
	Two-Level Game Theory.....	30
4	Countries, regional cooperation and conflicts.....	32
	The North-East Atlantic Fisheries Commission (NEAFC).....	33
	Countries involved .....	35
	The Faroe Islands.....	35
	Greenland.....	36
	Norway .....	36
	Russian Federation .....	37

	The European Union (EU).....	37
	Conflicts in fisheries management in the Norwegian Sea .....	38
	Herring.....	38
	Blue whiting .....	39
	International negotiations on mackerel.....	39
5	Iceland .....	44
	Economy .....	44
	The importance of fisheries.....	45
	The fisheries management system .....	45
	Politics and domestic group strength .....	47
6	The Icelandic perspective on the mackerel controversy .....	50
	Media .....	53
7	Results .....	59
	The Atlantic mackerel case .....	59
	International negotiations and negotiations within the North-East Atlantic Fisheries Commission (NEAFC).....	62
	Icelandic perspective.....	63
	Summary .....	68
	References .....	69
	Appendix .....	85
	The interview guide .....	85

## Table of figures

<i>Figure 1. The distribution of mackerel in the Atlantic (FAO Fisheries &amp; Aquaculture, n.d.).</i>	11
<i>Figure 2. Spawning grounds (orange) and distribution range (blue) in 2014 (Havforskningsinstituttet, 2019b).</i>	12
<i>Figure 3. Mackerel traditional feeding area, expansion areas and main surface currents in the Northeast Atlantic (Ólafsdóttir et al., 2019).</i>	14
<i>Figure 4. The Northeast Atlantic (EEZ: Flanders Marine Institute, 2018), distribution of mackerel in 2004 in yellow (Nøttestad, 2015) and distribution in 2014 in red (Havforskningsinstituttet, 2019b).</i>	16
<i>Figure 5. The Northeast Atlantic and surrounding countries (Ospar Commission, n.d.).</i>	32
<i>Figure 6. NEAFC Convention and Regulatory Areas (NEAFC, n.d.-c).</i>	33
<i>Figure 7. ICES advised TAC from 2000-2020 (orange columns) and ICES estimates of catches (blue line) 2000 - 2018 (ICES, 2019b).</i>	42
<i>Figure 8. ICES estimates of catch (ICES, 2019b) and Icelandic catches as a percentage of the estimated catches (Hagstofa Íslands, n.d.).</i>	52

# 1 Introduction

## Theme of the thesis

Renewable natural resources, like fish stocks, are considered a common-pool resource. Because of that, it can be difficult to exclude users to benefit from the resource (Gardner, Ostrom and Walker, 1990) and no individual has exclusive property right over the common-pool resources<sup>1</sup> (FAO, n.d.). The common-pool resources have been presumed to face “the tragedy of the commons”, where the resources are harvested excessively leading to depletion or even extinction (Hannesson, 2004). The solution to “the tragedy of the commons“ is considered to be to regulate common pool resources through governmental authority (FAO, n.d.). In some cases, a fish stock can be found only inside a certain exclusive economic zone (EEZ) of a country and in that case it can be considered a common property for those who are authorized by that state to exploit the fish stock. However, in many cases a fish stock is transboundary and not enclosed within one EEZ and migrates between national boundaries or even to the high seas beyond the EEZs. The Atlantic mackerel (*Scomber scombrus*) is an example of a transboundary fish stock occurring in several countries EEZ as well as in the high seas (Hannesson, 2004).

The Atlantic mackerel (*Scomber scombrus*), a schooling planktivorous fish, (McManus et al., 2017) is one of the most widely distributed migratory species in the North Atlantic (Jansen et al., 2016). It has been the centre of attention in an ongoing conflict regarding management and allocation of quotas since the distribution of the species is changing and expanded to new areas dramatically from the early 2000s (Spijkers and Boonstra, 2017). These changes in distribution, a westward and northward expansion of the summer feeding grounds have been linked to higher sea temperature, increasing stock size and changes in feeding opportunities<sup>2</sup> (ICES, 2018b).

As result, conflicts over the allocation of the quota on the mackerel stock arose between those who had traditionally fished the species, the European Union (EU) and Norway, and those who were new to the fisheries, the Faroe Islands and Iceland (Spijkers and Boonstra, 2017).

---

<sup>1</sup> <http://www.fao.org/3/y3914e/y3914e08.htm>

<sup>2</sup> [https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/NorwegianSea\\_EcosystemOverview.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/NorwegianSea_EcosystemOverview.pdf)

To make things more complicated, Greenland and Russia are catching the mackerel as well<sup>3</sup> (ICES, 2019a).

In 2014 the EU, Norway and Faroe Islands agreed on a long-term management plan which has been extended to 2020<sup>4</sup> (Nærings- og fiskeridepartement, 2019). The Icelandic minister of Fisheries and Agriculture, Kristján Þór Júlíusson, has stated that it is about time that Iceland got their seat at the table in the coastal states discussions of mackerel management, referring to Iceland not being included in the mackerel agreement. Iceland has set its own quota for mackerel taking into account the total allowable catch (TAC) recommended by International Council for the Exploration of the Sea (ICES)<sup>5</sup> (Júlíusson, 2019).

The legal framework for the management of straddling fish stocks like the Atlantic mackerel is in the United Nations Convention on the Law of the Sea (UNCLOS)<sup>6</sup> and United Nations Fish Stocks Agreement (UNFSA)<sup>7</sup>. According to this, states should seek to agree on measures regarding conservation and management of fish stocks and therefore take a part in negotiations, but there is no requirement to agree and nothing can force states to conclude an agreement. The UNFSA framework provides some guidance in how the quota should be allocated (Henriksen and Hoel, 2011). This includes historical catches, zonal attachment, economic dependency and participation in research. How these principles should be applied is not crystal clear and every state is entitled to their own opinion on that (Spijkers and Boonstra, 2017).

## Research questions

In the international negotiations on allocation of mackerel quotas the coastal states and other states involved have not been able to reach an agreement that includes all states. In the long run, reaching an agreement seems to be the most beneficial for all involved in order for the mackerel stock to be sustainable. Each coastal state has their own opinion about what criteria

---

<sup>3</sup>[https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/FisheriesOverviews\\_Norwegian%20Sea\\_2019.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/FisheriesOverviews_Norwegian%20Sea_2019.pdf)

<sup>4</sup> <https://www.regjeringen.no/contentassets/04be0b3e1cc442bbaa0f6e99bc5b0ad8/nn-no/pdfs/stm201820190015000dddpdfs.pdf>

<sup>5</sup> <https://www.euractiv.com/section/agriculture-food/opinion/icelandic-fisheries-minister-its-time-we-got-our-seat-at-the-table/>

<sup>6</sup> Article 63. (UNCLOS, 1982).

<sup>7</sup> Article 2 and etc. (UNFSA, 1995).



for allocation should be valued the most and it seems that certain criteria gets more focus than others.

In the United Nations Fish Stock Agreement<sup>8</sup>, more precisely in *Article 7* there are considerations on criteria that needs to be taken into account, discussed and valued. However, it is up to the coastal states to weigh these considerations in the international negotiations and within the North-East Atlantic Fisheries Commission (NEAFC).

It is interesting to take a closer look at the Icelandic perspective since Iceland has not yet been part of the mackerel agreements with the European Union (EU), Norway and the Faroe Islands. Here, I want to try to understand why Iceland does not join the agreements and the purpose of the thesis is to understand Iceland's perspective on the mackerel dispute.

The three main research questions are:

- (1) What is the biological and legal context of the mackerel conflict in the Northeast Atlantic?
- (2) What criteria (zonal attachment, historic fishery, economical dependency and etc.) of allocation are discussed and how are they valued within the North-East Atlantic Fisheries Commission (NEAFC) and the coastal state discussions?
- (3) What is the Icelandic perspective regarding criteria of allocation, how did it evolve this way and why?

## **Concepts**

*Abundance: The quantity or amount of something present in a particular area, volume or sample.*

*Expansion: When something increases in size, volume, quantity or scope.*

*Distribution: The way in which something, like a fish stock, is spread over an area.*

*Interest group: A group recognized by States as having a legitimate interest in the conservation and management of the resources being managed.*

*Migration: Movement of a fish stock from one place to another.*

---

<sup>8</sup> (UNFSA, 1995).

Fish stock: *The marine living resource in the community or population from which catches are taken in a fishery.*

Species: *A taxonomic group whose members can interbreed.*

Transboundary stocks: *Fish stocks that are within EEZs and in the high seas.*

## **Methods**

This section describes the methods used to obtain and analyse information with the purpose of answering the research questions. I will present how the respondent for interviews were chosen, the documents and information they offered to the research. Lastly, I will assess the quality, reliability and validity of both documents and interviews.

This thesis is a case study with a certain timeframe, which starts in 1999, when Iceland first aspired to become a coastal state regarding the mackerel. There is a focus on a certain unit of study which can be defined by time and space but have limitations in generalization from one case to another. The thesis is multidisciplinary drawing on biology, political science and law.

The research design is qualitative with interviews with few respondents and many variables. The documents I have collected will provide most of the information needed to address the research questions. The interviews were conducted to give more depth into the research problem and contribute to a better understanding of the Icelandic perspective provided by the documents.

The main advantages with qualitative research are the high relevance and flexibility, which can mean that the research question can evolve while the collection of data is ongoing. The main disadvantages with qualitative research are that they are intensive in terms of resources, with few respondents, interviews can take time and so also the gathering of relevant documents. There is a complexity that comes with interpretation of data from interviews. Flexibility can also be a disadvantage when there is new information coming anytime and the work never seems to be finished (Jacobsen, 2015).

## **Collection of documents**

Documents contain mainly secondary data collected by others. They include scientific articles, official documents, reports, media articles, books and etc. Most of the data collected are available for the public. I got some articles from teachers in the school.

When analysing documents, the reliability of the information in the documents is an important factor, since it can give critical information to a specific topic. This is rather intensive but efficient, because it is easy to access lots of information in a simple way (Jacobsen, 2015).

The main downside of documents is that it is difficult to control all the data we find, it can be hard to know how the information was collected, what measures were used, who registered that certain information and lastly we cannot know if we have all the information (Jacobsen, 2015).

The documents I have chosen are mainly scientific articles related to the theme of the thesis, biology, political science and law. The international legal framework presented in UNCLOS and UNFSA were important in understanding the legal aspects. Reports on mackerel, ecosystem and fisheries from ICES were used as well as official document from the Norwegian and the Icelandic government. The main book used (Ásgeirsdóttir, 2008) was about the domestic influence on international negotiations allocating shared resources related to Norway and Iceland and another book was used to get a better understanding of conducting interviews and collection of documents. The website of the main Icelandic newspaper Morgunbladid, Mbl.is played an important role in understanding the Icelandic perspective displayed in the Icelandic media.

## **Interviews**

Interviews are a resource intensive method for collecting information like document analysis and should give more depth with few respondents on a specific topic. The main focus point of this thesis was transferred into the questions which can be found in Appendix.

Semi-structured interviews were used to provide a better understanding of perspectives and give more depth to the questions. An interview guide was used, with structure and follow up

questions. The questions were adapted to give more insight to the knowledge of each and every respondent. Some of the questions had follow up questions if there was a need for a more detailed answer from the respondents.

The interviews were conducted in person, which provided more information in the reactions of the respondents. It was important to have enough time because the different respondents had interesting things to say and in some cases it provided more information.

I had to some extent control over the flow in the conversation, but some respondents were quick to take over the conversation in order to answer the questions. Some answers provided more information on the topic related to the theme of the thesis than what I was looking for and, in some cases, it was beneficial but not always. In some cases, the respondents didn't really distinguish between questions and I didn't always get the answers I was looking for.

The interviews were not recorded because of the complication with applying to the privacy laws both in Norway and Iceland. Notes were taken and each interview took around 1 hour.

In December 2019 interviews requests were sent out to the potential respondents. In some cases, there was a back-up with other possible respondents. In the e-mail sent to potential respondents there were general information about the thesis and topics of the questions. I also stated that there would be no recordings and no names would be revealed in the thesis. It was important to mention that I am trying to understand the Icelandic perspective on the mackerel conflict and negotiations without any judgement.

Most respondents gave quick and positive responses with possible date and time for interview. The interviews were conducted in Reykjavík, Iceland in January 2020 (3<sup>rd</sup> – 7<sup>th</sup> January). I met with each respondent in their office at a certain time. During the interviews I took notes and after each interview I sat down and added to the notes. After the first interview I found it important to review the questions and analyse if some of them could be more accurate in providing better answers for the interviews conducted later. The interviews were carried out in Icelandic.

Respondents were chosen on the basis of their formal positions regarding the topic of the thesis. The first respondent interviewed was from the Ministry of Fisheries and has actively

taken part in the international negotiations. The second respondent was from the Marine and Freshwater Research Institute in Iceland (MFRI) and has participated in research activities regarding the mackerel and also taken part in the international negotiations. The third respondent was from the Ministry of Foreign Affairs and has taken part in the international negotiations. The fourth respondent was a lawyer which has knowledge on the topic of the thesis. The Fisheries Companies Associations (SFS) in Iceland was contacted and an interview was requested but they did not want to provide interview on this topic at this point. This resulted in four interviews.

### **Data analysis**

Documents were chosen according to the relevance they appeared to have to the topic. This can of course affect how the research questions are answered. Jacobsen (2015) listed out what kind of sources should be emphasised with that being, sources with good knowledge on the topic, sources from many unrelated articles, sources which are from a late period in the research process and random comments from respondents.

Documents came from different sources, mainly various scientific articles related to the theme of the thesis, reports from organisations such as ICES, official documents from governments and news from media, mainly Mbl.is.

It was important to consider the whole picture and be critical towards the answers and think of them with an open mind. All respondents had similar effects on the interviewer because the answers provided were similar, like expected, but varied in length and details. Respondents often provided good answers to questions which led to some of the follow-up questions being unnecessary, but not in all cases. Respondents often answered questions differently than I had expected and it was quite hard to get the answers to the questions I was looking for.

It is important to believe that what is being read and concluded from the interview notes is true. The accuracy of the data presented in the thesis relates to the *quality* of the data collected. Since many documents often present similar findings, some of the data can be confirmed regarding accuracy and quality.

By using the methods which are used in this thesis, similar results can be expected even though some points might vary in opinion. This relates to the *reliability* in the methods.

Information obtained from many sources can give a better valid description of a certain case. This relates to the *validity* of the methods. It must be taken into account that when writing about the Icelandic perspective, the variation of sources could be limited in some ways. *Triangulation of methods* like in this essay with both document analysis and interviews can contribute to better validity and even more if the different methods give the same result (Jacobsen, 2015).

Regarding *ethics*, it was important to inform the respondents what the thesis was trying to contribute and that was done both through e-mail when the interview request was sent and when the interviews were conducted.

## **Structure of thesis**

The thesis is divided in to 7 main chapters with subsections.

Chapter 1 presents the background information on the theme of the thesis, the research questions and the methods used to obtain information.

Chapter 2 starts with presenting more detailed background information on the topic of the thesis; the Atlantic mackerel (*Scomber scombrus*), the species biology and the ecosystem it lives in along with the evolving distribution and abundance. The International Council for the Exploration of the Sea (ICES) is presented later on along with background, provision of scientific advice and lastly the research and advice on mackerel.

Chapter 3 starts with presenting the perspective of the evolving legal framework for management of the mackerel. This can be found in the UN Convention on the Law of the Sea (UNCLOS) and the UN Fish Stock Agreement (UNFSA), with the second one focusing on the need for Regional Fisheries Management Organizations (RFMOs). Later in the chapter the three perspectives that are relevant to the topic will be presented: The tragedy of the commons, the free-rider problem and two-level game theory.

Chapter 4 starts with presenting the North-East Atlantic Fisheries Commission (NEAFC). The countries involved in the evolving conflict are presented briefly, other relevant international negotiations on Herring (*Clupea harengus*) and Blue whiting (*Micromesistius poutassou*) and lastly the international negotiations on the mackerel (*Scomber scombrus*).

Chapter 5 presents more detailed information on Iceland, the economy, importance of fisheries, the management system, the political environment and the domestic groups.

Chapter 6 presents the Icelandic perspective, from media and interviews conducted.

Chapter 7 presents the result from findings within the interviews, articles and analysis of other documents along with discussing thesis results and connecting that to the research questions and theory.

## **2 The Atlantic mackerel and the International Council for the Exploration of the Sea**

This section on science presents the Atlantic mackerel (*Scomber scombrus*), the species biology, the ecosystem it lives in and the evolving distribution and abundance of the stock. There will be more detailed descriptions on the geography, surrounding waters and climate change in relations to Iceland. The International Council for the Exploration of the Sea (ICES) is presented with background information, its provision of scientific advice, and the research and advice on mackerel.

### **Biology**

The Atlantic mackerel (*Scomber scombrus*) is a schooling planktivorous fish (McManus et al., 2017). The species is a pelagic fish and lives like that from an egg and young larvae stage. From early on, young juveniles migrate horizontally, then later on the migrate becomes extensive, reaching from spawning, feeding and over-winter grounds (Jansen et al., 2016). It is a temperate species and is most abundant in waters within the temperature range from 8°C to 13°C (Ólafsdóttir et al., 2019; Jansen et al., 2016). The species relies on energy reserves built during the summer feeding as energy source for the over-winter and then the spawning season (Ólafsdóttir et al., 2019).



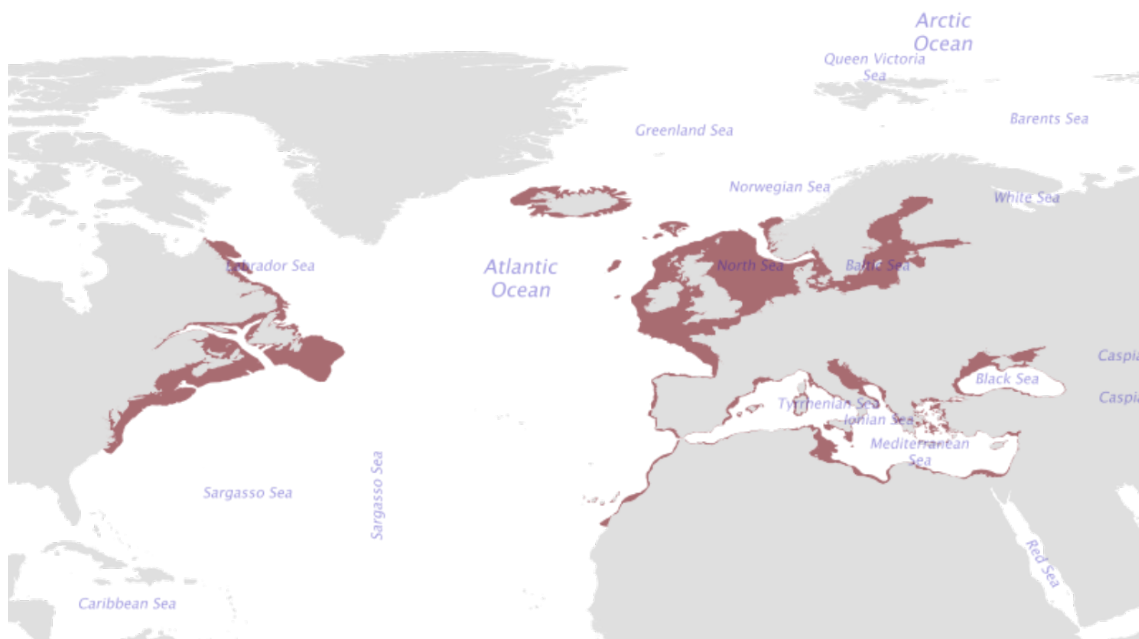


Figure 1. The distribution of mackerel in the Atlantic<sup>9</sup> (FAO Fisheries & Aquaculture, n.d.).

The species is found on both sides of the North Atlantic like *figure 1* above displays. In the west, the species exists from Newfoundland (approx. 53 latitude)<sup>10</sup> to North Carolina (approx. 35 latitude) and in the east from Greenland (approx. 70 latitude and -30 longitude) to the Mediterranean Sea (approx. latitude 35 and 29 longitude) (McManus et al., 2017; Latlong.net, n.d.).

The mackerel becomes mature around 2 to 3 years old and most of the stock in the Northeast Atlantic is less than 12 years old (Ólafsdóttir et al., 2019). It is considered rather long-lived species and can reach the age of 20 years (Berge et al., 2015).

---

<sup>9</sup> <http://www.fao.org/fishery/species/2473/en>

<sup>10</sup> <https://www.latlong.net/>

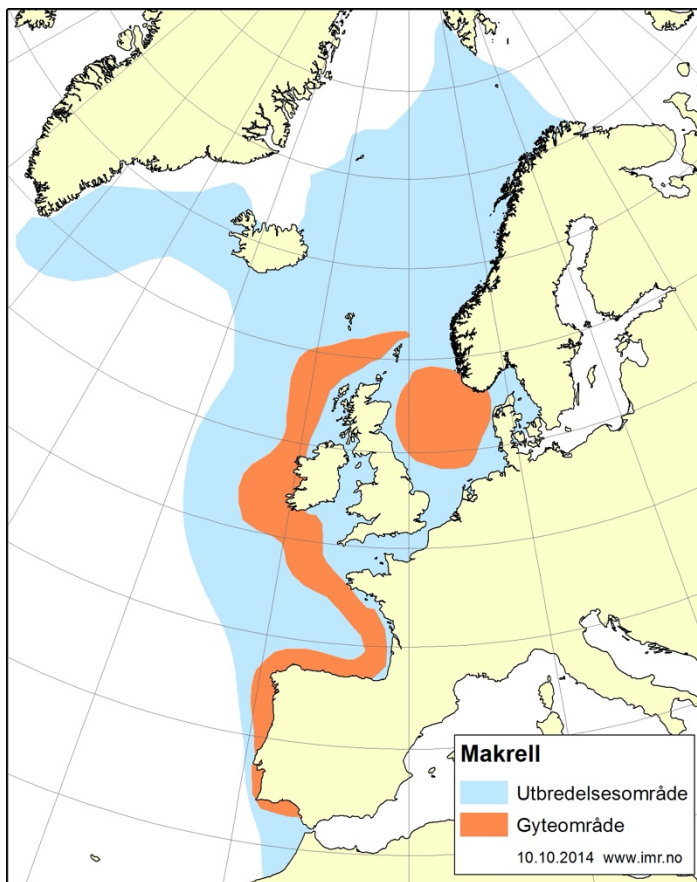


Figure 2. Spawning grounds (orange) and distribution range (blue) in 2014<sup>11</sup> (Havforskningsinstituttet, 2019b).

In this thesis the focus is on the Northeast Atlantic (NEA) stock which is considered to consist of three spawning components; western, southern and North Sea<sup>12</sup> (ICES, 2019b). In January/February the spawning starts in the south and usually ends in the northern areas around July (Jansen et al., 2016). After spawning the mackerel migrates to the Norwegian Sea and the North Sea for summer feeding until August/September (Ástþórsson et al., 2012).

After the summer feeding the mackerel returns to over-wintering grounds in the North Sea, west of the British Isles and Ireland or in the Bay of Biscay. The largest mackerel are the ones that undertake the extensive summer feeding migration (Ibid).

<sup>11</sup> <https://www.hi.no/hi/temasider/arter/makrell>

<sup>12</sup> <http://ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/mac.27.nea.pdf>

## **Ecosystem and geography**

The physics and chemistry of marine ecosystems are considered to have been altered by climate change. These changes in ocean temperature, dissolved oxygen, pH and ocean circulation have transformed available habitat for marine fish. Influences of climate change on the mackerel may have consequences for commercial fisheries, ecosystem functions along with available habitat over every stage of life (McManus et al., 2017).

