REPORT OF THE

TWELFTH ANNUAL MEETING

OF THE COUNCIL

12-16 JUNE 1995

GLASGOW, SCOTLAND

PRESIDENT:	MR BØRRE PETTERSEN (NORWAY)
VICE-PRESIDENT:	MR DAVID MEERBURG (CANADA)
SECRETARY:	DR MALCOLM WINDSOR

CNL(95)46

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1. OPENING SESSION

1.1 The President, Mr Børre Pettersen, opened the meeting, welcomed the delegates to Glasgow and made an opening statement on the work of the Organization (Annex 1).

1.2 The representatives of Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Finland (EU), Iceland, Norway, the Russian Federation, Sweden (EU) and the United States of America made opening statements (Annex 2).

1.3 In accordance with the decision of the Council at its Eleventh Annual Meeting to allow statements by Non-Government Organizations during the Opening Session, statements were made by the Association of Scottish District Salmon Fishery Boards, the Atlantic Salmon Trust, the Federation of Irish Salmon and Sea-Trout Anglers, the International Friends of Wild Salmon, Norwegian Farmers Union and Norwegian Salmon Rivers, Sami Parlamenta, the Salmon Net Fishing Association of Scotland, Salmon and Trout Association, and the Scottish Anglers National Association (Annex 3).

1.4 The President expressed appreciation to the members and to the NGOs for their statements and closed the Opening Session.

1.5 A list of participants is given in Annex 4.

2. ADOPTION OF AGENDA

2.1 The Council adopted its agenda, CNL(95)44 (Annex 5).

3. ADMINISTRATIVE ISSUES

3.1 Secretary's Report

The Secretary made a report to the Council, CNL(95)5, on the status of ratifications and accessions to the Convention, the forthcoming changes due to Finland and Sweden joining the European Union, membership of the regional Commissions, a possible ICES/NASCO Symposium on Impacts of Salmon Aquaculture, applications for non-government observer status, the role of NGOs in NASCO, possible topics for Special Sessions, project work and the Headquarters Property. Reports were also made on the audited accounts for 1994, CNL(95)6, on the receipt of contributions for 1995, CNL(95)7, and on the 1996 draft budget, CNL(95)8.

The Council considered the proposal from ICES to co-sponsor an international symposium to be held in 1997 on the theme of "The interactions of wild and reared salmon, including fish from ranching, farming and enhancement". This meeting will provide an opportunity to review the research concerning the nature of impacts and

the need for further management measures. The Council decided to accept the proposal to co-sponsor the meeting. The Council asked the Secretary to liaise with ICES on this matter on the basis that the meeting should be arranged so as to neither make a profit nor a loss.

The Council decided that, as attendance by NGOs at its meetings had been of mutual benefit, it would continue the present arrangement of allowing attendance at both Council and Commission meetings, with Statements being permitted during Council sessions which are designated "Special Sessions" and also at the Opening Session of the Council. These arrangements will apply until further notice.

The Council agreed that accredited media would, in future, be allowed to attend its meetings and asked that the Secretary develop appropriate criteria which would be agreed by correspondence and issued before the Thirteenth Annual Meeting.

3.2 Report of the Finance and Administration Committee

In the absence of the Chairman, the Vice-Chairman of the Finance and Administration Committee, Mr Stetson Tinkham (USA), presented the report of the Committee, CNL(95)9. Upon the recommendation of the Committee the Council took the following decisions:

(a) to appoint Coopers and Lybrand of Edinburgh as auditors for the 1995 accounts;

(b) to accept the audited 1994 annual financial statement, CNL(95)6;

(c) to adopt a budget for 1996 and to note a forecast budget for 1997, CNL(95)48 (Annex 6).

(d) to adopt the report of the Finance and Administration Committee.

The Council thanked the Vice-Chairman of the Committee for his work and that of the Committee.

3.3 Reports on the Activities of the Organization

The Council adopted a report to the Parties, CNL(95)10, in accordance with Article 5, paragraph 6 of the Convention. To mark the Tenth Anniversary of the establishment of NASCO, the Council also adopted for publication, subject to minor drafting amendments which would be transmitted by the Parties to the Secretariat as soon as possible, a Ten Year Review of the Activities of the Organization, CNL(95)11.

3.4 Eligibility for Election of Officers

The Council considered whether or not an elected office bearer in the Organization need be named as a representative as a pre-requisite to being elected. Neither the Convention nor the Rules of Procedure make any explicit statement about any qualifying conditions under which an office bearer can be elected. In the past there have been several occasions when elected office bearers have not been from among

the named representatives. The Council decided that, so as to enable contributions to its work to be made from as wide a source of experience as practicable, it would not wish to restrict eligibility to named representatives only. It therefore decided to permit eligibility for election as office bearer to any member of a delegation who has the approval of the representatives of that delegation.

3.5 Provisions of Article 13 of the Convention

At the Eleventh Annual Meeting the representative of Denmark (in respect of the Faroe Islands and Greenland) drew the attention of the Council to the different objection procedures in relation to regulatory and emergency regulatory measures. He referred in particular to the provisions of paragraphs 3 and 5 of Article 13 of the Convention. The Council considered a review of the provisions of Article 13 of the Convention, CNL(95)12 (Annex 7). The representative of Denmark (in respect of the Faroe Islands and Greenland) tabled a document, CNL(95)42 (Annex 8), which proposed that the problem could be solved if the Council agreed that Article 13 be interpreted in such a way that an objection under paragraph 5 cannot be withdrawn with the effect that the measure is revitalised. The Council, while agreeing in principle with the interpretation in paper CNL(95)42, felt that as this involved interpreting the NASCO Convention, legal advice should be taken by the Parties before final approval can be given.

3.6 The Future Working Methods of NASCO

At its Tenth Annual Meeting the representative of Norway referred to the fact that, as NASCO was now ten years old, it would be an appropriate opportunity to examine its working methods. The Council decided that it would be valuable to have a forward look in the shape of a discussion paper from the Secretary focusing on future issues which might be faced in achieving the objectives of the Convention. The Secretary introduced a document, CNL(95)13 (Annex 9), which attempted to predict the issues which might need to be addressed by the Organization in future. Contributions were tabled by Norway, CNL(95)43 (Annex 10), and Iceland, CNL(95)40 (Annex 11).

The President strongly supported the need for NASCO to look ahead and focus its work for the next decade. The Council agreed that the Secretary be asked to produce a document for the next annual meeting based on document CNL(95)13 and on the discussions in the Council which proposed a priority list and needs for action on each item in the future.

4. SCIENTIFIC, TECHNICAL, LEGAL AND OTHER INFORMATION

4.1 Scientific Advice from ICES

The representative of ICES presented the report of the Advisory Committee on Fishery Management (ACFM) to the Council, CNL(95)15 (Annex 12).

4.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that he had some difficulties with the form of the advice. In the absence of substantial new information he felt that ACFM should have provided catch options rather than one management recommendation.

The President thanked the Chairman of the ACFM for his valuable work for the Organization.

4.3 Report of the Standing Scientific Committee

The Chairman of the Committee presented a draft request to ICES for scientific advice. Upon the recommendation of the Committee, the Council adopted a decision to request scientific advice from ICES, CNL(95)49 (Annex 13). The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that he would like to see ICES providing advice on issues other than those specifically referred to in the request from NASCO if they were relevant. He suggested that subsequent requests from NASCO might include a statement indicating that ICES should feel free to advise on any relevant issues it felt necessary.

4.4 Catch Statistics and their Analysis

The Secretary introduced a statistical paper presenting the official catch returns by the Parties for 1994, CNL(95)17 (Annex 14), and historical data for the period 1960-1994.

At its Tenth Annual Meeting the Council had adopted a minimum standard for catch statistics which it was agreed would be phased in so that all Parties had achieved the standards required for the 1995 statistics.

4.5 Salmon Tagging and the Tag Return Incentive Scheme

The Secretary presented a summary of tag release data, CNL(95)19 (Annex 15), which had been prepared from information submitted by ICES.

The Secretary reported on the Tag Return Incentive Scheme, CNL(95)20 (Annex 16). During 1994 favourable publicity for the work of the Parties and of the Organization had again been received as a result of the Scheme and the need to return scientific tags had again been publicised. There had been a large increase in the number of tags entered into the draw in 1995 because of the inclusion, for the first time, of tags which had been returned from fisheries in Norwegian homewaters.

At its Eleventh Annual Meeting the Council asked the Secretary to examine the advantages, disadvantages and possible mechanisms for extending the Scheme to include microtags. Extension of the Scheme to include microtags might well lead to improvements in the return of microtagged fish and result in favourable publicity for conservation. However, recovery programmes for microtags involve both screening of catches by scientists and returns by fishermen. Where catches are screened by scientists no assessment needs to be made of reporting rate. In these programmes there would be no advantage, and possibly disadvantages, of introducing a reward. However, where a reward is already paid, the higher prizes offered by the NASCO Scheme may offer benefits. The Council decided that it would not at present extend the scope of the Scheme.

The President announced that the draw for the Tag Return Incentive Scheme was made by the Auditor at NASCO Headquarters on 1 June and the winner of the $2500

Grand Prize was Mr Jim Callahan of Amesbury, Massachusetts, USA. The Council offered its congratulations to the winner.

4.6 Database of Salmon Rivers in the North Atlantic

The Secretary presented a progress report, CNL(95)21 (Annex 17), on the establishment of a database of salmon rivers flowing into the Convention area. Information has been received from six Parties and incorporated into the database which now contains details of more than 1,300 rivers. Of these, approximately 72% are categorised as being "not threatened with loss". However, a total of approximately 9% of rivers fall into the categories "lost and maintained" and approximately 15% are considered to be "threatened with loss". The President encouraged those Parties which had not yet submitted their information to do so as soon as possible so that a complete review might be prepared.

4.7 Review of International Salmon Related Literature Published in 1994

The Council took a note of a review of the literature concerning Atlantic salmon published during 1994, CNL(95)22, which had been prepared in accordance with Article 13, paragraph 2 of the Convention.

4.8 Laws, Regulations and Programmes

The Secretary presented a report on the Laws, Regulations and Programmes database, CNL(95)23.

5. CONSERVATION, RESTORATION, ENHANCEMENT AND RATIONAL MANAGEMENT OF SALMON STOCKS

5.1 Measures Taken in Accordance with Articles 14 and 15 of the Convention

The Secretary presented a report on the returns made under Articles 14 and 15 of the Convention, CNL(95)24 (Annex 18).

5.2 Fishing for Salmon in International Waters by Non-Contracting Parties

The Secretary presented a report, CNL(95)25 (Annex 19), which described developments in relation to the Protocol Open for Signature by States Not Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean and actions taken in relation to the Resolution on Fishing for Salmon on the High Seas, both of which were adopted by the Council at its Tenth Annual Meeting.

(a) Protocol for Non-Contracting Parties

Although no country has signed the Protocol the diplomatic efforts of the Parties and the Organization have resulted in actions by Poland and Panama to address the problem of vessels registered in their countries. Last year the Council agreed that diplomatic efforts should be continued in response to further sightings. In recent consultations with the Polish authorities they have advised that a new Maritime Fisheries Act will soon be in force and this will

give them formal powers to prevent the landing of salmon taken in international waters and if necessary to sign the NASCO Protocol.

(b) Actions Taken in Accordance with the Resolution

Information was presented to the Council on sightings of vessels fishing for salmon in international waters; scientific and technical data on the fishery; information on landings and transshipments and details of actions taken to establish contact with other international organizations. Information had been obtained which indicated that the vessel "Brodal" had been able to land its catch at the Polish port of Wladyslawowo during 1994. The Polish authorities had been contacted about this loophole and they had indicated that the documentation for the consignment of salmon indicated that it was of Danish origin being exported to Switzerland and they had therefore not interfered.

(c) International Cooperation on Surveillance

At its Tenth Annual Meeting the Council had endorsed the recommendations of an International Meeting on Surveillance of Fishing for Salmon in International Waters on possible areas for international collaboration aimed at improving the surveillance information. Last year the Council supported proposals concerning the implementation of these recommendations. The Secretary presented a report, CNL(95)26 (Annex 20), which indicated that, because of other commitments, it had not been possible for the coastguard authorities to contribute fully to the salmon surveillance project during 1994/95. Following consultations with the coastguard authorities it was agreed that the second meeting of NASCO and the coastguard authorities should be postponed until 1996 so that the salmon surveillance project could be conducted in 1995/96 and developments with radar satellite could be considered. In view of the importance of the surveillance information in support of diplomatic initiatives, the Council urged the relevant Parties to participate to the full extent possible in the surveillance project in 1995/96.

5.3 Research Fishing for Salmon in Relation to the Provisions of Article 2 of the Convention

At its last annual meeting the Council considered the issue of whether there should be exceptions to Article 2 of the Convention so as to permit research fishing by the Parties. The Secretary introduced document CNL(95)27 (Annex 21), which presented options for dealing with research fishing. This review concluded that there is, and has in the past been, interest by the Parties in research fishing for salmon both in international waters and within areas of fisheries jurisdiction. Such research fishing could provide valuable management information. However, any change to the provisions of Article 2 would need careful consideration in the light of the problem of fishing for salmon in international waters and the Council's initiative in developing a Protocol for non-Contracting Parties. Research fishing, if permitted, would therefore need to be under carefully controlled conditions. The Council unanimously agreed in principle to consider a draft Resolution, CNL(95)45 (Annex 22), on this matter. The Council decided to further consider the principles concerning research fishing and will consider adoption of a Resolution in this respect, in writing, as soon as possible to

allow research this year. The Council recognised that as this involved an interpretation of the NASCO Convention legal advice should be taken by the Parties before final approval is given.

5.4 Impacts of Aquaculture on Wild Salmon Stocks

(a) Review of Progress with Oslo Resolution

The Council reviewed progress in relation to the "Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks" adopted at its last annual meeting in Oslo. Under Article 5 of the Resolution each Party is required to provide to the Organization, on an annual basis, information of a scope to be determined by the Council, concerning the measures adopted and research and development carried out. The Council agreed a format for the provision of this information, CNL(95)37 (Annex 23), which will be circulated to the Parties with the annual returns under Articles 14 and 15 of the Convention.

(b) Advances in Relevant Research

The Secretary introduced a paper, CNL(95)28 (Annex 24), describing advances in relevant research in relation to impacts of salmon aquaculture. It was agreed that the Council would consider annually advances in research that might improve methods of minimising the impacts of salmon farming on the wild stocks.

(c) Closer Cooperation with the Salmon Farming Industry

At its last annual meeting the Council agreed that it wished to retain and strengthen the good relationship which had been established with the salmon farming industry. The Secretary introduced a paper, CNL(95)29, proposing that this relationship might be strengthened through the establishment of a Liaison Group of representatives from NASCO and the industry which might meet as required to discuss issues of mutual interest. Consultations with the industry had indicated that they would welcome the opportunity to cooperate in this way through NASCO. The Council agreed that they would cooperate with the salmon farming industry in this way and suggested the following terms of reference for this Group: "to provide the international forum for liaison between the salmon farming industry and managers of the wild Atlantic salmon stocks on issues of mutual interest, and to make recommendations for action". The Secretary was asked to indicate this to the representatives of the salmon farming industry and report back to the Council.

5.5 Long-Term Trends in Abundance

At its Tenth Annual Meeting the Council considered the value of long-term catch records as an indicator of trends in salmon abundance and agreed that it would be useful to review the available literature and to examine the availability of new data sets so that the present period of low abundance could be assessed in an historical

perspective. The Secretary introduced a brief progress report, CNL(95)30, which indicated that catch records dating back to 1855 and 1898 had been obtained for two Scottish rivers. These data sets are presently being analysed and it is hoped that additional data from other parts of the North Atlantic area will be obtained.

5.6 Predators and Prey

The Secretary introduced a brief review on the predators and prey of Atlantic salmon, CNL(95)31. In recent years concern has been expressed about the impacts of growing populations of predators on salmon stocks, particularly seals and fish-eating birds. Concern has also been expressed about the harvest of some of the prey species of salmon in industrial fisheries and a number of NASCO's NGOs had suggested that these issues be considered by the Council in a Special Session. The Council recognised that these issues could be of relevance to the conservation, restoration, enhancement and rational management of salmon, and agreed to hold a half-day Special Session entitled "Atlantic Salmon as Predator and Prey" at its Thirteenth Annual Meeting.

5.7 Guidelines on Catch and Release

At its Eleventh Annual Meeting the Council considered a review on catch and release fishing which concluded that there had been growing interest in this technique in response to declining stock levels or components of the stocks in a number of North Atlantic countries. The Council took note of the draft guidelines on catch and release, CNL(95)32 (Annex 25), which had been prepared by the Secretary. The Council recognised that, to be effective as a management measure, it is important that stress and physical damage to fish intended for release is avoided, and that where catch and release is practised the guidelines could be of benefit in avoiding damage. The Council agreed that the Secretary should consult with the Parties to amend the draft paper on catch and release so that guidelines might be considered for possible adoption at the Thirteenth Annual Meeting.

5.8 Guidelines on Stocking

The Secretary presented a report, CNL(95)33, on progress in developing guidelines on stocking.

5.9 Reports on Conservation Measures Taken by the Three Regional Commissions

The Chairman of each of the three regional Commissions reported to the Council on their activities.

6. OTHER BUSINESS

The Secretary referred to further communications which had been received from the United Nations concerning Resolutions on large-scale pelagic drift-net fishing and on unauthorised fishing in zones of national jurisdiction, CNL(95)35. The Council requested the Secretary to respond to the United Nations indicating that NASCO is not aware of any activities within the Convention area which would be inconsistent with either of the Resolutions.

7. DATE AND PLACE OF NEXT MEETING

7.1 The Council confirmed its acceptance of the invitation to hold its Thirteenth Annual Meeting in Gothenburg, Sweden, from 10-14 June 1996.

