





# THE WORK OF NASCO~ 1984 to 2012

## Foreword by the President

This year NASCO completed its first External Performance Review covering its work from 1984 to the present day. This review gave solid support for what NASCO has been doing and urged it to continue this work. It also urged the Organization to consider revising its Convention in order to bring it up to date with current international law and so that it reflects what the Organization does today.

This is a milestone for the Organization and the report which follows is the story of what has happened over the last three decades. I hope that it will be useful to all present and future delegations of the Parties and the NGOs to NASCO. I also hope that it may be of interest to all stakeholders and to the general public interested in wild salmon conservation. We seek to conserve and restore a species of great heritage, cultural and economic values to the North Atlantic nations.

*Mary Colligan*  
*President*



# Preface from the Secretariat

The North Atlantic Salmon Conservation Organization (NASCO) was established in 1984 under the Convention for the Conservation of Salmon in the North Atlantic Ocean. The objective of NASCO is to contribute, through international consultation and cooperation, to the conservation, restoration, enhancement and rational management of salmon in the North Atlantic Ocean.

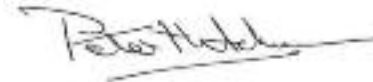
To mark its twentieth anniversary in 2004, NASCO undertook a comprehensive review of its activities and its capabilities to address the challenges facing wild Atlantic salmon. This review involved consultations with stakeholders in Europe and North America. Three important themes emerged. There was a need for: greater urgency in implementing NASCO's agreements and reporting on progress; greater promotion of NASCO's work and involvement of stakeholders in its work; and increased understanding of the factors affecting mortality of salmon at sea. In order to take forward these issues, NASCO adopted a 'Strategic Approach on the Next Steps for NASCO'. The first cycle of reporting on Implementation Plans, developed in accordance with the Strategic Approach to improve commitment to NASCO's Agreements, is now complete. In 2011, NASCO conducted a review, with its accredited NGOs, of the changes made and agreed some further improvements.

In 2012, an External Performance Review of NASCO was undertaken by a panel comprising representatives of the United Nations Division of Ocean Affairs and the Law of the Sea (UNDOALOS), the United Nations Food and Agriculture Organization (FAO) and a former Secretary of the North East Atlantic Fisheries Commission (NEAFC). The Review Group supported all that had been done and additionally suggested changes to the NASCO Convention.

This summary of the work of NASCO records the evolution of the Organization over almost three decades, as it has moved from focusing mainly on the regulation of the distant-water fisheries at Greenland and the Faroe Islands to addressing a wide-range of issues affecting the resource. During this period, NASCO has taken major conservation measures involving sacrifices by many users. It has also modernised its approach by adopting and applying the Precautionary Approach and the Ecosystem Approach to a wide range of threats to the resource and by increasing its transparency through much greater stakeholder involvement. This has been possible because of the excellent spirit of cooperation which has been a feature of the Organization in its efforts to safeguard and rebuild the species. There are many challenges ahead, not least those associated with a changing climate. There has never been a greater need for a strong commitment to conserve the resource for future generations through international cooperation.



*Malcolm Windsor*  
Secretary



*Peter Hutchinson*  
Assistant Secretary

# Contents

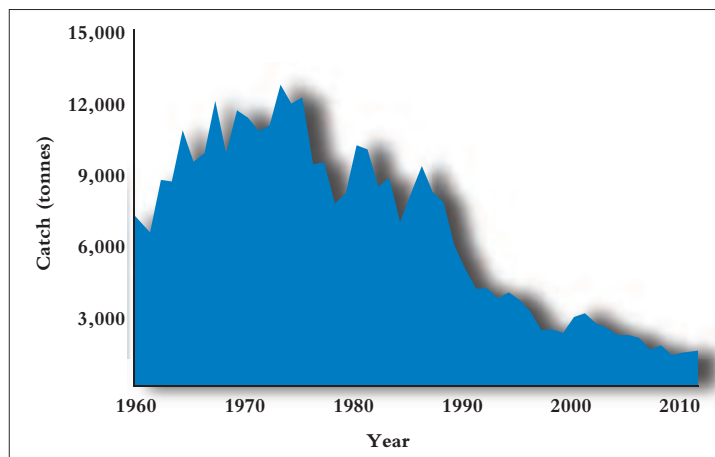
	Page number
<b>Foreword by the President</b>	<b>i</b>
<b>Preface from the Secretariat</b>	<b>ii</b>
<b>Contents</b>	<b>ii</b>
<b>1. Introduction</b>	<b>1.</b>
<b>2. The Situation before NASCO</b>	<b>2.</b>
<b>3. The Convention for the Conservation of Salmon in the North Atlantic Ocean</b>	<b>3.</b>
<b>4. The Provision of Scientific Advice and its Evolution</b>	<b>6.</b>
<b>5. Management of Salmon Fisheries</b>	<b>8.</b>
<i>Establishment of a ‘Salmon Sanctuary’</i>	8.
<i>NASCO Regulatory Measures</i>	8.
<i>Fisheries in States of Origin</i>	12.
<i>Catch and Release Fishing</i>	13.
<i>Illegal, Unregulated and Unreported (IUU) Fishing</i>	13.
<i>Scientific Research Fishing</i>	14.
<i>By-catch and Discarding</i>	15.
<b>6. Habitat Protection and Restoration</b>	<b>16.</b>
<b>7. Salmon Aquaculture, Introductions and Transfers and Transgenics</b>	<b>16.</b>
<b>8. <i>Gyrodactylus salaris</i></b>	<b>18.</b>
<b>9. Socio-economics</b>	<b>18.</b>
<b>10. Adoption and Application of the Precautionary Approach and Ecosystem Approach</b>	<b>19.</b>
<b>11. Assessing NASCO’s Performance after 20 Years: a New Strategic Approach to its Work</b>	<b>20.</b>
<i>The First Performance Review</i>	20.
<i>The Strategic Approach</i>	20.
<i>Management of Salmon Fisheries</i>	21.
<i>Habitat Protection and Restoration</i>	21.
<i>Aquaculture, Introductions and Transfers and Transgenics</i>	22.
<i>Gyrodactylus salaris</i>	22.
<i>Socio-economics</i>	22.
<i>Initiatives for Endangered Salmon Populations</i>	23.
<i>Research on Salmon at Sea</i>	23.
<b>12. Changes in NASCO’s Approach</b>	<b>24.</b>
<i>Fairness and Balance</i>	24.
<i>Commitment to NASCO Agreements</i>	24.
<i>Effectiveness and Efficiency</i>	25.
<i>Transparency and Inclusivity</i>	25.
<i>Visibility and Profile</i>	26.
<i>Salmon at Sea</i>	27.
<b>13. Progress in Implementing the ‘Next Steps’ Recommendations</b>	<b>28.</b>
<b>14. External Performance Review</b>	<b>30.</b>
<b>15. In Summary</b>	<b>31.</b>

# Introduction

# 1

The Atlantic salmon, *Salmo salar* L., is a highly prized resource. It has an anadromous life-cycle in which, after a period in fresh water, it migrates to sea where it feeds for one or more years before returning to the river of its birth to spawn. While there are more than 2,500 salmon rivers in the North Atlantic area, the constraints on production in fresh water limit the abundance of salmon populations to the extent that the peak catch in the mid-1970s was around 12,500 tonnes. Nonetheless, it is highly prized as a food and recreational fishing resource and by the general public who marvel at its trans-Atlantic migrations, its precise homing and its acrobatic leaping at waterfalls as it returns upstream to spawn. Exploitation by salmon fishermen brings income and employment to rural communities and there is economic evidence that the general public is willing to pay to conserve salmon even if

there is no desire to exploit it. The salmon also plays a role in the cultural heritage and ceremonies of indigenous peoples. The North Atlantic Salmon Conservation Organization (NASCO) is the inter-governmental organization charged with conserving, restoring, enhancing and rationally managing this resource.



Total reported catch of Atlantic salmon 1960 – 2010

To summarise twenty-eight years in just a few pages is challenging but this report is intended to provide a factual account of events. Additional information is available on the NASCO and IASRB websites ([www.nasco.int](http://www.nasco.int) and [www.salmonatsea.com](http://www.salmonatsea.com)). Here we report briefly on the situation prior to NASCO's establishment and then summarise the work of the Organization from its inception in 1984.

## The Situation before NASCO

# 2

Prior to the 1960s, exploitation of salmon in the North Atlantic was by States of origin and management was at a national level. While there are records of salmon fishing at Greenland since at least 1906, it was not until the early 1960s that salmon fishing became important, probably due to the establishment of modern fish-processing plants and the availability of monofilament nets. With the development of distant-water fisheries at West Greenland, and later in the Northern Norwegian Sea and around the Faroe Islands, rational management required an international forum.

