Report of the Third NASCO Performance Review

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Executive Summary

The North Atlantic Salmon Conservation Organization (NASCO) is an intergovernmental organization that was established by the 1982 NASCO Convention. In 2018, the NASCO Council decided to have a Third NASCO Performance Review. At its intersessional meeting in December 2020, the Council decided that the report of the Review Panel would be presented at the 40th (2023) Annual NASCO Meeting.

The Panel concludes that the regulation of marine fisheries for Atlantic salmon has been successfully achieved in all areas: most marine / mixed stock fisheries have been substantially reduced. Success is particularly striking in the Greenland and Faroese mixed stock fisheries. Decreases in exploitation rates have tracked the decrease in catches.

While the International Council for the Exploration of the Sea (ICES) states that NEAC stock complexes are at full reproductive capacity, the Panel was struck by the declining trends, particularly for the 1SW (one-sea-winter) salmon maturing and non-maturing components even though the pre fished abundances (PFAs) were consistently above the Spawning Escapement Reserves (SERs). This may suggest that the SERs are not sufficiently high. In the North American Commission (NAC), the stocks have generally been below their CLs, they do not show the steep and continuous declines estimated for the North-East Atlantic Commission (NEAC).

The Panel recognizes that there are substantial knowledge gaps on the impact of climate change. Filling them may require a fundamental shift in emphasis of research and NASCO's request for advice to ICES to assess how climate change might impact marine, transitional and freshwater ecosystems.

While the management of mixed stock fisheries directly targeting salmon seems to be under control, the possible by-catch of salmon in the large-scale fisheries for small pelagics in the North-East Atlantic remains a potential problem. The Panel considers that the magnitude of the problem needs to be assessed, and if it is assessed to be important, measures to resolve the problem will need to be developed. The Panel considers that NASCO has failed to deliver on operationalizing the Precautionary Approach in relation to by-catch of salmon in other fisheries.

NASCO furthers and monitors implementation of its Resolutions, Agreements and Guidelines through its Implementation Plans (IPs) and associated Annual Progress Reports (APRs). The efficacy of implementation has varied greatly between the major areas of activity. While implementation has been very successful for fisheries management, implementation of the protection and restoration of habitats and for the management of aquaculture interactions has been less successful. There appears to be

poor engagement by the relevant jurisdictions in this area resulting in lack of action and very limited progress.

The salmon aquaculture industry has experienced enormous growth in the North Atlantic with substantial increases in the quantity of sea lice, farm escapes and transferrable diseases, all of which result in decreased survival of wild salmon. As part of its IP/APR process Third Reporting Cycle, NASCO has assessed its performance in the areas of aquaculture interactions to be unsatisfactory. There appears to be poor engagement by the relevant Parties and jurisdictions resulting in lack of action and very limited progress. The Panel concludes that few effective measures have been translated into practical action to manage the adverse effects of salmon farms on wild Atlantic salmon stocks.

NASCO has not adopted any standard monitoring, control and surveillance (MCS) measures. Significant high seas salmon fishing by vessels flying the flag of non-Parties occurred during the late 1980s and early 1990s, but have not occurred since then. The Panel is not aware of indications of non-compliance by NASCO Parties with flag state duties or with the general prohibition to fish in certain parts of the coastal State maritime zones of the NASCO Parties. At the time of writing, NASCO did not have a dedicated, standing body to deal with implementation and compliance. However, some of the functions that such a body would normally perform are to some extent carried out by the IP/APR process. In its submission to the Panel, one NASCO Party is of the opinion that the lack of systematic efforts by many Parties to accurately estimate the unreported and illegal catch from in-river, estuarine, and coastal fisheries is an important gap in NASCO's knowledge of the overall harvest of Atlantic salmon.

In view of the seriousness and urgency of the problems posed by sea lice and escaped farmed salmon, the Panel considers that 2022 NASCO Council Statement on Salmon Farming lacks specificity and leaves NASCO Parties too much discretion. NASCO's response should therefore have been more efficient, timely and effective.

The Panel notes that the general public does not seem to consider wild Atlantic salmon as a species that is in danger, contrary to other endangered species, e.g. certain species of whales. This may be related to the abundance of farmed salmon in supermarkets, which makes it difficult for the general public to think that a salmon species is in danger. NASCO should develop a dedicated communications and outreach strategy to alert the general public of the perilous state of wild Atlantic salmon.

List of Acronyms

1SW	one-sea-winter
2SW	two-sea-winter
ACFM	Advisory Committee on Fisheries Management (ICES)
ACOM	Advisory Committee (ICES)
APR	Annual Progress Report
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CL	conservation limit
COP	Conference of the Parties
EAF management	ecosystem approach to fisheries management
EC	European Communities
EEC	European Economic Community
EEZ	exclusive economic zone
EPR	external performance review (Second NASCO Performance Review)
EU	European Union
FAC	Finance and Administration Committee
FAO	Food and Agriculture Organization of the United Nations
FAR	focus area report
GSWG	NEAC Working Group on *Gyrodactylus salaris*
HoDs	Heads of Delegation
IAS	impact assessment score
IASRB	International Atlantic Salmon Research Board
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
ICNAF	International Commission for the Northwest Atlantic Fisheries
IP	Implementation Plan
IUU fishing	illegal, unreported and unregulated fishing
LCM	Life Cycle Model
MCS	monitoring, control, and surveillance
MoU	Memorandum of Understanding
MSW	multi-sea-winter
MSY	maximum sustainable yield
NAC	North American Commission
NAFO	Northwest Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organization
NEAC	North-East Atlantic Commission

NEAFC	North-East Atlantic Fisheries Commission
NGO	non-governmental organization
nm	nautical mile
NPAFC	North Pacific Anadromous Fisheries Commission
PFA	pre fishery abundance
RFB	regional fishery body
RFMA	regional fisheries management arrangement
RFMO	regional fisheries management organization
RFMO/A	regional fisheries management organization or arrangement
RoP	rules of procedure
SAG	Scientific Advisory Group (IASRB)
SER	Spawning Escapement Reserve
SLG	North Atlantic salmon farming industry and NASCO Liaison Group
SSC	Standing Scientific Committee
TAC	total allowable catch
UNTS	United Nations Treaty Series
UK	United Kingdom
WGC	West Greenland Commission
WGNAS	Working Group on North Atlantic Salmon

List of International Instruments

1949	ICNAF Convention	International Convention for the Northwest Atlantic Fisheries, Washington D.C., 8 February 1949. In force 3 July 1950, 157 UNTS 157, as amended.
1959	NEAFC Convention	North-East Atlantic Fisheries Convention, London, 24 January 1959. In force 27 June 1963; 486 UNTS 157.
	Antarctic Treaty	Antarctic Treaty, Washington D.C., 1 December 1959. In force 23 June 1961, 402 UNTS 71.
1978	NAFO Convention	Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries, Ottawa, 24 October 1978. In force 1 January 1979, 1135 UNTS 369. The NAFO Convention has since been amended and renamed Convention on Cooperation in the Northwest Atlantic Fisheries (consolidated version available at https://www.nafo.int/).
1980	NEAFC Convention	Convention on Future Multilateral Cooperation in the North-East Atlantic Fisheries, London, 18 November 1980. In force 17 March 1982, 1285 UNTS 129, as amended (consolidated version available at https://www.neafc.org).
	CAMLR Convention	Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980. In force 7 April 1982, 1329 UNTS 47.
1982	NASCO Convention	Convention for the Conservation of Salmon in the North Atlantic Ocean, Reykjavik, 2 March 1982. In force 1 October 1983, 1338 UNTS 33; www.nasco.int.
	UNCLOS	United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982. In force 16 November 1994, 1833 UNTS 396.
1990	CBD	Convention on Biological Diversity, Nairobi, 5 June 1992. In force 29 December 1993, 1760 UNTS 143.
1992	NPAFC Convention	Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, Moscow, 11 February 1992. In force 16 February 1993, 22 Law of the Sea Bulletin 21 (1993); www.npafc.org.
	UNFCCC	United Nations Framework Convention on Climate Change, New York, 9 May 1992. In force 21 March 1994, 1771 UNTS 107; https://unfccc.int/.
	OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic, Paris, 22 September 1992. In force 25 March 1998; 2345 UNTS 67, as amended. Annex V 'On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area', Sintra, 23 September 1998. In force 30 August 2000, as amended (consolidated text available at www.ospar.org).

1993	Compliance Agreement	Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, Rome, 24 November 1993. In force 24 April 2003; 2221 UNTS 91.
1995	Fish Stocks Agreement	Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995. In force 11 December 2001, 2167 UNTS 3.
	Code of Conduct	Code of Conduct for Responsible Fisheries. Adopted by the Twenty-eight Session of the FAO Conference, Rome, 31 October 1995; https://www.fao.org/fishery/en/code.
2000	WCPFC Convention	Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Honolulu, 5 September 2000. In force 19 June 2004, 2275 UNTS 43 (2007); www.wcpfc.int.
2001	IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (adopted by consensus by FAO's Committee on Fisheries on 2 March 2001 and endorsed by the FAO Council on 23 June 2001; www.fao.org/fishery/en/code/instruments
2009	PSMA	Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Rome, 22 November 2009. In force 5 June 2016; https://www.fao.org/treaties/en/.
2013	NASCO-OSPAR Commission MoU	Memorandum of Understanding between the North Atlantic Salmon Conservation Organization and the OSPAR Commission, 2013; https://nasco.int/wp-content/uploads/2020/02/mou_ospar.pdf.
2015	Norway-Russia MoU	Memorandum of Understanding between the Ministry of Climate and Environment (Norway) and the Federal Agency for Fishery (sic) (the Russian Federation) on cooperation in management of and monitoring and research on wild Atlantic salmon in Finnmark County (Norway) and the Murmansk region (the Russian Federation), Oslo, 30 September 2015 (on file with authors).
2022	NASCO-ICES MoU	Memorandum of Understanding between the North Atlantic Salmon Conservation Organization and the International Council for the Exploration of the Sea, Copenhagen, 22 February 2022; https://nasco.int/wp-content/uploads/2022/03/NASCO-ICES-MoU-2022.pdf.

1. Introduction to NASCO and the Third NASCO Performance Review

1.1. General

The North Atlantic Salmon Conservation Organization (NASCO) is an intergovernmental organization that was established by the 1982 NASCO Convention (or: Convention)[1] when the convention entered into force on 1 October 1983.[2] The NASCO Council's inaugural meeting was held in January 1984.[3] The objective of NASCO set out in Article 3(2) of the Convention is

> "to contribute through consultation and co-operation to the conservation, restoration, enhancement and rational management of salmon stocks subject to this Convention, taking into account the best scientific evidence available to it".

During the 40 years since its establishment, NASCO has made many efforts towards achieving its objectives, including the following efforts to assess and enhance its performance:

- the 'Next Steps for NASCO' process, which commenced in 2004 and culminated, *inter alia*, in the 'Strategic Approach for NASCO's 'Next Steps''.[4] This process seems to be regarded by NASCO as its first performance review;
- the 2012 External Performance Review (further 'Second NASCO Performance Review');[5] and
- the 'Action Plan for taking forward the recommendations of the External Performance Review and the review of the 'Next Steps' for NASCO', adopted in 2013,[6] and implemented since then.[7]

In addition, reference can be made to the symposium 'Managing the Atlantic salmon in a rapidly changing environment - management challenges and possible responses', held

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1 Convention for the Conservation of Salmon in the North Atlantic Ocean, Reykjavik, 2 March 1982. In force 1 October 1983, 1338 *United Nations Treaty Series* (UNTS) 33; www.nasco.int.

2 See Art. 3(1) of the NASCO Convention. The NASCO website uses 1984 as the year of NASCO's establishment, thereby presumably relying on the year when the 1st (inaugural) NASCO Council Meeting was convened.

3 Report of the 1st (1984) NASCO Council Meeting.

4 Report of the 21st (2004) Annual NASCO Council Meeting, para. 9.3 and Annex 32; CNL(05)14 'Report of the 'Next Steps for NASCO' Working Group'; CNL(05)49 'Strategic Approach for NASCO's 'Next Steps''.

5 CNL(12)11 'External Performance Review' (further: Report of the Second NASCO Performance Review).

6 CNL(13)38.

7 CNL(22)19 contains the most recent progress report on the implementation of the Action Plan.

in Tromsø in 2019, and which led to the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee'.[8]

In 2018, the NASCO Council decided to have a Third NASCO Performance Review and that the process in preparation for the review should commence in 2019, with a view to holding the review in 2021. Due among other things to the Covid-19 pandemic, this preparatory process could not be completed until 2021. At its intersessional meeting in December 2020, the Council decided (a) that the review would be deferred, with the report of the Review Panel to be presented at the 40th (2023) Annual NASCO Meeting, and (b) that the Review Panel would be composed of "three external experts who are 'not directly affiliated' with NASCO, and who, together, have expertise in the three categories: fisheries science, salmon management and conservation, and marine / fisheries law".[9] In 2021, the Council adopted the Third NASCO Performance Review's Terms of Reference[10] (reproduced in Annex 1 of this Report) and Performance Criteria[11] (reproduced in Annex 2 of this Report). The Performance Criteria are adapted from the common list of criteria for performance reviews of regional fisheries management organizations (RFMOs) that was developed by the so-called 'Kobe Process' – a cooperative process among the five tuna RFMOs – on the basis of the performance criteria used for the First (2006) Performance Review of the North-East Atlantic Fisheries Commission (NEAFC).[12]

Pursuant to the procedure for determining the composition of the Review Panel, the following three external experts were nominated, selected and invited to sit on the panel:[13]

- Jean-Jacques Maguire (Fisheries Science);
- Philip McGinnity (Salmon Management and Conservation); and
- Erik J. Molenaar (Marine / Fisheries Law).

At the Review Panel's first (online) meeting on 12 July 2021, Molenaar was elected as Chair of the Review Panel. The Chair attended the 39th (2022) Annual NASCO Meeting in person to introduce the Panel and its working methods as well as to engage with delegations. The other two members observed the proceedings virtually. Pursuant to

8 CNL(19)16.
9 CNL_IS(20)27, para. 3.3.
10 CNL(21)22.
11 Ibid., Annex 1.
12 See Performance Review by Regional Fishery Bodies: Introduction, Summaries, Synthesis and Best Practices. Volume I: CCAMLR, CCSBT, ICCAT, IOTC, NAFO, NASCO, NEAFC (FAO Fisheries and Aquaculture Circular No. 1072 (FIPI/C1072): 2012), p. 5. The criteria are reproduced in Appendix 1.
13 CNL(21)15 'Update on Planning NASCO's Third Performance Review'.

Section 5 of its Terms of Reference, the Panel invited, in writing, all NASCO Parties,[14] France (in respect of St Pierre and Miquelon) and all inter-governmental organizations and accredited non-governmental organizations (NGOs) who participated in NASCO Council Meetings during the last three years to provide their comments and views on NASCO and its performance. Four NASCO Parties, the NGOs accredited with NASCO as Observers collectively, and five individual accredited NGOs made submissions in response to this invitation.

The Review Panel had an in-person meeting at the NASCO Secretariat in Edinburgh during 5-9 December 2022. Otherwise, the Panel members worked individually on the parts of the Report for which they were designated as lead authors (Maguire: criteria 1-5, 26 and 32-35; McGinnity: criteria 6-15; and Molenaar: Chapter 1, criteria 20-25 and 27-31, and Chapter 7), and worked collectively through email and video meetings.

The ensuing sections of this Chapter provide information on the origins of NASCO (section 1.2), the negotiations on the NASCO Convention and NASCO Membership (section 1.3) and key features of the NASCO Convention (section 1.4). The Chapter ends with an overview of the structure of this Report (section 1.5).

1.2. Origins of NASCO

Prior to the establishment of NASCO, intergovernmental regulation of marine fisheries for Atlantic salmon (*Salmo salar*) was carried out by two RFMOs: the International Commission for the Northwest Atlantic Fisheries (ICNAF) – established by the 1949 ICNAF Convention (in force in 1950)[15] – and NEAFC – established by the 1959 NEAFC Convention (in force in 1963).[16]

Scientific advice on the conservation and management of the Atlantic salmon stocks was provided to ICNAF and NEAFC by the joint Working Party on North-Atlantic Salmon of the International Council for the Exploration of the Sea (ICES) and ICNAF,[17] which had its first meeting in 1966.[18] ICNAF and NEAFC adopted various regulations to constrain high seas fishing for salmon off West Greenland and in the Norwegian Sea

[14] This Report follows the consistent use by NASCO of the term "Party/Parties" in relation to NASCO as a whole, and the use of 'member' in relation to NASCO bodies. It is nevertheless more common to indicate participation in intergovernmental bodies by the term 'Member' and participation in intergovernmental instruments by the term 'Party'.

[15] International Convention for the Northwest Atlantic Fisheries, Washington D.C., 8 February 1949. In force 3 July 1950, 157 UNTS 157, as amended; see in particular the preamble and Arts IV(2) and VI(1).

[16] North-East Atlantic Fisheries Convention, London, 24 January 1959. In force 27 June 1963; 486 UNTS 157.

[17] ICNAF Annual Proceedings for the year 1972-1973, p. 7.

[18] ICES doc. C.M.1966/L:17.

in the late 1960s and early 1970s, but these had only limited success. For instance, both bodies adopted a regulation to prohibit fishing in these high seas areas altogether in 1969, but the ICNAF prohibition did not become applicable to three members (who opted out)[19] and the NEAFC prohibition did not enter into force due to three objections.[20]

During the early and mid-1970s, developments in the international law of the sea had far-reaching impacts on the roles and performance of ICNAF and NEAFC. In 1973, negotiations under the auspices of the United Nations to modernize the international law of the sea commenced, eventually leading to the adoption of the UNCLOS[21] in 1982. Various aspects of these negotiations were directly relevant for ICNAF and NEAFC. First of all, a distinct regime for the conservation and management of anadromous fish stocks was developed. This regime was laid down in Article 66 of the UNCLOS, with paragraph 3(a) prohibiting high seas salmon fishing – subject to an exception – and paragraphs 4 and 5 envisaging regional implementation.[22] Second – and more importantly – early on during the negotiations, proposals were made for what would ultimately become the 200 nautical mile (nm) exclusive economic zone (EEZ). This led many coastal States to already claim 200 nm zones with exclusive fisheries jurisdiction and by the late-1970s this state practice had become so widespread that it arguably formed part of customary international law.

In light of the establishment of 200 nm zones by many members of ICNAF and NEAFC – whose membership had a significant overlap, as several European States had been fishing in the Northwest Atlantic for a considerable period of time – it was decided that these bodies had to be modernized. As regards ICNAF, negotiations commenced in March 1977[23] and led to the adoption of the 1978 NAFO Convention[24] and the establishment of the Northwest Atlantic Fisheries Organization (NAFO) upon the convention's entry into force in 1979.

At some stage during the NAFO negotiations, the decision was made to have a dedicated body for Atlantic salmon. As later reflected in the preamble to the NASCO Convention, this decision was based in part on Article 66 of the UNCLOS and "other developments in international fora relating to anadromous stocks", which presumably

19 ICNAF Annual Proceedings for the year 1969-1970, p. 9.

20 Report of the 8th (1970) Annual NEAFC Meeting, Section 16, p. 20.

21 United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982. In force 16 November 1994, 1833 UNTS 396.

22 See, *inter alia*, J. Harrison, "Article 66. Anadromous stocks" in A. Proelß (ed.) United Nations Convention on the Law of the Sea. A Commentary, (C.H. Beck/Hart/Nomos: 2017).

23 ICNAF Annual Report for the year 1976/77, p. 7.

24 Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries, Ottawa, 24 October 1978. In force 1 January 1979, 1135 UNTS 369. The NAFO Convention has since been amended and renamed Convention on Cooperation in the Northwest Atlantic Fisheries (consolidated version available at https://www.nafo.int/).

refers in particular to the trilateral International North Pacific Fisheries Commission. Due to the significant overlap in membership between ICNAF and NEAFC, this decision enjoyed the support of coastal States and high seas fishing States on both sides of the North Atlantic. The decision was reflected in Article I(4) of the 1978 NAFO Convention, which excludes salmon from NAFO's species mandate. A somewhat similar exclusion is laid down in Article 1(2) of the 1980 NEAFC Convention,[25] which entered into force in 1982.

The then European Economic Community (EEC) participated in the negotiations for the establishment of both RFMOs, and their conventions entitle the EEC to accede to them and become a member. This was a result of the decision, in November 1976, by the EEC Member States to combine their concerted establishment of 200 nm zones with further developing the EEC's Common Fisheries Policy.[26] Among other things, the European Commission was given a mandate to represent the EEC at the international level and negotiate agreements with third States on behalf of the EEC. This meant that the EEC would have to replace its Member States in RFMOs and that arrangements would have to be made that enabled the EEC to obtain membership of such RFMOs. The composition of the membership of ICNAF and the 'old' NEAFC was therefore very different from that of NAFO and the 'new' NEAFC.

1.3. Negotiations on the NASCO Convention and NASCO Membership

The negotiations on the NASCO Convention were finalized during a Diplomatic Conference convened in Reykjavik between 18-22 January 1982,[27] and the NASCO Convention was opened for signature in Reykjavik on 2 March 1982. Prior to the Convention's entry into force on 1 October 1983, the delegations involved in the negotiations had already started to convene several meetings in preparation of NASCO's establishment.[28] The 1st (inaugural) NASCO Council Meeting was held in January 1984, in Edinburgh.

The recognition of the EEC and its successors as full participants in international fisheries law – as well as the international law of the sea more generally – is also reflected in the composition of the delegations to the negotiations on the NASCO

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25 Convention on Future Multilateral Cooperation in the North-East Atlantic Fisheries, London, 18 November 1980. In force 17 March 1982, 1285 UNTS 129, as amended (consolidated version available at https://www.neafc.org).

26 Council Resolution of 3 November 1976 on certain external aspects of the creation of a 200-mile fishing zone in the Community with effect from 1 January 1977 (*OJ* C 105, 7.5.1981, p. 1).

27 NASCO Handbook of Basic Texts, para. 1.

28 The first preparatory meeting took place on 31 January and 1 February 1983, and the second on 27-29 April 1983 (see 'Summary Report on the second preparatory meeting on the North Atlantic Salmon Conservation Organization', p. 1 (on file with authors)).

Convention. The seven delegations were: Canada, Denmark (in respect of the Faroe Islands), the EEC, Iceland, Norway, Sweden and the United States of America (United States).[29] All of these also became contracting parties to the NASCO Convention and thereby NASCO Parties.

Since NASCO's establishment in 1983, there have been several changes in its membership pursuant to the provisions on accession and withdrawal (denunciation) in Articles 17(3) and 20 of the NASCO Convention. These changes are:

- Finland acceded on 18 May 1984 on the basis that it is a State of origin for Atlantic salmon stocks;[30]
- Denmark acceded on 17 April 1985 in respect of Greenland,[31] following Greenland's withdrawal from the European Communities (EC) on 31 January 1985;
- Spain's application for accession was approved by the NASCO Council in April 1985 – on the basis that it is a State of origin for Atlantic salmon stocks – but Spain eventually decided not to accede to the NASCO Convention due to its accession to the EC on 1 January 1986;
- The Soviet Union acceded on 11 September 1986, presumably on the basis that it is a State of origin for Atlantic salmon stocks.[32] The Russian Federation replaced the Soviet Union on 20 January 1992;[33]
- Finland and Sweden withdrew from the NASCO Convention with effect from 31 December 1995,[34] following their accession to the European Union (EU) on 1 January 1995;
- Iceland withdrew from the NASCO Convention with effect from 31 December 2009 "as a result of the severe economic crisis in that country"[35]; and
- The United Kingdom (UK) acceded on 27 November 2020 – on the basis that it exercises fisheries jurisdiction in the North Atlantic Ocean and is a State of origin for Atlantic salmon stocks – following its withdrawal from the EU on 31 January 2020.[36]

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29 Art. 17(1) of the NASCO Convention.

30 Report of the 1st (1984) Annual NASCO Council Meeting, para. 4.1 and Annex 2 (which notes that Finland and Norway share two rivers in which salmon reproduce, of which the Tana river is the most important).

31 Report of the 3rd (1986) Annual NASCO Council Meeting, Annex 13. The NASCO Council approved Denmark's accession in respect of Greenland by a textual vote taken on 24 April 1985 (Report of the 2nd (1985) Annual NASCO Council Meeting, para. 5.2).

32 Report of the 4th (1987) Annual NASCO Council Meeting, Annexes 10 and 13.

33 See also https://www.consilium.europa.eu/en/documents-publications/treaties-agreements/agreement/?id=1988008&DocLanguage=en.

34 Report of the 13th (1995) Annual NASCO Council Meeting, Annex 4, p. 38.

35 Report of the 27th (2010) Annual NASCO Council Meeting, para. 5.1.

36 CNL(21)09, para. 3.2.

At the time of writing, there were seven NASCO Parties: Canada, Denmark (in respect of the Faroe Islands and Greenland), the EU, Norway, the Russian Federation, the UK and the US.

NASCO also recognizes that NASCO Parties may have internal arrangements that grant authority over the conservation and management of Atlantic salmon stocks to different geographic entities of these NASCO Parties. This is reflected in the use of the wording "Parties / jurisdictions" in NASCO documents.[37] Such geographic entities can also submit certain documents in their own right. With regard to the 39th (2022) Annual NASCO Council Meeting, for instance, the following entities submitted Annual Progress Reports (APRs):[38]

- Denmark: Greenland;
- EU: (mainland) Denmark, Finland, France, Germany, Ireland, Portugal, Spain – with separate submissions by Asturias, Cantabria, Galicia, Gipuzkoa and Navarra – and Sweden; and
- UK: England and Wales, Northern Ireland, and Scotland.

1.4. Key features of the NASCO Convention

1.4.1. Species and geographical mandate

NASCO's species and geographical mandates are stipulated in Article 1 of the NASCO Convention, which bears no title. Its paragraph 1 reads as follows:

> This Convention applies to the salmon stocks which migrate beyond areas of fisheries jurisdiction of coastal States of the Atlantic Ocean north of 36ºN latitude throughout their migratory range.

This formulation links NASCO's species mandate and its geographical mandate in various ways. It is generally understood that NASCO's species mandate is confined to one single species; Atlantic salmon. The NASCO Convention, however, does not explicitly say so but merely refers to salmon (stocks) occurring in the North Atlantic Ocean. This would therefore also allow NASCO to deal with other salmon (stocks) occurring in the North Atlantic Ocean, for instance pink salmon (*Oncorhynchus gorbuscha*), whose present occurrence in the North Atlantic Ocean is due to intentional introductions in the White Sea basin in northern Russia in the mid-1980s.[39]

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37 E.g. the Report of the 39th (2022) Annual NASCO Council Meeting, paras 4.39, 5.11, 5.16 and 5.34.

38 See https://nasco.int/annual-meeting/thirty-ninth-annual-meeting-2022/.

39 CNL(22)47 'Statement of the Council Regarding Pink Salmon, Oncorhynchus gorbuscha, in the NASCO Convention Area'. According to the most recent ICES advice on pink salmon, there have been several other accidental and intentional introductions of pink salmon in the North Atlantic (CNL(22)64 'Distribution and abundance of pink salmon across the North Atlantic', p. 5).

NASCO's mandate is confined to salmon stocks "which migrate beyond areas of fisheries jurisdiction of coastal States of the Atlantic Ocean north of 36ºN latitude". The words "area(s) of fisheries jurisdiction" are used in many of the Convention's provisions but are not defined in the Convention.[40] Their meaning will therefore have to be determined by interpreting the Convention. The use of the phrase "rivers and area(s) of fisheries jurisdiction" in various provisions[41] gives rise to two observations. First, the phrase is intended to cover all the relevant waters and maritime zones over which coastal States have sovereignty, sovereign rights and jurisdiction. This therefore includes rivers and other inland water bodies, marine internal waters (landward of the inner limit of the territorial sea), the territorial sea, EEZs and other 200 nm maritime zones in which coastal States claim fisheries jurisdiction.[42] Second, the words 'areas of fisheries jurisdiction' do not include rivers – and other inland water bodies – but comprise only marine waters. That interpretation is followed here, despite somewhat contradictory wording elsewhere in the Convention.[43]

The inclusion of the territorial sea in the notion of 'areas of fisheries jurisdiction' is supported by the wording in Article 2(2). This provision specifies that its general prohibition of salmon fishing does not apply everywhere in areas of fisheries jurisdiction of coastal States, but only "beyond 12 nautical miles from the baselines from which the breadth of the territorial sea is measured". This phrase serves as a rule of reference to the provisions on baselines in the UNCLOS, on whose wording the phrase is also modeled. The normal baseline is the low-water line along the coast[44] and straight baselines can be used in certain scenarios; for instance across the mouth of a river that flows directly into the sea.[45] The number of 12 nm corresponds to the maximum breadth of the territorial sea that a coastal State can opt for.[46]

The formulation in Article 1(1) implies that NASCO does *not* have a mandate over salmon stocks that do *not* migrate into any areas of high seas beyond coastal State

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40 Instead of the more commonly used phrase "area of fisheries jurisdiction", paras 1(b) and 1(c) of Art. 7 relating to the NAC use the phrase "salmon fisheries under the jurisdiction of a member". The Report of the Second NASCO Performance Review, p. 55 notes that this "arguably includes the internal waters and rivers". This Panel disagrees with that view as Art. 3(4)(a) limits the geographical mandate of the NAC to "maritime waters".

41 See e.g. Arts 9(c) and 15(1, 2, 4 and 5(a)). See also the phrase "territory or (and) area of fisheries jurisdiction" in paras 5(b and c) of Art. 15, which gives rise to similar observations.

42 There seems to be no reason in support of arguing that a coastal State's continental shelf is also included in the references to areas of fisheries jurisdiction of coastal States in the Convention.

43 The words "maritime waters within areas of fisheries jurisdiction of coastal States" in Art. 3(4)(a) – and similar wording in Art. 3(4)(b) – seems to imply that areas of fisheries jurisdiction have a marine component and a freshwater component. That interpretation is not followed in this report.

44 Art. 5 of the UNCLOS.

45 Art. 9 of the UNCLOS. See also Arts 7 and 10.

46 Art. 3 of the UNCLOS.

maritime zones north of 36ºN latitude. It is for this reason that NASCO does not have a mandate over salmon stocks occurring in the Baltic Sea.

As regards salmon stocks that *do* migrate into any areas of high seas beyond coastal State maritime zones north of 36ºN latitude, however, NASCO's geographical mandate extends "throughout their migratory range". This phrase is broad enough to comprise all the waters and maritime zones over which coastal States have sovereignty, sovereign rights and jurisdiction and in which salmon occur; both marine and inland waters.[47] Moreover, as Article 1(1) contains no northern boundary, NASCO's mandate can also extend into waters of the (central) Arctic Ocean.

Several other provisions in the NASCO Convention provide further support of the view that salmon fisheries in rivers as well as other activities that impact salmon in rivers fall within the scope of the Convention.[48] Furthermore, in calculating the contributions of NASCO Parties to the NASCO annual budget, account is also taken of catches in rivers.[49] As concluded in subsection 1.4.3, the practice of the NASCO Council confirms that it has a mandate in rivers and other inland waters, even though it has used that mandate only by means of non-legally binding instruments.

Finally, it should be noted that the term 'NASCO Convention Area' is not used in the NASCO Convention. Conversely, performance criterion No. 28 uses 'NASCO Convention Area' and performance criteria Nos 1 and 3 use 'Convention area'. The NASCO website[50] and the NASCO Handbook of Basic Texts[51] use the map in Figure 1 to depict the NASCO Convention Area and the geographical mandates of the three NASCO Commissions. Even though the NASCO Convention Area depicted there is clearly based on Article 1(1) of the Convention, it lacks much of the detail of the analysis of Article 1(1) provided above. It could therefore be regarded as a simplification of the NASCO Convention Area.

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47 The chosen formulation even means that NASCO's geographical mandate can, in theory, extend to marine and inland waters south of 36ºN latitude.

48 See Arts 9(c) and 15(1 and 5).

49 See, for instance, the Report of the 39th (2022) Annual FAC Meeting, p. 16 in conjunction with the 2021 Report of the ICES Working Group on North Atlantic Salmon (WGNAS), pp. 36-44.

50 See https://nasco.int/about/.

51 Available at https://nasco.int/document/handbook-of-basic-texts-2/.

Figure 1: Map of the NASCO Convention Area and the geographical mandates of the three NASCO Commissions[52]

1.4.2. General prohibitions of salmon fishing

The Convention is well-known for its general prohibition of high seas salmon fishing. This is laid down in paragraph 1 of Article 2, which prohibits "fishing of salmon beyond areas of fisheries jurisdiction of coastal States". Another general prohibition is included in Article 2(2) and applies to areas of fisheries jurisdiction of coastal States. Within these areas, "fishing of salmon" is prohibited beyond 12 nm "from the baselines from which the breadth of the territorial sea is measured". As discussed above, this refers to the outer limit of the territorial sea in case a coastal State has opted for the maximum breadth of 12 nm. The words "fishing of salmon" – instead of, for instance, 'catches of salmon' – support the view that the prohibitions only relate to targeted fishing for salmon, but not incidental by-catch.

52 See the previous 2 notes.

The second part of Article 2(2) lists two areas in which the general prohibition of Article 2(2) does *not* apply:

(a) In the West Greenland Commission area, up to 40 nautical miles from the baselines; and
(b) In the North-East Atlantic Commission area, within the area of fisheries jurisdiction of the Faroe Islands.

Salmon fishing in these two areas can nevertheless be constrained or prohibited pursuant to a regulatory measure adopted by the two Commissions mentioned.

In view of the geographical scope of the two general prohibitions in Article 2, it can be concluded that the Convention does not have a general prohibition of salmon fishing landward of 12 nm from baselines, which encompasses the territorial sea, marine internal waters, rivers and other inland waters. As explained in subsection 1.4.3, provided that certain conditions are met, the three NASCO Commissions have a mandate to constrain or prohibit marine salmon fishing in the territorial sea and marine internal waters.

1.4.3. Institutional structure and mandate of the NASCO Council and Commissions

Article 3(3) of the Convention stipulates that NASCO shall consist of a Council, three regional Commissions – a North American Commission (NAC), a West Greenland Commission (WGC) and a North-East Atlantic Commission (NEAC) – and a Secretary. Pursuant to its Rules of Procedure (RoP), the Council has established a Finance and Administration Committee (FAC), a Standing Scientific Committee (SSC) and an International Atlantic Salmon Research Board (IASRB). The IASRB has established a Scientific Advisory Group (SAG). In addition to these standing bodies, the Council and the Commissions have from time to time established bodies with a limited life-span, such as Working Groups or Expert Groups (e.g. the Council's Rivers Database Working Group and NEAC's Working Group on *Gyrodactylus salaris* (GSWG), which were both operational at the time of writing). At its 39th (2022) Annual Meeting, the NASCO Council agreed to establish a Stocking Guidelines Working Group and a Standing NASCO Working Group on Pink Salmon.[53]

As will become apparent from the more detailed analysis on the mandates of the Council and the three Commissions further below, NASCO's regulation of marine salmon fishing is carried out exclusively by its three Commissions. The Council can

[53] Report of the 39th (2022) Annual NASCO Council Meeting, paras 5.6 and 5.35. See also CNL(22)47.

only get involved in this after a request by a Commission. The mandates of the Commissions are therefore examined first.