7.2 The Council agreed to hold its Fourteenth Annual Meeting in Ilulissat (Jacobshavn), Greenland, from 9-13 June 1997.

8. DRAFT REPORT OF THE MEETING

8.1 The Council agreed the draft report of the meeting, CNL(95)36.

9. PRESS RELEASE

9.1 The Council adopted a press release, CNL(95)47 (Annex 26).

ANNEX 1

OPENING STATEMENT MADE BY THE PRESIDENT

OPENING STATEMENT MADE BY THE PRESIDENT

Ladies and Gentlemen:

It is my pleasure to welcome you to Glasgow today. It is the first time that NASCO has met in Glasgow, a city that is, as you know, a great rival to Edinburgh. The Secretary tells me that Edinburgh people see the Glasgow people as too familiar, the Glasgow people see the Edinburgh people as too stiff. I should advise you not to take sides on this issue as we have enough problems with the salmon. I am very confident that not only will we enjoy this change of scene from East to West but we shall also have a very productive and useful meeting.

Last year in Oslo we made a significant step forward in agreeing a resolution which I hope will help us to avoid any adverse impacts from salmon farming on the wild stocks. I would like us to look at that resolution annually and year by year ensure that it is working, that it is being implemented. We will take the first step this year and I would like to see a closer working relationship between NASCO and the salmon farming industry so that we can cooperate on conservation of the wild stocks, an activity that is not only in our interest but also in theirs.

I would also like to see us keep up the pressure to ensure that fishing for salmon in international waters ceases. I think we have been very successful in virtually stopping this activity but we will need to be constantly vigilant and that means close international cooperation.

In the Commissions of course there is work to be done on quotas. There is a particularly heavy load in the North-East Atlantic Commission which needs to have substantive negotiations on quotas against a difficult background, and needs to address difficult options on introductions and transfers. We must ensure that the transmission of diseases and parasites to the wild stocks is minimised. My country has seen the terrible results of the transfer of *Gyrodactylus salaris* to the wild stocks and I urge the Commission to deal strictly with this threat.

I would also like to see us agree on a Special Session for next year. I believe that there is a real need to stimulate work and discussion on the subject of predators and prey of salmon.

From time to time, organizations need to discuss their working methods, goals and priorities of issues. Organizations are tools for taking care of special interests. NASCO is an international body concerning conservation of the wild salmon stocks in the North Atlantic. The Organization has shown us all - in practice - the importance of its work. But knowledge is improving and the challenges we are facing are growing all the time. I look forward to a fruitful discussion on this item on the agenda. We have a common interest in shaping NASCO to be an even better tool for the future.

There are many other issues for us to deal with and I hope that the excellent spirit of cooperation that has been the essence of the work of NASCO in recent years will continue to aid our work. I thank you in advance for this support.

ANNEX 2

OPENING STATEMENTS MADE BY THE PARTIES

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF CANADA

Mr. President, Distinguished Delegates, Observers, Ladies and Gentlemen:

It is a pleasure for the Canadian delegation to be in Glasgow and to participate in the Twelfth Annual Meeting of the North Atlantic Salmon Conservation Organization. As is customary for NASCO, the arrangements are excellent. We are grateful to all of those who have worked so hard and so well.

Each year we seem to begin with the observation that the scientific advice on Atlantic salmon is challenging. And this year is no exception.

A commitment to science-based conservation continues to be the cornerstone of Canada's fisheries policy for all species. For Atlantic salmon, the very substantial reduction in our fishing effort has been referred to before and is well known to NASCO. May I simply mention that our total catches have gone down from 711 tonnes in 1991 to 352 tonnes in 1994. During that same period we have retired 2,965 commercial licences at a cost of C$46.65 million.

The moratorium on commercial salmon fishing on the Island of Newfoundland, which started in 1992, continues - and licences are being retired on the lower North Shore of Quebec and in Labrador, which are the only remaining commercial Atlantic salmon fisheries in Canada.

This strong conservation effort has been effective. The ACFM report observes, in respect of the measures taken in Newfoundland, that "had the moratorium not been in effect, severe over-exploitation of many Atlantic salmon stocks would have occurred in 1994."

We are implementing additional stringent conservation measures in 1995. In January, Minister Tobin announced that the opening of the commercial fishery in Labrador would be delayed by one month, to July 3, and that quotas would be reduced by a further 20% from 92 tonnes to 73.5 tonnes. Furthermore, in the recreational fishery, anglers in Labrador may retain only one large salmon for the season, as compared to two in 1994.

We are deeply concerned, however, that despite all the work all of us have done in NASCO, the state of the resource continues to decline as described in the ICES report.

The scientific advice calls for further stern measures in the fishery at West Greenland this year and throughout the North American Commission area next year. We look forward to a detailed discussion of that advice in Commission meetings this week. Canada's view is that the scientific advice should be the major guiding principle behind our management decisions.

Last year NASCO adopted the "Oslo Resolution" aimed at minimizing the impacts of aquaculture on the wild stocks. In response, cooperative government and industry action has been initiated in Canada in areas of policy development, regulation and research, such as a Marine Cage Culture Code of Practice which is under review.

On many important issues the challenge to us all is compounded when, hand-in-hand with the urgent pressures to conserve the fish stocks, we face equally urgent pressures to conserve our financial resources. The U.S. Administration calls it "re-inventing government". In Canada we call it "program review". Whatever the name, in Canada's case it means a reduction in

human and financial resources of 20-25% over three years. We can no longer do everything we would like or even, sometimes, everything that is needed. We must therefore find ways to be more economical - more effective - more inventive; and to do this we are sharing more responsibilities and costs with our partners in the industry, including commercial fishermen, anglers and Aboriginal people.

The Secretary has prepared a very interesting paper on the future issues for NASCO. The issues are indeed important and challenging. We look forward to a constructive exchange of ideas, particularly on how we can maintain science-based conservation of the wild stock as a central guiding principle of NASCO; while at the same time we explore ways of sharing more responsibilities with those directly involved in and affected by the salmon fishery.

Mr. President, we are looking forward to a productive Twelfth Annual Meeting.

Thank you.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

Mr. President, Distinguished Delegates, Observers, Ladies and Gentlemen:

Two years ago in the Dialogue Meeting we saw the conservation of salmon set in a full context, where all factors affecting the abundance of salmon were reviewed and where the offshore fisheries at the Faroe Islands and West Greenland were only one of many factors having an effect. This holistic approach to the management of salmon seemed to have disappeared last year, when we reverted back to the situation of former years of focusing mainly on the offshore fisheries.

This delegation has always stressed that we would only agree to changes in quotas in the offshore fisheries, if they are based upon well-founded scientific advice, so that the quotas reflect real developments in stocks and established management strategies and the burdens of regulation are shared fairly.

The discussions on regulatory measures in the Faroese Fisheries Zone were difficult last year, but as there was no scientific advice on specific quota levels the quota was not changed. In spite of the large-scale research program undertaken by Norway and the Faroe Islands there still is no clear advice on quota levels in this years report of ACFM.

Last year in Oslo we passed a resolution on how to minimise the impacts of aquaculture on wild stocks. The conflict between fish farming and wild stocks does not exist in the Faroe Islands and West Greenland, but we find that the resolution outlined prudent measures which should be kept in mind by all fish farming industries. The resolution corresponds very well with the general guidelines for fish farming in the Faroe Islands.

As regards the possibilities under the Convention to extend research on salmon into international waters, including fishery for salmon, this delegation hopes that a pragmatic solution will be found, which does not hinder valid and important research.

This delegation would also very much like to support that predator-prey relationships of the Atlantic salmon are considered at the next annual meeting.

Finally I would like to make a remark on observers from NGOs. We have had a trial period of two years and there does not seem to be any reason for not continuing the present arrangement in the Council. We still have some reservations about allowing NGOs to participate in Commission meetings. We would like now to raise the matter of giving the press the same access to our meetings as the NGOs. If the aim is to have as much transparency as possible in our work, then an open attitude to the press might be most beneficial.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF THE EUROPEAN UNION

Mr President, Distinguished Delegates, Observers, Ladies and Gentlemen:

This 12th Annual Meeting of NASCO is a very special one for the European Community. Since the 1st January we have three new Member States, two of which are Contracting Parties to NASCO. As we become larger, our interest and commitment in the work of NASCO can only be increased. We are sure that the accession of Sweden and Finland to the Community will significantly contribute to reinforce our full involvement in this Organization.

Some concern has been expressed on the possible loss of diversity of views as a result of the incorporation of two active members of NASCO into the European Community delegation. However, while it is true that the EC must speak in matters pertaining to NASCO with a single voice, the points of view of these two countries will not be lost. The EC position on all the issues for which this Organization is responsible will be further enriched, including the points of view of these two new Member States.

Moreover, the recent experience of the ad hoc working groups on technical aspects has set a very good example of how individual voices can be heard and taken into account in matters pertaining to the work of this Organization. The EC certainly thinks that this type of working group, as well as seminars and other similar activities, can provide ways for countries, groups or individuals to make significant contributions to NASCO. We are, therefore, prepared to favour the development of this kind of approach on as many occasions as possible.

This year we have important challenges before us concerning the setting of maximum catch levels for salmon at sea. As ever, we reiterate our commitment to a sound management of fishery resources based on the best available scientific information, and expect that this basic principle will lead us in deciding the salmon catch limits.

At the same time, we will examine the report of the working group on introductions and transfers, in which recommendations are made to reduce the spread of disease and other problems as a result of introductions and transfers of salmonids. Although it is true that the measures recommended could, in some specific cases, conflict with the existing internal market legislation of the European Community, we fully share the concerns expressed by NASCO in relation to the threats to the wild stock, and are fully prepared to implement the recommended measures as much as possible within our legislative framework if adopted on this occasion.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF FINLAND

Mr. President, Distinguished Delegates, Observers, Ladies and Gentlemen:

I would like to inform NASCO that Finland has officially denounced the NASCO Convention. As many must know this is not because Finland does not wish to continue to work within this Organization but because on 1 January 1995 my country joined the European Union. According to our Treaty of accession we have extended all rights and obligations to the EC concerning Finland's membership of international organizations. Regarding NASCO, our withdrawal will take effect at the end of this year.

Mr Chairman, I can promise that Finland will continue to contribute fruitfully to the work of NASCO through its membership of the European Union.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF ICELAND

Mr. President, Distinguished Delegates, Observers, Ladies and Gentlemen:

Icelandic wild salmon catches in 1994 were among the lowest experienced during the last decade and about 20% lower than the mean catch for the last 20 years. Returns to ranching stations were considerably lower than in 1993, demonstrating the high risk nature of this business.

The causes of this decline in salmon survival seem to be primarily due to unfavourable climatic and oceanic conditions in Northern Iceland and in the Arctic waters north of Iceland. We are all by now familiar with the model linking salmon abundance in North America to thermal habitat in the North Atlantic as described in the report of the Working Group on North Atlantic Salmon. Similar factors seem to be affecting Icelandic salmon populations, especially in the Northwestern part, which are known to feed partly in the Northwestern Atlantic.

The total mean homewater catch of Atlantic Salmon in the North Atlantic for the last 4 years is about 4000 tonnes. This is a great reduction compared with the catches in the late 1980s and has had profound effects on the angling industry in Iceland. These concerns are reflected in the statement of the Federation of Icelandic River Owners in Council paper CNL(95)74. The lower abundance of salmon is a clear signal, that we should be conservative in our harvests and allocation of quotas as has already been acknowledged in the West Greenland quota agreements.

Iceland is concerned about the increases in the Icelandic contribution to NASCO as a result of the inclusion of the Icelandic catch of ranched salmon, which is totally of reared origin. This problem is further compounded by the increase in contributions as a result of more NASCO Parties joining the European Union, leaving fewer parties to pay the 30% share as defined in paragraph 2a of Article 16 of the Convention. The reporting of catches by the parties of NASCO leaves much to be desired, considering the high levels of unreported catches presented in the report of the Working Group on North Atlantic Salmon. Iceland hopes that a satisfactory solution can be found to these problems in the near future.

The Icelandic Government welcomes the initiative of NASCO concerning the provisions to minimise the impacts from salmon aquaculture on wild salmon stocks. Iceland does not

produce salmon in sea cages, so fish farm escapees are of minor concern. Ranched salmon, on the other hand, do enter some rivers, especially in the vicinity of ranching stations. The total strays, however, are low and there has been a greater concern among river owners, that the ranching stations might be catching some strayers from wild populations.

A Working Group of the North-East Atlantic Commission has also formulated some rules regarding introductions and transfers of salmonids, NEA(95)3. This is a useful document presenting sets of guidelines and annexes containing national legislation and regulations on the subject.

The Icelandic delegation looks forward to a fruitful meeting and hopes that the negotiations at hand will be conducted on a realistic note but in the spirit of cooperation and fairness.

Thank you, Mr. President.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF NORWAY

Mr President, Distinguished Delegates, Observers, Ladies and Gentlemen:

Despite strict regulations and reduced exploitation of Norwegian salmon stocks in recent years, we observe that our spawning populations are still low. Furthermore, our stock inventory shows that of 629 salmon stocks, 35 are now virtually extinct, whereas another 182 are threatened or considered vulnerable. Consequently, we need to develop and refine the work aimed at conservation and sustainable use of Atlantic salmon. In this respect, we see the report from the Working Group on Introductions and Transfers as an important contribution.

Another particular challenge is that of strengthening NASCO's regulatory role and improving the scientific basis for the allocation of quotas. To meet this challenge, research and scientific modelling must be further enhanced. To this end, NASCO should endeavour to elaborate systems allowing relevant research activities both within Economic Zones and in international waters.

Furthermore, Norway makes great efforts to enhance the active participation of river owners and other groups with interests in Atlantic salmon in the management of salmon. In this respect, the Norwegian authorities have now initiated a process to increase the responsibilities of local authorities and these interest groups. This will be achieved i.a. through local management plans where some management measures such as stock enhancement, habitat conservation and arrangements for public fishing will be important elements. This local financing and involvement is expected to improve management and the economic value of the resource, and to secure public access to salmon fishing.

Mr President, let me finally, on behalf of my delegation, thank the Secretariat for their able work in organizing this meeting. In particular I would like to give my compliments to the Secretary for highlighting the major future challenges for the Organization. We look forward to constructive discussions in these pleasant surroundings here in Glasgow and will assure you, Mr President, of our full and positive cooperation.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF THE RUSSIAN FEDERATION

Mr President, Distinguished Delegates, Observers, Ladies and Gentlemen:

It is a pleasure for me on behalf of the Russian delegation to give warmest greetings to all present in this forum and wish you a productive meeting to the benefit of Atlantic salmon and all of us.

The report on the activities of the Organization over the last 10 years prepared by the Secretariat demonstrates the considerable progress made by the Organization and the wide range of issues addressed. Future issues for NASCO as highlighted by an excellent paper prepared by the Secretary will undoubtedly contribute further to strengthening the role of NASCO as an international forum whose goal is conservation, restoration, enhancement and rational management of wild salmon stocks. A minimum standard for catch statistics adopted by the Council in 1993, and which is due to be in place for the 1995 catch statistics, is a useful and appropriate tool to have more accurate and comprehensive information as a basis for rational management of wild salmon stocks. Russia is ready to implement this standard from 1995 on.

To our deep regret we have to state that despite measures being undertaken stocks of Atlantic salmon in Russian rivers continue to decline. Last year, for example, fishing ceased in the Keret river, which, in recent years, has been the only river available for commercial fishing in Karelia. In the Archangel Region only the Severnaya Dvina river retains its commercial value. Only the salmon stocks in rivers on the Kola Peninsula can be considered to be in a fairly good state. Presently recreational fishing using catch and release is developing rapidly in our salmon rivers and we see this technique as a conservation measure for our salmon stocks. However, it must be mentioned that some of our rivers are much threatened by pressure from illegal fishing, especially in rivers located close to big communities.

In principle, practically all Parties to NASCO experience the situation of declining salmon stocks. However, unlike most of them Russia cannot, for economic reasons, afford to make significant investments into restoration of salmon stocks and this is a matter of great concern for us. At the same time we believe that we have all entered a period offering opportunities for developing a common concept of conservation of Atlantic salmon stocks, since a loss of any one link in a chain could entail irreparable damage to all Atlantic salmon stock.

The Resolution on Impacts of Aquaculture adopted by the Council last year and the draft paper on Introductions and Transfers in the North-East Atlantic Commission area prepared by the Working Group for consideration by that Commission, are good evidence of the feasibility of such collaboration.

We are now in an era when all countries are seeking much closer cooperation in almost all spheres of life. In this light a common concept of conservation of the Atlantic salmon resource could contribute markedly to strengthening of such cooperation.

In conclusion, we look forward to a constructive dialogue and a successful meeting.

Thank you.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF SWEDEN

Mr President, Ladies and Gentlemen:

It is my pleasure to say a few words about the new position of Sweden vis-a-vis NASCO. As you all know Sweden is now a member of the European Union. Therefore, Sweden will no longer be a Party in its own right to NASCO. We confidently look forward to this new way of working for conservation and management of salmon in the North Atlantic.

Thank you, Mr President.

OPENING STATEMENT MADE BY THE REPRESENTATIVE OF THE UNITED STATES OF AMERICA

Mr President, Representatives, Observers, Ladies and Gentlemen:

It is both a challenge and an honour for me to lead my country's delegation, and to address you in this capacity. The head of our delegation from the start of NASCO, Allen Peterson, has resigned from that role. We may again have him as a member of our delegation next year, as an advisor. He regrets he cannot be with us this year, and sends you his best wishes. Today I want to propose a new direction for NASCO.

The Secretary's report on the first years of the Organization's work will catalogue our accomplishments, and those who have spoken before me have described them as well. We should be proud of them.

So, as we look ahead, how can NASCO lead the way? Look at the chapeau to our Convention. One of our objectives is ".... to promote the conservation, restoration, enhancement and rational management of salmon stocks in the North Atlantic ocean through international cooperation..."

NASCO is unique and it can bring about true international cooperation: international cooperation that can be more than just government-to-government cooperation.

We can find new ways to put each of the private efforts on behalf of Atlantic salmon to work in new directions. Listen to the angling groups. Listen to the aquaculture industry. Encourage understanding between native groups and other Atlantic salmon users. Think of innovative ways to bring the efforts of all groups and government agencies interested in Atlantic salmon to bear for constructive solutions to problems faced by the species.

What does this mean for us? Just more observers? Here are some examples: Authorities in several salmon-producing states are contributing government funds to private international salmon conservation efforts. Private individuals in a number of countries have contributed funds to achieve conservation objectives. In the United States, the aquaculture industry is offering to take responsibility for the restoration of a salmon river. We can be even more creative. Perhaps we can use private funds to pay for the collection of scientific data in some cases, and to meet ICES data needs. Our success will depend on communications and cooperation.