Some measures had been agreed internationally in the 1970s relating to the distant-water salmon fisheries. However, with the establishment of 200 nautical mile areas of fisheries jurisdiction and declining salmon catches by States of origin, there were calls for an international Convention devoted to the Atlantic salmon. For example, at the Second International Atlantic Salmon Symposium held in Edinburgh in 1978, a Resolution was adopted that called for an international Convention to protect Atlantic salmon that would ban fishing for salmon beyond 12 miles from the coast; provide for cooperation among all countries on salmon conservation, regulation and enforcement; and provide a forum for international cooperation on research and exchange of data.

In the early 1980s, there were still salmon fisheries beyond areas of fisheries jurisdiction in the Norwegian Sea, and major issues associated with harvests in the distant-water fisheries, which at that time still accounted for around 20% of the total nominal catch.

Furthermore, there were other interceptions by one country of salmon originating in another country. Under the 1982 United Nations Convention on the Law of the Sea, it is stated that arrangements for the implementation of the provisions of Article 66, which deals with anadromous species, should be made by States of origin and other States fishing for anadromous stocks, where appropriate, through regional organizations. The new regional organization, NASCO, was established under the Convention for the Conservation of Salmon in the North Atlantic Ocean. The establishment of NASCO on 14 February 1984 provided a new inter-governmental forum for cooperation on the conservation, restoration, enhancement and rational management of wild salmon stocks.

# The Convention for the Conservation of Salmon in the North Atlantic Ocean

# 3

The Convention for the Conservation of Salmon in the North Atlantic Ocean (hereinafter ‘the Convention’) was adopted at a Diplomatic Conference convened in Reykjavik, Iceland during 18–22 January 1982. It entered into force on 1 October 1983. The current Parties to NASCO are Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Norway, the Russian Federation and the USA. Any other State that exercises fisheries jurisdiction in the North Atlantic or that is a State of origin for salmon stocks subject to the Convention may accede to the Convention, subject to the approval of the Council. With the exception of Iceland (which withdrew from NASCO at the end of 2009 for financial reasons but has indicated its intention to re-join when the situation improves), only France (in respect of St Pierre and Miquelon) could accede to the Convention. While the Council has encouraged this, the French authorities have indicated that they wish to participate in an observer capacity. Annually, the French authorities report on the internal-use fishery at St Pierre and Miquelon (~3 tonnes) and conduct a sampling programme which, in some years, has included genetic sampling to identify the origin of the catch.

The Convention applies to salmon stocks which migrate beyond areas of fisheries jurisdiction of coastal States of the North Atlantic Ocean north of 36°N latitude throughout their migratory range. Fishing for salmon is prohibited beyond areas of fisheries jurisdiction of coastal States and in most areas beyond 12 nautical miles from the baselines. The exceptions are in the West Greenland Commission area, where fishing is permitted up to 40 nautical miles from the baselines, and at the Faroe Islands where fishing is permitted throughout the area of fisheries jurisdiction. This immediately created an enormous protected zone, a ‘sanctuary’, free of salmon fisheries.

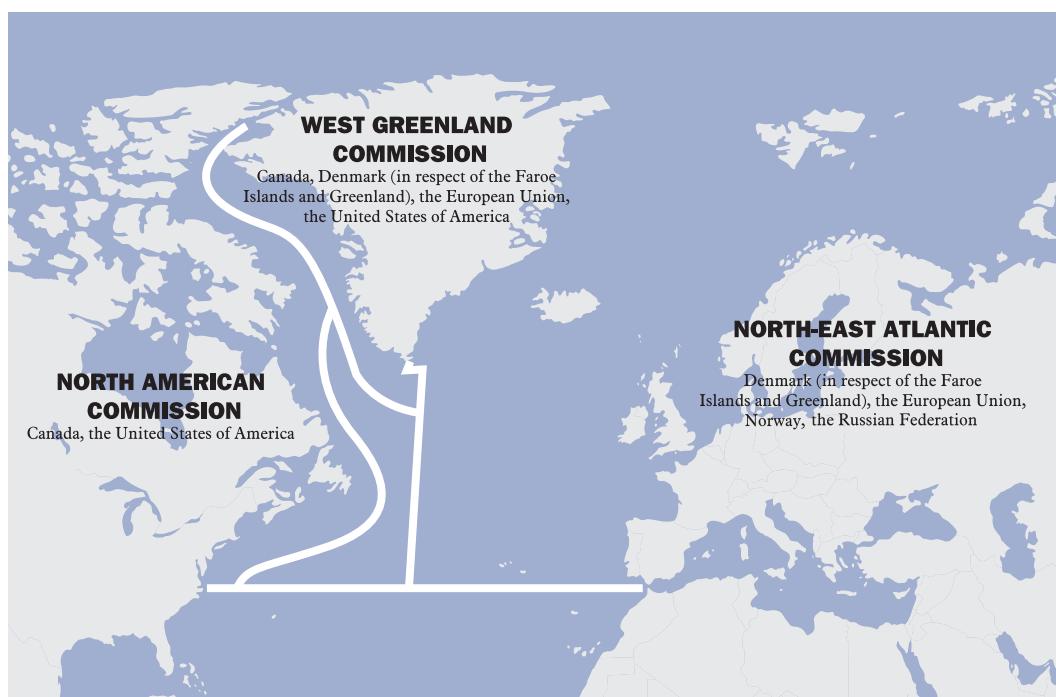
The Convention established an international organization, NASCO, with the objective of contributing through consultation and cooperation to the conservation, restoration, enhancement and rational management of salmon stocks, taking into account the best scientific evidence available to it. NASCO consists of a Council, three regional Commissions (North American (NAC), North-East Atlantic (NEAC) and West Greenland (WGC) Commissions) and a Secretariat. In 2001, the Council established the International Atlantic Salmon Research Board (IASRB), initially named the International Cooperative Salmon Research Board, to promote collaboration and cooperation on research into the causes of marine mortality of salmon and the opportunities to counteract this mortality.

The Council provides a forum for consultation and cooperation and for the study, analysis and exchange of information. It facilitates coordination of the activities of the regional Commissions, makes recommendations concerning the undertaking of scientific research, supervises and coordinates the administrative, financial and other internal affairs of the

Organization, and coordinates the external relations of the Organization. The Commissions provide fora for consultation and cooperation, propose regulatory measures for fisheries that harvest salmon originating in the rivers of other Parties, and make recommendations on the undertaking of scientific research.

