

# Report of the North Atlantic Salmon Conservation Organization 2002 - 2003

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We believe that NASCO has, over the last few years, taken a lead in reaching major agreements on the Precautionary Approach. The main requirements of this approach are to give priority to conserving the productive capacity of the resource, to avoid irreversible change, and to protect the rights of future generations. This can only be achieved if a holistic approach is adopted to salmon conservation and management, focusing on all the factors affecting the resource. Using this new “lens”, NASCO has examined its requirements for scientific advice, its work on management of the salmon fisheries, its actions to protect and restore salmon habitat, its measures to minimise impacts of introductions and transfers, aquaculture and transgenics, its measures to minimise by-catch of salmon in pelagic fisheries and its actions to minimise unreported catches. NASCO’s Contracting Parties have started to implement measures to apply the Precautionary Approach to these areas of salmon conservation and management and are reporting back to the Organization on the actions taken. Initial

consideration has been given to how, under a Precautionary Approach, social and economic factors can be incorporated into decisions without negating their effectiveness. Initial guidelines on stock rebuilding programmes have also been developed.

The situation facing wild salmon remains critical. Marine survival remains low. Salmon are quite simply being lost at sea. In spite of closures of many fisheries, major reductions in effort in other fisheries and increasing use of catch and release in recreational fisheries, the salmon have not so far responded. The situation is particularly serious in the southern part of the species’ range. For example, populations of salmon in both the United States and Canada have been listed as endangered and recovery plans are under development. Conversely, there are some encouraging signs that the abundance of some Northern European stocks is beginning to improve. The factors influencing mortality of salmon at sea are poorly understood but the Precautionary Approach demands that the



absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures. NASCO and its Parties have taken a wide range of restrictive measures to adapt to these conditions so as to ensure that the salmon stocks have the best chance of recovery when conditions in the ocean improve. However, a priority under the Precautionary Approach is to obtain more information on which to base management decisions. It is for this reason that NASCO has established an International Atlantic Salmon Research Board to promote cooperation on research into why salmon are being lost at sea. We need to better understand the causes of this mortality and the opportunities to counteract them. The Board has already taken steps to improve coordination of existing research and new projects to assess by-catch of salmon in pelagic fisheries have been initiated. Research at sea is very costly, and governments are unable to provide all the finance necessary. In order to supplement the already significant investment in research at sea by NASCO's Parties, the Board is initiating a fund-raising project, targeted at companies and individuals with an interest in wild salmon conservation, in order to support a major multi-disciplinary research project into the distribution and migration of salmon at sea. Only when we have a clearer understanding of the salmon's migration routes will we be able to start to identify the factors driving the decline in abundance and the opportunities to address them.

NASCO remains concerned about impacts of aquaculture on wild stocks and through our Liaison Group with the North Atlantic salmon farming industry we are starting to examine the opportunities for enhanced cooperation between wild and farmed salmon interests to minimise these impacts and restore wild salmon stocks. We believe the industry can bring valuable know-how to stock-rebuilding efforts.

The wild Atlantic salmon has many aspects to its value and those associated with its "existence" rather than its "exploitation" are likely to be very

significant. We are fortunate that the public at large care about the wild salmon resource. It is also an indicator species of healthy aquatic environments. We believe that the presence of salmon in our rivers, going about their migrations, adds to human wellbeing. Future generations have a right to enjoy this magnificent resource and the steps taken by NASCO and its Contracting Parties in implementing the Precautionary Approach are vital in ensuring that this right is not prejudiced.

*Jacque Robichaud - President*

*Malcolm Windsor - Secretary*

## COUNCIL

President	Mr Jacque Robichaud (Canada)	
Vice-President	Mr Eidur Gudnason (Iceland)	<i>to June 2002</i>
	Mr Ole Tougaard (European Union)	<i>from June 2002</i>

## NORTH AMERICAN COMMISSION

Chairman	Mr Pierre Tremblay (Canada)	
Vice-Chairman	Dr Andrew Rosenberg (USA)	<i>to June 2002</i>
	Mr George Lapointe (USA)	<i>from June 2002</i>
Rapporteur	Ms Kimberly Blankenkemper (USA)	