In the Northeast Atlantic, oceanographic conditions are influenced by currents coming from the north and the south. The cold Polar water from the north flows along the east coast of Greenland and divides into the Greenland Sea and Iceland Sea. The temperate Atlantic water flows northward into the Norwegian Sea, along the continental shelf towards Svalbard and then reaching the shelf area south and west of Iceland (Ólafsdóttir et al., 2019).

Climatic periods over the years have strong impacts in the marine ecosystem. These periods have been identified based on sea temperature and alternate between cold and warm water periods and intermediate condition. The current period is considered to be a warm water period which started in 1996 (Sigurjónsson, 2016).

Conditions in the waters around Iceland are dictated by the North Atlantic current and the East Greenlandic current. The North Atlantic current brings warm Atlantic water to the south and west coasts while the East Greenland current brings cold Polar water along the East Greenlandic coast and to the north and north-eastern coasts, eventually flowing to the southeast. The waters in the north have more variability regarding hydrographic conditions and productivity while there is more stability in the south and west (Ibid).

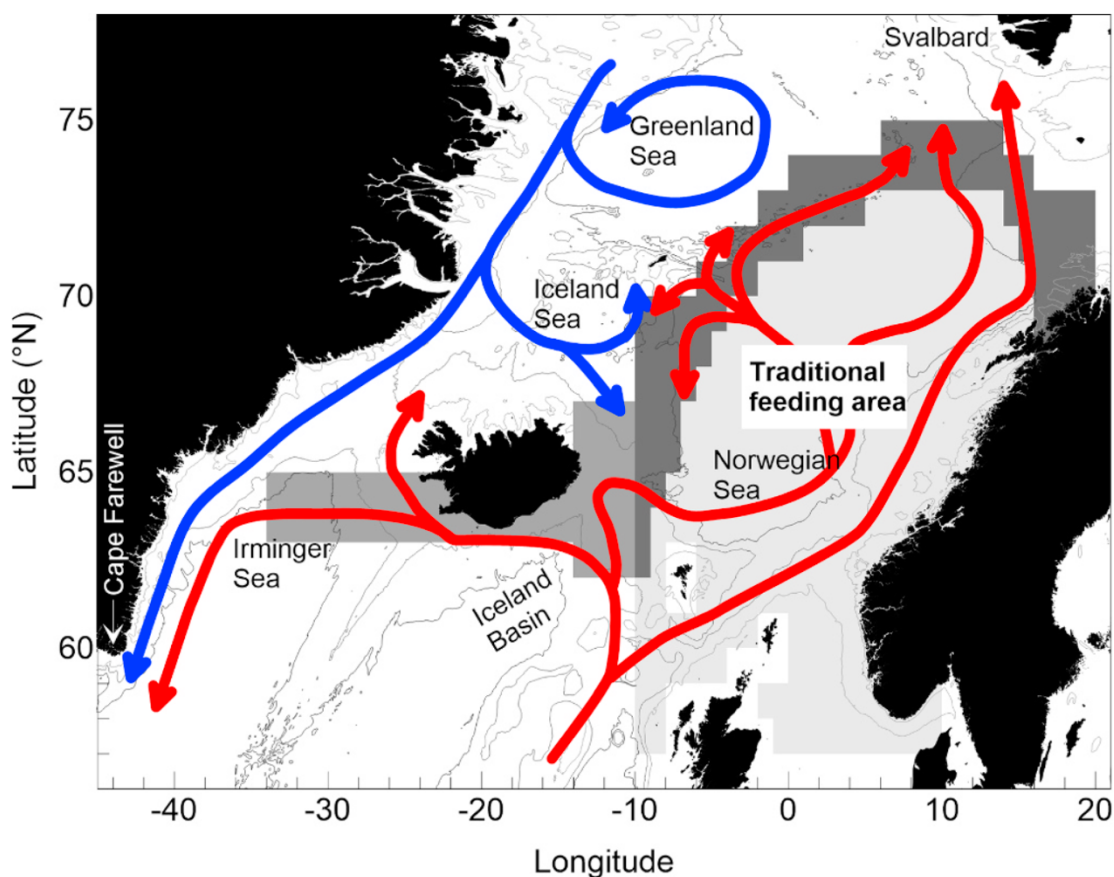


Figure 3. Mackerel traditional feeding area, expansion areas and main surface currents in the Northeast Atlantic (Ólafsdóttir et al., 2019).

Figure 3 displays the traditional mackerel feeding areas from 1970s to 2006, in light grey in the Norwegian Sea. The new expansion areas of the mackerel in darker grey, both northward and westward. The main sea surface currents in the Northeast Atlantic are displayed as well, the cold East Greenland current in blue and the warm Atlantic current in red (Ólafsdóttir et al., 2019).

There are strong seasonal cycles in biological productivity in the Northeast Atlantic, it is high in the spring and summer time but rather low in fall and winter. However, the densities in mesozooplankton have a large temporal variation within the annual summer feeding period (Ibid).

In the marine ecosystems, a higher temperature usually leads to a greater production at different levels. A large-scale climatic process taking place in the northern North Atlantic is

clearly influencing and affecting the marine climate around Iceland (Ástþórsson et al., 2012). Changes in temperature are often corresponding with other large-scale changes in circulation patterns, upwelling of nutrient and production of plankton. This can influence prey availability for pelagic species like the mackerel (Ólafsdóttir et al., 2019).

The mackerel has a functional role in the marine ecosystem both as a major zooplanktivore and as prey for species at higher trophic levels (Jansen et al., 2016).

Even though this change in distribution results in new fishing grounds it might also have other positive effects along with negative ones on the entire ecosystem (Óskarsson et al., 2012).

### **Evolving distribution and abundance**

In Icelandic waters the first record of mackerel is from 1895, with occasional appearances until 1996 and since then it has been caught almost every year. From 2007 the mackerel has been caught in larger numbers in waters around Iceland (Ástþórsson et al., 2012).

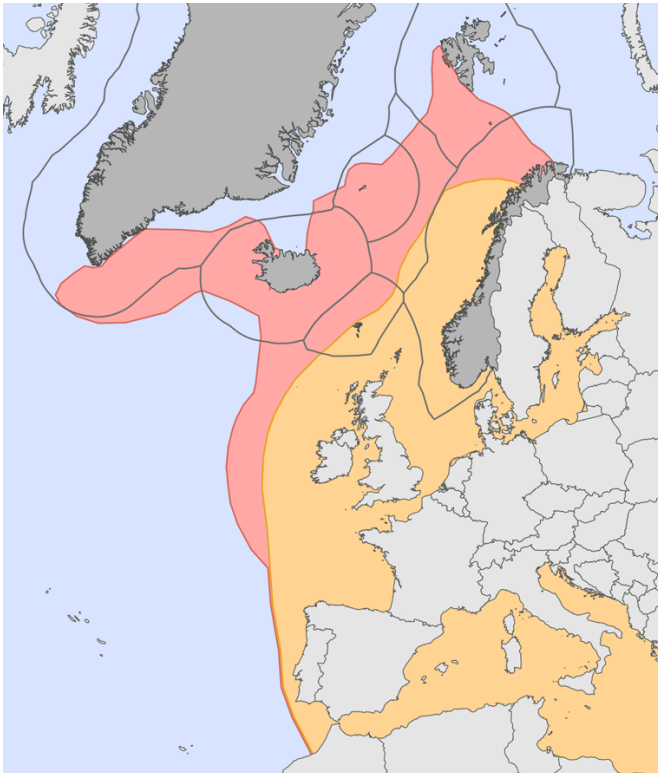


Figure 4. The Northeast Atlantic (EEZ: Flanders Marine Institute, 2018), distribution of mackerel in 2004 in yellow (Nøttestad, 2015) and distribution in 2014 in red (Havforskningsinstituttet, 2019b)<sup>13</sup>.

Before the distribution range changed and expanded in the mid 2000s it was mainly restricted to the Norwegian Sea. The expansion of the distribution of mackerel was both westwards and northwards as the stock grew in size and warmer waters allowed for north- and westwards expansion. The northward expansion reached Svalbard and the westward expansion was along the Icelandic coast and towards Greenland (Ólafsdóttir et al., 2019). This can be seen in *figure 4* here above, the yellow displays the distribution of mackerel in 2004 and the red shows how the distribution has expanded in 2014.

Icelandic fishermen first started noticing the mackerel when catching herring and the by-catch increased from 20 tonnes in 2002 to 1,700 tonnes in 2006 (Ibid).

Temperature in the expanded areas during the great expansion period from 2007 to 2016 were within the range that the mackerel prefers, 9°C to 13°C. Ólafsdóttir et al. (2019) concluded that these areas had high mackerel presence and density. In waters ranging from 5°C to 7°C

---

<sup>13</sup> Cartographer: Benedikt Víðisson.

mackerel was present but with low presence and density and the species seemed to avoid waters colder than 5°C. During the summer feeding in the great expansion period from 2007 to 2016 the geographical expansion was mainly driven by the mackerel stock size and constrained by preferred temperature (Ibid).

A transformation in distribution and abundance of mackerel occurred in Icelandic waters in the summer of 2007. In 2009 and 2010 an even wider distribution was observed, and the mackerel was found almost around the whole country with some limitations. Despite increasing sea surface temperature (SST) since 1996 there were no sudden changes in 2007 that can explain the rapid distribution but other factors such as stock size, age of the stock, feeding conditions, related stock and competition for food are likely to have affected the distribution as well (Ástþórsson et al., 2012). However, the long-term changes in temperatures contributed to the westward expansion (Ólafsdóttir et al., 2019).

In 2010 and 2011, research surveys indicated that the abundance in Icelandic waters were 1,1 million tonnes (uncertainty around these abundance estimates) (Óskarsson et al., 2012). In ICES advice on fishing opportunities, catch and effort in the Northeast Atlantic published in 2019, information from stakeholders provide the information that the abundance of mackerel has increased over the past eleven years and seems to remain at a high level and not be confined to one area or observed by only one fleet (ICES, 2019b).

## **The International Council for the Exploration of the Seas (ICES)**

“The International Council for the Exploration of the Sea (ICES) is an international organization that develops science and advice to support the sustainable use of the seas and oceans”<sup>14</sup>(ICES, 2019e). In 1902 Denmark, Finland, Germany, The Netherlands, Norway, Sweden, Russia and United Kingdom established ICES. More countries joined in over the years. In 1964 ICES received a legal foundation and full international status in an agreed Convention<sup>15</sup> (ICES, n.d.-d). This large network now consists of 5000 experts from 700 institutes and organizations from 20 member countries in the North Atlantic (ICES, 2019e).

---

<sup>14</sup> [https://issuu.com/icesdk/docs/ices\\_strategic\\_plan\\_2019\\_web](https://issuu.com/icesdk/docs/ices_strategic_plan_2019_web)

<sup>15</sup> <https://www.ices.dk/explore-us/who-we-are/Pages/Our-history.aspx>

The main mission for ICES is to develop and share the scientific understanding of the marine ecosystems from the work done in the Atlantic Ocean and especially in the North Atlantic, including the Arctic, the Mediterranean, the Black Sea and the North Pacific. This knowledge is then used to generate advice to government and regional organizations for meeting conservation, management and sustainability goals. ICES aims to be world-leading in marine science organization (Ibid).

ICES is working on a science plan “Marine ecosystem and sustainability science for the 2020s and beyond”, which defines the scientific priorities, objectives and a route to achieve them. The science priorities are ecosystem science, impact of human activities, observation and exploration, emerging techniques and technologies, seafood production, conservation and management science and sea and society. The outcomes of the science plan are for example, marine science with high and beneficial impact on society, engaged and productive scientists from the natural and social sciences and increased visibility of, and access to, our science, data and advice<sup>16</sup> (ICES, 2019d).

The member countries of ICES are Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Russian Federation, Spain, Sweden, United Kingdom, and the United States of America (ICES, 2019e).

### **Provision of scientific advice**

The process of scientific advice provided by ICES is based on the work of many expert groups. Member countries, international commissions and organizations along with fisheries and ecosystem management bodies can request for advice on use and protection of the marine ecosystem<sup>17</sup> (ICES, n.d.-a). Advice on marine management issues related to impacts of human activities and sustainable use of the marine living resources are provided by ICES. The context for advice is set by several international agreements and policies which call out for use of the maximum sustainable yield (MSY), the precautionary and ecosystem approach in

---

<sup>16</sup> [https://issuu.com/icesdk/docs/ices\\_science\\_plan\\_2019\\_web](https://issuu.com/icesdk/docs/ices_science_plan_2019_web)

<sup>17</sup> <https://www.ices.dk/community/groups/Pages/ACOM.aspx>



managing fisheries and the ecosystems. Advices provided by ICES acknowledge policies and legal needs of ICES Member Countries or organizations of those who use the science base to manage fisheries and ecosystems<sup>18</sup> (ICES, 2018a).

The main role of the Advisory Committee (ACOM) of ICES is to respond to requests for advice while ensuring quality, transparency and legitimacy of advice. ACOM works with stakeholders to ensure the advice given is relevant to society and understandable (ICES, n.d.-a).

The Science Committee (SCICOM) has the role of being the main scientific body with overseeing all aspects of scientific work done within ICES<sup>19</sup> (ICES, 2020).

ACOM and SCICOM are responsible for establishing, dissolving and guide all expert groups (Ibid). Within ICES, there are around 150 expert groups that have the role of generating scientific knowledge and conduct analyses to support ICES advice. The expert groups consists of scientist from ICES Member Countries that work together to advance scientific understanding and management of marine systems<sup>20</sup> (ICES, n.d.-b; ICES, 2020).

There are six steering groups that support interactions between committees and expert groups, and they are responsible for guiding and supporting expert groups, help ensure their work is effectively coordinated, conducted and reported (ICES, 2020). One of the steering groups, Fisheries Resources Steering Group (FRSG) is responsible for guiding and supporting expert groups that work on advisory and science which contribute to management of wild-captured fisheries<sup>21</sup> (ICES, n.d.-c).

## **Research and advice on mackerel**

Through the years, Working groups of ICES have been evaluating the Atlantic mackerel (*Scomber scombrus*) stock and proposing advice for those setting the total allowable catch (TAC). Reports about *Advice on fishing opportunities, catch and efforts*, were available

---

<sup>18</sup>[https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/Introduction\\_to\\_advice\\_2018.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/Introduction_to_advice_2018.pdf)

<sup>19</sup> [https://www.ices.dk/explore-us/Documents/Guidelines\\_for\\_ICES\\_Groups.pdf](https://www.ices.dk/explore-us/Documents/Guidelines_for_ICES_Groups.pdf)

<sup>20</sup> <https://www.ices.dk/explore-us/who-we-are/Pages/Expert-Groups.aspx>

<sup>21</sup> <https://www.ices.dk/community/groups/Pages/FRSG.aspx>

online from 1999 and until today, the newest report from 2019, evaluating the stock and proposing TAC for 2020<sup>22</sup> (ICES, 1999-2020).

From 1999 the Southern, Western and North Sea spawning stock components have been considered and defined as the North East Atlantic mackerel. The reason for the division of the three components was to be able to follow the development of the spawning biomasses in the different spawning areas. After spawning, the three components migrate to feeding areas in Norwegian Sea and North Sea making it impossible to define them from one another<sup>23</sup> (ICES, 1999).

Through the 20 years looked at here, the mackerel has been evaluated annually. The first years it was considered to be harvested unsustainably but more recently it has been considered to be harvested sustainably. The overall catches have exceeded the recommended advice presented by ICES throughout the years, with one possible reason, the absence of an international agreement between all state involved in the fisheries (ICES, 1999-2020).

Egg surveys have been conducted once every three-year providing fishery independent data of the stock size. Assessment on the stock in the 2 years following the recent egg surveys is therefore based on catch at age and landing data<sup>24</sup> (ICES, 2002). In some years, after the egg surveys were conducted, the survey gave a different perception compared to the years in between the egg surveys<sup>25</sup> (ICES, 2004), either that the stock was larger than predicted<sup>26</sup> (ICES, 2000) or that there seemed to be a decline in egg production indicating that the stock was lower than had been predicted<sup>27</sup> (ICES, 2001). The final results of the newest egg survey, which was conducted in 2019, will be presented in 2020 by the Working Group on Mackerel and Horse Mackerel Egg Survey (WGMEGS)<sup>28</sup> (ICES, 2019f).

---

<sup>22</sup><http://www.ices.dk/sites/pub/Publication%20Reports/Forms/defaultone.aspx?RootFolder=%2fsites%2fpub%2fPublication%20Reports%2fAdvice&FolderCTID=0x0120005DAF18EB10DAA049BBB066544D790785>

<sup>23</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/1999/mac-nea.pdf>

<sup>24</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2002/oct/mac-nea.pdf>

<sup>25</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2004/oct/mac-nea.pdf>

<sup>26</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2000/Oct/mac-nea.pdf>

<sup>27</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2001/oct/mac-nea.pdf>

<sup>28</sup><http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2019/WGWIDE/01%20WGWIDE%20Report%202019.pdf>

In 2007, ICES performed a benchmark assessment<sup>29</sup> (ICES, 2007), which is a review of the research methods used in evaluating the stock<sup>30</sup> (Nærings- og fiskeridepartementet, 2017). A new triennial egg survey was incorporated in the assessment, with minor revision of catch, which indicated that there was a higher fishing mortality in older fish (ICES, 2007). In 2014 there was again performed a benchmark assessment<sup>31</sup> (ICES, 2014). When the advice for 2014 was published there seemed to be no assessment available as the model basis for the assessment had been rejected, because of the uncertainty in reported catches before 2005<sup>32</sup> (ICES, 2013). In the new assessment, the period with uncertain catches were accounted for as should therefore give more reliable information on the state of the stock (ICES, 2014). The assessment in 2017 was benchmarked but the assessments in general might still be unstable since some data series are rather short but all biological reference point were updated<sup>33</sup> (ICES, 2017). Then in 2019 a inter sessional benchmark assessment was done which led to the advice for 2019 being updated<sup>34</sup> (ICES, 2019c). Advice have been updated by requests like in 2019 (Ibid) or if there are new information available from benchmark assessments (ICES, 2014).

The latest advice on fishing opportunities for 2020 stated that the catches in 2020 should not be more than 922,064 tonnes (ICES, 2019b). It is important that ICES continues to provide advice and evaluate the mackerel stock, which doesn't seem affected by the overall catches exceeding the recommended advice. It will be interesting to see if the newest egg survey, conducted in 2019, will give a different perception of the stock like previous egg surveys have.

---

<sup>29</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2007/oct/mac-nea.pdf>

<sup>30</sup> <https://www.regjeringen.no/contentassets/e810e4b3c0e64701a2d93d2b1ca613b8/nn-no/pdfs/stm201620170028000dddpdfs.pdf>

<sup>31</sup> [http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/2014/mac-nea\\_update\\_2014.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/2014/mac-nea_update_2014.pdf)

<sup>32</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2013/2013/mac-nea.pdf>

<sup>33</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/mac.27.nea.pdf>

<sup>34</sup> [http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/Special\\_Requests/no.2019.09.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/Special_Requests/no.2019.09.pdf)

### **3 Perspectives on fisheries management**

This section starts with presenting the evolving legal framework for management of mackerel. This can be found in the UN Convention on the Law of the Sea (UNCLOS) and the UN Fish Stock Agreement (UNFSA), with the second one focusing among other things on the need for Regional Fisheries Management Organizations (RFMOs).

Later in the chapter the three perspectives that are relevant for the topic are presented: The Tragedy of the Commons, The Free rider problem and the Two-level Game theory. The first two perspectives are the basis for understanding why there is a need for cooperation on management. The Two-level Game theory provides understanding on how the domestic politics in each state affect the international agreements entered.

#### **The international legal framework**

The view on that the oceans were the subject to the freedom of the seas for everyone to navigate or other use changed after the World War II (Hoel and Vanderswaag, 2014). States started to expand their territorial seas and with the expansion gain sovereign rights over resources inside that area expanded (Ásgeirsdóttir, 2008).

The 200 nautical mile (NM) exclusive economic zones has led to increased responsibility for the coastal states, both over their own resources inside their EEZs and straddling and highly migratory stocks (Ibid).

With increasing emphasis on environmental responsibilities when using the natural resources, the legal framework on global scale has corresponded with that (Hoel and Vanderswaag, 2014). There are two major international agreements that the legal framework has its main origin in, the UNCLOS signed in 1982 and UNFSA signed in 1995 (Ásgeirsdóttir, 2008), and both of them will be discussed in the chapter.

#### **United Nations Convention on the Law of the Sea (UNCLOS)**

The third Conference on the Law of the Sea started in 1973 and reaching of an agreement in 1982 and entered into force in 1994 (Ásgeirsdóttir, 2008).

The 1982 Convention is a legally binding instrument which defines the global order of the oceans including recognition of the 200 NM EEZs. It defines the coastal state rights in the EEZ and also jurisdiction over the continental shelf (Hoel and Vanderswaag, 2014). It has an important position in the international law and is generally considered to be applicable to all states (Hoel and Vanderswaag, 2014; (Henriksen and Hoel, 2011). The most important articles related to the thesis topic will be mentioned and discussed.

The recognition of the 200 NM EEZ granted the coastal states the rights to explore, exploit, conserve and manage the natural resources in the water, seabed and subsoil within the EEZs<sup>35</sup>.

There are certain duties that come with the rights of the coastal states, the three most important duties to mention are to conserve and manage, utilize and cooperate on the marine living resources<sup>36</sup>. Scientific methods have to be used to determine a TAC inside the EEZs while take into consideration species that are being restored or could be affected by harvested species. Where that is appropriate, there should be cooperation on this matter through international organizations<sup>37</sup>. There are, however, no thorough guidelines on how allocation of quota should be between coastal states if there is a need for cooperation.

Straddling stocks, which occur within EEZs of two or more coastal states and on the high seas are discussed with emphasis on cooperation between relevant states directly or through regional organizations<sup>38</sup>. Even though there is a need for cooperation there are no guidelines on how it should be done but there is an obligation to seek to cooperate (Henriksen and Hoel, 2011).

Beyond the 200 NM EEZs, all states used to enjoy the freedom of fisheries. The freedom of the high seas has to follow the international laws, the conditions laid down in UNCLOS and other states interests<sup>39</sup>. All states do have the right to fish on the high seas<sup>40</sup> taking into account the same rights and duties laid out for fisheries within the EEZs; conserve and

---

<sup>35</sup> Article 56 and 57. (UNCLOS, 1982).

<sup>36</sup> Article 61, 62 and 63. (UNCLOS 1982).

<sup>37</sup> Article 61. (UNCLOS 1982).

<sup>38</sup> Article 63. (UNCLOS 1982).

<sup>39</sup> Article 87. (UNCLOS 1982).

<sup>40</sup> Article 116. (UNCLOS 1982).

manage, utilize and cooperate on the marine living resources<sup>41</sup>. Added to those measures is the duty of states to adopt the national measures for conservation of the marine living resource to the high seas as well<sup>42</sup>.

The sovereign right of the coastal states to exploit the natural resources there comes with the duty to protect and preserve the marine environment<sup>43</sup>. In order to protect and preserve the marine environment, states are urged to cooperate globally or regionally to elaborate international rules, standards and practices<sup>44</sup>.

The rights, duties and monitoring mechanisms do have an important implication for negotiations that involve distribution of straddling fish stocks since the size of the EEZ is fixed, and the rights and duties are assigned to both coastal states and high-seas fishing states on the high seas (Ásgeirsdóttir, 2008).

The issues of new entrants and allocation of fishing rights along with the vagueness in Articles 63, 64 and 116 are some of the reasons for the negotiation and adoption of the 1995 UNFSA (Henriksen and Hoel, 2011).

### **United Nations Fish Stock Agreement (UNFSA)**

The UN Fish Stock Agreement was signed in 1995 and entered into force in 2001 (Ásgeirsdóttir, 2008). This agreement was established with the main objective to ensure long-term conservation and sustainable use of straddling stocks and highly migratory fish stocks and therefore complementing the UN Convention on the Law of the Sea III (UNCLOS)<sup>45</sup>.