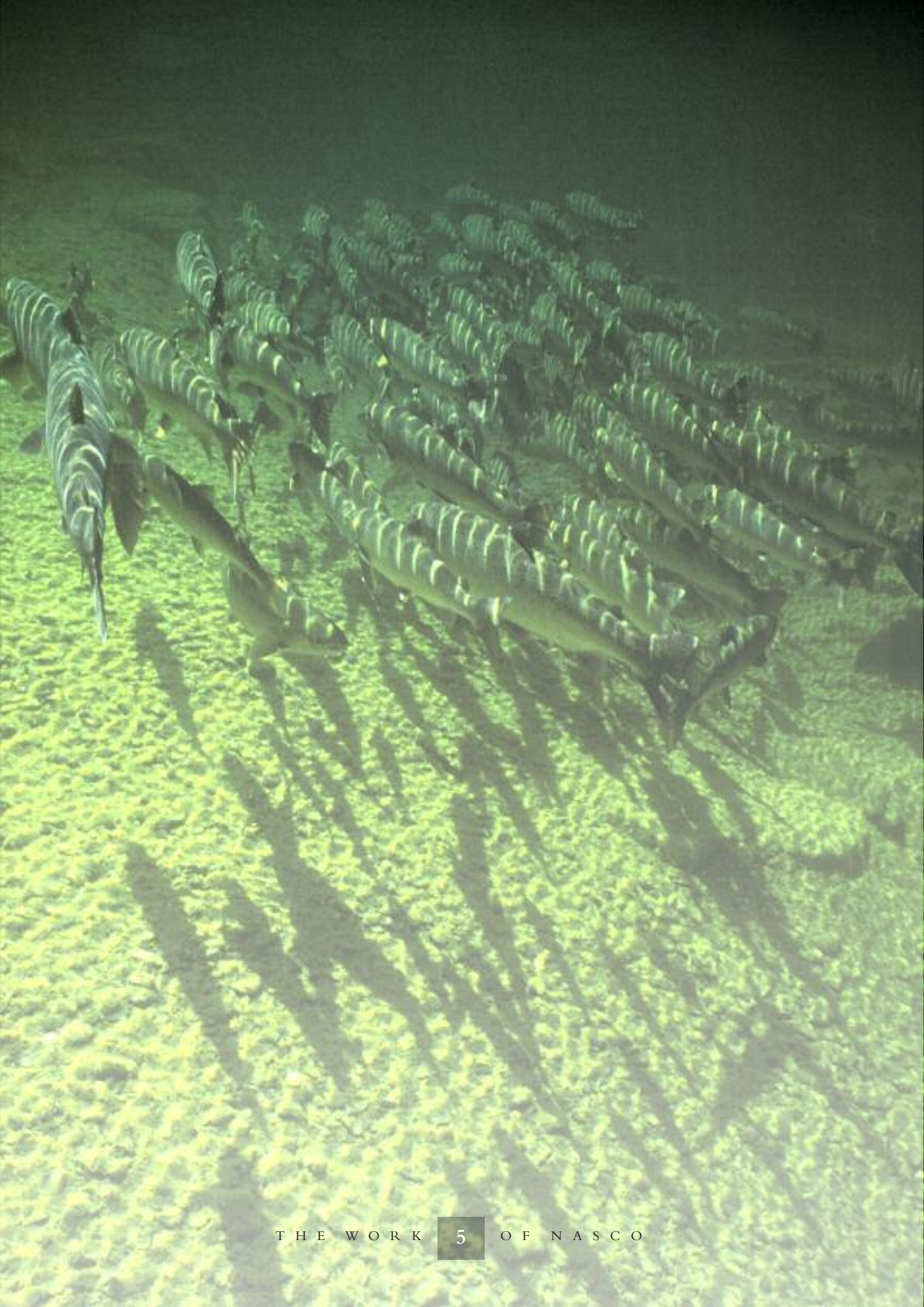
NASCO has also welcomed the involvement of NGOs in its work and currently 35 Organizations have accredited NGO status. NGO status is granted to organizations that have objectives that are compatible with those of NASCO and that demonstrate that they have a legitimate interest in NASCO's proceedings.

The Convention has not been changed since it entered into force in 1983 but, for clarity, the Council has agreed interpretations of some of its Articles. Prior to and during the 'Next Steps' review process, the NGOs did raise the issue of Convention change. However, the NGOs indicated in 2011 that while Convention change remains their ultimate objective, so that NASCO Resolutions become binding on all Parties in their domestic management policies, in the short-term they wish to see the next Implementation Plan cycle address the failures identified in the first round of reporting, and concentrate on measurable outcomes, which can be scrutinised. The External Performance Review Panel also made recommendations concerning Convention change.



*The NASCO Convention area and regional Commissions*





## The Provision of Scientific Advice and its Evolution

# 4

NASCO has made major efforts to ensure that it obtains the best available scientific advice to inform its work and that this advice is independent and free from political influence. Annually a request for advice is made to the International Council for the Exploration of the Sea (ICES). Where there has been a need to bring together new knowledge on specific issues, international symposia and workshops have been convened. The topics addressed have included the impacts of aquaculture, introductions and transfers, fishing for salmon in international waters, quota compensation payments and the Precautionary Approach. In fact, the information derived from symposia held in 1990, 1997 and 2005 formed the basis for the development of NASCO resolutions relating to aquaculture, introductions and transfers. Most recently, in response to increased mortality at sea, NASCO has developed and implemented through a public-private partnership, an innovative programme of research on salmon at sea.

The request to ICES has evolved over the years from focussing on advice relevant to the management of the fisheries to include requests for advice relating to the broader areas of NASCO's work. Since 1992, in order to involve managers in the formulation of the request to ICES for advice, a Standing Scientific Committee has met annually. Initially, the advice from ICES relating to the management of salmon fisheries was neither quantitative nor predictive and the regulatory measures adopted reflected a range of factors detailed in the Convention. Since 1993, however, quantitative catch advice has been provided by ICES for the West Greenland fishery. This advice was adopted immediately and has formed the basis of regulatory measures set by the West Greenland Commission. In the case of the Faroese fishery, the development of quantitative advice requires further feedback from the Commission on appropriate management groupings, management objectives and a sharing agreement, and this is under development.

In recent years, the request to ICES has comprised a number of core recurring elements as follows:

- An overview of catches and landings, including unreported catches, and production of farmed and ranched salmon;
- Key events in the fisheries including information on non-catch fishing mortality and by-catch;
- The status of stocks;
- Catch options with an assessment of risks relative to the objective of exceeding stock conservation limits (i.e. the number of spawning salmon below which the stock would decline markedly) and the implications for stock rebuilding;

- Significant new or emerging threats to, or opportunities for, salmon conservation and management;
- Identification of data deficiencies, monitoring needs and research requirements.

Additional requests may be included each year. For example, in 2011 new advice was sought in relation to monitoring for the parasite *Gyrodactylus salaris*, the conduct of restoration programmes, and development of a risk framework and a framework of indicators for the Faroese salmon fishery.

Following the 'Next Steps' Review, it was recognised that it would enable both ICES and NASCO to be more effective and efficient if multi-annual advice could be provided and multi-annual regulatory measures adopted. Therefore, since 2005, ICES has been requested to provide multi-annual catch advice for all three Commissions and has done so.

The information provided by ICES indicates that the total abundance of salmon at sea prior to any fisheries (PFA) has declined from ~8.5 million fish in the early 1970s to ~3.6 million fish today. In response to falling abundance and the introduction of restrictive management measures, the total North Atlantic catch has also declined from ~8,000 tonnes in 1984 to ~1,600 tonnes in 2011. The decline in the abundance of spawners has been less marked than the decline in PFA, but many stocks are below their conservation limits. A major factor in this decline has been increased mortality at sea. While freshwater production appears to be stable, there has been a marked decline in return rates of smolts since the early 1980s.

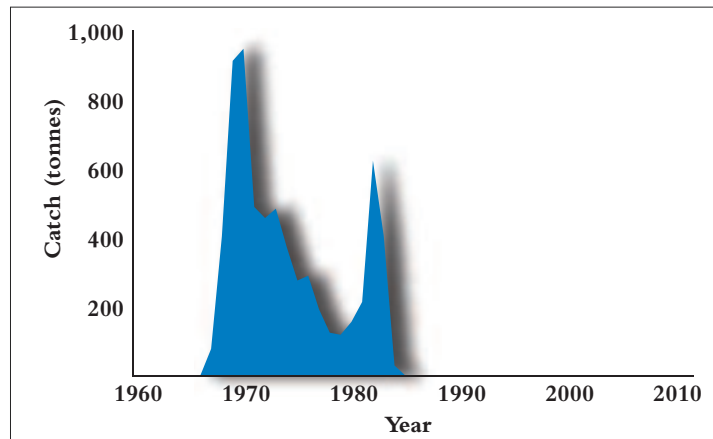
Scientific tags are applied to salmon in order to better understand their distribution, migration and exploitation. To encourage the return of these tags, NASCO operates a Tag Return Incentive Scheme offering a Grand Prize of US\$2,500 and a prize in each of the three Commissions of US\$1,500. These annual awards have increased awareness of NASCO's work.

# Management of Salmon Fisheries

# 5

## *Establishment of a 'Salmon Sanctuary'*

One immediate effect of the NASCO Convention was the creation of an enormous marine protected area, or 'sanctuary', free of salmon fisheries and covering most of the North Atlantic area. As a consequence, the salmon fishery in the Northern Norwegian Sea ceased to exist after 1984. This fishery had, at its peak, harvested approximately 1,000 tonnes of salmon.



*Catch of salmon in the Northern Norwegian Sea fishery, 1960 - 2010*

## *NASCO Regulatory Measures*

The early focus of NASCO's work was very much the distant-water fisheries at West Greenland and the Faroe Islands. The NASCO Commissions may propose regulatory measures for fisheries that harvest salmon originating in the rivers of other Parties (WGC and NEAC) or in the case of the NAC where fisheries harvest amounts of salmon that are significant to the other Commission member or other Parties. The Convention requires the Commissions to take into account a number of factors in establishing regulatory measures, as follows:

- the best available information, including advice from the International Council for the Exploration of the Sea and other appropriate scientific organizations;
- measures taken and other factors, both inside and outside the Commission area, that affect the salmon stocks concerned;
- 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;
- the extent to which the salmon stocks concerned feed in the areas of fisheries jurisdiction of the respective Parties;
- the relative effects of harvesting salmon at different stages of their migration routes;

- 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
- the interests of communities which are particularly dependent on salmon fisheries.