Commissions

The functions (here: mandate) of the three Commissions are laid down in Article 7 – applicable exclusively to the NAC – and Article 8 – applicable to both the NEAC and the WGC. There are a considerable number of differences between the functions of the NAC on the one hand, and the functions of the NEAC and the WGC on the other hand; as well as between the functions of the Commissions on the one hand and the Council on the other hand. With regard to the latter, a key difference is that all three Commissions are provided with a mandate to adopt "regulatory measures" for salmon fisheries,[54] and that the Council does not have such a mandate. The practice of the Commissions has confirmed that 'regulatory measures' are legally binding instruments. At the time of writing, only two of such measures were in force, namely

1. Decision NEA(21)16 'Decision Regarding the Salmon Fishery in Faroese Waters in 2021 / 2022, 2022 / 2023 and 2023 / 2024', by which the NEAC agreed "Not to set a quota for the salmon fishery in the Faroese Fisheries Zone for 2021 / 2022. This decision will also apply in 2022 / 2023 and 2023 / 2024 unless the application of the Framework of Indicators shows that a re-assessment is warranted." At its 39th (2022) Annual Meeting, NEAC confirmed that Decision NEA(21)16 "would continue to apply in 2022 / 2023. It will also apply in 2023 / 2024 unless application of the Framework of Indicators shows that a re-assessment is warranted."[55]; and
2. Regulatory Measure WGC(22)10 'Multi-Annual Regulatory Measure for Fishing for Atlantic Salmon at West Greenland', by which the WGC agreed with the continuation of an internal-use fishery with a total allowable catch of 27 tonnes, subject to various conditions.

The geographical areas of the three Commissions are set out in Article 3(4) of the Convention and are depicted in Figure 1 above. Article 3(4) explicitly stipulates that the areas of the Commissions are limited to "maritime waters", which is interpreted in this Report as excluding rivers and other inland waters (which are together referred to as rivers in the ensuing discussion).[56] As these rivers lie within a State's territory – unlike EEZs and other 200 nm maritime zones – the inclusion of rivers and thereby 'river salmon fishing' within the mandates of the Commissions is likely to have been regarded as an unacceptable restriction of State sovereignty.[57]

54 Arts 7(1)(b and c) and 8(b).
55 Report of the 39th (2022) Annual NEAC Meeting, para. 7.3.
56 See notes 41 and 43 and accompanying text.
57 See also note 40.

Whereas the geographical limitation of "maritime waters" applies to all three Commissions, subparagraphs (a) and (b) of Article 3(4) impose additional geographical limitations for the NAC and the WGC. These limit their mandates to specified areas of fisheries jurisdiction of coastal States. Nothing in the Convention suggests that this excludes marine internal waters or the territorial sea. This applies of course also to the NEAC.

The view that the three Commissions also have a mandate to adopt regulatory measures applicable to marine internal waters and the territorial sea is supported further by the regulatory measures adopted by the WGC, because these do not have a geographical scope and can therefore be presumed to relate to salmon fishing up to 40 nm from the baselines. Additional support is provided by the regulatory measures of the NEAC relating to Faroese waters, which all apply to the "Faroese Fisheries Zone".[58] Interestingly, there is no distinct Faroese law or regulation on the Faroese Fisheries Zone and the notion of the 'Faroese Fisheries Zone' is also not defined in any Faroese law or regulation. Instead, the Faroe Islands have established the 'Fishing Territory of the Faroe Islands', which comprises all waters up to 200 nm from the baselines, with internal waters explicitly included and the territorial sea implicitly.[59] Finally, more support is provided by the engagement of the NAC with France (in respect of St. Pierre and Miquelon) on its salmon fishery, which appears to be conducted also within its territorial waters.[60]

However, indications of a different view also exist. For instance, the NASCO Guidelines for the Management of Salmon Fisheries (CNL(09)43) observe:

> The mixed-stock distant-water salmon fisheries at West Greenland and the Faroes are subject to regulatory measures or decisions agreed within NASCO, but NASCO cannot be prescriptive about the specific approaches that are used to manage homewater salmon fisheries.[61]

Homewater fisheries are defined in the Guidelines as: "Fisheries within the jurisdiction of the countries of origin (within 12 miles)."[62] The words "NASCO cannot be

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58 See, e.g. Decision NEA(21)16 and Regulatory Measure NEA(99)15.

59 Art. 1(1) of Decree No. 598 of 21 December 1976 on the fishing territory of the Faroe Islands, as last amended by Decree no. 888 of 17 September 2009, available at https://www.logir.fo/Anordning/598-fra-21-12-1976-nr-598-af-21-december-1976-om-fiskeriterritoriet-ved-Faeroerne.

60 Cf. CNL(22)20rev, p. 8. The term territorial waters presumably comprises the territorial sea and marine internal waters.

61 At pp. 2-3.

62 Annex 1. This definition is included in SCPA(00)11 'Guiding Definitions of Terms Used in Salmon Fisheries Management', which was developed and adopted by the Standing Committee on the Precautionary Approach.

prescriptive" can be interpreted as a recognition of a lack of a mandate. It is also true that, apart from the abovementioned regulatory measures by the WGC and the NEAC, no other regulatory measures applicable within 12 nm seem to have ever been adopted by any of the three Commissions. There are at least two reasons for this. The first relates to the conditions laid down in Articles 7(1)(b and c) and 8(b) of the Convention. These stipulate that regulatory measures can only be adopted for catches in the maritime zones of a Commission member of salmon originating in the rivers of another Commission member or a NASCO Party. This implies that the Commissions do not have a mandate with regard to:

(a) catches in the maritime zones of a Commission member of salmon originating in its own rivers. Pursuant to Article 2(2), such catches would only be allowed landward of 12 nm from baselines; and
(b) catches in the rivers of a Commission member.

The second reason relates to the Commissions' decision-making rules and procedures. Pursuant to Article 11(3), regulatory measures must be adopted by unanimity. Proposals by one Commission member can therefore be vetoed by any other Commission member. Moreover, paragraphs 3 and 4 of Article 13 give Commission members the rights to opt out from, or denounce, adopted regulatory measures that apply within their maritime zones. In case these rights are exercised, the regulatory measures will not become binding, or cease to be binding, for all Commission members. Further details on decision-making are provided in subsection 4.1.2.

In this context, reference can also be made to the 2015 Memorandum of Understanding (MoU) between Norway and Russia relating to wild Atlantic salmon in the Finnmark county and the Murmansk Region.[63] The MoU was adopted following concerns by Russia about catches of salmon originating from Russian rivers in marine salmon fisheries in Norwegian waters adjacent to Finnmark county. Russia first raised these concerns around 2008 and in 2009 the two States agreed to establish a bilateral consultation procedure, instead of dealing with this in the NEAC.[64] The procedure provided Russian authorities with a formal basis for participating in Norwegian regulatory procedures regarding fisheries regulations in Finnmark county. The MoU formalized this process further and established the Working Group on Atlantic Salmon

63 'Memorandum of Understanding between the Ministry of Climate and Environment (Norway) and the Federal Agency for Fishery (sic) (the Russian Federation) on cooperation in management of and monitoring and research on wild Atlantic salmon in Finnmark County (Norway) and the Murmansk region (the Russian Federation), Oslo, 30 September 2015 (on file with authors).

64 See the Report of the 34th (2017) Annual NEAC Meeting, para. 5.1.

in Finnmark County and the Murmansk Region.[65] More recently, bilateral cooperation has not been very active and the working group has not met for several years.[66]

Articles 10 and 11 of the Convention set out the original membership of the three Commissions as well as the rules and arrangements for modifying their membership, participation as observers or otherwise, and decision-making (unanimity). At the time of writing, participation in the three Commissions was as follows:

- The NAC had two members – Canada and the United States – and the EU had the right to submit and vote on proposals for regulatory measures concerning salmon stocks originating in its territory;
- The NEAC had five members – Denmark (in respect of the Faroe Islands and Greenland), the EU, Norway, the Russian Federation and the UK – and Canada and the United States had the right to submit and vote on proposals for regulatory measures concerning salmon stocks originating in their rivers and occurring off East Greenland; and
- The WGC had the following five members: Canada, Denmark (in respect of the Faroe Islands and Greenland), the EU, the UK and the United States.

Council

The functions (here: mandate) of the Council are stipulated in Article 4 of the Convention. Unlike the geographical mandates of the three Commissions, which are confined to "maritime waters" (see above), there are no explicit constraints on the Council's geographical mandate. Moreover, Article 4(1)(b) grants the Council a mandate to "provide a forum for consultation and co-operation on matters concerning the salmon stocks in the North Atlantic Ocean *beyond Commission areas*" (emphasis added). This is probably primarily intended to refer to the single high seas area that lies between the areas of the three Commissions, seaward of the 200 nm zones of Canada and the United States (see Figure 1). Nevertheless, in light of the absence of explicit constraints on the Council's geographical mandate, and the use of the phrase "salmon stocks subject to this Convention" in Article 4 – which makes the phrase "throughout their migratory range" in Article 1(1) applicable – it can be concluded that the Council's geographical mandate also comprises rivers and other inland freshwater bodies in which salmon occur.

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65 See 'Status and Management of Salmon Stocks in Finnmark County and the Murmansk Region', Report from the Working Group on Atlantic Salmon in Finnmark County and the Murmansk Region, May 2018 (Norwegian Environment Agency).

66 Information provided by a Norwegian government official to E.J. Molenaar by email on 19 December 2022.

The Council's substantive mandate (authority) is laid down in paragraphs 2 and (3) of Article 4, which read:

> 2. The Council shall have the authority to make recommendations to the Parties and the Commissions on matters concerning salmon stocks subject to this Convention, including the enforcement of laws and regulations, provided that no recommendation shall be made concerning the management of salmon harvests within the area of fisheries jurisdiction of a Party.
>
> 3. Notwithstanding paragraph 2, upon the specific request of a Commission, the Council shall have the authority to make recommendations to that Commission on regulatory measures which the Commission may propose pursuant to this Convention.

The first part of paragraph 2 grants the Council a very broad mandate to make recommendations. This is emphasized by the example mentioned – "the enforcement of laws and regulations" – which is a topic that is commonly closely associated with State sovereignty, and States are therefore often rather cautious or hesitant to accept a mandate by an intergovernmental body on this topic.

The second part of paragraph 2 ("provided that […] of a Party") imposes a limitation on the Council's mandate by stipulating that it cannot make recommendations "concerning the management of salmon harvests within the area of fisheries jurisdiction of a Party". Paragraph 3 then provides an exception to this limitation, namely when a Commission specifically requests the Council to make a recommendation "on regulatory measures which the Commission may propose pursuant to this Convention". Even though the wording in the second part of paragraph 2 is different from the wording in paragraph 3, the essence of their combined effect seems to be to safeguard the primacy of the Commissions on the regulation of marine salmon fishing vis-à-vis the Council.

As is also done elsewhere,[67] the words "within the area of fisheries jurisdiction" in paragraph 2 are interpreted as comprising only marine waters and not rivers. This implies that the limitation in the second part of paragraph 2 is not applicable to rivers, and that the Council therefore *does* have a mandate over river salmon fishing. It would nevertheless not be logical to conclude that the Council has a mandate on the regulation of river salmon fishing. This is because the primacy in the regulation of salmon fishing lies with the Commissions and their geographical mandates do not encompass rivers, as that is likely to have been regarded as an unacceptable restriction of State sovereignty.

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67 See notes 41 and 43 and accompanying text.

Despite these limitations, however, the Council's substantive mandate to make recommendations is still very broad as it can relate to "matters concerning salmon stocks subject to this Convention, including the enforcement of laws and regulations". Some constraints nevertheless also ensue from the Convention's objective set out in Article 3(2). The components of that objective that are not affected by the two abovementioned limitations are: conservation, restoration and enhancement.

The practice of the Council does not necessarily correspond to all these nuances, however. The 'NASCO Guidelines for the Management of Salmon Fisheries' adopted by the Council (CNL(09)43) are an example. These guidelines can be regarded as a non-legally binding recommendation, even though the word 'recommendation' is not mentioned anywhere, nor any other denomination of the Council's decision.[68] It is clear from the title and the content of the Guidelines that they do not amount to a regulatory measure of salmon fishing. At the same time, however, their title and content make it clear that they relate to the management of salmon fisheries in areas of fisheries jurisdiction – explicitly including rivers – of NASCO Parties.[69] This not only confirms the wide geographical scope of the Council's mandate, but also raises questions on the second part of Article 4(2). It seems that either that restriction has been ignored or that it has been interpreted as relating exclusively to a specific NASCO Party. Another prominent example of the practice of the Council relating to rivers is CNL(01)51 'NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat'. A final example is the revised (2022) MoU between NASCO and ICES,[70] which contains an explicit reference to "freshwater ecosystem structure" that was included upon the request of NASCO Parties.[71]

An important issue is the legal status of instruments adopted by the Council. Paragraphs 2 and 3 only mention the Council's mandate to make recommendations and not regulatory measures. This contrasts with Articles 7(1)(b and c) and 8(b), which give the three Commissions a mandate to adopt regulatory measures. As confirmed by the practice of the Commissions, these are legally binding instruments. Conversely, the Council has so far not adopted instruments which are regarded as legally binding.

The Council's decision-making rules and procedures are laid down in Article 6(3), which stipulates that a three-quarters majority is the default rule. Each Party to the

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68 See the Report of the 26th (2009) Annual NASCO Council Meeting, p. 6.

69 See section 2.8 and Guidance 2.8(d) "Consideration should also been given as to whether the above guidelines for MSFs apply to certain fisheries operating within larger rivers or estuaries."

70 Memorandum of Understanding between the North Atlantic Salmon Conservation Organization and the International Council for the Exploration of the Sea, Copenhagen, 22 February 2022; https://nasco.int/wp-content/uploads/2022/03/NASCO-ICES-MoU-2022.pdf.

71 See p. 5 of the MoU, under 'Ecosystem and Fisheries advice', under c. See the Report of the 2021 Annual NASCO FAC Meeting, para. 3.11 for the request.

Convention shall be a member of the Council and have one vote.[72] Further details on decision-making are provided in subsection 4.1.2.

1.5. Structure of this Report

The subsequent structure of the Report is based on the grouping of the agreed performance criteria set out in Annex 2. Accordingly, the chapters that follow cover conservation and management (Chapter 2), compliance and enforcement (Chapter 3), decision-making and enforcement (Chapter 4), international cooperation (Chapter 5) and financial and administrative issues (Chapter 6). Each of these chapters consists of sections and subsections which cover one or more performance criteria. Finally, Chapter 7 is devoted to NASCO's overall effectiveness and deals with broader issues that do not adequately fit under specific performance criteria.

Any recommendations made by the Panel are listed at the end of each section or subsection and are also included in the Consolidated List of Panel Recommendations set out in Annex 3.

[72] Arts 5(1) and 6(2).

2. Conservation and management

2.1. Status of living aquatic resources

Performance criterion

1. Status, and trends in the status, of salmon in the Convention area

Normally, ICES provides estimates of Atlantic salmon status and trends every year following a request from NASCO consistent with the recently revised (2022) MoU between the two organizations. ICES also provides advice on fishery management. On 4 March 2022, ICES announced that "*all ICES Committee and Expert Group meetings, whether in-person, online or hybrid, scheduled between 7 March and 1 April 2022 will be cancelled or postponed*".[73] Therefore, the Working Group on North Atlantic Salmon (WGNAS), that was initially scheduled to take place in Copenhagen between 28 March and 7 April 2022 did not take place. The ICES estimates of status and trends and advice produced in May 2022 is based on the 2021 report of WGNAS (WGNAS 2021). The Working Group report for 2022 (WGNAS 2022) documents work undertaken through online meetings on 14-16 February and 14 July 2022, outside of the period when activities were suspended. Terms of reference 1.3 (on pink salmon) and 1.4 (on East Greenland fisheries) were addressed at these meetings and are covered in WGNAS 2022.

In this section the Panel has used mostly the report of the 2021 meeting of the Working Group[74] because it contains more detailed information than the ICES advice. Salient points relative to stock status in the Executive Summary of the WGNAS 2021 are copied below with the Panel's note inserted between the points where appropriate. Readers are encouraged to obtain a copy of the report, it will make it easier to follow the arguments below.

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[73] Available at https://www.ices.dk/news-and-events/news-archive/news/Pages/meeting_notice.aspx. On 30 March 2022, the ICES Council (https://www.ices.dk/news-and-events/news-archive/news/Pages/TemporarySuspension.aspx) announced a temporary suspension of Russian participation in ICES activities because since "the start of the ongoing war in Ukraine, a number of Member Countries have instructed their scientists and representatives to either boycott or avoid engagement in activities where representatives of the Russian Federation (one of ICES member countries) are present".

[74] ICES. 2021. Working Group on North Atlantic Salmon (WGNAS). ICES Scientific Reports. 3:29. 407 pp. https://doi.org/10.17895/ices.pub.7923 (https://ices-library.figshare.com/articles/report/Working_Group_on_North_Atlantic_Salmon_and_WGNAS_2021_Addendum/18621548?file=33400379).

1. In the North Atlantic, exploitation rates on Atlantic salmon continue to be among the lowest in the time-series.

Figure 2.1.1.1 and the corresponding table of WGNAS 2021 show salmon catches for 1960 to 2020 for the NAC, WGC and NEAC areas with the NEAC split into northern and southern stocks (the corresponding table shows considerably more details). Total catches in the three Commissions increased irregularly from about 7200t in 1960 to a peak of almost 12700t in 1973. Catches have subsequently declined to less than 1000t in 2019 and 2020. Catches have declined markedly in all areas. Figure 3.1.4.1 presents the catches for 1971 to 2020 for the north and south NEAC showing a steeper decline for the southern NEAC than the northern NEAC. Figure 4.1.3.1 shows catches for the NAC during 1970 to 2020 for Canada, while United States catches were between 0 and 6 t for that period. The total tonnage caught in Canada declined rapidly from peaks of 1500t – 2900t during 1965 – 1980 to around 100t since 2017. Total numbers caught in Canada declined from about 600 000 in the late 1980s-early 1990s to less than 50 000 during 2018-2020 with a very steep decline after 1980. Catches in the WGC area (Figure 5.1.1.2) increased rapidly from 60t in 1960 to nearly 2700t in 1970 before declining to less than 100t in 1995 and to around 30t in 2020.

Figure 3.1.3.1 shows fishing effort over time for several regions of the NEAC. Similar to catches, fishing effort also decreased markedly in all regions and for all gears but the number of rod and line licenses has remained relatively steady in the UK (England and Wales) and is declining slowly in Ireland. There is no corresponding figure for the NAC: there has not been any commercial fishing in the United States since the 1800s and all commercial fisheries in Canada have been closed for more than 20 years, and some were even closed in the early 1970s.[75] Fishing effort in the WGC area is shown in Figure 5.1.1.3 for 1998 - 2020. The total number of licenses was in the order of 400 in the first years, decreased to less than 200 in 2003 and increased irregularly to around 300 for 2014-2017. There was a steep increase to around 700 licenses in 2018-2020.

Figure 3.1.9.1 presents exploitation rates separately for salmon that have spent one winter at sea and those that have spent multiple winters at sea for the northern and southern NEAC. In the southern NEAC, exploitation rates on 1SW (one-sea-winter) salmon have oscillated around 60% during 1971 to 1988 and subsequently declined to slightly over 5% in 2020. For MSW salmon in the southern NEAC, exploitation rates have declined from 45% in 1971 relatively regularly to less than 5% in 2020 for MSW salmon. In the northern NEAC, exploitation rates are similar for 1SW salmon and MSW (multi-sea-winter) salmon. They have declined from 70% in the early 1980s to about 40% in 2009-2010 and they have remained around 40-45% since then. Exploitation rates in the NAC are shown for Canada in Figure 4.1.6.1 for large and small salmon.

[75] See https://www.nytimes.com/1972/06/04/archives/salmon-fishing-curbed-in-canada-commercial-catches-in-east-are.html.

Exploitation rates of small salmon fluctuated between 50-60% during 1971 to the late 1980s and have subsequently declined to less than 20%. Exploitation rates for large salmon varied between 70-80% from 1971 to the early 1980s, they then declined, similar to small salmon, and have been around 10% since the mid 1990s. For the WGC (Figure 5.1.3.1), the exploitation rates for salmon of North American origin have fluctuated widely between 15 and 35% during 1971 to 1992, have been less than 15% during 1993 -2001 and less than 10% during 2002-2020. For salmon of European origin, exploitation rates declined from about 30% in 1971 to nearly zero in the early 1990s and they have remained very low since.

The need to regulate Atlantic salmon marine fisheries was one of the reasons for the creation of NASCO in the early 1980s. The Panel concludes that this has been successfully achieved in all areas: most marine / mixed stock fisheries have been substantially reduced or discontinued. Success is particularly striking in the Greenland and Faroese mixed stock fisheries. Decreases in exploitation rates have tracked the decrease in catches. Exploitation rates have decreased less in the northern NEAC. As will be seen later, except for MSW spawning salmon in the northern NEAC, stocks are decreasing and it may be advisable to reduce catches and exploitation rates in the northern NEAC.

> 2. Northern NEAC stock complexes, prior to the commencement of distant-water fisheries, were considered to be at full reproductive capacity. The southern NEAC stock complexes were also considered to be at full reproductive capacity in the latest PFA[76] year, although this is due, at least in part, to changes in the UK (Northern Ireland) and UK (Scotland) SERs[77] and CLs[78].

There are several figures in WGNAS 2021 that relate to pre-fishery abundance, but the statement above refers to figure 3.3.4.2. The figure is the total for the Northern and Southern NEAC for maturing 1SW salmon, 1SW spawning salmon, non-maturing 1SW salmon and MSW spawning salmon. The totals presented in this figure are based on the detailed information shown in a previous set of figures 3.3.4.1 a to j in WGNAS 2021 for various components of each area; the Panel provide comments on the detailed information in WGNAS 2021 figures 3.3.4.1 a to j in section 2.3 'Quality and provision of scientific advice'. The Panel was struck by the declining trends, particularly for the 1SW salmon maturing and non-maturing components even though the PFAs were consistently above the SERs. This may suggest that the SERs are not sufficiently high. The trends are less pronounced for the MSW spawning salmon. The CLs for those components have been breached on several occasions but do not seem to have resulted in marked decreases in abundance.

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76 Pre fishery abundance.
77 Spawning escapement reserves
78 Conservation limits.

While a figure for the totals in each area by spawning groups is informative, it is what happens in individual rivers that is important for the conservation and restoration of salmon stocks. The totals may be influenced by one or a few large rivers which may not be reflective of what is happening in the majority of smaller rivers and successful restoration of salmon stocks requires that stocks be rebuilt in ALL rivers.

The Panel notes that most life stages have decreased markedly over time even though the PFAs were generally and consistently above the SERs and CLs. The Panel understands that decreasing marine survival may play a role. However, WGNAS 2021 (page 82) notes that although return rates to the northern NEAC have generally decreased since 1980, rates of 1SW salmon returns from wild smolts have stabilized since 2010, and rates of 1SW salmon returns from hatchery smolts have increased since 2005. Mean return rates to the southern NEAC are less variable. They too have generally decreased since 1980, although rates of 2SW (two-sea-winter) salmon returns from wild smolts started to increase since 2005, a trend that continued in 2019. Considering that marine survival appears to have stabilized or increased, these decreasing PFAs in the NEAC need to be investigated to evaluate if more conservative (i.e. higher) SERs and CLs are needed to stop or revert the declining trends. These further investigations should evaluate how much of the changes in salmon productivity is resulting from changes in marine and freshwater ecosystem functioning due to climate change, and how much is due to evolutionary mismatches between populations and shifting environments, and how these mismatches are exacerbated by gene flow from farm escapes.

> 3. The probabilities of the non-maturing 1SW national management units achieving their SERs in 2021/2022 vary between 20% (UK, Northern Ireland) and 99% (Norway) with zero catch allocated for the Faroes fishery and decline with increasing TAC options. The only countries to have a greater than 95% probability of achieving their SERs with catch options for Faroes are Norway (TACs ≤40 t) and UK (England & Wales) (TACs ≤40 t). In most countries, these probabilities are lower in the subsequent two seasons. There are, therefore, no TAC options at which all management units would have a greater than 95%probability of achieving their SERs.

The statement above refers to figure 3.5.1.1 of WGNAS 2021. The Panel has no comment on the statement or on the figure.

> 4. In 2020, 2SW returns to rivers for all regions of NAC were suffering reduced reproductive capacity, with the exception of the Gulf region in Canada.

The statement above refers to figure 4.3.2.4 of WGNAS 2021. Data from 1971 onwards are included. The figure shows that for the NAC, the 2SW returns and spawners have been below the 2SW CL since the early 1980s. When looking at the six regions

individually, Labrador was below the CL for most of the period except for a few years between 2012 and 2017 when it increased above the CL to fall below it in subsequent years, Newfoundland has regularly oscillated around the CL, Québec is hugging the CL but consistently below it since the early 2000s, Gulf has been consistently above the CL from 1971 to the mid-1990s, it has briefly dropped below it in the early 2000s, has remained around the CL since then and is slightly above it in 2020. Scotia Fundy and the United States are substantially below their CL (the U.S. CL is off the graph). The red lines in the graphs for Scotia Fundy and the United States correspond to region specific management objectives. The management objectives for the United States were exceeded in a few years because of adult stocking. According to WGNAS 2021 (page 213) return rates to NAC increased for small salmon in Newfoundland, declined in Québec and vary without trends in Scotia Fundy. Large salmon in Québec and Scotia Fundy vary without statistically significant trends.

The Panel notes that, although fishery restrictions were implemented earlier in the NAC, the stocks do not appear to have responded positively, except perhaps briefly in Labrador. While the stocks have generally been below their CLs, they do not show the steep and continuous declines estimated for the NEAC. Scotia Fundy and the United States are special cases where Atlantic salmon has been nearly extirpated. It is possible that the lack of positive response in the other areas could be due to salmon aquaculture but the farms in the Bay of Fundy (Scotia Fundy) and off Newfoundland, are on a much smaller scale than in the NEAC, and the negative impacts of salmon farming would normally be expected to be less. The Panel would like to be reassured that the mortality of released fish in recreational fisheries (no mortality is associated with release[79]), their lower reproductive rates,[80] or unreported catches are not playing a role in the lack of positive response. A special effort should be made to ensure that there are no unreported catches in the NAC and to estimate the effect of mortality or lower reproductive success associated with the release of fish in recreational fisheries. If it is confirmed that catches are consistent with those reported, it may be necessary to further restrict recreational fisheries.

5. The continued low and declining abundance of salmon stocks across North America, despite significant fishery reductions, strengthens the conclusions that factors acting on survival in the first and second years at sea, at both local and broad ocean scales are constraining abundance of Atlantic salmon.

[79] Some 5-10% mortality would normally be associated with the release.

[80] A recent study suggests that salmon released in recreational fisheries have nearly 30% lower reproductive success that have not been caught. (Bouchard, R., Wellband, K., Lecomte, L., Bernatchez, L. and April, J. 2022. Effect of catch-and-release on reproductive success of Atlantic salmon (Salmo salar L.) in the Rimouski River, Québec, Canada. Fisheries Management and Ecology 29(6): 888-896. https://doi.org/10.1111/fme.12590).

This statement does not refer to any specific figure. It is true that salmon stocks in the NAC continue to show low abundance, but the declines in the four main regions are not particularly pronounced, it is either fluctuations without clear trends (Labrador, Newfoundland) or relative stability (Quebec, Gulf). The declines in the NEAC are more pronounced and they are of particular concern because the stocks were estimated to be consistently above the CLs. Fisheries in the NEAC have been constrained more recently than in the NAC and in some cases exploitation rates have remained relatively high at or above 40% (e.g. in the Northern NEAC, Figure 3.1.9.1 of WGNAS 2021).

Figure 3.3.5.1 of WGNAS 2021 shows for the NEAC the number of rivers with established CLs, the number of rivers assessed annually and the number of rivers meeting the CLs annually. Russia appears to meet the CLs in all the rivers that are assessed, Norway is almost meeting the CLs in all the rivers they assess, but the other countries shown are meeting their CLs in only a few rivers. As indicated above, it is what happens in individual rivers that is important for the conservation and restoration of salmon stocks. Although ICES states that salmon is at full reproductive capacity in both NEAC areas, a large proportion of rivers in the countries shown in figure 3.3.5.1 of WGNAS 2021 are below their CLs. Successful restoration of salmon stocks requires that stocks be rebuilt in ALL rivers.

The Panel concurs with the 2022 ICES advice that "*Environmental conditions in both freshwater and marine environments have a marked effect on the status of salmon stocks. Across the North Atlantic, a range of problems in the freshwater environment play a significant role in explaining the poor status of stocks. In many cases, river damming and habitat deterioration have had a devastating effect on freshwater environmental conditions. In the marine environment, return rates of adult salmon have declined since the 1980s and, for some stocks, are now at their lowest levels in the time-series, even after closure of marine fisheries. Climatic factors modifying ecosystem conditions and the impact of predators of salmon at sea are considered to be the main contributing factors of lower productivity, which is expressed almost entirely in terms of lower return rates.*"

Similar to the Report of the Second NASCO Performance Review (page 74), this Panel notes that it is difficult to reconcile the status presented in the NASCO Rivers Database with the information provided by ICES. The Panel recognizes that the ICES information is essentially related to spawning escapement while the Rivers Database incorporates information on additional threats. However, it is confusing to read in the WGNAS 2021 that "northern NEAC stock complexes, prior to the commencement of distant-water fisheries, were considered to be at full reproductive capacity" and see in the NASCO Rivers database that a large number of rivers in Norway are considered to be high risk with only a few considered to be not at risk.

Panel Recommendations

1. Considering that marine survival appears to have stabilized or increased, the Panel recommends that the reasons for the continuing decreasing PFAs in the NEAC need to be investigated to evaluate if more conservative (i.e. higher) SERs and CLs are needed to stop or revert the declining trends.

2. The Panel recommends that NASCO i) makes a special effort to ensure that there are no unreported catches in the NAC and ii) estimates the effect of mortality or lower reproductive success associated with the release of fish in recreational fisheries.

2.2. Data collection and sharing

NASCO Parties that are also members of the EU have access to the Data Collection Framework Regulation 2017/1004 (DCF Regulation) for the collection, management and use of data in the fisheries sector.[81] The DCF Regulation dictates that EU Member States *"must take part in the efforts undertaken to conserve fisheries resources"*, that data collected, including from recreational fisheries, should make it possible to estimate management targets, and that time series be built and maintained.

The biological data collected varies among Member States and may include: river-specific life history data on sex, age and maturity schedules, juvenile surveys, smolt counts, adult census data using traps and counters, tagged fish (Coded Wire Tag) release programs to estimate survival and exploitation rates, the management and operation of index systems for the establishment of time series data and reference points (CLs) and life cycle modelling, and genetic sampling for the establishment of genetic baselines. The DCF Regulation also supports the collection of fisheries data such as catch statistics, angling logbooks, carcass tagging schemes for management of commercial and recreational fisheries.

[81] The EU makes a contribution to the costs incurred by its Member States in collecting biological, fisheries and other data to support salmon management.

2.2.1. Agreed formats, specifications and time frames

Performance criterion

2. Extent to which NASCO has agreed formats, specifications and time frames for data submissions.

Data on Atlantic salmon is submitted to the ICES Working Group on North Atlantic Salmon in agreed formats and specification within agreed time frames. A data call is issued sufficiently in advance of the annual Working Group meeting[82] to allow for compilation prior to analyses. The meetings of the WG are normally held in March – April of each year and advice is provided by the ICES Advisory Committee (ACOM) in May, prior to the NASCO Annual Meeting normally held in early June. While the process appears to run smoothly, it remains somewhat cumbersome with jurisdictions having to submit data in spreadsheets that have to be verified and consolidated at the ICES Secretariat shortly before the WGNAS meeting. It is expected that the new Life-Cycle Model for the assessments currently being benchmarked will improve the process, reduce the risks of miscoding and increase transparency.

In theory, it would be more efficient for each Party/jurisdiction to fill a data form directly on a web site (ICES or NASCO). This would avoid errors likely to occur when manually copying and pasting from one spreadsheet to a consolidated one. Integration would likely be simpler. It is not clear, however, if the ICES data portals are configured in a way that would accommodate salmon data from NASCO Parties and jurisdictions. WGNAS members apparently discuss this regularly with the ICES Secretariat, and while planning is on-going, little progress has been achieved.

Panel Recommendation

3. The Panel recommends that NASCO requests ICES to develop an integrated, seamless process to input data into a common database from a web-based application. This should be integrated with the assessments to produce the necessary tables and graphs to document the assessment.

[82] See https://ices-library.figshare.com/articles/report/Data_call_for_selected_stocks_of_Atlantic_salmon_in_the_North_Atlantic/18596918.

2.2.2. Collection and sharing data in a timely manner

Performance criterion

3. Extent to which NASCO Parties collect and share, through NASCO, complete and accurate data concerning wild salmon in the Convention area in a timely manner, including: analysis of trends in fishing activities over time; fishing and research data; fishing vessel and research vessel data and fishing effort data.

As indicated above, data are shared through the ICES WGNAS. The WGNAS reports and ICES advice include analysis of trends in fishing activities over time; fishing and research data; fishing vessel and research vessel data and fishing effort data. The information is presented for the whole North Atlantic and also separately for each of the Commissions (North-East Atlantic (north and south), North America, and West Greenland).

One jurisdiction commented to the Panel that while Implementation Plans (IPs) and APRs had improved reporting on compliance and enforcement measures, many Parties were suspected of not making sufficient effort to estimate and report the unreported and illegal catch from in-river, estuarine, and coastal fisheries thereby creating an important gap in NASCO's knowledge of the overall harvest of Atlantic salmon. A recommendation to address this is provided in section 3.2.

2.2.3. Addressing gaps in the collection and sharing of data

Performance criterion

4. Extent to which NASCO is addressing any gaps in the collection and sharing of data as required.

The Panel received a request to recommend actions that NASCO could undertake to more effectively respond to the threat that climate change has on Atlantic salmon productivity. This implies a perceived gap in that area, yet, NASCO seems to have taken into account possible effects of climate change on multiple occasions. However, in its 2021 report, WGNAS specifically states that they did not review any recent information on research into the migration and distribution of salmon at sea, or the potential implications of climate change for salmon management. The Report of the 39th (2022) Annual NASCO Council Meeting does contain references to climate change, but only in the opening statements of delegations.

The Panel recognizes that there are substantial knowledge gaps on the impact of climate change. Filling them may require a fundamental shift in emphasis of research and NASCO's request for advice to ICES to assess how climate change might impact marine, transitional and freshwater ecosystems. If it is possible to identify specifically stressed ecosystem components, and what adaptation strategies can be applied to relieve additional climate change related stress, the most effective adaptation strategy could be to alleviate stress already occurring due to habitat loss or degradation and the negative impacts of aquaculture. The Panel discusses this issue further in subsection 2.5.1.

2.3. Quality and provision of scientific advice

Performance criterion

5. Extent to which NASCO produces or receives the best scientific advice and other information relevant to the conservation, restoration, and rational management of salmon and their habitats.

As indicated in section 1.2, prior to the creation of NASCO in 1982, scientific advice on salmon was provided to ICNAF and NEAFC by a joint ICES/ICNAF working group. With NAFO replacing ICNAF in the northwest Atlantic and a new constitutive instrument for NEAFC in the North-East Atlantic, Atlantic salmon was excluded from the mandates of NAFO and NEAFC. After the creation of NASCO, scientific advice was provided by the Advisory Committee on Fisheries Management (ACFM) of ICES with the technical work conducted by the Working Group on North Atlantic Salmon. In the early years, the ICES reports documented the catches in various areas and their effects on other areas. In the mid-1980s, the ICES reports discussed a framework for the management of salmon fisheries with three objectives: i) conservation of salmon stocks, ii) optimization of salmon catches, and iii) minimizing variability in salmon fisheries. Conservation was identified as the primary objective and the best means to achieve conservation was to allow a sufficient number of salmon to spawn. Much of the work of WGNAS in the late 1980s and early 1990s focused on identifying, on a river-by-river basis, escapement targets (in terms of SERs or CLs). The concept was formally adopted by NASCO in its adoption of the Precautionary Approach in CNL(98)46. ICES revised its advisory structure in the mid 2000s and all of ICES advice is now provided by a single committee: ACOM.