Coastal states and other states fishing on the high seas have to cooperate and the cooperation should ensure long-term sustainability and based on the best scientific evidence. Necessary measures should be adopted, such as taking into consideration the impacts of fishing, species in the same ecosystems and that the fishing efforts do not exceed sustainable use<sup>46</sup>. This

---

<sup>41</sup> Article 118 and 119. (UNCLOS 1982).

<sup>42</sup> Article 117. (UNCLOS 1982).

<sup>43</sup> Article 193. (UNCLOS 1982).

<sup>44</sup> Article 197. (UNCLOS 1982).

<sup>45</sup> Article 2. (UNFSA, 1995).

<sup>46</sup> Article 5. (UNFSA, 1995).

should be done in accordance with the precautionary approach - if information is limited or uncertain decisions have to take that into account<sup>47</sup>.

Regarding the straddling fish stocks, coastal states and other relevant states should seek to agree upon a measure for conservation of relevant stocks on the high seas<sup>48</sup>. Measures adopted by coastal states or through Regional Fisheries Management Organizations (RFMO) concerning the same fish stock should be compatible and indicate the distribution of the fishing activity<sup>49</sup>.

When determining compatible conservation and management measures, states have to take into account measures established for EEZs in accordance with Article 61<sup>50</sup>, previously agreed measures on the high seas and other measures applied by RFMOs<sup>51</sup>. These measures should not be harmful for the marine living resources<sup>52</sup>.

Other considerations in Article 7 may assist in determine the allocation of fishing between coastal states and high-seas fishing states. States have to take into account the biological unity or other characteristics of the stock, relating to the geographical distribution of the stock called zonal attachment, the fisheries and geography in the concerning region which includes where the stock occurs on the high seas and within EEZs<sup>53</sup>. This consideration shows to some extent how the stock should be allocated between relevant states and should therefore reflect the setting of TAC within EEZs and the high seas but there are no instructions on how to.

The consideration about respective dependence of the coastal states and high-seas fishing states<sup>54</sup> may have implications for allocation. This is also relevant when allocating participatory rights between fishing states for the stock on the high seas. The consideration does not specify what kind of dependency is relevant, but it could be suggested that societal

---

<sup>47</sup> Article 6. (UNFSA, 1995).

<sup>48</sup> Article 7(1a). (UNFSA, 1995).

<sup>49</sup> Article 7(2). (UNFSA, 1995).

<sup>50</sup> Article 61. (UNCLOS, 1982).

<sup>51</sup> Article 7(2a-c). (UNFSA, 1995).

<sup>52</sup> Article 7(2f). (UNFSA, 1995).

<sup>53</sup> Article 7(2d). (UNFSA, 1995).

<sup>54</sup> Article 7(2e). (UNFSA, 1995).

and economic significance have to be taken into account. These are not very instructive, and states are left to define them precisely and weigh them in international negotiations.

Coastal states and high-seas fishing states are directed to cooperate directly or through Regional Fisheries Management Organizations (RFMOs). If states want to access a fishery regulated by an RFMO or a regional arrangement, they are required to become a member of the relevant RFMO or apply the conservation measures adopted by that RFMO. RFMOs can give participatory rights for the states, fisheries and areas subject to its jurisdiction and this involves both states that are members of the RFMO and not<sup>55</sup>.

The regulations of access of new member states to an RFMO or new entrants into a regulated fishery does not have a particular priority (Henriksen and Hoel, 2011). The different consideration in Article 11 can be inconsistent. States have to take into account the status of the stock, the level of fishing effort, the respective interest, fishing patterns and practices, contribution to conserve, manage and research, the needs of coastal fishing communities which are mainly dependent on the stock, economic dependency of coastal states and the interest of states where the stock occurs<sup>56</sup>.

It is suggested that if a stock is depleted or overfished there seems to be no room for new entrants but this goes against the “freedom of fishing” on the high seas, which doesn’t really exist anymore because of the states obligation to follow the same rights and duties laid out within the EEZs, this can be hard to resolve<sup>57</sup>.

Considerations on fishing patterns and practices or historical catches, suggests that states that have been fishing over a period of time should be favoured when allocating fish quotas to states. This is hard to assess since there is no required time period stated<sup>58</sup>. Contribution to conserve, manage and research should be fulfilled by states on relevant stock by presenting catch statistics and contribute to scientific research<sup>59</sup>. The dependency of coastal

---

<sup>55</sup> Article 8. (UNFSA, 1995).

<sup>56</sup> Article 11. (UNFSA, 1995).

<sup>57</sup> Article 11(a). (UNFSA, 1995).

<sup>58</sup> Article 11(b). (UNFSA, 1995).

<sup>59</sup> Article 11(c). (UNFSA, 1995).



communities<sup>60</sup> and coastal states<sup>61</sup> should be respected but general dependency is not enough. In some cases, it is hard to identify the dependency of certain communities as well as of certain coastal states. It should also be taken into account the interest of states where the stock occurs<sup>62</sup>.

Despite the fact that UN Fish Stock Agreement was a significant development of the fisheries regime of the UN Convention on the Law of the Sea, both with considerations which were important for states to use inside the EEZs and on the high seas. Many of the considerations are unclear and it is up to each and every state to interpret and weigh considerations such as historical fishery, zonal attachment and economical dependency and how they should be used in determining allocation of quota. This varies between states and affects cooperation both in international negotiations and within RFMOs.

### **Regional fisheries management organisations (RFMOs)**

Before and after UNCLOS was signed a number of regional and sub regional organizations were created but after the UNFSA was signed there seemed to be an increasing role for these RFMOs like was indicated in the agreement (Ásgeirsdóttir, 2008).

It has been considered a positive evolution “the growing number of RFMOs that have legal competence to adopt binding conservation and management measures for the high seas”, which is one of the conditions RFMOs need to fulfil with the second one being “the area to which this legal competence applies includes a part of the high seas” (Ásmundsson, 2016).

RFMOs have exclusive competence to regulate the access and the exercise of fishing activities which are related to straddling fish stocks and highly migratory fish stocks on the high seas (Henriksen and Hoel, 2011).

---

<sup>60</sup> Article 11(d). (UNFSA, 1995).

<sup>61</sup> Article 11(e). (UNFSA, 1995).

<sup>62</sup> Article 11(f). (UNFSA, 1995).

In UNFSA states are encouraged to cooperate through RFMOs on conservation measures, on allocation of participatory rights, on the obtaining scientific advice and the establishment of control, surveillance and enforcement (Ibid).

There are considered to be three different types of RFMOs; general RFMOs, tuna RFMOs and specialized RFMOs. The two that will be presented here are general RFMOs such as the North-East Atlantic Fisheries Commission (NEAFC) and specialized RFMO such as the International Council for the Exploration of the Sea (ICES) (Ásmundsson, 2016; Hoel, 2019)<sup>63</sup>. General RFMOs manage many different types of fishing and adopt measures for most of the fisheries in their area. The RFMO can affect the different types of fishing gear used to target these different stocks and species. The stocks straddle the high seas and EEZs while others are limited to the high seas. Specialized RFMOs address specific functions like science (Ásmundsson, 2016; Hoel, 2019).

Even though the performance of RFMOs have been debated it still contributes to a better understanding of the need for sustainable management of resources and understanding of the challenges faced by different states. With more focus on the marine environment and general oceans governance this regional cooperation could become very important in the next years (Hoel, 2019).

## **The Tragedy of the Commons**

The situation Hardin (1968) describes in his article is helpful in order to understand the tragedy of the commons, including how that plays out in the oceans. In this situation, there is a pasture open to all herdsmen and each and every rational herdsman wants to keep as many cattle as possible on the common pasture. The herdsmen want to gain as much profit as they can from the cattle they have. The herdsman concludes that it would provide most profit to add one more cattle to his herd and so do other herdsman that use this pasture.

---

<sup>63</sup> <https://framsenteret.no/2019/02/the-growing-importance-of-regional-oceans-cooperation/>

Each herdsman that increases his herd gets the entire benefit of it while the loss of reduced sustainability of the pasture is shared with other herdsmen. When everyone does what is rational it brings a negative collective outcome and tragedy of the commons (Hardin, 1968).

The perspective of the tragedy of the commons can be transferred to other natural resources such as fisheries. A fishing area is occupied by a certain fish stock. One rational fisherman starts to fish on that stock within that area and profits from that and as more rational fisherman start to fish on the stock and fishing effort increases. As it increases and the stock is not able to renew its population, overfishing is inevitable, and this has been the case for many stocks around the world.

Fisheries management has been defined by FAO as a “*process of information gathering, analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation*”<sup>64</sup>(Cochrane, 2002).

Fisheries management goals should focus on sustainability in the biological, ecological, economic and social pillars. This includes ensuring fish stocks productivity, minimize the impacts of fisheries on the environment or other species, maximize the incomes of fishers for example and provide employment for those who depend on fisheries (Ibid).

Free riders are those who benefit from the conservation measures of countries that cooperate on management. They do not engage in cooperative agreements. This issue can be present in fisheries that involve catches from the high seas along with catches from EEZs (Bailey et al., 2013).

The free-rider problem has been connected to situations such as presented in the tragedy of the commons and fisheries. The concept in general is the same but there is someone enjoying the benefits from goods which they did not pay for.

---

<sup>64</sup> <http://www.fao.org/3/y3427e/y3427e03.htm>

## **Two-Level Game Theory**

The two-level game theory by Putnam (1988) presents a perspective on how we can gain better understanding of how domestic interest groups influence international negotiations such as on the Atlantic mackerel between the states in the Northeast Atlantic. With special interest in Iceland and the power of the domestic interest groups this perspective is relevant.

International negotiations can be thought of as two-level games. Domestic groups try to pursue their interest by pressuring governments to adopt policies favourable to them. Politicians may try to form an alliance with the interest groups to gain more power at the national level. At an international level, governments try to satisfy the domestic pressure but trying to minimize the adverse consequences of foreign developments (Putnam, 1988).

The process is at work in two levels. Level I is where negotiators bargain leading to a tentative agreement and Level II is where the separate discussions within each group are about ratifying the agreement. The link between the two levels are the requirement that any Level I agreement must be ratified at Level II (Ibid).

Outline of Level II win-sets are very important to understand the Level I agreements. If there is a larger win-set the Level I agreements are more likely because it is more likely to overlap with components win-sets. If there is a small win-set, it is likely that negotiations will break down. In international agreements, the distribution of joint gains will be affected by the relative size of the Level II win-sets (Ibid).

In the international negotiations regarding mackerel, Iceland seems to have a small win-set which doesn't overlap with the win-sets of the other states. The win-sets of the EU, Norway and Faroe Islands overlapped which led to an agreement. Iceland has set unilateral quota since they first started catching the mackerel and have increased it as well, so their win-sets continue to be small and far away from the other states (Hotvedt, 2010).

A win-set is affected by three factors. First, it depends on the distribution of power, preferences and conditions among Level II constituents. Secondly, it depends on the Level II political institutions and thirdly it depends on strategies of negotiators at Level I (Putnam, 1988).

In Iceland the domestic interest groups are the key constraints on the government in the international negotiation process even before they start. Throughout the domestic policy process the government negotiates with relevant interest groups. Over time the ability of these groups to constrain Icelandic policy and international negotiation positions changes, but they have remained very strong over the years. Policy decision over the years have been in accordance with the preferences of the interest groups which shows the power they have (Ásgeirsdóttir, 2008).

In this thesis, these different perspectives will be used to provide different perspectives on the way the theme will be seen and possibly providing new light on things already written.

The tragedy of the commons and the free-rider problem both present similar logic and first of all they underline the need for management. This is a problem regarding the mackerel as it not managed by all of the countries involved in the fishery. Only three countries are a part of the management agreement and the others might be considered free riders as they benefit from the mackerel being managed in some ways but don't contribute to its management.

The two-level game theory is useful in understanding how domestic politics affect international negotiations and how and why states act the way they do. Since the Icelandic perspective has a special focus it is interesting to look into the domestic politics which has really strong actors with great power.

## 4 Countries, regional cooperation and conflicts

This section presents regional cooperation in the North-East Atlantic Fisheries Commission (NEAFC) and the countries involved in the mackerel conflict. Iceland is presented in chapter 5. Other relevant international negotiations on Herring (*Clupea harengus*) and Blue whiting (*Micromesistius poutassou*) will be presented briefly. Lastly, international negotiation on the Atlantic mackerel (*Scomber scombrus*) will be discussed. It has been the centre of attention in an ongoing conflict regarding management and allocation of quota as the distribution changed and expanded. Conflicts arose between those who had traditionally fished the stock, the EU and Norway and those who were new to the fisheries, the Faroe Islands and Iceland.

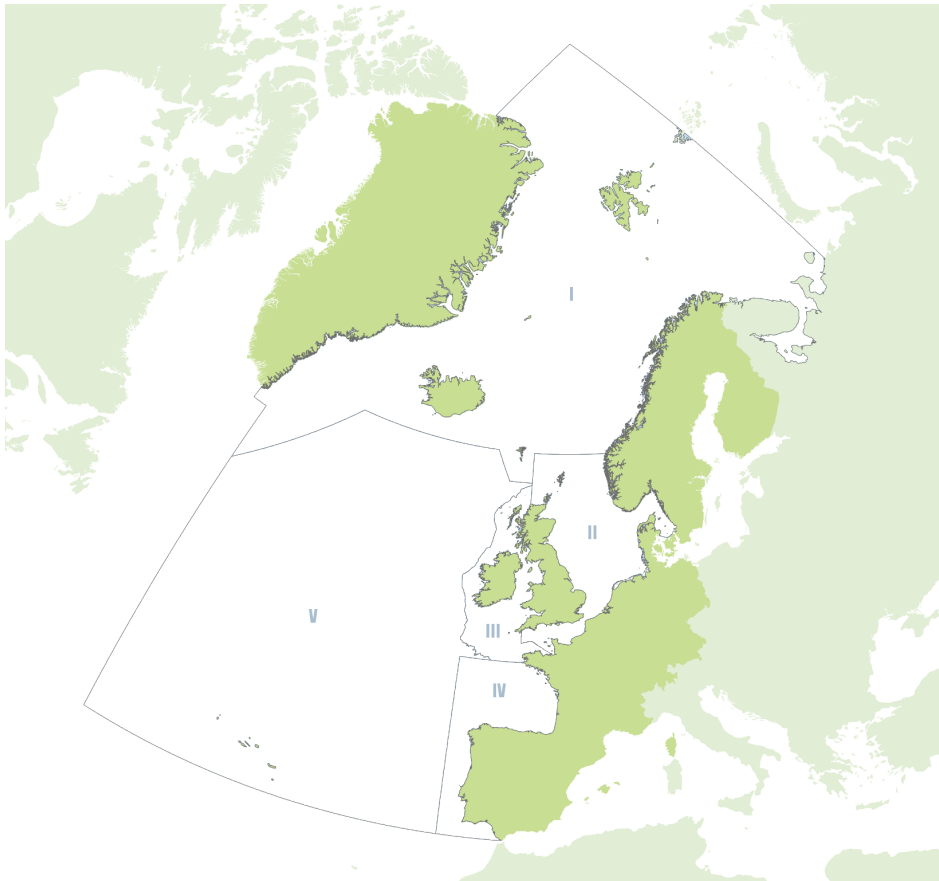


Figure 5. The Northeast Atlantic and surrounding countries<sup>65</sup> (Ospar Commission, n.d.).

---

<sup>65</sup> <https://www.ospar.org/convention/the-north-east-atlantic>

## The North-East Atlantic Fisheries Commission (NEAFC)

The North-East Atlantic Fisheries Commission was established in 1963 (Ásgeirsdóttir, 2008) and was renegotiated in 1982<sup>66</sup> (NEAFC, n.d.-e). The area under the NEAFC Convention is from the southern tip of Greenland, east to the Barents Sea and south to Portugal<sup>67</sup> (NEAFC, n.d.-a). The contracting parties are the European Union (EU), Denmark (on behalf of Greenland and Faroe Islands), Iceland, Norway and the Russian Federation (Bjørndal, 2009).

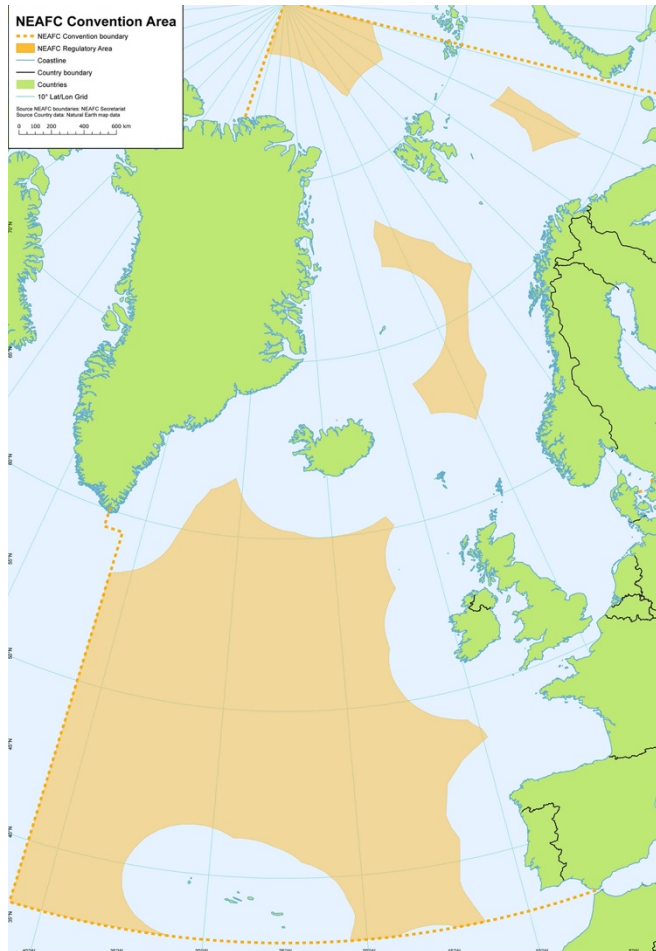


Figure 6. NEAFC Convention and Regulatory Areas (NEAFC, n.d.-c).

Figure 7 shows the NEAFC Convention Area. The orange dotted outline shows the NEAFC Convention boundary and the four orange areas are the NEAFC Regulatory Areas in the high seas and where NEAFC plays a regulatory role<sup>68</sup> (NEAFC, n.d.-c).

---

<sup>66</sup> <https://www.neafc.org/page/18>

<sup>67</sup> <https://www.neafc.org/about>

<sup>68</sup> <https://www.neafc.org/page/27>

The first years after establishment the mandate was mainly regarding high-seas fishing through area closures and mesh size and the effectiveness therefore questionable along with lacking powers to enforce agreements (Ásgeirsdóttir, 2008). The Convention on Multilateral Cooperation in North-East Atlantic Fisheries entered into force in 1982 (NEAFC, n.d.-e) with change of focus which encouraged to a regional approach to conserve and utilize fishery resources and to international cooperation and consultation (Ásgeirsdóttir, 2008).

NEAFC 's main objective is “to ensure the long-term conservation and optimum utilisation of the fishery resource in the Convention Area, providing sustainable economic, environmental and social benefits”. Management measures for various fish stocks and control measures are adopted by NEAFC along measures that protect the marine ecosystem from possible negative impacts of fisheries (NEAFC, n.d.-a).

NEAFC consists of three committees and currently three working groups. The committees have different roles like their names represent; Permanent Committee on Monitoring and Compliance (PECMAC), Permanent Committee on Management and Science (PECMAS) and Finance and Administration Committee (FAC). The Working groups have representatives from the Contracting Parties and information concerning specific issues and areas are discussed in detail and then presented to the Commission as a whole. These working groups are formed at the request of the Commission and work as long as it is considered useful<sup>69</sup> (NEAFC, n.d.-b).

NEAFC covers all fishery resources except highly migratory species that are covered by other international agreements and anadromous stocks in the NEAFC regulatory area<sup>70</sup> (NEAFC, 1982). The main fisheries in the regulatory area are herring, mackerel, blue whiting and pelagic redfish (Bjørndal, 2009).

In advance of NEAFC meetings, the coastal states would enter into agreements on quotas for straddling fish stocks and allocate quotas for them, including a portion to be managed by NEAFC. NEAFC is restricted by the coastal states agreements and if there are no agreement

---

<sup>69</sup> <https://www.neafc.org/neafc-subsidiary-bodies>

<sup>70</sup> Article 1(b). (CFMCNEAFC, 1980).



between relevant coastal states there is no quota for NEAFC to establish or allocate catches in its area (Henriksen and Hoel, 2011).

The authority of NEAFC to distribute fishing opportunities depends on several factors. The decision-making procedure is the most important and the recommendations are adopted by majority. Contracting parties can still object the recommendation and not be bound to it (Ibid).

## **Countries involved**

This section presents a brief introduction of the countries involved in the mackerel conflict, the importance of fisheries for each country and mentioning of the most important stocks.

### **The Faroe Islands**

The Faroe Islands are 18 mountainous islands, located in the Northeast Atlantic between Scotland and Iceland. The Faroe Islands are a self-governing nation under the external sovereignty of the Kingdom of Denmark but have chosen to remain outside the European Union despite Denmark being a member state of the EU. Therefore, the Faroe Islands participate in various international fisheries management arrangements and organizations and negotiate their trade and fisheries agreements with other countries<sup>71</sup> (Faroese Seafood, n.d.).

Since the late 19<sup>th</sup> century, fisheries have been the main source of income for the Faroe Islands<sup>72</sup> (The official gateway to the Faroe Islands, n.d.). Still to this day the economy is mainly based on fisheries and aquaculture (Faroese Seafood, n.d.) as fish and fish product including farmed fish represent between 90 and 95 percentage of total export value. The pelagic species, herring, blue whiting and mackerel are among the most important fish species for the Faroese fleet along with cod, haddock and saithe (The official gateway to the Faroe Islands, n.d.).

---

<sup>71</sup> <https://www.faroese seafood.com/the-faroe-islands/the-faroe-islands/>

<sup>72</sup> <https://www.faroeislands.fo/economy-business/fisheries/>

## Greenland

Greenland is the world's largest island located on the northern American continent between the North Atlantic Ocean and Arctic Ocean<sup>73</sup> (Government of Greenland, n.d.). Greenland is a self-governing region under the Kingdom of Denmark like the Faroe Islands. Denmark became a member of the EU in 1973 along with Greenland but in 1985, Greenland left the union<sup>74</sup> (Statistics Greenland, 2018).

The most important trade in Greenland is fishing (Statistics Greenland, 2018). The most important species are shrimp, halibut and cod which contribute greatly to the Greenlandic economy, but the entire fishing industry is responsible for more than 85% of exports along with helping reduce the dependence on imported foods<sup>75</sup> (Climate Greenland, n.d.).

Greenland started to catch Atlantic mackerel in 2011 after the distribution changed and at a certain time the capture was the second largest in Greenland<sup>76</sup> (FAO Greenland, n.d.).

## Norway

Norway is a country in northern Europe with the Barents Sea to the northeast, the Norwegian Sea in northwest, the North Sea to the west and southwest and Skagerrak to the southeast<sup>77</sup> (Thuesen, Thorsnæs and Røvik, 2020). Norway is a leading nation in production from marine fisheries and aquaculture<sup>78</sup> (FAO Norway, 2013). Around 80% of Norwegian fisheries takes place on fish stocks shared with others<sup>79</sup> (Hallenstvedt and Dørum, 2020).

