

ANADROMOUS FISHES AND INTERNATIONAL BORDERS – IS GREENLAND VIOLATING THE *UNITED NATIONS CONVENTION ON THE LAW OF THE SEA*?

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Introduction

In eastern Canada, it is a well-known fact that the Atlantic salmon population has been in decline for the past 5 decades. This paper posits that the Greenland salmon fishery represents a major factor contributing to the decline in salmon originating from Canadian waters.¹ As a result of Greenland's fishery, large amounts of salmon no longer return to their Canadian spawning grounds to reproduce.² When fewer salmon return to their native rivers to spawn, fewer salmon hatch the following year. Salmon populations inevitably dwindle when fewer salmon are available to contribute to the next generation.

This paper argues that the government of Greenland is violating Articles 61(2) and 61(3) of the *United Nations Convention on the Law of the Sea (UNCLOS)*³ by failing to reduce their yearly salmon quotas. Greenland's violation is clear because scientific data indicates Greenland's catch limits are unsustainable. This paper will first describe the importance of Atlantic salmon to the people of eastern Canada. Second, the Greenland salmon fishery and its threat to salmon originating in eastern Canadian waters will be examined. Next, the *UNCLOS* articles aimed at protecting migratory anadromous fish species will be applied to the over harvesting of salmon in Greenland; this application will illustrate Greenland's non-compliance with *UNCLOS*. Finally, this paper will identify potential international law remedies that Canada can utilize to address the problems stemming from Greenland's commercial fishery.

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¹ It is important to note from the outset that there are other factors contributing to the decline of salmon, such as climate change, hydro-electric dams, and pollution. This paper specifically focuses on the Greenland Fishery and its impact on the decline of salmon in North America. This paper will not address or consider other issues contributing to the decline of salmon as they are complex and offering solutions to each are beyond the scope of this paper.

² "Greenland Resistance at International Body Puts Atlantic Salmon at Risk" (9 June 2021), online: *Atlantic Salmon Federation* <www.asf.ca/news-and-magazine/news-releases/greenland-salmon-at-risk> [<https://perma.cc/9S7Z-CZW8>] [Greenland Resistance Puts Atlantic Salmon at Risk].

³ *United Nations Convention on the Law of the Sea*, 10 December 1984, 1833 UNTS 3 (entered into force 16 November 1994) [*UNCLOS*].

The “King of Fish”

The wild Atlantic salmon (“salmon”)⁴, nicknamed the “King of Fish,” has captured the hearts and imaginations of humans around the world since time immemorial.⁵ The ancient Picts of Scotland revered salmon as a god, and Indigenous peoples worldwide view salmon as a symbol of perseverance and regeneration.⁶ Today, thousands of years later, salmon are still considered an icon to eastern Canadians for numerous reasons.⁷ For example, over forty Indigenous communities in eastern Canada fish salmon for food, social, and ceremonial purposes.⁸ Salmon angling is a valued tradition in the eastern provinces amongst residents, as for hundreds of years eastern Canadians have fished salmon for sport and sustenance.⁹ Angling also provides vital eco-tourism revenue to eastern Canadian provinces. Non-residents travel great distances to fish world-famous rivers such as the Miramichi, the Restigouche, and the Cascapedia. The cultural significance of salmon is due, in part, from eastern Canadian communities' reliance on the fish.

Salmon are an anadromous species, meaning they live in both fresh and saltwater habitats.¹⁰ A salmon's life cycle begins in the headwaters of rivers in multiple regions worldwide, such as North America, Europe, and Russia.¹¹ Once salmon spawning in Canada mature, they leave their native rivers and migrate thousands of kilometers to their marine feeding grounds off the coasts of Greenland and the Faroe Islands.¹² They then spend one to two years at sea feeding on smaller fish. Adult salmon that have grown and matured return to their native freshwater rivers to spawn the next generation.¹³

⁴ There are various sub species of salmon throughout the oceans. This paper will focus on Atlantic salmon. For concision, I will refer to Atlantic salmon as “salmon” for the rest of this paper.

⁵ “Atlantic Salmon (Protected)” (31 May 2023), online: *NOAA Fisheries* <www.fisheries.noaa.gov/species/atlantic-salmon-protected> [<https://perma.cc/HZ7K-YH29>] [Atlantic Salmon (Protected)].

⁶ “The Value of Salmon: More Than a Fish” (2020), online: *North Atlantic Salmon Conservation Organization* <nasco.int/atlantic-salmon/value-of-salmon> [<https://perma.cc/6DW4-ASSF>] [More Than a Fish].

⁷ Fisheries and Oceans Canada, “Canada’s Wild Atlantic Salmon Conservation Policy” (30 May 2022), online: *Government of Canada* <<https://www.dfo-mpo.gc.ca/reports-rapports/regs/wildsalmon-atl-saumonsauvage-eng.htm>>.

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ Atlantic Salmon (Protected), *supra* note 5. See also: Appendix 1.

¹¹ *Ibid.*

¹² See Appendix 2.

¹³ Atlantic Salmon (Protected), *supra* note 5.