The stock assessment methods and data are described in the reports of WGNAS, but the finer details are provided in the stock annex.[83] The data available vary from area to area, country to country, and from river to river within country.

Two approaches to calculate the pre fishery abundance are possible (Potter et. al. 2004)[84]: i) life-history models or ii) run-reconstruction models. Life-history models work from parr or smolt estimates forward to calculate how many will survive to spawn. Run-reconstruction models work from catches backwards to estimate how many salmon were necessary to produce observed catches. Life-history models are successfully used in the Baltic where good data on the abundance of parr, smolt and spawners are available. At the time of the development of the current approach (Potter et. al. 2004) life-history models were not considered feasible for the North Atlantic because of insufficient coverage spatially and temporally of parr or smolt production. The stock annex used by WGNAS provides a good summary description of how the PFAs are calculated. Page 15 of the annex states "*The models to estimate the PFA of salmon from different areas are typically based on the catch in numbers of one-sea-winter (1SW) and multi-sea-winter (MSW) salmon in each country or region, which are then raised to take account of estimates of non-reported catches and exploitation rates on the two age groups. In some cases, particularly in the NAC area, returns to home waters are estimated by alternative methods, such as counts at fishways and counting fences, or from mark and recapture studies. The estimates of fish numbers returning to home waters are then raised to take account of the natural mortality (M) between the date that the fish are deemed to recruit to the particular fishery of interest and the midpoint of the timing of the respective national fisheries"*.

The concept is reasonably easy to understand: information on individual rivers (catch, counts, or population estimates from tagging experiments) is the starting point of a back calculation process (using estimates of natural mortality and / or exploitation rates) to raise the numbers to an agreed time before the fisheries start.

All sampling programs imply variability, even those that are well designed and extensive, it is intrinsic to sampling. Such variability implies uncertainties in the parameters that are estimated. There are sampling programs for Atlantic salmon that are well designed, but not all are, and very few are extensive in time and space: sometimes, catches are poorly reported or unreported and management measures have

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83 https://ices-library.figshare.com/articles/report/Stock_Annex_Salmon_Salmo_salar_in_Northeast_Atlantic/18622037.

84 Potter, E. C. E., Crozier, W. W., Schön, P-J., Nicholson, M. D., Maxwell, D. L., Prévost, E., Erkinaro, J., Gudbergsson, G., Karlsson, L., Hansen, L. P., MacLean, J. C., O´ Maoiléidigh, N., and Prusov, S. 2004. Estimating and forecasting pre-fishery abundance of Atlantic salmon in the Northeast Atlantic for the management of mixed-stock fisheries. e ICES Journal of Marine Science, 61: 1359-1369.

been designed to decrease them; exploitation rates are estimated in various ways, sometimes year by year for one or a few rivers, but more often only a few times during the time series and exploitation rates are assumed to be the same for other years. Some detailed information for the NEAC is shown in figures 3.3.4.1 a to j, but the uncertainties shown in these figures are lost when the information from different rivers is combined to obtain a total for a region or a Commission area as in figure 3.3.4.2.

As noted in Potter et al (2004) the NEAC model to calculate the PFAs is heavily dependent upon catch data and estimates of exploitation rates. While the catch data may be reasonably well estimated, as fisheries have been constrained consistent with stock declines, exploitation rates have been reduced considerably and become more uncertain. PFA estimates are therefore becoming increasingly sensitive to often assumed exploitation rates and this means that uncertainty in the stock estimates is increasing. It also means that the assumption that M is constant between years for adult salmon in the sea is now more critical, and needs to be examined more closely.

The details of what data is used and what assumptions are made is described and justified in the stock annex. It is beyond the scope of this review to evaluate the validity of data and assumptions chosen in each individual cases. Those choices were made by qualified experts and the Panel can only assume that they made the best choices. However, the Panel notes that WGNAS 2021 figures 3.3.4.1 a to j suggest that some CLs have been set too low. The bottom panels of those figures show the total PFA on the vertical axis and the lagged egg production on the horizontal axis, corresponding to a pseudo stock and recruitment relationship with the agreed CL indicated by a vertical dotted line in red. In some cases (e.g. Iceland, Norway North, Middle and South east, Russia, Sweden, UK – England and Wales, UK – Northern Ireland) the CLs match closely the inflexion point of the Hockey stick stock and recruitment relationships, but in others (e.g. river Tana/Teno in Finland and Norway, France, Ireland, Norway Southwest, and UK – Scotland) the CLs are far to the left of the inflexion point of the pseudo stock and recruitment relationship. The Panel is not in a position to determine which of the nationally set CLs (the vertical red line in the graph) or the hockey stick pseudo stock and recruitment relationships constitute a more reliable basis to establish CLs. However, if the pseudo stock recruitment relationships are indeed the more reliable basis, this implies that the CLs are set too low. This also implies that the statement in the ICES advice that CLs have been defined to achieve long-term average maximum sustainable yield (MSY) may be in error. The Panel considers that this warrants a careful review of the most appropriate basis to set CLs, i.e. pseudo stock and recruitment relationships or other approaches, and that CLs be revised accordingly if necessary.

Salmon released in catch and release fisheries are not included in nominal catches. According to the 2021 WGNAS report, over 196 000 salmon were reported to have

been released from rod fisheries around the North Atlantic in 2020. It should be expected that some percentage of those have died following the release, the actual percentage generally depending on the water temperature in which they were released. While this would not change the overall picture that salmon catches are now substantially lower than they were 40-50 years ago, the fact that some of the released salmon will die should be acknowledged.

A benchmark review of the salmon assessment models is currently underway at ICES to evaluate current modeling and possibly adopt a new approach. The process should be completed in 2023. It is expected that a new model will be adopted by the benchmark based on a Life Cycle Model (LCM).[85] The new model is expected to formalize the workflow for assessing and providing fisheries catch advice for Atlantic salmon stocks in the North Atlantic. The LCM will incorporate all Atlantic salmon stocks at the North Atlantic scale in a single model. The LCM framework will be available online and this is expected to simplify and strengthen the robustness of the stock assessment workflow from the input data to the production of catch advice. The plan was to run the LCM in parallel to the conventional assessment process in 2022 to compare the outputs. However, the cancellation of ICES meetings in early 2022 mentioned above in section 2.1 prevented this from happening. The plan is expected to be applied in 2023.

The LCM has been reviewed by WGNAS every year during 2017-2019 including progressively more rivers. Preliminary results reported in WGNAS 2020[86]: "highlight that the overall patterns and trends in PFA and productivity estimates are very similar between the two models. However, some slight differences exist in estimates of egg deposition, PFA, and marine productivity. Those differences are essentially due to differences in demographical structure between the models" (page 14). The Panel considers this exemplary practice in developing, testing and adopting a new assessment approach.

The Panel recognizes that the implementation of multiyear advice and the use of the Framework of Indicators in the intervening years to evaluate if it was necessary to run the full assessment has been a great improvement. However, the Panel concurs with comments it received from a few NASCO Parties that the current nature of the routine scientific advice tends to lock NASCO by default into a narrow focus on fishery management. Considering that scientific advice for fisheries management has not changed for a number of years and is not expected to change significantly in the foreseeable future, NASCO could consider requesting advice on a wider range of topics

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85 https://ices-library.figshare.com/articles/report/Workshop_for_Salmon_Life_Cycle_Modelling_WKSALMODEL_/18621605.

86 ICES. 2020. Working Group on North Atlantic Salmon (WGNAS). ICES Scientific Reports. 2:21. 358 pp. http://doi.org/10.17895/ices.pub.5973.

(e.g., impacts of climate change). The recently revised (2022) MoU between ICES and NASCO allows for this.[87] The Panel agrees that the work of WGNAS could be used more efficiently to provide the scientific advice needed to support improved salmon management and that it is not the best use of the WG's time to request each year the full slate of recurring questions. This may involve having different requests for advice in years where a full assessment is not conducted.

Panel Recommendations

4. The Panel recommends that NASCO arranges for a careful review of the most appropriate basis to set CLs for stock complexes and for individual river stocks; i.e. should pseudo stock and recruitment relationships be used or are other approaches to be preferred. CLs should be revised accordingly if necessary.

5. The Panel recommends that NASCO requests ICES to ensure that its catch statistics on catch and release fisheries acknowledge the fact that some of the released salmon will die.

2.4. Adoption of conservation and management measures

2.4.1. Best scientific advice available

Performance criterion

6. Extent to which NASCO has adopted measures and developed guidance based on the best scientific advice available to ensure the long-term conservation, restoration, and rational management of salmon.

Article 3(2) of the NASCO Convention stipulates that taking into account the best scientific evidence available is an integral part of NASCO's objective.[88] As indicated above, NASCO receives scientific advice from ICES, which is an intergovernmental marine science organization that provides impartial evidence on the state and sustainable use of seas and oceans through a network of nearly 6000 scientists from over 700 marine institutes in its 20 member countries.

NASCO's Commissions and NASCO's Parties and jurisdictions (for their coastal, estuarine and in-river fisheries) have generally adopted measures and developed

[87] Page 5 of the MoU, point c): "Inform NASCO of any notable impact of other factors on and imbalances in marine and freshwater ecosystem structure that may prejudice the stocks of commercially valuable species and its long-term exploitation".

[88] See also Art. 9(a).

guidance based on scientific advice provided by ICES. The Panel concludes that the measures and guidance adopted by NASCO for the management of salmon fisheries, the protection and restoration of habitats and the management of interactions with salmon aquaculture are well-informed, comprehensive and appropriately based on the best scientific advice available.

While the management of mixed stock fisheries directly targeting salmon seems to be under control, the possible by-catch of salmon in the large-scale fisheries for small pelagics in the North-East Atlantic remains a potential problem. The Panel recognizes that NASCO has asked ICES for advice on the risk of salmon by-catch from marine pelagic fisheries on a number of occasions, most recently in 2022.[89] Notwithstanding the work that NASCO has done on this issue in the past, the Panel considers that the magnitude of problem needs to be assessed, and if it is assessed to be important, measures to resolve the problem will need to be developed. By-catch of Atlantic salmon is discussed further in subsection 2.5.2.

Panel Recommendation

6. The Panel recommends that NASCO should commission an assessment of the by-catch of salmon in the large-scale fisheries for small pelagics in the North-East Atlantic and, if the by-catch is determined to be significant, take measures to address this.

2.4.2. Precautionary approach

Performance criterion

7. Extent to which NASCO has adopted and applied a precautionary approach as detailed in Article 6 of the 1995 UN Fish Stocks Agreement, and the UN FAO Code of Conduct for Responsible Fisheries, including the application of precautionary reference points.

At the global level, the precautionary approach to fisheries management is defined and operationalized in Article 6 and Annex II of the Fish Stocks Agreement[90] in relation to the conservation, management and exploitation of straddling and highly migratory fish stocks, and in Articles 6.5 and 7.7 of the Food and Agriculture Organization of the

89 CNL(22)13.

90 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, 4 August 1995. In force 11 December 2001, 2167 UNTS 3. See also Art. 5(c).

United Nations (FAO)'s Code of Conduct[91] in relation to the conservation, management and exploitation of living aquatic resources more generally. The associated legal obligations and political commitments to apply the precautionary approach to fisheries management are applicable to all NASCO Parties because all of them are parties to the Fish Stocks Agreement[92] and Members of FAO.[93]

As concluded in subsection 5.1.2, the Fish Stocks Agreement is not applicable in the context of NASCO as such, but NASCO Parties can still decide to apply parts of the Agreement between them. This is in fact what NASCO Parties have done. By means of NASCO's 1998 Agreement on Adoption of a Precautionary Approach (CNL(98)46), NASCO and its Parties agreed to "adopt and apply a Precautionary Approach to the conservation, management and exploitation of salmon in order to protect the resource and preserve the environments in which it lives" (para. 1), thereby closely following the wording of Article 6(1) of the Fish Stocks Agreement. The subsequent definition of the Precautionary Approach in the 1998 Agreement is essentially identical to that in Article 6(2) of the Fish Stocks Agreement, except that it uses "should" instead of "shall"; which is appropriate for non-legally binding instruments. The NASCO definition in paragraph 1 reads:

> Accordingly, NASCO and its Contracting Parties should be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.

The Panel nevertheless wonders if so closely following the wording in paragraphs 1 and 2 of Article 6 of the Fish Stocks Agreement is really appropriate in light of NASCO's objective and its subsequent practice. The precautionary approaches included in the Fish Stocks Agreement and the Code of Conduct relate only to fisheries management, and are therefore sectoral precautionary approaches. As concluded in subsection 5.1.1, however, NASCO is 'more than an RFMO' and the cross-sectoral and holistic approach that is implied in the wording of NASCO's objective is confirmed by its practice. NASCO should therefore pursue a cross-sectoral and holistic precautionary approach. As reflected in the list of instruments by which NASCO has operationalized the Precautionary Approach further below, NASCO has in fact done so.

Notably absent in paragraph 1 of the 1998 Agreement are the components of restoration and enhancement that are part of NASCO's objective and mandate. NASCO has not

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91 Code of Conduct for Responsible Fisheries. Adopted by the Twenty-eight Session of the FAO Conference, Rome, 31 October 1995; available at https://www.fao.org/fishery/en/code.

92 See https://www.un.org/Depts/los/convention_agreements/convention_agreements.htm.

93 See https://www.fao.org/legal-services/membership-of-fao/en/.

only exercised its mandate with regard to these two components in general, but has even operationalized the Precautionary Approach for them (see below).[94]

Paragraph 2 of the 1998 Agreement reads as follows:

> 2. The Precautionary Approach requires, *inter alia*:
>
> a) consideration of the needs of future generations and avoidance of changes that are not potentially reversible;
> b) prior identification of undesirable outcomes and of measures that will avoid them or correct them;
> c) initiation of corrective measures without delay, and these should achieve their purpose promptly;
> d) priority to be given to conserving the productive capacity of the resource where the likely impact of resource use is uncertain;
> e) appropriate placement of the burden of proof by adhering to the above requirements.

Paragraph 4 of the 1998 Agreement stipulates that the Precautionary Approach "will be applied by NASCO and by its Contracting Parties to the entire range of their salmon conservation and management activities" but will be initially applied to the following three areas: (a) management of North Atlantic salmon fisheries; (b) the formulation of management advice and associated scientific research; and (c) the area of introductions and transfers including aquaculture impacts and possible use of transgenic salmon. Paragraph 5 of the 1998 Agreement provides that "NASCO and its Contracting Parties should as the next step address application of the Precautionary Approach to freshwater habitat issues and the by-catch of salmon in other fisheries." Paragraphs 5-12 of the 1998 Agreement operationalize the Precautionary Approach to the three areas mentioned in paragraph 4.

NASCO's subsequent efforts to further operationalize the Precautionary Approach have resulted in the following instruments (in chronological order):

1. The 2001 'NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat' (CNL(01)51);
2. The 2002 'Decision Structure to Aid the Council and Commissions of NASCO and the relevant authorities in Implementing the Precautionary Approach to Management of North Atlantic Salmon Fisheries' (CNL31.332);
3. The 2004 'Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks' (CNL(04)55);

[94] CNL(01)51, CNL(04)55 and CNL(10)51.

4. The 2004 'Guidelines for Incorporating Social and Economic Factors in Decisions Under the Precautionary Approach' (CNL (04)57);
5. The 2006 Williamsburg Resolution (CNL(06)48);
6. The 2009 'NASCO Guidelines for the Management of Salmon Fisheries' (CNL(09)43); and
7. The 2010 'NASCO Guidelines for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat' (CNL(10)51).

The only thing that NASCO has promised to do but has failed to deliver so far, is operationalizing the Precautionary Approach in relation to by-catch of salmon in other fisheries. This is discussed further in subsection 2.5.2.

The Panel endorses the recommendation of the Second NASCO Performance Review Panel in relation to the Precautionary Approach (EPR 41):

> NASCO should ensure that the precautionary approach is used to the same extent in managing all impacts of human activity on the full life-cycle of salmon in rivers, estuaries, coastal areas and the open ocean.

The application of the 1998 Agreement and its associated operationalizations in dedicated NASCO instruments has led to the adoption of CLs, spawning escapement goals and reference points for the management of salmon fisheries (see subsection 2.5.2). It is more difficult to ascertain their contribution to improvements in habitat protection (see subsection 2.5.3) or addressing the persistent problems of sea lice and escapes in salmon aquaculture (see subsection 2.5.4).

The IP/APR process furthers the implementation of the 1998 Agreement and its associated operationalizations in dedicated NASCO instruments. The leverage exerted through the actions in the IPs depends on how risk-sensitive the authorities who manage the various pressures are. NASCO has worked hard with the Parties and jurisdictions to maintain or restore stocks to levels that can produce MSY. Unfortunately, even with fishing on many stocks severely curtailed, they remain stubbornly below MSY. Stock rebuilding goals are also likely to be undermined by global warming, which exacerbates existing pressures, changes in marine ecosystem functioning, mediocre rather than pristine freshwater water quality, excessive mortality from sea lice, and changes in the genetic constitution of wild populations due to genetic introgression from farm escapes. The reference points may not be conservative enough to allow stock rebuilding.

Panel Recommendation

7. In addition to endorsing recommendation EPR 41 of the Second NASCO Performance Review, the current Panel recommends that NASCO considers

updating its 1998 Agreement on the Precautionary Approach to better reflect NASCO's entire objective and its subsequent practice.

2.4.3. Ecosystem approach

Performance criterion

8. Extent to which NASCO has adopted and applied an ecosystem approach (for example, FAO Guidelines 2003).

The 2003 FAO Guidelines mentioned in this criterion are understood to be the 2003 Technical Guidelines 'The ecosystem approach to fisheries',[95] which were developed under the framework of the Code of Conduct. These Guidelines define the ecosystem approach to fisheries (EAF) management as follows:

> An ecosystem approach to fisheries strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries.[96]

This definition is not generally accepted in the international community, and States and entities employ their own definitions of EAF management or alternative notions such as ecosystem-based fisheries management.[97] The essence of both notions is that fisheries management should not focus only on target species, but should pursue a more holistic approach and, *inter alia*, also take account of predator-prey relationships, impacts of fisheries on non-target species and the broader marine environment (e.g. the impacts of bottom fisheries on benthic habitats), the impacts of oceanographic or climate processes, or pollution, on fish stocks, and social and economic factors. It is this essence of both notions that presently enjoys general acceptance within the international community as the preferred approach to fisheries management.

The notions of EAF management or ecosystem-based fisheries management are not mentioned explicitly in the Fish Stocks Agreement or the Code of Conduct. However, as Article 5 of the Fish Stocks Agreement contains various obligations to take account

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95 FAO Fisheries Department, *Fisheries management. 2. The ecosystem approach to fisheries* (FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2; Rome, FAO. 2003; available at https://www.fao.org/fishery/en/publication/56672.

96 Ibid., at p. 14.

97 See, for instance, the definition for the 'ecosystem-based approach to fisheries management' the Art. 4(1)(9) of the 2013 Basic Regulation for the EU's Common Fisheries Policy (EU Regulation No 1380/2013, of 11 December 2013; as amended. Consolidated version available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013R1380).

of a range of ecosystem considerations, it can be regarded as implicitly requiring EAF management. As observed before, all NASCO Parties are parties to the Fish Stocks Agreement and thereby bound by its provisions.

Subsection 2.4.2 notes that a distinction must be made between the precautionary approach to fisheries management – which is a sectoral precautionary approach – and the cross-sectoral and holistic precautionary approach that has been adopted and operationalized by NASCO; albeit with some shortcomings. A similar distinction must be made with EAF management. Whereas EAF management is a sectoral fisheries management approach, NASCO's objective calls for a cross-sectoral and holistic ecosystem approach. As NASCO has sought to govern (through non-legally binding instruments) other land-based and maritime activities and sectors – including aquaculture – and threats such as the spreading of diseases, parasites and alien invasive species for the purposes of conservation, restoration and enhancement of salmon stocks and their habitats (see subsection 5.1.1), it can in principle be regarded as having pursued a cross-sectoral and holistic ecosystem approach in practice.

So far, NASCO has not adopted a dedicated instrument on the 'ecosystem approach to salmon conservation'. The statement in the 'Strategic Approach for NASCO's 'Next Steps'' that NASCO and its Parties "adopted an Ecosystem-based Approach, recognising the complex interaction of many activities that affect salmon stocks as well as the effects of salmon management upon other activities"[98] must be understood as reflecting NASCO's practice. Mention can also be made of the revised (2022) MoU between NASCO and ICES, which states that NASCO "seeks services and scientific advisory deliverables from ICES for scientific advice and information on the state of fisheries, aquaculture, and the ecosystem" (at p. 1) and through many other references to the ecosystem (at pp. 5-6 in particular).

The Second NASCO Performance Review Panel recommended that NASCO "Review the Technical Guidelines on the Ecosystem Approach to Fisheries with a view to determining whether EAF management plans are needed" (EPR 9).[99] The NASCO Secretariat conducted such a review and concluded that this was not necessary as "much of the information which would be included in an EAF management plan is already being provided by NASCO Parties / jurisdictions in their IPs".[100] The current Panel agrees with that conclusion.

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98 CNL(05)49 'Strategic Approach for NASCO's 'Next Steps''.

99 Report of the Second NASCO Performance Review, p. 34. The recommendation on p. 80 (EPR 42) does not seem relevant to EAF management.

100 CNL(14)14 'Report on Progress in Implementing the Measures contained in the 'Action Plan for taking forward the recommendations of the External Performance Review and the review of the 'Next Steps' for NASCO', p. 20.

2.4.4. Compatibility

Performance criterion

9. Extent to which management measures consistent / compatible with the NASCO Convention have been adopted (for example, as set out in Article 7 of the 1995 UN Fish Stocks Agreement).

The references to "compatible" and Article 7 of the Fish Stocks Agreement in this criterion must be understood as references to the notion of compatibility included in paragraph 2 of Article 7. The chapeau to that provision reads:

> Conservation and management measures established for the high seas and those adopted for areas under national jurisdiction shall be compatible in order to ensure conservation and management of the straddling fish stocks and highly migratory fish stocks in their entirety. To this end, coastal States and States fishing on the high seas have a duty to cooperate for the purpose of achieving compatible measures in respect of such stocks. In determining compatible conservation and management measures, States shall:

This is followed by six considerations that have to be taken into account when determining compatible conservation and management measures.

As concluded in subsection 5.1.2, the Fish Stocks Agreement is not applicable in the context of NASCO as such. Even though NASCO Parties can still decide to apply parts of the Agreement between them, this would not be useful with regard to the notion of compatibility. As reflected in the text of Article 7(2) of the Fish Stocks Agreement, it operationalizes the notion of compatibility in a largely evenhanded and reciprocal manner and avoids significantly favoring either coastal States or high seas fishing States. Article 7(2) of the Agreement therefore pursues a fundamentally different outcome than Article 66 of the UNCLOS, which severely curtails high seas salmon fishing, and Article 2(1) of the NASCO Convention, which prohibits this altogether.

The Second NASCO Performance Review was asked to assess a similar performance criterion – albeit formulated somewhat differently[101] – but did not provide any comments.

[101] "Extent to which consistent/compatible management measures have been adopted (e.g. as set out in Article 7 of the 1995 UN Fish Stocks Agreement)"; see the Report of the Second NASCO Performance Review, p. 129.

2.4.5. Regulatory measures

Performance criterion

10. Extent to which NASCO successfully establishes regulatory measures in accordance with Articles 7 and 8 of the NASCO Convention, taking into account Article 9 of the Convention, and Article 11 of the 1995 UN Fish Stocks Agreement.

In view of the provisions in the NASCO Convention and the Fish Stocks Agreement mentioned, this performance criterion must be understood to relate to regulatory measures for marine salmon fisheries that set catch limits, allocates fishing opportunities or both.

The Second NASCO Performance Review was asked to assess a similar performance criterion – albeit formulated somewhat differently[102] – but did not provide any comments.

Articles 7 and 8 of the NASCO Convention are concerned with the functions (here: mandate) of the three NASCO Commissions, with Article 7 applicable exclusively to the NAC – and Article 8 applicable to both the NEAC and the WGC. All of them have a mandate to adopt regulatory measures.[103]

Article 9 of the NASCO Convention reads as follows:

> In exercising the functions set out in articles 7 and 8, a Commission shall take into account:
> (a) the best available information, including advice from the International Council for the Exploration of the Sea and other appropriate scientific organizations;
> (b) measures taken and other factors, both inside and outside the Commission area, that affect the salmon stocks concerned;
> (c) the efforts of States of origin to implement and enforce measures for the conservation, restoration, enhancement and rational management of salmon stocks in their rivers and areas of fisheries jurisdiction, including measures referred to in article 15, paragraph 5 (b);
> (d) the extent to which the salmon stocks concerned feed in the areas of fisheries jurisdiction of the respective Parties;
> (e) the relative effects of harvesting salmon at different stages of their migration routes;
> (f) the contribution of Parties other than States of origin to the conservation of salmon stocks which migrate into their areas of fisheries jurisdiction by limiting their catches of such stocks or by other measures; and

[102] "Extent to which NASCO successfully allocates fishing opportunities consistent with the NASCO Convention and Article 11 of the 1995 UN Fish Stocks Agreement"; see the Report of the Second NASCO Performance Review, p. 129.

[103] Arts 7(1)(b and c) and 8(b).

(g) the interests of communities which are particularly dependent on salmon fisheries.

Paragraphs (a) and (b) appear to relate mainly to the setting of overall catch limits and the need for these to be based on the best available science. By contrast, the wording of paragraphs (c) to (g) suggests that their drafters intended them to function mainly as criteria for the allocation of fishing opportunities. This assumption is based on the considerable similarity between the wording of paragraphs (c) to (g) and the wording of Article 11 of the Fish Stocks Agreement (cited below) and allocation criteria used by (other) RFMOs.[104]

The chapeau of Article 9 of the NASCO Convention requires NASCO Commissions to take the subsequent paragraphs into account when adopting regulatory measures. Even though the word "shall" is intended to convey an obligation, this is watered down by the phrase "take into account". As a result, NASCO Commissions have a wide margin of discretion in adopting regulatory measures. This margin of discretion is also wide due to the fact that the subsequent paragraphs are neither prioritized nor weighted and thereby provide only minimal guidance for their application and operationalization to specific fish stocks. A regulatory measure would be inconsistent with the NASCO Convention if it can be demonstrated that the Commission acted outside its wide margin of discretion under Article 9 of the NASCO Convention.[105]

As concluded in subsection 5.1.2, the Fish Stocks Agreement is not applicable in the context of NASCO as such, but NASCO Parties can still decide to apply parts of the Agreement between them. Article 11 of the Fish Stocks Agreement is titled 'New members or participants', and reads as follows:

> In determining the nature and extent of participatory rights for new members of a subregional or regional fisheries management organization, or for new participants in a subregional or regional fisheries management arrangement, States shall take into account, *inter alia*:
> (a) the status of the straddling fish stocks and highly migratory fish stocks and the existing level of fishing effort in the fishery;
> (b) the respective interests, fishing patterns and fishing practices of new and existing members or participants;

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104 See e.g. Art. 10(1)(g) and (3) of the WCPF Convention (Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, Honolulu, 5 September 2000. In force 19 June 2004, 2275 UNTS 43 (2007); www.wcpfc.int), and ICCAT Resolution 15-13 'Resolution by ICCAT on Criteria for the Allocation of Fishing Possibilities'.

105 See in this regard paras 92-97 of the 'Findings and Recommendations' dated 5 June 2018 of the Review Panel established on 25 April 2018 pursuant to Article 17 and Annex II of the SPRFMO Convention (Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean; Auckland, 14 November 2009. In force 24 August 2012; www.sprfmo.int); PCA Case 2018-13).

(c) the respective contributions of new and existing members or participants to conservation and management of the stocks, to the collection and provision of accurate data and to the conduct of scientific research on the stocks;
(d) the needs of coastal fishing communities which are dependent mainly on fishing for the stocks;
(e) the needs of coastal States whose economies are overwhelmingly dependent on the exploitation of living marine resources; and
(f) the interests of developing States from the subregion or region in whose areas of national jurisdiction the stocks also occur.

Similar to Article 9 of the NASCO Convention, Article 11 of the Fish Stocks Agreement leaves RFMOs and regional fisheries management arrangements (RFMAs) a wide margin of discretion due to the fact that paragraphs (a) to (f) merely have to be taken into account, are non-exhaustive ("*inter alia*") and are neither prioritized nor weighted, thereby providing only minimal guidance for their application and operationalization to specific fish stocks.

At the time of writing, there was only one NASCO regulatory measure in effect: WGC(22)10 'Multi-Annual Regulatory Measure for Fishing for Atlantic Salmon at West Greenland', by which the WGC agreed with the continuation of an internal-use fishery with a total allowable catch of 27 tonnes, subject to various conditions. In addition, pursuant to Decision NEA(21)16 'Decision Regarding the Salmon Fishery in Faroese Waters in 2021 / 2022, 2022 / 2023 and 2023 / 2024', the NEAC had agreed "Not to set a quota for the salmon fishery in the Faroese Fisheries Zone for 2021 / 2022. This decision will also apply in 2022 / 2023 and 2023 / 2024 unless the application of the Framework of Indicators shows that a re-assessment is warranted."[106]

In its submission to the Panel, one NASCO Party asked the Panel "to comment on the regulatory measures within the WGC, and other Commissions as appropriate, and provide any relevant recommendations regarding balancing socio-economic factors with the conservation of wild Atlantic salmon, particularly the most vulnerable stocks". In the view of the Panel, it is not within its remit to respond to the second part of this request. As regards the first part, the Panel is of the opinion that there are no indications that, by adopting Regulatory Measure WGC(22)10, the WGC acted outside of its wide margin of discretion under Article 9 of the NASCO Convention.

[106] At its 39th (2022) Annual Meeting, NEAC confirmed that Decision NEA(21)16 "would continue to apply in 2022 / 2023. It will also apply in 2023 / 2024 unless application of the Framework of Indicators shows that a re-assessment is warranted" (Report of the 39th (2022) Annual NEAC Meeting, para. 7.3).

2.4.6. Previously unregulated fisheries

Performance criterion

11. Extent to which NASCO has moved toward the adoption of conservation and management measures for previously unregulated salmon fisheries, including new and exploratory fisheries where these exist

This performance criterion deals with previously unregulated fisheries, including new and exploratory fisheries. Its wording draws from Article 6(6) of the Fish Stocks Agreement, which deals with the application of the precautionary approach to new or exploratory fisheries. For such fisheries Article 6(6) requires States to "adopt as soon as possible cautious conservation and management measures, including, *inter alia*, catch limits and effort limits." Examples of practice relevant to Article 6(6) are the conservation measures on new and exploratory fisheries adopted by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).[107] The issue of previously unregulated fisheries is also pertinent for RFMOs such as the International Commission for the Conservation of Atlantic Tunas (ICCAT), whose mandate covers an enormous number of species (including sharks).[108]

The Second NASCO Performance Review was asked to assess a performance criterion formulated almost identically,[109] but did not provide any comments.

As regards new and exploratory salmon fisheries, it seems unlikely that these will materialize in the near or even foreseeable future. It is therefore understandable that NASCO has not moved towards the adoption of regulatory measures for such fisheries.

The situation with regard to previously unregulated salmon fisheries is less straightforward. At the time of writing, there was only one NASCO regulatory measure in effect: Regulatory Measure WGC(22)10 relating to the marine salmon fishery in West Greenland. However, besides this salmon fishery regulated by NASCO through its WGC, various coastal, estuarine and in-river salmon fisheries –for commercial as well as recreational purposes – occurred within the waters of NASCO Parties, France (in respect of St. Pierre and Miquelon) and Iceland that were not subject to any regulatory measure adopted by a NASCO Commission.

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[107] See Conservation Measures 21-01 (2019) and 21-02 (2019) available at https://www.ccamlr.org/en/conservation-and-management/conservation-and-managment.

[108] See the Report of the Second Independent Performance Review of ICCAT, pp. 23-25 in relation to sharks and pp. 30-31 in general.

[109] Only the words "where these exists" were not include (see the Report of the Second NASCO Performance Review, p. 129).

The combined catches of these fisheries are very significant in comparison with the catches of Denmark (in respect of Greenland). Whereas the confirmed 2020 catch of Greenland was 30.7 tonnes, the combined confirmed 2020 catch of all NASCO Parties was 826.8 tonnes.[110] For 2021, the provisional catch for Greenland was 40 tonnes and the combined provisional catch of all NASCO Parties was 600.6 tonnes.[111]

As explained in subsection 1.4.3, in some scenarios NASCO Commissions do not have a mandate to adopt regulatory measures. This is for (a) catches in the maritime zones of a Commission member of salmon originating in its own rivers;[112] and (b) catches in the rivers of a Commission member. Some Commission members have also decided to resolve issues bilaterally instead of pursuing regulation by a NASCO Commission; for instance Norway and Russia.[113] Commission members may also refrain from seeking regulation through a NASCO Commission if they consider that this would not attract the consensus that is needed to adopt regulatory measures.

The Panel is not aware of a dedicated effort by NASCO and its Parties to move towards the adoption of regulatory measures for all the salmon fisheries discussed above. For some of these fisheries, regulatory measures could only be adopted if NASCO Commissions would be given a mandate to do so. That could be achieved by amending the NASCO Convention (as discussed in section 7.1) or through an agreed interpretation of the NASCO Convention (as discussed in section 7.2). As regards salmon fisheries by non-Parties, reference can be made of NASCO's actions to combat high seas salmon fishing (discussed in subsection 5.3.3) and NASCO's engagement with France (in respect of St. Pierre and Miquelon) and Iceland (discussed in subsection 5.3.2).

110 CNL(22)17, Annex 1, Table 1. In 2020, France (in respect of St. Pierre and Miquelon) caught 2 tonnes and Iceland 42 tonnes.

111 CNL(22)17, Annex 1, Table 1.

112 Pursuant to Art. 2(2) of the NASCO Convention, such catches would only be allowed landward of 12 nm from baselines.

113 See the text accompanying notes 63-66.

2.5. NASCO's Resolutions, Agreements and Guidelines

2.5.1. Development, review, updating and assessment of progress in implementation

Performance criterion

12. Extent to which NASCO has developed, reviewed and updated its Resolutions, Agreements and Guidelines in general and assessed progress with their implementation.

General

NASCO has accumulated a significant corpus of Resolutions, Agreements, and Guidance for the management of salmon fisheries, the protection of salmon habitat and the operation of salmon aquaculture, to minimize negative impacts on wild salmon. However, since the Second NASCO Performance Review in 2012, NASCO has adopted very few new instruments (see subsection 4.1.1).