This represented a new framework for sharing harvests between the distant-water fisheries and the States of origin. At the outset, quantitative, predictive scientific advice was lacking on which to base regulatory measures and this led to many years of negotiations with the relative importance of the various other factors being debated. Much effort was devoted to developing an appropriate sharing mechanism. Nevertheless, in spite of differences in interpretation among NASCO Parties, regulatory measures or decisions have been agreed covering each of the twenty-eight years since NASCO's establishment, with the exception of four years for the West Greenland fishery and one year for the Faroese fishery. These have included annual and multi-annual measures and decisions. Due to declining abundance, linked to increased mortality of salmon at sea, the catch options or other catch advice provided by ICES have been unchanged for many years and since 1997 the combined catch in these fisheries under NASCO measures has been under 50 tonnes. These reductions (~98%) in harvest for the distant-water fisheries, from around 2,500 tonnes at their pre-NASCO peak, represent significant sacrifices and commitments to conservation for communities that are very dependent on the resources of the sea. It should be noted that NASCO has not developed dispute settlement procedures but it has been able to work successfully by consensus for twenty-eight years. With regard to regulatory measures, this has the advantage that there is little risk that they are subsequently denounced prior to the fishing season commencing; while the Convention allows for this, it has never occurred.

In some years funds have been paid by private organizations to Greenlandic and Faroese fishermen not to fish NASCO's quotas. NASCO did consider in 1990/91 whether or not it should be involved in such arrangements, but decided that it should not. In all but two years since 1998 NASCO measures have not, in any case, allowed any quota for commercial fishing in these distant-water fisheries.

#### *North American Commission (NAC)*

The NAC agreed a regulatory measure in 1986 concerning the date of the season closure in Labrador, in response to concerns that these fisheries were exploiting salmon of US origin. In other years, while measures have been discussed for the Canadian salmon fishery,

any new measures were adopted nationally rather than through NASCO regulatory measures. Since 2000, all commercial salmon fisheries in Canada have been closed. The remaining Inuit/Residents coastal fishery in Labrador is not believed to intercept US origin fish but sampling programmes are in place to verify that assumption. There is, however, concern about the harvest of North American fish in the fishery at St Pierre and Miquelon. The harvest in, and management of, this fishery and a sampling programme are all discussed annually in both the Council and the NAC. The NAC has also provided a forum for discussions on issues not related to the fisheries, including the impact and mitigation of the effects of acid rain and of introductions and transfers, for which Protocols have been adopted and included in the 'Williamsburg Resolution'. The US and Canada have agreed to report to the NAC annually on any decision relating to introductions and transfers that has an impact on the other jurisdiction, in particular decisions that are not consistent with the NAC Protocols.

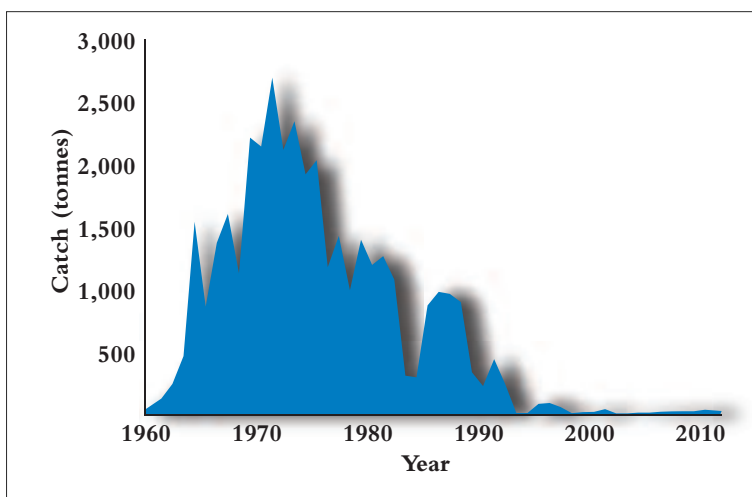
#### *West Greenland Commission (WGC)*

Prior to 1993, the scientific advice was neither quantitative nor predictive and the measures adopted by the Commission did not necessarily reflect the status of the stocks. In 1993, however, the development of predictive models by ICES enabled the Commission to adopt an agreement that set quotas for the period 1993-1997 on the basis of:

- the ICES advice on the pre-fishery abundance of potential 2SW salmon of North American origin (and European origin salmon if available);
- the ICES advice on the target spawning escapement reserve of potential 2SW salmon necessary to achieve target spawning escapement, or a different proportion of this reserve as agreed to by the Parties;
- any surplus above the target spawning escapement reserve, or the proportion agreed to, may be available for harvest by the Parties;
- an allocation of the surplus based on the average for the period 1986-1990 of the harvest share of potential 2SW salmon of North American origin.

Since 1998, the advice from ICES has been that there have been no harvest options at West Greenland that would allow the achievement of NASCO's objectives except in two years (2001 and 2002). In all other years, the fishery has been restricted to an internal-use fishery that allows for sale by licensed fishermen to local markets and hotels etc., and a subsistence fishery by unlicensed fishermen. While no Total Allowable Catch (TAC) is set, the reported harvest has been around 20 tonnes in most years, but increased to approximately 40 tonnes in 2010 declining again to 28 tonnes in 2011. Since 2005,

NASCO has sought, and received, multi-annual catch advice for the West Greenland fishery and this led to the adoption of three year measures by the WGC in 2006 (2006 – 2008), 2009 (2009 - 2011) and 2012 (2012 - 2014).



Reported catch of salmon at West Greenland, 1960 - 2010

To ensure that there has not been a significant change in stock status

that would change the catch advice during the multi-annual measure, a Framework of Indicators (FWI) is used in the years when there is not a full scientific assessment. This FWI includes annual data on stock status for around 30 indicators (e.g. 2SW returns to the Penobscot River) from five ‘management units’ in the US and Canada together with threshold values, and the framework is analysed by a NASCO Working Group. The Commission annually agrees a sampling programme for the West Greenland fishery involving participation by scientists from Canada, the EU, Greenland and the US.

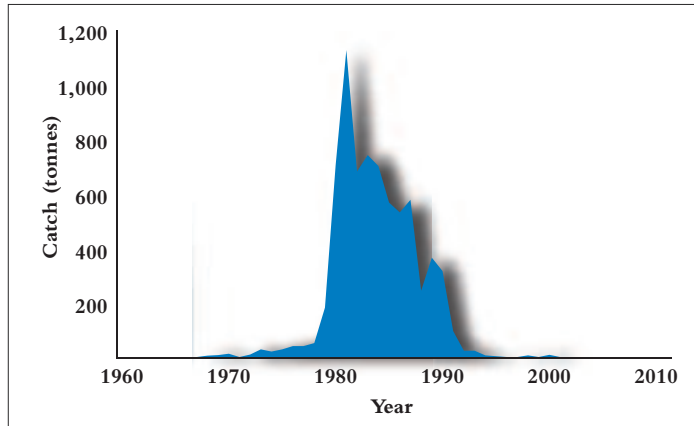
#### *North-East Atlantic Commission (NEAC)*

While ICES has made considerable progress in developing catch advice for the Faroese fishery, it has not yet been able to provide quantitative advice because of a lack of a Risk Framework similar to that used for the West Greenland fishery. The development of such a Risk Framework requires feedback from the NEAC on the salmon stock groupings to be employed; the management objectives for each grouping and a sharing agreement. There have been initial consultations on this issue.

Since 1999, the Commission has not set TACs for the Faroese fishery but has agreed decisions that require that the Faroese authorities manage any salmon fishery on the basis of the advice from ICES regarding the stocks contributing to the fishery in a precautionary manner and with a view to sustainability, taking into account relevant factors, such as socio-economic needs. These decisions have worked well in conservation terms in that no commercial salmon fishery has taken place at the Faroe Islands since 2000.

In 2012, the NEAC agreed a Framework of Indicators (FWI) to ensure that there has not

been a significant change in stock status that would change the multi-annual catch advice. As a result it was able to adopt a multi-annual decision for the Faroese fishery in 2013, 2014 and 2015. The FWI will be used in the years when there is not a full scientific assessment. This FWI includes annual data on stock status for around 27



Reported catch in the Faroese salmon fishery, 1960 - 2010

indicators (e.g. 2SW returns to the River North Esk) for Northern and Southern European stock complexes together with threshold values, and the FWI will be analysed by a NASCO Working Group. The Commission has also provided a forum for discussions on other issues including the impact and mitigation of the effects of acid rain, introductions and transfers and *G. salaris*.