Unfortunately, salmon stocks are rapidly declining due to anthropogenic practices.¹⁴ Over the last 30 years, the survival rate of salmon at sea has dropped 50%, and this decline of salmon at sea has directly translated to a decline in the number of salmon that return to Canadian rivers.¹⁵ For example, salmon in the Bay of Fundy region are now classified as “endangered” under the Canadian *Species at Risk Act*.¹⁶ During the 1960s, approximately 600,000 salmon returned to the Miramichi River each year to spawn.¹⁷ In 2022, only an estimated 20,000 salmon returned.¹⁸ These numbers represent a staggering decline of 98% over 60 years.¹⁹

The Issue: Greenland's Salmon Fishery

The exploitation of salmon off the west coast of Greenland began in the mid-1960s.²⁰ Once the abundance of salmon was discovered, ships from Greenland, Norway, Denmark, Sweden, and the Faroes began to catch enormous quantities of salmon.²¹ By 1971, fishers harvested 2,700 metric tons of salmon each year from the sea, equivalent to 810,000 large salmon.²² This over-harvesting is a stark example of the “tragedy of the commons.” Without formal rules or treaties, each state harvested as much salmon as possible from the sea to serve its interests. As a result, the salmon population began to rapidly decline.²³

Greenland acknowledged this over-exploitation and introduced conservation and management measures to reduce the number of salmon being caught in its national waters. By the 1980's, Greenlandic authorities introduced a salmon quota – in 1986,

¹⁴ Michael Dadswell et al, “The Decline and Impending Collapse of the Atlantic Salmon (*Salmo salar*) Population in the North Atlantic Ocean: A Review of Possible Causes” (2022) 30:2 Rev in Fisheries Sciences & Aquaculture 215.

¹⁵ Oystein Aas et al, *Atlantic Salmon Ecology*, (Oxford, UK: Blackwell Publishing, 2010).

¹⁶ *Species at Risk Act*, SC 2002 c 29 at Schedule 1, Part 2 Endangered Species.

¹⁷ Brad Bruns, “Final Miramichi Salmon Trap Counts and Timing of the 2022 Run” (1 November 2022), online (blog): *Brad Bruns* <www.bradburnsfishing.com/final-miramichi-salmon-trap-counts-and-timing-of-the-run/> [<https://perma.cc/45YE-6928>].

¹⁸ *Ibid.*

¹⁹ Appendix 4 provides a graph that illustrates the decline of Atlantic salmon over the last 60 years. This graph shows that the decline isn't a “one off” occurrence, but rather a steady decline which has taken place for over 60 years.

²⁰ David G Reddin and Kevin D Friedland, “A history of identification to continent of origin of Atlantic salmon (*salmo salar* L.) at west Greenland, 1969–1997” 43:1 Fisheries Research 221 at 221.

²¹ *Ibid.*

²² “ASF-NASF International Conservation Agreements” (2021) at 1, online (pdf): *Atlantic Salmon Federation* <www.asf.ca/assets/files/03-asf-greenland-backgrounder.pdf> [<https://perma.cc/8Y42-VXFP>] [ASF-NASF Agreements]

²³ See Appendix 3 and 4.

the allowable quota was 850 tonnes.²⁴ By 1998, Greenland decided to ban all exports of Atlantic salmon because the population was still declining. This resulted in a fishery for subsistence and internal use for Greenlanders only.²⁵ As of 2022, the allowable yearly salmon quota for subsistence and internal use is 27 tonnes.²⁶

Dropping the quota by 823 tonnes represents a tremendous reduction in the number of salmon caught; however, this is still insufficient to mitigate the declining salmon population.²⁷ The number of salmon harvested between the 1960s and 1990s took a tragic toll on the population, and there has not been enough reprieve for the salmon to bounce back.²⁸ Although the quota is currently 27 tonnes, Greenland fishers catch more than the allowable quota each year. In Greenland's 2021 salmon fishery report, the government reported 39.97 tonnes of salmon were caught.²⁹ Even more startling is that only 69.5% of the Greenland fishers reported their catch, meaning the total yield likely far exceeded the 39.97 tonnes reported.³⁰ Based on historical catches, recent catches, and declining salmon populations noted above, Greenland's fishery is clearly a major factor contributing to the declining number of salmon returning to Canadian waters.

At this juncture, an obvious counterargument must be identified and addressed. It could be argued that salmon from numerous countries migrate to the feeding grounds off the coast of Greenland making it difficult to establish that Greenland is harvesting salmon originating from Canadian waters. The response to this counterargument is straightforward - since the 1960s, scientific surveys have routinely identified salmon caught within the Greenland fishery as having a North American origin via unique genetic markers.³¹ The proportions of North American salmon caught in the Greenland fishery have been as high as 75%.³² In 2017, 74 % of

²⁴ "West Greenland Salmon Fisheries Measures: Regulatory Measures at West Greenland" (2021) online: *North Atlantic Salmon Conservation Organization* <nasco.int/regulation/west-greenland-salmon-fisheries/> [West Greenland Measures].

²⁵ West Greenland Commission, "2021 Report on the Salmon Fishery in Greenland" (November 2021), online (pdf): *North Atlantic Salmon Conservation Organization* <nasco.int/wp-content/uploads/2021/12/WGC2121_2021-Report-on-the-Salmon-Fishery-in-Greenland.pdf> [https://perma.cc/DGJ3-LCAB] [2021 Greenland Salmon Report]

²⁶ West Greenland Measures, *supra* note 24.