NASCO furthers and monitors implementation of its Resolutions, Agreements and Guidelines through its IPs and associated APRs. As part of this process for the period 2019-2024[114] and the 'Six Tenets for the Effective Management of an Atlantic Salmon Fishery',[115] NASCO Parties and jurisdictions are required to submit IPs and associated APRs. These are subsequently evaluated by the IP/APR Review Group.[116] In case of shortcomings, Parties and jurisdictions are requested to submit revised IPs, which are then re-assessed by the IP/APR Review Group.[117] Identified shortcomings in APRs are expected to be responded to during Annual NASCO Council Meetings and should be addressed in APRs of the following year.[118]

In 2020 the NASCO Council took the commendable and rather extraordinary decision to strengthen this process by instructing the NASCO President to send a letter to the relevant Minister, or other nominated official, of all Parties and jurisdictions with IPs

[114] CNL(18)50 'NASCO Implementation Plan for the period 2019 – 2024'. As specified in CNL(18)49 'Guidelines for the Preparation and Evaluation of NASCO Implementation Plans and for Reporting on Progress', section 3.1, APRs have to be based on the agreed template as contained in CNL(18)51. Some amendments of CNL(18)49 were effectuated by means of CNL(20)55 'Enhanced Guidance from the Council of NASCO for the Review of Implementation Plans', paras 8-15.

[115] WGCST(16)16 'Revised matrix for the application of the six tenets for effective management of an Atlantic salmon fishery'.

[116] Full name: 'Implementation Plan / Annual Progress Report Review Group for the Review of Annual Progress Reports under the Third Cycle of Reporting (2019 – 2024)'. The NASCO Secretariat conducts an initial assessment of IPs (CNL(18)49, Section 2.2).

[117] CNL(18)49, Section 2.2.

[118] CNL(18)49, Section 3.2.

that are not yet considered as satisfactory by the IP/APR Review Group.[119] This letter would, among other things, request revised IPs to be submitted. In case shortcomings are not rectified, even in later years of the reporting cycle, the NASCO President will send further letters to highlight this and remind Parties and jurisdictions of their commitment to make progress on implementing NASCO instruments.[120] All letters and the most recent version of IPs are posted on the NASCO website.[121]

The IP/APR process is widely recognized as a substantial achievement for NASCO. The process has already gone through three iterations and can be fine-tuned as new technological developments for assessment, guidance and knowledge emerge.

Parties commented to the Panel that the IP/APR process seems to be more focused on 'process rather than on outcomes'. Optimizing the process is important and the Panel encourages efforts to do so. The Panel agrees that the IP/APR process could be made more efficient and focus more on outcomes. The difficulty appears to be in execution or operationalization i.e. bridging the gap between the plan and what actually happens. Some of the possible constraints of efficient implementation and suggestions for their possible resolution are provided below under performance criteria Nos 13-15.

The efficacy of implementation has varied greatly between the major areas of activity: fisheries management, conservation of salmon, habitat protection and mitigation of the adverse effects of aquaculture. Implementation has been much more successful for fisheries management where one single authority, the fisheries management authority, within a Party or jurisdiction is responsible for the implementation of measures and guidelines.

Implementation for the protection and restoration of habitats and for the management of aquaculture interactions has been less successful. There appears to be poor engagement by the relevant jurisdictions in this area resulting in lack of action and very limited progress. In these areas there are usually two or more competent authorities (within national Governments) responsible for management e.g. licensing, inspection and enforcement. In addition, their economic development priorities may outweigh salmon conservation objectives. NASCO and its Parties do not appear to have been successful in containing the increase in detrimental effects of anthropogenic impacts other than fishing on the conservation of the species and its constituent breeding populations conservation.

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119 CNL(20)55, para. 1. See also the Report of the September 2020 Intersessional NASCO Council Meeting, section 3 (CNL(20)56).

120 Ibid., paras 2-3 and 16.

121 Ibid., paras 4-5; and https://nasco.int/conservation/third-reporting-cycle-2/.

National legal and regulatory frameworks for salmon fisheries have evolved over hundreds of years. More recently environmental agencies have been created in the various Parties and jurisdictions including inspectorates and well-developed legislative frameworks (e.g. the EU Water Framework Directive and the EU Habitats Directive in Europe, with similar inspectorates and legislative frameworks in North America e.g. the U.S. Clean Water Act and the Canada Water Act). These provide a considerable amount of protection, though, recent reports from Europe indicate that the quality of freshwater and coastal aquatic ecosystems across species distribution nevertheless show little improvement.[122] There appear to be no equivalent dedicated inspectorates specifically to enforce legislation to prevent the negative interactions of salmon aquaculture with wild populations, particularly in respect of farm escapes.

The APRs suggest that the IPs lack focus. There is considerable effort spent on providing information on various research activities and outlining what actions might be undertaken at some unspecified time in the future. A key element in the 2001 Habitat Protection Guidelines CNL(01)51[123] appears to have been overlooked, *viz.* the development of Salmon Habitat Protection and Restoration Plans. The formulation and agreement of such plans offers the opportunity for a greater cross-sectoral stakeholder contribution for buy-in and improved prospects for success. The absence of Salmon Habitat Protection and Restoration Plans might therefore be considered a major impediment to effective application of NASCO's Resolutions, Agreements and Guidelines.

Climate change

At the time of writing, NASCO did not have a dedicated instrument (e.g. a Plan of Action) on climate change, and considerations of climate change were also not fully and systematically integrated in its Resolutions, Agreements and Guidelines. This shortcoming is also identified in the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee'.[124] As part of its overarching recommendation that NASCO develops "a renewed strategy to respond to the challenges facing wild Atlantic salmon", the Report recommends that NASCO begins with specifically identifying "strategic activities to deal with climate change and its cascading effects on salmon and salmon habitat".[125]

[122] EEA, 2018, *European waters — Assessment of status and pressures 2018*, EEA Report, 7/2018, European Environment Agency.

[123] CNL(01)51 NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and restoration of Atlantic Salmon Habitat.

[124] CNL(19)16.

[125] At p. 1, under 11. See also the 'Advice for Agencies and Organizations' p. 1, under 1 and 2.

In the context of the UNFCCC,[126] a distinction is made between adaptation and mitigation. In essence, adaptation can be understood as the process of adjusting to the current and future effects of climate change. Mitigation means making the impacts of climate change less severe by preventing or reducing the emission of greenhouse gases into the atmosphere. Climate 'Adaptation Strategies' are different across sectors and many will be antagonistic towards salmon e.g. the construction of reservoirs (barriers to migration) to protect water resources for utility provision for cities and industry. It would be important for NASCO to assume a strong role in the development of national plans of adaptation to climate change.

Global warming directly affects the biology of aquatic ecosystems through increases in temperature and disturbance of hydrological regimes. For example, a recent report[127] indicated that 70% of Scottish rivers experienced temperatures which cause thermal stress, a situation which the authors suggested will become increasingly common under climate change. Global warming also interacts indirectly, but synergistically and negatively, with most pressures currently exerted on salmon e.g. fishing, barriers to migration, nutrient increases into aquatic system, sea lice, gene flow from captive bred conspecifics.

'Adaptation' in these contexts would be the removal or alleviation of existing pressures on salmon populations and habitats to enable populations or components of populations to retain their demographic and evolutionary capacity to adjust the new environmental circumstances. In the case of direct effects, the example of an appropriate 'Adaptation Strategy' would be the strategic planting of riparian woodland known to cool stream temperatures[128] or the warm-water protocols for adaptive management of recreational fisheries adopted in Canada.[129] To counter the multiplicative effects of climate change, an 'Adaptation Strategy' would be the removal or alleviation of an existing problem before it became an even greater problem. Pressure mapping tools should be used to identify areas where salmon exist currently, but are experiencing stress, or likely to become distressed in the future, or in extreme cases can no longer be sustained. Areas that are unaffected presently may become threatened at some point in the future, particularly in this era of profound climate change.

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126 United Nations Framework Convention on Climate Change, New York, 9 May 1992. In force 21 March 1994, 1771 UNTS 107; https://unfccc.int/.

127 Jackson, F. et al. (2021). A deterministic river model to prioritize management of riparian woodlands to reduce summer maximum river temperatures. *Hydrological Processes*, 35 (8), e14314.

128 Ibid.

129 Breau, C. 2013. Knowledge of fish physiology used to set water temperature thresholds for inseason closures of Atlantic salmon (Salmo salar) recreational fisheries. DFO Can. Sci. Advis. Sec. Res. Doc. 2012/163. iii + 24 p.

Climate 'Adaptation Strategies' are understood and will be implemented differently across various sectors of the economy (e.g. energy, food, water) and many will be incompatible with NASCO goals for the protection and restoration of salmon habitat salmon e.g. the construction of reservoir dams to 'climate proof' water supplies for centers of population. NASCO should assume a strong advocacy role for consideration of salmon where sectoral climate 'Adaptation' plans conflict.

There is also a pressing need for tools anticipating the impacts of these environmental changes into the future, and enabling effective water management that safeguards the ecosystem goods and services that freshwater and marine systems provide. For rivers, accurate forecasts of future temperatures and flow regimes will be critical for the identification of future climate-sensitive habitats and climate-sensitive aquatic species and subsequently in the development of adaptive strategies for their protection.[130] In a broader ocean fisheries context, model outputs could be used in combination with fishing data at both global and regional scales to examine food-web and ecosystem responses to climate variability, separating the relative influence of temperature and net primary productivity on future projections of fish stock productivity.[131]

Subsection 2.5.3 discusses the need for a pressure and actions mapping tool approach for targeting habitat stressors in aquatic environments. This tool should also cover sensitivity to climate change.

Panel Recommendations

8. The Panel recommends that NASCO arrange for the development of Salmon Habitat Protection and Restoration Plans, produced on an individual river system basis.

9. As regards climate change, the Panel recommends that NASCO
   a) develops a dedicated instrument (e.g. a Plan of Action) on climate change or fully and systematically integrates considerations of climate change into its Resolutions, Agreements and Guidelines;
   b) agrees that the IPs for the next reporting cycle will include a new section on 'Adaptations to Global Warming/Climate Change';
   c) specifies that climate change 'Adaptations' be included in individual Salmon Habitat Protection and Restoration Plans; and

[130] Jones, E.R., Bierkens, M.F.P., Wanders, N. *et al.* Current wastewater treatment targets are insufficient to protect surface water quality. *Commun Earth Environ* 3, 221 (2022); Wanders, N., van Vliet, M.T.H., Wada, Y., Bierkens, M.F.P. & van Beek L.P.H. (2019). High-Resolution Global Water Temperature Modeling. *Water Resources Research* 10.1029/2018WR023250.

[131] Tittensor, D.P., Novaglio, C., Harrison, C.S. et al., (2021). Next generation ensemble projections reveal higher climate risks for marine ecosystems. *Nature Climate Change*, 11, 973–981.

d) convenes a Theme-based Special Session to identify a suite of practical Adaptive Strategies and their effective deployment that could be used by managers to protect salmon freshwater habitats from hydrological and thermal stress.

2.5.2. Progress in implementation on management of salmon fisheries

Performance criterion

13. Extent to which there has been progress in implementing NASCO's Resolutions, Agreements and Guidelines on the Management of Salmon Fisheries

General

NASCO has largely fulfilled its mandate with regard to the management of the fisheries at West Greenland and the Faroe Islands through its Commissions. While not always fully in line with scientific advice, the Commissions have adopted measures to limit the impact of mixed stock fisheries prosecuted by NASCO Parties on the numbers of fish returning to rivers of origin. The Panel recognizes that the buyout of catch options by NGOs had a major contribution to the suspension of the salmon fisheries at the Faroes, in addition to the regulatory measures implemented by the NEAC. Unfortunately, the marine survival to the rivers of origin has continued to decline or remain very low with few rare exceptions even in the face of reduced fishing mortality. Low marine survival could be linked to changes in the functioning of ecosystems due to climate change, additional mortality associated with aquaculture, by-catches in pelagic fisheries, and/or increased abundance of predators. The mortality attributable to by-catch in the pelagic fisheries and to predators has not been quantified yet (see further below).

NASCO's efforts on the Precautionary Approach from 1998 onwards, and its operationalizing in the 2009 NASCO Guidelines for the Management of Salmon Fisheries' (CNL(09)43)[132] has been particularly helpful to jurisdictions in providing a framework for the setting of reference points on an individual river basis, thus making a significant contribution to their effective management. This also led to the closure of offshore regional commercial mixed stock fisheries e.g. the Irish drift net fishery in 2007. This is a major success and is attributable to NASCO's capacity to provide a framework upon which jurisdictions can rationalize salmon fisheries management policy.

[132] See subsection 2.4.2.

The Panel is aware that there remain several coastal and in-river mixed stock fisheries still in operation and several exploited river stocks that are failing to meet their spawning targets. Many of the in-river recreational and commercial fisheries are exploiting a multiplicity of breeding stocks/populations e.g. the Teno in Finland and the Moy in Ireland and are therefore mixed stock fisheries. Innovative approaches to improve their management should be considered by NASCO. The IP/APR process seeks information that justifies the continuation of these fisheries. The justification for these should be assessed regularly.

Panel Recommendations

10. The Panel recommends that, as coastal, estuarine and in-river mixed stock fisheries are taking a large number of fish overall, NASCO should be updated regularly on their operation and the justification for their continued prosecution.

11. In recognizing that substantial population structuring occurs within many large river systems and that this can have ramifications for the management of fisheries and the protection of biodiversity – especially in the case of genetic introgression from farm escapes – the Panel recommends that NASCO considers developing innovative approaches deploying available technologies (sampling, genetics, electronic fish counters).

By-catch

That the by-catch of salmon in oceanic pelagic fisheries for mackerel, blue whiting, herring and Western horse mackerel could be a significant source of mortality for salmon has been recognized for a long time. These fisheries currently catch approximately 3.5 million tonnes of fish.[133] Recent reports suggest a substantial and increasing overlap in the distribution of the pelagic fisheries and the distribution of migrating post-smolts and their feeding aggregations.[134] ICES convened a workshop in 2005,[135] but was unable to reach a consensus on the magnitude of the by-catch. The numbers of salmon by-caught in pelagic fisheries may or may not be significant. Should it be an issue, extensive multiple salmon stocks are likely to be affected, and this exploitation will likely have the greatest impact on southern populations.[136] As there is

[133] ICES. 2022. Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports. 4:73. 922 pp. http://doi.org/10.17895/ices.pub.21088804.

[134] Gilbey *et al*. (2021). *Fish & Fisheries*, 22, 1274-1306.; e.g. Figure 8.4.2.3. NE Atlantic Mackerel. Commercial catches in 2019, quarter 3 in ICES. 2022. Working Group on Widely Distributed Stocks (WGWIDE). ICES Scientific Reports.

[135] ICES SGBYSAL Report (2005). ICES CM 2005/ACFM:13, REF. G.1.

[136] Gilbey et al. 2021, note 134.

very little information to quantify the by-catch it is unknown whether any threat to salmon exists.

The NASCO Convention deals with by-catch of salmon only in the context of the NAC, through Article 7(2). This provision reads:

> Each member shall, with respect to its vessels and the area under its fisheries jurisdiction, take the measures necessary to minimize bycatches of salmon originating in the rivers of the other member.

It is important to note that this provision is not part of the functions (mandate) of the NAC but imposes an obligation on the members of NAC. The mandates of the three NASCO Commissions do not explicitly refer to by-catches of salmon in fisheries targeting other species, but may be broad enough to comprise this. However, the Panel was not aware that any of the NASCO Commissions had engaged in relevant efforts.[137] Incidental catches of salmon falls at any rate within the broad mandate of the Council (see subsection 1.4.3). This is also confirmed by the 1998 Agreement on Adoption of a Precautionary Approach (CNL(98)46), which stipulates in paragraph 5 that NASCO and its Parties "should as the next step address application of the Precautionary Approach to […] the by-catch of salmon in other fisheries." So far, however, NASCO has not followed through with this political commitment. In light of the primacy of NAFO and NEAFC on pelagic species in the North Atlantic, NASCO is – at least with respect to fisheries for pelagic species in the regulatory areas (high seas) of NAFO and NEAFC – largely dependent on action taken within these RFMOs to address by-catch of salmon.

The NASCO Convention's single provision exclusively applicable to the NAC contrasts with the constitutive instrument of the North Pacific Anadromous Fisheries Commission (NPAFC).[138] Article III(1)(b) of the NPAFC Convention stipulates that the "incidental taking of anadromous fish shall be minimized to the maximum extent practicable in accordance with Part II of the Annex." Parties are required to cooperate in the exchange of information on incidental catches and to submit scientific research programs on incidental catches.[139] NPAFC has the mandate to "recommend measures to avoid or reduce incidental taking of anadromous fish in the Convention Area".[140] Part II of the Annex consists of two paragraphs. Paragraph 1 provides concise guidance on incidental catches, and paragraph 2 entitles two or more Parties to call for a Special

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137 This is confirmed by CNL(22)19, pp. 27-29.

138 Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, Moscow, 11 February 1992. In force 16 February 1993, 22 Law of the Sea Bulletin 21 (1993); www.npafc.org.

139 Arts VI(3) and VII(6).

140 Art. IX(12).

NPAFC Meeting in case "they believe a fishery is being conducted by nationals or vessels of a Party in the Convention Area contrary to this Annex".

NASCO Parties are nevertheless bound by various obligations and political commitments laid down in global instruments relating to by-catch of non-target species, in particular when the status of non-target species is of concern. Reference can in this regard be made to Articles 61(4), 63 and 119(1)(b) of the UNCLOS, Articles 5(d and e) and 6(3(c) and 5) of the Fish Stocks Agreement, Articles 6.5, 6.6, 7.5.2, 7.6.9 and 12.10 of the Code of Conduct and the 2010 FAO International Guidelines on Bycatch Management and Reduction of Discards.[141] The provisions of these instruments apply to all NASCO Parties to the extent they are parties to the relevant instrument or the instrument's provisions reflect customary international law.[142]

The possibility that by-catch of salmon in fisheries for pelagic fish species in the Northeast Atlantic might be a significant contributor to marine mortality was highlighted in the Second NASCO Performance Review, which made the following two recommendations (EPR 55 and 56):

> Sea mortality should be further investigated in relation to all phases from the time the salmon leaves natal waters.
> Observer programs on and screening of landings of pelagic vessels fishing in seasons and areas where salmon make feeding migrations should be continued.[143]

In response, NASCO has been seeking and receiving regular reports from ICES on potential salmon by-catch, which ICES obtains principally from the International Ecosystem Summer Survey of the Nordic Seas[144] and the Icelandic mackerel blue whiting fisheries. These reports indicate that salmon smolts are captured in the surveys, but that the significance of the catches is difficult to interpret in respect of the level of the potential by-catch. The Panel is aware of experiments with eDNA as a method for detecting salmon in commercial catches of pelagic fish, though has no information on the results of these studies. The Panel is also aware that ICES WKSALMON2[145] recently issued a data call for by-catch in pelagic fisheries as part of its efforts to locate, quantify and attribute mortality to candidate factors in the ocean.

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141 Rome, 10 December 2010 (contained in Appendix E to the Report of the Technical Consultation to Develop International Guidelines on Bycatch Management and Reduction of Discards, Rome, 6-10 December 2010 (*FAO Fisheries and Aquaculture Report* No. 957)).

142 See https://www.un.org/Depts/los/convention_agreements/convention_agreements.htm.

143 Report of the Second NASCO Performance Review, p. 101.

144 Working Document to ICES Working Group on Widely Distributed Stocks (WGWIDE, No. 1) ICES HQ, Copenhagen, Denmark, (hybrid meeting) 24. – 30. August 2022 Preliminary cruise report from the International Ecosystem Summer Survey in the Nordic Seas (IESSNS) 1 st July – 3 rd August 2022 (https://www.hi.no/resources/WD01-IESSNS-survey-report-2022.pdf).

145 https://www.ices.dk/community/groups/Pages/WKSalmon2.aspx.

NASCO has also been in regular liaison with NAFO and NEAFC. Most recently NAFO stated that, from NAFO's Daily Catch Reports and Observer reports, there is no evidence of NAFO authorized vessels having salmon bycatch in 2021. NEAFC advised that Greenland, Iceland, Norway, the Russian Federation and the UK have not reported any bycatch / catch of salmon. Norway did, however, specify that it had bycatch of salmon in the EEZ (but not in the NEAFC regulatory area).[146]

It is difficult to reconcile these reports with biological information on salmon distribution and the current level and location of fishing for pelagic species. However, it is appreciated that to detect salmon, particularly post-smolts, among regular commercial catches, is extremely difficult. Substantially the advice here in respect of the pelagic fisheries remains the same as was suggested by the Second NASCO Performance Review in 2012.

Panel Recommendations

12. The Panel recommends that NASCO addresses the absence of reliable data on salmon in respect of pelagic fisheries (e.g. potential for overlapping marine distribution and fisheries in space and time) at the earliest opportunity, taking account of the imminent data call by WKSALMON2 in this respect. In addition to ongoing scientific pelagic surveys and on-board observer programs, a dedicated sampling program with robust experimental sampling design, replicating regular fishing activity, would be valuable.

13. The Panel recommends NASCO to encourage efforts to extend and improve knowledge of the distribution of salmon in the sea. Such efforts could, building on SALSEA and other recent initiatives, include experimental long-line fisheries, telemetric and genetic-based distributional studies, combining their respective strengths, and using them to develop, parameterize and test migrational models such as those based on particle tracking.

14. The Panel recommends that NASCO follows through with its commitment in paragraph 5 of the 1998 Agreement on Adoption of a Precautionary Approach (CNL(98)46) to operationalize the Precautionary Approach for the by-catch of salmon in other fisheries. As part of this effort, NASCO and its Parties:
    a) should aim to identify a suite of technical measures that might be deployed to protect salmon while at the same time limiting the impact on the fisheries. Such measures could include area-based management tools such as (dynamic) areas closed to certain types of fishing during certain times of the year; and
    b) should cooperate and coordinate with NAFO and NEAFC where appropriate.

146 CNL(22)19, p. 29.

2.5.3. Progress in implementation on protection and restoration of salmon habitat

Performance criterion

14. Extent to which there has been progress in implementing NASCO's Resolutions, Agreements and Guidelines on the Protection and Restoration of Salmon Habitat.

The Panel strongly agrees with the following advice and recommendations on the protection and restoration of freshwater habitat and water quality included in the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee':[147]

> 6. To optimize species productivity under future conditions **fisheries managers and conservation organizations** should ensure the highest number of wild smolts in the best condition leave from rivers and near-coastal areas to the ocean.
>
> 13. Given the importance of habitat and water quality conservation as a key strategy to conserve salmon into the future, NASCO should update its 2010 "Guidelines for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat". Updated guidelines should not only consider the physical environment and include estuaries but should also seek to optimize water quality by considering the chemical and biological quality (e.g. toxic substances, diffuse agricultural pollution, persistent organic pollutants) as well as availability and distribution of prey in the future.

As regards habitat protection and restoration, a number of measures could be applied to bridge the gaps between NASCO guidelines, the IP/APR process and the advice and recommendations emanating from the 2019 Tromsø Symposium.

The availability of suitable habitat is directly related to the production of fish that can be exploited or conserved. The more tractable part of salmon habitat protection and restoration is in freshwater. It is important that action plans be ecologically, genetically, hydrologically and socio-economically relevant and optimal. The internationally recognized best practice in freshwater is to manage it on the basis of individual river systems; the critical scale at which to develop protection plans based on geography and biology. Biologically, each individual river system (also termed a catchment or watershed) contains a genetically distinct, locally adapted salmon population. In some instances, in larger systems, several genetically unique populations in tributaries are maintained by precise natal homing. The argument of the advantages of conserving

[147] CNL(19)16, pp. 1-2.

salmon on an individual river basis has been successfully made previously and employed for the assessment of status and management of most salmon fisheries in Parties and jurisdictions and furthermore is consistent with the Precautionary Approach and the setting of reference points. The idea of the individual river drainage area as the basic building block for aquatic habitat protection and restoration is consistent with the Water Framework Directive's River Basin Plans in Europe and is also advocated in guidelines of the U.S. National Oceanic and Atmospheric Administration , the U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service in their 'An Ecosystem Approach to Salmonid Conservation'.[148]

The most recent APRs suggest that a key element in the 2001 Habitat Protection Action Plan (CNL(01)51) and the associated 2010 'NASCO Guidelines for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat' (CNL(10)51) has been overlooked i.e. the use of Salmon Habitat Protection and Restoration Plans. These would identify the issues and target the actions. Unfortunately, while very innovative and prescient, the guidelines recommended to support these protection and restoration plans probably preceded the technical innovations required for their implementation and thus likely hindered their application. Since then, developments in geographical information systems (GIS) and the ready availability of extensive high quality spatial datasets make the inventories and pressure mapping envisaged in the 2001 Action Plan now a reality and a powerful medium for communication across the species range. Their re-application would add significantly to the effectiveness of the IPs as presently constituted for salmon habitat. In this regard the *Plan de Gestion des Poissons Migrateurs (Plagépomi)*[149] mentioned in the French APR for 2021, though covering a broader range of fish species than salmon and their ecosystem requirements, appear to offer a more comprehensive framework for basin specific protection and restoration planning.

With the advances in technology, such as the method for GIS mapping of pressures developed in Scotland (Iain Malcolm *pers. comm*.) and also under development in Ireland (Andrew French *pers. comm*.), it is now possible to locate, measure the extent of, and attribute the magnitude of specific pressures e.g. point and diffuse sources, barriers etc. Also it should be possible to map future distressed ecosystems and future impacts, via projections based on various models of climate change. This would make it possible to fully implement the Salmon Habitat Guidelines. Furthermore, as has been proposed and is being developed in Scotland, management actions can be mapped spatially onto a specific pressure e.g. planting riparian woodlands to counteract the direct effects of climate warming on aquatic ecosystems.[150]

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148 Spence *et al*. (1996). An Ecosystem Approach to Salmonid Conservation. *ManTech Report* prepared for NOAA, EPA & U.S. Fish & Wildlife Service, 362pp.

149 https://nasco.int/wp-content/uploads/2022/04/CNL2234_APR_EU-France.pdf.

150 https://www.gov.scot/publications/where-to-plant-trees-to-protect-rivers-under-climate-change/.

The quantitative statistical data provided through high resolution mapping could be summarized and communicated to a broader audience through the NASCO Rivers Database. The Panel is aware of recent efforts by NASCO to upgrade the Rivers Database,[151] which it considers a very effective vehicle for communication of the status of Atlantic salmon to a wide audience. The Panel takes note of the Rivers Database Working Group's observation of the poor buy-in by the Parties in populating the database, and would hope that this would be rectified in the future. While the adjudication of river 'Stock Classification'[152] was understood to be an amalgamation of conservation limit attainment score and an impacts assessment score (IAS), which is as good a metric as any, there was some confusion among the Panel as to how much a river's Stock Classification was impacted by the IAS, and to which rivers it applied. This should be clarified in the Database. The 2D pressures map analysis and graphic developed by Forseth *et al.* (2017)[153] could add a powerful visual element to the database reports. The Panel wishes to add its support to the recommendations provided by the Rivers Database Working Group in respect to the various categories it was requested by the Council to review, namely: purpose, scope, data coverage, display, frequency of updates, naming and administration. The Rivers Database should ultimately be linked to the individual river specific protection and restoration plans recommended above.

Most jurisdictions have a national Standing Scientific Committee (national SSC) or similar group whose main function is to establish reference points for CLs and spawning escapement goals for individual river stems and stocks. They also undertake the individual stock assessments, assess achievements of reference points and advise on catch. The national SSCs generally report to and submit their advice to a body responsible for the management of salmon fisheries. Such domestic salmon fisheries management committees or similar groups are responsible for the opening and closing of fisheries, setting catch limits and allocations based on the advice of national SSCs, and the enforcement of regulatory measures. The managers will take into consideration various socio-economic considerations in making any decision.

These salmon fisheries management committees could be expanded to include representatives from the 'Competent Authorities' of other sectors impacting salmon habitat and populations, including, but not exclusively energy, agriculture, forestry, utilities and aquaculture. These expanded management groups could also include representatives from national SSCs, NGOs, and indigenous peoples. The objective of

151 RDWG(21)05 'Report of the Meeting of the Rivers Database Working Group'

152 CNL(16)11 Report of the Working Group on Stock Classification

153 Forseth, T., Barlaup, B.T., Finstad, B., Fiske, P., Gjøsæter, H., Falkegård, M., Hindar, A., Mo, T.A., Rikardsen, A.H., Thorstad, E.B., Vøllestad, A. & Wennevik, V. (2017). The major threats to Atlantic salmon in Norway. *ICES Journal of Marine Science* 74: 1496-1513.

these expanded management groups would be to formulate, agree and implement the Protection, Restoration and Stock Rebuilding Plans consistent with NASCO goals outlined above. This would promote the "establishment of partnerships with interested parties whose activities may have an impact on the protection and restoration of salmon habitat".[154]

Panel Recommendations

15. The Panel recommends that NASCO considers facilitating the operationalization of the IPs by directing Parties and jurisdictions to develop specific Salmon Habitat Protection and Restoration Plans as envisaged and set out in CNL(01)51 and operationalized further in CNL(10)51.

16. The Panel recommends that NASCO directs Parties and jurisdictions to adopt a pressure and actions mapping tool approach for targeting habitat stressors in aquatic environments equivalent to that under development in Scotland, including sensitivity to climate change.

17. The Panel recommend that NASCO and its Parties consider the establishment of multi-sectoral 'National Salmon Standing Management (Conservation) Committees, similar to the National Standing Scientific Committees that currently operate in most Parties and jurisdictions. These could support and agree the formulation of river-specific Protection and Restoration Plans.

2.5.4. Progress in implementation on management of aquaculture, introductions and transfers, and transgenics

Performance criterion

15. Extent to which there has been progress in implementing NASCO's Resolutions, Agreements and Guidelines on the Management of Aquaculture, Introductions and Transfers, and Transgenics

Salmon aquaculture

The salmon aquaculture industry has experienced enormous growth since its foundation in Norway some 50 years ago. Production of farm salmon outnumbers the production of wild salmon by several orders of magnitude. The WGNAS 2021 Executive Summary mentions catches of less than 1 000t of wild Atlantic salmon in the North Atlantic,

[154] CNL(01)51, p. 3.

compared with slightly more than 1.8 million t of salmon production in farms. While this relieves the pressure on wild salmon as a food product, it leads to an exponential increase in the quantity of sea lice, farm escapes and transferrable diseases, all of which result in decreased survival of wild salmon. NASCO has developed stringent requirements and guidance laid down in the following instruments (in chronological order):

- NAC(92)24 'NAC Protocols for the Introduction and Transfer of Salmonids';
- CNL(97)48 (Annex 22) 'NASCO Guidelines for Action on Transgenic Salmon';
- CNL(01)53 'Guidelines on Containment of Farm Salmon';
- NAC(05)7 'Memorandum of Understanding between Canada and USA' (on introductions and transfers of aquatic species);
- CNL(06)48 'Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Aquaculture, Introductions and Transfers, and Transgenics on the Wild Salmon Stocks' (Williamsburg Resolution);
- SLG(09)5 'Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks';[155] and
- CNL(22)49 'Statement on Salmon Farming from the Council of the North Atlantic Salmon Conservation Organization'.

As part of the 2009 BMP Guidance (SLG(09)5), NASCO agreed on the following international goals:

> • 100 % of farms to have effective sea lice management such that there is no increase in sea lice loads or lice-induced mortality of wild salmonids attributable to the farms; and
> • 100 % farmed fish to be retained in all production facilities.[156]

Despite these, as the industry continues to expand, data from Norway, the largest salmon producer in the world, suggests some worrying trends.[157] The Panel therefore strongly agrees with the following recommendation emanating from the 2019 Tromsø Symposium:

> 3. **Aquaculture managers** need to have a strong focus on preventing any escape of farmed salmon from pens and/or consider using sterile salmon within their operations. They should reduce the mortality of wild fish caused by salmon lice and pathogens by implementing

[155] See also SLG(10)9 'Explanations of Terms Used in the Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks'.
[156] At p. 2.
[157] Status-of-wild-Atlantic-salmon-in-Norway (https://www.vitenskapsradet.no/Nyheter/Nyhetsartikkel/ArticleId/5192/ 2021).

> stricter disease and parasite control programs. This should be supported by rigorous monitoring and reporting to agencies concerning the prevalence of escapes and disease outbreaks.

Out of 239 individual Norwegian river populations sampled and screened genetically in 2019, 150 or approximately 63% had indications of gene flow from farmed escaped salmon. Moreover, 28% of those populations were severely impacted in terms of genetic introgression. Recent reports from Scotland also show evidence of genetic introgression in wild populations concentrated in the salmon farming areas located on Scotland's west coast.[158] In addition, high levels of gene flow from farm escaped into wild populations have been found in Canadian rivers.[159] There is a serious consequence of gene flow from escaped farmed salmon other than its impact on the productivity of salmon fisheries. Once hybridization occurs between escaped farmed salmon and wild parents, the genetic outcome cannot be reversed in those elements of the population that have been affected, unless there is a massive reduction in the fitness of the progeny of the hybrids relative to the wild,[160] confounding one of the principal tenets of the Precautionary Approach as adopted by NASCO, which is the "avoidance of changes that are not potentially reversible".[161] Moreover, escapes into individual rivers are recurrent and there is, as a consequence, a constant supply of gametes to produce maladapted hybrid genotypes. The Panel believes that the introgression of farm genes into wild populations is the single most perilous and existential threat to the port-folio of salmon diversity. A 20,000-year-old legacy of intra-specific salmon biodiversity (essentially between river systems) from the last Ice Age will be lost. The Panel urges NASCO to use the same resolve and spirit of cooperation it applied to the management of mixed stock fisheries also to the issue of gene flow from the salmon farms.

A recent report[162] provides genetic evidence for straying of farm salmon and introgression in Swedish wild salmon populations. Sweden does not permit the farming of salmon. The report confirms that escaped farmed salmon stray, successfully spawn and produce offspring similar to that observed in neighboring Norway. These results indicate that gene flow from salmon farms can constitute a transboundary problem with potential international implications and require a collective response by NASCO Parties as well as non-Parties such as Iceland.

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158 Gilbey et al. 2021, note 134.

159 Wringe, B. F. *et al.* (2018). Extensive hybridization following a large escape of domesticated Atlantic salmon in the Northwest Atlantic. *Communications Biology, 1*. doi:ARTN448 10810.1038/s42003-018-0112-9.

160 The impact on fitness is generally additive i.e. intermediate between pure wild and farm offspring (McGinnity *et al*. 2003. *Proc. R. Soc. Lond.* B., 270, 2443–2450).

161 CNL(98)46, para. 2(a).

162 Palm *et al.* (2021). Genetic evidence of farmed straying and introgression in Swedish wild salmon populations. *Aquaculture Environmental Interactions,* 13:505-513.

Wild salmon die from sea lice infestations arising from salmon farms. Among 167 rivers assessed in Norway in 2019, some 30% of the individual populations assessed had estimated mortality between 10% and 30% with a further 12% having estimated mortality in excess of 30%.[163] These estimates were derived from sea lice models.[164] The impact of sea lice is most severe in western and middle Norway, which coincides with high farming activity.

As part of its IP/APR process, NASCO has assessed its performance in the areas of aquaculture interactions to be unsatisfactory in the implementation of SMART (Specific, Measurable, Achievable, Realistic, Timely) actions. There appears to be poor engagement by the relevant Parties and jurisdictions resulting in lack of action and very limited progress. The Panel concludes that few effective measures have been translated into practical action to manage the adverse effects of salmon farms on wild Atlantic salmon stocks.

The Panel is aware that the President of NASCO has been writing to the Parties recently regarding the unsatisfactory elements of their IPs in line with paragraph 16 of the Council's Enhanced Guidance (CNL(20)55). Poor compliance is most apparent in the Management of Aquaculture interactions and illustrates the observation that where the relevant national competence lies beyond the agencies responsible for fisheries there are much greater difficulties in implementation.