## WEST GREENLAND COMMISSION

Chairman	Mr Andrew Thomson (European Union)	<i>to June 2002</i>
	Mr Rollie Schmitt (USA)	<i>to June 2003</i>
	Ms Patricia Kurkul (USA)	<i>from June 2003</i>
Vice-Chairman	Mr Mike Calcutt (Canada)	<i>to June 2002</i>
	Ms Julia Barrow (Canada)	<i>from June 2002</i>
Rapporteur	Mr Tim Young (Canada)	<i>2002</i>
	Ms Julia Barrow (Canada)	<i>2003</i>

## NORTH-EAST ATLANTIC COMMISSION

Chairman	Mr Vladimir Moskalenko (Russian Federation)	<i>to June 2002</i>
	Mr Arni Olafsson (Denmark (in respect of the Faroe Islands and Greenland))	<i>from June 2002</i>
Vice-Chairman	Mr Arni Isaksson (Iceland)	<i>to June 2002</i>
	Mr Steinar Hermansen (Norway)	<i>from June 2002</i>
Rapporteur	Dr Niall Ó Maoiléidigh (European Union)	

## FINANCE AND ADMINISTRATION COMMITTEE

Chairman	Mr Steinar Hermansen (Norway)
Vice-Chairman	Mr Andrew Thomson (European Union)

## STANDING COMMITTEE ON THE PRECAUTIONARY APPROACH

Chairman	Mr Jacque Robichaud (Canada)
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## STANDING SCIENTIFIC COMMITTEE

Chairman	Dr Peter Hutchinson
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## INTERNATIONAL ATLANTIC SALMON RESEARCH BOARD

Chairman of the Board	Mr Jacque Robichaud (Canada)
Chairman of the Scientific Advisory Group	Mr David Meerburg (Canada)

## SECRETARIAT

Secretary	Dr Malcolm Windsor
Assistant Secretary	Dr Peter Hutchinson
Personal Assistant	Miss Margaret Nicolson
Personal Assistant	Mrs Sophie Ross

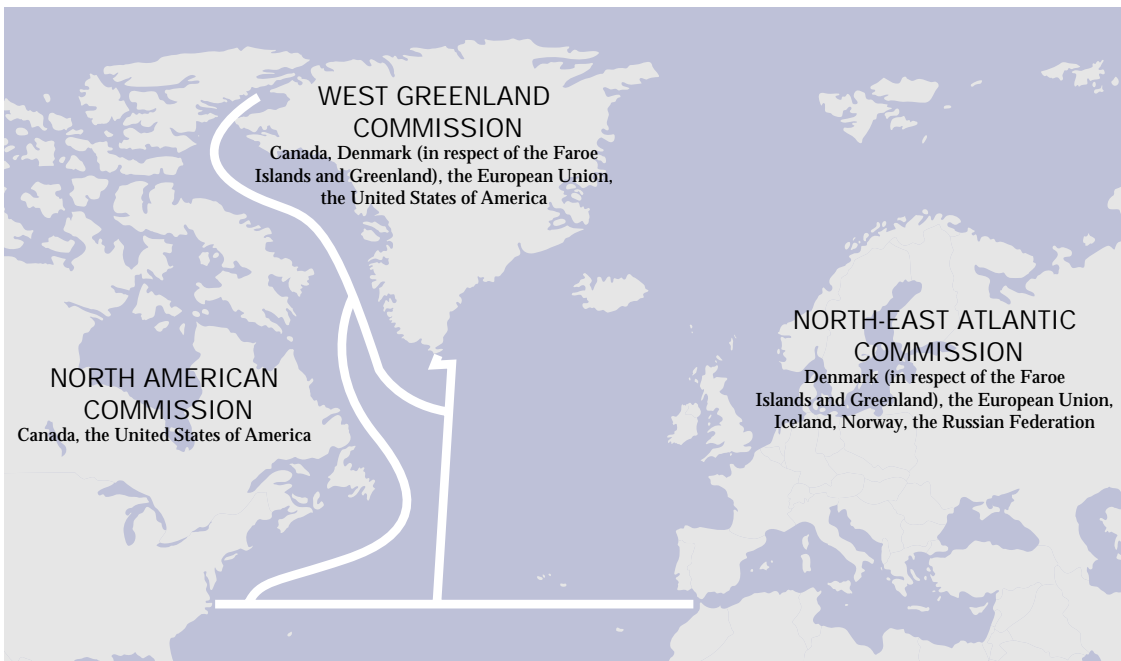
The North Atlantic Salmon Conservation Organization (NASCO) was established in 1984 under the Convention for the Conservation of Salmon in the North Atlantic Ocean. It is an international organization with the objective of contributing through consultation and cooperation to the conservation, restoration, 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 and a Secretariat. The Council is made up of representatives of all the Parties to the Convention, i.e. Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Iceland, Norway, the Russian Federation and the United States of America. The main functions of the Council are to provide a forum for the study, analysis and exchange of information and for consultation and cooperation on matters