### *Fisheries in States of Origin*

In setting regulatory measures the Commissions are obliged to take into account the efforts of States of origin to implement and enforce measures for the conservation, restoration, enhancement and rational management of salmon stocks. NASCO has adopted a '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'. This provides a basis for more consistent approaches to the management of exploitation. It proposes the use of reference points such as conservation limits and management targets, or other indicators of stock status, to trigger management actions to address any failure in abundance or diversity. There have been enormous reductions in netting effort all around the North Atlantic, together with restrictions on rod and line fisheries, partly for domestic reasons and partly in recognition of the international obligations under the NASCO Convention i.e. part of the process of putting your own house in order before expecting others to make or continue to make sacrifices. For example, there are now no directed fisheries for salmon in the US, all commercial salmon fisheries in Canada and drift net fisheries in Norway and Ireland have been closed, and management of other Irish fisheries is based on the scientific advice concerning harvestable surpluses. Further details of the measures taken are available on the NASCO website.



The ICES advice states that mixed-stock fisheries present particular threats to stock status. These fisheries predominantly operate in coastal areas and the NASCO request for advice seeks partitioning of the catches according to whether the catch is taken in coastal, estuarine or riverine areas. There is variability in the distribution of the catch among individual countries. In most countries, the majority of the catch is now taken in fresh water; the proportion of the catch taken in coastal waters having declined over the last five years. Nonetheless, for 2011 ICES indicated that 34% of the catch in the NEAC area and 8% of the catch in the NAC area was taken in coastal waters and concerns have been expressed by ICES, the NASCO Fisheries Management Review Group and the External Performance Review Panel about the management of mixed-stock fisheries.

### *Catch and Release Fishing*

When NASCO was established in 1984, catch and release fishing was rare. To assist salmon conservation, NASCO has adopted catch and release guidelines which have been translated and widely distributed to recreational salmon fishermen around the North Atlantic. NASCO receives statistics on catch and release fishing which indicate that the number of salmon released following capture has doubled from a reported 105,000 fish in 2000 to more than 202,000 fish in 2011, although not all countries provide information.

### *Illegal, Unregulated and Unreported (IUU) Fishing*

In the late 1980s, NASCO became aware of the activities of a small number of vessels, based in Denmark and previously involved in the Northern Norwegian Sea salmon fishery,



*Returning a rod-caught salmon.*

fishing with long-lines for salmon in international waters in the NEAC area. These vessels had registered to non-NASCO countries (Poland and Panama) to avoid the provisions of the Convention. Information provided by ICES suggested that the catch by these vessels could have amounted to up to 350 tonnes (more than the combined catch in the distant-water fisheries at that time) threatening to undermine NASCO's conservation measures. The Council reacted quickly and in 1990, adopted a Resolution calling for diplomatic action to address the problem. To that end, demarches were made to the Polish and Panamanian Ambassadors. In 1992, the 'Protocol Open for Signature by States not Party to the Convention for the Conservation of Salmon in the North Atlantic Ocean' was adopted. While no State has signed the Protocol, this has not been necessary because the diplomatic action taken by NASCO successfully eliminated the problem. Port state measures were also taken together with steps to improve the exchange of surveillance information. There have been no sightings of vessels fishing for salmon in international waters since 1993, although airborne surveillance flights are now only conducted over the area during summer months.

In 1993, in order to improve the comparability of catch statistics and encourage efforts to minimise unreported catches, the Council adopted a 'Minimum Standard for Catch Statistics'. This recommended that the statistics include catches from all components of the salmon fisheries where these catches are retained; include both the number and weight of salmon; be differentiated into sea-age class or alternatively into grilse and multi-sea-winter salmon; differentiate between wild fish and fish which have escaped from fish farms; include salmon caught in non-salmon gear where retention of fish caught in this way is legal; and that information on fishing effort be obtained, wherever possible, for all components of the salmon fisheries. Furthermore, it stated that the Parties wish to encourage measures to reduce the level of non-catch fishing mortality, in particular unreported catches.

The Parties report annually to NASCO not only on their reported catches but on their estimates of unreported catches. The total unreported catch for 2011 was estimated to be 408 tonnes or 29% of the reported catch; however, not all Parties provide estimates. ICES observes that over recent years efforts have been made to reduce the level of unreported catch in a number of countries (e.g. through improved reporting procedures and the introduction of carcass tagging and logbook schemes).

### *Scientific Research Fishing*

In 1996, the Council adopted a 'Resolution Concerning Scientific Research Fishing'. Under this Resolution, scientific research fishing may be undertaken, subject to certain

conditions, in areas where salmon fishing is prohibited by the Convention and in areas of fisheries jurisdiction where salmon fishing is subject to an allowable catch as part of a NASCO regulatory measure. Where the planned research is outside areas of fisheries jurisdiction a Party may object to the proposal. The ability to conduct such research fishing has enabled the SALSEA Programme to be implemented through research surveys in both the Northwest and North-East Atlantic and has contributed important new information relating to mortality of salmon at sea.

### *By-catch and Discarding*

The issues of by-catch and discarding are topical issues in marine fisheries management. NASCO seeks advice from ICES annually on non-catch fishing mortality of the salmon gear used, on the by-catch of other species in salmon gear and on the by-catch of salmon in any existing and new fisheries for other species. The advice from ICES is that the current salmon fishery in both the NAC and NEAC areas probably has no, or only minor, influence on the marine ecosystem, although there may be impacts from exploitation of salmon on riverine ecosystems. There is no information on by-catch of other species in the internal-use fishery at West Greenland which predominantly uses nearshore surface gillnets. ICES had previously raised a concern about the possible by-catch of salmon in fisheries for pelagic marine fish species in the North-East Atlantic. Research conducted under the SALSEA Programme should support refinement of the estimates of the level of this by-catch.



*Mackerel caught during research fishing.*

## Habitat Protection and Restoration

# 6

As a consequence of the Industrial Revolution much salmon habitat was lost and this must have been a major contributory factor to the decline in wild salmon stocks. Causes include physical, chemical and biological factors, such as hydro-electric dams, gravel abstraction, canalization, water abstraction and pollution. However, with the decline of heavy industry and restoration initiatives, there have been significant gains in recent years. The NASCO Convention calls for the restoration of stocks and in England and Wales, for example, there are now more rivers with salmon than at any stage since the Industrial Revolution. A 'NASCO Plan of Action for the Application of the Precautionary Approach to the Protection and Restoration of Atlantic Salmon Habitat' has been developed with the objective of maintaining and, where possible, increasing the current productive capacity of salmon habitat. The Plan of Action requires each jurisdiction to develop a comprehensive plan to protect and restore habitat and to establish inventories of salmon habitat. A major advance has been the establishment by NASCO of a database of salmon rivers that is publicly available on the NASCO website. This provides information on river location and characteristics, stock status and impact factors and allows information to be viewed interactively on maps.

The goals and key issues for NASCO's work on habitat protection and restoration are described in section 11.

## Salmon Aquaculture, Introductions and Transfers and Transgenics

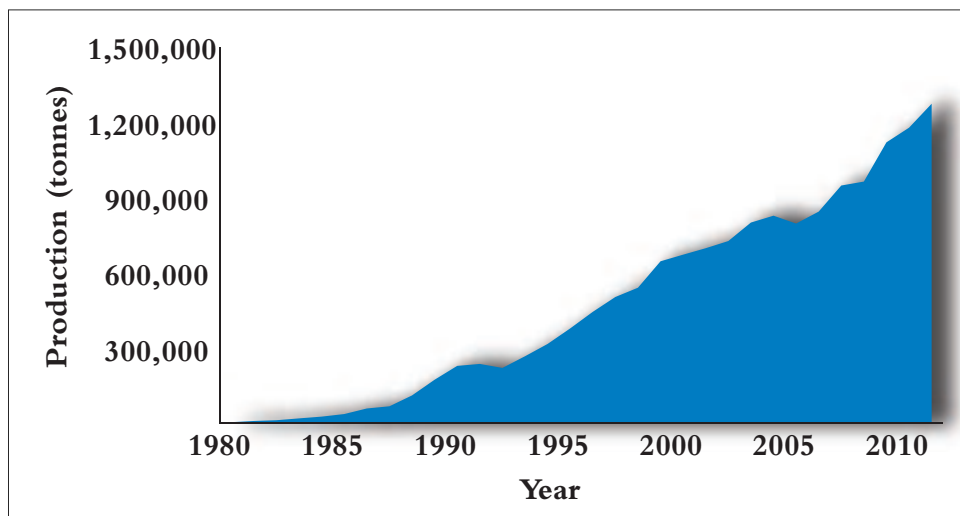
# 7

When NASCO was established, production of farmed salmon in the North Atlantic was around 25,000 tonnes. By 2011, this production had increased to more than 1.2 million tonnes or about 900 times the harvest of wild salmon. NASCO first reviewed the potential impacts of this industry on the wild salmon stocks in 1988. Subsequently it has organised workshops and international symposia (in 1990, 1997 and 2005) to ensure it has the best available scientific information on which to base its decisions. The growth of this major industry has raised concerns, particularly about the genetic and other impacts of escaped farmed salmon on the wild salmon stocks and about the transmission of diseases and parasites, especially sea lice, from farmed to wild salmon. The scientific information

available shows that while the industry has made progress, the scale of the industry and other factors mean that serious concerns remain.