Should the salmon aquaculture industry continue to expand, the problem will also increase even if current control measures reduce escapes and sea lice on a per capita basis. The Panel believes that the only way of eliminating these problems is to achieve what various NASCO instruments have recommended i.e. zero sea lice related mortality on wild smolts and zero farm escapes.

The Panel is aware that NASCO is in the process of commissioning an independent review to report on the impact of salmon farming on wild Atlantic salmon. The Panel welcomes the initiative, but is concerned that this will be another one in a large number of reports delivering recommendations to limit damaging interactions between salmon farming and wild salmon. The Panel is of the opinion that there is more than enough information upon which to proceed operationally. The Panel feels that NASCO is locked into a cycle of guideline formulation without any substantive actions arising. While reviews of the best scientific information are welcome, instead of a focus on the

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163 Status-of-wild-Atlantic-salmon-in-Norway (https://www.vitenskapsradet.no/Nyheter/Nyhetsartikkel/ArticleId/5192/ 2021) (estimated by the reviewers from graphical data presented in the report).

164 Eliasen, K., Jackson, D., Koed, Anders, Revie, C., Swanson, H.A., Turnbull, J., Vanhatalo, J. & Visser (2021). An evaluation of the Scientific Basis of the Traffic Light System for Norwegian Salmonid Aquaculture. Evaluation Committee Report prepared for the Norwegian Research Council; www.forskningsradet.no/publikasjoner.

provision of new scientific reports, NASCOs efforts should be directed urgently on ensuring that effective actions are taken by the Parties to address the issues of lice and escapes.

Ultimately, the solution to the problems posed by sea lice and genetic introgression is to remove production away from open sea cages. However, in the interim there are urgent practical actions that need to be taken to alleviate the pressures on wild Atlantic salmon populations arising from farm fish vs wild fish interactions if the species or at least affected river populations are to have any sustainable future.

There appears to be no specific inspectorate for managing salmon interactions. Based on the empirical data on genetic introgression and sea lice mortality, the Panel concludes that self-regulation by the industry, as currently done, has been insufficient to protect the wild resource.

Norway has recently made considerable progress, as part of its 'Traffic Light' lice management programme, in devising a spatially explicit system to estimate mortalities among migrating wild salmon smolts resulting from salmon farm-mediated sea lice infections. The approach takes into account sea lice mortality thresholds[165] and combines these with an ensemble of sea lice dispersal and sea lice migration models based on simulations of circulation and water dynamics and life history models of drifting lice. The models allow simulations of the growth, mortality and behavior of sea lice larvae (nauplii and copepodids) as a function of the temperature and salinity they encounter. These simulations produce sufficiently robust spatially explicit assessments of the risk of smolts being in contact with sea lice, the probability of infection, and in due course estimates of the levels of mortality expected, to facilitate a management response almost in real time. The assessment system is continually being updated. The programme has recently undergone an extensive evaluation, with many recommendations for the systems improvement provided, particularly with respect to uncertainty and the use of expert judgement.[166] The Panel considers this to be an incredibly powerful scientific development and resource that will provide a framework for the adoption of regulatory measures and the development of guidelines. As this assessment methodology is only being used in Norway at the moment, it highlights a substantial knowledge deficit in other areas. Temperature, circulation patterns and lice biology will differ greatly among transitional water ecosystems. The Norwegian approach needs urgently to be tailored and deployed in all other salmon farming regions in Scotland, Ireland and the (Atlantic parts of the) United States and Canada. The Panel

165 Taranger *et al*. (2012). Rapport fra Havforskningsinstituttet nr. 13, Veterinærinstituttet nr. 7.

166 Vollset KW *et al.* (2019). Assessment of salmon lice- induced wild fish mortality per production area in 2019. Report from an ExpGrp. P10; Karlsen Ø *et al.* (2019) An assessment of the mortality limits in use - updated with new information since 2012. Appendix XI in Assessment of salmon lice-induced wild fish mortality per production area in 2019. Report from the ExpGrp.

urges NASCO Parties and jurisdictions to undertake similar assessments at the earliest opportunity.

Introductions (stocking)

At the time of writing, the practice of introducing captive bred salmon into the wild for the purposes of artificially enhancing production or stock rebuilding purposes was in most Parties and jurisdictions either strongly regulated or has largely been discontinued. This is due to the considerable amount of scientific evidence documenting poor success, loss of genetic variation and potential risk to the genetic integrity of recipient wild populations. The 2019 Tromsø Symposium advises that stocking should be an action of last resort, after all other conservation activities have been tried. The Panel would broadly support the following advice in the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee'[167]:

> 12. Given the advances that have been made in the last 15 years in understanding genetic effects of artificial population supplementation, i.e. stocking, and given the conclusions of the 2017 NASCO "special session on Understanding the Risks and Benefits of Hatchery and Stocking Activities to Wild Atlantic Salmon Populations", NASCO should immediately update its 2004 "Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks" with reference to the summary of advice given above (No. 4).

Those few instances where it continues to be an essential management intervention are primarily associated with the banking of genes ('gene banking') to conserve unique diversity that would be otherwise permanently lost. These interventions include mitigation for habitat that has been sequestered for other purposes, principally hydroelectric energy generation, conserving endangered populations at imminent risk of extinction and as a supporting strategy to support parasite control. For instance, gene banking is a critical aspect of the Norwegian *G. salaris* eradication programme. Given the rate of loss of intra-specific variation due to gene flow from farm salmon it is likely gene banking will be increasingly deployed to protect remaining unaffected remnants within heavily impacted populations. Gene banking is already occurring for several rivers in the Hardangarfjord[168] in Norway, sadly as a last ditched effort to conserve a genetic legacy of salmon diversity in this region.

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167 CNL(19)16, p. 2 under 12.

168 Status-of-wild-Atlantic-salmon-in-Norway (https://www.vitenskapsradet.no/Nyheter/Nyhetsartikkel/ArticleId/5192/ 2021).

Transgenics

Even though there is a lot of scientific research in the area of transgenics, it appears to the Panel that the industry has been reluctant to adopt the technology and is aware of considerable consumer resistance to the use of transgenic fish.

Panel Recommendations

18. The Panel recommends that NASCO Parties create dedicated, independent government inspectorates with accompanying legal regulatory powers to effectively implement relevant NASCO instruments to address the impacts of sea lice and farmed escapes.

19. To assist the work of these inspectorates, the Panel recommends that NASCO prescribes that physical tagging of farmed salmon using conventional tagging methods such as coded wire tags or passive integrated transponder tags be mandatory for salmon smolts introduced into sea farms. The use of genetic methods is not recommended for this purpose. While these are capable of accurate tracing, they are less practical in this context and are open to challenge because of the statistical nature of assignments.

20. As is being currently trialed in Canada to facilitate the farming of European origin fish, the Panel further recommends that sterilization of farmed salmon should be considered a viable option for reducing genetic impact of farm escapes in all salmon farming areas.

21. To aid with management and adherence to regulation, the Panel recommends that the routine and systematic monitoring of rivers for the quantification of genetic introgression in individual rivers be undertaken by Parties and jurisdictions across the species distribution similar to those programs being deployed currently in Norway and Scotland.

22. To aid with management and adherence to regulation, the Panel recommends that the Norwegian sea lice pressure assessment protocol be adopted in all salmon farming areas across the species range taking account of lice loads, lice contact zones and estimates of lice drift.

23. The Panel recommends that, further to the Tromsø recommendation above on stocking, NASCO further investigates both the scientific and management protocols for gene banking and develops Guidelines in this regard.

3. Compliance and enforcement

3.1. Monitoring, control and surveillance

Performance criterion

16. Extent to which NASCO has adopted monitoring, control, and surveillance (MCS) measures.

MCS measures to combat illegal, unreported and unregulated (IUU) fishing are now common in, and a necessary component of. international fisheries management. As is already reflected in its three components, IUU fishing comprises a wide range of undesirable activities and scenarios.[169] It can occur wherever fishing and fishing related activities (e.g. transshipment and bunkering) take place. In the NASCO context, this comprises the high seas, coastal State maritime zones, ports, rivers and other inland water bodies. The implementation of MCS measures requires efforts by States in various capacities, including as flag States, coastal States, port States, market States and with respect to their juridical and natural persons. Examples of standard MCS measures adopted by many RFMOs are: high seas boarding and inspection schemes, on-board observers, satellite-based vessel monitoring schemes, catch documentation and trade tracking schemes, transshipment measures and vessel registers (positive lists).

So far, NASCO has not adopted any of the abovementioned standard MCS measures. This is also understandable as these MCS measures would only be appropriate and proportionate in case of indications of significant IUU fishing for salmon on the high seas or by foreign vessels within coastal State maritime zones. As far as the Panel is concerned, such indications have not existed in recent years. Significant high seas salmon fishing by vessels flying the flag of non-Parties occurred during the late 1980s and early 1990s, but have not occurred since then. At the time, NASCO chose to respond to these fishing activities through international cooperation (see section 5.3.2) rather than by adopting any of the standard MCS measures mentioned above. The problem of unreported catches by nationals and vessels flying the flag of NASCO Parties in their own maritime zones and inland waterbodies is examined in section 3.2.

The foregoing analysis and conclusions are similar to those of the Second NASCO Performance Review[170] and the current Panel also concurs with and endorses Recommendations EPR 63 and 64. In response to Recommendation EPR 63, NASCO

[169] Descriptions of the three components are included in paras 3.1-3.4 of the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (adopted by consensus by FAO's Committee on Fisheries on 2 March 2001 and endorsed by the FAO Council on 23 June 2001; www.fao.org/fishery/en/code/instruments).

[170] Report of the Second NASCO Performance Review, pp. 108-110.

decided to instruct its Secretariat to continue to liaise with NASCO Parties and their coastguard authorities as well as with NAFO and NEAFC to determine whether there are indications of significant IUU fishing for salmon on the high seas or within coastal State maritime zones. This largely corresponds to the requests to the NASCO Secretary pursuant to CNL(92)54 'Resolution [on] Fishing for Salmon on the High Seas', which also requests NASCO Parties to inform the NASCO Secretary of sightings of high seas salmon fishing. Neither of these efforts – including in relation to ICCAT – have led to such indications so far.[171]

Panel Recommendation

24. The Panel concurs with and endorses Recommendations EPR 63 and 64, and encourages NASCO to continue its associated implementation actions.

Performance criterion

17. Extent to which these MCS measures are implemented effectively.

This performance criterion does not need to be assessed because NASCO has not adopted relevant MCS measures.

3.2. Flag State duties

Performance criterion

18. Extent to which NASCO Parties are fulfilling their duties as flag States under the NASCO Convention, pursuant to measures adopted by NASCO, and under other international instruments, including, inter alia, the 1982 Law of the Sea Convention, [the] 1995 UN Fish Stocks Agreement and the 1993 FAO Compliance Agreement, as applicable.

Flag State duties are duties of States with regard to vessels flying their flag. Under the global component of international fisheries law, flag State duties are tailored in particular to (a) fishing on the high seas and (b) within the maritime zones of other States pursuant to licenses and/or fisheries access agreements between coastal States on the one hand and flag States and/or natural or juridical persons on the other hand. These particular flag State duties have only limited relevance in the context of NASCO, as Article 2(1) of the NASCO Convention prohibits high seas salmon fishing and all, or essentially all, of the licensed marine salmon fishing within coastal State maritime

[171] CNL(22)19, pp. 24-25.

zones seems to occur by vessels flying the flag of these coastal States. Article 2(1) of the NASCO Convention is consistent with Article 66(3)(a) of the UNCLOS, and the Panel is not aware of indications of non-compliance by NASCO Parties with this flag State duty.

As noted in subsection 5.1.2, the Fish Stocks Agreement is not applicable in the context of NASCO as such. The Compliance Agreement[172] deals with high seas fishing and imposes duties on flag States to ensure that vessels flying their flag do not undermine international conservation and management measures for the high seas, including by not issuing an authorization to fish to vessels with a history of involvement in high seas IUU fishing which were previously registered in another State.[173] The Panel is not aware of indications of non-compliance by NASCO Parties with this flag State duty.

A number of provisions in the NASCO Convention impose duties on flag States. In addition to the general prohibition of high seas fishing laid down in Article 2(1), Article 2(2) contains a general prohibition to fish in certain parts of the coastal State maritime zones of the NASCO Parties. The Panel is not aware of indications of non-compliance with Article 2(2).

Articles 14(1) and 15(4 and 5) of the Convention also contain implicit flag State duties relating to compliance and enforcement. Article 14(1) requires NASCO Parties to "ensure that such action is taken, including the imposition of adequate penalties for violations, as may be necessary to make effective the provisions of this Convention and to implement regulatory measures".[174] Article 15(4) requires Parties to provide "copies of laws, regulations and programmes in force" to the Council upon its request. Article 15(5) requires Parties to notify the Council of, *inter alia*, the "adoption or repeal since its last notification of laws, regulations and programmes".

As regards flag State duties pursuant to NASCO measures, reference should first of all be made to the legally binding Regulatory Measure WGC(22)10 'Multi-Annual Regulatory Measure for Fishing for Atlantic Salmon at West Greenland'. This regulatory measure contains a broad range of requirements relating to compliance and enforcement – as indicated by the consistently used phrase "monitoring, management, control and surveillance measures" – and some of these could also be regarded as flag State duties. For instance, fishing for salmon without a license must be prohibited and

[172] Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, Rome, 24 November 1993. In force 24 April 2003; 2221 UNTS 91.

[173] Art. III(5) of the Compliance Agreement.

[174] See also Art. 9(c) in this regard.

fishers that do not comply with catch reporting requirements will not receive a fishing license for the following year.[175]

In addition to this legally binding measure, NASCO has adopted and taken various other instruments and initiatives relating to compliance and enforcement that are relevant for flag States. By means of the 1998 Agreement on Adoption of a Precautionary Approach (CNL(98)46), NASCO Parties agreed that efforts to minimize unreported catches, and to improve estimates of them, are consistent with the precautionary approach, and also agreed to evaluate and report on progress on this issue.[176] During the 24th (2007) Annual NASCO Council Meeting, a Special Session on Unreported Catches was held for which all NASCO Parties submitted papers.[177] The 2009 Guidelines for the Management of Salmon Fisheries (CNL(09)43) serve various purposes, including to "assist the jurisdictions in making further progress in implementing" various agreements and guidelines, including CNL(98)46.[178] Section 2.3 of the Guidelines is titled 'Powers to control exploitation' and stipulates under (c): "Managers should be able to enforce the measures that are in place to regulate fishing activity and to minimise the level of unreported catches."

At the time of writing, NASCO did not – unlike many RFMOs – have a dedicated, standing body to deal with implementation and compliance. However, some of the functions that such a body would normally perform are to some extent carried out by the IP/APR process (see subsection 2.5.1). As part of this process for the period 2019-2024, NASCO Parties and jurisdictions are required to submit IPs and associated APRs. By means of the latter they are required to report on: (a) their current level of unreported catch; (b) measures to reduce this; and (c) whether effective control and enforcement measures, and adequate sanctions are in place.[179] They are also required to provide "Details of any actions taken to implement regulatory measures under Article 13 of the Convention including imposition of adequate penalties for violations."[180]

For 2021, the combined estimates of unreported catches by all NASCO Parties was 165 tonnes, which was a significant decrease compared to the 256 tonnes for 2020.[181] Both estimates are quite significant, because the combined confirmed catch for 2020 was 827 tonnes and the combined provisional catch for 2021 was 601 tonnes.[182] As unreported fishing is one of the three components of IUU fishing, this amounts to a very significant estimated IUU catch compared to the legal catch.

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175 Paras 1(d) and 7.
176 Para. 10.
177 See the Report of the 24th (2007) Annual NASCO Council Meeting, para. 4.6.
178 At p. 2.
179 CNL(18)50, under 2.6 and 2.7; and WGCST(16)16, under 5.
180 CNL(18)51, under 4.5. Note that 4.1 and 4.2 correspond to Art. 15(5)(a and b) of the Convention.
181 CNL(22)17, Annex 1, Table 4.
182 CNL(22)17, Annex 1, Table 1.

The Second NASCO Performance Review Panel also expressed its concern at the level of IUU catches of NASCO Parties within their own waters and recommended further efforts, including by means of a technical meeting to "exchange information and best practices on the methods used to calculate unreported catches" and "the development of best practices and consolidated guidelines" (EPR 60 and EPR 62). Whereas NASCO has improved reporting on unreported catches through the IP/APR process, it has not taken up the latter two specific recommendations. In its submission to the Panel, one NASCO Party is of the opinion that the lack of systematic efforts by many Parties to accurately estimate the unreported and illegal catch from in-river, estuarine, and coastal fisheries is an important gap in NASCO's knowledge of the overall harvest of Atlantic salmon.

Panel Recommendation

25. The Panel recommends that NASCO and its Parties strengthen their efforts to decrease unreported catches in all salmon fisheries conducted by NASCO Parties. NASCO could consider commissioning an external independent assessment of unreported catches.

3.3. Port State measures

Performance criterion

19. Extent to which NASCO has adopted measures relating to the exercise of the rights and duties of its Parties as port States, as reflected in Article 23 of the 1995 UN Fish Stocks Agreement, as well as the minimum standards set out in the 2009 FAO Agreement on Port State Measures to Combat Illegal, Unreported, and Unregulated Fishing.

Under international fisheries law, port States have rights and obligations to take measures for the purpose of combating IUU fishing against foreign vessels present in their ports or desiring to visit their ports. The most recent and comprehensive reflection of these rights and obligations is laid down in the PSMA.[183]

So far, NASCO has not adopted the usual port State measures such as designating ports in which foreign vessels can land salmon catches or requiring advance request for entry

[183] Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, Rome, 22 November 2009. In force 5 June 2016; https://www.fao.org/treaties/en/.

into port.[184] All that NASCO seems to have done so far is laid down in CNL(92)54 'Resolution [on] Fishing for Salmon on the High Seas', which requests the Secretary of NASCO to

> obtain and compile all available information on landings and transhipments of salmon caught in the North Atlantic by non-contracting Parties, including the details on the name and flag of the vessels; the quantities landed or transhipped within ports and waters of contracting Parties; and the ports through which the salmon was shipped.

The Resolution does not explicitly require NASCO Parties to take port State measures, but this would nevertheless be required for NASCO Parties that are also parties to the PSMA. At the time of writing, all NASCO Parties were parties to the PSMA.[185]

The lack of port State measures by NASCO – which would require tailor-made and coordinated action by NASCO Parties – is also understandable because essentially all of the licensed marine salmon fishing occurs within coastal State maritime zones by vessels flying the flag of these coastal States. Furthermore, all of these vessels presumably land their catch in ports situated in these coastal States. Also, as concluded in section 3.1, for a considerable number of years there have not been indications of significant IUU fishing for salmon on the high seas or by foreign vessels within coastal State maritime zones.

The Second NASCO Performance Review recommended that NASCO should consider taking port State measures consistent with the PSMA in case IUU fishing by vessels flying the flag of non-Parties becomes an issue (EPR 6) and that any strategy in this regard would have to take account of existing schemes such as that of NEAFC (EPR 7). As with Recommendations EPR 63 and 64, it is at this stage sufficient for NASCO to closely monitor possible indications of significant IUU fishing for salmon on the high seas and by foreign vessels within coastal State maritime zones. In case such indications exist, NASCO should consider whether port State measures would be an effective response, or whether other approaches (e.g. in the context of international cooperation with non-Parties) are more effective.

Panel Recommendation

26. The Panel recommends that NASCO should consider adopting port State measures if there are indications of significant IUU fishing for salmon on the high seas and by foreign vessels within coastal State maritime zones, and port State measures are determined to be an effective response.

184 See Arts 7 and 8 of the PSMA.
185 See information at https://www.fao.org/treaties/results/details/en/c/TRE-000003/.

4. Decision-making and dispute settlement

4.1. Decision-making

4.1.1. Efficiency

Performance criterion

20. Efficiency of NASCO's bodies, including subsidiary bodies, and the Commissions in addressing critical issues in a timely and effective manner, including new and emerging issues.

This criterion relates to decision-making because it is included under 'Area' titled 'III Decision-making and dispute settlement' and 'General criteria' titled 'Decision-making'. NASCO's efficiency also comes up in the context of financial and administrative issues, in performance criterion No. 34 (subsection 6.2.2).

The current performance criterion therefore focuses on NASCO's efficiency – in terms of decision-making – "in addressing critical issues in a timely and effective manner, including new and emerging issues". The broader aspect of NASCO's overall effectiveness in addressing current threats and challenges facing wild Atlantic salmon is examined in Chapter 7.

NASCO decisions seem to a large extent made in Heads of Delegation (HoDs) meetings. As discussed in subsection 5.2.1 'Operating transparently', the extensive use of HoDs meetings within NASCO is not transparent and limits the participation of accredited NGOs. As noted there, the choice of using HoDs meetings may also be related to reasons of efficiency; meaning that HoDs meetings are perceived to lead to the resolution of issues within a shorter period of time. If that is indeed the case, this warrants balancing the need for efficiency with the need for transparency.

Since the Second NASCO Performance Review in 2012, NASCO has adopted very few new instruments. In addition to the various revisions of the WGC's regulatory measures on fishing for Atlantic salmon off West Greenland, NASCO has adopted the following three new non-legally binding instruments:

1. NEA(18)08 ''Road Map' to enhance information exchange and cooperation on monitoring, research and measures to prevent the spread of *G. salaris* and eradicate it if introduced';
2. CNL(22)47 'Statement of the Council Regarding Pink Salmon, *Oncorhynchus gorbuscha*, in the NASCO Convention Area'; and

3. CNL(22)49 'Statement on Salmon Farming from the Council of the North Atlantic Salmon Conservation Organization'.

All three instruments are short, with the most recent two consisting of a little more than one page. As reflected in their titles, and confirmed by their content, they are quite general, far from prescriptive and often leave NASCO Parties a wide margin of interpretation.

The NEA(18)08 Road Map updates and replaces an earlier roadmap adopted by the NEAC in 2004, which had also established the GSWG.[186] The GSWG met in 2006 and 2007 but then did not reconvene until 2017, following new indications that the parasite had become a serious threat. Subsequently, the GSWG met in 2018, 2021 (virtually) and 2022 (October). The Report of the 2022 GSWG Meeting notes, *inter alia*, that *G. salaris* poses a great risk to Atlantic salmon populations and that Norway has so far spent 1 billion NOK on research (~82.5 million £), monitoring and combating *G. salaris*.[187] The GSWG made various recommendations to the NEAC, including on revisions of the Road Map and several other specific recommendations, for instance on the use of chlorine and rotenone.[188] The GSWG also noted various instances of non-compliance with the Road Map, for instance on making contingency plans available to the working group, and called for engagement by other NASCO Parties and jurisdictions and Iceland.[189]

The NASCO Council Statement on pink salmon (CNL(22)47) consists of 6 preambular paragraphs and four categories of proposed actions. The preambular paragraphs refer to: (a) advice by ICES in 2013 on the threats posed by pink salmon to wild Atlantic salmon; (b) advice by ICES in 2018 that pink salmon had by then already spread to "various countries around the North Atlantic over a wide geographical area including all three NASCO Commission areas"; (c) the attention devoted to invasive species in the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee';[190] and (d) "the explosive population growth and geographic spread from 2019 to 2021 to the extent that pink salmon have become the most numerous fish species in some rivers, increasing the risk of adverse

186 See the Report of the 21st (2004) Annual NEAC Meeting, para. 6.1 and the Report of the 34th (2017) Annual NEAC Meeting, para. 8.1.

187 See GSWG(22)16. *G. Salaris* is endemic in rivers emptying in the Baltic Sea. Atlantic salmon originating from Swedish rivers emptying in the Kattegat are not affected by the parasite to the same extent as Atlantic salmon originating from Norwegian rivers. Nonetheless "*The Swedish authorities consider G. salaris to be a serious threat to remaining uninfected salmon stocks, and also to neighbouring stocks in Norway. Protective measures have been introduced to avoid spreading the parasite including a ban on stocking or rearing salmonid fish in the catchments of uninfected rivers*" (NEA(17)4).

188 Paras 6.2 and 6.4-6.

189 Paras 5.6-5.10-5.11.

190 CNL(19)16. See p. 2, and the more specific attention to pink salmon on p. 12.

impacts in the Convention area". During the 39th (2022) Annual NEAC Meeting, Norway noted the rapid increase in the occurrence and abundance of pink salmon in Norwegian rivers – which had begun in 2017 – and that the measures taken by Norway since 2017 to address this had not been fully effective.[191]

The operative part of the NASCO Council Statement on pink salmon urges each Party to take actions relating to (a) cooperation; (b) initiating corrective measures; (c) encouraging research and data collection; and (d) increasing awareness by developing and distributing educational materials. The statement concludes with the following paragraph:

> The Council of NASCO agrees to establish a Standing NASCO Working Group on the threat of pink salmon with the aim to agree Terms of Reference for this Group at the Annual Meeting in 2023, taking into consideration the advice from ICES on pink salmon, expected in September 2022, and relevant recommendations of the External Performance Review.

The 2022 ICES advice on pink salmon provides further information on the species' expanding biomass and range of distribution in the North Atlantic (as far south as France, and also including Iceland in the NEAC area, and in Newfoundland, Canada in the NAC area). ICES considers that pink salmon has several and potential negative effects on wild Atlantic salmon with theoretical and potential positive effects as a food source for wild Atlantic salmon.[192]

The Panel commends NASCO for its recent steps towards addressing the threats posed by the spread of pink salmon. Such steps could have been taken earlier – also in light of the obligations for some if not all NASCO Parties on invasive alien species under the CBD[193] and the UNCLOS[194], but the Panel recognizes that the Covid-19 pandemic may have hindered an earlier response.

The 2022 NASCO Council Statement on Salmon Farming (CNL(22)49) focuses on the adverse effects of sea lice and escaped farmed salmon, which are longstanding and persistent problems. Besides repeating the commitments and targets laid down in the Williamsburg Resolution (CNL(06)49) and the Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks (SLG(09)5), the statement urges the "development of innovative salmon farming technologies" and offers one "possible strategy for implementation, should a Party deem it appropriate […] to prioritise this approach initially in sensitive areas".

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191 Report of the 39th (2022) Annual NEAC Meeting, para. 9.2.

192 CNL(22)64 'Distribution and abundance of pink salmon across the North Atlantic'.

193 Convention on Biological Diversity, Nairobi, 5 June 1992. In force 29 December 1993, 1760 UNTS 143. See, *inter alia*, Art. 8(h) and COP 6 Decision VI/23 'Alien species that threaten ecosystems, habitats or species'.

194 Art. 196.

In view of the seriousness and urgency of the problems posed by sea lice and escaped farmed salmon, the Panel considers that this statement lacks specificity and leaves NASCO Parties too much discretion. NASCO's response should therefore have been more efficient, timely and effective.

Panel Recommendations

27. The Panel recommends that NASCO should consider the following actions to prevent the spread of *G. salaris* and its eradication:
    a) Replace the title of the Road Map with wording that better reflects the seriousness and urgency of the situation (e.g. Action Plan) and its action-oriented content (e.g. measures to be taken instead of merely cooperation in that regard);
    b) Integrate all the recommendations made by the GSWG at its 2022 meeting; and
    c) Revise the terms of reference of the GSWG to give it a more action-oriented mandate, including making specific recommendations for measures to prevent the further spread of the parasite and for its eradication in areas where it has been introduced, rather than merely developing recommendations to enhance cooperation in that regard.

28. The Panel recommends that NASCO strengthens its instruments on addressing the adverse effects of salmon farming by further operationalizing them and thereby ensure, among other things, that their content becomes more specific, stringent and prescriptive.

4.1.2. Decision-making procedures

Performance criterion

21. Extent to which NASCO has transparent, consistent and adequate decision-making procedures that facilitate the adoption of conservation and management measures in a timely and effective manner.

The issue of transparency arises not only in this subsection but also in subsection 5.2.1 (on performance criteria Nos 23 and 27), which deals with participation by NGOs in NASCO meetings. This subsection focuses on transparency in the meaning of clarity of the decision-making rules and procedures.

The text of performance criterion No. 21 draws on the text of Article 10(j) of the Fish Stocks Agreement – which deals with the functions of RFMO/As – and Article 12(1) of the Fish Stocks Agreement – which requires States to "provide for transparency in the decision-making process and other activities of" RFMO/As. The latter is also included in Article 7.1.9 of the Code of Conduct.

Consistency in decision-making ensures not only equal and thereby fair treatment but also predictability. The need for timeliness and effectiveness is also reflected – even though with different terminology – in Article 28 of the Fish Stocks Agreement. This provision requires agreement on "efficient and expeditious" decision-making procedures within RFMO/As to prevent disputes.

More specific guidance and recommendations on decision-making within RFMO/As have been provided by, *inter alia*, the 2006 Review Conference of the Fish Stocks Agreement, which among other things recommended States individually and collectively through RFMO/As to "Ensure that post opt-out behaviour is constrained by rules to prevent opting-out parties from undermining conservation, clear processes for dispute resolution, and a description of alternative measures that will be implemented in the interim".[195] This recommendation was retained with largely similar wording by the 2016 Resumed Review Conference of the Fish Stocks Agreement.[196] Detailed recommendations on decision-making within RFMO/As based on an analysis of their practices are also included in the 2007 publication Recommended Best Practices for Regional Fisheries Management Organizations.[197]

The NASCO Convention contains separate decision-making rules and procedures for the Council and the Commission. The RoPs of the Council and each of the Commissions contain decision-making rules and procedures that correspond to or complement those in the Convention.[198]

The decision-making rules and procedures of the Council are laid down in Article 6(3) of the Convention,[199] which stipulates that a three-quarters majority "of the votes of the members present and casting an affirmative or negative vote" is the default rule. All NASCO Parties are members of the Council and each has one vote.[200] No vote shall be

195 Doc. A/CONF.210/2006/15, p. 37.
196 Doc. A/CONF.210/2016/5, para. B.5(b), p. 46.
197 M.W. Lodge, D. Anderson, T. Løbach, G. Munro, K. Sainsbury and A. Willock, Recommended Best Practices for Regional Fisheries Management Organizations. Report of an independent panel to develop a model for improved governance by Regional Fisheries Management Organizations (Chatham House: 2007), pp. 123-125.
198 See, for instance, Part V on 'Conduct of Business' of each of the RoP.
199 See also the corresponding Rules 4-9 of the NASCO Council RoP.
200 Arts 5(1) and 6(2).

taken unless two-thirds of the members are present (quorum-rule).[201] There are also various situations in which the Council must decide by unanimity: for changes on the membership of the WGC and the NEAC; for changes on the scope and the form of statistics, and the intervals at which they shall be provided; and for amendments to the Convention.[202]

In practice, however, the Council uses consensus decision-making and hardly ever engages in formal voting; whether by unanimity or a three-quarters majority. During the last five years, for instance, the Council only voted (intersessionally) on the UK's application to accede to the NASCO Convention.[203]

The decision-making rules and procedures of the Commissions are included in Articles 11 and 13 of the Convention.[204] Article 11(2) stipulates that each member of a Commission has one vote and that certain other NASCO Parties are entitled to submit and vote on certain proposals for regulatory measures (the details on membership of the Commissions are provided in subsection 1.4.3). Article 11(3) stipulates that all decisions of a Commission – including on regulatory measures – must be adopted by "the unanimous vote of those present and casting an affirmative or negative vote" with a quorum-rule of two-thirds of those entitled to vote.

Paragraphs 3 and 4 of Article 13 give Commission members the rights to opt-out from, and denounce, adopted regulatory measures that apply within their maritime zones. In case these rights are exercised, the regulatory measures will not become binding, or will cease to be binding, for all Commission members. Paragraphs 2-4 of Article 13 also prescribe the timeframes within which proposed regulatory measures become binding, and when the rights to opt-out and denounce can be exercised. Paragraph 5 deals with the competence of Commissions to adopt emergency regulatory measures that become effective before the 60-day period set out in paragraph 2, unless a member of the Commission opts-out within 30 days.[205]

The Report of the Second NASCO Performance Review – which was published in 2012 – notes that the right to opt-out from adopted regulatory measures had never been used by then.[206] It seems that the same was true for the right to denounce adopted regulatory measures. Since 2012, neither the right to opt-out nor the right to denounce seems to have been used. In view of fact that regulatory measures must be adopted by unanimity, this is hardly surprising.

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201 Art. 6(3).
202 Arts 10(2) and (3), 15(2) and 19(2) of the NASCO Convention. See also paras 2-4 of Rule 6 of the NASCO Council RoP.
203 On the latter, see the Report of the 2020 FAC Meeting, para. 6.15.
204 See also the corresponding Rules 4-10 in the RoPs of each of the Commissions.
205 See the agreed interpretation on Art. 13(5) in the NASCO Handbook of Basic Texts.
206 See p. 114.

The abovementioned guidance and recommendations on decision-making within RFMO/As commonly advocate for decision-making by qualified majority and constraints on the right to opt-out, for instance through the use of *ad hoc* review or expert panels. Even though the rights to opt-out of, and denounce, adopted regulatory measures are not exercised, the effectiveness of the NASCO Commissions may still be compromised by the need for unanimity. The extent to which this has been a problem is difficult to determine, however. This is among other things due to the discontinuation of most marine salmon fisheries.

The Panel recommendation below also takes account of the recommendation of the Second NASCO Performance Review Panel.[207]

Panel Recommendation

29. The Panel recommends that in certain scenarios – for instance when improvements in the status of salmon stocks allows for significant expansions in marine salmon fisheries, or when a decision has been made to revise the NASCO Convention – NASCO should consider adjustments of the decision-making rules and procedures of its Commissions to better align them with best practices.

4.2. Dispute settlement

Performance criterion

22. Extent to which NASCO has established adequate mechanisms for resolving disputes.

Dispute settlement mechanisms can be resorted to in case a dispute has arisen between parties to instruments containing such mechanisms. A mechanism can provide for different forms of dispute settlement, for instance negotiation, inquiry, mediation, conciliation, arbitration and judicial settlement. The availability of mechanisms involving courts and tribunals with a mandate to make binding decisions – even in case a dispute settlement procedure is not initiated jointly by all the parties to a dispute, but rather unilaterally by one or more parties (i.e. a 'compulsory' procedure) – is often regarded as incentivizing the resolution of disputes by negotiation.

[207] See p. 115.

The dispute settlement mechanisms included in Part XV of the UNCLOS and Part VIII of the Fish Stocks Agreement are seen as crucial components of their overall 'package-deal' character. The constitutive instruments of many RFMOs contain dispute settlement mechanisms. Some of these mechanisms have been incorporated by subsequent treaty amendments.[208] Detailed recommendations on dispute settlement procedures within RFMOs based on an analysis of their practices are included in the 2007 publication Recommended Best Practices for Regional Fisheries Management Organizations.[209]

As concluded in subsection 5.1.2, the Fish Stocks Agreement is not applicable in the context of NASCO as such, but NASCO Parties could still decide to apply parts of the Fish Stocks Agreement between them. Article 29 of the Fish Stocks Agreement implicitly encourages States to use *ad hoc* expert panels for disputes with a technical nature. Moreover, Article 28 of the Fish Stocks Agreement, titled 'Prevention of disputes', emphasizes the crucial role of "efficient and expeditious decision-making procedures" within RFMOs for the prevention of disputes. These procedures are covered by section 4.1.