²⁷ Neville Crabbe, "Greenland 'devastating' Atlantic Salmon says conservation group", (9 June 2015) online: *CBC* <www.cbc.ca/news/canada/new-brunswick/greenland-devastating-atlantic-salmon-says-conservation-group-1.3106018> [https://perma.cc/J25L-PDVQ] [Crabbe].

²⁸ See Appendix 3 and 4.

²⁹ 2021 Greenland Salmon Report, *supra* note 25 at 3.

³⁰ *Ibid* at 6.

³¹ Reddin & Friedland, *supra* note 20 at 222.

³² *Ibid* at 227.

salmon caught in Greenland originated in North America.³³ Note that the term “North American origin” really pertains to Canadian fish instead of Canadian *and* American fish. This is because the salmon returning to American rivers are essentially non-existent. For example, only 1,041 salmon returned to American waters in 2017.³⁴ With this, it is safe to say that the vast majority of the salmon harvested in Greenland originate from Canada.

Before moving into the legal analysis, the relationship between Greenland and Denmark must be addressed. Greenland is a part of the Kingdom of Denmark, but Greenland has substantial autonomy in its domestic decision-making power. Greenland has an extensive local government through home rule (which is the ability of a territory to have limited autonomy and self-governmental powers over its own internal affairs) and the *Self-Government Act*.³⁵ Through the *Act on Greenland Self-Government*, Greenland gained sovereignty and administration of several areas including education, health, and fisheries.³⁶ However, foreign affairs jurisdiction remains with Denmark.³⁷ With this legislation, Greenland sets its own domestic fishing quotas, but Denmark negotiates on behalf of Greenland in international matters concerning fisheries.

Legal Analysis: Greenland is Violating *UNCLOS*

Background on *UNCLOS*

UNCLOS, enacted in 1982, is an international convention that governs the world's oceans. *UNCLOS* provides rules on ocean-related issues, such as protecting ocean environments, delimitating coastal states' seaward boundaries, and managing resources, such as fisheries. *UNCLOS* has articles that specifically govern anadromous fish species, such as salmon, that migrate across the maritime boundaries of various international states.

Before diving into the specific *UNCLOS* Articles on anadromous fish species, the starting point for the fisheries issue between Canada and Greenland is found in Part V, “The Exclusive Economic Zone” of *UNCLOS*. The Exclusive Economic Zone

³³ Greenland Resistance Puts Atlantic Salmon at Risk, *supra* note 2.

³⁴ Atlantic Salmon Federation, “State of North Atlantic Salmon Populations” (June 2018) at 3 [State of Atlantic Salmon].

³⁵ “Greenland: The world’s largest island”, online: *Kingdom of Denmark* <denmark.dk/people-and-culture/greenland> [https://perma.cc/YMJ2-9K6G].

³⁶ NATLEX, “Denmark (13), General provisions” online: *International Labour Organization* <www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=110442&p_count=13&p_classification=01#:~:text=57> [https://perma.cc/Z32F-XX6P].

³⁷ *Ibid.*

(EEZ) is defined as being the 200 nautical miles of ocean adjacent to a coastal state.³⁸ For many reasons, the EEZ is crucial to coastal states, such as Greenland. The EEZ is vital to the management of the fishery because 90% of the world's fish stocks are found within those zones. Article 56 of *UNCLOS* grants coastal states the sovereign right to exploit, conserve, and manage the living and non-living resources of the ocean within that state's EEZ.³⁹ Greenland's government only permits salmon fishing within 40 nautical miles of their coastline,⁴⁰ so all of Greenland's regulated salmon fishing happens exclusively within their EEZ.

UNCLOS is pivotal in governing coastal states' fishery rights within their EEZ. In addition to Article 56, Article 61(1) of *UNCLOS* grants coastal states the right to "determine the allowable catch of the living resources in its EEZ."⁴¹ These two articles seemingly provide Greenland with "carte-blanche" to determine the management of salmon within their EEZ, which includes the ability to dictate how many salmon are caught each year via their commercial fishery. However, *UNCLOS* imposes important limitations regarding a coastal state's power over its EEZ resources.

Greenland's violation of *UNCLOS*

This paper argues that Greenland is violating Articles 61(2) and 61(3) of *UNCLOS* due to its unsustainable salmon fishery, and that violation is directly impacting Canada's interest in Canadian spawned salmon. Under Article 61(2), a coastal state must ensure, via "the best scientific evidence available," that living resources in the coastal state's EEZ are adequately conserved and managed to avoid over-exploitation.⁴² For example, when managing fisheries, coastal states must consider scientific evidence and must adequately conserve and manage the fisheries in their EEZ to avoid over-exploitation.⁴³ Also, per Article 61(3), conservation efforts need to ensure species are harvested at a rate that does not exceed the species' "maximum sustainable yield".⁴⁴ Greenland is in violation of Articles 61(2) and 61(3) because, according to the International Council for the Exploration of the Sea (ICES), there are not enough salmon in the ocean to reproduce at a rate that would sustain the amount of salmon currently being harvested by the Greenland fishery.⁴⁵ The ICES is a global organization that produces scientific reports and advice to support the sustainable use

³⁸ *UNCLOS*, *supra* note 3, art 57.