In fact, these ideas are already at work today. As an observer to the private sector negotiations with Greenlandic fishermen, I have seen first hand the good results of interactions between private sector groups with very different interests in Atlantic salmon.

NASCO has met the easy challenges. Now we can break new ground by re-defining international cooperation. This idea may not apply in every international organization.

ANNEX 3

OPENING STATEMENTS MADE BY NON-GOVERNMENT ORGANIZATIONS

STATEMENT MADE BY THE ASSOCIATION OF SCOTTISH DISTRICT SALMON FISHERY BOARDS

This Association is concerned at the way in which representation at the NASCO Council is established. Although we are new to the status of NGO and have only seen the Organization at work once, we have formed the view that there is an imbalance in the way in which the European Union is represented.

There are widely differing salmon interests amongst member states in Europe as was acknowledged by the ICES Working Group which found it far from easy to establish spawning targets for rivers on the Eastern Atlantic seaboard. This was because of the wide disparity of conditions found between those rivers running into Northern waters and those in Southern Europe.

In essence, there should be direct representation of countries with substantial salmon stocks, such as Scotland, rather than a single representative for the whole Union. We do not consider that it is possible for one representative, however well briefed, to have adequate knowledge of the wide range of problems and conditions that exist throughout the whole of Europe.

We ask that NASCO look at ways to achieve a fuller and fairer representation for Europe in these Councils.

STATEMENT MADE BY THE ATLANTIC SALMON TRUST

I should like to begin this statement by mentioning some of the recent activities and concerns of the Atlantic Salmon Trust.

In an exciting new project the Atlantic Salmon Trust is collaborating with the Atlantic Salmon Federation and the Atlantic Centre for Remote Sensing of the Oceans to improve our knowledge of salmon habitats in the North Atlantic using satellite information and comparing sea surface temperature with the abundance of salmon.

The Trust is very concerned at the threat of diseases and parasites in general, as more and more trade barriers are lowered. The threat of *Gyrodactylus salaris* is a particular worry.

Now I would like to raise the question of representation in NASCO which has been mentioned by NGOs before now. The composition of NASCO has changed. With the enlargement of the European Union, two countries - Sweden and Finland - who were independent members of NASCO are now represented through the EU delegation. This means that seven nations with salmon stocks are now represented by the EU and this contrasts with separate national delegations from Canada, Norway, United States, Russia, Iceland and Greenland and the Faroe Islands (represented by Denmark).

Secondly, the function of NASCO has grown since representation in the Council was laid down at its inception. NASCO's activities increasingly range far beyond the setting of quotas for the two permitted high seas salmon fisheries, and its interests include many other factors which affect the well-being of salmon stocks around the North Atlantic.

What is wrong with the representation of nations within the European Union? The problem is that there is a very wide range of European salmon interests, as was recognised by the ICES Working Group, which found difficulty in establishing a simple spawning target for Eastern Atlantic rivers because of the very disparate conditions in those rivers - from the Arctic Circle to Northern Spain. It is therefore illogical that these very different interests and conditions should never have more than one representative voice at the Council table, although some of the subjects discussed may well affect different nations in very different ways. Moreover, this gives the non-European Union nations, who are represented independently, an unfair advantage in that on every subject they are able to speak individually, irrespective of the size of their salmon population.

If NASCO is to continue to build on its achievements - and they have been significant - it must be able to reflect the variety of factors and national - indeed, even local - conditions which affect the wild salmon. The Trust therefore offers a proposal to meet the problem that I have described.

There should be provision for Member States of the European Union to speak independently on national issues. This would need to be regulated, in that on matters directly affecting the Convention, the European Union, as a signatory, must speak with a single voice. However, it would be feasible to classify items for discussion - either by general definition or by annotation of the agenda for each meeting - in order to indicate those subjects on which national delegates would have the right to speak.

There are precedents for such a procedure, as in the meetings of the Commission for the Conservation of Antarctic Marine Living Resources, the International Whaling Commission and the International Council for the Exploration of the Sea.

While I have the opportunity to speak on the question of representation, I should like also to draw attention to a related subject. This deals with the composition of the European Union delegation in its existing form. This composition is unduly limited, in that the delegation is composed solely of administrators and scientists. What is missing is any representation of actual fishery managers, who are directly concerned with the day to day business of salmon stock conservation, enhancement - and exploitation. I believe that all countries in NASCO should be encouraged to ensure that practical fishery managers are represented either in individual or composite delegations, and I urge both national and Commission delegates from the European Union to consider means of achieving this. That may be described as an internal matter, but I believe that the lack of personal experience affects all members.

I would like to stress again that it is essential that in the future Member States of the European Union should be able to speak individually on appropriate subjects, and I believe this would affect the whole functioning of NASCO and make it a truly representative body which I fear it is not at present. I therefore ask the Council to support this principle and to devise means of implementing it, and if possible to put it into effect at the Council Meeting in June 1996.

The AST thanks the Council for allowing us to make this statement.

OPENING STATEMENT MADE BY THE FEDERATION OF IRISH SALMON AND SEA-TROUT ANGLERS

Mr. President, Distinguished Delegates, Fellow Observers, Ladies and Gentlemen:

We thank NASCO for this opportunity to make an Opening Statement, and trust that this is just the first step towards full integration of NGOs into the Council and Commissions of NASCO, as autonomous bodies.

Fish farming is again top of our agenda. Sea lice infestation still threatens the very existence of our wild fish stocks, both salmon and sea trout, in areas with fish farm cages. We appeal, in the strongest possible terms, to the North-East Atlantic Commission to look at, and adopt, the steps taken by the North American Commission, to protect wild fish rivers from the worst excesses of the fish farming industry. If we are serious about salmon conservation, steps must be taken NOW, before it is too late to save our wild fish. Governments are not prepared to move on the problem; it will take mandatory measures to force them into action, and only this forum can adopt such mandatory measures.

In Ireland's South West it is probably too late to save any of the dozen or so rivers which no longer have salmon or sea trout runs. In the West, many of the major tourist fisheries, including the State-owned River Erriff, are still suffering from increased numbers of smolts, and well mended kelts, returning smothered in juvenile sea lice, and being eaten alive. In the North West, the main problem is with escapees, as well as sea lice. The Crana River, less than 4km from the cages in Lough Swilly, Co. Donegal, had upwards of 12% escapees in their 1994 catches. The local fish farmer assures the Club on the Crana that they are NOT his fish, they must come from Galway or Mayo, over 250km. away!!

It is strange, when we look at the geographical location of fish farming, in both Scotland and Ireland, that we find that the west coasts are almost exclusively used. We must ask: Would governments permit fish farming in the estuaries of the Rivers Slaney or Blackwater, in Ireland, or the Rivers Spey or Tay, in Scotland? If not, why not? What would the conclusions of the West Highland Group have been, if the Spey or the Tay were affected in the same way as the famous sea trout fishery in Loch Maree?

Ireland continues to permit drift netting for salmon, but has signed an EU document to accept the findings of a 'scientific evaluation' of the drift net fishery. We have spoken to senior drift net representatives, and they accept the fact that the EU will ban netting, with compensation! They are NOT interested in 'private buy-outs.' There was a noticeable increase in the number of licences taken out, in 1995. The reported catches for 1994 are up by 275 tonnes over the 1993 figures. The NASCO quota reduction, between 1993/94/95, and the NASF buy-out of the 1995 quota, should result in an additional 35 tonnes, approximately returning to Irish waters. The increase in catch reporting is, we believe, connected to the possible methods of calculating EU compensation, when THE Day finally dawns!

When the nets do go, we trust that all angling organisations, and riparian owners, will follow our lead in promoting conservation, with the aim of increasing spawning activity. Many people decry 'catch and release' yet insist on the return of 'unseasonable' fish. We contend that a healthy fresh-run fish will survive more readily than one heavy in spawn. We must ALL ask ourselves, do we really want to save the salmon? - if so, anglers must consider catch and release, or realistic bag limits.

In conclusion, we renew our congratulations and admiration not alone to NASCO but to our fellow NGOs, who, on a voluntary basis, contribute greatly to the preservation of the wild salmon - truly the "King of Fishes". NGOs bring the combined wisdom of that vital element, the ordinary angler on the river banks, to assist the work of this distinguished Organization and the education of the general public.

Go Raibh Mile Maith Agaibh.

Thank you Mr President.

OPENING STATEMENT MADE BY THE INTERNATIONAL FRIENDS OF WILD SALMON

Mr President, Delegates, Fellow Observers, Ladies and Gentlemen:

My name is Ed Chaney. I appreciate the opportunity to make these brief comments on behalf of International Friends of Wild Salmon. I preface my remarks by echoing the comment of the delegate of the European Community at the NASCO meeting in Oslo last year - NASCO is at a turning point as it enters its second decade. During its first decade NASCO focused on obtaining international cooperation in catch regulation. Much progress has been made.

NASCO has begun to broaden its ecological perspective with necessary attention to the interactions of wild and farmed salmon. Here much progress is yet required.

Today I want to address the two issues my nearly 30 years of professional experience in salmon management instruct are pivotal to NASCO's ability to fulfill its mandate - habitat and public involvement.

Habitat

Atlantic salmon are faced with serious habitat problems throughout their range. Increased human demands on that habitat - and the problems attendant thereto - are inevitable and inexorable. In the years ahead, one of NASCO's most important roles will be to promulgate and propagate an international precautionary approach to alternations of salmon habitat. To serve as the habitat watchdog. To provide an international forum for the airing and resolution of habitat issues. NASCO has made its first tentative steps into habitat issues. It is developing the database of salmon rivers in the NASCO Convention area. It called for a report on the effects of acid rain. It is time to devote far more attention and resources to the production side of salmon conservation. A Special Session on habitat at the 1996 meeting would be an appropriate start. At that time NASCO could also, for example, facilitate a presentation of the collapse of Baltic salmon stocks - I believe this would be quite instructive for NASCO member governments.

Public involvement

NASCO's other most important role in the year ahead will be to develop and nurture an informed international public constituency for the conservation of salmon in the North Atlantic Ocean. Absent such a constituency, NASCO ultimately will fail. The salmon will not be conserved. There can be no other conclusion. To date NASCO has laboured to keep

the public at arm's length under the rubric of preserving decorum. Of course, the real reasons are more complex, but if experience serves, are nonetheless myopic.

Throughout the world there is a rising tide of public demand for access to salmon management and conservation decision making. This is an opportunity - not a threat - *if* NASCO moves forthrightly to provide for and guide substantive public access to and participation in the decision making process. If NASCO does not move in that direction, experience suggests it inevitably will attract the disruptive elements it fears.

There are many models for accommodating substantive, constructive public involvement. NASCO is the only international forum for Atlantic salmon conservation. As a first step toward increasing public access to an acceptable level, I recommend the Secretary be asked to review and discuss alternative models with NGO representatives at the 1996 Annual Meeting in Sweden. In conclusion, NASCO's second decade will be marked by accelerating pressures on salmon and salmon habitat and by decreasing governmental resources to deal with those pressures. Advancing the cause of salmon conservation in the years immediately ahead will require creative thinking, innovative initiatives, and increased international collaboration among government, the public, and the private sector. NASCO's biggest immediate challenge is to enlarge its view of its mandate and its opportunities. Harvest regulation is the least of NASCO's responsibilities and powers. In the end, conservation of Atlantic salmon will hinge most on moral and economic suasion, the quid pro quo of international relations, the spotlight of international attention, and creating enlightened public and private sectors. Increased focus on habitat and public involvement are prerequisites to a successful second decade for NASCO. I urge strategic thinking and rapid implementation of initiatives to those ends.

Thank you for the opportunity to make these brief comments on behalf of International Friends of Wild Salmon.

OPENING STATEMENT MADE BY THE NORWEGIAN FARMERS UNION AND THE NORWEGIAN SALMON RIVERS

The establishment of NASCO as a tool in the management of Atlantic salmon in international waters must be regarded as a success. A number of very difficult management issues have been addressed through the years.

The current situation for the Atlantic salmon is serious and the negative factors endangering the future of the salmon are numerous.

It should be widely accepted that the Atlantic salmon is, first and foremost, an international resource and responsibility. The management policies of most nations have both national and international goals. The fact that interceptory fisheries in coastal waters inside the territorial borders are still taking place, shows the problems of harmonising national management policies with the international management targets. This situation is becoming unacceptable. There is also a need for more coherent management policies between the individual nations in general.

It is therefore necessary to take a fresh look at the present policy and position of NASCO, to evaluate what may be gained by providing NASCO with more responsibility and influence in national salmon management affairs.

We would also like to focus briefly on the need for more research on salmon in the North Atlantic. Research on wild salmon should, if possible, be coordinated internationally, both to obtain a more rational use of the financial resources allotted to salmon research and to widen the scope of national research programmes.

OPENING STATEMENT MADE BY THE SAMI PARLIAMENT

Mr President, Ladies and Gentlemen:

Today, thanks to NASCO, we know more than ever about the situation facing Atlantic salmon stocks and the threats to them. I would like to present the best wishes of the Sami Parliament to NASCO and my support for the valuable work of this Organization. The work to safeguard and protect genetic diversity of salmon also safeguards Sami culture. Both of these matters are also in the interest of the Sami Parliament.

From time immemorial the Sami people have earned their living or part of it by fishing salmon in the rivers of the Arctic Ocean region including the river Teno and the Näätämö rivers. River fishing and Sami culture have developed hand in hand. Until recently, it has been possible to utilize salmon without endangering spawning stocks. International agreements - including the agreements between Finland and Norway since 1873, the NASCO Convention of 1982, and Norway's resolution to stop drift net fishing in 1988 - have secured salmon growth in the sea, as well as their passage and spawning in rivers. Fishing for salmon in the rivers is the best way both ecologically and economically to manage and regulate wild salmon stocks, and it is the way the Sami people have always fished. At present, the river Teno is the most important salmon river in Europe, with original, pure stocks of salmon which support recreational fishing, the best use of the stocks. Unfortunately, hardly any other ecological unity of this kind is to be found anywhere else within the present range of the Atlantic salmon.

The continuation of salmon fishing in the Teno depends entirely on the natural reproduction of salmon. It is a great challenge to researchers to maintain the highest possible production in the river, without destroying genetic diversity. The countries from which the salmon come should be responsible for this charge. The Sami Parliament would like to draw particular attention to the section of the Rio Convention applying to biodiversity, on the basis of which the agreement for the river Teno was drawn up, prohibiting the cultivation of salmon in net cages close to the river mouth, because of the danger of fish diseases and other hazards spreading into the river Teno.

Over the centuries, the Sami have developed complementary, overlapping livelihoods in harmony with their environment, thus demonstrating their skill at integrating economy and ecology. However, to be successful, the Sami economy requires a lot of land, land which is extremely sensitive to disturbance or ecological imbalance. The salmon-based Sami culture along the Arctic rivers requires the river ecosystems, which serve as a nursery and breeding area, to be preserved in as natural a state as possible. It is necessary to protect the watercourses over as broad an area as possible in order to support development of the entire

ecosystem and culture in the Sami region. Above all the preservation of the complete ecosystem in the valleys of the river Teno and the river Näätämö must be ensured because there Sami life is in its purest form. This in turn would safeguard the natural production of young fish and thus preserve the wild salmon stocks. The Sami are endeavouring to ensure this by international agreements and by safeguarding the run of salmon from the sea up the rivers and by safeguarding the reproduction of the salmon. By participating as observers in NASCO, the Sami have a chance to accurately and completely assess the marine salmon stocks and to contribute their points of view to NASCO about the much needed protection of salmon stocks. Through this kind of interaction we can promote both the protection and management of the salmon stocks, and preserve the thriving Sami river culture.

Thank you for your attention.

OPENING STATEMENT MADE BY THE SALMON NET FISHING ASSOCIATION OF SCOTLAND

The Salmon Net Fishing Association of Scotland welcomes NASCO's initiative to include predation in its request to ICES to report on significant research developments which might assist the Organization to manage salmon stocks.

Current available information indicates that the all-age grey seal population in British waters has continued to grow at approximately 7% per annum to a level of not less than 100,000 animals at present, with at least 90,000 belonging to colonies breeding around the Scottish coast and adjacent islands. A projected estimate for the UK population in 1997 is 149,000 grey seals.

In addition to the increases in numbers in the long-established breeding colonies, breeding groups have developed at new, previously uncolonised sites. Many of these sites have been abandoned by salmon bag-net fishermen on economic grounds or when their permission to fish for salmon was withdrawn for conservation reasons.

Seal populations are also increasing in the Northwest Atlantic. Between 1983 and 1990 the population of harp seals increased by nearly 70%.

Based on an annual consumption of 2.4 tonnes (t) per seal and a population of 100,000 grey seals in British waters, the current quantity of food items killed is around 240,000 t of which not less than 200,000 t comprise commercially exploited fish species. If only 1% of the annual amount of food items consumed by grey seals was adult salmon this would amount to approximately three times the recorded UK salmon catch in 1993.

The examination of salmon catches over many years by the Department's scientists has shown that the percentage occurrence of seal-damaged fish has always been highest in the Spring. Could the present disproportionate decline in the numbers of salmon caught at that time of year be due, at least in part, to the massive increase in seal numbers in recent years?

The more or less unrestricted growth of the grey seal population in Scottish waters and the increase in their damage to the traditional fisheries in coastal homewaters during the last 20-25 years has taken place at a time when increasing stringent restrictive controls aimed at the conservation of salmon stocks have been imposed on fishing activities. Since grey seals and

fishermen prey together at the top of the food chain, the case for imposing restrictive control also on the grey seal population is compelling.

We would urge NASCO to use its influence toward the resurrection of a seal management programme along the lines of that abandoned in the late 1970s which was aimed at reducing the seal population to the more reasonable level recommended by the Seals Advisory Committee at that time. The Salmon Net Fishing Association of Scotland is grateful for the opportunity to present this statement.

OPENING STATEMENT BY THE SALMON AND TROUT ASSOCIATION

Our thanks to the President and Council of NASCO for allowing us to make this statement. We are pleased to be part of the increasing involvement and contributions of NGOs at NASCO and urge your Council to encourage the further integration of NGOs into the Organization as it is suggested in Council paper CNL(95)13.