Fish and fish products are the third most important export industry after oil/gas and metals (Ibid). In 2019 the total export of fish and fish products was around 11,5%<sup>80</sup> (Statistics Norway, 2020). The fisheries sector is the basis for both settlement and employment along the Norwegian coast. It also plays one of the main roles in social and economics both nationally

---

<sup>73</sup> <https://naalakkersuisut.gl/en/About-government-of-greenland/About-Greenland/Facts-about-Greenland>

<sup>74</sup> <https://naalakkersuisut.gl/~media/Nanoq/Files/Publications/Udenrigs/Greenland%20in%20Figures%202018.pdf>

<sup>75</sup> <http://climategreenland.gl/en/weather-climate-and-the-atmosphere/fisheries/>

<sup>76</sup> <http://www.fao.org/fishery/facp/GRL/en>

<sup>77</sup> <https://snl.no/Norge>

<sup>78</sup> <http://www.fao.org/fishery/facp/NOR/en>

<sup>79</sup> [https://snl.no/Norsk\\_fiskerihistorie](https://snl.no/Norsk_fiskerihistorie)

<sup>80</sup> <https://www.ssb.no/utenriksokonomi/statistikker/muh/aar>

and regionally. Species like herring, cod, mackerel, saithe, blue whiting and haddock are the ones that are mainly captured (FAO Norway, 2013).

### **Russian Federation**

Russia is the largest country in the world. The territory extends from the Baltic to the Pacific and from the Arctic Ocean to the Black Sea. In Russia there are four fishing regions; The Far East region; the Northern region of the Russian Federation; the Western Russian Federation including the Baltic Coast and the Southern Russian region<sup>81</sup> (Tribiloustova and Globefish, 2005).

The Northern region of the Russian Federation is the second most important region for the fishing industry in Russia, with production of 20% of the total national catch mainly coming from the Northeast Atlantic Ocean. The main species in this area are herring, redfish, salmon, cod, haddock, capelin, blue whiting, arctic cod, flatfish and mackerel. The species of the mackerel family as well as herring, Blue whiting and capelin mostly come from operation in international waters and foreign zones. Russia has just limited resources of these species (Ibid).

### **The European Union (EU)**

The European Union (EU) is a political and economic union between 27 countries. The member countries are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden<sup>82</sup> (European Union, n.d.).

The conservation and management of marine fish stocks is vested in the European Community under the Common Fisheries Policy (CFP). The European Commission (EC) consists of college designated by governments of the member states and represents the EU in negotiations (OECD, 2003).

---

<sup>81</sup> <http://www.fao.org/3/a-bb227e.pdf>

<sup>82</sup> [https://europa.eu/european-union/about-eu/eu-in-brief\\_en](https://europa.eu/european-union/about-eu/eu-in-brief_en)

In several EU regions, fisheries are crucial for employment and economic activity. Even though the EU fleet operates worldwide most catches are taken in the North East Atlantic. The most important species are the pelagic fish, Atlantic herring, Atlantic mackerel and European sprat and they account for more than third of EU catches. The Atlantic mackerel is the second most caught species and the countries which catch mackerel are Denmark, Germany, Ireland, France, Latvia, Netherlands, Portugal and United Kingdom<sup>83</sup> (European Commission, 2018). However, on 31 January 2020 the United Kingdom left the European Union (European Union, n.d.).

## **Conflicts in fisheries management in the Norwegian Sea**

Conflicts in management and allocation of quota are not only on the Atlantic mackerel, as countries involved have had conflicts over herring and blue whiting as well.

### **Herring**

Herring (*Clupea harengus*) is distributed throughout large parts of the Norwegian Sea and the Barents Sea. Annually, the EU, Norway, Faroe Islands, Iceland and Russia agree on a total allowable catch and its allocation to individual countries (Nakken, 2008).

In the late 1960s the Atlantic-Scandio herring stock collapsed, at that point the stock was mainly found in Norwegian waters and limited in Russian waters. In 1994, the herring was found in the international waters between the Norwegian, Iceland and Faroese EEZs and the fishery zone around Jan Mayen, the Banana Hole. This led to the surrounding nations entering the fishery and forced the participants to seek an agreement on allocation (Ásgeirsdóttir, 2008).

International negotiations started in 1995 (Ibid) and through the years there have been agreements and disagreements over the management and allocation of quota (Bjørndal and Ekerhovd, 2014).

---

<sup>83</sup> [https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/pcp\\_en.pdf](https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/pcp_en.pdf)

## **Blue whiting**

Blue whiting (*Micromesistius poutassou*) occurs within Norwegian, Icelandic, Russian and a few EU countries EEZs and in international waters<sup>84</sup> (Havforskningsinstituttet, 2019a). In the end of the 1970s a multination fishery on blue whiting started, mainly by the former Soviet Union and Norway. Since 1994 the fishery has been regulated by TAC (Bjørndal and Ekerhovd, 2014).

The agreement signed in 2005 on management of the stock took a long time and one of the reasons for the reaching of an agreement was the pressure from the national fishers' organizations (Ibid). From 2013, there have been some disagreements on how to distribute the total quota. This led the coastal states to fish more than recommended by ICES (Havforskningsinstituttet, 2019a).

The EU, Faroe Islands, Norway, Iceland, Greenland and the Russian Federation agreed on a management measures for mackerel, blue whiting and Atlantic-Scandio herring for 2020. The TAC for the stocks are set at the recommended scientific advice<sup>85</sup> (European Commission, 2019a).

## **International negotiations on mackerel**

In the end of September or the start of October, ICES publishes advice on fishing opportunities, catch and efforts for the mackerel in the Northeast Atlantic and adjacent waters after the summer expedition (ICES, 2019b). Later in October, a coastal states meeting is held and an agreement on management measures is made (European Commission, 2019a). In November the annual NEAFC meeting is held<sup>86</sup> (NEAFC, n.d.-d) where the member states meet, discuss and agree on conservation and management measures<sup>87</sup> (European Commission, 2019b).

---

<sup>84</sup> <https://www.hi.no/hi/temasider/arter/kolmule>

<sup>85</sup> [https://ec.europa.eu/fisheries/press/north-east-atlantic-coastal-states-reach-agreement-mackerel-blue-whiting-and-atlanto-scandian\\_en](https://ec.europa.eu/fisheries/press/north-east-atlantic-coastal-states-reach-agreement-mackerel-blue-whiting-and-atlanto-scandian_en)

<sup>86</sup> <https://www.neafc.org/neafc-meetings>

<sup>87</sup> [https://ec.europa.eu/fisheries/press/north-east-atlantic-fisheries-commission-adopts-conservation-and-enforcements-measures-2020\\_de](https://ec.europa.eu/fisheries/press/north-east-atlantic-fisheries-commission-adopts-conservation-and-enforcements-measures-2020_de)

Norway and the EU began cooperative management on the Atlantic mackerel in the 1980s by setting an overall catch quota and dividing it (Hannesson, 2013). In 1999 the European Union (EU) and Norway had a bilateral agreement (ICES, 2000) and the first mackerel meeting took place between the EU, Norway and the Faroe Islands<sup>88</sup> (Fiskeridepartementet, 1999). Despite the agreement between the EU, Norway and the Faroe Islands reached in 2000, the EU and Norway took a few years to make an agreement on allocation of the total quota between the two parties<sup>89</sup> (Fiskeridepartementet, 2001).

In the NEAFC meeting in 1999, all members except Russia and Iceland voted for regulations of fishing of mackerel in the international waters in the Norwegian Sea, the Banana hole (Fiskeridepartementet, 1999). In 2000, NEAFC adopted a total quota for its regulatory area in the Banana hole which was set in accordance with the regulations agreed by the coastal states, the EU, Norway and Faroe Islands<sup>90</sup> (Fiskeridepartementet, 2000). In 2001, Iceland was the only one to vote against the quota set in international waters by NEAFC, which was seen as a protest of not being accepted as a coastal state regarding the mackerel (Fiskeridepartementet, 2001). In the years 1999 and until 2009 there were trilateral agreements between Norway, EU and Faroe Islands (Spijkers and Boonstra, 2017).

Since around 2007 the mackerel fishery has changed drastically, when the summer distribution expanded to the Nordic Seas (Jansen et al., 2016). The distribution changes and increased catches within the Icelandic EEZ in 2008<sup>91</sup> (ICES, 2008) led to Iceland insisting on being considered as coastal state regarding the mackerel in the annual NEAFC meeting the same year<sup>92</sup> (Fiskeri- og kystdepartementet, 2008). It was a cause of concern, the increasing total catches in 2007 and 2008, as well as the absence of an international agreement on regulation of the exploitation of the stock. It was clear that both spawning and feeding areas had expanded<sup>93</sup> (ICES, 2009).

---

<sup>88</sup> <https://www.regjeringen.no/no/dokumenter/stmeld-nr-49-1998-99-/id192499/>

<sup>89</sup> <https://www.regjeringen.no/no/dokumenter/stmeld-nr-50-2000-2001-/id432002/>

<sup>90</sup> <https://www.regjeringen.no/contentassets/709c39dee810482d835dadc72fb44fea/no/pdfa/stm199920000044000dddpdfa.pdf>

<sup>91</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2008/2008/mac-nea.pdf>

<sup>92</sup> <https://www.regjeringen.no/contentassets/fbf43d322e5e4afea8cf91bf3b6e5867/nno/pdfs/stm200720080034000dddpdfs.pdf>

<sup>93</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2009/2009/mac-nea.pdf>

Faroe Islands stepped out of the agreement from 1999 with EU and Norway in 2009. The EU and Norway made a bilateral agreement and Iceland set a unilateral quota for the first time (Spijkers and Boonstra, 2017).

Between the years 2010 to 2013, Norway and EU had bilateral agreements while Iceland and Faroe Islands set unilateral quotas (Spijkers and Boonstra, 2017). In 2010, Iceland got coastal state status and Russia got an observer status<sup>94</sup> (Fiskeri- og kystdepartementet, 2010). The same year, first rounds of negotiations were conducted with many rounds without reaching an agreement (Ibid). That same year, Norway banned Faroese and Icelandic vessels from landing in Norway (Spijkers and Boonstra, 2017). The negotiations between coastal states continued throughout 2011<sup>95</sup> (Fiskeri- og kystdepartementet, 2011) and 2012 without any results<sup>96</sup> (Fiskeri- og kystdepartementet, 2012). Icelandic and Faroese catches increased in those years and Greenland reported catches in their EEZ for the first time in 2011 which then increased in 2012. With no international agreement between nations involved in the fisheries there was no control over the total exploitation rate (ICES, 2013).

An agreement between EU, Norway and Faroe Islands was reached in 2014 which was signed for 5 years<sup>97</sup> (Nærings- og fiskeridepartementet, 2014) and then extended to 2020 (Nærings- og fiskeridepartementet, 2019). The three parties tried to include both Iceland and Greenland but that was not possible (Nærings- og fiskeridepartementet, 2014). Iceland has therefore been setting unilateral quotas in recent years (Spijkers and Boonstra, 2017).

In an ICES report from 2018, on the advice on mackerel for 2019, it was reported that the stock was not in good shape and the catches should be reduced. There were considered to be uncertainties with the stock assessment made by ICES (Nærings- og fiskeridepartementet, 2019) and Norway requested a revision of the advice for 2019, which was updated in May

---

<sup>94</sup> <https://www.regjeringen.no/contentassets/472ec97a12824c40be7c329bbf4992ed/nn-no/pdfs/stm200920100018000dddpdfs.pdf>

<sup>95</sup> <https://www.regjeringen.no/contentassets/44820aac4c6c404ca662b11f4f4c90f6/nn-no/pdfs/stm201020110026000dddpdfs.pdf>

<sup>96</sup> <https://www.regjeringen.no/contentassets/0e4ca50ecb8b40cab85f72f5bb2c39c9/nn-no/pdfs/stm201120120025000dddpdfs.pdf>

<sup>97</sup> <https://www.regjeringen.no/contentassets/510ca014444147feac67d8878dca58ac/nn-no/pdfs/stm201320140026000dddpdfs.pdf>

2019 (ICES, 2019c). The advice for 2020 is 922,064 tonnes, higher than the updated one from 2019, which was 770,358 tonnes (ICES, 2019b). This can be seen in *figure 7* below.

Iceland has been accused of threatening the long-term sustainability of the mackerel stock by increasing its catches in 2019<sup>98</sup> (Henley, 2019). Before the advice for 2019 was updated, Iceland had set a quota for 108,000 tonnes but after the revision of the advice, Iceland increased the quota to 140,000 tonnes<sup>99</sup> (Jóseppson, 2019).

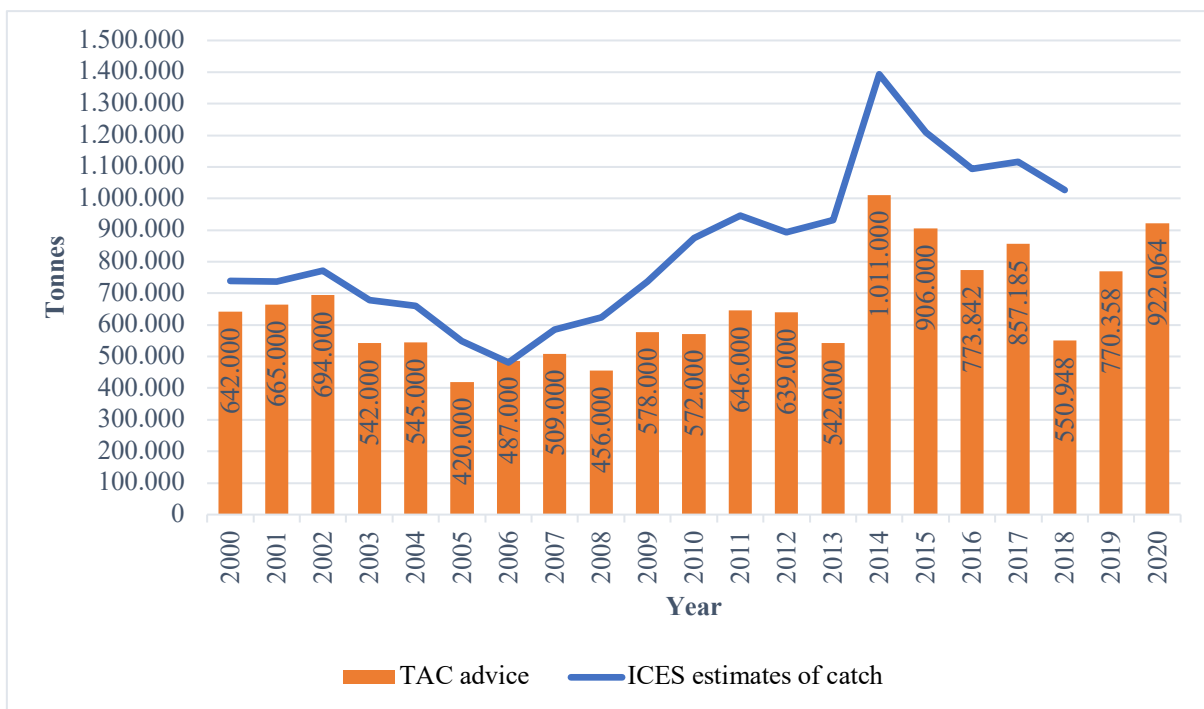


Figure 7. ICES advised TAC from 2000-2020 (orange columns) and ICES estimates of catches (blue line) 2000 - 2018 (ICES, 2019b).

Figure 7 displays the TAC advised by ICES in the orange columns and then ICES estimates of actual catches in the blue line. Estimated catches always, except one time, exceeded the proposed TAC (ICES, 2019b). Despite the fact that the advised TACs have been exceeded the stock still seems to have been growing. Figure 7 here above does not display the original TAC set for the years 2014 and 2019, since it was revised. In late 2013 the advice for

<sup>98</sup> [https://www.theguardian.com/environment/2019/nov/21/iceland-accused-of-putting-mackerel-stocks-at-risk-by-increasing-its-catch?CMP=Share\\_iOSApp\\_Other](https://www.theguardian.com/environment/2019/nov/21/iceland-accused-of-putting-mackerel-stocks-at-risk-by-increasing-its-catch?CMP=Share_iOSApp_Other)

<sup>99</sup> <https://www.ruv.is/frett/makrillkvoti-aukinn>



mackerel for 2014 was 889,886 tonnes (ICES, 2013) but in May 2014 the advice was updated to be between 927,000 and 1,011,000 tonnes (ICES, 2014). Again in 2018 on the advice for 2019, the advice was set for 318,403 tonnes<sup>100</sup> (ICES, 2018c) but after a request from Norway it was revised and set for 770,358 tonnes (ICES, 2019c).

The absence of an international agreement on the management of mackerel between all states is a cause for concern, despite that the mackerel stock seems to be growing and doesn't seem to be seriously negatively affected by the catches exceeding the recommended TAC.

However, if cooperative management should be successful, all states involved should be confident that they are better off through a cooperation than non-cooperation (Bailey et al., 2013).

---

<sup>100</sup> <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/mac.27.nea.pdf>

## 5 Iceland

Iceland is a 103,000 km<sup>2</sup> island in the Atlantic Ocean, with 4,970 km coastline and a 200 nautical-mile (NM) exclusive economic zone (EEZ)<sup>101</sup> (The official gateway to Iceland, n.d.). This chapter presents information on the Icelandic economy, importance of fisheries, the management system, political environment and the strength of domestic interest groups.

### Economy

The Icelandic economy depended on farming and fisheries from settlement and until the 20<sup>th</sup> century<sup>102</sup> (Government of Iceland, n.d.-c). Exports related to fisheries have gone from the economy being heavily dependent on it to a more stable state, accounting for 18%. For the fish stocks to be sustainable, the industry is limited with regard to the quantity they can harvest. As exports from fisheries stabilized through the years other export foundations became important, such as the aluminium, tourism and international sectors<sup>103</sup> (Iceland Chamber of Commerce, 2019).

Iceland is a young state with population of only 364,134<sup>104</sup>. The country has one of the smallest currency areas in the world, as it has its own currency, the Icelandic Króna (ISK). In terms of success of this small country it can be credited to factors like strong institutional framework, workforce that is skilled, economic freedom of a high degree, democracy and low levels of corruption. The strongest points of the economy are however the high labour force participation rate, openness of the country and flexibility of the economy (Iceland Chamber of Commerce, 2019).

In 2017, about 7,600 people worked in fisheries which contributes to 3,9% of work force in Iceland. The value of exports in fisheries were about 197 billion ISK and decreased about 15,2% from the years before. The value of the mackerel catches the same year was 6.8 billion ISK<sup>105</sup> (Hagstofa Íslands, 2018).

---

<sup>101</sup> <https://www.iceland.is/the-big-picture/nature-environment/geography>

<sup>102</sup> <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/history-of-fisheries/>

<sup>103</sup> [https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/the\\_icelandic\\_economy\\_2019\\_report.pdf](https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/the_icelandic_economy_2019_report.pdf)

<sup>104</sup> <https://hagstofa.is/utgafur/frettasafn/mannfjoldi/mannfjoldinn-1-januar-2020/>

<sup>105</sup> <http://hagstofan.s3.amazonaws.com/media/public/2019/ddeaceb9-de47-4295-ac6d-ea586375218d.pdf>

## **The importance of fisheries**

From settlement, the fishing seasons have been defined by the fish movements and limitations linked to rowing boats. As time went by, the fleet improved and the motorized vessels in the 20<sup>th</sup> century were revolutionizing since the fishing capacity grew along with the total catch. But there were many factors that affected the Icelandic fisheries history, such as the first and second World Wars, then the Great Depression and fluctuation in demand for fish in international markets and not to forget about overfishing which led to decline in some stocks (Government of Iceland, n.d.-c).

Iceland was one of the poorest countries in Europe until the second World War. After the war ended many trawlers from Europe resumed fishing in the Icelandic fishing grounds. In 1944 Iceland gained independence from Denmark and overfishing soon became a political issue. Iceland claimed 4 NM EEZ in 1952 and 12 NM in 1958. The countries fishing around Iceland were not contented about this unilateral decision and Britain send warships to Iceland to keep the coastguard at bay. That was the beginning of the Cod war (Ibid).

When the herring fishery collapsed in the late 1960s Iceland became more reliant on cod and other demersal stocks. In 1972 the fisheries zone was extended to 50 NM and Britain opposed it. In the following years the United Nations Conference on the Law of the Sea arrived at the concept of 200 nautical mile EEZs with many countries establishing such zones from the mid 1970s onwards. When the Icelandic decision on extending the EEZ to 200 NM was announced in 1975 the Cod war became even worse. The dispute was settled in Oslo a year later, in 1976. With the 1982 UNCLOS agreement the 200 NM limit became international law (Ibid).

## **The fisheries management system**

The annual total allowable catch (TAC) for each fish stock is the key feature of the fisheries management system<sup>106</sup> (Government of Iceland, n.d.-a). In 1990 the ITQ system was adopted

---

<sup>106</sup> <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/fisheries-management/>

(Government of Iceland, n.d.-c), which fixed the shares of the TAC the individual operators have. The catch quotas are mainly distributed through the ITQs (Government of Iceland, n.d.-a).

The Icelandic Marine and Freshwater Research Institute (MFRI) provides advice on research along with ICES. Recommendations by the MFRI on commercial species are peer reviewed by the Advisory Committee (ACOM) of ICES. In June every year, the MFRI presents a formal advice (Ibid). The Minister of Fisheries determines the annual TAC based on the scientific advice from MFRI<sup>107</sup> (Government of Iceland, 2018) and through a consultative process which involves the industry stakeholders (Government of Iceland, n.d.-a). Even though the decision is also based on social and economic factors the focus is put on long-term sustainability of all the fish stocks (Government of Iceland, 2018).

Overall management is based on research of fish stocks and the marine ecosystem which are carried out by the MFRI. This is an independent research institution, the main research body in Iceland regarding marine research and falls under the Ministry of Fisheries. The research carried out are extensive and wide ranging, along with assessing the commercial stocks, the marine environment and ecosystems, the impact different fishing gear has on the ecosystem is estimated with the main aim to have little as possible effects on the ocean ecosystem. Collaboration with international organizations such as ICES are important in order to provide the best available information with the research methods that are internationally acknowledge. MFRI collaborates with other multi-national organizations such as NEAFC especially when stocks occur on the high seas (Ibid).

The Directorate of Fisheries which is under the Ministry of Fisheries is responsible for monitoring and enforcement of the fisheries operation and the fish processing but also for implementation of laws and regulations that relate to the fisheries management. With effective control being an important part of the fisheries management, it ensures that the catches are in compliance with the set TAC every year (Ibid).

---

<sup>107</sup> <https://www.government.is/news/article/2018/05/15/Fisheries/>

Fisheries have for a long time been very important, as it accounted for over 50% of the goods exports from Iceland before 2006 but recently it has been decreasing and in 2018 it accounted for 18% of exports. There are three sectors based on resources that constitute for about 76% of exports. These three sectors are the seafood industry, tourism and energy intensive industries like the aluminium production (Iceland Chamber of Commerce, 2019).

In recent years there have been rapid technology advances, the productivity of the labour has increased, and the industry has had good effects on other sectors (Ibid).

### **Politics and domestic group strength**

Iceland is a constitutional republic and has a multi-party parliamentary system. The current government is a coalition government consisting of three parties of a total eight parties representing in parliament (Iceland Chamber of Commerce, 2019).

There are two key pillars that support the international policy of Iceland. The first one is UNCLOS, which Iceland actively participated in establishing along the follow up agreements such as UNFSA and then the principle of sustainable development at the 1992 UN Conference on Environment and Development. National, regional and international efforts are promoted to regulate and protect the living marine resources and environment<sup>108</sup> (Government of Iceland, n.d.-b).

Iceland cooperates through regional fisheries management organizations such as NEAFC and NAFO as they play a key role in conserving and managing straddling and highly migratory fish stocks. “The International Council for the Exploration of the Sea (ICES) is important for co-operation in marine science, which is an essential basis for responsible management of living marine resources” (Ibid).