³⁹ *Ibid*, art 56(1)(a).

⁴⁰ "Handbook of Basic Texts" (May 2020) at 7, online (pdf): *North Atlantic Salmon Conservation Organization* <nasco.int/wp-content/uploads/2020/05/NASCO_Handbook.pdf> [NASCO Handbook].

⁴¹ *UNCLOS*, *supra* note 3, art 61(1).

⁴² *Ibid*, art 61(2).

⁴³ *Ibid*.

⁴⁴ *Ibid*, art 61(3).

⁴⁵ State of Atlantic Salmon, *supra* note 34 at 1.

of oceans. It comprises more than 6,000 scientists worldwide from 700 marine institutes in 20 member countries.⁴⁶ Canada and Denmark (on behalf of Greenland) are member countries of the ICES.⁴⁷ The scientific findings on salmon populations from the ICES serve as part of the foundation of this paper's legal argument.

In 2018, the ICES released a report titled "State of North American Atlantic Salmon Populations." In that report, the ICES determined that 205,918 salmon need to be alive at sea to meet North America's "minimum conservation limit".⁴⁸ The term "minimum conservation limit" requires explanation because it has important implications for Articles 61(2) and 61(3) of *UNCLOS*. A minimum conservation limit represents the number of salmon required to produce a long-term "maximum sustainable yield".⁴⁹ The term "maximum sustainable yield" refers to the highest number of salmon that can be caught each year while simultaneously sustaining the overall salmon population in a manner that results in the maximum possible population growth.⁵⁰ Essentially, the maximum sustainable yield refers to a state of sustainable equilibrium within the salmon population and fishery. This equilibrium occurs when the number of salmon being caught does not exceed the number of new salmon that hatch each year. When this equilibrium is achieved, fish stocks can be harvested without sacrificing the population's overall health.⁵¹

The ICES reports that the number of salmon alive at sea in 2016 and 2017 was far below the minimum conservation limit. In 2016, the total number of salmon alive at sea was estimated to be 102,400 – this is 49% lower than the number of fish required to meet the maximum sustainable yield required for salmon.⁵² In 2017, the number of salmon at sea dropped by 5% to an estimated 97,400.⁵³ Furthermore, the data from 2017 shows that the amount of salmon alive at sea originating from Newfoundland and Labrador, Quebec, the Bay of Fundy region, and the southern Gulf of St. Lawrence region reached historic lows.⁵⁴

⁴⁶ "Who We are" online: *International Council for the Exploration of the Sea* <<https://www.ices.dk/about-ICES/who-we-are>> [<https://perma.cc/R9RQ-JGN7>].

⁴⁷ *Ibid.*

⁴⁸ State of Atlantic Salmon, *supra* note 34 at 4. See also: Appendix 4.

⁴⁹ Law Insider, "conservation limits definition" online: <www.lawinsider.com/dictionary/conservation-limits>.

⁵⁰ "Common Fisheries Policy Reform: Getting MSY Right" (October 2011), online (pdf): *World Wildlife Foundation* <awsassets.panda.org/downloads/wwf_msy_oct2011_final.pdf>.

⁵¹ This assumes the harvest quantities do not exceed what is recommended to achieve the minimum conservation limit.

⁵² State of Atlantic Salmon, *supra* note 34 at 1.

⁵³ *Ibid.*

⁵⁴ *Ibid.*

Greenland is violating Article 61(2) because its conservation and management measures have not adequately addressed the plummeting salmon population. Article 61(2) of *UNCLOS* states that coastal states cannot over-exploit fish stocks within their EEZ. The scientific data provided by ICES establishes that there are not enough fish to support Greenland's fishery because the number of salmon returning from the feeding grounds is 50% lower than the minimum conservation limit. This scientific evidence, paired with historical knowledge of Greenland's yearly catch limits of salmon, indicates that salmon are being over-exploited in Greenland's EEZ. Greenland has ignored the scientific data that shows continued record-setting lows of salmon returning to their native rivers in Canada. Also, Greenland has openly reported their fishers are exploiting the salmon fishery well beyond the "limit" of 27 tonnes that was put in place by the Greenlandic government. As stated above, the salmon harvest in 2021 far exceeded the 27-tonne catch limit given that nearly 40 tonnes of salmon were reported to be caught. It is also crucial to reiterate that this is the number of salmon *reported* caught, not the total number of salmon *actually* caught. Based on the scientific data and the under-reporting of salmon catches in Greenland, Greenland is violating Article 61(2) of *UNCLOS* due to its over-exploitation of salmon within their EEZ and because of their apparent reluctance to accept the findings of the ICES.