concerning salmon stocks; to coordinate the activities of the Commissions; and to make recommendations on scientific research. Its decisions are taken in the main by three-quarters majority.

The functions of the three regional Commissions - the North American Commission, the North-East Atlantic Commission and the West Greenland Commission - are to provide fora for consultation and cooperation on salmon stocks; to propose regulatory measures for fishing in the fishery zones of members for salmon originating in the rivers of other Parties; and to make recommendations to the Council on scientific research. The North American Commission has a more detailed mandate which requires each member to take measures to minimise by-catch of salmon originating in the rivers of the other member. It also requires that fishing patterns in salmon

Map of the Convention area showing the membership of the regional Commissions



*Note:*

*In the North American Commission the European Union has the right to submit and vote on proposals for regulatory measures concerning salmon stocks originating in the territories referred to in Article 18 of the Convention.*

*In the North-East Atlantic Commission Canada and the United States of America each has the right to submit and vote on proposals for regulatory measures concerning salmon stocks originating in the rivers of Canada or the United States of America, respectively, and occurring off East Greenland.*

fisheries should not be altered in a manner that results in initiation of fishing or increases in catches of salmon originating in the rivers of another Party without the consent of that Party. The Commissions have restricted membership and decisions require unanimous agreement.

The Government of Ukraine has observer status to NASCO. The following non-government organizations have observer status to NASCO:

American Fisheries Society  
Association of Icelandic Angling Clubs  
Association Internationale de Défense du Saumon Atlantique  
Association of Salmon Fishery Boards  
Atlantic Salmon Federation, Canada  
Atlantic Salmon Federation, USA  
Atlantic Salmon Trust  
Coomhola Salmon Trust Limited  
European Anglers Alliance  
Faroes Sportsfishing Association  
Federation of Icelandic River Owners  
Federation of Irish Salmon and Sea-Trout Anglers  
Fédération Québécoise pour le Saumon Atlantique  
Finnish Sport Fishermen's Association  
Fondation Saumon  
Greenpeace International  
Institute of Fisheries Management  
International Friends of Wild Salmon  
National Anglers Representative Association  
Norges Bondelag (Norwegian Farmers Union)  
Norges Jeger og Fiskerforbund (Norwegian Association of Hunters and Anglers)  
Norske Lakseelver (Norwegian Salmon Rivers)  
Salmon Net Fishing Association of Scotland

Salmon and Trout Association  
Sami Parlamenta  
Scottish Anglers National Association  
Ulster Angling Federation Limited  
World Wide Fund for Nature (Norway)  
World Wildlife Fund (USA)

The following inter-government organizations have observer status to NASCO:

International Baltic Sea Fishery Commission  
International Council for the Exploration of the Sea  
North Atlantic Marine Mammal Commission  
North-East Atlantic Fisheries Commission  
North Pacific Anadromous Fish Commission

## The Precautionary Approach to Atlantic Salmon Management

In response to the serious situation facing wild Atlantic salmon, NASCO and its Contracting Parties have 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. This approach will be applied to the entire range of salmon conservation and management activities. During the period covered by this report progress has been made in consolidating the actions taken previously to apply the Precautionary Approach to management of fisheries and habitat protection and restoration. New actions have also been taken in relation to application of the Precautionary Approach to: aquaculture, introductions and transfers, and transgenics; by-catch of Atlantic salmon in pelagic fisheries; stock rebuilding programmes; and in resolving how social and economic issues can be incorporated into decisions taken under the Precautionary Approach without negating its effectiveness.