The Council has developed various guidance on measures to minimise impacts of aquaculture on the wild stocks. In 2001, NASCO established a Liaison Group with the International Salmon Farmers' Association (ISFA). The objective of the Liaison Group is to establish mutually beneficial working arrangements in order to make recommendations on wild salmon conservation and sustainable salmon farming practices, to maximise potential benefits and to minimise potential risks to both. Both the NEAC and NAC have developed agreements relating to introductions and transfers. In 2003, in the light of continuing concerns and in order to consolidate its various agreements into one document that was consistent with the Precautionary Approach, the Council adopted the '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', the 'Williamsburg Resolution'. This Resolution includes guidelines on stocking, on the containment of farmed salmon and on transgenic salmon.

The goals and key issues for NASCO's work on salmon aquaculture, introductions and transfers and transgenics are described in section 11.



*Production of farmed Atlantic salmon in the North Atlantic*

## *Gyrodactylus salaris*

# 8

The parasite *Gyrodactylus salaris* is a very serious problem in some parts of the NEAC area, following its inadvertent introduction from the Baltic Sea region. It strikes at the very heart of salmon conservation by killing young salmon in fresh water. In Norway, the parasite has infected 48 watercourses, where the juvenile populations have declined by 86% on average. Twenty of these rivers have been successfully treated. The parasite has also been identified in rivers on the west coast of Sweden, in rivers in Karelia in Russia, and in watercourses in Northern Finland. Iceland, the UK and Ireland are free of the parasite. It is considered absolutely vital that the further spread of the parasite is prevented and that it is eliminated from infected rivers. In 2004, the NEAC adopted a ‘road map’ containing recommendations to enhance cooperation on monitoring, research and exchange of information in relation to this parasite and on measures to prevent its spread.

One of the key elements of the ‘road map’ was the need for additional guarantees allowing restrictions on the movement of live fish under EU legislation to be continued in the future. In 2010, a Commission decision was adopted that meant that certain jurisdictions (Ireland, the UK and specified river catchments in Finland) would be able to continue to take protective measures against the parasite.

The goals and key issues for NASCO’s work on *G. salaris* are described in section 11.

## Socio-economics

# 9

The wild Atlantic salmon has many aspects to its value. In addition to the values associated with the fisheries (recreational, commercial and subsistence) and to fishery-related businesses, there are other values associated with the salmon itself. It is highly prized by society in general and is an indicator of environmental quality. These values are infrequently assessed, but may greatly exceed the values associated with the fisheries. In 2003 and 2004, NASCO reviewed the various aspects of the salmon’s value and approaches to assess them. This resulted in the development of ‘Guidelines for Incorporating Social and Economic Factors in Decisions under the Precautionary Approach’. These are intended to support and inform decision-making and provide a framework for incorporating social and economic factors into decisions which may affect the wild Atlantic salmon and the environments in which it lives. The guidelines indicate that the means by which social and economic factors may be incorporated in decisions under the

Precautionary Approach is through socio-economic impact assessments.

The goals and key issues for NASCO's work on socio-economics are described in section 11.

## Adoption and Application of the Precautionary Approach and Ecosystem Approach

# 10

NASCO was one of the first Regional Fisheries Management Organizations (RFMOs) to introduce the Precautionary Approach to its work. In 1998, 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. Accordingly, NASCO and its Parties agreed to be more cautious when information was uncertain, unreliable or inadequate. It was also agreed that the absence of adequate scientific information and advice should not be used as a reason for postponing or failing to take conservation and management measures. During the period 1999-2004, NASCO either reviewed and adapted all its existing agreements, to ensure consistency with this new approach, or developed new agreements and guidelines.

The NASCO Agreement on Adoption of a Precautionary Approach states that the application of a Precautionary Approach requires that all salmon stocks in the NASCO Convention area should be maintained above their conservation limits by use of management targets and that stock rebuilding programmes should be developed for stocks that are below their conservation limits. The inclusion of stock rebuilding programmes within the NASCO Agreement reflects similar clauses in other international agreements that include provisions relating to application of the Precautionary Approach (e.g. the UN 'Fish Stocks' Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks). In 2004, NASCO adopted 'Guidelines on the Use of Stock Rebuilding Programmes in the Context of the Precautionary Management of Salmon Stocks'. This document provides guidance on the process of establishing a stock rebuilding programme for a salmon stock and what such a programme might contain.

By expanding its work to habitat protection and restoration, by-catch, aquaculture, socio-economic factors and other areas, NASCO considers that it is adopting and applying an Ecosystem Approach to its work.

## Assessing NASCO's Performance after 20 Years: a New Strategic Approach to its Work

11

### *The First Performance Review*

To mark its Twentieth Anniversary, NASCO undertook a review in 2004/2005 of the challenges it faces in the management and conservation of wild Atlantic salmon and the ways in which these challenges may be met in the coming decade. This performance review, which was called the 'Next Steps for NASCO', was conducted by NASCO Parties and its NGOs and it also considered the need for changes to the organisation and its relationship with its stakeholders. In undertaking this review, NASCO presented details of its work, over the twenty years since its establishment, at open consultation meetings held in Europe and North America, and sought feedback from all stakeholders interested in the management and conservation of Atlantic salmon. The stakeholders indicated that while NASCO had developed good agreements on a range of topics relating to salmon conservation, there needed to be further progress with their implementation. The NGO community also indicated that they wanted to be increasingly involved in NASCO's work and they strongly supported the need for research on salmon at sea, as such research is extremely expensive and could only be undertaken through international cooperation and pooling of resources.

### *The Strategic Approach*

In 2005, in the light of the findings of this review, the Council adopted a 'Strategic Approach for NASCO's 'Next Steps'', (hereinafter referred to as the 'Strategic Approach'). Some of the recommendations in the Strategic Approach were adopted immediately and others, concerning transparency and inclusivity and commitment and accountability, were implemented the following year. Under the Strategic Approach, NASCO's vision is simple:



*NASCO will pursue the restoration of abundant Atlantic salmon stocks throughout the species' range with the aim of providing the greatest possible benefits to society and individuals.*

To achieve this vision, the Strategic Approach indicates that NASCO will:

- be committed to the measures and agreements it develops and actively review progress with implementation plans;
- increase its effectiveness and efficiency by ensuring that it uses the best available knowledge to inform its actions and by actively seeking to identify and respond to new opportunities and threats;
- ensure transparency in its operations and enhance the use of NGO and stakeholder knowledge and experience;
- increase its visibility and raise its profile in international, national and local communities by developing its communications and public relations activities.

The Council set a multi-year programme for introducing all the recommendations in the Strategic Approach and this was completed in 2011.

### *Management of Salmon Fisheries*

NASCO's goal is to promote the diversity and abundance of salmon stocks and maintain all stocks above their conservation limits. The key issues are to:

- maintain an effective prohibition on fishing for salmon beyond areas of fisheries jurisdiction;
- further improve the 'fairness' and balance in management of distant-water fisheries;
- explore possibilities for longer-term regulatory measures;
- exchange information and transfer expertise and knowledge between Parties and between NGOs and the authorities;
- further develop the knowledge basis for fisheries regulations.

### *Habitat Protection and Restoration*

The goal for NASCO is to maintain and, where possible, increase the current productive capacity of Atlantic salmon habitat. The key issues in relation to habitat protection and restoration are to:

- ensure effective implementation of NASCO's Plan of Action for Habitat Protection and Restoration;

- enhance sharing and exchange of information on habitat issues and best management practices between NASCO Parties and other relevant international bodies;
- maintain the NASCO salmon rivers database.