The NASCO Convention does not contain a dispute settlement mechanism. The dispute settlement mechanism of the UNCLOS could potentially be used if a dispute that has arisen under the NASCO Convention also qualifies as a dispute under the UNCLOS.[210] This option would then only be available in case of disputes between NASCO Parties that are also parties to the UNCLOS. At the time of writing (end of 2022), this therefore excluded disputes involving the US, as it was not a party to the UNCLOS.[211]

The Second NASCO Performance Review Panel recommended that "NASCO could consider the need for a binding and compulsory dispute settlement mechanism, particularly if salmon stocks recover and regulatory measures for the allocation of fishing opportunities become necessary."[212] NASCO does not seem to have taken any action in response to this recommendation so far.[213] In light of the importance of dispute settlement mechanisms, the current Panel nevertheless feels compelled to make the more generic recommendation below.

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208 E.g. the 2004 amendment to the NEAFC Convention (Report of the 23rd (2004) Annual NEAFC Meeting, Annex K). At the time of writing, however, that amendment had not yet entered into force due to an objection by the Russian Federation (Report of the 40th (2021) Annual NEAFC Meeting, paras 5.1-5.2).

209 See note 197, at, pp. 125-126.

210 See Arts 281-282 of the UNCLOS.

211 See https://www.un.org/Depts/los/convention_agreements/convention_agreements.htm.

212 Report of the Second NASCO Performance Review, p. 116.

213 CNL(22)19 does not mention the recommendation.

Panel Recommendation

30. The Panel recommends that NASCO should consider the development of a modern dispute settlement mechanism, which would be included in the Convention by means of an amendment.

5. International cooperation

5.1. Is NASCO an RFMO under international fisheries law?

A very pertinent question for this performance review is whether NASCO qualifies as an RFMO and, if so, if it is thereby governed by international fisheries law.

5.1.1. NASCO is 'more than an RFMO'

NASCO Parties do not seem to have an agreed understanding or position on the question as to whether NASCO is an RFMO, not an RFMO or something else, possibly 'more than an RFMO'. Importantly, there are no indications that a dedicated debate on this question has ever taken place among NASCO Parties.

On the website of the FAO, NASCO is regarded as an RFMO.[214] However, such a qualification by FAO cannot be regarded as a form of multilateral recognition of the status of NASCO under international fisheries law. The competence to make a determination on the qualification of NASCO lies first of all with NASCO Parties.

The NASCO website presents NASCO simply as an 'international organization' and makes no reference to the notion of an RFMO. There are nevertheless various references in NASCO documents that explicitly state that NASCO is an RFMO. Such references are, for instance, included in several FAC documents and letters of the NASCO President that relate to the 2013 MoU between NASCO and the OSPAR Commission[215].[216] The notion of the RFMO is nevertheless not mentioned in the text of this MoU.[217] Mention can also be made of performance criterion No. 31,[218] which reads as follows: "Extent to which NASCO co-operates and engages with other regional fisheries management organizations and other relevant organizations." A strictly textual interpretation of the word "other" before RFMOs suggests that NASCO is also an RFMO. It is nevertheless not obvious that the abovementioned references amount to conclusive evidence of an agreed understanding or position of NASCO Parties that NASCO is an RFMO.

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214 See https://www.fao.org/fishery/en/organization/nasco/en.

215 Memorandum of Understanding between the North Atlantic Salmon Conservation Organization and the OSPAR Commission, 2013; https://nasco.int/wp-content/uploads/2020/02/mou_ospar.pdf.

216 E.g. NASCO is "the RFMO charged with conserving, managing and restoring salmon in the North Atlantic" (Report of the 33rd (2016) Annual FAC Meeting, para. 6.2); and references to NASCO as an RFMO in letters by the NASCO President to the Chair of the OSPAR Commission, of 4 June 2015 and 21 June 2021 (available at https://nasco.int/council-correspondence/).

217 Also, that whereas the Report of the May 2021 Annual FAC Meeting, para. 4.7, refers to NASCO as an "inter-governmental organization", the subsequent letter of the NASCO President to the OSPAR Commission Chair of 21 June 2021 (see note 216) refers to NASCO as an RFMO.

218 Discussed in subsection 5.3.3.

In light of this situation, the remainder of this subsection examines whether or not NASCO is an RFMO, or 'more than an RFMO'. Article 1(i) of the PSMA defines an RFMO as "an intergovernmental fisheries organization or arrangement, as appropriate, that has the competence to establish conservation and management measures". As NASCO is an intergovernmental organization, it is clear that it can only be an RFMO and not a regional fisheries management arrangement (RFMA).[219] From NASCO's objective set out in Article 3(2) of the NASCO Convention – cited in full at the outset of Chapter 1 – it is also clear that NASCO has a mandate to establish conservation and management measures. It is generally accepted that, in order to qualify as an RFMO, a body must have a mandate to impose legally binding conservation and management measures on its members. This makes RFMOs a distinct subset of the broader group called regional fishery bodies (RFBs) by FAO.[220] As concluded in the previous section, NASCO has – through its Commissions – the mandate to impose legally binding conservation and management measures on its Parties, and has also actually exercised that mandate.

Debates on the qualification of a body or an instrument as an RFMO or an RFMA are not unique. The most well-known is the debate on the qualification of CCAMLR. This debate revolves in particular on the significance of two issues. First, that CCAMLR and its constitutive instrument – the CAMLR Convention[221] - are part of the Antarctic Treaty System (ATS). Second, CCAMLR's unique, singular objective laid down in paragraph 1 of Article II of the CAMLR Convention, which stipulates that its objective is "the conservation of Antarctic marine living resources". Paragraph 2 nevertheless clarifies that "the term 'conservation' includes rational use". Notably absent in all paragraphs of Article II are the words 'fish', 'fishery resources', 'fishing' or 'fisheries'. By way of contrast, reference can be made to the South Pacific Regional Fisheries Management Organisation – one of the newest RFMOs – whose constitutive instrument contains the following objective:

> The objective of this Convention is, through the application of the precautionary approach and an ecosystem approach to fisheries management, to ensure the long-term conservation and sustainable use of fishery resources and, in so doing, to safeguard the marine ecosystems in which these resources occur.[222]

However, based on other provisions in the CAMLR Convention and confirmed by CCAMLR's practice, its competence is in principle limited to fishing, fishing-related

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219 An RFMA does not establish an intergovernmental organization. Its principal decision-making body is commonly a Conference of the Parties (COP) or a Meeting of the Parties (MOP).

220 See the information at www.fao.org/fishery/topic/16800/en.

221 Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May 1980. In force 7 April 1982, 1329 UNTS 47.

222 Art. 2 of the SPRFMO Convention, note 105.

activities (e.g. transhipment and provisioning) and research, and does not extend to any other human activity or sector.[223]

In 2002 there was broad agreement among its Members that CCAMLR has "the attributes of an RFMO within the context of the UN and its subsidiary bodies".[224] Or, in other words, CCAMLR is 'more than an RFMO'. The Panel is of the opinion that this qualification is above all justified by the fact that CCAMLR is a component of the ATS,[225] and thereby directly linked to the unresolved question on title to land territory south of 60° South and the associated principal objective of safeguarding peace that is enshrined in the Antarctic Treaty[226] as well as in the CAMLR Convention. CCAMLR can therefore be regarded as performing a role in safeguarding peace in addition to its (primary) role on the regulation of fishing for the purpose of the conservation and management of fisheries resources.[227]

The Panel considers that this 'role-oriented approach to RFMOs' can also be applied to NASCO. The objective of NASCO as laid down in Article 3(2) of the NASCO Convention does not mention 'fisheries' or 'fishery resources' and covers not only conservation and (rational) management but also restoration and enhancement. This wording indicates that NASCO's mandate is not limited to the regulation of fishing, because restoration and enhancement as such have nothing to do with the activity of fishing or its regulation. To achieve these components of NASCO's objective, a more cross-sectoral and holistic approach comprising a much wider range of measures for various purposes is required, including:

(a) protecting, restoring and enhancing salmon habitat, for instance by ensuring salmon can swim upstream and downstream by removing barriers, or by ensuring adequate water quality standards – both marine and freshwater – by preventing, reducing and controlling pollution;
(b) rebuilding salmon stocks through stocking, where appropriate; and

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223 This is confirmed by the Preamble and many provisions (e.g. Arts II(3), V, VI, IX and XXIX(1)). Moreover, CCAMLR has taken measures to prevent impacts by fishing vessels and scientific research vessels on Antarctic marine living resources by adopting measures relating to maritime safety, vessel-source pollution and the introduction of alien species (see, e.g. CCAMLR Conservation Measures 24-04 (2017), para. 16; 26-01 (2019); 91-03 (2009), para. 3; and 91-04 (2011), para 6; 91-05 (2016), para. 10, and CCAMLR Resolutions 20/XXII (2003), 23/XXIII (2004), 28/XXVII (2008), 29/XXVIII (2009), 33/XXX (2011) and 34/XXXI (2012)).

224 Report of the 21st (2002) Annual CCAMLR Meeting, p. 88 (para 15.2). See also the preamble to Conservation Measure 22-06 (2019), and Resolution 18/XXI.

225 Report of the 14th (1995) Annual CCAMLR Meeting, p. 70 (para 15.2).

226 Antarctic Treaty, Washington D.C., 1 December 1959. In force 23 June 1961, 402 UNTS 71.

227 For a more comprehensive discussion, see E.J. Molenaar, "Regional Fisheries Management Organizations", in M. Chantal Ribiero, F. Loureiro Bastos and T. Henriksen (eds) *Global Challenges and the Law of the Sea* (Springer: 2020), pp. 81-109, pp. 92-96.

(c) preventing, reducing, controlling and eradicating other significant adverse impacts on salmon stocks, such as the spreading of diseases, parasites and alien invasive species (e.g. sea lice (*Lepeophtheirus salmonis*), *Gyrodactylus salaris* and pink salmon) and genetic introgression.

It is clear that these measures affect a considerable range of land-based and maritime activities and sectors, including aquaculture and agriculture. Obligations to take such measures are, *inter alia*, also laid down in Part XII of the UNCLOS on 'Protection and Preservation of the Marine Environment', the CBD and decisions by its Conference of the Parties (COP), and in the OSPAR Convention[228] and decisions by the OSPAR Commission.

Importantly, the cross-sectoral and holistic approach that is implied in the wording of NASCO's objective is confirmed by NASCO's practice. The fact that this practice consists exclusively of non-legally binding instruments does not affect that conclusion. NASCO's practice on non-fisheries issues is set out in Table 1.

In conclusion, NASCO can be regarded as 'more than an RFMO' due to its cross-sectoral and holistic approach to salmon conservation that is implied in NASCO's objective and confirmed by its practice. In addition to its role in the regulation of fisheries for the purposes of the conservation and management of fisheries resources, it also performs roles in regulating other land-based and maritime activities and sectors – including aquaculture – and threats such as the spreading of diseases, parasites and alien invasive species for the purposes of conservation, restoration and enhancement of salmon stocks and their habitats. The Second NASCO Performance Review Panel arrived at an essentially similar conclusion when it noted "NASCO to a large extent has a mandate that covers both that of traditional RFMOs and that of Regional Seas Programmes, such as OSPAR."[229]

[228] Convention for the Protection of the Marine Environment of the North-East Atlantic, Paris, 22 September 1992. In force 25 March 1998; 2345 UNTS 67, as amended. Annex V 'On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area', Sintra, 23 September 1998. In force 30 August 2000, as amended (consolidated text available at www.ospar.org).

[229] Report of the Second NASCO Performance Review, p. 80.

Table 1: NASCO's practice on non-fisheries issues

Habitat	CNL(01)51 'NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat' CNL(10)51 'NASCO Guidelines for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat'
Stocking	CNL(04)55 'NASCO Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks'
Aquaculture	NAC(92)24 'NAC Protocols for the Introduction and Transfer of Salmonids' CNL(97)48 (Annex 22) 'NASCO Guidelines for Action on Transgenic Salmon' CNL(01)53 'Guidelines on Containment of Farm Salmon' NAC(05)7 'Memorandum of Understanding between Canada and USA' (on introductions and transfers of aquatic species) CNL(06)48 'Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Aquaculture, Introductions and Transfers, and Transgenics on the Wild Salmon Stocks' (Williamsburg Resolution) SLG(09)5 'Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks'[230] CNL(22)49 'Statement on Salmon Farming from the Council of the North Atlantic Salmon Conservation Organization'
Salmon fluke	NEA(18)08 ''Road Map' to enhance information exchange and cooperation on monitoring, research and measures to prevent the spread of G. salaris and eradicate it if introduced'
Pink salmon	CNL(22)47 'Statement of the Council Regarding Pink Salmon, *Oncorhynchus gorbuscha*, in the NASCO Convention Area'

5.1.2. NASCO is governed by international fisheries law

The conclusion that NASCO can be regarded as 'more than an RFMO' implies that NASCO is also governed by international fisheries law. This is the domain of international law that relates specifically to the conservation and management and/or development of marine capture fisheries. It consists of substantive norms (e.g. rights, obligations and objectives), substantive fisheries standards (e.g. catch and gear restrictions) as well as institutional rules and arrangements (e.g. mandates and decision-making procedures). International fisheries law is part of public international law and can also be seen as a branch or part of the domain of the international law of the sea.

[230] See also SLG(10)9 'Explanations of Terms Used in the Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks'.

International fisheries law consists of legally binding and non-legally binding instruments adopted at the global, (sub-)regional and bilateral levels, as well as rules of customary international law.

The fact that NASCO is governed by international fisheries law does not necessarily mean that this body of law applies to NASCO in its entirety. Whether or not particular instruments are applicable to NASCO must be determined on a case-by-case basis.

As various performance criteria make reference to the Fish Stocks Agreement, it must be emphasized here that this agreement is not applicable in the context of NASCO as such.[231] The Fish Stocks Agreement deals with straddling fish stocks and highly migratory fish stocks. The latter relate to the fish species governed by Article 64 of the UNCLOS and listed in its Annex I, in which salmon is not included. The term 'straddling fish stocks' is not defined in either the UNCLOS or the Fish Stocks Agreement, but is commonly understood to comprise the fish stocks governed by Article 63(2) of the UNCLOS, which relates to stocks occurring both within coastal State maritime zones and adjacent high seas. Even though some anadromous stocks have a similar range of distribution, others do not. Moreover, anadromous fish stocks are governed by a distinct regime set out in Article 66 of the UNCLOS, which is intended to function as a *lex specialis* vis-à-vis Article 63(2). In view of the fundamental differences between the regimes in Articles 63(2) and 66, it is not possible for both regimes to apply in parallel. Irrespective of these observations, it is clear from the text of the Fish Stocks Agreement that it applies only to the straddling and highly migratory fish stocks covered by Articles 63(2) and 64 of the UNCLOS, but not the anadromous stocks covered by Article 66 of the UNCLOS.[232]

Notwithstanding the conclusion that the Fish Stocks Agreement is not applicable in the context of NASCO as such, NASCO Parties could still decide to apply parts of the Fish Stocks Agreement between them. For instance the requirements on the precautionary approach to fisheries management set out in Article 6 and Annex II of the Fish Stocks Agreement (see subsection 2.4.2), the requirements on transparency set out in Article 12 (see subsection 5.2.1) or the provisions on dispute settlement (see section 4.2). By contrast, NASCO Parties cannot impose parts of the Fish Stocks Agreement on non-NASCO Parties. For instance the specificities on cooperation with RFMOs set out in Article 8 of the Fish Stocks Agreement (see subsection 5.3.2). Some parts of the Fish Stocks Agreement do not lend themselves to being applied between NASCO Parties,

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231 The Report of the Second NASCO Performance Review observes on p. 29 that the Fish Stocks Agreement "does not have strict application to salmon stocks, which are anadromous and are not considered to be either highly migratory or straddling fish stocks."

232 See, for instance, the wording in paras 1(a) and 1(b) of Art. 7 of the Fish Stocks Agreement, which closely follow the wording in Arts 63(2) and 64(1) of the UNCLOS.

for instance the notion of compatibility in Article 7 of the Fish Stocks Agreement (see subsection 2.4.4).

5.2. Transparency

5.2.1. Operating transparently

Performance criteria

23. Extent to which NASCO is operating in a transparent manner, taking into account Article 12 of the 1995 UN Fish Stocks Agreement and the UN FAO Code of Conduct for Responsible Fisheries; and 27. Extent to which accredited NGOs and other observers are included in NASCO processes.

The issue of transparency arises not only in this subsection but also in subsection 4.1.2 (on performance criterion No. 21), which deals with transparency in the meaning of clarity of the decision-making rules and procedures. This subsection focuses on participation by NGOs in NASCO meetings, which arises under performance criterion No. 23 as well as performance criterion No. 27. Participation by intergovernmental organizations is covered by section 5.4.

Article 12(2) of the Fish Stocks Agreement stipulates the following:

> Representatives from other intergovernmental organizations and representatives from non-governmental organizations concerned with straddling fish stocks and highly migratory fish stocks shall be afforded the opportunity to take part in meetings of subregional and regional fisheries management organizations and arrangements as observers or otherwise, as appropriate, in accordance with the procedures of the organization or arrangement concerned. Such procedures shall not be unduly restrictive in this respect. Such intergovernmental organizations and non-governmental organizations shall have timely access to the records and reports of such organizations and arrangements, subject to the procedural rules on access to them.

The last sentence of this provision will be covered in the next subsection, which deals with performance criterion No. 24.

The NASCO Convention contains no provisions on transparency or participation by NGOs. Rules and procedures on participation by NGOs are nevertheless included in the RoPs of the Council and its three Commissions, as well as in CNL(06)49 'Revised Conditions for Attendance by Observers at NASCO Meetings following amendment at the Twenty-Third Annual Meeting in June 2006'. These latter conditions were revised

to implement NASCO's commitments to enhance transparency included in the Strategic Approach for NASCO's 'Next Steps'.[233]

Rule 17 of the NASCO Council RoP stipulates "The opening session of each meeting of the Council shall be public." Rule 27 of the NASCO Council RoP stipulates: "The Council may decide to invite observers to participate in its meetings and may establish the terms and conditions for that participation." An identical rule is included in Rule 28 of the RoP of each of the three NASCO Commissions. The 'terms and conditions' referred to in all of these Rules are those laid down in CNL(06)49.

The IASRB and its SAG have Terms of Reference – which are *de facto* RoP – that provide for NGO involvement.[234] Conversely, the other NASCO Council subsidiary bodies – the FAC and the SSC – do not have their own RoP. Rule 28 of the NASCO Council RoP – which is devoted to the Council's subsidiary bodies – nevertheless provides: "Insofar as they are applicable, these Rules shall apply to these bodies unless the Council decides otherwise." The default rule is therefore that subsidiary bodies may invite NGOs to participate in their meetings – subject to any terms and conditions they may have established – unless the Council decides otherwise. The Council has effectively decided otherwise by means of adopting paragraph 10 in the section 'Non-Government Observers' in CNL(06)49. This paragraph reads as follows:

> Observer status shall apply to all plenary sessions of the Council and the Commissions, whether at the Annual Meeting or at intersessional meetings. The Council or Commissions shall solicit NGO and other stakeholder input to meetings of working groups and other subsidiary bodies as appropriate.

The second sentence allows the Council and the Commissions to "solicit NGO and other stakeholder input" on a case-by-case basis. This has, for instance, enabled accredited NGOs to play an active role in the IP/APR process and NASCO's Special and Theme Based Sessions, including their steering committees. However, so far NGOs are not able to participate in the FAC and the SSC.[235]

The paragraph cited above also recognizes that accredited NGOs can only participate in the "plenary sessions" of the Council and the Commissions, and therefore not in HoDs meetings. It is not unusual for intergovernmental bodies to convene sessions closed to NGOs to deal with issues that are especially sensitive or to facilitate a break-through in difficult negotiations. The extent in which this is done varies significantly, however. In their submissions to the Panel, two NASCO Parties expressed their concern

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233 See in particular Decision 23.

234 ICR(20)03 'Terms of Reference for the International Atlantic Salmon Research Board and its Scientific Advisory Group'. See Term No. 11.

235 See also note 274 and accompanying text on participation of NGOs in the FAC.

about the extent in which substantive discussions and negotiations occur in HoDs meetings rather than in plenary meetings. One of these took the view that this should be the exception rather than the rule.

The extensive use of HoDs meetings within NASCO may also be related to reasons of efficiency; meaning that the format of HoDs meetings is perceived to lead to the resolution of issues within a shorter period of time. If that is indeed the case, this warrants balancing the need for efficiency with the need for transparency.

The Panel has not received other indications of dissatisfaction with the operation of CNL(06)49. In fact, some of the submissions by accredited NGOs to the Panel are very positive and appreciative of their ability to participate in NASCO. The Report of the Second NASCO Performance Review noted the suspension of Greenpeace International's observer status and certain issues on the International Salmon Farmers Association's observer status.[236] No new cases of suspension of observer status seem to have occurred since 2012.

A comparison of CNL(06)49 with the rules and procedures on the participation of NGOs adopted by several RFMOs[237] reveals similarities as well as differences. Admittedly, however, there is only limited overall uniformity among RFMOs on such rules and procedures. Another revision of CNL(06)49 may nevertheless be worth considering. This could, among other things, be aimed at codifying NASCO's existing practices on participation by NGOs as well as taking account of best practices by other international organizations. For instance, CNL(06)49 is silent on rights of accredited NGOs to receive certain documents and other information – even though they apparently receive them in practice, both in advance and during NASCO meetings – and is also silent on rights to submit certain documents and information in advance of NASCO meetings. In addition, it may be useful to align the sequence of the paragraphs relating to NGOs in CNL(06)49 more with the sequence of the procedure for applying for observer status, and group related issues better together.

The NASCO website contains a list of NGOs that are at present accredited by NASCO.[238] At the end of 2022, this list included 45 NGOs with very diverse origins and focus; ranging from national components of the World Wide Fund for Nature to the Sami Parliaments of Finland and Norway. At its 39th (2022) Annual Meeting, the NASCO Council agreed that there would be a Special Session on indigenous perspectives on Atlantic salmon during the 2023 Annual Meeting, to be held in

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236 See p. 118.

237 See for instance the observations in the Report of the Second Independent Performance Review of ICCAT, pp. 61-62.

238 Available at https://nasco.int/about/accredited-ngos/.

Canada.[239] A proposal for this came from Canada, and was made in the context of discussions on the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee' which, *inter alia*, recommends NASCO to "improve the participation of indigenous people in NASCO".[240] The NASCO President noted that NASCO Parties had identified this as a potential priority.[241]

Panel Recommendations

31. The Panel recommends that NASCO should consider options to ensure that convening meetings by the Council and its Commission in the format of HoDs meetings becomes the exception rather than the rule. One such option could be to determine that converting from plenary sessions into the format of HoDs meetings requires an explicit decision supported by a simple majority of the members of the Council or a Commission, where applicable.

32. The Panel recommends that NASCO should consider revising CNL(06)49 to, among other things, codify NASCO's existing practices on participation by NGOs, take account of best practices by other international organizations, align the sequence of the paragraphs relating to NGOs more with the sequence of the procedure for applying for observer status, and group related issues better together.

5.2.2. Publicly available information

Performance criterion

24. Extent to which NASCO decisions, meeting reports, scientific advice upon which decisions are made, and other relevant materials are made publicly available in a timely fashion.

As cited above, Article 12(2) of the Fish Stocks Agreement stipulates that intergovernmental organizations and NGOs "shall have timely access to the records and reports of [RFMO/As], subject to the procedural rules on access to them."

The NASCO website is well-structured and accessible and contains a wealth of relevant NASCO documents, including reports of the annual meetings of all NASCO bodies. It is the practice of the NASCO Secretariat to upload, where possible, all meeting

[239] Report of the 39th (2022) Annual NASCO Council Meeting, paras 5.10 and 7.1.
[240] CNL(19)16, p. 2.
[241] Report of the 39th (2022) Annual NASCO Council Meeting, para. 5.10.

documents at least 30 days in advance of the meeting. Moreover, in 2019, NASCO decided that the reports and other documents of the FAC would also be made available on the NASCO website. Furthermore, at the end of 2022 the NASCO Secretariat was engaged in efforts to make NASCO's online records as complete as possible, including by scanning and uploading older NASCO documents and identifying possible missing documents. These recent efforts will further enhance NASCO's transparency in terms of information.

Panel Recommendation

33. The Panel commends NASCO for its current transparency in terms of information and its continued efforts to improve this further. As part of future efforts, NASCO could consider updating its Handbook of Basic Texts – for instance to reflect the UK's accession to the NASCO Convention and perhaps include the text of (a revised version of) CNL(06)49 – and to include some information on the origins of NASCO, the negotiation of the NASCO Convention and its preparatory meetings.

5.2.3. Communications strategy

Performance criterion

25. Extent to which NASCO has developed an effective communications strategy to raise awareness of successes relating to, and challenges facing, the conservation of salmon with the public, other countries and relevant organizations.

Even though NASCO has engaged in a range of different communication and outreach activities since the Second NASCO Performance Review was concluded in 2012 – for instance redesigning the NASCO and IASRB websites and creating a website-accessible Rivers Database[242] – it has not developed or adopted a dedicated communications (and outreach) strategy as such. The Strategic Approach for NASCO's 'Next Steps' contains a number of decisions relating to communications and outreach (public relations), including the establishment of a Public Relations Group. A synopsis of these decisions is provided in the Report of the Second NASCO Performance Review, complemented by an overview of relevant developments until 2012, as well as a wide range of options for future actions and two recommendations.[243] As noted in that Report, the Public Relations Group had only met once, in 2007. Despite that Panel's

[242] CNL(22)19, pp. 29-30.
[243] See pp. 118-121.

recommendation to revitalize and strengthen the Public Relations Group, it has not met since then.[244]

The Panel notes that the general public does not seem to consider wild Atlantic salmon as a species that is in danger, contrary to other endangered species, e.g. certain species of whales. This may be related to the abundance of farmed salmon in supermarkets, which makes it difficult for the general public to think that a salmon species is in danger. Mention can in this regard also be made of the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee', that "NASCO should continue efforts, begun under the International Year of the Salmon, to raise global awareness about the status of wild Atlantic salmon, the threats they face, potential solutions, and actions that can be taken."[245] Finally, in its submission to the Panel, one NASCO Party suggests that NASCO could also consider to enhance its "physical presence at international events such as Climate and Biodiversity CoPs to communicate directly with international decision makers" and that NASCO "should evolve to play a role as a focal point for coordinated research, action and knowledge exchange regarding invasive species threats to salmon".

Panel Recommendations

34. The Panel commends NASCO for its various communication and outreach activities since 2012 and invites NASCO to consider developing a dedicated communications and outreach strategy, while taking account of the various options and recommendations proposed by the Second NASCO Performance Review Panel.

35. NASCO could be more active in communicating the troublesome status of wild Atlantic salmon and the many threats it faces to the general public.

5.2.4. Knowledge sharing

Performance criterion

26. Extent to which NASCO provides a forum for knowledge sharing among NASCO Parties and its accredited NGOs on best management practices and new and emerging threats to salmon conservation.

[244] CNL(22)19, p. 30.
[245] CNL(19)16, p. 2 under 16.

NASCO has been and continues to be very good at sharing knowledge among NASCO Parties and accredited NGOs. The SSC and the IASRB perform an important role in that regard. Accredited NGOs are also represented in the IASRB. The NASCO website is well organized and it is easy to find information there. Special Sessions and Theme-based Special Sessions are organized in conjunction with the Annual Meetings, and symposia on relevant topics (e.g. the meetings of the International Year of the Salmon) are organized with scientific and/or international organizations with similar mandates in other geographical areas.

5.3. Relationship with non-NASCO Parties

5.3.1. Fishing activities by non-NASCO Parties

Performance criterion

28. Extent to which non-NASCO Parties have undertaken salmon fishing activities in the NASCO Convention Area.

As noted in subsection 1.4.1, the term 'NASCO Convention Area' is not used or defined in the Convention, but can be deduced from Article 1(1) of the Convention. In light of the words "throughout their migratory range", it can be concluded that the geographical scope of the Convention also comprises rivers and other inland waters.

Salmon fishing activities by non-Parties undermine, in principle, the objective of the Convention. Significant high seas fishing by non-Parties occurred during the late 1980s and during part of the 1990s (see section 5.3.2). Since then, there have been no indications of marine salmon fishing by non-Parties on the high seas.

At the time of writing, (targeted) salmon fishing by non-Parties nevertheless occurred within inland waters and maritime zones of France (in respect of St. Pierre and Miquelon) and Iceland. As regards France (in respect of St. Pierre and Miquelon), such fishing occurred in its Belle River – which has a resident salmon population – and in its territorial waters and EEZ.[246] The marine fishery is a mixed stock fishery in which almost 90% of the fish caught originate from the Gaspé Peninsula, the southern part of the Gulf of St Lawrence and Newfoundland.[247] As France (in respect of St. Pierre and Miquelon) is a State of origin and also exercises fisheries jurisdiction in the North Atlantic Ocean, it is entitled to accede to the Convention.[248] Presumably, salmon fishing

[246] CNL(22)20rev, p. 8. The term territorial waters presumably comprises the territorial sea and marine internal waters.
[247] Ibidem.
[248] Art. 17(3).

in Belle River and waters surrounding St. Pierre and Miquelon already took place before NASCO's establishment in 1983 and have continued since then. France (in respect of St. Pierre and Miquelon) has provided information on these fisheries to NASCO for a period of at least 20 years.[249]

As regards Iceland, salmon fishing occurred at the time of writing in its rivers and other inland waters, but not in its maritime zones.[250] Icelandic vessels targeting pelagic species such as mackerel, herring and blue whiting in Iceland's own maritime zones as well as on the high seas and in the maritime zones of other North-East Atlantic coastal States may nevertheless have incidental by-catches of salmon.

As already noted, Iceland was one of the 'Founding Fathers' of NASCO. The negotiations on the NASCO Convention were finalized during a Diplomatic Conference held in Reykjavik and the Convention was also opened for signature there. At the NASCO Council's inaugural meeting in 1984, Gudmundur Eiriksson from Iceland was elected as the NASCO Council's first President.[251] Iceland withdrew from the Convention with effect from 31 December 2009 "as a result of the severe economic crisis in that country".[252] At the time, Iceland hoped to re-accede to the Convention "when the economic situation improves".[253] Since then, Iceland has continued to fish for salmon even though, unlike France (in respect of St. Pierre and Miquelon), it has not provided NASCO with information on these fisheries. As Iceland reports its salmon catches to ICES,[254] this information is nevertheless still available to NASCO.

Essentially all relevant European coastal States and States of origin are either NASCO Parties or EU Member States (and thereby represented in NASCO by the EU). The only exception seems to be Switzerland, in whose rivers salmon used to originate. At the time of writing, Switzerland made significant efforts in furtherance of the return of salmon in the Rhine and its tributaries in Switzerland.[255] Salmon catches can be presumed to be negligible.

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249 CNL(22)20rev, p. 3.
250 2021 WGNAS Report, p. 38.
251 Report of the 1st (inaugural) NASCO Council Meeting, p. 1.
252 Report of the 27th (2010) Annual NASCO Council Meeting, para. 5.1.
253 Letter from the President of the NASCO Council dated 4 March 2019, Annex.
254 See, e.g. the 2021 WGNAS Report.
255 See the document 'The Return of the Salmon', p. 37 (available at https://www.lachsverein.de/info-cd-the-return-of-the-salmon/).

5.3.2. Cooperation with non-NASCO Parties

Performance criterion

29. Extent to which NASCO facilitates co-operation with non-NASCO Parties, including encouraging non-NASCO Parties to become Parties or to implement NASCO conservation and management measures voluntarily.

As Atlantic salmon is a transboundary living resource whose migratory range encompasses rivers, other internal waters, coastal State maritime zones and often the high seas as well, conservation and management are dependent on intergovernmental cooperation. A distinction can in that regard be made between cooperation on fisheries issues and cooperation on non-fisheries issues.

Cooperation on fisheries issues

As regards regulation of fishing for the purpose of conservation and management of anadromous stocks, the global regime for intergovernmental cooperation is laid down in Article 66 of the UNCLOS. The different paragraphs of Article 66 impose obligations to cooperate on States of origin, States that used to fish for anadromous stocks on the high seas, and coastal States in whose maritime zones anadromous stocks occur. Paragraphs 4 and 5 read as follows:

> 4. 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.
> 5. The State of origin of anadromous stocks and other States fishing these stocks shall make arrangements for the implementation of the provisions of this article, where appropriate, through regional organizations.

Whereas paragraph 4 imposes an explicit obligation to cooperate on coastal States, it does not explicitly impose a corresponding obligation on States of origin. Such an obligation can nevertheless be implied because cooperation is logically and necessarily a 'two-way street' and is also part of a State of origin's primary responsibility laid down in paragraph 1 of Article 66. Moreover, even though paragraph 1 recognizes the "primary interest" of States of origin, this wording implicitly recognizes that other States have interests and, possibly, associated rights as well. Furthermore, an obligation to cooperate for States of origin can be deduced from the obligation in paragraph 5 to "make arrangements for the implementation" of Article 66. Finally, paragraph 2 of Article 62 of the UNCLOS contains a general obligation to cooperate for coastal States and paragraph 5 requires them to contribute and exchange available "scientific

information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks […] on a regular basis through competent international organizations, whether subregional, regional or global". France (in respect of St. Pierre and Miquelon) and Iceland are both parties to the UNCLOS.[256]

Paragraph 5 leaves it to the States involved to determine whether or not to make such arrangements "through regional organizations". Reference must here be made to Article 8 of the Fish Stocks Agreement, which can be regarded as recognition by the international community that regional fisheries management organizations and arrangements (RFMO/As) are the preferred vehicles for the conservation and management of straddling and highly migratory fish stocks. Article 8(3) of the Agreement operationalizes the obligations to cooperate in Articles 63(2) and 64 of the UNCLOS by stipulating that, in case RFMO/As exist, the relevant States

> shall give effect to their duty to cooperate by becoming members of such organization or participants in such arrangement, or by agreeing to apply the conservation and management measures established by such organization or arrangement.

However, as concluded in section 5.1.2, the Fish Stocks Agreement is not applicable in the context of NASCO as such. The wording of the performance criterion under examination in this subsection could nevertheless be seen as being somewhat modelled on, or inspired by, Article 8(3) of the Fish Stocks Agreement. This interpretation is supported by the letter sent by NASCO on 31 January 2022 to the French Minister of the Sea, which invokes the Fish Stocks Agreement and wording in its Article 8 in support of an implicit obligation for France to join NASCO in respect of St. Pierre and Miquelon.[257] On the other hand, the words "encouraged" and "voluntarily" in the performance criterion under examination point more towards voluntary action not required by legal obligations. The two other letters sent by NASCO to France in 2017 and 2022 and the three letters sent to Iceland in 2014, 2019 and 2022 do not refer to the Fish Stocks Agreement, and merely invite the two States to join NASCO.[258]

Even though there may not be an obligation to join NASCO, it is evident that Articles 62 and 66 of the UNCLOS require all relevant States to cooperate, including States of origin. The establishment of NASCO is a direct result of that cooperation. In case States of origin and other States fishing for salmon in their own maritime zones are not parties to the NASCO Convention, it is quite logical that their obligations to cooperate pursuant to Articles 62 and 66 of the UNCLOS mean that they have to cooperate with NASCO.

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256 Information available at https://treaties.un.org.

257 The letter is available at https://nasco.int/council-correspondence/. See also the 6th preambular paragraph of CNL(02)47 'NASCO Resolution Concerning Cooperation with St. Pierre and Miquelon' (included in Annex 23 of the Report of the 19th (2002) Annual NASCO Council Meeting).