The Ministry of Foreign Affairs is in charge of all international negotiations which deal with international resource allocation. The Ministry seeks advice from the Ministry of Fisheries and with the close cooperation between the two Ministries the duty division is unclear. The

---

<sup>108</sup> <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/international-policy/>

three groups of actors involved in the international negotiations over sharing of fishing resources are the government, scientists and interest groups (Ásgeirsdóttir, 2008). Within NEAFC, a representative from the Ministry of Fisheries is present along with representatives from Directorate of Fisheries, the MFRI and Confederation of Icelandic Fisheries Companies (SFS)<sup>109</sup> (Stjórnarráð Íslands, 2019).

The policy process in Iceland can be labelled as corporatist. Policy changes are negotiated with the relevant interest groups throughout the domestic policy process. The fishing industry is considered the most influential industry in Iceland and their power can be seen in the policy making with the willingness of the government to meet the fishing interests. This position come from the history of industry's economic importance (Ásgeirsdóttir, 2008). The economic importance of the industry has changed since 1990, where more than 50% of Iceland's exports originated from the fishing industry while in 2013 fisheries accounted for 27% of Iceland's exports<sup>110</sup> (Ólafsson, Björnsson and Þorbergsson, 2014).

Policy decision in Iceland are usually close to the preferences of the interest groups and especially the Federation of Icelandic Fishing Vessel Owners/Vessels Owners (LÍU) which seem to dominate the policy process (Ásgeirsdóttir, 2008). Even though there seems to be one dominating interest group, there are other groups that represent different things and perspectives such as; the National Association of Small Boat Owners<sup>111</sup>, The Icelandic Union of Marine Engineers and Metal Technicians<sup>112</sup>, Icelandic Seamen's Federation<sup>113</sup> and Fish Processors and Export Association<sup>114</sup>.

The Icelandic interest groups have strong connections with the Ministry of Fisheries and the Ministry of Foreign Affairs and are able to influence domestic policies that affect the whole industry. This affects the international arena as well and can put limitations on Icelandic

---

<sup>109</sup> <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2019/11/18/Arsfundur-Nordastur-Atlantshafsfiskveidiradsins/>

<sup>110</sup> [https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/2014\\_07\\_18\\_the\\_icelandic\\_economy.pdf](https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/2014_07_18_the_icelandic_economy.pdf)

<sup>111</sup> <http://www.smabatar.is/>

<sup>112</sup> <https://www.vm.is/>

<sup>113</sup> <https://www.sjomenn.is/>

<sup>114</sup> <http://www.sfu.is/>

negotiators. In previous international negotiations on capelin and herring, Iceland had a small and narrow win-sets with constraints from the interest groups. With less power of the Norwegian interest groups, Norway had a large and wide win-set with less constraints (Ásgeirsdóttir, 2008). This gave Iceland an upper hand in the negotiations and ability to control the large and wide win-set Norway (Hotvedt, 2010).

The Vessel Owners (LÍÚ) were considered to be the most powerful organization and they were consulted in all policy changes with their demands being met almost every time. This power they have is hard to identify exactly. But it can be mentioned that when the ITQ system was adopted, the terms and changes were dictated by the Vessel Owners (LÍÚ). It reflected the large fishing vessels owners' interests (Ásgeirsdóttir, 2008).

In 2014 the Fisheries Companies Associations (SFS) were founded with the merger of the Vessels Owners (LÍÚ) and the Federation of Icelandic Fish Processing Plants (SF). This merge was considered an opportunity for the industry to combine companies which engaged in fishing, processing, sales and marketing of marine products into one organization<sup>115</sup> (Samtök atvinnulífsins, 2014). SFS is the only interest group that takes part in the international negotiations regarding the mackerel.

The Icelandic fishing industry has a powerful position and affecting both the domestic and international fisheries policy (Ásgeirsdóttir, 2008).

The international negotiations regarding mackerel are affected by the powerful position of SFS. The close relations between the government and SFS has resulted in domestic and international policies being close to preferences of the interest group. Regarding the mackerel, the interest group might be asking for a large share, possibly too large for the other states willing to negotiate on that.

---

<sup>115</sup> <https://www.sa.is/frettatengt/frettir/samtok-fyrirtaekja-i-sjavarutvegi-stofnud>

## 6 The Icelandic perspective on the mackerel controversy

The Icelandic perspective on the mackerel controversy is shaped by many different factors such as biological, economical, ecological and social. This chapter presents the Icelandic perspective on the mackerel conflict, based on interviews and articles in the news media, Mbl.is.

The Icelandic MFRI has a role to provide government and stakeholders scientific advice and service regarding sustainable use of the marine living resource. ICES discuss stock assessment and advice provided on the major commercial stocks in Iceland. The precautionary approach and the MSY approach used by ICES is the guiding light of the MFRI's advice<sup>116</sup> (Hafrannsóknastofnun, n.d.).

Some stocks within the Icelandic EEZ are shared with other states, like the mackerel and on these stocks the Icelandic MFRI does not provide independent advice. However, the MFRI provides data on these stocks, takes a role in the stock assessment and advice within the North-Western Working Groups (NWWG)<sup>117</sup> and Working Group on Widely Distributed Stocks (WGWIDE)<sup>118</sup> (Hafrannsóknarstofnun, 2019)<sup>119</sup>.

The scientific data provides the information that the mackerel comes to the Icelandic EEZ, feeds there and possibly spawns (Gunnarsson et al., 2019). Around 2012, Iceland started to focus on the extensive feeding of the mackerel within its EEZ and that the amount the mackerel was feeding on could possibly affect feeding opportunities for other important fish stocks. These arguments could be the reason for Iceland to rely on the criteria that the mackerel is economically important for the nation.

Iceland consider itself to follow the international law regarding the mackerel. The international legal framework provides that there is a need for cooperation. At the same time the legal framework is clear on the right the coastal state has within its own EEZ and the

---

<sup>116</sup> <https://www.hafogvatn.is/is/veidiradgjof>

<sup>117</sup> <http://www.ices.dk/community/groups/Pages/NWWG.aspx>

<sup>118</sup> <http://www.ices.dk/community/groups/Pages/WGWIDE.aspx>

<sup>119</sup> [https://www.hafogvatn.is/static/files/b00-inngradgj\\_2019.pdf](https://www.hafogvatn.is/static/files/b00-inngradgj_2019.pdf)



mackerel can therefore be caught within the Icelandic EEZ, but this is not in compliance with the obligation to cooperation. In general, the international legal framework on how cooperation on straddling stocks like the mackerel is held by some actors to be rather vague and debated.

Iceland is a coastal state regarding the mackerel along with the EU, Norway and Faroe Islands and therefore invited to the coastal state meetings held every year. Iceland feels like their perspectives are not taken into consideration with the other coastal states and that is the reason Iceland has felt left out of the negotiations.

The three coastal states, EU, Norway and Faroe Islands have an agreement and therefore decide a TAC for the mackerel stock. For 2020 the TAC is in line with the advice provided by ICES (European Commission, 2019a). Iceland and Greenland are outside of this agreement (Nærings- og Fiskeridepartement, 2019) and both have therefore each set a unilateral quota for the mackerel.

The Icelandic government decide on a quota for the mackerel stock to be taken within the Icelandic EEZ and in international waters within the NEAFC regulatory area<sup>120</sup> (Atvinnuvega- og nýsköpunarráðuneytið, 2020). This decision is based on the TAC set by the Faroe Islands, Norway and the EU and aims for 16,5%, which is the percentage left for other states according to their agreement<sup>121</sup> (Stjórnarráð Íslands, 2020).

---

<sup>120</sup> <https://www.reglugerd.is/reglugerdir/eftir-raduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21875>

<sup>121</sup> <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2020/04/01/Radherra-akvedur-arskvota-i-deilistofnum/>

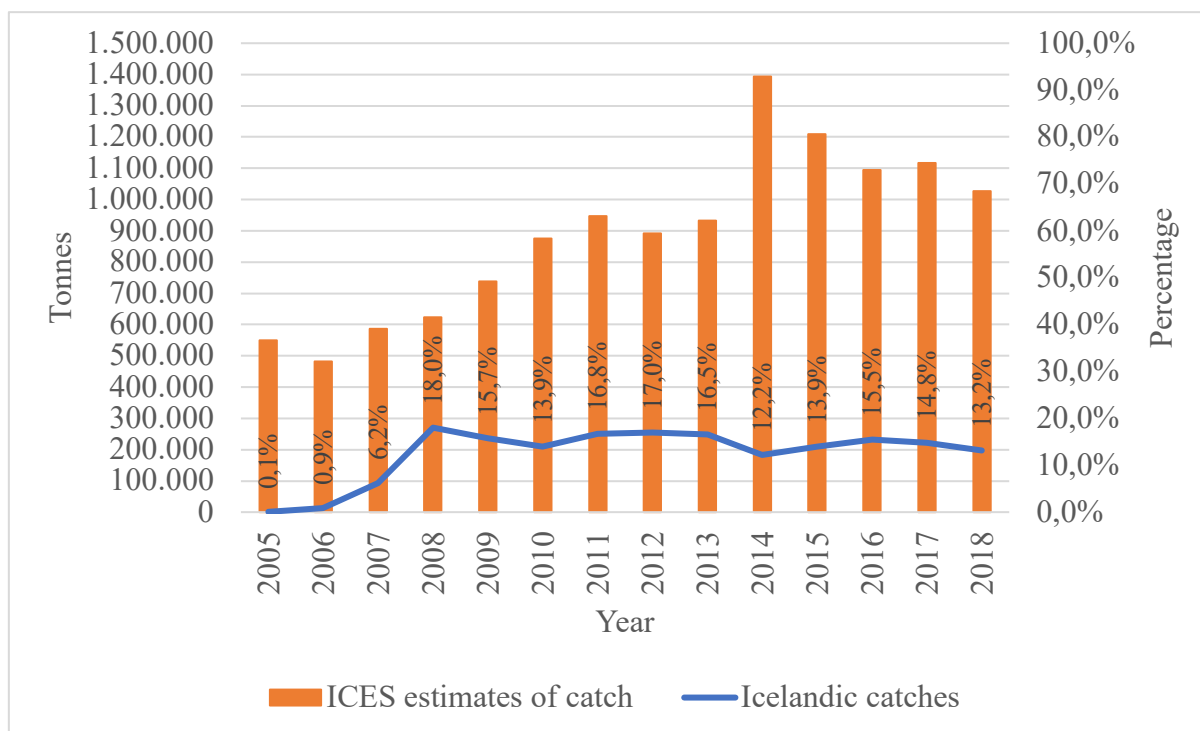


Figure 8. ICES estimates of catch (ICES, 2019b) and Icelandic catches as a percentage of the estimated catches (Hagstofa Íslands, n.d.<sup>122</sup>).

In figure 8 here above, the Icelandic catches are displayed as the percentage of the ICES estimates of catches and has at most been 18% of the total catches in 2008. In the years from 2009 and until 2018, the catches have been from around 12% and up to 17% of the total (ICES, 2019b; Hagstofa Íslands, n.d.). From September 2018 to August 2019, the mackerel catches were around 128,000 tonnes and around 51% of the Icelandic catch was from the Icelandic EEZ, with a few tonnes from the Faroese EEZ and the rest from the high seas<sup>123</sup> (Fiskistofa, n.d.).

The Icelandic interest groups have a close relation to the Icelandic government and especially the Ministry of Fisheries and Ministry of Foreign Affairs which deal with international negotiations. There is only one interest group which takes part in the international negotiations on behalf of Iceland, the Fisheries Companies Association (SFS). SFS is the

<sup>122</sup>[https://px.hagstofa.is/pxis/pxweb/is/Atvinnuvegir/Atvinnuvegir\\_sjavarutvegur\\_aflatolur\\_fiskveidisvaedi/SJA09001.px](https://px.hagstofa.is/pxis/pxweb/is/Atvinnuvegir/Atvinnuvegir_sjavarutvegur_aflatolur_fiskveidisvaedi/SJA09001.px)

<sup>123</sup> <http://www.fiskistofa.is/veidar/aflaupplysingar/yfirlit-sidasta-fiskveidiars/makrilveidar/>

most powerful interest group in Iceland and the industry provides the interest group with preferences.

The Icelandic economy which depended heavily on fisheries is now at a more stable state, with fisheries accounting for 18% of exports (Iceland Chamber of Commerce, 2019). Despite that fact, the power of the industry doesn't seem to have decreased through the years. The pelagic fisheries represented by SFS are very influential and dependent on the short-term profits.

The media takes part in presenting the Icelandic perspective, but it might not always reflect the general perspective as some people or groups always get more attention than others. Some media might even be biased regarding political views for example and that could affect the perspective presented.

## **Media**

The media in Iceland has over the years written articles about the mackerel, newest update of researches and updates of the mackerel debate. Here I present news reported by Morgunblaðið (mbl.is). Morgunblaðið was established in 1913 and has been published ever since then. In 1994 Morgunblaðið was the first Icelandic newspaper to start a website and publish news online<sup>124</sup> (Mbl.is, n.d.).

The Icelandic Marine Research Institute (MRI (now MFRI)) caught mackerel in the yearly exploration northeast of Iceland in July 1998. It had never been found in that latitude before in this area but can be found at this latitude in the Norwegian Sea<sup>125</sup> (Mbl.is, 1998).

International negotiations in Norway with foreign states about fisheries inside the Norwegian EEZ and the area around Svalbard were in the news. Norway have the opinion that Iceland “has the palm in their hands” and consider Iceland the general winner in international negotiations while mentioning the different agreements made. Many agreements are

---

<sup>124</sup> <https://www.mbl.is/mogginn/fyrirtaekid/>

<sup>125</sup> [https://www.mbl.is/vidskipti/frettir/1998/07/24/morg\\_skip\\_hyggja\\_a\\_kolmunnaveidar\\_eftir\\_lodnuvertid/](https://www.mbl.is/vidskipti/frettir/1998/07/24/morg_skip_hyggja_a_kolmunnaveidar_eftir_lodnuvertid/)

mentioned, and it is especially stated that the mackerel in international waters could be Iceland's next target<sup>126</sup> (Mbl.is, 1999).

In the years from 1999 and until 2008 there are not much reported about the mackerel in general on mbl.is but one article from 2004 states that it can be expected to see severe changes in expansion of many fish stocks in association with the warming of the oceans<sup>127</sup> (Mbl.is, 2004).

The mackerel catches started in 2008 mainly as bycatch in the herring fishery but in some cases the catches consisted of around 70% mackerel and only 30% of herring. One captain stated that the mackerel catch was like winning the lottery but at this time the mackerel was mainly used in fishmeal<sup>128</sup> (Mbl.is, 2008d). At this time, the mackerel was not included in the quota system, but it was considered important to continue the fishery to have something at hand if Iceland would be a part of the international negotiations<sup>129</sup> (Mbl.is, 2008a).

The Danish pelagic organizations reached out to the EU saying that it was important to do something about the mackerel fishery in Iceland. The director of SFS (Fisheries Companies Associations) commented on that with stating that the EU could not do anything about the fishery inside the Icelandic EEZ even though it was on mackerel which is a transboundary stock. At this point the Icelandic catch, 112,000 tonnes were mainly caught inside the EEZ<sup>130</sup> (Mbl.is, 2008c).

In 2008 there were many news reported on the mackerel, understandably, and in November the government of Scotland declared the overfishing of mackerel by the Icelandic fleet as a scandal. But this was the first year that Iceland sat as observer in the international negotiations but was not allowed to the negotiation table<sup>131</sup> (Mbl.is, 2008e). A few days later the Ministry of Fisheries and Agriculture stated that the government was very positive on being invited to negotiate about the management of mackerel in next year. Iceland claims that they have tried

---

<sup>126</sup> [https://www.mbl.is/vidskipti/frettir/1999/07/28/nordmonnum\\_finnst\\_sem\\_a\\_tha\\_halli\\_i\\_fiskveidisamnin/](https://www.mbl.is/vidskipti/frettir/1999/07/28/nordmonnum_finnst_sem_a_tha_halli_i_fiskveidisamnin/)

<sup>127</sup> [https://www.mbl.is/vidskipti/frettir/2004/09/28/breytir\\_hlynunin\\_fiskgongum/](https://www.mbl.is/vidskipti/frettir/2004/09/28/breytir_hlynunin_fiskgongum/)

<sup>128</sup> [https://www.mbl.is/frettir/innlent/2008/07/21/makrill\\_er\\_lottovinningur/](https://www.mbl.is/frettir/innlent/2008/07/21/makrill_er_lottovinningur/)

<sup>129</sup> [https://www.mbl.is/frettir/innlent/2008/08/01/dregur\\_ur\\_makrilveidi\\_hja\\_islensku\\_veidiskipunum/](https://www.mbl.is/frettir/innlent/2008/08/01/dregur_ur_makrilveidi_hja_islensku_veidiskipunum/)

<sup>130</sup> [https://www.mbl.is/vidskipti/frettir/2008/10/23/liu\\_gagnrynir\\_donsk\\_samtok/](https://www.mbl.is/vidskipti/frettir/2008/10/23/liu_gagnrynir_donsk_samtok/)

<sup>131</sup> [https://www.mbl.is/vidskipti/frettir/2008/11/10/saka\\_islendinga\\_um\\_ofveidi/](https://www.mbl.is/vidskipti/frettir/2008/11/10/saka_islendinga_um_ofveidi/)

to reach an agreement on this shared stock and for years been requesting coastal state status but declined<sup>132</sup> (Mbl.is, 2008b).

Iceland considered their position to have strengthened with increasing catches but were not let to the negotiation table. The importance of negotiating about the shared fish stocks cannot be looked passed<sup>133</sup> (Mbl.is, 2009b). Later that year, Iceland was not a part of the mackerel negotiations and Norway stated that Iceland needs to behave like a real coastal state in order to be invited to the negotiation table. Iceland will not be attending these meetings unless being considered a coastal state<sup>134</sup> (Mbl.is, 2009c).

The decision about a 112,000 tonnes quota in 2009 was not based on scientific advice said a fisheries scientist working at the MFRI, and not consistent with declaration from the Ministry of Fisheries in 2007 about responsible fisheries<sup>135</sup> (Mbl.is, 2009a).

There were articles about the mackerel being a problem in the herring fishery<sup>136</sup> (Mbl.is, 2009e) and the importance of catching the mackerel because it seemed to eat from other stocks like herring and capelin<sup>137</sup> (Mbl.is, 2009d).

In 2010, the MFRI in Iceland for the first time conducted in the egg survey under a working group in ICES. At that time, it seemed that the spawning of mackerel was moving towards Iceland at that reflected with the increased abundance of the stock and warming of the oceans in recent years<sup>138</sup> (Mbl.is, 2010b). The changes in distribution of mackerel had strengthened the position of Iceland even more according to the Minister of Fisheries<sup>139</sup> (Mbl.is, 2010c).

The prime minister of Scotland requested political decisions to end the mackerel war with Iceland and Faroe Islands. At this time, Scottish fisherman prevented landing of mackerel by Faroese ship<sup>140</sup> (Mbl.is, 2010a).

---

<sup>132</sup> [https://www.mbl.is/frettir/innlent/2008/11/19/bjartsyn\\_a\\_makrilsamning\\_2009](https://www.mbl.is/frettir/innlent/2008/11/19/bjartsyn_a_makrilsamning_2009)

<sup>133</sup> [https://www.mbl.is/frettir/innlent/2009/03/27/meira\\_en\\_threfold\\_verdmaeti\\_med\\_fullvinnslu/](https://www.mbl.is/frettir/innlent/2009/03/27/meira_en_threfold_verdmaeti_med_fullvinnslu/)

<sup>134</sup> [https://www.mbl.is/frettir/innlent/2009/10/26/island\\_ekki\\_med\\_a\\_makrilmfundi/](https://www.mbl.is/frettir/innlent/2009/10/26/island_ekki_med_a_makrilmfundi/)

<sup>135</sup> [https://www.mbl.is/frettir/innlent/2009/04/06/engin\\_visindarok\\_ad\\_baki\\_makrillkvota/](https://www.mbl.is/frettir/innlent/2009/04/06/engin_visindarok_ad_baki_makrillkvota/)

<sup>136</sup> [https://www.mbl.is/frettir/innlent/2009/08/06/sildveidiskip\\_umkringd\\_makril\\_um\\_alla\\_logsogu/](https://www.mbl.is/frettir/innlent/2009/08/06/sildveidiskip_umkringd_makril_um_alla_logsogu/)

<sup>137</sup> [https://www.mbl.is/frettir/innlent/2009/07/25/makrill\\_etur\\_undan\\_odrum\\_nytjastofnum/](https://www.mbl.is/frettir/innlent/2009/07/25/makrill_etur_undan_odrum_nytjastofnum/)

<sup>138</sup> [https://www.mbl.is/frettir/innlent/2010/06/28/makrill\\_hrygnir\\_i\\_islenskri\\_logsogu/](https://www.mbl.is/frettir/innlent/2010/06/28/makrill_hrygnir_i_islenskri_logsogu/)

<sup>139</sup> [https://www.mbl.is/frettir/innlent/2010/08/16/miklar\\_makrillgongur\\_styrkja\\_stodu\\_islendinga/](https://www.mbl.is/frettir/innlent/2010/08/16/miklar_makrillgongur_styrkja_stodu_islendinga/)

<sup>140</sup> [https://www.mbl.is/frettir/erlent/2010/08/18/krefst\\_adgerda\\_i\\_makrildeilu/](https://www.mbl.is/frettir/erlent/2010/08/18/krefst_adgerda_i_makrildeilu/)

After breakdowns of negotiations in 2010 the states were going to try to reach an agreement regarding management of mackerel. Iceland put emphasis on the changes in distribution of the mackerel and the importance of that being considered<sup>141</sup> (Mbl.is, 2011b).

The EU states that requests about taking actions against Iceland because of the mackerel catches could be approved before Christmas, the requests included bans on import of certain fish species or products from Iceland. The Icelandic government said this was a violation on the EES agreement<sup>142</sup> (Mbl.is, 2011a).

No agreement reached yet with a great disappointment on behalf of the EU and Norway. Iceland was even offered a higher share, but it is stated that Iceland and Faroe Islands did not try to reach an agreement. Even though the EU and Norway understand the economic dependency of fisheries in Iceland and Faroe Islands it seems less important to think of the dependency of some communities in the EU and Norway. This was reported on in the news from a joint statement from the Norwegian Minister of Fisheries and Fisheries manager of the EU<sup>143</sup> (Mbl.is, 2012a). After this statement, Steingrímur J. Sigfússon, Labour Minister at the time mentioned that the mackerel was important for the economy in whole for both Iceland and Faroe Islands not only for a few communities in the EU and Norway<sup>144</sup> (Mbl.is, 2012b). A few month later, Steingrímur strikes again and states that the mackerel cannot come inside the Icelandic EEZ and eat a free lunch. The mackerel seemed to be eating a great amount within the Icelandic EEZ and affecting the ecosystem<sup>145</sup> (Mbl.is, 2013b).