### **Management of North Atlantic Salmon Fisheries**

In response to the prolonged period of low abundance of many salmon stocks, major sacrifices have been made all around the North Atlantic through the restriction of harvests. To assist NASCO and its Contracting Parties in ensuring that only the exploitable surplus is harvested, and that effective mechanisms are in place for monitoring, surveillance, control and enforcement to ensure compliance with management measures, the Council adopted a Decision Structure in 2000 which was applied and evaluated by the Contracting Parties on a selection of rivers over a period of two years. In the light of initial experience gained, a revised Decision Structure was adopted. It is the Council's intention that this be widely applied without delay by managers, in cooperation with stakeholders, so as to provide a uniform and logical process for describing the

status of stocks relative to biological reference points (or other measures of abundance) taking account of diversity criteria, and to ensure that management of the fisheries responds to trends in abundance and diversity. Returns made by the Parties in 2003 indicate that initial progress has been made in implementation of the Decision Structure, in monitoring the effects of management measures and in introducing measures to address failures in abundance. The Decision Structure is being used both to provide guidance to managers on how to reach management decisions and as a record of decisions taken in relation to management of fisheries.

### **Habitat Protection and Restoration**

NASCO's objectives of conservation, restoration, enhancement and rational management of salmon stocks can only be achieved if habitat is also conserved, restored and rationally managed. A Plan of Action has been adopted with the objective of maintaining and, where possible, increasing the current productive capacity of Atlantic salmon habitat. In accordance with this Plan of Action, each Party will develop and implement habitat protection and restoration plans and monitor progress in achieving the objective of no net loss of habitat by establishing inventories of salmon rivers containing information on historic and current salmon production and habitat impacts. Initial reports on habitat protection and restoration initiatives were made by the Parties in 2002 which indicated that loss of freshwater habitat, which had been highly significant over the last 100 years or so, has stabilised and some notable gains in restoring lost habitat have been made. A separate report describing experience in improving habitat is available from the Secretariat. Each NASCO Party has made progress in establishing habitat protection and restoration plans and in developing inventories of salmon rivers.

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

Paradoxically, at a time when there is growing



concern about the abundance of wild Atlantic salmon stocks, the number of Atlantic salmon in the sea has never been higher. The salmon farming industry has developed extremely rapidly and now has a production, on a worldwide basis, of more than 1 million tonnes a year, approximately 400 times the harvest of the wild salmon stocks. The concerns about salmon farming are principally the risks of transmission of diseases and parasites, particularly sea lice, to the wild stocks, and of loss of genetic diversity in the wild stocks caused by interbreeding with escaped farmed salmon. The latest scientific research suggests that such interbreeding, and poorly planned stocking practices, could have serious consequences for the wild salmon, which are adapted to the conditions

in each river. There is also a pending application to the US Food and Drug Administration to sell and raise transgenic salmon in the US. These salmon grow four to six times as fast as those reared in salmon farms using existing practices.

In response to concerns about the impacts of aquaculture, introductions and transfers and transgenics on the wild stocks, the Council and Commissions of NASCO had previously developed five agreements designed to minimise impacts. These agreements have been reviewed to ensure their consistency with the Precautionary Approach and have been restructured into an umbrella Resolution, the “Williamsburg Resolution”, which includes new elements on burden of proof, risk assessment, mitigation and corrective measures,



*NASCO held its Nineteenth Annual Meeting in Torshavn, Faroe Islands (3-7 June, 2002).*



and implementation and reporting. New guidelines on stocking have been added since there is a need to consider fully the risks as well as the benefits of stocking practices. In adopting the Williamsburg Resolution it was recognised that the document would evolve in the light of experience with its implementation, consultations with stakeholders, improved scientific understanding of the impacts on wild salmon and development of measures to minimise them.

### **Social and Economic Values of Atlantic Salmon**

The wild Atlantic salmon has many aspects to its value. There are, of course, those associated with the recreational, commercial and subsistence fisheries. In addition, however, there are values associated with the existence of the salmon itself. These values are not easy to assess but may be so widespread that they greatly exceed the values associated with the fisheries. For example, it has been estimated that Londoners are willing to pay £12 million a year to re-establish a breeding population of salmon in the River Thames even though they may never see one. The Council of NASCO has recognised that there is a need to consider how social and economic aspects can be incorporated in application of the Precautionary Approach without undermining its effectiveness and, as a first step in this process, a Technical Workshop was held to explore all of the values associated with the Atlantic salmon and to provide guidance on how each aspect of value might be assessed. This Technical Workshop developed a template for use in assessing social and economic values of the wild salmon stocks. The next step is for the Parties to provide examples of case studies on how social and economic factors have been incorporated into decisions concerning management of fisheries; habitat; aquaculture, introductions and transfers and transgenics; and by-catch. NASCO will then develop a decision structure for incorporating social and economic factors into management decisions under a Precautionary Approach.