On this general theme, we are pleased to note the general unanimity of views amongst the NGOs represented here today. I believe you will find us unanimous on the important matters of:

- representation of countries within the EU delegations
- impact of salmon farming on wild stocks
- industrial fishing
- seal predation

We support the President's and Secretary's suggestion that the Thirteenth Session of NASCO should include a special session on the topic of predator-prey relationships.

Our feelings about the fishing of mixed stocks of salmon at sea is well known and shared by many of the NGOs here today, as well as by the majority of Governments represented at NASCO. There is only one Government which has so far refused to address this practice within its territorial limits, and that is the Government of the Republic of Ireland. Even the UK Government has agreed to phase out the principal fishery concerned in England and Wales, albeit more slowly than we would wish.

Salmon is too valuable a biological and economic resource to be exploited indiscriminately and against fundamental principles of fishery management. We urge NASCO to condemn the practice wherever it takes place, and not just on the high seas.

OPENING STATEMENT MADE BY THE SCOTTISH ANGLERS NATIONAL ASSOCIATION

Mr President:

The Scottish Anglers National Association welcomes this opportunity to make a brief opening statement. We hope this will become a permanent feature for NGOs attending the annual meetings.

Our submission deals with concerns over the impact of industrial fishing.

In our view, the onslaught on the stocks of sandeels, capelin, krill, garfish and other prey species of the Atlantic salmon in various sectors of the North Sea area is little more than ecological vandalism and likely to have serious consequences for the wild salmon.

We believe it is indefensible that the prey species of the Atlantic salmon can be fished, perhaps to beyond danger levels, without international controls which, at the very least, could limit the depredation.

It seems barely credible that nations can industrially fish the food chain of salmon and white fish species in order to, allegedly, fuel power stations and, certainly, to churn out fertiliser and to provide feed for cattle and farmed salmon.

We maintain that this exploitation should not be allowed to continue unchecked and strongly support the proposal that industrial fishing be the subject of a special session at next year's annual meeting in Sweden.

The Scottish Anglers National Association also wishes to join with the Atlantic Salmon Trust in calling for greater independent participation by Member States of the European Union at NASCO forums.

Admittedly, independent involvement by the EU Member States with salmon stocks might lead to more protracted discussions within NASCO but, in our opinion, would provide a more open and comprehensive overview.

Mr President, Scottish anglers welcome you and the delegates once again to Scotland and we trust you have a memorable and fruitful conference.

ANNEX 4

TWELFTH ANNUAL MEETING OF THE COUNCIL
HILTON HOTEL, GLASGOW, SCOTLAND
12-16 JUNE, 1995

LIST OF PARTICIPANTS

* Denotes Head of Delegation

CANADA

*MR JEAN-EUDES HACHE	Representative Department of Fisheries and Oceans, Ottawa, Ontario
DR WILFRED CARTER	Representative Atlantic Salmon Federation, St Andrews, New Brunswick
MR JEAN-PAUL DUGUAY	Representative Gaspé, Québec
DR ALEX BIELAK	Department of Natural Resources and Energy, Fredericton, New Brunswick
MR RICHARD HEGAN	Department of Fisheries and Oceans, Ottawa, Ontario
MR MURRAY HILL	Department of Fisheries, Halifax, Nova Scotia
MR KEN JONES	Department of Fisheries and Oceans, Ottawa, Ontario
MR DAVID MEERBURG	Vice-President of NASCO Department of Fisheries and Oceans, Ottawa, Ontario
MR REX PORTER	Department of Fisheries and Oceans, St John's, Newfoundland
MR BERKLEY SLADE	Department of Fisheries and Oceans, St John's, Newfoundland

DENMARK (IN RESPECT OF THE FAROE ISLANDS AND GREENLAND)

*MR KJARTAN HOYDAL	Representative Faroese Home Government, Torshavn
MR EINAR LEMCHE	Representative Greenland Home Rule Government, Copenhagen Office
MR MICHAEL ANDERSEN	Greenland Fisheries Research Institute, Copenhagen
MS ANNA MARIA FOSAA	Faroese Home Government, Torshavn

MR JAN ARGE JACOBSEN	Fishery Laboratory, Torshavn
MR JASPUR KRUSE	Felagid Laksaskip, Klaksvik
MR OLE LOEWE	Royal Danish Ministry of Foreign Affairs, Copenhagen
MR HENRIK NIELSEN	Greenland Home Rule, Nuuk
MR FREDERIK OLSEN	KNAPK (The Organization of Hunters and Fishermen in Greenland), Nuuk
MR SOFUS POULSEN	Faroese Commercial Attaché, Aberdeen
MR ANTHON SIEGSTAD	KNAPK (The Organization of Hunters and Fishermen in Greenland), Nuuk

EUROPEAN UNION

*MR OLE TOUGAARD	Representative Commission of the European Communities, Brussels
MR ERNESTO PENAS	Representative Commission of the European Communities, Brussels
MR MICHAEL BREATHNACH	Central Fisheries Board, Dublin
MR JOHN BROWNE	Fisheries Research Centre, Dublin
MR DAVID DICKSON	Scottish Office Agriculture and Fisheries Department, Edinburgh
MR DAVID DUNKLEY	Scottish Office Agriculture and Fisheries Department, Montrose
DR PADDY GARGAN	Central Fisheries Board, Dublin
MR CHRISTOPHER HUNTER	Department of Agriculture for Northern Ireland, Bushmills
MR JOHN KEOHANE	Department of the Marine, Dublin
MR IVOR LLEWELYN	Ministry of Agriculture, Fisheries and Food, London
DR ALAN MUNRO	Scottish Office Agriculture and Fisheries Department, Aberdeen
MR JES BROGAARD NIELSEN	Ministry of Agriculture and Fisheries, Copenhagen
MR TED POTTER	Ministry of Agriculture, Fisheries and Food, Lowestoft

MR MICHAEL WALDRON	Secretariat General of the Council of the EU, Brussels
MR ROBERT WILLIAMSON	Scottish Office Agriculture and Fisheries Department, Edinburgh
MR ALAN WINSTONE	National Rivers Authority, Welsh Region, Cardiff
FINLAND (see Footnote)	
*MR PEKKA NISKANEN	Representative Ministry of Agriculture and Forestry, Helsinki
ICELAND	
*H.E. HELGI AGUSTSSON	Representative Ministry for Foreign Affairs, Reykjavik
MR ARNI ISAKSSON	Representative Institute of Freshwater Fisheries, Reykjavik
MR ORRI VIGFUSSON	Ministry of Agriculture, Reykjavik
NORWAY	
MR BØRRE PETTERSEN	President of NASCO AOF, Oslo
*MR TORMOD KARLSTRØM	Representative Ministry of the Environment, Oslo
MR STEINAR HERMANSEN	Representative Ministry of the Environment, Oslo
MR YNGVE SVARTE	Representative Directorate for Nature Management, Trondheim
MR PER IVAR BERGAN	Directorate for Nature Management, Trondheim
MR ARNE EGGEREIDE	Directorate for Nature Management, Trondheim
DR LARS PETTER HANSEN	Norwegian Institute for Nature Research, Trondheim
RUSSIAN FEDERATION	
*DR ALEXANDER SOROKIN	Representative PINRO, Murmansk
MR GUENRIKH BOROVKOV	Committee of Russian Federation on Fisheries, Moscow
MR GENNADI LAZUTKIN	Consul General of the Russian Federation, Edinburgh

MR VICTOR A NESVETOV	JV Arctic Salmon, Murmansk
MS ELENA SAMOILOVA	PINRO, Murmansk
DR ALEXANDER ZELENTSOV	Murmanrybvod, Murmansk
SWEDEN (see Footnote)	
*MRS LENA ELLWERTH-STEIN	Ministry of Agriculture, Stockholm
DR INGEMAR OLSSON	Representative National Board of Fisheries, Göteborg
USA	
*MR STETSON TINKHAM	Representative Department of State, Office of Fisheries Affairs, Washington DC
MR ROBERT JONES	Representative Connecticut River Salmon Association, S. Windsor, Connecticut
DR RAY B OWEN, JR.	Representative Maine Atlantic Sea Run Salmon Commission, Augusta, Maine
MS KIMBERLY BLANKENBEKER	National Marine Fisheries Service, Silver Spring, Maryland
MR JERRY CLARK	National Fish and Wildlife Foundation, Washington DC
DR KEVIN FRIEDLAND	National Marine Fisheries Service, Woods Hole, Massachusetts
DR JAMES GEIGER	US Fish and Wildlife Service, Hadley, Massachusetts
DR JOHN MCGRUDER	Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, Washington DC
DR FREDRIC SERCHUK	National Marine Fisheries Service, Woods Hole, Massachusetts

ICES

PROFESSOR CHRIS HOPKINS	International Council for the Exploration of the Sea, Copenhagen
DR ROGER BAILEY	International Council for the Exploration of the Sea, Copenhagen
MR ESKILD KIRKEGAARD	Danish Institute for Fisheries Research, Charlottenlund

NON-GOVERNMENT OBSERVERS

M. FREDERIC MAZEAUD	AIDSA, France
DR WILFRED CARTER (member of Canadian delegation)	American Fisheries Society, USA
MR DUNCAN WILSON COL. ROBERT CAMPBELL	Association of Scottish District Salmon Fishery Boards, Scotland
ADMIRAL JOHN MACKENZIE DR DEREK MILLS	Atlantic Salmon Trust, UK
MR JIM MAXWELL MR RICHARD BEHAL	Federation of Irish Salmon and Sea-Trout Anglers, Ireland
MR ALAN HOLDEN	Institute of Fisheries Management, UK
MR ED CHANEY	International Friends of Wild Salmon, USA
MR CHRIS POUPARD COLONEL JAMES FERGUSON	Salmon and Trout Association, UK
MR JOUNI KITTI	Sami Parlamenta, Finland
MR BJORNULF KRISTIANSEN	Norges Bondelag (Norwegian Farmers Union), Norway
MR BJORN MOE	Norske Lakseelver (Norwegian Salmon Rivers), Norway
MR NOEL SMART MR WILLIAM SHEARER	Salmon Net Fishing Association of Scotland, Scotland
MR WILLIAM BROWN MR IAN CALCOTT	Scottish Anglers National Association, Scotland
MR ALAN KEYS MR NEWELL MCCREIGHT	Ulster Angling Federation, Northern Ireland

SECRETARIAT

DR MALCOLM WINDSOR	Secretary
DR PETER HUTCHINSON	Assistant Secretary
MISS MARGARET NICOLSON	PA to Secretary
MRS THERESA GAWTHORNE	PA

FOOTNOTE: With effect from 1st January 1995 Finland and Sweden became members of the European Union. These Parties have denounced the Convention and their membership of the Organization will cease with effect from 31 December 1995.

ANNEX 5

CNL(95)44
TWELFTH ANNUAL MEETING OF THE COUNCIL
12-16 JUNE 1995
GLASGOW, SCOTLAND

AGENDA

1. Opening Session

2. Adoption of Agenda

3. Administrative Issues

3.1 Secretary's Report

3.2 Report of the Finance and Administration Committee

3.3 Reports on the Activities of the Organization

3.4 Eligibility for Election of Officers

3.5 Provisions of Article 13 of the Convention

3.6 The Future Working Methods of NASCO

4. Scientific, Technical, Legal and Other Information

4.1 Scientific Advice from ICES

4.2 Report of the Standing Scientific Committee

4.3 Catch Statistics and their Analysis

4.4 Salmon Tagging and the Tag Return Incentive Scheme

4.5 Database of Salmon Rivers in the North Atlantic

4.6 Review of International Salmon Related Literature Published in 1994

4.7 Laws, Regulations and Programmes

5. Conservation, Restoration, Enhancement and Rational Management of Salmon Stocks

5.1 Measures Taken in Accordance with Articles 14 and 15 of the Convention

5.2 Fishing for Salmon in International Waters by Non-Contracting Parties

(a) Protocol for Non-Contracting Parties
(b) Actions taken in accordance with the Resolution
(c) International cooperation on surveillance

5.3 Research Fishing for Salmon in Relation to the Provisions of Article 2 of the Convention

5.4 Impacts of Aquaculture on Wild Salmon Stocks

(a) Review of progress with Oslo Resolution
(b) Advances in relevant research
(c) Closer cooperation with the salmon farming industry

5.5 Long-Term Trends in Abundance

5.6 Predators and Prey

5.7 Guidelines on Catch and Release

5.8 Guidelines on Stocking

5.9 Reports on Conservation Measures Taken by the Three Regional Commissions

6. Other Business

7. Date and Place of Next Meeting

8. Draft Report of the Meeting

9. Press Release

ANNEX 6

COUNCIL

CNL(95)48

OUTLINE OF 1996 BUDGET AND 1997 FORECAST BUDGET AND SCHEDULE OF CONTRIBUTIONS

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION
1996 BUDGET AND 1997 FORECAST BUDGET (Pounds Sterling)

SECTION	DESCRIPTION	EXPENDITURE	
		BUDGET 1996	FORECAST 1997
1	STAFF RELATED COSTS	169590	174670
2	TRAVEL AND SUBSISTENCE	33200	28840
3	CONTRIBUTION TO ICES	26260	27040
4	CONTRIBUTION TO WORKING CAPITAL FUND	0	0
5	MEETINGS	7500	19890
6	OFFICE SUPPLIES, PRINTING AND TRANSLATIONS	30150	37880
7	COMMUNICATIONS	11970	12310
8	HEADQUARTERS PROPERTY	6480	-21510
9	OFFICE FURNITURE AND EQUIPMENT	7500	7720
10	AUDIT AND OTHER EXPENSES	9800	10080
11	TAG RETURN INCENTIVE SCHEME	4700	4700
	TOTAL	307150	301620

		REVENUE	
		BUDGET 1996	FORECAST 1997
12	CONTRIBUTIONS - CONTRACTING PARTIES	310350	295120
13	MISCELLANEOUS INCOME - INTEREST	9000	9000
14	STABILISATION	-16500	-2500
15	SURPLUS OR DEFICIT (-) FROM 1994	4300	0
	TOTAL	307150	301620

NASCO BUDGET CONTRIBUTIONS FOR 1996 AND FORECAST BUDGET CONTRIBUTIONS FOR 1997(Pounds Sterling)

CATCH (tonnes)	PARTY	BUDGET 1996	FORECAST 1997
351	CANADA	33143	31516
18	DENMARK (FAROE ISLANDS AND GREENLAND)	14318	13616
1951	EUROPEAN UNION	123591	117526
448	ICELAND	38626	36731
937	NORWAY	66269	63017
138	RUSSIAN FEDERATION	21102	20066
0	USA	13301	12648
3843	TOTAL	310350	295120

Contributions are based on the Official Catch Returns to NASCO. Column totals can be in error by a few pounds due to rounding.

ANNEX 7

COUNCIL

CNL(95)12

REVIEW OF THE PROVISIONS OF ARTICLE 13 OF THE CONVENTION

CNL(95)12

REVIEW OF THE PROVISIONS OF ARTICLE 13 OF THE CONVENTION

Introduction

1. At its Eleventh Annual Meeting the representative of Denmark (in respect of the Faroe Islands and Greenland) drew the attention of the Council to the different objection procedures in relation to regulatory and emergency regulatory measures. He referred, in particular, to the provisions of paragraphs 3 and 5 of Article 13 of the Convention. The Council agreed that this was an issue that would require careful consideration and might require a change to that Article of the Convention or a less formal agreement between the Parties.

2. Paragraphs 3 and 5 of Article 13 state that:

Paragraph 3: Any member in whose area of fisheries jurisdiction a regulatory measure would apply may, within 60 days of the date specified in the Secretary's notification, lodge an objection to it. In this case the regulatory measure shall not become binding on any member. A member which has lodged an objection may at any time withdraw it. Thirty days after all objections are withdrawn the regulatory measure shall become binding, subject to paragraph 2.

Paragraph 5: A Commission may propose an emergency regulatory measure having effect prior to the expiration of the 60-day period referred to in paragraph 2. The members shall make best efforts to implement the measure, unless there is an objection by a member within 30 days after the Commission has proposed it.

Differences between regulatory measures and emergency regulatory measures

3. It is clear from the wording of the Convention that there are a number of differences between regulatory and emergency regulatory measures. In the case of an emergency measure:

- any member, and not just the member in whose area of fisheries jurisdiction a measure would apply, may object;

- there is no reference to the measure becoming binding, only that members shall make best efforts to implement the measure;

- a period of 30 days from the date when the Commission proposed the measure is allowed for objections, while for a regulatory measure 60 days from the date of the Secretary's notification is allowed for objections;

- there is no reference to the procedures for withdrawal of an objection whereas for a regulatory measure 30 days after the withdrawal of all objections the measure becomes binding;

- there is no procedure whereby a member may denounce the measure after one year (detailed in Article 13, paragraph 4). (It is possible that those involved in drafting the Convention did not envisage a situation where an emergency regulatory measure would apply to more than one fishing season and so did not include procedures by which a member may denounce such a measure).

4. It would seem that the intention of the provisions concerning emergency regulatory measures is to facilitate their implementation, presumably in recognition of the difficulties caused by agreeing such measures so close to the date the fishery would commence. It is perhaps contrary to this intent that any Party, and not just the Party in whose area of fisheries jurisdiction the measure would apply, may object to such a measure. Indeed, last year the representative of Denmark (in respect of the Faroe Islands and Greenland) referred specifically to the potential problems this might cause. This is of particular concern in the West Greenland Commission as its measures have normally been agreed in June and apply to a fishery which usually commences on 1 August of the same year. All of the measures agreed since NASCO's inception which apply to the West Greenland fishery have, therefore, been designated emergency regulatory measures.

Options

5. If the Council agrees that this difference in procedures applying to emergency regulatory measures is undesirable, there are a number of ways in which the problems this could create might be resolved. These are as follows:

Option 1 **Earlier negotiations**

NASCO could hold its annual meeting at the end of May, i.e. a couple of weeks earlier, and the measure adopted would then not be an emergency measure. Theoretically this should be possible as the North Atlantic Salmon Working Group meet at the end of March or early April. However the ICES meeting of the ACFM is not held until late May. We have had difficulties in the past in obtaining the scientific advice from ICES early enough to allow delegates to study it before our meeting in June, and this year we have had to delay the meeting further to allow time for the scientific advice to be made available. In this case ICES would need to be required to provide the advice earlier.