258 All are available at https://nasco.int/council-correspondence/.

Salmon fishing in St. Pierre and Miquelon occurs in its rivers and maritime zones. If France (in respect of St. Pierre and Miquelon) were a party to the NASCO Convention, fishing in its EEZ would be inconsistent with Article 2(2) of the Convention and the mixed stock fishery in its territorial sea and marine internal waters would likely have to be constrained further. Such constraints would presumably lead to increased numbers of salmon returning to their rivers of origin and thereby to user and/or non-user benefits for the relevant States of origin and other States with an interest in the conservation of Atlantic salmon. It is for these reasons that NASCO Parties seek to cooperate with France (in respect of St. Pierre and Miquelon).

Salmon fishing in Iceland only occurs in its rivers and other inland bodies. If Iceland were a party to the NASCO Convention, this would not be inconsistent with the Convention as such. However, Iceland would still be bound to its obligations relating to fisheries regulation for the purpose of the conservation and management of salmon stocks, laid down in Article 66 of the UNCLOS and various provisions of the NASCO Convention, including Article 14(1). Constraints on Iceland's river salmon fishing presumably result in an increase of overall numbers of salmon returning to sea, including potential increases in the maritime zones of other NASCO Parties. Apparently, salmon originating from Iceland is also caught in Greenland's maritime zones; both in West and East Greenland. Only the fishery in West Greenland is subject to a regulatory measure by a NASCO Commission. The continuation or even increase of catches in West and East Greenland has impacts on the number of salmon returning to Iceland. These fisheries issues could be addressed by cooperation between NASCO and Iceland.

As noted above, Icelandic vessels targeting pelagic species may have incidental by-catches of salmon (see the discussion in subsection 2.5.2).

The NASCO Convention addresses cooperation in Article 2(3), which stipulates:

> The Parties shall invite the attention of any State not a Party to this Convention to any matter relating to the activities of the vessels of that State which appears to affect adversely the conservation, restoration, enhancement or rational management of salmon stocks subject to this Convention or the implementation of the Convention.

This provision was used as a basis for the action taken by NASCO and its Parties in the early 1990s to combat high seas salmon fishing by vessels flying the flag of non-Parties to the NASCO Convention. CNL(90)49 'Resolution [on] Fishing for Salmon in International Waters' calls upon NASCO Parties to engage in diplomatic action to ensure that relevant flag States prevent high seas salmon fishing. As Article 17(3) of the NASCO Convention only entitles North Atlantic Ocean coastal States and States of

origin to accede to the Convention, NASCO Parties subsequently developed CNL(92)53 'Protocol Open for Signature by States Not Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean' (further: 1992 Protocol). Article 1 of that Protocol requires a Party to prohibit high seas salmon fishing.

The 1992 Protocol was adopted by CNL(92)52 'Resolution [on] Adoption of a Protocol for States not Party to the Convention for the Conservation of Salmon in the North Atlantic Ocean', which also invites NASCO Parties to encourage non-Parties to become party to the Protocol. Furthermore, CNL(92)54 'Resolution [on] Fishing for Salmon on the High Seas' resolves, *inter alia*, that all non-Parties engaged in high seas salmon fishing should be invited to become party to the Protocol. Moreover, NASCO Parties should encourage them to "comply with the Protocol" – which amounts to taking action to discontinue high seas fishing – and "should take appropriate measures for discouraging its [*sic*] nationals and to prohibit vessels owned by its [*sic*] nationals from engaging in any activity contrary to the provisions of the Convention". Other components of this resolution are covered by sections 3.1 and 3.3.

These initiatives by NASCO and its Parties proved to be successful because high seas salmon fishing by vessels flying the flag of non-Parties discontinued soon thereafter and have not occurred since then. There is no indication that any State ever became a party to the 1992 Protocol.[259]

Some further observations on Article 2(3) of the Convention are warranted here. Its focus is on the adverse impacts of "any matter relating to the activities of the vessels of that State" on the objective of the Convention and its implementation. This wording is broad enough to cover not only targeted fishing for salmon but also incidental by-catch of salmon. Also, as the wording is not confined to fishing activities, it could for instance also relate to vessel-based pollution (e.g. dumping). As it is limited to activities by vessels, however, it does not cover activities by (other) nationals of a non-Party, such as natural and juridical (e.g. companies) persons. But as the action envisaged by Article 2(3) merely relates to bringing matters to the attention of non-Parties, it does not preclude NASCO Parties from agreeing to expand the scope of these matters. Reference can here also be made to the prohibition of high seas salmon fishing in Article 1 of the 1992 Protocol, which implicitly applies not only to vessels but also to (other) nationals.

This examination indicates that the action required by Article 2(3) of the Convention and the subsequent practice by NASCO is also relevant for the ongoing salmon catches – whether by vessels or otherwise – by France (in respect of St. Pierre and Miquelon)

[259] The Depositary's webpage on the NASCO Convention does not even mention the Protocol (see https://www.consilium.europa.eu/en/documents-publications/treaties-agreements/agreement/?id=1988008&DocLanguage=en) and the Protocol is also not included in the NASCO Handbook of Basic Texts.

and Iceland. Whereas NASCO's engagement with France (in respect of St. Pierre and Miquelon) is fully in line with Article 2(3) and NASCO's subsequent practice, it could engage more actively with Iceland in relation to its salmon fishing in rivers and other inland waters.

So far, neither France (in respect of St. Pierre and Miquelon) nor Iceland have accepted NASCO's invitation to join NASCO. In its response to NASCO's letter dated 31 January 2022, France indicated that it intends to continue its cooperation with NASCO as an observer.[260] At its 39th (2022) Annual Meeting, the NASCO Council once again extended an invitation to join NASCO to the attending representative of France (in respect of St. Pierre and Miquelon). The representative answered that the request would be discussed with appropriate Ministers. The Council agreed to once again write to France (in respect of St. Pierre and Miquelon) and Iceland to invite them to join NASCO.[261]

As noted above, France (in respect of St. Pierre and Miquelon) has been actively cooperating with NASCO for at least the past 20 years. This cooperation has involved providing information on salmon fisheries, efforts to constrain these fisheries and attending NASCO meetings as an observer. By contrast, since it withdrew from NASCO at the end of 2009, Iceland has not provided any information to NASCO, has not participated in any NASCO meetings and has not responded to the two letters sent by NASCO in 2014 and 2019.[262] As noted above, Iceland reports its salmon catches to ICES and this information is therefore still available to NASCO. Iceland also participates in the ICES Working Group on North Atlantic Salmon, and corresponds with the NASCO Secretariat on possible sightings of high seas salmon fishing.[263]

Cooperation on non-fisheries issues

As concluded in subsection 5.1.1, NASCO can be regarded as 'more than an RFMO' due to its cross-sectoral and holistic approach to salmon conservation that is implied in NASCO's objective and confirmed by its practice. In addition to its role in the regulation of fisheries for the purposes of the conservation and management of fisheries resources, it also performs roles in governing (through non-legally binding instruments) other land-based and maritime activities and sectors – including aquaculture – and threats such as the spreading of diseases, parasites and alien invasive species for the purposes of conservation, restoration and enhancement of salmon stocks and their

260 Letter of the French Minister of the Sea to NASCO dated 22 April 2022, available at https://nasco.int/council-correspondence/.

261 Report of the 39th (2022) Annual NASCO Council Meeting, paras 6.8-6.9. The corresponding letters were sent in December 2022 (available at https://nasco.int/council-correspondence/).

262 According to CNL(22)19, pp. 17 and 23 NASCO also sent a letter to Iceland in 2012.

263 CNL(22)19, p. 24.

habitats. Through NASCO, its Parties therefore cooperate not only on fisheries issues but also on a range of non-fisheries issues.

As noted in subsection 5.1.1 as well, obligations to take measures on non-fisheries issues are, *inter alia*, also laid down in Part XII of the UNCLOS on 'Protection and Preservation of the Marine Environment', the CBD and decisions by its COP, and in the OSPAR Convention and decisions by the OSPAR Commission. In particular the global instruments also contain obligations to cooperate in relation to the abovementioned non-fisheries issues.[264] The OSPAR Convention was explicitly intended as regional implementation of the UNCLOS in relation to various sources of marine pollution, and of the CBD in relation to the protection and conservation of biological diversity.[265] This is different for the NASCO Convention, as it was explicitly intended as regional implementation only of the UNCLOS in relation to anadromous stocks, but not for other issues or other instruments. This notwithstanding, NASCO Parties could regard their cooperation and other actions on non-fisheries issues within NASCO also as implementation of other parts of UNCLOS and other instruments.

These observations also have relevance for non-Parties to NASCO that are parties to other instruments such as the UNCLOS, the CBD and the OSPAR Convention. Iceland is a party to all these and France is also a party to the UNCLOS and the CBD in respect of St. Pierre and Miquelon. Their participation in these instruments requires them to cooperate with NASCO and its Parties in relation to, *inter alia*, land-based and maritime activities and sectors – including aquaculture – and threats such as the spreading of diseases, parasites and alien invasive species that (potentially) have adverse impacts on Atlantic salmon stocks. Insufficient action on these impacts and threats can also lead to transboundary impacts in rivers and maritime zones of NASCO Parties and even endanger the future survival of Atlantic salmon.

It is in this context relevant to note that, since Iceland withdrew from NASCO at the end of 2009, it has commenced salmon farming and that, more recently, pink salmon has also spread to Icelandic maritime zones and rivers.[266] The latter in particular is a transboundary problem that cannot be solved by Iceland or NASCO Parties alone, but requires action by all. Iceland would also benefit from the knowledge and experience of NASCO Parties in combating the spreading of pink salmon.

Whereas the need for cooperation with non-Parties on non-fisheries issues is a logical corollary of the cross-sectoral and holistic approach to salmon conservation that is implied in NASCO's objective and confirmed by its practice, it is hardly covered by

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264 See, e.g. Arts 197 and 207(4) of the UNCLOS, Art. 5 of the CBD and Section IV(b) of COP 6 Decision VI/23 'Alien species that threaten ecosystems, habitats or species'.

265 See the preamble to the OSPAR Convention and Art. 2 of Annex V.

266 CNL(22)64 'Distribution and abundance of pink salmon across the North Atlantic', p. 9.

Article 2(3) of the Convention, which only concerns activities by vessels. As noted above, however, nothing in the Convention stops NASCO from seeking cooperation with non-Parties in relation to a broader range of impacts and threats on Atlantic salmon stocks. The recommendation by the GSWG at its 2022 meeting to invite Iceland to participate in the next GSWG meeting[267] is consistent with this interpretation.

Panel Recommendation

36. The Panel recommends that NASCO should continue to cooperate with France (in respect of St. Pierre and Miquelon) and Iceland, and seek their cooperation with NASCO, including by requesting them to join NASCO, to implement NASCO measures voluntarily, to provide relevant (scientific) information - including on their catches and efforts on the conservation, restoration, enhancement and rational management of salmon stocks – and to participate in NASCO meetings as observers. In NASCO's engagement with France (in respect of St. Pierre and Miquelon) and Iceland, reference should also be made to their obligations under international instruments such as the UNCLOS and the CBD that are relevant to the conservation, restoration, enhancement and rational management of salmon stocks; that these obligations also require cooperation – not only on fisheries issues but also on non-fisheries issues – ; and that such cooperation would be beneficial to them as well as to NASCO Parties, for instance in addressing transboundary problems such as the spreading of pink salmon and *G. salaris*.

5.3.3. Action against non-NASCO Parties

Performance criterion

30. Extent to which NASCO provides for action in accordance with international law against non-NASCO Parties undermining the objective of the Convention, as well as measures to deter such activities.

This action-oriented performance criterion complements the cooperation-oriented performance criterion No. 29 discussed in the previous subsection. The current criterion centers around action taken by NASCO in case activities by non-Parties undermine the objective of the Convention. Even though it is not specified which activities are meant, it can be presumed that salmon fishing activities would be included and are probably also what the drafters mainly had in mind. Nevertheless, in light of NASCO's objective and practice, other activities by non-Parties besides fishing and fishing related activities

[267] See note 189 and accompanying text.

might also be capable of undermining the objective of the Convention. For instance, the intentional introduction of other salmon species in the North Atlantic Ocean or (new) activities relating to aquaculture that have significant impacts on the overall status of Atlantic salmon.

As part of their mandate and practice on combating IUU fishing, most RFMOs use a range of actions to deter the engagement of non-Parties in fishing and fishing related activities. These include IUU Vessel Lists, port State measures and trade-related measures (e.g. catch documentation schemes and import bans). It seems, however, that RFMOs would be quite hesitant to take such actions also against non-Parties which are coastal States that are only engaged in fishing in their own maritime zones. In such scenarios, it is probably more likely that RFMOs aim to resolve the issue through cooperation.

It is precisely this scenario with which NASCO is confronted, because – as concluded in the previous subsections – the only fishing for salmon by non-Parties is carried out by France (in respect of St. Pierre and Miquelon) and Iceland in their own rivers and maritime zones. That these salmon fishing activities undermine the objective of the Convention is not evident, but – depending above all on the volume of the catch – can also not be altogether excluded.

The only provision in the Convention that is relevant to the envisaged action by NASCO is Article 2(3), which is examined in the previous subsection. As concluded there, the action covered by Article 2(3) is limited to bringing matters to the attention of non-Parties. Article 2(3) was used as a basis for the suite of actions taken by NASCO and its Parties in the early 1990s to combat high seas salmon fishing by non-Parties. However, as reflected in the words "in accordance with international law" and "measures to deter" in the current performance criterion, the action envisaged by the current performance criterion goes (far) beyond bringing matters to the attention of non-Parties. Neither the NASCO Convention nor any instrument adopted by any NASCO body requires or encourages NASCO Parties to take such more onerous action. At the same time, the absence of such a provision in the Convention or any other instrument also does not preclude NASCO Parties from agreeing to take such action in the future, provided the proposed action is in accordance with international law. Examples are withholding privileges relating to access and use of ports, and access to markets.

Panel Recommendation

37. NASCO could consider making a determination whether the current salmon fishing by France (in respect of St. Pierre and Miquelon) and Iceland undermines the objective of the Convention and, if so, what action could be taken to deter it.

5.4. Cooperation with other international organizations

Performance criterion

31. Extent to which NASCO co-operates and engages with other regional fisheries management organizations and other relevant organizations.

5.4.1. General

Performance criterion No. 31 focuses on NASCO's cooperation and engagement with (other)[268] RFMOs and other relevant organizations. Besides (other) RFMOs it covers "relevant organizations". The Panel interprets this as "relevant international organizations", because this performance criterion is included under 'Area' titled 'IV International co-operation' and 'General criteria' titled 'Co-operation with other international organizations' in the table with the agreed performance criteria set out in Annex 2 to this Report.[269] It is moreover assumed that 'international organizations' are understood to be intergovernmental organizations.

Cooperation between RFMOs, and between RFMOs and other relevant international organizations, can be desirable or necessary for a number of reasons. For instance in case of (a) fish stocks with a range of distribution that falls partly within the regulatory area of one RFMO and partly within that of another 'adjacent' RFMO; (b) geographical areas in which two RFMOs have overlapping geographical or even overlapping species mandates as well; (c) RFMOs that do not have their own 'in-house' scientific advisory body; and (d) a need for collective action against shared problems such as IUU fishing.

NASCO cooperates and engages with various RFMOs and other intergovernmental organizations. It has formalized cooperation by means of MoUs with two of these: ICES and the OSPAR Commission. The key purpose of the recently revised (2022) MoU between NASCO and ICES[270] is to facilitate the provision of scientific and advisory information by ICES to NASCO because NASCO does not have an 'in-house' scientific advisory body. The MoU between NASCO and the OSPAR Commission and its subsequent operation is discussed in the next subsection.

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268 See the discussion in the text accompanying note 218.

269 Based on CNL(21)22, Annex 1.

270 The MoU is available at https://nasco.int/wp-content/uploads/2022/03/NASCO-ICES-MoU-2022.pdf. See also the Report of the 2021 Annual NASCO FAC Meeting, paras 3.1-3.12 for the discussion on the review and the Report of the 2022 Annual NASCO FAC Meeting, para. 3.1 for information on the adoption and signature of the MoU.

NASCO's cooperation with (other) RFMOs is not formalized through MoUs or otherwise. NASCO corresponds with ICCAT, NAFO and NEAFC pursuant to CNL(92)54 'Resolution [on] Fishing for Salmon on the High Seas' to obtain evidence of high seas salmon fishing by non-Parties. Such correspondence seeks to obtain information on possible salmon by-catch as well.[271] NASCO also cooperates on a regular basis with NPAFC, for instance in the context of convening meetings of the International Year of the Salmon in various years. The NASCO Secretary has been participating in the RFB Secretariats' Network Meetings.

Cooperation between NASCO and international organizations also occurs through the participation of representatives in each other's meetings. Invitations to attend the Annual NASCO Meetings are sent to all of the abovementioned international organizations, as well as the European Inland Fisheries and Aquaculture Advisory Commission, the International Commission for the Protection of the Rhine and the North Atlantic Marine Mammal Commission.[272]

Finally, it should be noted that issues in the context of the MoUs with ICES and the OSPAR Commission are not discussed in the NASCO Council but in the FAC, even though the nature of a significant part of these discussions cannot be regarded as financial or administrative. Most, if not all, RFMOs deal with the topic of 'cooperation with other international organizations' under a standing item on the agenda of their principal decision-making bodies.[273] This practice can be regarded as underscoring the importance of cooperation with other international organizations. Another consideration for NASCO to align its practice in this regard is that accredited NGOs are not able to participate in FAC meetings,[274] and are therefore not able to follow and contribute to the discussions.

5.4.2. NASCO and the OSPAR Commission

The MoU between NASCO and the OSPAR Commission came into effect on 5 August 2013 and has remained in force ever since.[275] The text of the MoU includes, between the title and the Preamble, a single sentence that stipules that NASCO and the OSPAR Commission:

> have complementary competences, for the conservation and rational management of Atlantic salmon and for the protection of marine ecosystems, respectively, in the North-East Atlantic, including in areas beyond national jurisdiction.

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271 See, e.g., NEA(05)3.

272 Such invitations are based on Rules 27 and 28 of the NASCO Council RoP and Rule 28 of the RoPs of the NASCO Commissions.

273 See, for instance, the Reports of the Annual Meetings of ICCAT, NAFO and NEAFC.

274 See note 235 and accompanying text.

275 See note 215.

The intention of this sentence appears to be to provide a concise summary of the – perceived – complementarity of the competences (mandates) of NASCO and the OSPAR Commission. This is then followed by two preambular paragraphs that reproduce the text of the relevant mandates of these two organizations as set out in their constitutive instruments. For NASCO, these are its objective laid down in Article 3(2) of the NASCO Convention, and its 3rd preambular paragraph, which reads: "NASCO seeks to promote the acquisition, analysis and dissemination of scientific information pertaining to salmon stocks in the North Atlantic Ocean".

For the OSPAR Commission, the following text is included:

> RECOGNISING that under the Convention for the Protection of the Marine Environment of the North-East Atlantic:
>
> - The Contracting Parties to the OSPAR Convention agreed to take necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and the biological diversity of the maritime area and, when practicable, restore marine areas which have been adversely affected;
> - The OSPAR Commission aims for the application of an integrated ecosystem approach.

The first bullet is taken from Article 2 of Annex V 'On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area' to the OSPAR Convention,[276] and the second bullet is taken from Article 3(1)(b)(iv) of the same Annex. When comparing the mandates of NASCO and the OSPAR Commission, it is clear that these do not just complement each other but also overlap significantly. This is a direct consequence of the qualification of NASCO as 'more than an RFMO' (see subsection 5.1.1). NASCO and the OSPAR Commission both have a mandate over salmon, both have a mandate over a wide range of human activities, and both have this mandate also for the purposes of conservation and restoration.

Neither the NASCO Convention nor the MoU between NASCO and the OSPAR Commission contain so-called 'primacy arrangements' to address this mandate-overlap. The only primacy arrangement is laid down in Article 4(1) of Annex V to the OSPAR Convention, which reads:

> In accordance with the penultimate recital of the Convention,[277] no programme or measure concerning a question relating to the management of fisheries shall be adopted

[276] See note 228.

[277] Which reads: "RECOGNISING that questions relating to the management of fisheries are appropriately regulated under international and regional agreements dealing specifically with such questions".

> under this Annex. However where the Commission considers that action is desirable in relation to such a question, it shall draw that question to the attention of the authority or international body competent for that question. Where action within the competence of the Commission is desirable to complement or support action by those authorities or bodies, the Commission shall endeavour to cooperate with them.

This provision acknowledges that the OSPAR Commission does not have competence on fisheries management, but at the same time affirms that it may have competence to take complementary or supportive action. In case of 'typical' RFMOs (e.g. NEAFC and ICCAT), such complementary or supportive action will usually not create a mandate-overlap between such RFMOs and the OSPAR Commission. But as NASCO is 'more than an RFMO', such a mandate-overlap can arise much more easily.

This also actually occurred when the OSPAR Commission developed OSPAR Recommendation 2016/3 on 'furthering the protection and conservation of the Atlantic salmon (*Salmo salar)* in Regions I, II, III and IV of the OSPAR maritime area'. This initiative built on earlier actions by the OSPAR Commission on Atlantic salmon, including its inclusion on the OSPAR List of Threatened and/or Declining Species and Habitats (OSPAR Agreement 2008-6), in which Atlantic salmon is listed as a species occurring in OSPAR Regions I, II, III and IV, and is categorized as a species under threat and/or in decline in those OSPAR Regions.[278]

Unfortunately, the OSPAR Commission failed to consult NASCO when it developed a draft for what eventually became OSPAR Recommendation 2016/3. This led to a letter dated 4 June 2015 by the Acting NASCO President to the OSPAR Commission Chair[279] in which reference was made to the MoU between NASCO and the OSPAR Commission and that NASCO believed that it should have been consulted. In a response dated 21 July 2015,[280] the OSPAR Commission Chair acknowledged that consultation should have taken place and informed the NASCO President that further consideration of the draft OSPAR Recommendation was put on hold to allow this consultation to take place. In the final stage of this consultation, the revised draft OSPAR Recommendation was considered at the 33rd (2016) Annual NASCO Council Meeting, and the Council requested a number of general and specific changes. These changes were conveyed by a letter dated 10 June 2016 by the NASCO President to the OSPAR Commission Chair.[281] The letter notes that the Council's primary interest is that the document:

> clearly articulate the respective and distinct competences of NASCO and the OSPAR Commission so that there is no ambiguity or misunderstanding regarding the roles and

278 Other actions are listed in the Preamble to OSPAR Recommendation 2016/3, including OSPAR publication 2010/480.
279 Available at https://nasco.int/council-correspondence/.
280 Ibid.
281 Ibid.

> responsibilities of our two Organizations as articulated in our MOU and in accordance with our respective Conventions. Specifically, the document should reflect NASCO's *primary role* as the RFMO charged with the conservation, restoration, enhancement and rational management of salmon stocks throughout their range in the North Atlantic Ocean whilst indicating the OSPAR Commission's *complementary role* in taking measures to protect the marine environment in the North-East Atlantic from adverse effects of human activities to safeguard human health, conserve marine ecosystems and their biological diversity and, where practicable, restore marine areas that have been adversely affected [*emphasis added*].

In the view of the Panel, these assertions on the primary role of NASCO and the complementary role of the OSPAR Commission are not consistent with the text of their respective constitutive instruments because they disregard the significant mandate-overlap between NASCO and the OSPAR Commission.

The letter finally also underscores "that the feedback provided on this OSPAR Commission proposal should not be interpreted as agreement on, endorsement of, or support for its contents" and that NASCO "is not expressing any policy position regarding the proposal as a whole or any element within it".

In its responding letter dated 30 June 2016,[282] the OSPAR Commission welcomed the detailed drafting proposals and explained how and to what extent these were incorporated in the final text of OSPAR Recommendation 2016/3 as adopted by the OSPAR Commission at its annual meeting in 2016. However, the letter does not mention NASCO's request to include an articulation of the competences of NASCO and the OSPAR Commission consistent with the citation above, and the final text of OSPAR Recommendation 2016/3 does not reflect this either.

In the context of this Report it is not possible to examine the content of OSPAR Recommendation 2016/3 in detail. It is nevertheless important to emphasize that the overlap with NASCO's actions on 'non-fisheries issues' is very striking. The Panel considers that, despite this overlap and the fact that OSPAR Recommendations are not legally binding,[283] the actions of the OSPAR Commission still have added value. First of all, even though there is overlap in participation between NASCO and the OSPAR Commission – the EU, Denmark (in respect of the Faroe Islands and Greenland), Norway and the UK – the delegations would normally have representatives from different parts (e.g. Ministries) of national administrations. This means that even though actions taken within NASCO and the OSPAR Commission may be similar, together they are likely to lead to better overall implementation in national administrations. A similar result is likely to be achieved by the participation in the OSPAR Commission

[282] Ibid.
[283] Cf. Art. 13(5) of the OSPAR Convention.

of a number of EU Member States alongside the EU, namely Belgium, Denmark (mainland), Finland, France, Germany, Ireland, Luxembourg, the Netherlands, Portugal, Spain and Sweden. Finally, Iceland and Switzerland are also Members of the OSPAR Commission but not NASCO Parties.

More recent correspondence between NASCO and the OSPAR Commission took place in relation to an OSPAR Commission workshop (also) devoted to a status assessment of salmon, held on 23 June 2021. At its virtual meeting in May 2021, the FAC expressed the concern:

> that responsibilities and related tasks that fall under NASCO's authority and competence might be inappropriately duplicated by OSPAR, which could create contradictory information, and possibly bring the two organization's roles and responsibilities into conflict. The Committee felt it was important to bring these concerns to OSPAR's attention and affirm NASCO's competence as the only inter-governmental organization with competence over the conservation and management of Atlantic salmon.[284]

These concerns were expressed in the letter dated 21 June 2021 by the NASCO President to the OSPAR Commission Chair,[285] by using largely similar wording as the citation provided above in the letter of 10 June 2016. In addition, the letter also requests that

> following the outcome of the status assessment, OSPAR ensures that any additional conservation measures that may be considered related to Atlantic salmon fall squarely under OSPAR's authority and avoid infringing upon the competence of NASCO.

In his response dated 7 July 2021, the OSPAR Commission Chair assured that NASCO would be consulted on proposed new OSPAR Commission measures "to avoid duplication and impinging on NASCO's competence". As noted above, however, duplication can still have added value.

When reading these discussions within NASCO, and NASCO's letters to the OSPAR Commission, one gets the impression that NASCO is somewhat too concerned with safeguarding its own mandate against (perceived) threats and not sufficiently mindful and appreciative of developing and welcoming opportunities towards stronger cooperation and synergies with the OSPAR Commission pursuant to their joint objectives on the future of wild Atlantic salmon.

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284 FAC(21)12 (duplicated as CNL(21)06), para. 4.7.
285 Available at https://nasco.int/council-correspondence/.

5.4.3. Panel Recommendation

Panel Recommendation

38. The Panel recommends that NASCO should welcome and strengthen its cooperation with (other) RFMOs and other relevant international organizations. For instance by:
    a) reviewing current relationships with international organizations and exploring the usefulness and desirability of commencing new cooperative arrangements,[286] for example with other relevant international river basin organizations (or: 'transboundary water management organizations');
    b) including 'Cooperation with international organizations' as a standing item on the agenda of the NASCO Council; and
    c) reviewing relevant output of other relevant international organizations and identifying opportunities to actively engage directly with them.

[286] The most recent review was completed in 2006 (CNL(06)15) in response to Decision 12 of the Strategic Approach for NASCO's 'Next Steps' (CNL(05)49).

6. Financial and administrative issues

6.1. Availability of resources for activities

Performance criterion

32. Extent to which financial and other resources are made available to achieve the aims of NASCO and to implement NASCO's decisions.

The Panel has no indication from the comments received or from the interviews it conducted that resources are insufficient. Financial resources currently appear to be sufficient. According to the financial statements at the end of 2021 there was close to 1.1 million £ in the bank and cash and net assets of nearly 1.4 million £.

However, the last few years have been unusual because of Covid 19. While the feasibility of online meetings has been demonstrated, more in-person meetings are likely to be necessary in the future and these would be more costly. The costs of operation are expected to increase significantly.

6.2. Efficiency and cost effectiveness

6.2.1. Human and financial resources

Performance criterion

33. Extent to which NASCO is managing human and financial resources effectively, including those of its Secretariat, in order to support NASCO's objectives and to ensure continuity of operations.

The Secretariat has four full-time and one part-time staff: the Secretary, the Assistant Secretary, a Publication and Information Officer, an Office Manager and an Administrative Assistant (employed as of 1 December 2022). This is a small Secretariat compared to those of other RFBs and RFMOs.

The issue of a lump sum payment when an employee is retiring or resigning from NASCO has been issue for at least five years.[287] A virtual meeting is scheduled for March 2023 to resolve the issue.

[287] FAC(19)07 'Discussion paper on the lump sum payment to retiring full-time NASCO staff'.

Some of the staff have requested training, but there is currently no dedicated funding for training. The Panel considers relevant training to be important and should be provided when appropriate. Currently, only the Secretary (and the IT person who wrote the financial software) have the know how to manage the accounts. At least one other person should be trained to do it.

Panel Recommendation

39. The Panel recommends that the NASCO Secretary should assess the needs for training and that training should be provided where considered necessary.

6.2.2. NASCO governance processes

Performance criterion

34. Assess the efficiency, cost effectiveness and governance processes of NASCO including its Secretariat, and its associated bodies.

The current Secretary of NASCO is only the third one since the creation of the organization and the current Assistant Secretary is only the third one as well. The first Secretary retired in 2012 and was replaced by the Assistant Secretary who retired in 2017. Both had been with NASCO from the early days of the organization and both played important roles in getting the organization running and making it progress towards its objective. Not only did they fulfil all the Secretariat's technical functions and services very well , the Secretariat also contributed substantially to the content of all professional matters at hand (with insight, engagement and leadership in salmon management and the various challenges around the North Atlantic).

The Panel considers that it is not useful to compare the performance of the current Secretariat with the previous one. The Secretariat's leadership role prior to 2018 was more important than we have seen in other RFBs and RFMOs where members want the Secretariats to restrict themselves to their technical functions and services. Generally, in other RFBs and RFMOs, members do not want the Secretariat to act like independent actors, and they do not want them to take initiative without being instructed by Members to do so. Members see the professional matters as their own business and prefer that the Secretariats do not get involved.

Long-standing NASCO Parties who have experienced and appreciated the previous leadership role played by the Secretariat may hold the view that the current staff is not as helpful in finding solutions and facilitating agreements. However, it is our experience

that the role of the current Secretariat is similar to what we have observed in other RFBs and RFMOs.

Currently, the position of Secretary is limited to two terms of four years. Except for one staff member, the Secretariat has been entirely renewed. There was essentially no institutional memory and operating procedures were not documented in writing in easily consultable form. The Panel encourages the Secretariat to complete documenting standard operating procedures at an accelerated pace.

NASCO would likely benefit from developing a new strategic plan whereby the Council would assess its priorities and, as appropriate, decide on best ways to pursue them. This is discussed further in section 7.3. Proposals for research or management actions would be assessed against the Strategic Plan to make sure it adds sufficient value to NASCO's objective of conservation, restoration, enhancement, and rational management of Atlantic salmon.

Governments and other public organizations are under increased scrutiny and pressure to adapt their practices to respond to climate change, especially around travel. Beyond efficiency, and cost effectiveness, NASCO's carbon emissions should be considered in all actions and activities. NASCO could benefit from undergoing a thorough examination of its current practices to adapt them, as needed, to best practices on achieving carbon neutrality. A 'NASCO Carbon Policy' could then be established that could address, *inter alia*, an annual cap on all emissions associated with NASCO business, travel guidelines, limiting attendance at critical meetings, etc. One option may be to contract a consultant to develop a first draft of the NASCO Carbon Policy – taking account of the decisions on in-person, hybrid and virtual NASCO Meetings made by the NASCO Council at its 39th (2022) Annual Meeting (see subsection 6.2.3) – as a basis for further discussions by NASCO.

Panel Recommendation

40. The Panel recommends that the Secretariat complete documenting its standard operating procedures at an accelerated pace.

41. The Panel recommends that NASCO develops a NASCO Carbon Policy to ensure that NASCO's carbon emissions are in line with best practices on achieving carbon neutrality.

6.2.3. Schedule and organization of meetings

Performance criterion

35. Extent to which the schedule and organization of the meetings could be improved.

Improvements of the schedule and organization of NASCO meetings could be warranted for various reasons. Subsection 5.2.1 discusses improvements for reasons of transparency, and subsection 6.2.2 discusses improvements for reasons of the goal of carbon neutrality.

Due to the Covid-19 pandemic, in-person NASCO meetings were impossible in 2020 and 2021 and NASCO was compelled to make arrangements to convene meetings virtually. The 37th (2020) and 38th (2021) Annual NASCO Meetings were convened entirely virtually, and the 39th (2022) Annual NASCO Meeting was held in hybrid format. NASCO and in particular its Secretariat are to be commended for these enormous efforts. At its 39th (2022) Annual Meeting, the NASCO Council discussed alternative ways of conducting NASCO business following the Covid-19 pandemic, and made several agreements in this regard.[288]

[288] Report of the 39th (2022) Annual NASCO Council Meeting, paras 4.27-4.29 and 4.34. See also CNL(22)11 'Alternative Ways of Conducting NASCO Business'.

7. NASCO's overall effectiveness

The overall purpose of the Third NASCO Performance Review is set out in section 1 of its Terms of Reference, with the following stipulated under (b):

> assessing NASCO's effectiveness in addressing current threats and challenges facing salmon and identifying any areas where improvements to its effectiveness are needed.

Since the establishment of NASCO in 1983, the stocks of wild Atlantic salmon have generally continued to decline despite NASCO's efforts. It is therefore clear that, to reverse this decline, NASCO must consider strengthening existing approaches and/or pursuing new approaches.

This Chapter proposes five such approaches: amending the NASCO Convention (section 7.1); agreed interpretations of the NASCO Convention (section 7.2); a new NASCO Strategic Plan (section 7.3); strengthening existing NASCO instruments (section 7.4); and elevating salmon conservation to a higher political level (section 7.5).

7.1. Amending the NASCO Convention

The Second NASCO Performance Review devoted considerable attention to analyzing the NASCO Convention, and arrived at the following conclusion:

> Considering that the NASCO Convention does not adequately reflect current applicable law and practice, it should be reviewed with a view to strengthening and modernizing the legal mandate of NASCO and the obligations of the Parties.[289]

Together with this overall recommendation, the Panel of the Second NASCO Performance Review submitted a large number of very specific recommendations on how exactly the Convention should be changed.[290] It is not difficult to see that some may have regarded this as essentially a redrafting of the entire Convention.

At an intersessional meeting of the NASCO Council in February 2013, the Parties agreed to respond as follows:

> While it is true that NASCO's Convention reflects the situation and circumstances at the time of its drafting, in practice the language has not constrained the Parties from incorporating modern fisheries management principles to address a broad range of impacts to Atlantic salmon and its habitat and to support the effective and efficient operation of the

[289] At p. 40.
[290] See pp. 40-67.

> Organization. This was also acknowledged by the External Performance Review. In the light of this, it was determined that a Convention change to address these recommendations is unlikely to have a direct impact on Atlantic salmon conservation and management and would divert considerable resources from more efficient and productive management activities.[291]

The report of the 2013 intersessional meeting indicates that one NASCO Party – Denmark (in respect of the Faroe Islands and Greenland) – had been in favor of convention change at the time. It took the view that such change was necessary to address the "imbalance in NASCO between the binding regulatory measures for the distant-water fisheries and the 'soft law' measures applying to other areas of NASCO's work".[292] The accredited NGOs also supported convention change and submitted a joint statement to that effect to the 2013 intersessional meeting.[293]

In their submissions to the Panel of the Third NASCO Performance Review, the accredited NGOs collectively and five accredited NGOs individually expressed their strong support for convention change. In addition, two of the four NASCO Parties that made submissions to this Panel were open to consider the possibility of convention change. One of them added that this would obviously also depend on "what a proposal on convention change would entail", and that any proposals on convention change would therefore "have to be well grounded and carefully thought through". The other NASCO Party indicated it would welcome the Panel's "assessment, based on NASCO's work in the past ten years, of the pros and cons of such an effort as well as its recommendation as to whether this would be worthwhile."