Based on the data presented above, Greenland is also in violation of Article 61(3) because the number of salmon returning to Canadian rivers is lower than what is required to support a maximum sustainable yield. Greenland's fishing practices are not conducive to a maximum sustainable yield because the population of salmon returning to Canadian waters is 50% lower than what is required to achieve the minimum conservation limit. Given that the minimum conservation limit is not being met, the maximum sustainable yield cannot be attained. In essence, the salmon population dynamics are out of equilibrium. Too many salmon are being caught, and not enough salmon are hatching to make up for the number of harvested salmon. By permitting fishers to harvest over 27 tonnes of salmon yearly, Greenland is mismanaging salmon populations by not ensuring salmon in sufficient numbers are available to return to their native headwaters to spawn. With fewer salmon returning to spawn each year, the population of salmon is in continual decline. If Greenland continues to harvest at these quantities, the science suggests that the population will eventually become extinct.

Based on the interpretation of Articles 61(2) and 61(3) presented here, and given the scientific data, Greenland is violating the requirements of *UNCLOS*. The next issue that must be addressed is whether *UNCLOS* provides Canada with any legal recourse against Greenland, given what appears to be blatant fishing violations.

Does Canada Have Rights in Canadian Spawnd Salmon While They Feed in Greenland?

Article 56(2) of *UNCLOS* says that coastal states must give “due regard” to the rights of other states when exercising the rights afforded to them under the convention.⁵⁵ This means states cannot dictate the management of their EEZs unilaterally – they are required to act in a manner compatible with the provisions of *UNCLOS*. Therefore, if Canada can establish a right to the salmon within the EEZ of Greenland, Greenland will need to consider Canada’s rights regarding the management of the species. The question that arises here is does Canada have any rights to the salmon that migrate from their native Canadian headwaters to their feeding grounds located in Greenland’s EEZ?

The answer is yes – Article 66 of *UNCLOS* speaks to migratory anadromous species, such as salmon. As per Article 66(1), “[s]tates in whose rivers anadromous stocks originate shall have the *primary interest* in and responsibility for such stocks [*emphasis added*].” The majority of salmon feeding in Greenland’s EEZ originate, i.e., spawn, in the headwaters of rivers of other countries.⁵⁶ As discussed, approximately 75% of the salmon in Greenland’s EEZ originate from Canadian waters.⁵⁷ Therefore, given the plain language of Article 66(1), not only does Canada have a right to the salmon while they are feeding in Greenland’s EEZ, but Canada has the *primary interest* in the salmon.

At this stage of the analysis, we know Canada is the “originating state” of anadromous salmon stocks because salmon spawn in Canadian waters before migrating to Greenland to feed. As a result of being the originating state, we also know Canada has a right to the salmon after they leave Canadian waters and cross into their feeding grounds in Greenland’s EEZ. The next question that must be answered is what are Canada’s legal rights while the salmon are in Greenland’s waters, and what is the extent of these legal rights?

Fortunately for Canada, *UNCLOS* provides originating states of anadromous species with robust rights regarding management and conservation. Article 66(2) says that after consultations with other states, the originating state “may establish the total allowable catches for stocks originating in its rivers.” Furthermore, Article 66(4) explicitly speaks to an originating state’s right in an anadromous species that leave their originating waters and subsequently enter the EEZ of another state:

⁵⁵ *UNCLOS*, *supra* note 3, art 56(2).

⁵⁶ “An Overview of the East Greenland Stock Complex of Atlantic Salmon” (8 September 2022) at 1, online (pdf): *North Atlantic Salmon Conservation Organization* <https://nasco.int/wp-content/uploads/2022/09/CNL2265_An-overview-of-the-East-Greenland-stock-complex-of-Atlantic-salmon.pdf>.

⁵⁷ Reddin & Friedland, *supra* note 20 at 227.

In cases where anadromous stocks migrate into or through the waters landward of the outer limits of the exclusive economic zone of a State other than the State of origin, such State shall cooperate with the State of origin with regard to the conservation and management of such stocks.

At first glance, Articles 66(2) and 66(4) appear to provide Canada with the “silver bullet” required to reduce Greenland’s salmon quotas in hopes of promoting a more sustainable salmon population. By limiting Greenland’s catch limit, more salmon would return to Canadian rivers each year, meaning more salmon would be able to spawn the next generation, eventually increasing the salmon population size. However, Articles 66(2) and 66(4) are not this straightforward – they are subject to stringent limitations.

When an originating state attempts to determine allowable catch limits for a particular anadromous species, the originating state must consult with other states that could be impacted. This means Canada would need to consult with Greenland before establishing catch limits for salmon off the coast of Greenland, as permitted by Article 66(2). For example, when attempting to influence Greenland’s yearly salmon fishing quotas, Canada would need to cooperate with Greenland by minimizing the “economic dislocation” that would undoubtedly occur if Canada successfully reduced Greenland’s salmon catch limits as per Article 66(2).⁵⁸ Economic dislocation is a “situation in which something such as a system, process, or way of life is greatly disturbed or prevented from continuing as normal.”⁵⁹ Considering Greenland’s sustenance and cultural reliance on their salmon fishery, this would be a significant hurdle for Canada to surmount. Much like the Indigenous communities of Atlantic Canada, the Indigenous communities of Greenland revere salmon as a cultural icon.⁶⁰ It is essential to the life and culture of Greenlanders to have the opportunity to provide food for themselves and their families.⁶¹ In Greenlandic culture, it is normal for people to fish salmon for their consumption and survival.⁶² This paper does not suggest Greenlanders should cease fishing for salmon all together. Rather, Greenlanders should ensure their harvest does not exceed the minimum conservation limit as a long-term sustainable management strategy.