Alternatively, the West Greenland Commission might commence its negotiations on regulatory measures at the annual meeting in the calendar year prior to the year in which the measure would apply. The present measure provides a mechanism for establishing regulatory measures for the calendar years 1993-1997 so the next agreement might be negotiated in 1997 and could apply from 1998 on. This of course would require a regulatory measure to be set without the most up-to-date scientific advice although the current measure takes the form of a mechanism for agreeing a quota into which the scientific advice is input annually to generate a catch limit.

Option 2 **Interpretation of Article 13**

There might be a unanimous decision of the Council or a Resolution, concerning the interpretation of paragraph 5 of Article 13. This measure would be less formal than changing the Convention and would not require the Parties to ratify any change to the Convention (see Option 3). Alternatively a Commission could incorporate into an emergency regulatory measure an agreement of the Parties to the effect that only the member in whose area of fisheries jurisdiction an emergency regulatory measure would apply may object.

Option 3 **Modification of the Convention**

Article 13, paragraph 5 of the Convention could be modified so that the second sentence reads "A Commission may propose an emergency regulatory measure having effect prior to the expiration of the 60 day period referred to in paragraph 2. The members shall make best efforts to implement the measure, unless there is an objection by ***any member in whose area of fisheries jurisdiction an emergency regulatory measure would apply*** within 30 days after the Commission has proposed it". As this would involve an amendment to the Convention it would require a unanimous vote of the Council. Under Article 19 of the Convention, the Secretary would be required to transmit the text of the amendment to the Depositary which would then inform the Parties. The amendment would enter into force for all Parties 30 days after the date specified in the notification by the Depositary of receipt from all Parties of instruments of ratification or approval.

Conclusion

6. Paragraph 5 of Article 13 seems to recognise that there may be difficulties in implementing an emergency regulatory measure. It might be considered inappropriate therefore that objections to a measure may be made by any Party, and not just the Party in whose area of fisheries jurisdiction the measure would apply. The Council may therefore take the view that the procedures applying to emergency regulatory measures should be amended. The most effective method of achieving this would be to modify the Convention. However, this would involve a formal ratification procedure and the Council might take the view that a more informal arrangement such as a decision of the Council, a Resolution or an agreement of the relevant Commission would be preferable. A secondary issue would be to resolve whether, because of the longer-term emergency regulatory measures which have been agreed in recent years, there should also be a process whereby a Party may denounce an emergency regulatory measure after one year. The views of the Council are sought on how it wishes to resolve the issues raised here.

Secretary
Edinburgh
21 April 1995

ANNEX 8

COUNCIL

CNL(95)42

COMMENTS ON ARTICLE 13
(submitted by Denmark (in respect of the Faroe Islands and Greenland))

CNL(95)42

COMMENTS ON ARTICLE 13
(submitted by Denmark (in respect of the Faroe Islands and Greenland))

With respect to Article 13, Denmark (in respect of the Faroe Islands and Greenland) is not concerned with the provisions in Article 13.3 on objections and withdrawal of objections.

Neither are we concerned with the provision in Article 13.5 that any member of a Commission may object, thereby making the measure not binding on any member.

We are concerned with the scenario that in this situation an objecting member, with no fisheries jurisdiction in the area where the regulatory measure would apply (in the West Greenland Commission: Canada, EU or USA), would subsequently withdraw the objection with the effect that the measure thereby is revitalized.

We therefore propose that the Council agrees that Article 13 be interpreted in such a way that an objection under paragraph 5 cannot be withdrawn with the effect that the measure is revitalized.

ANNEX 9

COUNCIL

CNL(95)13

THE FUTURE ISSUES FOR NASCO

CNL(95)13

THE FUTURE ISSUES FOR NASCO

Introduction

1. At the Eleventh Annual Meeting of the Council reference was made to the fact that, as NASCO was ten years old, it would be an appropriate opportunity to examine its working methods. The Secretary was asked to prepare a paper on the future issues which might be faced in achieving the objectives of the Convention. This paper is therefore an attempt to gaze into the crystal ball, a notoriously inaccurate activity! It is inevitably a personal view intended as an aid to discussion. It does not represent the views of the Council. At the Dialogue Meeting in 1993 NASCO was described as being like driving a car with a rear view mirror but no windscreen. Until that time the scientific advice we had was only retrospective. The NASCO vehicle now has a windscreen as well as a rear view mirror but we now need headlights, shock absorbers and, if possible, radar.

2. Leaving aside the motoring analogy I would like to concentrate on the main issues which might concern NASCO over the next few years. Although the past is the best guide to the future we have to imagine what new issues might present themselves. After all, who, two hundred years ago, would have imagined hydro-electric power; who, one hundred years ago would have imagined acid rain; who, even ten years ago when NASCO started, saw salmon farming as a potentially serious threat to the wild stocks? And who would have predicted that vessels registered in Latin America would fish for salmon in the cold North Atlantic?

Science

3. The NASCO Convention commits the Parties to rational management and this means that our regulatory measures need to be responsive to man-made factors as well as to natural cycles in abundance. In this regard there have been big advances in the science in the last few years; now our science has some predictive capacity. By testing the results we get from using the newly developed models we should learn about their validity and the next 5 to 10 years should tell us whether they are substantially accurate and useful in management. Priority should also be given to the development of the science in the North-East Atlantic Commission area. The need to identify target spawning escapements for all salmon rivers would facilitate more rational management throughout the North Atlantic area. Our future regulatory measures should, driven by the improvements in the science, become more and more rational and less driven by political considerations. In the early days of NASCO the scientific advice played a relatively minor role in establishing regulatory measures. Now that is changing and I believe that we must foster, encourage and extend that change which is vital to our work.

4. As science is now becoming more important to the management process it will be important to ensure that it remains free from political influences. There have been some concerns in the past that political factors were beginning to influence the work of the ICES Working Group on North Atlantic Salmon but the then General Secretary

of ICES acted quickly to address the problem. There will be a need for vigilance in future so as to ensure that, as the Convention requires, we have the best available advice. The separation of the scientific and management fora can give rise to problems, for example, the need for the scientists to communicate their findings more clearly and in direct response to the questions posed and the timing of the advice from ICES. For their part the scientists have asked to see a clearer statement of objectives from the managers including a definition of the term conservation. Our challenge for the future will be to ensure that the dialogue between scientists, users and managers, develops so as to facilitate rational management.

5. Research priorities in the future might include further studies in the sea, development of multi-species assessments and research on the impacts of salmon aquaculture and introductions and transfers.

Management

6. The future management issue could be, at one extreme the 'nightmare' scenario of wild salmon stocks going into continuing decline because of habitat loss, pollution, global warming and other environmental changes and increased disease and genetic weakening by interactions with farmed fish. At the other extreme, managers could be faced with a growing abundance of stocks due to the sacrifices being made now and a natural improvement in the stocks. Then the problem would be of sharing this new abundance. We do not know whether one of these extremes or something in the middle will be the situation to be managed. The salmon has a remarkable lifestyle, spending some of its time in international waters, some within territorial seas and some in inland waters. As a result of its migrations it is subject to a number of legal regimes. If NASCO is to succeed it will need to work more closely among these. We are already doing this in our work on, for example, impacts of aquaculture, acid rain and introductions and transfers. There is an artificiality in management if we insulate the different parts from the whole and one might, for example, imagine in the future more cooperation between the Parties not only on marine issues but freshwater issues such as on pollution and habitat damage, which have caused great losses of salmon.

7. Since the inception of NASCO a conservation effort involving considerable sacrifice has been made in almost every North Atlantic country with salmon stocks. The large decline in catches of salmon is, to an extent, due to severe limits on catches which have been imposed as conservation measures. There have also been changes in the pattern and level of exploitation of salmon as a result of economic pressure from the growth of salmon farming. However, the advice from the scientists is that abundance of stocks is low and that catches have declined more than would be expected from the measures introduced. This decline in catches has occurred despite an increasing contribution from escaped farmed fish. While there are competing user interests, the priority should be the long-term wellbeing of the stocks and further sacrifices may be needed so as to ensure this. These sacrifices will be needed by all users of the resource but as stocks recover there should also be benefits for all. As was recognised at the Dialogue Meeting salmon management involves finding an acceptable compromise which does not jeopardise the salmon or its environment through adherence to the principles of environmental sustainability, integrated resource management and partnership.

8. The reductions in the Greenland Quota and the measures in Canada are severe to a degree not previously envisaged. The threat of extinction of salmon in some rivers in North-East Europe due to *Gyrodactylus salaris*, the invasion of farmed fish onto feeding grounds and into rivers are huge changes leading us into new territory. In such situations the old divisions between anglers and commercial netsmen make less sense; they are all in the same boat. In the long term if we can restore abundance there should be room for both recreational and commercial users and the balance between the two will depend on socio-economic aspects. There is likely to be more widespread use of catch and release, and it will be useful to agree international principles for this practice.

Precautionary Principle

9. There is growing recognition of the need for fisheries managers to act on the basis of the information available and not necessarily to wait until there is scientific proof of damage. This Precautionary Principle is being considered by the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks and it is of relevance in much of NASCO's work on issues such as introductions and transfers and the impacts of aquaculture. There may be a need to adopt the Precautionary Principle in order to arrest the present decline in the wild salmon. This approach to protecting the wild stocks does not, however, lessen the need for the best available scientific advice, it merely advocates that action is not postponed where scientific information is lacking.

"Buy-outs"

10. In 1991 NASCO Council decided that it would not participate in "buy-outs", i.e. the payment of compensation to fishermen so that they do not take their NASCO quota, but would not oppose them and would wish to be aware of developments. If the effect of a "buy-out" is to transfer a quota from one group of fishermen (in this case commercial fishermen) to another group of fishermen (in this case anglers) then, of course, it has no conservation value. If not all the fish transferred are caught by anglers then it may have some conservation value assuming that the commercial fishermen would have caught all of their quota. We do not know how this activity will develop in future but we do know that Greenland and the Faroe Islands have stated that while they may from time to time 'refrain from using the family silver they are certainly not going to sell it', so the term "buy-out" is perhaps inappropriate. The issue for NASCO is that whether or not the "buy-outs" proceed, stop or are interrupted, there must always be soundly-based regulatory measures in place.

Predators and Prey

11. The predators of the salmon, the seals, (and other mammals and birds), will probably continue to be protected and increase in numbers so the balance may be pushed away from harvest by humans. We will also need to try to understand the dependence of the salmon on the fishes, sand-eels, sprats etc. which are taken by industrial fisheries.

Fishing for Salmon in International Waters

12. Strong action by the Parties seems to have worked well to control this activity. But it is a problem that could quickly re-appear unless we are vigilant. There are many

States that could decide to fish for salmon in international waters and if salmon abundance improves as a result of the sacrifices now being made the practice could become much more attractive, particularly if a premium price develops in more sophisticated markets for wild fish. Even catches by one or two vessels can undermine our conservation efforts. It is hard to see a permanent solution other than constant vigilance and regular international cooperation on surveillance. We will need to be aware of new technologies, such as radar satellites, as they become available, so that we can obtain the best surveillance information in support of our diplomatic action. Fishing in a Convention area by non-Contracting Parties is not a problem that is restricted to salmon and we will need to continue and expand the cooperation we have commenced with other international Commissions so that experiences of addressing this problem can be shared. Initiatives such as the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas should also help us in dealing with the problem in future.

Impacts of Salmon Farming

13. NASCO recognised the potentially serious impacts of salmon farming at its Fourth Annual Meeting and since then has taken a number of measures in order to safeguard the wild stocks. We still do not know for sure what the genetic effects, if any, will be but they may be insidious and irreversible and the advice we have received from the scientists is to act in a precautionary way now in order to safeguard the wild stocks. The effects of disease and parasite transmission are already known to be severely damaging to the point that some stocks have been threatened with extinction. There is little cause for optimism here because farming is going to grow and grow, not just of salmon but of many other species. The Resolution adopted last year in Oslo was a significant step forward in safeguarding the wild stocks and over the next four years we will need to monitor the implementation of its provisions and assess its effectiveness. I believe that the whole question of impacts of aquaculture will be of major importance in the next decade. We may well need to consider very difficult issues such as whether only sterile fish can be put to sea. The salmon farming industry has an international perspective and international markets, and NASCO offers an appropriate forum in which the industry can cooperate to protect wild salmon at a level where no advantage or disadvantage accrues to the national industries. We have already commenced the process of cooperation with the salmon farmers and it is important that we develop closer links with this industry in future to seek cooperation in safeguarding the wild stocks. Protection of the wild stocks is in the long-term interests of the salmon farming industry. We have already developed guidelines on the establishment and operation of gene banks to conserve genetic resources. We will need to keep developments in this field fast moving under review so that the Council may consider whether further action internationally is desirable.

Transgenic Salmon

14. The whole issue of transgenic salmon (where genes from other species can be introduced into salmon so as to improve growth or other desirable qualities for aquaculture) is just over the horizon. Where transgenic fish offer advantages there will surely be pressure to use them but this will create even more complex problems in protecting the wild stocks.

Salmon Ranching

15. Sea-ranching of salmon is currently only conducted on a relatively small scale in the North Atlantic. There is growing interest in ranching in a number of countries because of major improvements in smolt-rearing techniques and recent changes in the pattern and level of exploitation. It seems likely therefore that ranching will increase if marine survival improves, potentially bringing new problems with it, which NASCO will need to be aware of and take action if necessary.

Stocking of Rivers

16. There have been many attempts at stocking going back at least a century. Enhancement programmes need careful consideration since some practices intended to improve can actually do harm. The Council has therefore agreed that it would be useful to agree international guidelines on stocking and we will need to develop these and review them as knowledge increases.

Introductions and Transfers

17. Introductions and transfers of fish are always risky. The North American Commission has already developed Protocols on Introductions and Transfers and measures are currently being developed for the North-East Atlantic area. This is an issue that will need to be kept under review given the pressures for removal of barriers to trade. The risks to wild stocks have been highlighted by the devastation caused to Atlantic salmon by *Gyrodactylus salaris*. It seems likely that we will need to consider further measures to address unintentional introductions and transfers.

Global Warming

18. There is evidence of global warming though the existence or extent of it is not agreed. Some experts believe that the change in climate could be relatively sudden and this could result in a shift northwards in the distribution of the salmon. However, because there are few land masses with potential salmon rivers north of the present range, except possibly in Greenland, there may be a net loss of habitat.

Welfare Issues

19. Animal rights groups have put increasing pressure on all aspects of animal management and they have started to take an interest in fish. So far, in Europe at least, they have concentrated on non-salmonid species but if this develops one might imagine that the salmon, a much-admired species, would be in the front line of their concerns. The total harvest level and some catching methods might come under attack.

Education

20. We will need changes in attitude and education. In that respect it may be that we should do more to educate the young on conservation and management. NASCO has played no role in this but if future generations are to succeed and the wild salmon is not to be lost we need to capture their interest in conservation at an early age.

NASCO could perhaps play some role in providing some of the basic information and giving the perspective of international cooperation.

Catch Statistics

21. The question of comparability of catch statistics has been addressed by NASCO and a minimum standard has been adopted which will be in place from the 1995 fishing season. The Council has recognised the particular problem of unreported catches resulting from illegal fishing and for other reasons. Estimates suggest that the level of unreported catches may be up to 47% of the declared catch and there may be benefits from further cooperation between the Parties on this significant issue. Despite their obvious limitations catch statistics are the only data by which long-term trends in abundance can be examined and the Secretariat is presently obtaining suitable data sets for analysis in order to try to place the present catches into some historical context.

Socio-Economic Aspects

22. The need for socio-economic aspects of fisheries management to play a larger part in the management process has been recognised. The high economic value of the wild salmon, in spite of the low tonnages involved, make its conservation vital. It is important that this value be understood and updated. With regard to social aspects, a better understanding of the dependency of certain communities might also be obtained if NASCO were able to hold some of its annual meetings in these fishing communities, for example Greenland, Newfoundland or northern Europe, rather than in large cities. The Secretariat has presented information on the economic value of salmon to the Council and we can continue this work and develop information on socio-economic aspects for presentation in future.

Non-Government Observer Organizations to NASCO

23. Our relation with our NGOs has grown gradually both in nature and in scale. We now have 22 NGOs and they bring to NASCO much experience and wisdom. The Council has shown a willingness to see fewer restrictions made on the participation of NGOs. Further development of the relationship of cooperation and trust between NASCO and its NGOs will benefit the salmon and all involved in its management and exploitation.

Working Methods

24. One of the underlying issues raised in the Council that led to the idea of considering our working methods was the question of how to retain the voice and experience of all the Atlantic European nations as they join the European Union. It is an issue already raised by the NGOs at the Dialogue Meeting and in the Council. Seven countries with salmon stocks are now within the European Union which accounts for about half of the catch. There is a concern that a mini-NASCO is being created where representatives of European nations debate international issues behind closed doors and then return to the conference table. The challenge for NASCO and for the EU is to find working methods that allow all the experience and knowledge of these salmon countries to be freely available and form part of the NASCO debate and there could be new working methods to deal with this. This is a complex procedural matter

and is essentially a matter for the EU but there is no doubt that it affects the work of the Organization.

Cooperation with Other Inter-Governmental Fishery Commissions

25. *Salmo salar* lives not only in the Atlantic but in the Baltic where it is subject to a different management regime. Practices there have led to the virtual collapse of wild stocks and it seems likely that we are seeing the end of wild salmon in that sea. This is a terrible warning to us and we must learn the lessons there. Indeed it may be that a much closer relationship between the two management regimes could help both sides. It also seems likely that there could be mutual benefits from cooperation with the Pacific Salmon Commission and the recently established North Pacific Anadromous Fish Commission whose Convention has some similarities to the NASCO Convention. We have already commenced a dialogue with NAFO, NEAFC and ICCAT on the problem of fishing by non-Contracting parties and it seems likely that there would be benefits from future cooperation on a range of issues particularly with those organizations involved with salmon management.

In conclusion

26. It is easier to predict the past than the future but I am sure that there will be issues that are completely absent from this review because we have not even dreamed of them. Looking at the future, on the optimistic side, conservation measures, which have been increasingly severe over the last 5-10 years, coupled with a natural upturn in abundance in salmon, could lead to a significant increase in the stocks. There could be many more salmon to share. This might give us new problems but ones that would be addressed in a very positive environment. On the more pessimistic side the wild stocks could completely crash. Then we would be working in an extremely difficult situation where we could not afford to take any risk.