### *Aquaculture, Introductions and Transfers and Transgenics*

NASCO's goal is to minimise the possible adverse impacts of aquaculture, introductions and transfers and transgenics on the wild stocks of Atlantic salmon, working with industry stakeholders, where appropriate. The key issues include:

- minimising the escape of farmed salmon to a level that is as close as practicable to zero;
- minimising any negative impacts of ranched salmon by utilising, as far as possible, local stocks and developing and applying appropriate release and harvest strategies;
- minimising the adverse genetic and other biological interactions from salmon enhancement activities including introductions and transfers;
- minimising the risk of transmission to wild salmon stocks of diseases and parasites from all aquaculture activities and from introductions and transfers.

### *Gyrodactylus salaris*

NASCO's goal is to prevent the further spread of this parasite and to eradicate it from infected areas, working with stakeholders where appropriate. The key issues are to:

- minimise the threat posed by *G. salaris* to Atlantic salmon;
- enhance cooperation on monitoring, research and dissemination of information regarding *G. salaris*, with special regard to the lack of knowledge on distribution and ecology of the parasite;
- strengthen international, national and regional legislation and guidelines to prevent the further spread of *G. salaris*.

### *Socio-economics*

NASCO's goal is to ensure that the salmon stocks provide the greatest possible benefits to society and individuals. The key issues in relation to the social and economic aspects of the Atlantic salmon are to:

- ensure that appropriate emphasis is given to the social and economic aspects of the Atlantic salmon;

- strengthen the socio-economic data as a basis for managing Atlantic salmon;
- integrate social and economic aspects and considerations in an open and transparent way into the decision-making processes within NASCO;
- disseminate information on the social and economic aspects of the wild Atlantic salmon in order to ensure that they are given due weight compared to other important commercial and public interests.

### *Initiatives for Endangered Salmon Populations*

The goal for NASCO and its Parties is to cooperate internationally to protect and rebuild threatened and endangered salmon populations in order to preserve natural diversity. The key issues in relation to endangered salmon populations are to:

- develop a common terminology to describe the level of threat (i.e. endangered, threatened, near-threatened, vulnerable);
- choose the appropriate strategy, management actions and conservation approaches;
- facilitate a regular exchange of know-how in this field;
- identify efficient stock monitoring techniques to measure success.

### *Research on Salmon at Sea*

The goal for NASCO and its Parties is to promote collaboration and cooperation on research into the causes of marine mortality of Atlantic salmon and the opportunities to counteract this mortality. The key issues in relation to research on salmon at sea are to:

- develop an effective fund-raising strategy and identify and target potential sponsors;
- strengthen NGO involvement in, and support for, the Board and for its fund-raising activities.



*Research fishing for salmon in the Northwest Atlantic.*

## Changes in NASCO's Approach

# 12

### *Fairness and Balance*

During the 'Next Steps' process, Denmark (in respect of the Faroe Islands and Greenland) stressed that it sought greater 'fairness' and balance in the management of distant-water fisheries and those by States of origin. Over the years, the need to see further conservation measures taken by States of origin on a wide range of pressures facing the resource had been stressed. Various approaches had been tried to provide Greenland and Faroe Islands with the information they sought to assess commitment to NASCO's agreements. These included an exchange of laws, regulations and programmes in place. However, this did not provide the information in a digestible format or allow for any critical review.

### *Commitment to NASCO Agreements*

To deal with these concerns and to improve commitment to NASCO's agreements, in 2007 each jurisdiction submitted an Implementation Plan (IP) detailing the measures to be taken over a five-year period in relation to: management of salmon fisheries; habitat protection and restoration; and minimising the adverse impacts of aquaculture, introductions and transfers and transgenics; and other factors. Progress in implementing the measures in the IPs is reported annually through brief progress reports on all topic areas and each year a detailed review of progress on one of the three topic areas was provided through Focus Area Reports (FARs). These IPs and FARs were reviewed by *Ad hoc* Groups including representatives of the NGOs. The paragraph below provides a summary of the outcome of the FAR reviews in terms of whether the measures being taken were considered to be consistent with NASCO's agreements. All assessments were unanimously agreed by the Review Groups. Most, but not all, jurisdictions submitted both IPs and FARs, although some FARs were submitted too late to be reviewed. Greenland and Faroes have only very limited salmon habitat and were not expected to provide FARs on this topic and similarly Greenland does not have aquaculture activities.

It is clear that while progress has been made, in all cases the Review Groups have indicated that additional actions are needed to ensure consistency with NASCO's agreements. In summary, the Review Groups indicated that additional actions were required for:

- 10 out of 11 jurisdictions in relation to management of salmon fisheries;
- 8 out of 12 jurisdictions with regard to habitat protection and restoration;
- 12 out of 14 jurisdictions, and all jurisdictions with salmon farming, in relation to aquaculture and related activities.

With regard to fisheries, the issues identified included lack of progress in establishing conservation limits and on the management of mixed-stock fisheries. For habitat, the issues

included failure to develop comprehensive habitat plans and lack of clarity about how the burden of proof is placed on proponents of activities that could impact the wild salmon. For aquaculture, the issues included failure to present information to demonstrate progress towards the international goals for sea lice and containment, inadequate controls on fish movements and inadequate development and implementation of containment action plans.

In the light of the above assessments, the FAR Review Groups felt that they should develop additional guidance in relation to fisheries management and habitat protection and restoration so as to assist jurisdictions in making further progress in implementing NASCO's agreements and guidelines, to provide a basis for future exchange of information and to assist with future reporting. In addition, guidance was developed by the Liaison Group to address impacts of salmon farming on the wild stocks. These guidelines were an unexpected bonus which should inform the next reporting cycle. They are as follows:

- Guidelines for the Management of Salmon Fisheries;
- Guidelines for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat;
- Guidance on Best Management Practices to Address Impacts of Sea Lice and Escaped Farmed Salmon on Wild Salmon Stocks.

In 2008, NASCO prepared a first international collection of socio-economic information including the various elements of the value of the Atlantic salmon.

### *Effectiveness and Efficiency*

NASCO has sought to increase its effectiveness and efficiency by ensuring that it uses the best available knowledge to inform its actions and by actively seeking to identify and respond to new opportunities and threats. NASCO has gone to great lengths to ensure it has the best available knowledge through careful formulation of its request to ICES, convening major international symposia, establishing Working Groups on particular issues, organising workshops and other meetings and by developing and partially funding a major programme of research on salmon at sea. Since 2005, the requests to ICES have sought information on significant new or emerging threats to, or opportunities for, salmon conservation and management. A range of information has been provided by ICES, the Parties and the NGOs, including information on new parasitic infections, the impact of renewable energy on salmon, development of resistance to sea lice treatments, effects of assessment procedures (such as handling and tagging) on salmon survival and approaches to fish passage etc.

### *Transparency and Inclusivity*

NASCO currently has 35 accredited NGOs and it has welcomed their involvement in its

work. The conditions governing their participation have been modified over the years to allow for greatly increased involvement in NASCO's work. Significant changes were made as a result of the 'Next Steps' review. Prior to this review, NGOs could attend all meetings of the Council and Commissions, receive all documents for these meetings, and make Opening Statements (subject to a time limit). Since 2006, the NGOs can additionally participate in discussions on all Council and Commission agenda items (other than finance and administrative matters) before and after interventions by the Parties and participate in all meetings, including serving on Review Groups. These changes have been welcomed by the NGOs and they go much further than those contained in Article 12 of the UN 'Fish Stocks' Agreement that recommend only that NGOs have the opportunity to take part in meetings of RFMOs and have timely access to the records and reports of such organizations.

### *Visibility and Profile*

In 2007, NASCO established a Public Relations Working Group to develop a clear public relations strategy aimed at enhancing NASCO's profile and ensuring the most effective publicity for its work and achievements. In late 2005 and early 2006, a pilot study to raise NASCO's profile was conducted with the involvement of a public relations firm. The objectives of this study were to stimulate media interest in NASCO and its work. The experience from newspaper articles was that while they no doubt increased public awareness of NASCO's work, some were inaccurate and could damage NASCO's credibility while others focused only on areas of conflict rather than the bigger picture of issues concerning salmon conservation.

The Public Relations Group developed examples of key messages, target audiences and a media fact sheet. A database of educational programmes has been established and links to these programmes' websites have been included on the NASCO website. The Public Relations Group believed that NASCO should develop an annual 'state of salmon populations' report and undertake a major enhancement of the Organization's websites. Both the NASCO and IASRB websites have, therefore, been expanded and enhanced, and positive feedback has been received. Monitoring indicates that both sites have attracted a good level of interest. While an annual 'state of the salmon' report has not been produced as such, a database of salmon rivers, including stock status information, has been developed and is available on the NASCO website. This is the first compilation ever produced of the 2,500+ rivers flowing into the North Atlantic and the interactive nature of the database will make it a valuable public relations tool that has been welcomed by the Council and the NGOs. Furthermore, a brief summary of the annual ICES advice is available on the NASCO website.