In any event, it would be difficult for a foreign government such as Canada to ask Greenlanders to reduce their salmon consumption. However, Article 66.3(c) of *UNCLOS* provides a mechanism to potentially compensate Greenland if the government agrees to reduce the annual salmon harvest. Article 66.3(c) of *UNCLOS* states that countries that participate by agreement with states of origin in an attempt to renew anadromous stocks shall be given “special consideration” by the state of origin.

⁵⁸ *UNCLOS*, *supra* note 3, art 63(b).

⁵⁹ “Dislocation” online: *Collins* <www.collinsdictionary.com/dictionary/english/dislocation>.

⁶⁰ *More Than a Fish*, *supra* note 6.

⁶¹ 2021 Greenland Salmon Report, *supra* note 25 at 1.

⁶² *Ibid.*

This means if Canada and Greenland agree to reduce fishing quotas, and if the salmon stocks are replenished to a sustainable level, Greenland can be granted special consideration when the salmon population eventually reaches a level that could support a maximum sustainable yield.

An agreement needs to be reached where the salmon quotas are dropped to a level that supports Greenlandic communities while simultaneously allowing salmon to rebound to their minimum conservation limit across national boundaries. Also, Greenlandic fishers would need to abide by these quotas – as previously stated, Greenlandic fishers are currently exceeding the salmon quotas that are in place. If such an agreement cannot be reached, the scientific data indicates that the salmon population may eventually become extinct. If Canada and Greenland cannot reach an agreement on their own, additional established procedures of international law could provide potential solutions.

Potential Solutions?

Article 63(1) of *UNCLOS* states where a fish stock occurs within the EEZ of two or more states, the states “shall seek, either directly or through appropriate subregional or regional organizations, to agree upon the measures necessary to coordinate and ensure the conservation and development of such stocks...”.⁶³ Canada, along with other countries, have attempted to use the guidance of Article 63(1) to agree upon a sustainable catch limit off the coast of Greenland. For example, Canada, Denmark (representative of Greenland), the European Union, Norway, Russia, and the United States are all members of the North Atlantic Salmon Conservation Organization (NASCO). NASCO was established under the *Convention for the Conservation of Salmon in the North Atlantic Ocean* (Convention) in 1982.⁶⁴ The purpose of NASCO is to conserve, restore, and enhance the salmon population of the North Atlantic. At first glance, NASCO sounds like an excellent forum to facilitate the reduction of Greenland’s fishing quotas. However, unanimous consent amongst the signatories is required to force Greenland to reduce its quota.⁶⁵ Unfortunately, the members of NASCO have not been able to convince Denmark to reduce the salmon quota on behalf of Greenland.

It is worth noting that in addition to the violations of *UNCLOS* explained above, Greenland is also violating Article 9(a) of the Convention which states:

In exercising the functions set out in articles 7 and 8, a Commission shall take into account the following:

⁶³ *UNCLOS*, *supra* note 3, art 63(1).

⁶⁴ NASCO Handbook, *supra* note 40 at 2.

⁶⁵ Crabbe, *supra* note 27.

- (a) The best available information, including advice from the International Council for the Exploration of the Sea and other appropriate scientific organizations;⁶⁶

Greenland appears to be violating Article 9(a) of the Convention as it seems they are not acting on the scientific advice provided by the ICES. As stated above, the ICES says Greenland cannot support a sustainable fishery due to salmon populations falling under the minimum conservation limits. If Greenland is ignoring scientific advice, this would be another clear violation of an international treaty that Greenland and Canada are signatories of.

Since NASCO and the Convention are failing to solve the problem of Greenland's fishing quotas, Canada should consider alternative procedures under *UNCLOS* that assist states in settling arguments. Part XV of *UNCLOS* provides a system for peaceful dispute resolution. Currently, organizations such as the Atlantic Salmon Foundation, are trying to assist in the process of reducing Greenland's salmon quotas. For example, a "Greenland Salmon Conservation Agreement" has been negotiated between the Atlantic Salmon Federation, the North Atlantic Salmon Fund, and the Greenland Hunters and Fishers association (KNAPK).⁶⁷ This agreement would see the yearly salmon quota dropped to 20 tonnes per year. Unfortunately, this agreement is on hold as the Government of Greenland and KNAPK go through a leadership change. The Greenland Salmon Conservation Agreement is an important example of a peaceful resolution that *UNCLOS* promotes. However, Canada should pursue alternative measures if this agreement does not come to fruition.

If the Greenland Salmon Conservation Agreement is not implemented, particularly in a timely manner, Canada should seek an advisory proceeding from the International Tribunal for the Law of the Sea (ITLOS) as provided for under Article 287 of *UNCLOS*. An advisory proceeding would definitively answer whether Greenland is violating Articles 61(2) and 61(3) of *UNCLOS* and Article 9 of the Convention. Based on the scientific data presented by this paper, and the legal analysis provided above, Canada would likely receive a favourable ruling from the ITLOS.