It seemed close to an agreement when Fisheries manager of the EU offered Iceland a 11,9% share of the mackerel and the Faroe Islands a similar percentage which they turned down at the time. At this time there had not been any formal meeting on this with Norway, but it was expected to work out because the EU and Norway had stood together in the negotiations<sup>146</sup>

---

<sup>141</sup> [https://www.mbl.is/frettir/innlent/2011/03/08/vidraedur\\_um\\_makril\\_a\\_ny/](https://www.mbl.is/frettir/innlent/2011/03/08/vidraedur_um_makril_a_ny/)

<sup>142</sup> [https://www.mbl.is/frettir/innlent/2011/10/19/hota\\_adgerdum\\_vegna\\_makrildeilunnar/](https://www.mbl.is/frettir/innlent/2011/10/19/hota_adgerdum_vegna_makrildeilunnar/)

<sup>143</sup> [https://www.mbl.is/frettir/innlent/2012/02/16/budu\\_islandi\\_haerri\\_hlutdeild/](https://www.mbl.is/frettir/innlent/2012/02/16/budu_islandi_haerri_hlutdeild/)

<sup>144</sup> [https://www.mbl.is/frettir/innlent/2012/09/03/makrildeilan\\_enn\\_i\\_hnut/](https://www.mbl.is/frettir/innlent/2012/09/03/makrildeilan_enn_i_hnut/)

<sup>145</sup> [https://www.mbl.is/frettir/innlent/2013/01/24/makrillinn\\_faer\\_ekki\\_okeypis\\_hadegisverd/](https://www.mbl.is/frettir/innlent/2013/01/24/makrillinn_faer_ekki_okeypis_hadegisverd/)

<sup>146</sup> [https://www.mbl.is/frettir/innlent/2013/12/17/stydur\\_ekki\\_tilbod\\_evropusambandsins/](https://www.mbl.is/frettir/innlent/2013/12/17/stydur_ekki_tilbod_evropusambandsins/)

(Mbl.is, 2013c). Norway later said that these 11,9% were too high for Iceland and again there was no agreement in sight<sup>147</sup> (Mbl.is, 2013a).

In 2014 there was an article about a statement from the Norwegian Minister of Fisheries, who wanted to clear things up about the wrong statement that Norway do not want an agreement with Iceland and have tried to keep them out of the agreements made<sup>148</sup> (Mbl.is, 2014).

The year 2015 was a hard year for the pelagic industry regarding exports of mackerel because of currency shortage in Nigeria and later because of government issues in Russia<sup>149</sup> (Mbl.is, 2015a).

In 2014, a trilateral agreement between the EU, Norway and Faroe Islands was reached. The negotiations continued in 2015 trying to include Iceland with Russia and Greenland as observers<sup>150</sup> (Mbl.is, 2015b).

In 2017 it seemed clear that the mackerel stock had doubled in size and that the large stock was the main reason for changes in distribution whereas the environmental facts such as temperature and feeding opportunities have more of a limitation<sup>151</sup> (Mbl.is, 2017). However, it is normal for the mackerel stock to fluctuate in size and there was a sign of a smaller spawning stock in 2017 but again, the stock has been overfished since 2008<sup>152</sup> (Mbl.is, 2018).

In February 2019 it was clear that all Marine Stewardship Council (MSC) certificates for mackerel in the North Atlantic would be suspended in March and of course this was a great disappointment<sup>153</sup> (Mbl.is, 2019d). The Icelandic mackerel quota is the largest one yet and the Minister of Fisheries, Kristján Þór Júlíusson said that there was no reason for Iceland being the only country taking the responsibility for the mackerel<sup>154</sup> (Mbl.is, 2019c). In exploration from this year there was measured around 80% more of mackerel in the waters around Iceland

---

<sup>147</sup> [https://www.mbl.is/frettir/innlent/2013/12/28/mikid\\_ber\\_a\\_milli\\_i\\_makrilnum/](https://www.mbl.is/frettir/innlent/2013/12/28/mikid_ber_a_milli_i_makrilnum/)

<sup>148</sup> [https://www.mbl.is/frettir/innlent/2014/03/22/segir\\_radherra\\_fara\\_med\\_rangt\\_mal/](https://www.mbl.is/frettir/innlent/2014/03/22/segir_radherra_fara_med_rangt_mal/)

<sup>149</sup> [https://www.mbl.is/frettir/innlent/2015/08/01/milljarda\\_samdrattur\\_i\\_tekjum\\_af\\_makril/](https://www.mbl.is/frettir/innlent/2015/08/01/milljarda_samdrattur_i_tekjum_af_makril/)

<sup>150</sup> [https://www.mbl.is/frettir/innlent/2015/10/22/reynt\\_ad\\_semja\\_um\\_makrilinn/](https://www.mbl.is/frettir/innlent/2015/10/22/reynt_ad_semja_um_makrilinn/)

<sup>151</sup> [https://www.mbl.is/200milur/frettir/2017/03/26/af\\_hverju\\_makrillinn\\_beygir\\_til\\_vinstri/](https://www.mbl.is/200milur/frettir/2017/03/26/af_hverju_makrillinn_beygir_til_vinstri/)

<sup>152</sup> [https://www.mbl.is/200milur/frettir/2018/05/03/sveiflur\\_edlilegar\\_i\\_staerd\\_arganga/](https://www.mbl.is/200milur/frettir/2018/05/03/sveiflur_edlilegar_i_staerd_arganga/)

<sup>153</sup> [https://www.mbl.is/200milur/frettir/2019/02/01/nidurstadan\\_mikil\\_vonbrigdi/](https://www.mbl.is/200milur/frettir/2019/02/01/nidurstadan_mikil_vonbrigdi/)

<sup>154</sup> [https://www.mbl.is/200milur/frettir/2019/06/29/aukid\\_vid\\_makrilkvotann/](https://www.mbl.is/200milur/frettir/2019/06/29/aukid_vid_makrilkvotann/)

than in 2018<sup>155</sup> (Mbl.is, 2019a). At the same time, only around 50% of the mackerel was caught in the Icelandic EEZ while the rest was caught in international waters and a small amount in the Faroese EEZ, according to the Directorate of Fisheries<sup>156</sup> (Mbl.is, 2019b).

The Icelandic Minister of Fisheries has decided on the TAC for mackerel in 2020. The TAC will be 152,141 tonnes, a 7,8% increase from last year<sup>157</sup> (Mbl.is, 2020).

The Icelandic perspective on the mackerel controversy based on media can be reflected in the interviews conducted. Iceland feel left out of the negotiations because they feel their perspectives are not taken into consideration and this shows in the media.

Media plays a role in the international negotiations as well, where threats or statements from the states are published. This can be seen in the Icelandic media, in 2011 when the EU states wanted to take actions against Iceland and in 2014 when the Norwegian Minister of Fisheries wanted to clear up things about Norway not wanting an agreement with Iceland and in 2019 when the Icelandic Minister of Fisheries saying Iceland should not be the only one taking the responsibility for the mackerel. This can be considered a tactic when looking at the international negotiations as a two-level game.

---

<sup>155</sup> [https://www.mbl.is/200milur/frettir/2019/08/30/80\\_prosent\\_meiri\\_makrill\\_i\\_ar/](https://www.mbl.is/200milur/frettir/2019/08/30/80_prosent_meiri_makrill_i_ar/)

<sup>156</sup> [https://www.mbl.is/200milur/frettir/2019/12/03/adeins\\_51\\_prosent\\_makrils\\_ur\\_islenskri\\_logsogu/](https://www.mbl.is/200milur/frettir/2019/12/03/adeins_51_prosent_makrils_ur_islenskri_logsogu/)

<sup>157</sup> [https://www.mbl.is/200milur/frettir/2020/04/01/eykur\\_makrilkvotann\\_um\\_7\\_8\\_prosent/](https://www.mbl.is/200milur/frettir/2020/04/01/eykur_makrilkvotann_um_7_8_prosent/)



## 7 Results

This chapter presents the results from the research. The aim of the thesis was to understand the context of the mackerel conflict and examine the Icelandic perspective on it by answering the research questions and with that get a better understanding of the reasons for the situation as it is. The three research questions are:

- *What is the biological and legal context of the mackerel conflict in the Northeast Atlantic?*
- *What criteria (zonal attachment, historical fisheries, economical dependency and etc.) of allocation are discussed in the negotiations or how are they valued within the North-East Atlantic Fisheries Commission (NEAFC) and the coastal state discussions?*
- *What is the Icelandic perspective regarding criteria of allocation, how did it evolve this way and why?*

In order to answer the research questions, information was acquired through various academic articles, books, reports and documents along with conducting interviews with Icelandic representatives.

### **The Atlantic mackerel case**

One of the most widely distributed migratory species in the North Atlantic, the Atlantic mackerel (*Scomber scombrus*) is still the centre of attention in the ongoing conflict on management and allocation of quota. The reason for the start of the conflict is the changes in distribution and expansion of the species since the early 2000s.

Climate change is considered to have altered the physics and chemistry of marine ecosystems. Changes in temperature are linked to changes in circulation patterns, upwelling of nutrition and production of plankton and this process taking place in the North Atlantic affects the marine climate around Iceland as well. One respondent interviewed considered Iceland being 'lucky' regarding the changes in temperature which seems to have led to more productivity than before.

In the years looked at in this thesis, from 1999 to 2020 the mackerel has been evaluated annually the ICES. Going from being considered harvested unsustainably in the first years to being harvested sustainably, in recent years, there are many factors that affect the evaluation of the stock. These factors are the egg survey conducted ever third year, benchmark and inter-benchmark assessments, a review of the research methods used in evaluating the stock and the registered landings of the mackerel.

My findings regarding question 1, about biological context of the mackerel are that the expansion of the mackerel in 2007 was not sudden and mainly driven by stock size, with contribution of changes in feeding opportunities as well. This is in line with results from Boyd et al., (2020) which considers the distribution of mackerel to be explained by three factors; bottom-up effect of prey distribution, density-dependent effect of mackerel stock size and effects of temperature. However, Ólafsdóttir et al. (2019) mentions that the expansion in the years from 2007 to 2016 was constrained by preferred temperature while the long-term changes in temperature contributed to the westward expansion towards Greenland.

The international legal framework for the management of straddling fish stocks like the Atlantic mackerel is in the United Nations Convention on the Law of the Sea (UNCLOS)<sup>158</sup> and the United Nations Fish Stock Agreement (UNFSA)<sup>159</sup>.

My findings regarding question 1 about legal context of the mackerel is that the coastal states have rights and duties according to the legal frameworks with the three most important duties to conserve and manage, utilize and cooperate on the marine living resources<sup>160</sup>. If conflicts arise, like the one on the Atlantic mackerel, the coastal states should attempt to solve the conflict on basis of equity with taking into account relevant circumstances<sup>161</sup>. However, there is not an obligation to conclude an agreement. The freedom of fisheries on the high seas have to follow conditions laid down in UNCLOS and UNFSA as well as other instruments, other

---

<sup>158</sup> Article 63. (UNCLOS, 1982).

<sup>159</sup> Article 2 and etc. (UNFSA, 1995).

<sup>160</sup> Article 61, 62 and 63. (UNCLOS, 1982).

<sup>161</sup> Article 59. (UNCLOS, 1982).

states interests<sup>162</sup> along with taking into account the same rights and duties for fisheries within the EEZs<sup>163</sup>. This means there really is no freedom in the fisheries on the high seas anymore.

The fishery conducted by the coastal states on the mackerel are consistent with the international legal framework in general but by some actors the legal framework is considered vague, debated and unclear.

In this case, it would be desirable for all actors involved to agree on allocation of the TAC in order to prevent a tragedy of the commons. Three of the coastal states contribute to the management of the stock with the agreement they have and along with the stock being underestimated in recent years there is still no sign of the stock collapsing.

In situations like these, where there is an agreement between only three of the coastal states fishing, the EU, Norway and the Faroe Islands, other states like Iceland and Greenland could be considered free riders. Free riders are those who benefit from conservation efforts of other to some extent.

The two-level game theory is useful when trying to understand international negotiations such as the one between the states in the North Atlantic on the mackerel. As domestic groups try to pursue their interest by pressuring the government to adapt policies that are favourable to them, politician will try to form an alliance with the interest groups to gain power on the national level. At the international level the government tries to satisfy the domestic pressure (Putnam, 1988). This is interesting when considering the Icelandic perspective on the mackerel issues because of the power of the Icelandic interest groups, especially the SFS, in domestic politics in Iceland. SFS are the only Icelandic interest groups which have representative in the international negotiations regarding Atlantic mackerel.

In international negotiations regarding transboundary stocks there are different criteria of allocation that is recommended to be considered according to *Article 7* in UNFSA<sup>164</sup>, but it is up to the states involved to assess and weigh them.

---

<sup>162</sup> Article 87. (UNCLOS, 1982).

<sup>163</sup> Article 118 and 119. (UNCLOS, 1985).

<sup>164</sup> Article 7. (UNFSA, 1995).

## **International negotiations and negotiations within the North-East Atlantic Fisheries Commission (NEAFC)**

International negotiation between coastal states usually start in late October after ICES has published the scientific advice on fishing opportunities, catch and effort for the mackerel. The coastal states which now have an agreement, the EU, Norway and Faroe Islands are responsible for inviting Iceland and Greenland to the mackerel negotiations among the coastal states.

In November the annual NEAFC meeting is held, where the member states meet and discuss conservation and management measures. The members of NEAFC are also the coastal states in the mackerel conflict. The coastal states do not have an agreement which includes all states involved and at the annual meeting in 2019 a regulation without quantity constraints was adopted for 2020. That regulation ensures reporting and prevents expansion in fishing by states which are not members of NEAFC<sup>165</sup> (Nærings- og fiskeridepartementet, 2020).

One difference between those two sets of meetings are that within NEAFC, Denmark represents Faroe Islands and Greenland but in the international coastal state negotiations Denmark is represented by the EU and the Faroe Islands and Greenland represent themselves. One respondent interview mentioned that this was a problem within NEAFC but didn't explain how or why. It would be interesting to look more into this, how and why this could be a problem.

My findings regarding question 2 is that the criteria of allocation discussed in the international negotiations and in the negotiations within NEAFC are the same and in accordance with the provisions in UNFSA<sup>166</sup>. These provisions might assist in the determination of the allocation of fishing between coastal states and high-seas fishing states. Historical fishery, dependency and zonal attachment related to the distribution of the stock are among the criteria noticeable in *Article 7*<sup>167</sup> in UNFSA. There are other criteria discussed

---

<sup>165</sup> <https://www.regjeringen.no/no/dokumenter/meld.-st.-13-20192020/id2693108/>

<sup>166</sup> (UNFSA, 1995).

<sup>167</sup> Article 7. (UNFSA, 1995).

according to respondents interviewed, such as fishing mortality, ecological effects and social needs of the society. Many of the criteria are rather complicated and difficult to measure.

According to the respondents interviewed there seems to be a lot of focus put on the criteria of historical fishing, where the EU and Norway are powerful with a long history of catching the mackerel while Iceland and the Faroe Islands are considered new to the fishery in comparison. Norway has put focus on the zonal attachment but there has been a debate about how and when the distribution of the stock should be measured and to what extent.

According to the respondents interviewed, the main problem with the legal framework was considered to be the unclarity of the considerations in *Article 7* and especially how the criteria of allocation should be weighed and valued by the states. However, this would be complicated and difficult to implement as all of the coastal states would have to agree on this and use it in practice.

A panel comment in a Report of the Performance Review Panel 2014 on NEFAC says: “...it is *inexcusable that these contracting parties cannot come up with workable solutions that result in catches consistent with the advice they seek from independent experts*” (Cochrane, Murawski and Tahindro, 2014). This comment is to the point regarding the international negotiations on mackerel. The coastal states have to follow conditions laid down in UNCLOS, UNFSA and other instruments regarding the mackerel fishery, which means there is no freedom on the high seas or open access to the fishery like Hardin (1968) describes in the Tragedy of the commons. However, it seems that the self-interests on shared resources like the mackerel, almost always trump the combined interests (Bailey et al., 2013).

## **Icelandic perspective**

The Icelandic perspective is shaped by many factors, as witnessed in the interviews conducted and articles in the media, Mbl.is.

Iceland has pursued to become a coastal state regarding the mackerel since 1999 without conducting in fisheries for the mackerel at the time. One respondent said when asked about this, that Iceland wanted to be early on if the mackerel would reach the Icelandic EEZ in the

years to come. In 2010, when Iceland got a coastal state status, the Icelandic mackerel catches were already over 100,000 tonnes in 2008, 2009 and 2010.

Article 11<sup>168</sup> in UNFSA is about new entrants into a regulated fishery, such as the mackerel, with considerations that have to be taken into account. One of the considerations are that if a stock is depleted or overfished, there is no room for new entrants, and this could be the reason Iceland was kept out of the fishery. According to the ICES reports on fishing opportunities, catch and effort from 1999 to 2019, the mackerel stock was considered to be harvested unsustainably but in recent years it has been considered harvested sustainably. It is possible, because the stock was considered to be harvested unsustainably, that there was no room for Iceland in the fishery and this might have changed over the years, especially when the stock seems to have been underestimated in recent years and appears to be in a healthy condition.

The international legal framework is by some actors, like Iceland, considered rather vague and debated. However, the legal framework is what it is and was established by states which took a role in UNCLOS and UNFSA, including those states now involved in the mackerel conflict. Interpretation of the legal framework is up to each and every state and is not going to be the same with every state, unfortunately. These arguments on the legal framework could be considered a reason in itself for not engaging in real cooperation with other states. As some respondent mentioned, Iceland consider itself to follow the international law regarding the mackerel, but that doesn't comply with the obligation to cooperate.

In the interviews it was mentioned that Iceland has proposed an idea on overall management of the three pelagic stocks, mackerel, herring and blue whiting, that would be possible to implement. There are always fluctuations in the pelagic stocks but according to one respondent there are less fluctuations in the value for each state involved than in the fisheries. This is an interesting point and could be an alternative approach to resolving the problem. Bailey et al. (2013) states that the allocation schemes that have been put in place, mainly based on historical catches or abundance have been unsuccessful, however where the allocation schemes are agreed and implemented, management is successful. According to those interviewed, the criteria of allocation discussed are also the economic dependency,

---

<sup>168</sup> Article 11. UNFSA 1995.

fishing mortality as well as historical catches and the zonal attachment. The historical catches and zonal attachment have been the most important ones and contribute the most to the allocation criteria.

The Icelandic perspective presented in the media, Mbl.is, reflects what was learned from the interviews. Mbl.is has both picked up the disappointments of other states when there was no agreement in sight on including Iceland, threats about banning imports of Icelandic fish to the EU among other things. These reports from other states involved in the conflict could be a game tactic used in the international negotiations.

When looking closer at the Icelandic perspective through the two-level game theory and how the size of the win-sets can determine the outcome of the negotiations. Large win-set among the states involved which are likely to overlap contribute to a possible cooperation while smaller win-sets can increase failing of the negotiations. Large win-sets which don't have as much constraints as small domestic win-sets can make the small domestic win-set an advantage. The small and constrained domestic win-set Iceland has doesn't seem to be an advantage in the international negotiations on mackerel. This is in line with Hotvedt (2010), which at the time mentioned that the Icelandic win set was small and far away from the other states win-sets, and this seems to be the case still.

Win-sets are affected by the three factors; first, the distribution of power, preferences and conditions at the domestic level (Level II), secondly the political institutions at the domestic level (Level II) and thirdly on the strategies of the negotiators at the international level (Level I).

The first point on distribution of power, preferences and conditions at the domestic level is important regarding Iceland because of the power of the domestic interest groups. By entering into an agreement it is likely that Iceland would have to cut their share to some extent which means that Iceland wouldn't benefit as much of the fisheries, however, that is without considering that Iceland could possibly catch the mackerel later within the Norwegian EEZ, for example, if that was included in an agreement made. This point comes from an article in the Icelandic news from 2019 where the price level exchange Agency compared the price for mackerel in Norway and Iceland in the years 2012 to 2018 and it turned out the price for mackerel in Norway was higher than in Iceland, sometimes around 200% higher. The

chairman of SFS stated in the Icelandic news that it was not right to compare the prices in the countries since it was a matter of quality and that Norway was able to control their fisheries, catching the mackerel when they want to while Iceland catches their mackerel when they have to, when the mackerel comes within the Icelandic EEZ<sup>169</sup> (Ólafsson, 2019). This is interesting because around 50% of the Icelandic catches of mackerel were caught in international waters in 2019. At this time, it seems that Iceland benefits more from not entering into an agreement with the other states. From these thoughts, the Icelandic win-set is rather small and constrained by the domestic interest groups with great power.

The political institutions at the domestic level take part in determining the size of the win-set as well. The Ministry of Foreign Affairs, the Ministry of Fisheries and the interest groups work closely together on the fisheries policies. With close relations to the fishing industry and regarding the pelagic stocks, the short-term benefits push their preferences in making the policies.

The third point on the strategies of the negotiators at the international levels is interesting to see through the media, Mbl.is. These strategies are not confined to only the chief negotiator but more to the Ministers of Fisheries of the states involved. Last year, the Icelandic Minister of Fisheries said that there was no reason for Iceland being the only country taking responsibility for the mackerel. This statement comes after ICES had revised their advice for 2019, from 318,403 tonnes to 770,358 tonnes, which led Iceland to changing their quota for the same year and one respondent interviewed mentioned the anger towards Iceland from the other states after this. These actions seemed to have provoked the other states and with that the win-set is reduced even more according to Hotvedt (2010).

By this evaluation, it seems that the Icelandic win-sets are too small, and they have never been able to overlap the win-sets of the other states involved. As Ásgeirsdóttir (2008) mentioned, that these points could put limitations in the international arena, but it could also give Iceland an advantage in the negotiations. Since the mackerel fishery started, actions made by Iceland seem to have had more limitations in the international negotiations than giving them an advantage.

---

<sup>169</sup> <https://www.ruv.is/frett/segir-ad-norskur-makrill-se-verdmaetara-hraefni>



From the tragedy of the common perspective, the entire gains from the Icelandic fishery falls on Iceland while the costs, as a reduced stock, is shared among all the coastal states involved in the mackerel fishery. But if Iceland should be included in the agreement with the Faroe Islands, Norway and the EU, all of the states have to pay the price of reduced quota share.

My findings regarding question 3 is that the Icelandic perspective is strongly influenced by the strong domestic interest groups which put constraints on the international negotiations and negotiations within NEAFC. Iceland has through the years considered the positions strengthened regarding the negotiations, by catching a good amount of the mackerel, while it seems to have had the opposite effect, putting limitations on the negotiations and provoking the other states involved. The Icelandic perspective has evolved from the long history of fisheries and the economy being heavily dependent on it and despite the fact that the fisheries account for around 18% of exports, the power of the interest groups and the industry doesn't seem to have decreased through the years.

## Summary

The biological and legal context of the mackerel conflict in the Northeast Atlantic was presented in the first chapters of the thesis, providing an understanding of the species, environment and distribution. The international legal framework in UN Convention on the Law of the Sea (UNCLOS) and UN Fish Stock Agreement (UNFSA), present the legal context which applies to this transboundary stock, found within a few countries EEZs and in the high seas.

In the international negotiations and negotiations within NEAFC, the criteria of allocation discussed is consistent with the provisions in UNFSA and assist in the determination of allocation of fishing between coastal states and high-seas fishing states. The criteria discussed is the historical fishery, zonal attachment, dependency, fishing mortality, ecological effects and social needs but the first two mentioned weigh the most. The European Union (EU), Norway and the Faroe Islands have an agreement, while Iceland and Greenland have set unilateral quotas.

Early on, Iceland aspired to become a coastal state regarding the mackerel, even before the fishery began. As soon as the mackerel entered the Icelandic EEZ the catches were quick to go over 100,000 tonnes the first years. Through the years Iceland has set unilateral quota, often provoking the other coastal states.

Looking at the Icelandic perspective and the international negotiations through the lens of two-level game theory and tragedy of the commons, it seems that Iceland at this time is not close to be included in agreement with the other states. However, this can change and hopefully it will sooner than later. The outcome of the international negotiations seems to lay in the hands of the Icelandic domestic interest group, which are very powerful. Like mentioned before, Iceland seems to benefit more from not entering into an agreement, but unfortunately the cost of that falls on all of the coastal states with a possibly reduced mackerel stock.