27. More speculatively, sea levels could rise, a bad nuclear accident in or near the sea could cause severe and widespread radioactive pollution of the marine environment, unknown diseases might decimate wild stocks, farmed fish might become so prevalent and, through inter-breeding, bring a new tameness to the salmon that they no longer provide sport for anglers. All these things and more could happen. Ten or twenty years from now quite new issues could be of overwhelming importance. All one can say is that, hopefully, NASCO, with its spirit of cooperation intact, will be there as the forum to seek international solutions to whatever issues threaten the wild salmon stocks and to ensure that they are there for future generations.

Secretary
Edinburgh
23 May 1995

ANNEX 10

COUNCIL

CNL(95)43

SOME ITEMS RELATED TO THE FUTURE ISSUES FOR NASCO
A WORKING PAPER PRESENTED BY THE NORWEGIAN DELEGATION

CNL(95)43

SOME ITEMS RELATED TO THE FUTURE ISSUES FOR NASCO
A WORKING PAPER PRESENTED BY THE NORWEGIAN DELEGATION

The Norwegian delegation acknowledge the thorough and interesting paper regarding the future issues of NASCO. We will focus on some main issues arising from this review that we regard as especially important and provide some supplementary comments.

In Norway we have made great efforts to establish salmon management at the individual population level. This is a fundamental principle in salmon management and should be clearly emphasised.

NASCO's main concern is the conservation of the salmon as a species. NASCO should therefore adopt a policy which distinguishes between production goals and conservation goals since these are not necessarily the same.

ICES has in its recent report on Atlantic salmon put forward the concept of spawning targets based on stock and recruitment models. This approach could provide managers with a very useful tool for achieving maximum production in local stocks and the species as a whole. However, a more comprehensive concept is needed for conservation purposes which allows for consideration of genetic and demographic stability. The concept of sustainable population size should be further developed for this purpose. In this context it would be valuable to define criteria for designating specific stocks.

Regarding fishing for salmon in international waters there is one additional measure that could help us in dealing with the problem. That is to forbid citizens in the NASCO area to take part in this fishing. We have such prohibitions for Norwegian citizens, and not only for their vessels.

Now, to the question of transgenic salmon. We regard possible future use of genetically modified salmon as a very important potential threat to the wild salmon stocks. We also think that we have a good opportunity to take a precautionary approach and prevent serious damage. This could be done by establishing internationally binding rules or guidelines for the use of such modified organisms. The possible implications of genetically modified salmon could also be a relevant topic for a Special Session within NASCO.

In recent years Norway has great efforts to secure public access to the resource. This should lead to valuable public support to promote the conservation of salmon stocks and should also be emphasised.

Finally, we will stress NASCO's very important function as a forum for exchange of information. This part of NASCO's activity should be strengthened and include information on rules and guidelines, research programmes, catch statistics, management systems, status of stocks, and threats to the stocks. Routines for collecting information should be organized with the aim of continuously up-dating our knowledge on salmon. As a part of this, it would be appropriate to evaluate the routines for reporting to NASCO.

ANNEX 11

COUNCIL

CNL(95)40

SOME ITEMS RELATED TO THE FUTURE ISSUES FOR NASCO
A WORKING PAPER PRESENTED BY THE ICELANDIC DELEGATION

CNL(95)40

SOME ITEMS RELATED TO THE FUTURE ISSUES FOR NASCO
A WORKING PAPER PRESENTED BY THE ICELANDIC DELEGATION

In recent years an increasing part of NASCO's activity has been concentrated on the effects of salmon aquaculture on wild populations of salmon as well as issues related to introductions and transfers of salmon.

The Icelandic delegation has previously pointed out that issues related to the effects of aquaculture on wild salmon stocks can not be confined to salmon culture alone. Numerous other species of salmonids are being reared in freshwater rearing stations and sea cages and those species are possible carriers of diseases affecting salmon and could in some cases also pose an ecological threat to wild salmon populations.

It can conversely also be argued that salmon aquaculture can harm or threaten other species of salmonids through disease, parasitic or ecological effects, possibly causing an economic loss to resource users.

As stated in Article 1 of the Convention, NASCO only deals with wild salmon originating in the rivers of different states. Inclusion of other salmonids could thus not be accomplished without a change in the Convention. In order to keep up with development, especially in aquaculture, the Icelandic delegation could support a change in the Convention to accommodate other salmonid species.

Recognizing, however, the reluctance of many Parties to open up the Convention for a change, we stress that NASCO Council needs to make sure, when dealing with complex ecological issues, that working groups have mandates and terms of reference, which include the whole spectrum of interactions and effects, including those related to other salmonids. The Icelandic delegation is convinced that such a holistic approach will be more meaningful in the long run and reduce friction between user groups.

ANNEX 12

COUNCIL

CNL(95)15

REPORT OF THE ICES ADVISORY COMMITTEE ON FISHERY MANAGEMENT

REPORT TO THE NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION COUNCIL

Source of information: Report of the Working Group on North Atlantic Salmon, April 1995 (ICES Doc. C.M.1995/Assess:14)

Sections 1-6 of this report are set out in the order of the questions from NASCO to ICES (Appendix 1).

1. EVENTS OF THE 1994 FISHERIES AND THE STATUS OF STOCKS BY COMMISSION AREAS

1.1 Overview of catches in the North Atlantic

1.1.1 Nominal catches of salmon in the North Atlantic

Nominal catches of salmon by country in the North Atlantic for 1960-1994 are given in Table 1.1.1 and catches by NASCO Commission areas for 1989-94 are shown below (in tonnes):

Area	1989	1990	1991	1992	1993	1994
NEAC	4419	3758	2951	3379	3348	3486
NAC	1143	915	713	524	375	354
WGC	338	275	476	242	0	0
Total	5900	4948	4140	4136	3723	3840

Figures for 1994 (3840 t) are provisional and incomplete, but the total is slightly above the 1993 total, which was the lowest recorded since 1960 (Figure 1.1.1). There is some indication that the numbers of fish farm escapees may have declined in 1994, but ranched fish still make up a large proportion of the catch in Iceland. It is clear that some of the decline in catches in recent years can be accounted for by management plans which have reduced fishing effort in several countries.

1.1.2 Unreported catches of salmon in the North Atlantic

The total unreported catch within the NASCO Commission areas in 1994 was estimated to be 1276 t, a decrease of 22% compared with 1993 and 33% below the 1989-1993 five-year mean of 1891 t. Estimates for the Commission Areas are given below (in tonnes):

Area	1989	1990	1991	1992	1993	1994
NEAC	2103	1779	1555	1825	1471	1157
NAC	174	111	127	137	161	107
WGC	N/A	N/A	N/A	N/A	12	12
International waters	N/A	180-359	25-100	25-100	25-100	25-100

1.1.3 Production of farmed and ranched salmon in the North Atlantic

The production of farmed salmon in the North Atlantic Area in 1994 was 326,785 t. This was the highest production in the history of the farming industry and represented a 22% increase (59,410 t) compared to 1993 (Figure 1.1.2).

Ranching was defined as the production of salmon through smolt releases with the intention of harvesting the total population that return to freshwater (harvesting may include collecting fish for broodstock). The harvest of ranched fish in 1994 was 325 t which was considerably lower than in 1993 (519 t). The great majority (95%) of this production has been in Iceland.

1.2 Fisheries and stocks in the North-East Atlantic Commission (NEAC) Area

1.2.1 Fishing in the Faroes Area

Gear and effort: In accordance with the agreement between the Faroese Salmon Fishermen's Association and the North Atlantic Salmon Fund, commercial fishing for salmon in Faroes territorial waters was suspended for the years 1994 to 1996. A research fishery for salmon continued to operate in the Faroes area in the 1993/94 season, and one research vessel fished a total of 30 sets during 4 trips. The long-line gear used was the same as in previous seasons.

Catch: The total catch in the research fishery in the 1993/94 season was 7 t, and the catch in the 1994 calendar year was 6 t, excluding fish that were tagged and released. The proportion of fish less than 60 cm (that would normally have been discarded) was 14.4%, which is near the upper end of the range observed since the 1982/83 season.

Catch per unit effort: The CPUE of 43 salmon per 1000 hooks for the 1993/94 season is the third lowest value since the 1981/82 season and was only half the CPUE (84) in the 1992/93 season (Figure 1.2.1).

Biological composition of the catch: In the 1993/94 season 17% of the fish were of reared origin. This compares with much higher figures in the 1989/90 to 1992/93 seasons (27-44%). Figure 1.2.2 shows the CPUE for past seasons divided into wild fish and farm escapees and suggests that the increase in CPUE in the previous four seasons and the decrease in 1994 was due in part to the numbers of farmed fish in the catch.

Origin of the catch: External tags (ext.) and CWTs were recovered from countries regularly represented in the tag recovery programmes in the past, namely: Ireland (10 CWT), Norway (6 CWT and 30 ext.), Sweden (3 ext.), UK (England and Wales) (1 CWT), Iceland (1 CWT) and Spain (1 CWT). As in the past, the highest recapture rates were from releases in Norway and Sweden; recapture rates from other areas are low.

In the 1992/93 to 1994/95 fishing seasons, a total of about 5,300 salmon caught on long-line have been tagged and released in the open sea north of the Faroes. After two fishing seasons (i.e., 1993 and 1994) 66 tagged fish have been reported recaptured in 10 countries as shown below.

Country	Recaptures	
	Total to date	%
Norway	37	56.1
Scotland	9	13.6
Ireland	5	7.6
Russia	5	7.6
Sweden	4	6.1
Denmark	2	3.0
England	1	1.5
Iceland	1	1.5
Spain	1	1.5
Canada	1	1.5
Total	**66**	**100**

These preliminary results confirm earlier information that the majority of salmon in the Faroese area originate from Norway. Between 17% and 33% of the tagged fish were assumed to be of farmed origin, and the recapture rate for these fish has been lower than for wild fish.

Exploitation rates at Faroes: The exploitation rate on all monitored stocks in the Faroes fishery in 1993/94 was very low. The highest level (3%) was recorded on 2SW hatchery fish from the R. Imsa, Norway.

1.2.2 Homewater fisheries in the NEAC Area

Gear and effort: There has been a continuation in the general trend to reduce commercial fishing effort in the NEAC Area, reflecting conservation measures in the respective countries as well as the reduced value of commercially caught salmon. Reduction in commercial fishing effort in 1994 was reported for salmon fisheries in France, Ireland, Russia, Sweden, UK (England and Wales) and UK (N. Ireland). Minor changes were reported for Finland, Norway and UK (Scotland), but there was an extension of the sport fishing period in Iceland.

Catch: Catches in 1994 were reported to be close to or better than the mean of the last five years in France, Ireland, UK (England and Wales), UK (N. Ireland) and UK (Scotland). Norway and Russia reported catches similar to the previous year, but Iceland, Finland (Teno R.) and Sweden had considerably lower catches than in 1993.

CPUE: Catch per unit effort in general followed the same pattern. In Ireland and parts of UK, catches of 1SW salmon were very good at the beginning of the season but declined suddenly before the end of the season.

Composition of catch: There was an increase in the proportion of 1SW salmon in catches in Ireland, Norway and Russia compared to the previous year. Finland (Teno R.) and Sweden reported similar grilse ratios but France and, in particular, Iceland reported considerable reductions in grilse abundance. No significant trends were reported for MSW salmon.

Origin of catch: Ranched fish continue to comprise the majority of the Icelandic catch and some straying occurs into rivers. There has been a reduction in the frequency of fish farm escapees in Norwegian coastal waters and rivers. Fish farm escapees are also observed at variable levels in coastal and in-river fisheries in Scotland and in low proportions in Ireland and UK (N. Ireland).

Exploitation rates: Considerable reductions of exploitation rates in commercial nets were reported for Russia but exploitation rates in other countries appeared similar to previous years.

1.2.3 Status of stocks in the NEAC Area

There are data from monitored rivers since the early 1980s. The general trends in these rivers suggest that there has been no significant change in smolt production in the NEAC area over that period. Adult runs in western European rivers appear to be remaining stable or increasing, probably due to reduced exploitation in recent years.

A general downward trend in marine survival was noted for wild and hatchery, 1SW and 2SW stocks over the past 11 years, but this trend is not evident in the most recent 6 years. In contrast, survival to freshwater for 1SW wild fish tended to increase over both time periods, which would suggest that reductions in homewater exploitation in recent years have resulted in improved survival to the rivers, despite poor marine survival in this period.

Provisional spawning targets were provided for 6 rivers in the NEAC area. Of the four rivers for which 10 year time series of target attainment data were provided, two had achieved their egg deposition targets in at least 80% of years and two had failed to meet their targets in at least 80% of years. The remaining two rivers had failed to exceed egg deposition targets in the years for which data were provided (one and three years respectively).

1.2.4 Data deficiencies and research needs for the NEAC Area

ACFM supports the continuation of the research fishing programme in the Faroes area and recognises that the results from the project will improve the possibility of developing reliable assessment models in the North-East Atlantic.

Historical scale data from the Faroes fishery should be analysed to assess geographical and temporal variation in smolt age composition of wild salmon which may reflect differences in the stock composition of catches. The results should be compared with historical data on tag recoveries in the Faroese fishery area, to determine whether stock composition estimates by both approaches concur.

The composition by country of origin of national salmon catches in the NEAC area should be determined from best available data for the fours years 1991-94 combined, as a basis for future comparison.

Work should be carried out to refine the estimates of pre-fishery abundance for the North-East Atlantic stocks and to analyse the variability of the estimates. Where possible, separate data sets should be provided for different parts of each country and

fishing effort data should be examined to improve estimates of changes in exploitation rates.

Spawning targets based on best available information should be established for all rivers in the NEAC area as soon as possible.

1.3 Fisheries and stocks in the North American Commission (NAC) Area

1.3.1 Fisheries in the NAC area

Canada

Gear and effort: The moratorium on the commercial fishery in Newfoundland continued in 1994. Quotas were reduced in the remaining commercial fisheries in Labrador and Quebec. Seasonal bag limits in the recreational fishery in both Newfoundland and Labrador were reduced and the seasonal bag limit within Newfoundland was further subdivided into two seasons, before and after July 31. Rivers in several fishing areas were closed to angling for part of, or the entire, season as a result of low stock abundance or low water and high water temperatures. There was no change in gear used in Canada.

Catch: The total salmon landings for Canada in 1994 were 351 t, which was the lowest recorded landing since 1960 (Table 1.1.1). The landings of small and large salmon were 41% and 54% of the previous 5 year averages respectively. The decline in commercial catches from 1593 t in 1987 to 141 t in 1994 is a result of the closure of fisheries in Salmon Fishing Areas (SFA) 3-14A in 1992, a reduction in quotas and the general decline in population size. The 1994 recreational catch was the third lowest since 1974, just over 71,000 fish. Recreational catches of small salmon were generally above ten year averages in Labrador, Quebec and north-east Newfoundland and lower in almost all other areas. Recreational catches of large salmon were above the previous ten year averages in Labrador, Quebec (Q1-Q3) and western Newfoundland (SFA 12-14) but were among the lowest recorded in all the other areas of eastern Canada.

Composition and origin of catch: No tagged salmon of USA origin were caught in Canada in 1994. Fish farm escapees were detected primarily in rivers in the Bay of Fundy (SFA 23) where the majority of the aquaculture industry is located.

USA

Gear and effort: The only fishing directed at Atlantic sea-run salmon is by angling in the State of Maine; there were no changes in gear used in 1994. This fishery was further reduced in 1994 by restricting the season bag limit to one small (<64 cm) salmon per year per angler. There was a 31% decrease in licence sales (from 2,656 to 1,821) from the previous year.

Catch: The recreational harvest was the lowest recorded, 13 fish; an additional 249 fish were caught and released mainly in the Penobscot River. Exploitation rates for 1SW salmon in Maine were less than 1%.

France (Islands of St. Pierre and Miquelon)

The catch of salmon for the islands of St. Pierre and Miquelon in 1994 was 2.7 t by 26 professional fishermen, an increase of 50% over that reported for 1993. An additional 1-2 t was harvested by recreational gill-net fishermen.

1.3.2 Status of stocks in the NAC Area

Returns of small and large salmon to rivers of eastern North America in 1994 were among the lowest observed in the last five years. In the more southern areas, returns to some rivers were among the lowest in the last eleven years, while returns in a few were the best in this period.

Despite increased stocking of hatchery-reared salmon in USA during recent years, the numbers of salmon returning to most USA rivers continued to decline in 1994. Returns of MSW salmon were 37% below those documented in 1993 and 62% below the ten year mean.

Egg depositions exceeded or equalled the specific river targets in only 19 of 66 rivers assessed in 1994 in Canada and USA. Large deficiencies in egg depositions were noted in the Bay of Fundy, the Atlantic coast of Nova Scotia and throughout the USA (Table 1.3.1). When estimates of 2SW spawners only are compared to target levels, the status of stocks is of greatest concern in the USA, Scotia-Fundy area (SFAs 19-23) and Labrador (SFA 1-2). Marine survival of smolts of both hatchery and wild origin continued to decline in many monitored rivers, even though improved survival had been expected in recent years as a result of reduced marine fisheries.

1.3.3 Data deficiencies and research needs in the NAC area

ACFM recommended that further efforts be made to refine the spawning target estimates. Improvements are needed in the estimation of suitable habitat, the appropriateness of the habitat-specific egg targets, and in the determination of the desired sea-age composition of spawners.

The results of monitoring of smolt production and survival from numerous rivers has been useful to ACFM in the determination of appropriate spawner targets. There are, however, some areas for which smolt production estimates are not available (e.g. Labrador) and, for areas where there are estimates, they are usually for small rivers or hatchery stocks. It would be useful to expand the enumeration of smolts to other areas and larger rivers.

The relationship between air temperature at the time of smolt migration from the Conne River and their subsequent survival was presented to ACFM. Further research into mechanisms accounting for the relationship between environmental and biological characteristics would be useful.

1.4 Fisheries and stocks in the West Greenland Commission (WGC) Area

1.4.1 Fishery in WGC area

Gear and effort: In accordance with the agreement between the Organisation of Hunters and Fishermen in Greenland and the North Atlantic Salmon Fund, all commercial fishing for salmon in Greenland territorial waters was suspended for the years 1993 and 1994.