### *Salmon at Sea*

A major recommendation from the stakeholder consultation meetings was that NASCO should take steps to improve understanding of the factors affecting salmon at sea. This was because, despite all the measures taken by NASCO and its Parties, the abundance of salmon has continued to decline. The Atlantic salmon is being lost at sea but the reasons were unknown. Due to the cost of research at sea, this part of the salmon's life-cycle had been described as a 'black box'. In 2005, having established and reviewed an inventory of research related to salmon mortality at sea that is updated annually, NASCO and its IASRB agreed that the immediate research priority would be studies of the distribution and migration of salmon at sea in relation to predation and feeding opportunities.

A major, innovative programme of research, the SALSEA Programme, was developed. Since 2005, this programme has been funded and implemented through a public/private partnership and the results presented at an international symposium, the 'Salmon Summit', held in La Rochelle, France in October 2011. There will be two reports from this meeting. The peer reviewed scientific papers will be published in a special symposium issue of the ICES Journal of Marine Science and a separate report has been published focusing on the management implications of the research. It is too early to appreciate all the implications of the new knowledge from the Summit but a clear message was that conditions in the North Atlantic have changed as the Northern hemisphere has warmed and that this has implications for the salmon throughout its range in both fresh water and the sea. In these changing conditions, it was concluded that managers must redouble their efforts to maximise smolt numbers and their quality so as to maximise their potential to adapt to a fast changing environment.



## Progress in Implementing the 'Next Steps' Recommendations

# 13

The Council has reviewed the 'Next Steps' process to highlight what it has delivered, where it has worked well and to consider actions required to ensure that the Strategic Approach has been implemented. A Review Group, made up of representatives of the Parties and the NGOs, concluded that NASCO had moved quickly in implementing the measures in the Strategic Approach. The majority of the decisions in the Strategic Approach have either been implemented or significant progress is being made. In particular, there is now far more transparency and greater accountability of the measures taken by jurisdictions in accordance with NASCO's agreements, and progress is also being made in raising NASCO's profile.

The Review Group also considered that progress has been made on most of the key issues in the Strategic Approach, although there has been limited progress on initiatives for endangered salmon populations. Recommendations for further actions relating to the challenges identified in the Strategic Approach were developed, some streamlining in reporting was suggested and it was stressed that there should be greater emphasis on monitoring and evaluation of activities with clearly described, identifiable, measurable outcomes and timescales in the next round of IPs. It was recommended that FARs should be developed around specific themes and that progress on IPs should be assessed through the Annual Reports, which would be reviewed. These recommendations were adopted in 2012.







In 2012, an External Performance Review of the work of NASCO was conducted by a panel comprising experts nominated by the Food and Agriculture Organization of the United Nations (FAO), the United Nations Division of Ocean Affairs and the Law of the Sea (UNDOALOS) and a former Secretary of the North-East Atlantic Fisheries Commission (NEAFC). The purpose of this External Performance Review was to assess the performance of NASCO since its establishment in 1984 against the objectives set out in the Convention and other relevant international instruments addressing the conservation and management of aquatic living resources. A summary of the substance of the Review Panel's recommendations follows.

The Panel commended the 'Next Steps' process and the great efforts made by NASCO to address issues affecting all phases of the salmon's life-cycle in rivers, estuaries and during the migration from natal waters to the feeding areas beyond fisheries jurisdiction. It noted that, importantly, this process had also addressed external impacts, such as habitat destruction in rivers, habitat restoration and the effect of aquaculture near salmon rivers. The Panel highlighted an apparent imbalance and disconnect between the Convention-based decisions and the 'soft law' measures that have been adopted in the context of the 'Next Steps' process, including in terms of their operation and effect, and with regard to monitoring, control, surveillance and enforcement.

It noted that in the past decade, a number of RFMOs had taken steps to update and modernize their conventions, including in response to concerns expressed by the international community on the status of fish stocks and on the work of these organizations. The Panel suggested that such a decision in NASCO could serve to provide it with the basis to agree on binding, Convention-based measures for all phases and all habitats in the life-cycle of the North Atlantic salmon.

The Panel recommended a continuation of the 'Next Steps' process, within the framework of the Strategic Approach, which has provided a comprehensive framework for the work to be undertaken. In the next reporting cycle, the Panel recommended that the Parties should continue to implement the decisions and to address the issues identified in the Strategic Approach and for the second cycle of reporting it will be important to address the need for additional actions identified in the first cycle. The Panel believed that the next cycle of reporting should focus on assessing the effectiveness of the measures taken by the Parties. The Council welcomed the Panel's report and is developing responses to its recommendations.

- The salmon is a species with a complex life-cycle inhabiting freshwater, coastal and offshore environments. This means that NASCO's work in rationally managing and conserving the resource must cover a broad range of issues;
- The establishment of NASCO has provided a new international forum for cooperation and information exchange on Atlantic salmon. Two jurisdictions that exploit salmon in the North Atlantic, Iceland and France (in respect of St Pierre and Miquelon), are not Parties to the Convention, although France (in respect of St Pierre and Miquelon) is cooperating with NASCO through observer status on the management of its fishery and Iceland continues to contribute to the development of the scientific advice by ICES;
- A 'sanctuary' free of salmon fisheries and covering most of the North Atlantic was created immediately by the NASCO Convention, ending a large mixed-stock fishery in the Northern Norwegian Sea;
- Fishing for salmon in international waters by non-NASCO Parties has been addressed and is now not considered to be a problem;
- NASCO has made great efforts to obtain the best scientific advice, free from political influence, and has followed it;
- There have been very large reductions in the harvests in the distant-water fisheries through agreements on NASCO regulatory measures and decisions. As a result of these conservation efforts, there has been a 'back pressure' on States of origin to take equivalent measures which has led to reductions in fishing effort all around the North Atlantic;
- Salmon fisheries are generally considered by ICES to have no, or only minor influence, on marine ecosystems but there may be impacts of exploitation of salmon on riverine ecosystems;
- The work of NASCO has broadened markedly over the last twenty-eight years. NASCO's mandate of conserving and restoring salmon stocks cannot be achieved by focusing only on a single issue, such as the distant-water fisheries at Greenland and Faroes, and actions to address all the pressures facing the resource are needed;
- NASCO adopted, at an early stage, the Precautionary Approach and a wide range of agreements have been developed in order to apply the Precautionary Approach to: the management of salmon fisheries; habitat protection and restoration; aquaculture and related activities; stock rebuilding; and socio-economics;
- Information on the socio-economic values of salmon has been collected and details of

how socio-economic factors are incorporated into decision-making is being sought;

- NASCO considers that by broadening the focus of its work it is applying an Ecosystem Approach;
- Comparability of catch statistics has improved and there is exchange of information on reported and unreported catches and catch and release fishing;
- Procedures have been implemented to ensure meaningful reporting under NASCO's agreements and for critical review of the measures being taken by jurisdictions. However, there is a need for additional actions by all jurisdictions to ensure consistency with NASCO's agreements;
- Despite all the commitments to conservation and the sacrifices made, salmon abundance remains low due to increased mortality at sea;
- An inventory relating to research on salmon at sea has been established and used to identify research needs and a major international research project has been implemented to better understand the factors responsible for the increased mortality at sea;
- This new research at sea has highlighted that the changing climate will pose real challenges for salmon managers in the future. The implication is that managers will need to redouble their conservation efforts in freshwater, estuarine and coastal areas to ensure that the maximum number of healthy salmon smolts enter the ocean;
- NASCO has greatly enhanced the involvement of stakeholders in its work. It has increased its transparency and inclusivity to a major degree; the NGO community has played a very constructive and responsible role in NASCO's work;
- NASCO has developed liaison with the salmon farming industry with a view to sustainable salmon farming practices to safeguard the wild stocks;
- NASCO has improved its profile through re-design of its websites but there are challenges in working with the media;
- A major new interactive inventory on the status of salmon rivers has been established on the website and should itself assist in raising NASCO's profile;
- The spirit of cooperation in NASCO has been good with all agreements developed through consensus.

Malcolm L. Windsor and Peter Hutchinson. 2012. *The Work of NASCO ~ 1984 to 2012.*

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