## References

- Ásmundsson, S. (2016). Regional Fisheries Management Organisations (RFMOs): Who are they, what is their geographic coverage on the high seas and which ones should be considered as General RFMOs, Tuna RFMOs and Specialised RFMOs? [online] Available at: <https://www.cbd.int/doc/meetings/mar/soiom-2016-01/other/soiom-2016-01-fao-19-en.pdf> [Accessed 24 Jan. 2020].
- Ástþórsson, Ó.S., Valdimarsson, H., Gudmundsdóttir, Á. and Óskarsson, G.J. (2012). Climate-related variations in the occurrence and distribution of mackerel (*Scomber scombrus*) in Icelandic waters. *ICES Journal of Marine Science*, 69(7), pp.1289–1297.
- Atvinnuvega- og nýsköpunarráðuneytið (2020). Reglugerð um veiðar á makríl 2020. Reglugerðasafn. Available at: <https://www.reglugerd.is/reglugerdir/eftirraduneytum/atvinnuvega--og-nyskopunarraduneyti/nr/21875> [Accessed 29 Apr. 2020].
- Ásgeirsdóttir, Á. (2008). *Who Gets What? Domestic Influences on International Negotiations Allocating Shared Resources*. Albany: State University of New York Press.
- Bailey, M., Ishimura, G., Paisley, R. and Rashid Sumaila, U. (2013). Moving beyond catch in allocation approaches for internationally shared fish stocks. *Marine Policy*, [online] 40, pp.124–136. Available at: <https://www.sciencedirect.com/science/article/pii/S0308597X12002552> [Accessed 25 Mar. 2020].
- Berge, J., Heggland, K., Lønne, O.J., Cottier, F., Hop, H., Gabrielsen, G.W., Nøttestad, L. and Misund, O.A. (2015). First Records of Atlantic Mackerel (*Scomber scombrus*) from the Svalbard Archipelago, Norway, with Possible Explanations for the Extension of Its Distribution. *ARCTIC*, 68(1), pp.54–61.
- Bjørndal, T. (2009). Overview, roles, and performance of the North East Atlantic fisheries commission (NEAFC). *Marine Policy*, 33(4), pp.685–697.
- Bjørndal, T. and Ekerhovd, N.A. (2014). Management of Pelagic Fisheries in the North East Atlantic: Norwegian Spring Spawning Herring, Mackerel, and Blue Whiting. *Marine Resource Economics*, 29(1), pp.69–83.
- Boyd, R., Sibly, R., Hyder, K., Walker, N., Thorpe, R. and Roy, S. (2020). Simulating the summer feeding distribution of Northeast Atlantic mackerel with a mechanistic individual-based model. *Progress in Oceanography*, 183.
- Climate Greenland (n.d.). *Fisheries*. [online] [www.climategreenland.gl](http://www.climategreenland.gl). Available at:

- <http://climategreenland.gl/en/weather-climate-and-the-atmosphere/fisheries/>  
[Accessed 12 Dec. 2019].
- Cochrane, K., Murawski, S. and Tahindro, A. (2014). *Report of the Performance Review Panel*. [online] Available at: [https://nammco.no/wp-content/uploads/2018/01/neaafc\\_\\_pr-2015.pdf](https://nammco.no/wp-content/uploads/2018/01/neaafc__pr-2015.pdf) [Accessed 7 Apr. 2020].
- Cochrane, K.L. (2002). *Chapter 1: Fisheries Management*. [online] [www.fao.org](http://www.fao.org). Available at: <http://www.fao.org/3/y3427e/y3427e03.htm> [Accessed 15 Jan. 2020].
- EEZ: Flanders Marine Institute (2018). *Maritime Boundaries Geodatabase*, version 10. Available at: <http://www.marineregions.org/> [Accessed 30 Mar. 2019].
- European Commission (2018). *Facts and figures on the common fisheries policy*. [online] Available at: [https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/pcp\\_en.pdf](https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/pcp_en.pdf) [Accessed 3 Mar. 2020].
- European Commission (2019a). *North-East Atlantic coastal states reach agreement on mackerel, blue whiting and Atlanto-Scandian herring quotas for 2020*. European Commission - Fisheries. [online] 28 Oct. Available at: [https://ec.europa.eu/fisheries/press/north-east-atlantic-coastal-states-reach-agreement-mackerel-blue-whiting-and-atlanto-scandian\\_en](https://ec.europa.eu/fisheries/press/north-east-atlantic-coastal-states-reach-agreement-mackerel-blue-whiting-and-atlanto-scandian_en) [Accessed 15 Nov. 2019].
- European Commission (2019b). *The North-East Atlantic Fisheries Commission adopts conservation and enforcements measures for 2020*. European Commission - Fischerei. [online] 15 Nov. Available at: [https://ec.europa.eu/fisheries/press/north-east-atlantic-fisheries-commission-adopts-conservation-and-enforcements-measures-2020\\_de](https://ec.europa.eu/fisheries/press/north-east-atlantic-fisheries-commission-adopts-conservation-and-enforcements-measures-2020_de) [Accessed 25 Nov. 2019].
- European Union (n.d.). *The EU in brief - European Union - European Commission*. [online]. Available at: [https://europa.eu/european-union/about-eu/eu-in-brief\\_en](https://europa.eu/european-union/about-eu/eu-in-brief_en) [Accessed 28 Nov. 2019].
- FAO Fisheries & Aquaculture (n.d.). *Species Fact Sheets - Scomber scombrus*. [online] [www.fao.org](http://www.fao.org). Available at: <http://www.fao.org/fishery/species/2473/en> [Accessed 24 Mar. 2020].
- FAO Greenland (n.d.). *FAO Fisheries & Aquaculture - Country Profile*. [online] [www.fao.org](http://www.fao.org). Available at: <http://www.fao.org/fishery/facp/GRL/en> [Accessed 4 Dec. 2019].
- FAO Norway (2013). *FAO Fisheries & Aquaculture - Country Profile*. [online] [www.fao.org](http://www.fao.org). Available at: <http://www.fao.org/fishery/facp/NOR/en> [Accessed 29 Nov. 2019].
- Faroese Seafood (n.d.). *About the Faroe Islands*. [online] [www.faroese seafood.com](http://www.faroese seafood.com).

- Available at: <https://www.faroese seafood.com/the-faroe-islands/the-faroe-islands/>  
[Accessed 4 Nov. 2019].
- Fiskeri- og kystdepartementet (2008). *St.meld. nr. 34 (2007-2008)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/stmeld-nr-34-2007-2008-/id517650/> [Accessed 26 Sep. 2019].
- Fiskeri- og kystdepartementet (2010). *Meld. St. 18 (2009-2010)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/Meld-St-18-2009-2010/id606814/> [Accessed 27 Sep. 2019].
- Fiskeri- og kystdepartementet (2011). *Meld. St. 26 (2010-2011)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/meld-st-26-20102011/id646454/> [Accessed 26 Sep. 2019].
- Fiskeri- og kystdepartementet (2012). *Meld. St. 25 (2011-2012)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/meld-st-25-20112012/id683742/> [Accessed 24 Sep. 2019].
- Fiskeridepartementet (1999). *St.meld. nr. 49 (1998-99)*. [online] [www.regjeringen.no](http://www.regjeringen.no). Available at: <https://www.regjeringen.no/no/dokumenter/stmeld-nr-49-1998-99-/id192499/> [Accessed 16 Sep. 2019].
- Fiskeridepartementet (2000). *St.meld. nr. 44 (1999-2000)*. [online] [Regjeringen.no](http://www.regjeringen.no). Available at: <https://www.regjeringen.no/no/dokumenter/stmeld-nr-44-1999-2000-/id331939/> [Accessed 25 Sep. 2019].
- Fiskeridepartementet (2001). *St.meld. nr. 50 (2000-2001)*. [online] [www.regjeringen.no](http://www.regjeringen.no). Available at: <https://www.regjeringen.no/no/dokumenter/stmeld-nr-50-2000-2001-/id432002/> [Accessed 25 Sep. 2019].
- Fiskistofa (n.d.). *Makrílveiðar 2018/2019*. [online] [www.fiskistofa.is](http://www.fiskistofa.is). Available at: <http://www.fiskistofa.is/veidar/aflaupplysingar/yfirlit-sidasta-fiskveidiars/makrilveidar/> [Accessed 16 Mar. 2020].
- Food and Agriculture Organization (FAO) (n.d.). *5 Common Property: Cause or Remedy of Poverty for Small-scale Fisheries*. [online] [www.fao.org](http://www.fao.org). Available at: <http://www.fao.org/3/y3914e/y3914e08.htm> [Accessed 10 Nov. 2019].
- Gardner, R., Ostrom, E. and Walker, J.M. (1990). The Nature of Common-Pool Resource Problems. *Rationality and Society*, 2(3), pp.335-358.
- Government of Greenland (n.d.). *Facts about Greenland - Naalakkersuisut*. [online] [Naalakkersuisut.gl](http://Naalakkersuisut.gl). Available at: <https://naalakkersuisut.gl/en/About-government-of-greenland/About-Greenland/Facts-about-Greenland> [Accessed 27 Nov. 2019].

- Government of Iceland (2018). *Statement on Responsible Fisheries in Iceland*. [online] [www.government.is](http://www.government.is). Available at: <https://www.government.is/news/article/2018/05/15/Fisheries/> [Accessed 16 Oct. 2019].
- Government of Iceland (n.d.-a). *Government of Iceland | Fisheries Management*. [online] [www.government.is](http://www.government.is). Available at: <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/fisheries-management/> [Accessed 15 Oct. 2019a].
- Government of Iceland (n.d.-b). *Government of Iceland | International policy*. [online] [www.government.is](http://www.government.is). Available at: <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/international-policy/> [Accessed 18 Oct. 2019b].
- Government of Iceland (n.d.-c). *History of fisheries*. [online] [www.government.is](http://www.government.is). Available at: <https://www.government.is/topics/business-and-industry/fisheries-in-iceland/history-of-fisheries/> [Accessed 20 Oct. 2019c].
- Gunnarsson, B., Jónasson, J., Logemann, K., Marteinsdóttir, G. and Óskarsson, G. (2019). Recent occurrence and origin of juvenile Atlantic mackerel (*Scomber scombrus* L.) in Icelandic waters, *Haf- og Vatnarannsóknir*, Marine and Freshwater Research in Iceland. [online] [www.hafogvatn.is](http://www.hafogvatn.is). Available at: <https://www.hafogvatn.is/static/files/hv2019-03.pdf> [Accessed 15 Mar. 2020].
- Hafrannsóknarstofnun (2019). *Inngangur að ráðgjöf - Introduction to the advice*. [online] [www.hafogvatn.is](http://www.hafogvatn.is). Available at: [https://www.hafogvatn.is/static/files/b00-inngradgj\\_2019.pdf](https://www.hafogvatn.is/static/files/b00-inngradgj_2019.pdf) [Accessed 2 Apr. 2020].
- Hafrannsóknastofnun (n.d.). *Ráðgjöf*. [online] [www.hafogvatn.is](http://www.hafogvatn.is). Available at: <https://www.hafogvatn.is/is/veidiradgjof> [Accessed 3 Apr. 2020].
- Hagstofa Íslands (2018). *Hagur veiða og vinnslu 2017*. [online] [Hagstofa.is](http://Hagstofa.is). Available at: <http://hagstofan.s3.amazonaws.com/media/public/2019/ddeae9b9-de47-4295-ac6d-ea586375218d.pdf> [Accessed 25 Jan. 2020].
- Hagstofa Íslands (2020). *Landsmönnum fjölgar um 2,0% á milli ára*. [online] [Hagstofa.is](http://Hagstofa.is). Available at: <https://hagstofa.is/utgafur/frettasafn/mannfjoldi/mannfjoldinn-1-januar-2020/> [Accessed 10 May 2020].
- Hagstofa Íslands (n.d.). *Afli og verðmæti eftir tegundum og veiðisvæðum 1993-2018*. [online] [Hagstofa.is](http://Hagstofa.is). Available at: [https://px.hagstofa.is/pxis/pxweb/is/Atvinnuvegir/Atvinnuvegir\\_\\_sjavarutvegur\\_\\_aflatolur\\_\\_fiskveidisvaedi/SJA09001.px](https://px.hagstofa.is/pxis/pxweb/is/Atvinnuvegir/Atvinnuvegir__sjavarutvegur__aflatolur__fiskveidisvaedi/SJA09001.px) [Accessed 5 Dec. 2019].
- Hallenstvedt, A. and Dørum, K. (2020). *Norsk fiskerihistorie*. [online] Store norske leksikon.

- Available at: [https://snl.no/Norsk\\_fiskerihistorie](https://snl.no/Norsk_fiskerihistorie) [Accessed 16 Feb. 2020].
- Hannesson, R. (2004). *The Privatization of the Oceans*. Massachusetts Institute of Technology.
- Hannesson, R. (2013). Sharing the Northeast Atlantic mackerel. *ICES Journal of Marine Science*, [online] 70(2), pp.259–269. Available at: <https://academic.oup.com/icesjms/article/70/2/259/793656> [Accessed 16 Feb. 2020].
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162(3859), pp.1243–1248.
- Havforskningsinstituttet (2019a). *Kolmule*. [online] [www.hi.no](http://www.hi.no). Available at: <https://www.hi.no/hi/temasider/arter/kolmule> [Accessed 16 Nov. 2019].
- Havforskningsinstituttet (2019b). *Makrell*. [online] [www.hi.no](http://www.hi.no). Available at: <https://www.hi.no/hi/temasider/arter/makrell> [Accessed 23 Feb. 2020].
- Henley, J. (2019). Iceland accused of putting mackerel stocks at risk by increasing its catch. *The Guardian*. [online] 21 Nov. Available at: [https://www.theguardian.com/environment/2019/nov/21/iceland-accused-of-putting-mackerel-stocks-at-risk-by-increasing-its-catch?CMP=Share\\_iOSApp\\_Other](https://www.theguardian.com/environment/2019/nov/21/iceland-accused-of-putting-mackerel-stocks-at-risk-by-increasing-its-catch?CMP=Share_iOSApp_Other) [Accessed 16 Dec. 2019].
- Henriksen, T. and Hoel, A.H. (2011). Determining Allocation: From Paper to Practice in the Distribution of Fishing Rights Between Countries. *Ocean Development & International Law*, 42(1–2), pp.66–93.
- Hoel, A.H. (2019). The growing importance of regional oceans cooperation. [online] [framsenteret.no](http://framsenteret.no). Available at: <https://framsenteret.no/2019/02/the-growing-importance-of-regional-oceans-cooperation/> [Accessed 16 Jan. 2020].
- Hoel, A.H. and VanderZwaag, D. (2014). The global legal dimension: Navigating the legal currents of rights and responsibilities. In: S.M. Garcia, J. Rice and A. Charles, eds., *Governance of Marine Fisheries and Biodiversity Conservation: Interaction and Coevolution*. [online] *Wiley Blackwell*, pp.96–109. Available at: <https://onlinelibrary.wiley.com/doi/book/10.1002/9781118392607> [Accessed 15 Jan. 2020].
- Hotvedt, B.D. (2010). The Problem of Sharing a Common Stock: An Analysis of the Mackerel Conflict in the North East Atlantic. [online] Available at: <https://munin.uit.no/bitstream/handle/10037/3528/thesis.pdf?sequence=1&isAllowed=y> [Accessed 15 Mar. 2020].
- Iceland Chamber of Commerce (2019). *The Icelandic economy – Current states, recent*

*developments and future outlook*. [online] [www.vi.is](http://www.vi.is). Available at:  
[https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/the\\_icelandic\\_economy\\_2019\\_report.pdf](https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/the_icelandic_economy_2019_report.pdf) [Accessed 16 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (1999). Mackerel (combined Southern, Western and North Sea spawning components). [online] [www.ices.dk](http://www.ices.dk). Available at: <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/1999/mac-nea.pdf> [Accessed 7 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2000). Mackerel (combined Southern, Western and North Sea spawning components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2000/Oct/mac-nea.pdf> [Accessed 8 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2001). Mackerel (combined Southern, Western and North Sea spawning components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2001/oct/mac-nea.pdf> [Accessed 8 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2002). Mackerel (combined Southern, Western and North Sea spawning components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2002/oct/mac-nea.pdf> [Accessed 8 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2004). Northeast Atlantic Mackerel (combined Southern, Western and North Sea spawning components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2004/oct/mac-nea.pdf> [Accessed 8 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2007). Northeast Atlantic Mackerel (combined Southern, Western and North Sea spawning components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2007/oct/mac-nea.pdf> [Accessed 10 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2008). Northeast Atlantic



- mackerel (combined Southern, Western, and North Sea spawning components).  
[online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2008/2008/mac-nea.pdf>  
[Accessed 5 Nov. 2019].
- International Council for the Exploration of the Sea (ICES) (2009). Mackerel in the Northeast Atlantic (combined Southern, Western, and North Sea spawning components).  
[online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2009/2009/mac-nea.pdf>  
[Accessed 8 Nov. 2019].
- International Council for the Exploration of the Sea (ICES) (2013). Mackerel in the Northeast Atlantic (combined Southern, western and North Sea components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2013/2013/mac-nea.pdf>  
[Accessed 10 Nov. 2019].
- International Council for the Exploration of the Sea (ICES) (2014). Mackerel in the Northeast Atlantic (combined Southern, western and North Sea components). [online] [www.ices.dk](http://www.ices.dk). Available at:  
[http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/2014/mac-nea\\_update\\_2014.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2014/2014/mac-nea_update_2014.pdf) [Accessed 10 Nov. 2019].
- International Council for the Exploration of the Sea (ICES) (2017). Mackerel (*Scomber scombrus* in subareas 1-8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters). [online] [www.ices.dk](http://www.ices.dk). Available at:  
<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2017/2017/mac.27.nea.pdf> [Accessed 11 Nov. 2019].
- International Council for the Exploration of the Sea (ICES) (2018a). Advice basis. [online] [www.ices.dk](http://www.ices.dk), pp.1–13. Available at:  
[https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/Introduction\\_to\\_advice\\_2018.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/Introduction_to_advice_2018.pdf) [Accessed 4 Nov. 2019].
- International Council for the Exploration of the Sea (ICES) (2018b). Ecosystem overview. [online] [www.ices.dk](http://www.ices.dk). Available at:  
[https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/NorwegianSea\\_EcosystemOverview.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/NorwegianSea_EcosystemOverview.pdf) [Accessed 3 Mar. 2020].
- International Council for the Exploration of the Sea (ICES) (2018c). Mackerel (*Scomber*

scombrus) in subareas 1-8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters) ICES advice on fishing opportunities. [online] [www.ices.dk](http://www.ices.dk).

Available at:

<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2018/2018/mac.27.nea.pdf> [Accessed 24 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2019a). Fisheries Overviews.

[online] [www.ices.dk](http://www.ices.dk). Available at:

[https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/FisheriesOverviews\\_Norwegian%20Sea\\_2019.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/FisheriesOverviews_Norwegian%20Sea_2019.pdf) [Accessed 6 Mar. 2020].

International Council for the Exploration of the Sea (ICES) (2019b). Mackerel (*Scomber scombrus* in subareas 1-8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters)). [online] [www.ices.dk](http://www.ices.dk). Available at:

<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/mac.27.nea.pdf> [Accessed 8 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2019c). Norway special request for revised 2019 advice on mackerel (*Scomber scombrus* in subareas 1-8 and 14, and in Division 9.a (the Northeast Atlantic and adjacent waters)). [online] [www.ices.dk](http://www.ices.dk).

Available at:

[http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/Special\\_Requests/no.2019.09.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/Special_Requests/no.2019.09.pdf) [Accessed 10 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2019d). Science Plan. [online] [www.ices.dk](http://www.ices.dk). Available at:

[https://issuu.com/icesdk/docs/ices\\_science\\_plan\\_2019\\_web](https://issuu.com/icesdk/docs/ices_science_plan_2019_web) [Accessed 18 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2019e). Strategic Plan. [online] [www.ices.dk](http://www.ices.dk). Available at:

[https://issuu.com/icesdk/docs/ices\\_strategic\\_plan\\_2019\\_web](https://issuu.com/icesdk/docs/ices_strategic_plan_2019_web) [Accessed 10 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2019f). Working Group on Widely Distributed Stocks (WGWIDE). [online] [www.ices.dk](http://www.ices.dk). Available at:

<http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2019/WGWIDE/01%20WGWIDE%20Report%202019.pdf> [Accessed 10 Nov. 2019].

International Council for the Exploration of the Sea (ICES) (2020). Guidelines for ICES groups. [online] [www.ices.dk](http://www.ices.dk). Available at: [https://www.ices.dk/explore-us/Documents/Guidelines\\_for\\_ICES\\_Groups.pdf](https://www.ices.dk/explore-us/Documents/Guidelines_for_ICES_Groups.pdf) [Accessed 16 Feb. 2020].

- International Council for the Exploration of the Sea (ICES) (n.d.-a). ACOM. [online] [www.ices.dk](http://www.ices.dk). Available at: <https://www.ices.dk/community/groups/Pages/ACOM.aspx> [Accessed 5 Nov. 2019a].
- International Council for the Exploration of the Sea (ICES) (n.d.-b). Expert Groups. [online] [www.ices.dk](http://www.ices.dk). Available at: <https://www.ices.dk/explore-us/who-we-are/Pages/Expert-Groups.aspx> [Accessed 16 Nov. 2019b].
- International Council for the Exploration of the Sea (ICES) (n.d.-c). Fisheries Resources Steering Group. [online] [www.ices.dk](http://www.ices.dk). Available at: <https://www.ices.dk/community/groups/Pages/FRSG.aspx> [Accessed 19 Nov. 2019c].
- International Council for the Exploration of the Sea (ICES) (n.d.-d). Our history. [online] [www.ices.dk](http://www.ices.dk). Available at: <https://www.ices.dk/explore-us/who-we-are/Pages/Our-history.aspx> [Accessed 25 Oct. 2019d].
- International Council for the Exploration of the Sea (ICES) (1999-2020). Publication Reports. [online] [www.ices.dk](http://www.ices.dk). Available at: <http://www.ices.dk/sites/pub/Publication%20Reports/Forms/defaultone.aspx?RootFolder=%2fsites%2fpub%2fPublication%20Reports%2fAdvice&FolderCTID=0x0120005DAF18EB10DAA049BBB066544D790785> [Accessed 25 Nov. 2019].
- Jacobsen, D.I. (2015). *Hvordan gjennomføre undersøkelser?: innføring i samfunnsvitenskapelig metode*. Oslo: Cappelen Damm Akademisk.
- Jansen, T., Post, S.L., Kristiansen, T., Óskarsson, G.J., Boje, J., MacKenzie, B.R., Broberg, M. and Siegstad, H. (2016). Ocean warming expands habitat of a rich natural resource and benefits a national economy. *Ecological Applications*, 26(7), pp.2021–2032.
- Jósefsson, Æ.Ö. (2019). *Makrillkvóti aukinn*. RÚV.is. [online] 29 Jun. Available at: <https://www.ruv.is/frett/makrillkvoti-aukinn> [Accessed 28 Apr. 2020].
- Júlíusson, K.T. (2019). *Icelandic fisheries minister: It's time we got our seat at the table*. [online] [www.euractiv.com](http://www.euractiv.com). Available at: <https://www.euractiv.com/section/agriculture-food/opinion/icelandic-fisheries-minister-its-time-we-got-our-seat-at-the-table/> [Accessed 20 Sep. 2019].
- Latlong.net. (n.d.). Lat Long. [online] Available at: <https://www.latlong.net/> [Accessed 10 Oct. 2019].
- Mbl.is (1998). *Mörg skip hyggja á kolmunnaveiðar eftir loðnuvertíð*. [online] [www.mbl.is](http://www.mbl.is). Available at: [https://www.mbl.is/vidskipti/frettir/1998/07/24/morg\\_skip\\_hyggja\\_a\\_kolmunnaveidar\\_eftir\\_lodnuvertid/](https://www.mbl.is/vidskipti/frettir/1998/07/24/morg_skip_hyggja_a_kolmunnaveidar_eftir_lodnuvertid/) [Accessed 28 Nov. 2019].