Catch: The agreement allows for a small subsistence harvest of 12 t each year, representing some 4000 fish. No information is available on the size of the 1994 catch or its composition.

Exploitation rates: The time series of the extant exploitation rates on the North American 2SW stock complex is presented in Figure 1.4.1. Exploitation varied between 20 and 50% until the 1992 fishing season, but, with the dramatic reduction of fishing pressure in both Canada and Greenland in 1993, exploitation on the stock complex has declined to less than 5%.

1.4.2 Status of stocks in the WGC area

The salmon caught in the West Greenland area are non-maturing 1SW salmon or older, all of which would return to homewaters in Europe or North America as MSW fish if they survived. The most abundant European stocks in West Greenland are thought to originate from the UK and Ireland. The MSW component of most of these stocks has declined in recent years (see Section 1.2). Similar declines in abundance have been noted in many North American stocks that contribute to the West Greenland fishery (see Section 1.3). Thus the overall status of the stocks and stock components contributing to the West Greenland fishery remains poor.

1.4.3 Data deficiencies and research needs in the WGC area

The mean weights, sea ages, and proportion of the fish originating from North America and Europe are essential parameters used by ACFM to provide catch advice for the West Greenland fishery. As these parameters are known to vary over time and the latest sampling was conducted in 1992, ACFM recommends that a research survey be carried out.

2. EVALUATION OF EFFECTS OF MANAGEMENT MEASURES

2.1 Quota management measures and closures implemented in Canadian salmon fisheries

The closure of the commercial fisheries in SFAs 15-23 and Q1-Q3 in 1984 resulted in a noticeable increase in returns of small and large salmon to the rivers. The effect of this reduced marine exploitation and the reduced in-river mortality, which resulted from the mandatory hook and release of large salmon in the recreational fishery in many areas of eastern Canada, has been increased egg depositions in many rivers and increased juvenile abundance. However, in some areas, such as the Bay of Fundy, the

increased escapement has not been sustained; returns to these rivers are now lower than they were prior to 1984.

The commercial fishery moratorium which has been in operation in Newfoundland since 1992 has mainly benefited the escapement into rivers of Newfoundland and Labrador, except in SFAs 11 to 13 where stocks are either early running and/or the exploitation has already been reduced by the delayed opening of the commercial seasons in 1978 and 1984. Generally, the proportion of large salmon in the returns to the rivers during the moratorium years was higher than in the period 1986 to 1991. While returns of large salmon showed an overall improvement in the last three years, higher returns had been observed at several monitoring facilities in years prior to the moratorium. Had the moratorium not been in effect, severe over-exploitation of many Atlantic salmon stocks would have occurred in 1994.

The effect of the management measures taken in coastal waters of insular Newfoundland after 1991 was evaluated by estimating the numbers of salmon that returned to rivers as a result of the management measures. These estimates are summarised below:

			Increase in returns	
Year	**Angling catch**	**Total returns**	**Small salmon**	**Large salmon**
	(,000)	(,000)	(,000)	(,000)
1992	37	140-280	62-123	12-24
1993	43	149-300	71-142	5-11
1994	31	112-223	62-104	6-11

In general, there was a significant increase in counts of small and large salmon at fishways and counting facilities in Newfoundland in the years since the moratorium compared to the period just prior to it (1986-91), but this was not evident for Southern rivers. While returns of large salmon showed an overall improvement in 1992-94 compared to the 1986-91 mean, for several Northern, Eastern and Southern counting facilities, there were pre-moratorium years when returns were higher. Numbers of large salmon released by anglers in SFAs 12, 13, and 14A during the moratorium years showed a marked increase over the means overall but they were still comparable to catches in the late 1970s and early 1980s. For most Northern and Eastern counting facilities, the proportion of large salmon in all three years of the moratorium were higher than the 1984-1989 and 1986-91 means. This was also the case for three out of five Southern counting facilities.

Smolt to adult survival rates for the Western Arm Brook, Newfoundland, increased from 1.5 to 3.0% in pre-moratorium years to 3.6 to 7.0% in post-moratorium years.

The effects of the management changes in Labrador (SFAs 1, 2, & 14B) may be seen in the increased proportion of large salmon in counts at Sandhill River (SFA 2) from an average of 7% in 1970-73 to 26% in 1994. The proportion of the total production returning to freshwater increased from 64% to 90% for small salmon and from 8% to 75% for large salmon. Since the quotas in Labrador were not attained, this measure

did not result in any increase in returns to rivers. However, the reduction in licensed effort in 1992 should have reduced commercial exploitation on Labrador salmon stocks.

The closure of the fishery in zones Q7 and Q8 in 1994 may have resulted in 29 to 43 small salmon and 713 to 905 large salmon not being caught assuming that the exploitation rates in 1994 would have been the same as in 1990-92 and there had been no management change.

There has been a marked increase in the proportion of 2SW salmon surviving to spawn for a second time on the Miramichi River. The survival increased from 0-7% prior to 1984 to 5-15% when hook and release regulations were introduced into the recreational fisheries and when coastal commercial fisheries in the Maritimes were closed. It increased to more than 30% when exploitation in Newfoundland and Labrador was reduced as a result of the quota restrictions of 1990 and 1991 and as a result of the commercial salmon moratorium of 1992.

Although the Newfoundland and Labrador commercial salmon fisheries used to harvest small and large salmon originating in Nova Scotia, New Brunswick, Québec, and USA, the benefits in returns to these provinces cannot be quantified.

The moratoria on the commercial cod fishery in Canada in 1992-94 will have reduced the by-catch of salmon.

2.2 Suspension of commercial fishing activity at Faroes

Assuming that monitored stocks have been relatively stable over the past five years, the suspension of commercial fishing should have reduced exploitation at Faroes to less than 10% of levels in the previous three seasons. In practice, the mean levels of exploitation on 2SW fish from R. Imsa (Norway) (hatchery and wild fish) and R. Lagan (Sweden) (hatchery fish) decreased from 18% in the 1988/89 to 1990/91 seasons to 5% in the 1991/92 to 1993/94 seasons. In most years the level of exploitation on 1SW fish from Scandinavia and 1SW and 2SW fish from UK and Ireland have been very low and the effects of the buy-out are therefore difficult to detect.

The estimated reduction in returns to all homewaters that might have been expected if the full Faroese quota had been taken in the 1991/92 to 1993/94 seasons (550 t each season) were as follows:

	Estimated reduction in returns if quota had been taken	
Age/Origin	**1993**	**1994**
Wild 1SW	9,000	19,000
Wild 2SW	48,000	77,000
Wild 2SW+	39,000	40,000

The analysis also suggests that the fishery would have caught an extra 126,000 fish of farm origin if the full quota had been taken in each season.

The expected increase in total returns to all homewaters and to stocks in Scandinavia, Finland and Russia in 1993 and 1994 resulting from the reduction in the Faroese catches in the 1991/92 to 1993/94 seasons compared with the period 1988/89 to 1990/91 were as follows:

	Age	Increase in total returns	Estimated increase in stocks in Scandinavia, Finland and Russia	
1993	1SW	4,000	2,400-3,200	<1%
	MSW	67,000	40,200-53,600	5%-12%
1994	1SW	3,000	1,800-2,400	<1%
	MSW	49,000	29,400-39,200	4%-11%

In addition 126,000 fish of farm origin are estimated to have been taken in the three years, but it is not known how many of these would have returned to homewaters.

The increase in the catches of wild fish is within the annual variation of catches in these countries and does not represent a statistically significant increase. There were no significant changes in the catches for Ireland, Scotland (large salmon) and Russia (2SW salmon) in 1992-1994 compared with those in 1987-1991.

2.3 Suspension of commercial fishing activity at West Greenland

The expected increase in returns of 2SW salmon to homewaters in North America and Europe in 1994 and 1995 as a result of the 213 t West Greenland quota not being taken in 1993 and the 157 t quota in 1994 were as follows:

	Expected Increase in numbers returning to homewaters	
Continent	**1994**	**1995**
North America	35,000	26,000
Europe	30,000	22,000

The expected increases in 1994 represent about 20 to 40% of the estimated total 2SW returns in North America and about 3 to 7% of the returns to southern European countries (UK, Ireland and France).

3. MANAGEMENT ADVICE FOR THE WEST GREENLAND AND NORTH AMERICAN COMMISSION AREAS

3.1 Provide catch options, with an assessment of risks, related to the management objective of achieving target spawning escapement

Background

To provide advice on management of the stock at West Greenland the size of the stock was assessed by estimating pre-fishery abundance using the run reconstruction model developed for this purpose. This could only be done in the year following the fishery when the fish returned to North America as 2SW fish.

A relationship was found between pre-fishery abundance and an index of the area suitable for salmon over the winter period based on sea surface temperature. The temperature data are available annually before the fishery so that it became possible to predict pre-fishery abundance.

ACFM is concerned that the underlying biological or environmental rationale for the relationship on which the prediction is based is not understood.

Pre-fishery abundance forecast

The databases for the North American run-reconstruction model were updated. The mid-point of the pre-fishery abundance estimate for 1993 was 150,470, which is the lowest value in the 20 year time series (Figure 3.1.1). The results show a continuing downward trend in pre-fishery abundance for North American MSW stocks.

A number of new approaches for improving the predictions of pre-fishery abundance were considered. Although evidence was provided that suggested that grilse abundance or grilse size might be related to MSW stock abundance, no unbiased measures of these parameters were available for North American stocks for the full time series because of the various fishery closures and reductions in effort.

A summed thermal habitat index for January, February, and March (winter) proved to be better correlated with the abundance data than the March habitat data alone and it was therefore used in the assessment. This index had the advantage of broadening the basis for the predictive relationship and may be less subject to small variations in the monthly habitat data.

An unbiased prediction of pre-fishery abundance and its residuals is presented in Table 3.1.1 and Figure 3.1.2. The predicted values are shown to fit the observed data quite well except during periods of low abundance in 1978 and in the late 1980s and 90s (Figure 3.1.3). The probability that the 1995 forecast was less than a particular level was estimated and is shown in the table below:

Probability %	1995 Forecast
25	154,000
30	175,000
35	193,000
40	211,000
45	229,000
50	244,000
55	262,000
60	280,000
65	298,000
70	316,000
75	337,000

The forecast estimate of pre-fishery abundance for 1995 using this model is about 244,000 at the 50% probability level. ACFM is concerned that all of the predicted pre-fishery abundance estimates since 1988 have been well above the observed values (see negative residuals in Figure 3.1.2) with an average difference of 101,000 fish. If this trend continues the actual pre-fishery abundance could be considerably lower than the 244,000 abundance forecast for 1995.

Development of catch options for 1995

The procedure for calculating the quota for the West Greenland fishery is summarised in Appendix 2. In addition to the estimate of pre-fishery abundance, this computation requires an estimate of the stock composition by continent [PropNA], mean weights of North American and European 1SW salmon [WT1SWNA and WT1SWE, respectively], and a correction factor for the expected sea age composition of the total landings [ACF]. The 1993 forecasts of these parameters were used because there are no biological samples for 1993 or 1994 with which to update the parameters.

Parameter	Forecast	Minus 1SE	Plus 1SE
PropNA	0.540	0.477	0.603
WT1SWNA	2.525	2.406	2.643
WT1SWE	2.660	2.510	2.810
ACF	1.121	1.070	1.172

It should be emphasised that these parameters have changed in the past and thus that they should be updated with new data periodically to ensure the greatest possible accuracy in the quota calculation.

In Table 3.1.2, the Greenland quota is computed for a range of probable abundance values and varying proportions of salmon available at West Greenland (Fna).

It should be noted that the 50% probability level only ensures that there is a 50% chance that the spawning escapement in North America will exceed the target level

for all rivers combined. Even if this target is achieved (estimated to be a 50% probability) it is likely that some stocks will fail to meet their individual target spawner requirements, while others will exceed their target levels. This may result from random variation between years or from systematic differences in the patterns of exploitation on fish from different rivers or regions. In the latter case, adoption of the 50% probability level may result in some stocks failing to meet their targets over an extended period. This would be likely to result in a long-term decline in those stocks.

It is evident from the indicators of stock status and the extremely low quota levels computed under both previously-used and proposed risk levels, that the North American stock complex is in a tenuous condition. Record low stock levels have been observed despite almost complete closures of mixed and single stock fisheries, a continuing trend of below target spawning escapement for 2SW salmon, and some of the lowest marine survival rates for monitored stocks.

ACFM stresses also that there are a number of difficulties in relying on the prediction model.

- The parameters associated with the West Greenland fishery used in the model have not been estimated since 1992.

- ACFM is concerned that the model has consistently predicted higher pre-fishery abundances than have been observed in the past 6 years. All of the residuals from the prediction have been negative since 1988 as discussed above.

Catch advice for the WGC and NAC areas

The pre-fishery abundance of 1SW salmon and the number of 2SW returns to North American rivers is shown in Figure 3.1.4. Pre-fishery abundance is now very close to the observed numbers of 2SW returns. Any fishery on this stock component could therefore have a detrimental effect on the chances of recovery. To protect all the stocks contributing to the fishery **ACFM recommends that mixed stock fisheries should be closed, in 1995 in the West Greenland Commission Area and in 1996 in the North American Commission Area.**

ACFM also notes that salmon stocks in SFAs 1, 2, 19-23 and in the USA appear to be at a very low level and considers that fishing mortality on these stocks from additional sources should be kept as low as possible.

Risk assessment

ACFM reviewed a stage-based projection model for North American 2SW salmon stocks and considered how the stochastic projections from this model might be used to provide advice on the assignment of risk associated with various management policies in the West Greenland Commission. The model characterises the probability of a population falling to a particular level over a given period and was used to evaluate the effects on the probability of adjusting the 1SW pre-fishery abundance.

This type of approach may provide a basis for risk assessment in the future.

3.2 Review the target spawning level in USA rivers in the light of the present condition of the rivers and the stocks

Determination of the optimal spawning numbers of 2SW salmon in USA rivers is based upon the egg deposition targets derived for Canadian rivers (240 eggs. $100m^{-2}$) and historical observations of the populations, particularly during periods prior to the initiation of mixed-stock fisheries.

Composite estimates for 2SW spawning targets were developed for salmon rivers in the USA based upon the area of accessible juvenile salmon habitat and biological characteristics of the USA salmon stocks and maiden 2SW salmon. Summary estimates by geographical regions in New England are provided in Table 3.2.1. Estimates for existing juvenile salmon habitat are based upon available information, while estimates of potential salmon habitat assume that spawners would have access to measured habitat at some time in the future. Estimates of habitat for most of the rivers in the State of Maine are thought to be low because much of the existing information is based upon old or incomplete information: for example, most rivers have fewer dams today; water quality has been markedly improved; and modern technology allows more complete assessment of available habitat.

Spawning targets for all areas under salmon restoration programs in the USA appear reasonable. For those areas of Maine not currently receiving adequate spawning escapement, the potential deficit in 1996 represents 18-26% of the USA 2SW spawner requirements and 3-4% of the total requirement for North America. Although there is a short-term deficit for these rivers, these targets are considered to be achievable in the future. If excess 2SW spawners were achieved in the rivers currently being enhanced, then restoration programs could be initiated and expanded in other Maine rivers where there are spawner deficits.

4. MANAGEMENT ADVICE FOR THE NORTH-EAST ATLANTIC COMMISSION AREA

4.1 Provide estimates of spawning targets for optimal production

Definition of stock targets

ACFM agreed that spawning targets are best derived from stock and recruitment data. Regardless of the type of model which provides the best fit to the data, the point of maximum gain (MG) and the replacement point (RP) (Figure 4.1.1) can be regarded as reference points which define the lower and upper bounds of target spawning requirement. Somewhere between these limits will lie an optimum which will minimise the risk of recruitment over-fishing while maximising the gain. The lower recruitment reference point (MG) has been adopted by ACFM as an objective standard spawning target. However, this should not be regarded as the target level applicable to management as it takes no account of the risk of the stock falling below target. It therefore equates to the minimum biologically acceptable level (MBAL) for a stock. In order to avoid falling below this point because of variability in recruitment and exploitation rates, a target should be set at some level above the maximum gain (MG) level. The exact location of the target is an issue which should be considered locally by biologists and managers.

For rivers where no clear stock-recruitment relationship can be fitted or where no stock-recruitment data are available, it may still be possible to derive a spawning target following the principles defined by ICES (Report of the Workshop on Salmon Spawning Stock Targets in the North-East Atlantic, C.M.1994/M:6). Where insufficient stock-recruitment data are available, target spawning levels must be derived using data from other rivers in the same geographic area or with similar environmental characteristics.

Development of spawning targets in the NEAC area

Some advances in the development of spawning targets in the NEAC area have been made and these have also been used to provide advice on the status of stocks for the first time. However, in order for spawning targets to be used to provide catch advice they will have to be prepared for all stocks in the NEAC area (or all those affected by a particular fishery, if appropriate stock complexes can be defined). **ACFM recommends that all countries should establish preliminary spawning targets for all their rivers as soon as possible.**

4.2 Develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch advice

Methods for providing advice on catch options in relation to stock abundance in the NEAC Area are likely to depend upon adopting a similar approach to that used for the provision of catch advice for the West Greenland fishery since 1993.

ACFM has pointed out the risks to individual stocks in this approach and noted that the implications have not been fully explored for the management of European stocks, where the patterns of movements of fish between areas and the interaction between fisheries may be more complex than in the North American and West Greenland Commission areas.

ACFM prepared a preliminary analysis of estimates of the pre-fishery abundance of maturing and non-maturing 1SW salmon in the NEAC area. These were based on the catch in numbers of 1SW and MSW salmon in each country, which were raised to take account of natural mortality and minimum and maximum estimates of non-reported catches, and exploitation rates on the two age classes. It was recognised that this would have to be done for a number of stock complexes.

Figures 4.2.1-4.2.2 show these preliminary estimates for two European stock complexes as defined below:

Southern European stock complex	Northern European stock complex
Ireland	Iceland
France	Finland
UK (England & Wales)	Norway
UK (Northern Ireland)	Russia
UK (Scotland)	Sweden

Although there was variation in the estimates of pre-fishery abundance, there was an apparent decline in non-maturing 1SW salmon in both stock complexes.