### **Stock Rebuilding Programmes**

Around the North Atlantic, many salmon stocks are currently below their conservation limit. A stock rebuilding programme is an array of management measures, including habitat improvement, exploitation control and stocking, designed to restore a stock above its conservation limit. The Council has adopted guidelines on the use of stock rebuilding programmes in the context of the precautionary management of salmon stocks. These provide guidance on assessing compliance with conservation limits, evaluating any perceived problems and developing management plans to address these problems. Guidance is also provided on monitoring and evaluating the effectiveness of rebuilding programmes.

### **By-Catch of Atlantic Salmon**

The Council remains concerned about the possible by-catch of Atlantic salmon in fisheries for pelagic fish species in the North-East Atlantic. The harvests in these fisheries are so large that if even a fraction of a per-cent of the catch were salmon smolts, the impacts could be very significant. The Council has decided that, consistent with the Precautionary Approach, it will:

- (i) encourage and seek appropriate funding for research on the distribution of salmon at sea, on the spatial and temporal overlap between salmon at sea and pelagic fisheries, on the vertical distribution and behaviour of salmon in the feeding areas and on the by-catch of salmon in pelagic fisheries;
- (ii) encourage pilot studies on technical adjustments to the deployment of gear in pelagic fisheries so as to minimise by-catch of salmon;
- (iii) review the results of this research and encourage the Parties, non-Parties and other Fisheries Commissions to make adjustments to fishing methods so as to minimise the by-catch of salmon;



- (iv) continue to ask ICES to provide information on the by-catch of salmon in any existing and new fisheries for other species and of the by-catch of other species in salmon gear.

The Council also recommended to the International Atlantic Salmon Research Board (see below) that projects to assess by-catch be afforded a high priority by the Board.

#### Unreported Catches

Unreported catches form a significant proportion of the total catch of salmon. The Council has introduced a transparent reporting procedure for information on unreported catches and has encouraged additional measures by the Parties to

further reduce the level of such catches. These actions are consistent with the Precautionary Approach.

#### Liaison with the Salmon Farming Industry

NASCO has continued to liaise with the salmon farming industry on issues of mutual interest. A reporting procedure on escapes has been developed and the first returns have been made on progress in developing and implementing Action Plans on Containment of Farm Salmon designed to achieve a level of escapes that is as close to zero as practicable. A Salmon Cooperation Project (SALCOOP) has been undertaken to review existing cooperative ventures between wild and farmed salmon interests, to identify further areas





for cooperation and to examine the options for securing funding for cooperative projects. To better focus on the SALCOOP recommendations, a Workshop will be held in 2004 based on three themes:

- area management initiatives;
- restoration programmes;
- the pros and cons of using sterile salmon in farming and the possible opportunity for cooperative trials.

It is also the intention to co-convene, with ICES, an international symposium in 2005 on the scientific and management aspects of interactions between cultured and wild salmon. The salmon

farming industry will be invited to cooperate in the planning of this symposium.

#### Marine Mortality of Salmon

The Council has established an International Atlantic Salmon Research Board to promote collaboration and cooperation on research into the causes of marine mortality of Atlantic salmon and the opportunities to counteract this mortality. The Board has produced an international inventory of research related to salmon mortality at sea, an essential tool in identifying research priorities for potential funding and in better coordinating existing research efforts. The Board has agreed that its main research priority is major multi-disciplinary projects aimed at improving

understanding of the distribution and migration of salmon at sea. Information in the inventory indicates that expenditure by the Parties on research on salmon at sea is in the region of £4.2 million a year but a substantial fund-raising initiative will be needed to support the major projects envisaged by the Board. This fund-raising will be targeted at companies that might gain from being identified with salmon conservation and at individuals with a strong interest in wild Atlantic salmon. So far as NASCO is aware, this is the first time that an international fisheries organization has sought such cooperation.