- Mbl.is (1999). *Norðmönnum finnst sem á þá halli í fiskveiðisamningum*. [online] www.mbl.is. Available at: [https://www.mbl.is/vidskipti/frettir/1999/07/28/nordmonnum\\_finnst\\_sem\\_a\\_tha\\_halli\\_i\\_fiskveidisamnin/](https://www.mbl.is/vidskipti/frettir/1999/07/28/nordmonnum_finnst_sem_a_tha_halli_i_fiskveidisamnin/) [Accessed 20 Nov. 2019].
- Mbl.is (2004). *Breytir hlýnunin fiskgöngum?* [online] www.mbl.is. Available at: [https://www.mbl.is/vidskipti/frettir/2004/09/28/breytir\\_hlynunin\\_fiskgongum/](https://www.mbl.is/vidskipti/frettir/2004/09/28/breytir_hlynunin_fiskgongum/) [Accessed 28 Nov. 2019].
- Mbl.is (2008a). *Dregur úr makrílveiði hjá íslensku veiðiskipunum*. [online] www.mbl.is. Available at: [https://www.mbl.is/frettir/innlent/2008/08/01/dregur\\_ur\\_makrilveiði\\_hja\\_íslensku\\_veiðiskipunum/](https://www.mbl.is/frettir/innlent/2008/08/01/dregur_ur_makrilveiði_hja_íslensku_veiðiskipunum/) [Accessed 16 Nov. 2019].
- Mbl.is (2008b). *Líkur á aukinni makrílgengd*. [online] www.mbl.is. Available at: [https://www.mbl.is/frettir/innlent/2008/11/19/bjartsyn\\_a\\_makrilsamning\\_2009/](https://www.mbl.is/frettir/innlent/2008/11/19/bjartsyn_a_makrilsamning_2009/) [Accessed 28 Nov. 2019].
- Mbl.is (2008c). *LÍÚ gagnrýnir dönsk samtök*. [online] www.mbl.is. Available at: [https://www.mbl.is/vidskipti/frettir/2008/10/23/liu\\_gagnrynir\\_donsk\\_samtok/](https://www.mbl.is/vidskipti/frettir/2008/10/23/liu_gagnrynir_donsk_samtok/) [Accessed 27 Nov. 2019].
- Mbl.is (2008d). *Makrill er lottóvinningur*. [online] www.mbl.is. Available at: [https://www.mbl.is/frettir/innlent/2008/07/21/makrill\\_er\\_lottovinningur/](https://www.mbl.is/frettir/innlent/2008/07/21/makrill_er_lottovinningur/) [Accessed 28 Nov. 2019].
- Mbl.is (2008e). *Saka Íslendinga um ofveiði*. [online] www.mbl.is. Available at: [https://www.mbl.is/vidskipti/frettir/2008/11/10/saka\\_íslendinga\\_um\\_ofveidi/](https://www.mbl.is/vidskipti/frettir/2008/11/10/saka_íslendinga_um_ofveidi/) [Accessed 27 Nov. 2019].
- Mbl.is (2009a). *Engin vísindarök að baki makrílkvóta*. [online] www.mbl.is. Available at: [https://www.mbl.is/frettir/innlent/2009/04/06/engin\\_visindarok\\_ad\\_baki\\_makrilkvota/](https://www.mbl.is/frettir/innlent/2009/04/06/engin_visindarok_ad_baki_makrilkvota/) [Accessed 28 Nov. 2019].
- Mbl.is (2009b). *Fréttaskýring: Meira en þreföld verðmæti með fullvinnslu*. [online] www.mbl.is. Available at: [https://www.mbl.is/frettir/innlent/2009/03/27/meira\\_en\\_threfold\\_verdmaeti\\_med\\_fullvinnslu/](https://www.mbl.is/frettir/innlent/2009/03/27/meira_en_threfold_verdmaeti_med_fullvinnslu/) [Accessed 29 Nov. 2019].
- Mbl.is (2009c). *Ísland ekki með á makrílfundi*. [online] www.mbl.is. Available at: [https://www.mbl.is/frettir/innlent/2009/10/26/island\\_ekki\\_med\\_a\\_makrilmfund/](https://www.mbl.is/frettir/innlent/2009/10/26/island_ekki_med_a_makrilmfund/) [Accessed 29 Nov. 2019].
- Mbl.is (2009d). *Makrill étur undan öðrum nytjastofnum*. [online] www.mbl.is. Available at:

- [https://www.mbl.is/frettir/innlent/2009/07/25/makrill\\_etur\\_undan\\_odrum\\_nytjastofnum/](https://www.mbl.is/frettir/innlent/2009/07/25/makrill_etur_undan_odrum_nytjastofnum/) [Accessed 30 Nov. 2019].
- Mbl.is (2009e). *Sildveiðiskip umkringd makríl um alla lögsögu*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2009/08/06/sildveidiskip\\_umkringd\\_makril\\_um\\_alla\\_logsogu/](https://www.mbl.is/frettir/innlent/2009/08/06/sildveidiskip_umkringd_makril_um_alla_logsogu/) [Accessed 30 Nov. 2019].
- Mbl.is (2010a). *Krefst aðgerða í makríldeilu*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/erlent/2010/08/18/krefst\\_adgerda\\_i\\_makrildeilu/](https://www.mbl.is/frettir/erlent/2010/08/18/krefst_adgerda_i_makrildeilu/) [Accessed 30 Nov. 2019].
- Mbl.is (2010b). *Makrill hrygnir í íslenskri lögsögu*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2010/06/28/makrill\\_hrygnir\\_i\\_islenskri\\_logsogu/](https://www.mbl.is/frettir/innlent/2010/06/28/makrill_hrygnir_i_islenskri_logsogu/) [Accessed 30 Nov. 2019].
- Mbl.is (2010c). *Miklar makrílgöngur styrkja stöðu Íslendinga*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2010/08/16/miklar\\_makrilgongur\\_styrkja\\_stodu\\_islendinga/](https://www.mbl.is/frettir/innlent/2010/08/16/miklar_makrilgongur_styrkja_stodu_islendinga/) [Accessed 30 Nov. 2019].
- Mbl.is (2011a). *Hóta aðgerðum vegna makríldeilunnar*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2011/10/19/hota\\_adgerdum\\_vegna\\_makrildeilunnar/](https://www.mbl.is/frettir/innlent/2011/10/19/hota_adgerdum_vegna_makrildeilunnar/) [Accessed 30 Nov. 2019].
- Mbl.is (2011b). *Viðræður um makríl á ný*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2011/03/08/vidraedur\\_um\\_makril\\_a\\_ny/](https://www.mbl.is/frettir/innlent/2011/03/08/vidraedur_um_makril_a_ny/) [Accessed 30 Nov. 2019].
- Mbl.is (2012a). *Buðu Íslandi hærrí hlutdeild*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2012/02/16/budu\\_islandi\\_haerri\\_hlutdeild/](https://www.mbl.is/frettir/innlent/2012/02/16/budu_islandi_haerri_hlutdeild/) [Accessed 1 Dec. 2019].
- Mbl.is (2012b). *Makríldeilan enn í hnút*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2012/09/03/makrildeilan\\_enn\\_i\\_hnut/](https://www.mbl.is/frettir/innlent/2012/09/03/makrildeilan_enn_i_hnut/) [Accessed 1 Dec. 2019].
- Mbl.is (2013a). *Mikið ber enn á milli í makrílnum*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2013/12/28/mikid\\_ber\\_a\\_milli\\_i\\_makrilnum/](https://www.mbl.is/frettir/innlent/2013/12/28/mikid_ber_a_milli_i_makrilnum/) [Accessed 1 Dec. 2019].
- Mbl.is (2013b). *Steingrímur: „Makrillinn fær ekki ókeypis hádegisverð“*. [online]

- www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2013/01/24/makrillinn\\_faer\\_ekki\\_okeypis\\_hadegisverd/](https://www.mbl.is/frettir/innlent/2013/01/24/makrillinn_faer_ekki_okeypis_hadegisverd/) [Accessed 2 Dec. 2019].
- Mbl.is (2013c). *Styður ekki tilboð Evrópusambandsins*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2013/12/17/stydur\\_ekki\\_tilbod\\_evropusambandsins/](https://www.mbl.is/frettir/innlent/2013/12/17/stydur_ekki_tilbod_evropusambandsins/)  
[Accessed 2 Dec. 2019].
- Mbl.is (2014). *Segir ráðherra fara með rangt mál*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2014/03/22/segir\\_radherra\\_fara\\_med\\_rangt\\_mal/](https://www.mbl.is/frettir/innlent/2014/03/22/segir_radherra_fara_med_rangt_mal/)  
[Accessed 2 Dec. 2019].
- Mbl.is (2015a). *Milljarða samdráttur í tekjum af makríl*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2015/08/01/milljarda\\_samdrattur\\_i\\_tekjum\\_af\\_makril/](https://www.mbl.is/frettir/innlent/2015/08/01/milljarda_samdrattur_i_tekjum_af_makril/)  
[Accessed 3 Dec. 2019].
- Mbl.is (2015b). *Reynt að semja um makríl*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/frettir/innlent/2015/10/22/reynt\\_ad\\_semja\\_um\\_makrilinn/](https://www.mbl.is/frettir/innlent/2015/10/22/reynt_ad_semja_um_makrilinn/)  
[Accessed 2 Dec. 2019].
- Mbl.is (2017). *Af hverju makrílinn „beygir til vinstri“*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/200milur/frettir/2017/03/26/af\\_hverju\\_makrillinn\\_beygir\\_til\\_vinstri/](https://www.mbl.is/200milur/frettir/2017/03/26/af_hverju_makrillinn_beygir_til_vinstri/)  
[Accessed 4 Dec. 2019].
- Mbl.is (2018). *Sveiflur eðlilegar í stærð árganga*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/200milur/frettir/2018/05/03/sveiflur\\_edlilegar\\_i\\_staerd\\_arganga/](https://www.mbl.is/200milur/frettir/2018/05/03/sveiflur_edlilegar_i_staerd_arganga/)  
[Accessed 4 Dec. 2019].
- Mbl.is (2019a). *80% meiri makrill í ár*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/200milur/frettir/2019/08/30/80\\_prosent\\_meiri\\_makrill\\_i\\_ar/](https://www.mbl.is/200milur/frettir/2019/08/30/80_prosent_meiri_makrill_i_ar/)  
[Accessed 4 Dec. 2019].
- Mbl.is (2019b). *Aðeins 51% makríls úr íslenskri lögsögu*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/200milur/frettir/2019/12/03/adeins\\_51\\_prosent\\_makrils\\_ur\\_islenskri\\_logsogu/](https://www.mbl.is/200milur/frettir/2019/12/03/adeins_51_prosent_makrils_ur_islenskri_logsogu/)  
[Accessed 4 Dec. 2019].
- Mbl.is (2019c). *Aukið við makrílkvótann*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/200milur/frettir/2019/06/29/aukid\\_vid\\_makrilkvotann/](https://www.mbl.is/200milur/frettir/2019/06/29/aukid_vid_makrilkvotann/) [Accessed 4 Dec. 2019].
- Mbl.is (2019d). *Niðurstaðan mikil vonbrigði*. [online] www.mbl.is. Available at:  
[https://www.mbl.is/200milur/frettir/2019/02/01/nidurstadan\\_mikil\\_vonbrigdi/](https://www.mbl.is/200milur/frettir/2019/02/01/nidurstadan_mikil_vonbrigdi/)  
[Accessed 4 Dec. 2019].
- Mbl.is (2020). *Eykur makrílkvótann um 7,8%*. [online] www.mbl.is. Available at:

- [https://www.mbl.is/200milur/frettir/2020/04/01/eykur\\_makrillkvotann\\_um\\_7\\_8\\_prosent/](https://www.mbl.is/200milur/frettir/2020/04/01/eykur_makrillkvotann_um_7_8_prosent/) [Accessed 10 Apr. 2020].
- Mbl.is (n.d.). *Morgunblaðið - Árvakur*. [online] [www.mbl.is](http://www.mbl.is). Available at: <https://www.mbl.is/mogginn/fyrirtaekid/> [Accessed 16 Jan. 2019].
- McManus, M.C., Hare, J.A., Richardson, D.E. and Collie, J.S. (2017). Tracking shifts in Atlantic mackerel (*Scomber scombrus*) larval habitat suitability on the Northeast U.S. Continental Shelf. *Fisheries Oceanography*, 27(1), pp.49–62.
- Nærings- og fiskeridepartementet (2014). *Meld. St. 26 (2013–2014)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/Meld-St-26-20132014/id762633/> [Accessed 28 Sep. 2019].
- Nærings- og fiskeridepartementet (2017). *Meld. St. 28 (2016–2017)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/meld.-st.-28-20162017/id2545906/> [Accessed 16 Apr. 2020].
- Nærings- og fiskeridepartementet (2019). *Meld. St. 15 (2018–2019)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/meld.-st.-15-20182019/id2632380/> [Accessed 27 Sep. 2019].
- Nærings- og fiskeridepartementet (2020). *Meld. St. 13 (2019–2020)*. [online] [www.regjeringa.no](http://www.regjeringa.no). Available at: <https://www.regjeringen.no/no/dokumenter/meld.-st.-13-20192020/id2693108/> [Accessed 5 Apr. 2020].
- Nakken, O. (2008). ‘Introduction’, in Nakken, O. (eds) *Norwegian Spring-spawning Herring & Northeast Arctic Cod: 100 Years of Research Management*. [online] Google Books. Trondheim: Tapir Academic Press. Available at: [https://books.google.no/books?hl=en&lr=&id=2uTn3RcOQQcC&oi=fnd&pg=PA7&dq=management+history+herring&ots=ktzePLV5f0&sig=2KH5mM2jocLK6C\\_nuxB-ValEXtY&redir\\_esc=y#v=onepage&q=management%20history%20herring&f=false](https://books.google.no/books?hl=en&lr=&id=2uTn3RcOQQcC&oi=fnd&pg=PA7&dq=management+history+herring&ots=ktzePLV5f0&sig=2KH5mM2jocLK6C_nuxB-ValEXtY&redir_esc=y#v=onepage&q=management%20history%20herring&f=false) [Accessed 16 Apr. 2020].
- Nøttestad, L. (2015). *Endringer i makrellens vandringer*. [online] Available at: <https://slideplayer.no/slide/2064381/> [Accessed 24 Apr. 2020].
- Ólafsdóttir, A.H., Utne, K.R., Jacobsen, J.A., Jansen, T., Óskarsson, G.J., Nøttestad, L., Elvarsson, B.Þ., Broms, C. and Slotte, A. (2019). Geographical expansion of Northeast Atlantic mackerel (*Scomber scombrus*) in the Nordic Seas from 2007 to 2016 was primarily driven by stock size and constrained by low temperatures. *Deep Sea Research Part II: Topical Studies in Oceanography*, 159, pp.152–168.
- Ólafsson, Á. (2019). *Segir að norskur makrill sé verðmætara hráefni*. Rúv.is. [online] 29

- Aug. Available at: <https://www.ruv.is/frett/segir-ad-norskur-makrill-se-verdmaetara-hraefni> [Accessed 2 May 2020].
- Ólafsson, F., Björnsson, B.B. and Þorbergsson, L. eds., (2014). *The Icelandic Economy: Current State, Recent Developments and Future Outlook*. [online] www.vi.is. Iceland Chamber of Commerce. Available at: [https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/2014\\_07\\_18\\_the\\_icelandic\\_economy.pdf](https://www.vi.is/files/%C3%BAtg%C3%A1fa/sk%C3%BDrslur/2014_07_18_the_icelandic_economy.pdf) [Accessed 29 Apr. 2020].
- Organisation for Economic co-operation and development (OECD) (2003). *The Costs of Managing Fisheries*. [online] OECD, pp.43–44. Available at: <https://books.google.no/books?id=FSyPk-ELEPEC&printsec=frontcover&hl=is#v=onepage&q&f=false> [Accessed 4 Mar. 2020].
- Óskarsson, G.J., Sveinbjörnsson, S., Guðmundsdóttir, Á. and Sigurðsson, Þ. (2012). Ecological impacts of recent extension of feeding migration of NE-Atlantic mackerel into the ecosystem around Iceland.” (2012). [online] Available at: <https://pdfs.semanticscholar.org/ff29/f70ee18cac86761c35b59504914257f4b1c2.pdf> [Accessed 15 Nov. 2019].
- Ospar Commission (n.d.). *The North-East Atlantic*. Available at: <https://www.ospar.org/convention/the-north-east-atlantic> [Accessed 4 Apr. 2020].
- Putnam, R.D. (1988). Diplomacy and domestic politics: the logic of two-level games. *International Organization*, 42(3), pp.427–460.
- Samtök atvinnulífsins (2014). *Samtök fyrirtækja í sjávarútvegi stofnuð*. [online] www.sa.is. Available at: <https://www.sa.is/frettatengt/frettir/samtok-fyrirtaekja-i-sjavarutvegi-stofnud> [Accessed 16 Feb. 2020].
- Sigurjónsson, J. (2016). 18 Changes in Distribution and Migration of Fish Stocks in the Northeast Atlantic Ocean Due to Climate Variations. *Challenges of the Changing Arctic*, [online] pp.405–428. Available at: [https://brill.com/view/book/edcoll/9789004314252/B9789004314252\\_020.xml](https://brill.com/view/book/edcoll/9789004314252/B9789004314252_020.xml) [Accessed 16 Apr. 2020].
- Spijkers, J. and Boonstra, W.J. (2017). Environmental change and social conflict: the northeast Atlantic mackerel dispute. *Regional Environmental Change*, 17(6), pp.1835–1851.
- Statistics Greenland (2018). *Greenland in Figures*. [online] naalakkersuisut.gl. Available at:



- <https://naalakkersuisut.gl/~media/Nanoq/Files/Publications/Udenrigs/Greenland%20in%20Figures%202018.pdf> [Accessed 14 Mar. 2020].
- Statistics Norway (2020). *Utenrikshandel med varer*. [online] [www.ssb.no](http://www.ssb.no). Available at: <https://www.ssb.no/utenriksokonomi/statistikker/muh/aar> [Accessed 14 Mar. 2020].
- Stjórnarráð Íslands (2019). *Ársfundur Norðaustur-Atlantshafsfiskveiðiráðsins*. [online] [www.stjornarradid.is](http://www.stjornarradid.is). Available at: <https://www.stjornarradid.is/efst-abaugi/frettir/stok-frett/2019/11/18/Arsfundur-Nord austur-Atlantshafsfiskveidiradsins/> [Accessed 12 Jan. 2020].
- Stjórnarráð Íslands (2020). *Ráðherra ákveður árskvóta í deilistofnum*. [online] [www.stjornarradid.is](http://www.stjornarradid.is). Available at: <https://www.stjornarradid.is/efst-abaugi/frettir/stok-frett/2020/04/01/Radherra-akvedur-arskvota-i-deilistofnum/> [Accessed 2 Apr. 2020].
- The North-East Atlantic Fisheries Commission (NEAFC) (1982). *Convention on future multilateral cooperation in North-East Atlantic Fisheries*. Available at: <https://www.neafc.org/system/files/Text-of-NEAFC-Convention-04.pdf> [Accessed 16 Feb. 2020].
- The North-East Atlantic Fisheries Commission (NEAFC) (n.d.-a). *About the Work of NEAFC* | North-East Atlantic Fisheries Commission. [online] [www.neafc.org](http://www.neafc.org). Available at: <https://www.neafc.org/about> [Accessed 16 Feb. 2020a].
- The North-East Atlantic Fisheries Commission (NEAFC) (n.d.-b). *NEAFC Committee and Working Group Information* | North-East Atlantic Fisheries Commission. [online] [www.neafc.org](http://www.neafc.org). Available at: <https://www.neafc.org/neafc-subsiidiary-bodies> [Accessed 17 Feb. 2020b].
- The North-East Atlantic Fisheries Commission (NEAFC) (n.d.-c). *NEAFC Convention and Regulatory Areas* | North-East Atlantic Fisheries Commission. [online] [www.neafc.org](http://www.neafc.org). Available at: <https://www.neafc.org/page/27> [Accessed 17 Feb. 2020c].
- The North-East Atlantic Fisheries Commission (NEAFC) (n.d.-d). *NEAFC Meetings* | North East Atlantic Fisheries Commission. [online] [www.neafc.org](http://www.neafc.org). Available at: <https://www.neafc.org/neafc-meetings> [Accessed 16 Feb. 2020d].
- The North-East Atlantic Fisheries Commission (NEAFC) (n.d.-e). *The Structure of NEAFC* | North-East Atlantic Fisheries Commission. [online] [www.neafc.org](http://www.neafc.org). Available at: <https://www.neafc.org/page/18> [Accessed 18 Feb. 2020e].
- The official gateway to Iceland (n.d.). *Geography*. [online] [www.iceland.is](http://www.iceland.is). Available at:

- <https://www.iceland.is/the-big-picture/nature-environment/geography> [Accessed 3 Nov. 2019].
- The official gateway to the Faroe Islands (n.d.). *A fishing Nation with Proud Traditions*. [online] [www.faroeislands.fo](http://www.faroeislands.fo). Available at: <https://www.faroeislands.fo/economy-business/fisheries/> [Accessed 5 Nov. 2019].
- Thuesen, N.P., Thorsnæs, G. and Røvik, S. (2020). *Norge*. [online] Store norske leksikon. Available at: <https://snl.no/Norge> [Accessed 16 Mar. 2020].
- Tribiloustova, E. and Globefish (2005). *Fishery Industry Profile Russia*. [online] [www.fao.org](http://www.fao.org). Available at: <http://www.fao.org/3/a-bb227e.pdf> [Accessed 16 Nov. 2019].
- United Nations Convention on the Law of the Sea (UNCLOS) (1982). *United Nations Convention on the Law of the Sea*. [online] [www.un.org](http://www.un.org). Available at: [https://www.un.org/Depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](https://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf) [Accessed 14 Oct. 2019].
- United Nations Fish Stock Agreement (UNFSA) (1995). *United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks*. [online] [www.un.org](http://www.un.org). Available at: [https://www.un.org/Depts/los/fish\\_stocks\\_conference/fish\\_stocks\\_conference.htm](https://www.un.org/Depts/los/fish_stocks_conference/fish_stocks_conference.htm) [Accessed 4 Oct. 2019].

# Appendix

## The interview guide

### Science:

- What is the role of science in the international negotiations?
- What role has Iceland in ICES?
- What is the view of ICES advice?
- Do scientist believe that their view has had anything to say, in the end?
  - o Has this changed through time?

### Legal framework:

- What do you consider the basis for the legal framework regarding the transboundary stocks and international negotiations?
  - o Is there something missing within the legal framework?
- How do you consider the legal framework could be clearer on how to divide quota between coastal states, regarding the transboundary stocks and the allocation criteria?
  - o Could the legal framework be clearer regarding science and the use of it when it comes to the transboundary stocks?
- Could the legal framework be updated or changed just within NEAFC, for example?
- Are the coastal states actions consistent with international laws?

### International negotiations and negotiations within NEAFC:

- What criteria is discussed in the international negotiations and the annual meetings within NEAFC?
  - o Has this changed over time?
  - o Why?
- How are the different criteria evaluated in these meetings?
  - o Has that changed over time?
- What is the consistency in terms of what criteria are met?
  - o Iceland and the other coastal states?
- Who is responsible for inviting to the coastal states meetings?
- Are the NEFAC discussion different from the coastal state discussions and how?
- How is the NEFAC quota divided between the members?

**Icelandic perspective:**

- What criteria have Iceland put emphasis on and why?
  - o Is Iceland putting emphasis on the dependency on fisheries?
  - o How is the consistency in the criteria - mackerel, blue whiting and herring?
- Why has Iceland felt left out of the negotiations?
- What is the role of the industry and interest groups in the negotiations?
  - o What interest groups have a representative in the international negotiations?