While prepared to consider these requests, the Panel feels that it is somewhat premature and certainly not in its remit to develop a fully-fledged proposal for convention change. As amendments to the NASCO Convention need to be adopted by unanimity and only enter into force once all NASCO Parties have submitted their instruments of ratification or approval with the Depositary,[294] convention change must have the support of all NASCO Parties.

It is important to emphasize that convention change does not necessarily mean that the NASCO Convention would have to be completely renegotiated and revised. This is supported by the diverging practice among RFMOs. For instance, whereas NAFO opted in 2005 for a complete revision of its constitutive instrument,[295] around the same time

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291 CNL(13)11, para. 6.3. Similar wording is included in the Report of the 30th (2013) Annual NASCO Council Meeting, para. 5.2.

292 CNL(13)11, para. 6.6

293 CNL(13)11, Annex 3.

294 Paras 2 and 3 of Art. 19 of the NASCO Convention.

295 The negotiations on this took two years and were concluded on 28 September 2007, and entered into force on 18 May 2017.

NEAFC opted for a small number of crucial amendments[296] and ICCAT opted in 2012 for a larger number of amendments[297].

The Panel considers that, in case NASCO Parties opt for selected amendments of the NASCO Convention, this should at any rate include an amendment that provides the NASCO Council with a mandate to adopt legally binding instruments on non-fisheries issues. Without such an amendment, there is a high risk that convention change will not be capable of leading to significant tangible improvements in the status of wild Atlantic salmon stocks. A proposal for such an amendment would be based on the conviction that States take legally binding instruments and their obligations more seriously than political commitments in non-legally binding instruments. The associated reasoning is that whereas the legally binding instruments may be more difficult to adopt than non-legally binding ones, once that has been accomplished they are more likely to lead to better implementation and thereby improvements for wild Atlantic salmon stocks. Whether that result will also actually be achieved in practice is difficult to predict, however. Everything stands or falls with political will: during the phase of negotiating convention amendments and ensuring their subsequent ratification or approval; during the phase of negotiating legally binding instruments on non-fisheries issues; and during the phase of ensuring their implementation.

In case NASCO Parties opt for convention change by means of selected amendments rather than a complete convention revision, they could decide to first seek agreement on a package of selected amendments. A possible package of amendments could be the following:

1. Providing the Council with a mandate to adopt legally binding instruments on non-fisheries issues;
2. Imposing more constraints on all salmon fishing regardless where they occur, including in the territorial sea, marine internal waters, estuaries and rivers. Constraints could be directly linked to agreed CLs and NASCO Commissions could be given a role in the adoption of constraints and evaluating compliance with them;[298]

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296 2004 Amendment (Art. 18bis), London; 12 November 2004. Not in force due to objection by the Russian Federation (cf. Report of the 41st (2022) Annual NEAFC Meeting, para. 5.1). 2006 Amendments, London (Preamble, Arts 1, 2 and 4), 11 August 2006. In force 29 October 2013 (cf. https://www.gov.uk/government/publications/convention-on-future-multilateral-co-operation-in-north-east-atlantic-fisheries-london-18111980). Consolidated version of 'London Convention' available at www.neafc.org.

297 Protocol of 18 November 2019. Not in force; https://www.fao.org/treaties/results/details/en/c/TRE-000262/.

298 See CNL(13), para. 6.5: "The strongest conservation measure would be to prohibit fishing on any stock below its conservation limit. Denmark (in respect of the Faroe Islands and Greenland) recommended such a prohibition. Agreement could not be reached on this proposal. However, it

3. A dispute settlement mechanism; and
4. Where necessary, adjustments to the rules and procedures on decision-making while taking account of best practices.

It has been argued that the special efforts devoted to convention amendment would diminish ongoing efforts on salmon conservation. In the view of the Panel, this is not necessarily true as it assumes that NASCO Parties would not be able and willing to make additional resources available to support negotiations on convention amendment. Moreover, in case NASCO Parties opt for selected amendments instead of a complete convention revision, this would help lower the risk of undermining ongoing efforts on salmon conservation and would also require less additional resources.

It is not evident that a decision to proceed with convention change or not will necessarily be affected by the ongoing war in Ukraine. The extent and ways in which the war in Ukraine has affected the operation of a range of intergovernmental bodies in which Russia participates varies considerably.

In case it is proposed to amend the NASCO Convention to provide the NASCO Council with a mandate to adopt legally binding instruments on non-fisheries issues, there is a possibility that this will prompt one or more EU Member States to take the position that this would give them a right to become NASCO Parties alongside the EU. That position would be based on the view that NASCO is 'more than an RFMO' and that whereas the EU has exclusive competence on marine capture fisheries,[299] competence on non-fisheries issues is shared between the EU and its Member States. The latter is the reason why certain EU Member States are Members of CCAMLR and the OSPAR Commission alongside the EU.[300] How the EU and other NASCO Parties would respond to a wish of EU Member States to become NASCO Parties alongside the EU is beyond the scope of this review. If such a wish would be granted, however, it can be expected to lead to a mix of advantages and disadvantages. One advantage could be that direct participation of EU Member States in NASCO strengthens their implementation of NASCO output.

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was recognized that where a decision has been reached to allow fishing on a stock below its conservation limit, there should be a clear management strategy to achieve rebuilding."

299 Art 3(1)(d) of the Treaty on the Functioning of the European Union (TFEU; consolidated version available at http://eur-lex.europa.eu/collection/eu-law/treaties.html).

300 As regards CCAMLR, see also Joined Cases C-626/15 and C-659/16 before the European Court of Justice. The cases were brought in 2015 and 2016 by the European Commission against the Council in response to documents relating to proposals for marine protected areas, which were submitted to CCAMLR by the EU and its Member States, rather than by the EU alone. At issue in these joined cases was the distribution of competence between the EU and its Member States in the areas of environmental policy and the common fisheries policy. In its Judgement of 20 November 2018, the Court dismissed both of the European Commission's substantive pleas in favor of the EU's exclusive competence. For a discussion, see Molenaar, note 227, pp. 94-95.

Panel Recommendation

42. The Panel recommends that NASCO should consider strengthening the NASCO Convention by adopting selected amendments or a complete convention revision. Either option should provide the NASCO Council with a mandate to adopt legally binding instruments on non-fisheries issues. Care must be taken to ensure that these negotiations do not diminish NASCO's ongoing efforts on salmon conservation.

7.2. Agreed interpretations of the NASCO Convention

Instead of using the formal amendment procedure laid down in Article 19 of the Convention, there have been several instances when NASCO decided to use the tool of 'agreed interpretations' of the Convention;[301] namely in relation to Articles 2, 5(2), 10(6) and 13(5).[302]

NASCO could once again use this tool in case there is insufficient support for formal amendment of the NASCO Convention. This could be done to agree that the NASCO Council has a mandate to adopt legally binding instruments on non-fisheries issues. As noted in subsection 1.4.3, paragraphs 2 and 3 of Article 4 give the Council a mandate to make recommendations. So far, the Council has not adopted instruments which are regarded as legally binding.

That does not mean, however, that the term 'recommendations' by itself excludes legally binding instruments. This is supported by the practice of RFMOs such as NEAFC and ICCAT, which have adopted recommendations that are legally binding.[303] The Panel therefore considers that the provisions on the Council's mandate offer a margin of interpretation that allow NASCO Parties to use the tool of agreed interpretations.

Panel Recommendation

43. The Panel recommends that NASCO should consider using the tool of agreed interpretations in case there is insufficient support for formal amendment of the NASCO Convention. This could for instance be used to agree that the NASCO Council has a mandate to adopt legally binding instruments on non-fisheries issues.

301 NASCO Handbook of Basic Texts, p. 4.
302 Ibid., see the footnotes accompanying these provisions.
303 See the websites of NEAFC and ICCAT.

7.3. A new NASCO strategic plan

The Panel concludes that NASCO has been successful in salmon fisheries management (particularly harvest control rules informed by reference point-based stock status assessment). However, NASCO and its Parties have been less successful in conserving, protecting and restoring salmon habitat or in protecting wild populations from the negative impacts of salmon farming. While focusing on fisheries management may have been appropriate for the first 20 years or so of NASCO's existence, it certainly is no longer the case as commercial fisheries are now under control largely because of NASCO's efforts.

Climate is expected to have enormous influence on salmon ecosystems, aquaculture and of course fisheries management via its impact on the productivity of Atlantic salmon. Salmon aquaculture due to the continued exponential increase in the industry is expected to have a major detrimental effect on wild Atlantic salmon. While the social and economic benefits of this industry are recognized, the negative side effects are not acceptable if they cause drastic reduction in production or extinction of wild salmon because of sea lice (reduced productivity) and/or genetic introgression from escapes (loss of productivity and intraspecific diversity). For these principal reasons and for other issues related to ecosystem functioning such as water quality, NASCO and its Parties should shift their emphasis from fisheries management to the conservation, protection and restoration of salmon habitat and the minimization of the negative impacts of salmon farming.

The Panel agrees with the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee' that NASCO needs a new Strategic Plan.[304] It has been almost twenty years since the Next Steps Strategy was developed. The Panel believes a new 'Next Steps'-type repositioning of NASCO is urgently required given the necessary shift in emphasis from fisheries management to conservation more broadly and the perilous state of wild Atlantic salmon. This repositioning should take particular account of the challenges posed by climate change, aquaculture interactions and the expanding body of international rules and standards relating to the conservation of biological diversity.

Panel Recommendation

44. The Panel recommends that NASCO considers initiating an exercise similar to the Next Steps-process that commenced in 2004, but with a particular focus on the challenges posed by climate change, aquaculture interactions and the

[304] CNL(19)16, p. 1 under 11.

expanding body of international rules and standards relating to the conservation of biological diversity.

7.4. Strengthening existing NASCO instruments

As noted in subsection 4.1.1, NASCO has adopted very few new instruments since the Second NASCO Performance Review in 2012. Older instruments have not been updated since then either. This was identified as a concern during the 2019 Tromsø Symposium and the 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee' therefore recommend that NASCO updates its 2004 Stocking Guidelines (CNL(04)55), its 2010 Habitat Guidelines (CNL(10)51) and its 2009 BMP Guidance (SLG(09)5).[305] At its 39th (2022) Annual Meeting, the NASCO Council agreed to update the 2004 Stocking Guidelines and that work on that would start immediately (intersessionally) by means of a newly established Stocking Guidelines Working Group.[306]

In its submission to the Panel, a NASCO Party refers to the ongoing work on updating the 2004 Stocking Guidelines and is of the opinion that there needs to be a refreshed focus of guidance. The Panel agrees with this.

Panel Recommendation

45. The Panel recommends that the NASCO Council should consider strengthening its existing instruments by further operationalizing them and thereby ensure, among other things, that their content becomes more specific, stringent and prescriptive. This could be carried out by means of a systematic, step-by-step approach for all of the existing instruments.

7.5. Elevating salmon conservation to a higher political level

As noted in section 2.5.1, in 2020 the NASCO Council took the commendable and rather extraordinary decision to strengthen the IP/APR process by instructing the NASCO President to write letters to the relevant Minister or nominated official of all Parties and jurisdictions with (persistent) shortcomings in their IPs. These letters highlight these shortcomings, request their rectification and remind Parties and jurisdictions of their commitment to make progress on implementing NASCO instruments. All letters and the most recent version of IPs are posted on the NASCO

[305] CNL(19)16, pp. 2-3 under 12, 13 and 19.
[306] Report of the 39th (2022) Annual NASCO Council Meeting, paras 5.6 and 5.9-5.10.

website.[307] This approach is aimed at elevating salmon conservation to a higher political level, including through 'naming and shaming'.

Panel Recommendation

46. The Panel recommends that NASCO should consider other actions aimed at elevating salmon conservation to a higher political level, for instance by periodically convening high-level (Ministerial) segments to Annual NASCO Meetings. A possible topic for such a high-level segment could be the management of Atlantic salmon aquaculture.

[307] See CNL(20)55 and the discussion in the text accompanying notes 119-121.

Annex 1: Terms of Reference for the Third NASCO Performance Review[308]

1. Purpose

The Council seeks to facilitate a review of all aspects of the North Atlantic Salmon Conservation Organization's (NASCO) work with the purpose of:

a) assessing the performance of NASCO since its previous review in 2012, against the objectives, goals, and measures set out in the Convention for the Conservation of Salmon in the North Atlantic Ocean, and in Resolutions, Agreements, and Guidelines adopted pursuant to the Convention, as well as other international instruments addressing the conservation of aquatic living resources as these relate to salmon stocks which migrate beyond areas of fisheries jurisdiction of coastal States of the Atlantic Ocean north of 36ºN latitude throughout their migratory range) (as defined in Article 1.1 of that Convention) (hereinafter referred to as 'salmon'); and
b) assessing NASCO's effectiveness in addressing current threats and challenges facing salmon and identifying any areas where improvements to its effectiveness are needed.

2. Scope

The scope of the work to be carried out by the Review Panel will be to:

a) evaluate the functioning and effectiveness of NASCO, including its Secretariat, since 2012, including how NASCO has responded to the recommendations contained in the 2012 external performance review, CNL(12)11, through implementation of the 'Action Plan for taking forward the recommendations of the External Performance Review and the review of the 'Next Steps' for NASCO'', CNL(13)38; and
b) identify areas where improvements are needed to strengthen the Organization, and to enhance the implementation of the NASCO Convention, and NASCO's Resolutions, Agreements, and Guidelines.

In carrying out this work special attention should be given to the second and third cycles of Implementation Plans (IPs) and Annual Progress Reports (APRs) and whether these have resulted in improvements to the implementation of, and engagement with, NASCO's Resolutions, Agreements and Guidelines. The 'Recommendations to NASCO to Address Future Management Challenges in the Report from the Tromsø Steering Committee', CNL(19)16, and recommendations from NASCO's Theme-based

[308] CNL(21)22.

Special Sessions, held in 2014 – 2017 and 2021, including the Council's responses to these recommendations, should be considered by the Review Panel in formulating their own recommendations.

3. Criteria

Within the purpose and scope outlined above, the review will be performed on the basis of the specific criteria detailed in Annex 1. Of particular importance are: Status of living marine resources; Data collection and sharing; Quality and provision of scientific advice; Adoption of conservation and management measures; NASCO Resolutions, Agreements and Guidelines; Transparency; Monitoring and Control; Availability of resources for activities; and Efficiency and cost effectiveness.

4. Review Panel Functions and Tasks

The Review Panel will appoint a Chairperson from amongst its members by consensus. Following their appointment, the Chairperson will make the necessary arrangements to organize the work of the Review Panel, including the distribution of tasks amongst members of the Panel.

The Review Panel Chair (or their nominee from among the other members of the Review Panel) will be invited to attend the NASCO Annual Meeting in 2022, to gather insight and information on the work of NASCO. Other members of the Panel may also be invited if the relevant Annual Meeting is conducted by video conference.

The Review Panel will decide how to conduct its business within the budget. A face-to-face meeting is encouraged, and funds to allow this are provided.

The Review Panel should seek consensus from the Panel members on its report, including its conclusions and prioritised recommendations. In the event that consensus cannot be reached, individual members of the Panel may include their views in the Panel's report.

The Review Panel should submit its draft report to the President of NASCO no later than 4 January 2023, and earlier if feasible.

The draft report will be available for review and correction of any technical / factual errors by the NASCO Parties, accredited NGOs and Secretariat. The Secretariat will compile these technical and factual comments on the draft report and pass them to the Review Panel Chair. The Review Panel should consider these comments in finalising its report. The Review Panel should submit its final report to the President of NASCO no later than 14 March 2023, and earlier if feasible.

The Review Panel's report will be presented to NASCO, by the Chair of the Review Panel or their nominee, during a Special Session at the NASCO Annual Meeting in 2023. This will allow an open discussion of the findings and recommendations of the Review.

5. Logistical support and background information to the Review Panel

The NASCO Secretariat's role will be to provide logistical support and background information to the Review Panel, as requested; it will not form part of the Panel.

NASCO Parties and accredited NGOs may submit views, in confidence, for consideration by the Review Panel.

Additionally, in conducting its work the Review Panel may wish to communicate with, and request background information from, NASCO's Parties, States not party to the Convention (France (in respect of St Pierre and Miquelon) and Iceland), accredited NGOs, the Secretariat and other individuals and organizations as it sees fit. If requested, these communications may be treated as confidential and unattributed to those providing the information.

Annex 2: Performance Criteria for the Third NASCO Performance Review[309]

In the criteria, 'salmon' refers to salmon stocks which migrate beyond areas of fisheries jurisdiction of coastal States of the Atlantic Ocean north of 36ºN latitude throughout their migratory range (as defined in Article 1.1 of the [sic] Conservation of Salmon in the North Atlantic Ocean).

Within the purpose and scope outlined above, the Review Panel will perform its review on the basis of the specific criteria covering the following categories:

	Area	***General criteria***	***Detailed criteria***
I.	*Conservation and management*	Status of living aquatic resources	1. Status, and trends in the status, of salmon in the Convention area;
		Data collection and sharing	2. Extent to which NASCO has agreed formats, specifications and time frames for data submissions; 3. Extent to which NASCO Parties collect and share, through NASCO, complete and accurate data concerning wild salmon in the Convention area in a timely manner, including: analysis of trends in fishing activities over time; fishing and research data; fishing vessel and research vessel data and fishing effort data; and 4. Extent to which NASCO is addressing any gaps in the collection and sharing of data as required;
		Quality and provision of scientific advice	5. Extent to which NASCO produces or receives the best scientific advice and other information relevant to the conservation, restoration, and rational management of salmon and their habitats.

309 CNL(21)22, Annex 1.

		Adoption of conservation and management measures	6. Extent to which NASCO has adopted measures and developed guidance based on the best scientific advice available to ensure the long-term conservation, restoration, and rational management of salmon; 7. Extent to which NASCO has adopted and applied a precautionary approach as detailed in Article 6 of the 1995 UN Fish Stocks Agreement, and the UN FAO Code of Conduct for Responsible Fisheries, including the application of precautionary reference points; 8. Extent to which NASCO has adopted and applied an ecosystem approach (for example, FAO Guidelines 2003); 9. Extent to which management measures consistent / compatible with the NASCO Convention have been adopted (for example, as set out in Article 7 of the 1995 UN Fish Stocks Agreement); 10. Extent to which NASCO successfully establishes regulatory measures in accordance with Articles 7 and 8 of the NASCO Convention, taking into account Article 9 of the Convention, and Article 11 of the 1995 UN Fish Stocks Agreement; and 11. Extent to which NASCO has moved toward the adoption of conservation and management measures for previously unregulated salmon fisheries, including new and exploratory fisheries where these exist.
		NASCO's Resolutions, Agreements and Guidelines	12. Extent to which NASCO has developed, reviewed and updated its Resolutions, Agreements and Guidelines in general and assessed progress with their implementation; 13. Extent to which there has been progress in implementing NASCO's Resolutions, Agreements and

			Guidelines on the Management of Salmon Fisheries; 14. Extent to which there has been progress in implementing NASCO's Resolutions, Agreements and Guidelines on the Protection and Restoration of Salmon Habitat; and 15. Extent to which there has been progress in implementing NASCO's Resolutions, Agreements and Guidelines on the Management of Aquaculture, Introductions and Transfers, and Transgenics.
II.	*Compliance and enforcement*	Monitoring, control, and surveillance	16. Extent to which NASCO has adopted monitoring, control, and surveillance (MCS) measures; and 17. Extent to which these MCS measures are implemented effectively.
		Flag State duties	18. Extent to which NASCO Parties are fulfilling their duties as flag States under the NASCO Convention, pursuant to measures adopted by NASCO, and under other international instruments, including, *inter alia*, the 1982 Law of the Sea Convention, 1995 UN Fish Stocks Agreement and the 1993 FAO Compliance Agreement, as applicable.
		Port State measures	19. Extent to which NASCO has adopted measures relating to the exercise of the rights and duties of its Parties as port States, as reflected in Article 23 of the 1995 UN Fish Stocks Agreement, as well as the minimum standards set out in the 2009 FAO Agreement on Port State Measures to Combat Illegal, Unreported, and Unregulated Fishing.
III.	*Decision-making and dispute settlement*	Decision-making	20. Efficiency of NASCO's bodies, including subsidiary bodies, and the Commissions in addressing critical issues in a timely and effective manner, including new and emerging issues; and

			21. Extent to which NASCO has transparent, consistent and adequate decision-making procedures that facilitate the adoption of conservation and management measures in a timely and effective manner.
		Dispute settlement	22. Extent to which NASCO has established adequate mechanisms for resolving disputes.
IV.	*International co-operation*	Transparency	23. Extent to which NASCO is operating in a transparent manner, taking into account Article 12 of the 1995 UN Fish Stocks Agreement and the UN FAO Code of Conduct for Responsible Fisheries; 24. Extent to which NASCO decisions, meeting reports, scientific advice upon which decisions are made, and other relevant materials are made publicly available in a timely fashion; 25. Extent to which NASCO has developed an effective communications strategy to raise awareness of successes relating to, and challenges facing, the conservation of salmon with the public, other countries and relevant organizations. 26. Extent to which NASCO provides a forum for knowledge sharing among NASCO Parties and its accredited NGOs on best management practices and new and emerging threats to salmon conservation; and 27. Extent to which accredited NGOs and other observers are included in NASCO processes.
		Relationship with non-NASCO Parties	28. Extent to which non-NASCO Parties have undertaken salmon fishing activities in the NASCO Convention Area; 29. Extent to which NASCO facilitates co-operation with non-NASCO Parties, including encouraging non-NASCO

			Parties to become Parties or to implement NASCO conservation and management measures voluntarily; and 30. Extent to which NASCO provides for action in accordance with international law against non-NASCO Parties undermining the objective of the Convention, as well as measures to deter such activities.
		Co-operation with other international organizations	31. Extent to which NASCO co-operates and engages with other regional fisheries management organizations and other relevant organizations.
V.	*Financial and administrative issues*	Availability of resources for activities	32. Extent to which financial and other resources are made available to achieve the aims of NASCO and to implement NASCO's decisions.
		Efficiency and cost effectiveness	33. Extent to which NASCO is managing human and financial resources effectively, including those of its Secretariat, in order to support NASCO's objectives and to ensure continuity of operations; 34. Assess the efficiency, cost effectiveness and governance processes of NASCO including its Secretariat, and its associated bodies; and 35. Extent to which the schedule and organization of the meetings could be improved.

Annex 3: Consolidated List of Panel Recommendations

Conservation and management
Status of living aquatic resources
1. Considering that marine survival appears to have stabilized or increased, the Panel recommends that the reasons for the continuing decreasing PFAs in the NEAC need to be investigated to evaluate if more conservative (i.e. higher) SERs and CLs are needed to stop or revert the declining trends. 2. The Panel recommends that NASCO i) makes a special effort to ensure that there are no unreported catches in the NAC and ii) estimates the effect of mortality or lower reproductive success associated with the release of fish in recreational fisheries.
Data collection and sharing
3. The Panel recommends that NASCO requests ICES to develop an integrated, seamless process to input data into a common database from a web-based application. This should be integrated with the assessments to produce the necessary tables and graphs to document the assessment. 4. The Panel recommends that NASCO arranges for a careful review of the most appropriate basis to set CLs for stock complexes and for individual river stocks; i.e. should pseudo stock and recruitment relationships be used or are other approaches to be preferred. CLs should be revised accordingly if necessary.
Quality and provision of scientific advice
5. The Panel recommends that NASCO requests ICES to ensure that its catch statistics on catch and release fisheries acknowledge the fact that some of the released salmon will die.
Adoption of conservation and management measures
6. The Panel recommends that NASCO should commission an assessment of the by-catch of salmon in the large-scale fisheries for small pelagics in the North-East Atlantic and, if the by-catch is determined to be significant, take measures to address this.

7. In addition to endorsing recommendation EPR 41 of the Second NASCO Performance Review, the current Panel recommends that NASCO considers updating its 1998 Agreement on the Precautionary Approach to better reflect NASCO's entire objective and its subsequent practice.

NASCO's Resolutions, Agreements and Guidelines

8. The Panel recommends that NASCO arrange for the development of Salmon Habitat Protection and Restoration Plans, produced on an individual river system basis.

9. As regards climate change, the Panel recommends that NASCO
   a) develops a dedicated instrument (e.g. a Plan of Action) on climate change or fully and systematically integrates considerations of climate change into its Resolutions, Agreements and Guidelines;
   b) agrees that the IPs for the next reporting cycle will include a new section on 'Adaptations to Global Warming/Climate Change';
   c) specifies that climate change 'Adaptations' be included in individual Salmon Habitat Protection and Restoration Plans; and
   d) convenes a Theme-based Special Session to identify a suite of practical Adaptive Strategies and their effective deployment that could be used by managers to protect salmon freshwater habitats from hydrological and thermal stress.

10. The Panel recommends that, as coastal, estuarine and in-river mixed stock fisheries are taking a large number of fish overall, NASCO should be updated regularly on their operation and the justification for their continued prosecution.

11. In recognizing that substantial population structuring occurs within many large river systems and that this can have ramifications for the management of fisheries and the protection of biodiversity – especially in the case of genetic introgression from farm escapes – the Panel recommends that NASCO considers developing innovative approaches deploying available technologies (sampling, genetics, electronic fish counters).

12. The Panel recommends that NASCO addresses the absence of reliable data on salmon in respect of pelagic fisheries (e.g. potential for overlapping marine distribution and fisheries in space and time) at the earliest opportunity, taking account of the imminent data call by WKSALMON2 in this respect. In addition to ongoing scientific pelagic surveys and on-board observer programs, a dedicated sampling program with robust experimental sampling design, replicating regular fishing activity, would be valuable.

13. The Panel recommends NASCO to encourage efforts to extend and improve knowledge of the distribution of salmon in the sea. Such efforts could, building on SALSEA and other recent initiatives, include experimental long-line fisheries, telemetric and genetic-based distributional studies, combining their respective strengths, and using them to develop, parameterize and test migrational models such as those based on particle tracking.

14. The Panel recommends that NASCO follows through with its commitment in paragraph 5 of the 1998 Agreement on Adoption of a Precautionary Approach (CNL(98)46) to operationalize the Precautionary Approach for the by-catch of salmon in other fisheries. As part of this effort, NASCO and its Parties:
    a) should aim to identify a suite of technical measures that might be deployed to protect salmon while at the same time limiting the impact on the fisheries. Such measures could include area-based management tools such as (dynamic) areas closed to certain types of fishing during certain times of the year; and
    b) should cooperate and coordinate with NAFO and NEAFC where appropriate.

15. The Panel recommends that NASCO considers facilitating the operationalization of the IPs by directing Parties and jurisdictions to develop specific Salmon Habitat Protection and Restoration Plans as envisaged and set out in CNL(01)51 and operationalized further in CNL(10)51.

16. The Panel recommends that NASCO directs Parties and jurisdictions to adopt a pressure and actions mapping tool approach for targeting habitat stressors in aquatic environments equivalent to that under development in Scotland, including sensitivity to climate change.

17. The Panel recommend that NASCO and its Parties consider the establishment of multi-sectoral 'National Salmon Standing Management (Conservation) Committees, similar to the National Standing Scientific Committees that currently operate in most Parties and jurisdictions. These could support and agree the formulation of river-specific Protection and Restoration Plans.

18. The Panel recommends that NASCO Parties create dedicated, independent government inspectorates with accompanying legal regulatory powers to effectively implement relevant NASCO instruments to address the impacts of sea lice and farmed escapes.

19. To assist the work of these inspectorates, the Panel recommends that NASCO prescribes that physical tagging of farmed salmon using conventional tagging methods such as coded wire tags or passive integrated transponder tags be

mandatory for salmon smolts introduced into sea farms. The use of genetic methods is not recommended for this purpose. While these are capable of accurate tracing, they are less practical in this context and are open to challenge because of the statistical nature of assignments.

20. As is being currently trialed in Canada to facilitate the farming of European origin fish, the Panel further recommends that sterilization of farmed salmon should be considered a viable option for reducing genetic impact of farm escapes in all salmon farming areas.

21. To aid with management and adherence to regulation, the Panel recommends that the routine and systematic monitoring of rivers for the quantification of genetic introgression in individual rivers be undertaken by Parties and jurisdictions across the species distribution similar to those programs being deployed currently in Norway and Scotland.

22. To aid with management and adherence to regulation, the Panel recommends that the Norwegian sea lice pressure assessment protocol be adopted in all salmon farming areas across the species range taking account of lice loads, lice contact zones and estimates of lice drift.

23. The Panel recommends that, further to the Tromsø recommendation above on stocking, NASCO further investigates both the scientific and management protocols for gene banking and develops Guidelines in this regard.

Compliance and enforcement

24. The Panel concurs with and endorses Recommendations EPR 63 and 64, and encourages NASCO to continue its associated implementation actions.

25. The Panel recommends that NASCO and its Parties strengthen their efforts to decrease unreported catches in all salmon fisheries conducted by NASCO Parties. NASCO could consider commissioning an external independent assessment of unreported catches.

26. The Panel recommends that NASCO should consider adopting port State measures if there are indications of significant IUU fishing for salmon on the high seas and by foreign vessels within coastal State maritime zones, and port State measures are determined to be an effective response.

Decision-making and dispute settlement

27. The Panel recommends that NASCO should consider the following actions to prevent the spread of *G. salaris* and its eradication:
    a) Replace the title of the Road Map with wording that better reflects the seriousness and urgency of the situation (e.g. Action Plan) and its action-oriented content (e.g. measures to be taken instead of merely cooperation in that regard);
    b) Integrate all the recommendations made by the GSWG at its 2022 meeting; and
    c) Revise the terms of reference of the GSWG to give it a more action-oriented mandate, including making specific recommendations for measures to prevent the further spread of the parasite and for its eradication in areas where it has been introduced, rather than merely developing recommendations to enhance cooperation in that regard.

28. The Panel recommends that NASCO strengthens its instruments on addressing the adverse effects of salmon farming by further operationalizing them and thereby ensure, among other things, that their content becomes more specific, stringent and prescriptive.

29. The Panel recommends that in certain scenarios – for instance when improvements in the status of salmon stocks allows for significant expansions in marine salmon fisheries, or when a decision has been made to revise the NASCO Convention – NASCO should consider adjustments of the decision-making rules and procedures of its Commissions to better align them with best practices.

30. The Panel recommends that NASCO should consider the development of a modern dispute settlement mechanism, which would be included in the Convention by means of an amendment.

International cooperation

31. The Panel recommends that NASCO should consider options to ensure that convening meetings by the Council and its Commission in the format of HoDs meetings becomes the exception rather than the rule. One such option could be to determine that converting from plenary sessions into the format of HoDs meetings requires an explicit decision supported by a simple majority of the members of the Council or a Commission, where applicable.

32. The Panel recommends that NASCO should consider revising CNL(06)49 to, among other things, codify NASCO's existing practices on participation by NGOs, take account of best practices by other international organizations, align the sequence of the paragraphs relating to NGOs more with the sequence of the

procedure for applying for observer status, and group related issues better together.

33. The Panel commends NASCO for its current transparency in terms of information and its continued efforts to improve this further. As part of future efforts, NASCO could consider updating its Handbook of Basic Texts – for instance to reflect the UK's accession to the NASCO Convention and perhaps include the text of (a revised version of) CNL(06)49 – and to include some information on the origins of NASCO, the negotiation of the NASCO Convention and its preparatory meetings.

34. The Panel commends NASCO for its various communication and outreach activities since 2012 and invites NASCO to consider developing a dedicated communications and outreach strategy, while taking account of the various options and recommendations proposed by the Second NASCO Performance Review Panel.

35. NASCO could be more active in communicating the troublesome status of wild Atlantic salmon and the many threats it faces to the general public.

36. The Panel recommends that NASCO should continue to cooperate with France (in respect of St. Pierre and Miquelon) and Iceland, and seek their cooperation with NASCO, including by requesting them to join NASCO, to implement NASCO measures voluntarily, to provide relevant (scientific) information - including on their catches and efforts on the conservation, restoration, enhancement and rational management of salmon stocks – and to participate in NASCO meetings as observers. In NASCO's engagement with France (in respect of St. Pierre and Miquelon) and Iceland, reference should also be made to their obligations under international instruments such as the UNCLOS and the CBD that are relevant to the conservation, restoration, enhancement and rational management of salmon stocks; that these obligations also require cooperation – not only on fisheries issues but also on non-fisheries issues – ; and that such cooperation would be beneficial to them as well as to NASCO Parties, for instance in addressing transboundary problems such as the spreading of pink salmon and *G. salaris*.

37. NASCO could consider making a determination whether the current salmon fishing by France (in respect of St. Pierre and Miquelon) and Iceland undermines the objective of the Convention and, if so, what action could be taken to deter it.

38. The Panel recommends that NASCO should strengthen its cooperation with (other) RFMOs and other relevant international organizations. For instance by:

a) reviewing current relationships with international organizations and exploring the usefulness and desirability of commencing new cooperative arrangements,[310] for example with other relevant international river basin organizations (or: 'transboundary water management organizations');
b) including 'Cooperation with international organizations' as a standing item on the agenda of the NASCO Council; and
c) reviewing relevant output of other relevant international organizations and identifying opportunities to actively engage directly with them.

Financial and administrative issues

39. The Panel recommends that the NASCO Secretary should assess the needs for training and that training should be provided where considered necessary.

40. The Panel recommends that the Secretariat complete documenting its standard operating procedures at an accelerated pace.

41. The Panel recommends that NASCO develops a NASCO Carbon Policy to ensure that NASCO's carbon emissions are in line with best practices on achieving carbon neutrality.

NASCO's overall effectiveness

42. The Panel recommends that NASCO should consider strengthening the NASCO Convention by adopting selected amendments or a complete convention revision. Either option should provide the NASCO Council with a mandate to adopt legally binding instruments on non-fisheries issues. Care must be taken to ensure that these negotiations do not diminish NASCO's ongoing efforts on salmon conservation.

43. The Panel recommends that NASCO should consider using the tool of agreed interpretations in case there is insufficient support for formal amendment of the NASCO Convention. This could for instance be used to agree that the NASCO Council has a mandate to adopt legally binding instruments on non-fisheries issues.

44. The Panel recommends that NASCO considers initiating an exercise similar to the Next Steps-process that commenced in 2004, but with a particular focus on the challenges posed by climate change, aquaculture interactions and the

[310] The most recent review was completed in 2006 (CNL(06)15) in response to Decision 12 of the Strategic Approach for NASCO's 'Next Steps' (CNL(05)49).

expanding body of international rules and standards relating to the conservation of biological diversity.

45. The Panel recommends that the NASCO Council should consider strengthening its existing instruments by further operationalizing them and thereby ensure, among other things, that their content becomes more specific, stringent and prescriptive. This could be carried out by means of a systematic, step-by-step approach for all of the existing instruments.

46. The Panel recommends that NASCO should consider other actions aimed at elevating salmon conservation to a higher political level, for instance by periodically convening high-level (Ministerial) segments to Annual NASCO Meetings. A possible topic for such a high-level segment could be the management of Atlantic salmon aquaculture.