The increased marine mortality of some salmon stocks in recent years is a concern in both the North Pacific and North Atlantic Oceans and in the Baltic Sea. In order to improve understanding of the mechanisms causing mortality of salmon at sea, to stimulate enhanced cooperation and information exchange and to identify priorities for research, a joint meeting was organised by the five inter-governmental scientific and management organizations involved with salmon in the three areas. The meeting recognised that a serious problem associated with improving understanding of the marine phase of the salmon's life-cycle is the scale and cost of the research. A variety of factors are probably influencing mortality at sea and a clearer understanding of these will require a major multi-disciplinary research effort. The priority is to improve understanding of migration patterns and distribution of salmon at sea. There was support for enhanced coordination of research in the three areas and improved cooperation in the development of new technologies for studying salmon at sea. The report of the meeting has been published as a Technical Bulletin by the North Pacific Anadromous Fish Commission. Copies can be requested via e-mail from [secretariat@npafc.org](mailto:secretariat@npafc.org).<sup>o</sup>

#### [St Pierre and Miquelon Salmon Fisheries](#)

St Pierre and Miquelon are French islands close to Newfoundland, Canada, and they are on the

migration route of Atlantic salmon of North American origin. Concern has previously been expressed by NASCO, through diplomatic channels, about harvests at St Pierre and Miquelon which, although low, have been increasing at a time when there are serious worries about the abundance of North American stocks and when restrictions are being introduced all around the North-West Atlantic. The Council has sought to encourage France (in respect of St Pierre and Miquelon) to cooperate with NASCO in initiating a sampling programme for the fishery at St Pierre and Miquelon. There is a welcome indication from France that it intends to implement such a sampling programme for the 2003 fishery.

#### [Predator-Related Mortality](#)

NASCO has not, to date, agreed any action in relation to predator-related mortality. Indeed, it has found it difficult to find much information on the impacts of predators on wild salmon stocks and the benefits of management actions. The Council agreed that a compendium of available information on this subject should be developed for its Twenty-First Annual Meeting in 2004. It will then consider what future action, if any, is appropriate. This issue is also a concern for the salmon farming industry and the topic will be raised in the Liaison Group.

#### [Fishing for Salmon by Non-Contracting Parties](#)

During the period 1989-1994 reports were received that salmon were being caught by vessels flagged by non-Contracting Parties which were operating in international waters in the North-East Atlantic Commission area. NASCO's actions appear to have put an end to this activity but there is a need for continued vigilance. In this regard, NASCO is cooperating with coastguard authorities in the area and with other inter-governmental fishery Commissions in order to obtain the best surveillance information.

## Management of Salmon Fisheries

Under the NASCO Convention one of the functions of the three regional Commissions is to propose regulatory measures for fishing in the area of fisheries jurisdiction of a Party for salmon originating in the rivers of other Parties. During the period covered by this report agreements have been developed by NASCO for the West Greenland and Faroese salmon fisheries. The North American Commission has also reviewed the US and Canadian salmon fishery management measures. There are no directed fisheries for salmon in the US and no commercial fisheries for salmon in Canada.

### West Greenland Salmon Fishery

The scientific advice from ICES for 2002 indicated that the North American stocks occurring at West Greenland were considered to be outside safe biological limits and that southern European stocks had been consistently close to or below their conservation limit for several years. In response to this situation the West Greenland Commission agreed an *ad hoc* management programme for the 2002 fishery during which data on catch per unit effort (CPUE) would be collected during two harvest periods and used to establish the total quota available as follows:

Commercial CPUE during first Harvest Period	High CPUE > 126 kg/licence/day	Medium CPUE 99 to 126 kg/licence/day	Low CPUE < 99 kg/licence/day
Period 1	20 t	20 t	20 t
Period 2	35 t	18 t	Fishery Closed
Total quota allocation	55 t	38 t	20 t

Shortly before the opening date of the 2002 fishery the Organization of Fishermen and Hunters in Greenland (KNAPK) and the North Atlantic Salmon Fund (NASF) came to an agreement to suspend all commercial fishing at West Greenland. A fishery for local sales to the open markets,

hospitals and restaurants and a fishery for private consumption (the subsistence fishery) were permitted. In total there was a reported and unreported catch of approximately 20 tonnes in 2002.