An additional option would be to launch an action in the International Court of Justice (ICJ). The ICJ has heard matters related to international fisheries in the past, such as a whaling dispute between Japan and Australia.⁶⁸ In that case, Japan was carrying out a commercial whaling venture in the Antarctic under the guise of scientific research. Australia requested the ICJ order Japan to stop their commercial

⁶⁶ NASCO Handbook, *supra* note 40 at 12.

⁶⁷ "International Stakeholders Agree to Improved Management of Greenland Salmon Fishery" (23 June 2022), online: *Atlantic Salmon Federation* <<https://www.asf.ca/news-and-magazine/in-the-field/international-stakeholders-agree-to-improved-management-of-greenland-salmon-fishery>>.

⁶⁸ *Whaling in the Antarctic (Australia v Japan, New Zealand intervening)*, [2014] ICJ Rep 226.

whaling activities and to cease any future whaling activities.⁶⁹ As a result of Australia's action, the ICJ ordered Japan to stop all current and future whaling activities. Canada could launch a similar action against Greenland with the ICJ. In this action, Canada could bring forward legal arguments like those presented above. Furthermore, Canada could include an argument that Greenland is violating the *Vienna Convention on the Law of Treaties* (Vienna Convention).⁷⁰ Under Article 26 of the Vienna Convention, when a party enters a treaty, such as *UNCLOS* or the Convention, the treaty is binding, and the parties must perform their obligations in good faith.⁷¹ Greenland is not acting in good faith regarding Articles 61(2) and 61(3) of *UNCLOS* and Article 9 of the Convention because they appear to be ignoring the scientific advice of the ICES – an organization of which they are a member country.

Conclusion

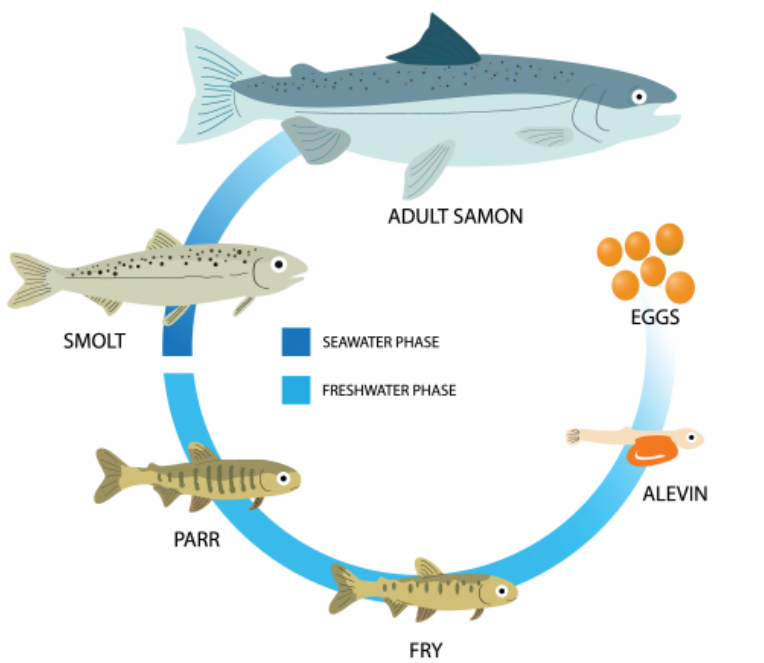
Salmon quotas in Greenland need to be reduced to ensure the viability of the species. Greenland is currently violating *UNCLOS* and the Convention because they are not abiding by the scientific advice of the ICES. There is an agreement currently in development that would result in Greenland's quotas being dropped to 20 tonnes per year – representing a critical step toward population recovery and long-term sustainability. However, if this agreement does not come to fruition, Canada should initiate an action with the ITLOS or the ICJ to hold Greenland accountable for violating *UNCLOS* and the Convention. Canada and Greenland need to act fast to reach an agreement. Without urgent action, no salmon will be left in Canada's rivers or Greenland's EEZ, representing the entire loss of an ecologically, economically, socially, and culturally important species.

⁶⁹ "UN court rules against Japan's whaling activities in the Antarctic" (31 March 2014), online: *United Nations* <<https://news.un.org/en/story/2014/03/465062>>.

⁷⁰ *Vienna Convention on the Law of Treaties*, 23 May 1969, 1155 UNTS 331 (entered into force on 27 January 1980, accession by Canada 14 October 1970, accession by Denmark 1 June 1976).

⁷¹ *Ibid.*, art 26.

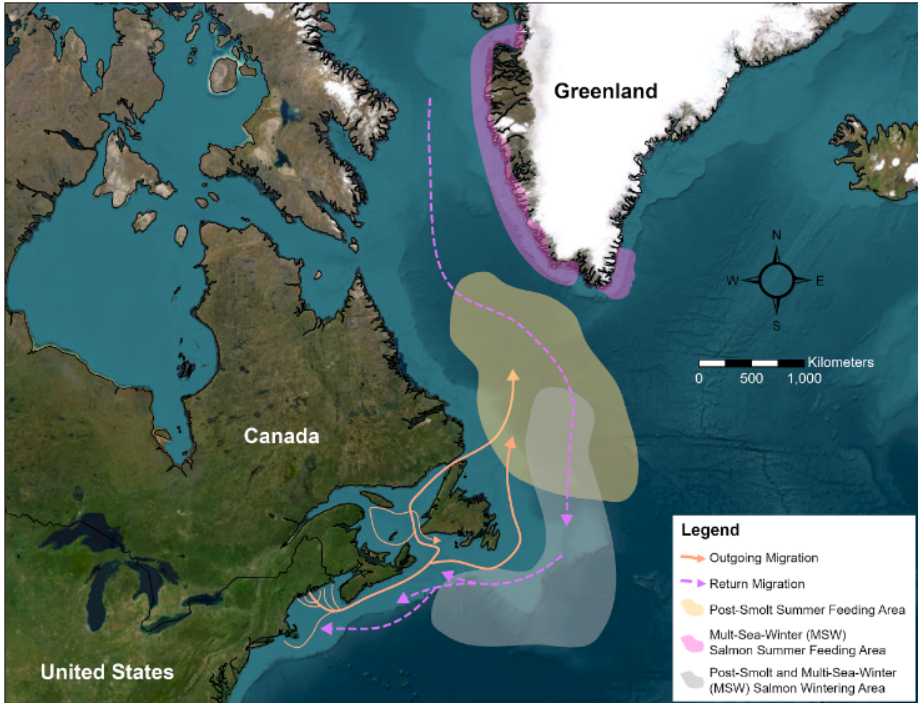
Appendix 1: Life cycle of a Salmon



The lifecycle of a salmon. This diagram depicts what portions of the Atlantic salmon's life is spent at sea and what part is spent in freshwater.⁷²

⁷² “Atlantic Salmon (*salmo salar*)” online: *Inland Fisheries Ireland* <<https://www.fisheriesireland.ie/species/atlantic-salmon-salmo-salar>>.

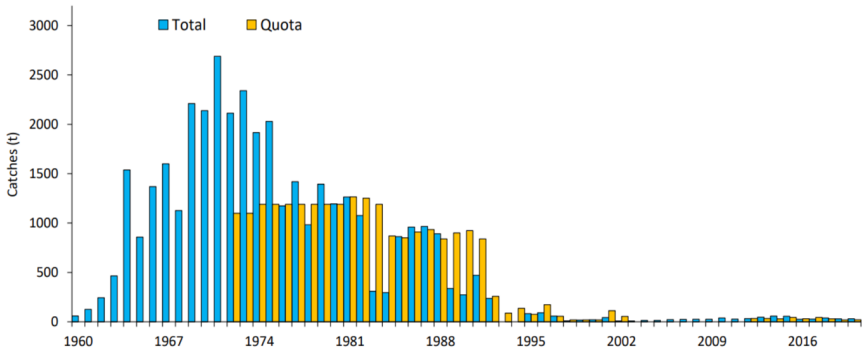
Appendix 2: The Habitat Range of Atlantic Salmon



This diagram identifies the extent of the Atlantic salmon's habitat.⁷³ This paper focuses on salmon, which originate in Canada, and then migrate to the southwest coast of Greenland.

⁷³ "Atlantic Salmon and Ocean Ecology" online: *National Oceanic and Atmospheric Administration Fisheries* <www.fisheries.noaa.gov/new-england-mid-atlantic/endangered-species-conservation/atlantic-salmon-and-ocean-ecology>.

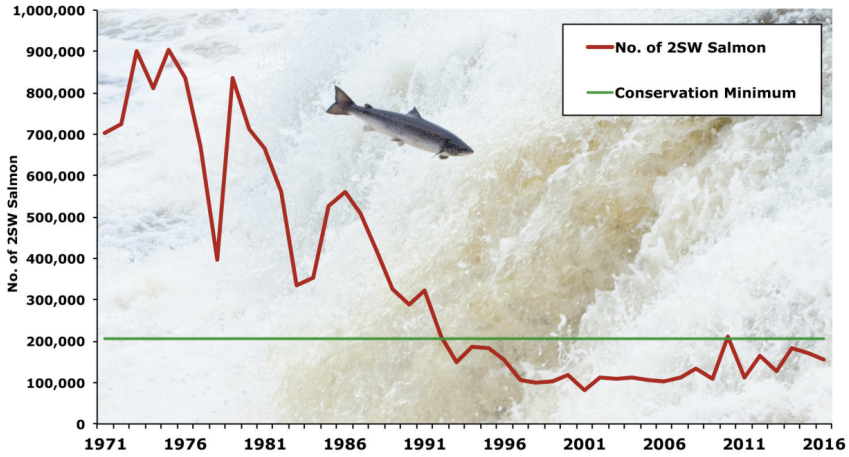
Appendix 3: Greenland's Salmon Fishery



This graph represents Greenland's salmon quotas and the reported number of salmon caught yearly. This graph covers a timeline from 1960-2020.⁷⁴

⁷⁴ ASF-NASF Agreements, *supra* note 22.

Appendix 4: Abundance of Salmon from 1970-2016



This graph compares the abundance of salmon at sea with the minimum conservation limit.⁷⁵ Salmon are well below their minimum conservation limit. Also, the drop in salmon numbers aligns with the increase in salmon caught in the 1970s (as depicted in Appendix 3 above). As fishing increased, the salmon population decreased.

⁷⁵ State of Atlantic Salmon, *supra* note 34.