In 2003 the advice from ICES indicated that the stock complex (southern European and North American stocks) at West Greenland was outside safe biological limits. In response to this deteriorating stock status, the Commission adopted a regulatory measure for the salmon fishery at West Greenland which restricted the harvest in 2003 to the amount used for internal subsistence consumption. In the past this has been estimated to be 20 tonnes. There will be no commercial export of salmon.

In both 2002 and 2003 the Commission agreed international cooperative sampling programmes for the fishery.

### Faroese Salmon Fishery

Under a decision adopted in 2001, no quota was set for the Faroese salmon fishery for 2002 in the light of the Faroese Home Government's intention to manage the fishery in a precautionary manner with a view to sustainability and to make management decisions with due consideration to the advice from ICES concerning the biological status of the

stocks contributing to the fishery. There was no fishery for salmon in 2002. An identical decision adopted in 2002 applied to the 2003 fishery.

Under a decision for the 2004 fishery the Faroe Islands will take management decisions with due consideration to the scientific advice from ICES





*NASCO held its Twentieth Annual Meeting in Edinburgh (2-6 June, 2003).*

and if a fishery is undertaken it will be limited in scope compared to the management measures agreed by NASCO in previous years and the fishery will be subject to close national surveillance and control.

#### Acid Rain

The issue of acid rain is a concern to the North American Commission and has previously been considered by the North-East Atlantic Commission. Most rivers of the Atlantic coast and southern uplands of Nova Scotia are significantly acidified and many rivers have lost their salmon populations. There is also concern about impacts of acid rain on US Atlantic salmon rivers. Significant attention was paid to the problem of acid rain in the 1980s but when the US and

Canada signed an accord in 1990 the issue faded from prominence which resulted in the erroneous perception that the problem had been solved. However, while some progress has been achieved, acid rain remains a problem for wild Atlantic salmon in the North American Commission area. The members of the Commission have agreed to work cooperatively on mitigation measures e.g. liming, in conjunction with other Parties such as Norway which have considerable experience of such mitigative actions.

#### Salmonid Introductions and Transfers

The North American Commission and the North-East Atlantic Commission have reviewed known introductions and transfers in relation to their agreements on this issue. Canada has adopted a

new policy entitled “National Code on Introductions and Transfers of Aquatic Organisms” and the North American Commission will be reviewing the need for revision to its Protocols in the light of this new policy. The North-East Atlantic Commission is particularly concerned about the further spread of the parasite *Gyrodactylus salaris*, which has caused severe damage in some Norwegian rivers, and has agreed to examine:

- options to enhance cooperation on monitoring, research and dissemination of information on the parasite;
- the need for strengthening national and regional legislation to prevent the further spread of the parasite;
- the need to consider revisions to international guidelines relevant to preventing the further spread of the parasite.

#### Salmon Farm Escapees

On the basis of the apparent low proportion of fish farm escapees in some countries relative to the production of farmed salmon, ICES had hypothesized that fish farm escapees are transported with ocean currents and enter fisheries and salmon rivers in other countries. There is, however, little knowledge on the survival and migratory behaviour of escaped farmed salmon. The North-East Atlantic Commission therefore adopted a proposal for an experimental, coordinated, collaborative study involving the release of tagged farmed fish by each country producing farmed salmon in the Commission area to test this hypothesis and increase understanding of the survival and behaviour of farm salmon following escape. A pilot study will be undertaken in 2004.



In short, NASCO's Council and Commissions have been examining and acting on a wide range of threats to wild Atlantic salmon stocks. There is excellent progress on such international cooperation. What is not clear, however, is which factors in the oceans are having major effects on salmon mortality, and we need to know much more about this. NASCO's Contracting Parties are already spending significant sums on research but, through its new International Atlantic Salmon Research Board, NASCO is seeking new relationships with the private sector to fund research to improve understanding of the causes of mortality during this phase of the salmon's life-cycle and the opportunities to counteract them. While the Precautionary Approach will continue to apply in the future to all aspects of NASCO's work on salmon conservation and management, it is to be hoped that conditions in the ocean will improve so that the restrictive measures currently in place can be eased.