In the absence of a fully-developed time series of pre-fishery abundance data it was not possible to test any predictive models for total stocks.

Catch advice for the NEAC area

In view of the apparent decline in the pre-fishery abundance estimates and in the absence of a predictive model, **ACFM recommends that levels of exploitation on non-maturing 1SW salmon in both southern and northern European stock complexes in mixed stock fisheries should not be allowed to increase until more detailed assessments are available which show that this will not have an adverse effect on recruitment.**

5. RESEARCH DEVELOPMENTS WHICH MIGHT ASSIST NASCO

5.1 The impacts of fish farm escapees and sea-ranched fish on the wild stocks

In its 1994 advice ACFM reported in detail on the likely impacts of fish farm escapees and sea-ranched fish on wild stocks under the following headings: the percentage appearing in the fisheries at Faroes, West Greenland and in homewaters (including rivers), and the genetic, disease, parasite, ecological and environmental impacts of these fish.

No new information was available to ACFM.

5.2 Criteria for identifying recruitment overfishing of Atlantic salmon

This topic was dealt with in the advice given in 1994 and ACFM had no new information.

5.3 Predictive models of annual migration and distribution of Atlantic salmon stock complexes

In its advice in 1994 ACFM described initial trials with an Atlantic salmon migration model intended to explore the part that different known factors play in migration. ACFM had no new information to report.

5.4 Biological and environmental variables affecting salmon abundance

5.4.1 Differences in marine survival between stocks

Icelandic studies of the possibilities of using selective breeding to increase performance and profitability of salmon ranching show that there is significant variation in return rates between salmon stocks and even more variation between families within stocks. This suggests that the profitability of ranching could be improved by increasing return rates and body weight at return by selective breeding. These results also have implications for the management of wild salmon because they

suggest that there could be genetically-based differences in survival rates between stocks.

5.4.2 Post-smolt growth and maturation

Return rates for 1SW and 2SW salmon are significantly higher in the Penobscot than the Connecticut stock. In addition, the fraction of the smolt year class or cohort that matured as 1SW fish was also higher for the Penobscot stock. Image processing techniques were used to study scale characteristics and suggest that systematic differences in growth, survival, and maturation between these two reared stocks may be related to their post-smolt migrations. This in turn suggests that post-smolt growth may play a significant role in deciding the age-at-maturity and survival patterns of Atlantic salmon.

5.4.3 Forage base of Atlantic salmon in North America and Europe

There is a statistical relationship between the distribution of sea surface temperature and the abundance of non-maturing 1SW North American salmon, although the underlying biological causes remain unknown. The transition to marine feeding is recognised as important to post-smolt survival and may contribute to the overall survival of a smolt cohort and thus contribute to the variability in production of the 1SW and 2SW age components of salmon stocks. An investigation of the most important prey items may therefore provide a valuable tool to help in understanding how the sea surface temperature affects salmon stocks.

6. COMPILATION OF TAG RELEASE AND FINCLIP DATA FOR 1994

Data on releases of tagged and finclipped fish in 1994 were compiled as a separate report. In excess of 1.64 million CWTs and 0.46 million external tags were applied to Atlantic salmon released in 1994. In addition, 2.33 million salmon were marked with finclips alone. Thus, more than 4.24 million marked fish were released, 4.05 million of which were hatchery reared. This compares with a total of 3.62 million marked fish released in 1993 and 4.49 million in 1992.

Table 1.1.1 Nominal catch of SALMON by country (in tonnes round fresh weight), 1960-1994. (1994 provisional figures)

Year	Canada (1)	Den.	Faroes	Finland	France	East Grld	West Grld (2)	Iceland	Ireland (3,4)	Norway (5)	Russia	Spain (6)	St.P&M	Sweden (West)	UK (E&W) (4,7)	UK (N.Ireland)	UK (Scotland)	USA	Other (8)	Total Reported Catch	Unreported catches		
																					NASCO Areas	International waters (9)	Total Catch
1960	1636	-	-	-	-	-	60	100	743	1659	1100	33	-	40	283	139	1443	1	-	7237	-		-
1961	1583	-	-	-	-	-	127	127	707	1533	790	20	-	27	232	132	1185	1	-	6464	-		-
1962	1719	-	-	-	-	-	244	125	1459	1935	710	23	-	45	318	356	1738	1	-	8673	-		-
1963	1861	-	-	-	-	-	466	145	1458	1786	480	28	-	23	325	306	1725	1	-	8604	-		-
1964	2069	-	-	-	-	-	1539	135	1617	2147	590	34	-	36	307	377	1907	1	-	10759	-		-
1965	2116	-	-	-	-	-	861	133	1457	2000	590	42	-	40	320	281	1593	1	-	9434	-		-
1966	2369	-	-	-	-	-	1370	106	1238	1791	570	42	-	36	387	287	1595	1	-	9792	-		-
1967	2863	-	-	-	-	-	1601	146	1463	1980	883	43	-	25	420	449	2117	1	-	11991	-		-
1968	2111	-	5	-	-	-	1127	162	1413	1514	827	38	-	20	282	312	1578	1	-	9793	-		-
1969	2202	-	7	-	-	-	2210	133	1730	1383	360	54	-	22	377	267	1955	1	403	11594	-		-
1970	2323	-	12	-	-	-	2146	195	1787	1171	448	45	-	20	527	297	1392	1	893	11286	-		-
1971	1992	-	-	-	-	-	2689	204	1639	1207	417	16	-	18	426	234	1421	1	922	10735	-		-
1972	1759	-	9	32	34	-	2113	250	1804	1568	462	40	-	18	442	210	1727	1	471	10955	-		-
1973	2434	-	28	50	12	-	2341	256	1930	1726	772	24	-	23	450	182	2006	2.7	486	12770	-		-
1974	2539	-	20	76	13	-	1917	225	2128	1633	709	16	-	32	383	184	1708	0.9	533	11957	-		-
1975	2485	-	28	76	25	-	2030	266	2216	1537	811	27	-	26	447	164	1621	1.7	373	12236	-		-
1976	2506	-	40	66	9	<1	1175	225	1561	1530	772	21	2.5	20	208	113	1019	0.8	475	9557	-		-
1977	2545	-	40	59	19	6	1420	230	1372	1488	497	19	-	10	345	110	1160	2.4	289	9514	-		-
1978	1545	-	37	37	20	8	984	291	1230	1050	476	32	-	10	349	148	1323	4.1	192	7682	-		-
1979	1287	-	119	26	10	<1	1395	225	1097	1831	455	29	-	12	261	99	1076	2.5	138	8118	-		-
1980	2680	-	536	34	30	<1	1194	249	947	1830	664	47	-	17	360	122	1134	5.5	193	10127	-		-
1981	2437	-	1025	44	20	<1	1264	163	685	1656	463	25	-	26	493	101	1233	6	277	9954	-		-
1982	1798	-	865	54	20	<1	1077	147	993	1348	354	10	-	25	286	132	1092	6.4	313	8644	-		-
1983	1424	-	678	58	16	<1	310	198	1656	1550	507	23	3	28	429	187	1221	1.3	437	87555	-		-
1984	1112	-	628	46	25	<1	297	159	829	1623	593	18	3	40	345	78	1013	2.2	466	69923	-		-
1985	1133	-	566	49	22	7	864	217	1595	1561	659	13	3	45	361	98	913	2.1	101	9108	-		-
1986	1559	-	530	37	28	19	960	310	1730	1598	608	27	2.5	54	430	109	1271	1.9	-	9274	-		9274
1987	1784	-	576	49	27	<1	966	222	1239	1385	564	18	2	47	302	56	922	1.2	-	8160	2788		10948
1988	1311	-	243	36	32	4	893	396	1874	1076	419	18	2	40	395	114	882	0.9	-	7736	3248		10984
1989	1139	-	364	52	14	<1	337	278	1079	905	359	7	2	29	296	142	895	1.7	-	5900	2277		8177
1990	911	13	315	60	15	<1	274	426	586	930	315	10	2	33	338	94	624	2.4	-	4948	1890	180-350	6838
1991	711	3.3	95	70	13	4	472	505	404	876	215	15	1	38	200	55	462	0.8	-	4140	1682	25-100	5822
1992	522	10	23	77	20	5	237	635	630	867	166	16	1.3	49	186	91	600	0.7	-	4136	1962	25-100	6098
1993	373	9	21	70	16	-	-	656	543	923	140	14	1.8	56	270	83	547	0.6	-	3723	1644	25-100	5367
1994(10)	351	6	6	49	18	-	-	448	819	937	138	15	2.7	44	319	91	596	0	-	3840	1276	25-100	5116
Means																							
1989-1993	731	-	164	66	16	5	330	500	648	900	239	12	2	41	258	93	626	1	-	4570	1891	-	6461
1984-1993	1056	-	336	55	21	8	589	380	1051	1174	404	16	2	43	312	92	813	1	-	6304	-	-	-

1 Includes estimates of some local sales, and, prior to 1984, by-catch
2 Includes catches made in the West Greenland area by Norway, Faroes, Denmark
3 Until 1994, includes only those catches sold through dealers
4 Catch on River Foyle allocated 50% Ireland and 50% N. Ireland
5 Before 1966, sea trout and sea charr included (5% of total)
6 Weights estimated from 1994 mean weight. Early years may be understimates.
7 Not including angling catch (mainly 1SW).
8 Includes catches in Norwegian Sea by vessels from Denmark, Sweden, Germany, Norway and Finland.
9 Estimates refer to season ending in given year.
10 Includes provisional and incomplete data.

Table 1.3.1 Egg depositions relative to target during 1984 to 1994 for the assessed rivers in eastern Canada.

		Year of spawning of small and large salmon									
		1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Bay of Fundy / Atlantic Coast of Nova Scotia (% of rivers assessed)											
Number of rivers assessed		2	2	2	2	4	4	4	5	5	13
Depositions as % of target	>=100%	100%	50%	50%	50%	75%	50%	50%	20%	20%	10%
	<50%	0%	0%	0%	0%	0%	25%	0%	40%	60%	90%
Rivers flowing into the Gulf of St. Lawrence (% of rivers assessed)											
Number of rivers assessed		27	27	27	27	26	26	26	29	32	36
Depositions as % of target	>=100%	26%	37%	56%	70%	54%	42%	54%	55%	38%	36%
	<50%	26%	4%	11%	7%	4%	8%	8%	17%	19%	19%
South and Northeast Newfoundland and Labrador (% of rivers assessed)											
Number of rivers assessed		4	5	6	10	11	11	11	11	12	14
Depositions as % of target	>=100%	50%	60%	67%	40%	27%	27%	9%	36%	42%	36%
	<50%	25%	20%	33%	40%	55%	55%	73%	45%	33%	43%

Table 3.1. 1 Observed and predicted prefishery abundance and residuals (difference between predicted and observed values).

Year	Prefishery Abundance Mid-point	Prefishery abundance from Jan+Feb+Mar Unbiased Predicted	Unbiased Residual
1974	689188	562294	126894
1975	795276	505968	289308
1976	706814	533307	173507
1977	566179	609952	-43772
1978	320904	761988	-441084
1979	705962	664701	41261
1980	619221	610182	9039
1981	591253	555599	35654
1982	490695	482746	7949
1983	270166	308158	-37992
1984	291667	201769	89898
1985	467162	240950	226212
1986	499987	469771	30217
1987	460708	412789	47919
1988	367376	474788	-107412
1989	300048	466486	-166438
1990	256106	357093	-100986
1991	277135	300145	-23010
1992	177570	301257	-123687
1993	150470	236110	-85640
1994			
1995			

Table 3.1.2 Quota options (in tonnes) for 1995 at West Greenland based on regression forecasts of fishery abundance. Proportion at West Greenland refers to the fraction of harvestable surplus allocated to the West Greenland fishery. The probability level refers to the pre-fishery abundance levels derived from the probability density function.

Prob.	Proportion at West Greenland (Fna)										
level	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
25	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0
40	0	2	3	5	6	8	9	11	12	14	15
45	0	11	22	34	45	56	67	78	89	101	112
50	0	19	38	58	77	96	115	135	154	173	192
55	0	29	58	87	116	145	173	202	231	260	289
60	0	39	77	116	154	193	231	270	309	347	386
65	0	48	96	145	193	241	289	338	386	434	482
70	0	58	116	174	232	290	347	405	463	521	579
75	0	69	138	208	277	346	415	484	554	623	692

Sp. res =	208,170
Prop NA =	0.54
WT1SWNA =	2.525
WT1SWE =	2.66
ACF =	1.121

Table 3.2.1 Estimated Atlantic salmon spawner requirements (2SW) for USA rivers[1].

State	River	Units of salmon habitat ($100m^2$)				Required Spawners (2SW)		
		Existing Habitat Units	(%)	Potential Habitat Units	*	(%)	Existing	Potential
Connecticut	Connecticut	145,900	33.3	261,400		35.2	9,727	17,427
Rhode Island	Paucatuck	5,370	1.2	5,370		0.7	367	367
New Hampshire	Merrimack	38,980	8.9	57,065		7.7	2,599	3,804
Maine	Aroostook	60,775	13.9	60,775	*	8.2	4,052	4,052
	Prestile	835	0.2	835	*	0.1	56	56
	Meduxnekeag	5,000	1.1	5,000	*	0.7	333	333
	St. Croix	29,260	6.7	29,260	*	3.9	1,951	1,951
	Boyden Str.	85	0	85	*	0	6	6
	Pennamaquaun	85	0	85	*	0	6	6
	Dennys	2,415	0.6	2,415		0.3	161	161
	Hobart Str.	85	0	85	*	0	6	6
	Orange	20	0	20	*	0	1	1
	East Machias	2,145	0.5	2,145		0.3	143	143
	Machias	6,685	1.5	6,685	*	0.9	446	446
	Chandler	85	0	85	*	0	6	6
	Indian	85	0	85	*	0	6	6
	Pleasant	1,085	0.2	1,085	*	0.1	72	72
	Narraguagus	6,015	1.4	6,015		0.8	401	401
	Tunk Str.	585	0.1	585	*	0.1	39	39
	Union	8,360	1.9	8,360	*	1.1	557	557
	Orland River	165	0	165	*	0	11	11
	Penobscot	102,575	23.4	102,575	*	13.8	6,838	6,838
	Passaga'wa'kg	165	0	165	*	0	11	11
	Little	0	0	0	*	0	0	0
	Ducktrap	585	0.1	585	*	0.1	39	39
	St. George	250	0.1	250	*	0	17	17
	Medomak	0	0	0	*	0	0	0
	Pemaquid River	85	0	85	*	0	6	6
	Sheepscot River	2,845	0.7	2,845		0.4	190	190
	Kennebec River(4)	1,005	0.2	114,300	*	15.4	67	7,620
	Androscoggin River(	3,175	0.7	47,900	*	6.5	212	3,193
	Royal River	420	0.1	420	*	0.1	28	28
	Presumpscot River	85	0	85	*	0	6	6
	Saco River	12,540	2.9	25,080		3.4	836	1,672
	Mousam River	0	0	0	*	0	0	0
	Kennebunk River	85	0	85	*	0	6	6
	Salmon Falls River	0	0	0	*	0	0	0
	Total Maine	247,585	56.5	418,145	*	56.3	16,506	27,876
USA	**Grand Total**	437,835	100	741,980	*	100	29,198	49,474

[1] Based upon: 240 eggs/unit; 7,200 eggs/female; 50-50 sex ratio

* indicates not all habitat has been inventoried and some inventories are outdated/incomplete.

Figure 1.1.1 Nominal catches of salmon in four North Atlantic regions 1960–94.

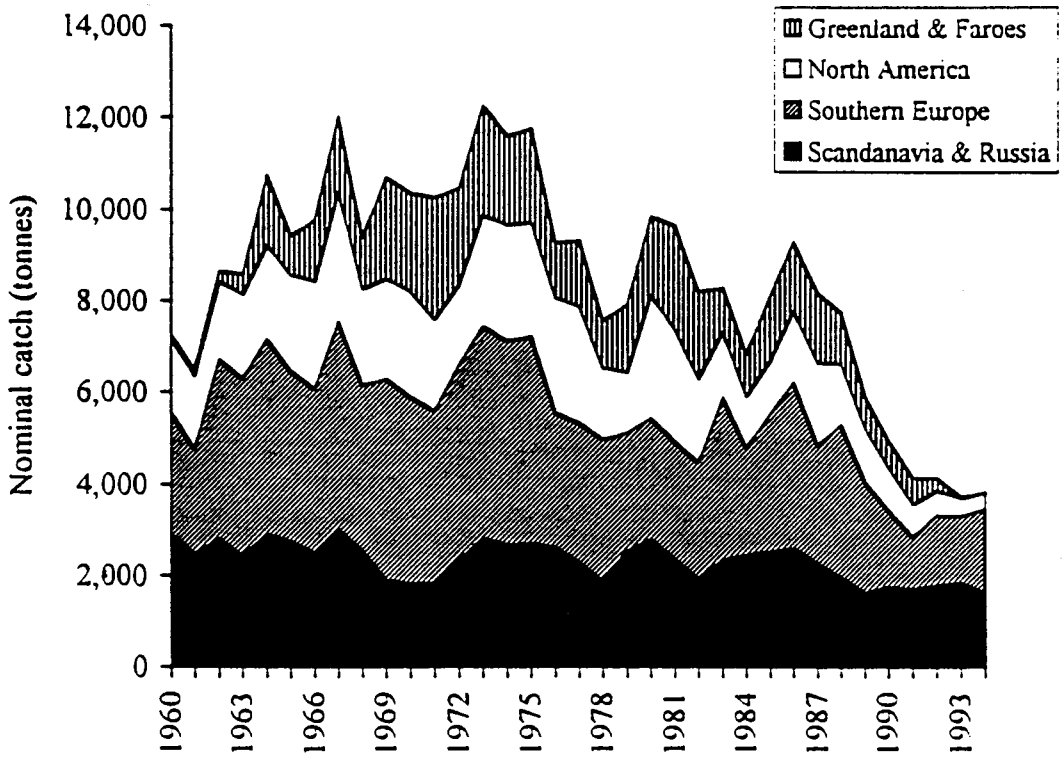


Figure 1.1.2 Production of farmed salmon (tonnes round fresh weight) in the North Atlantic, 1980–1994.

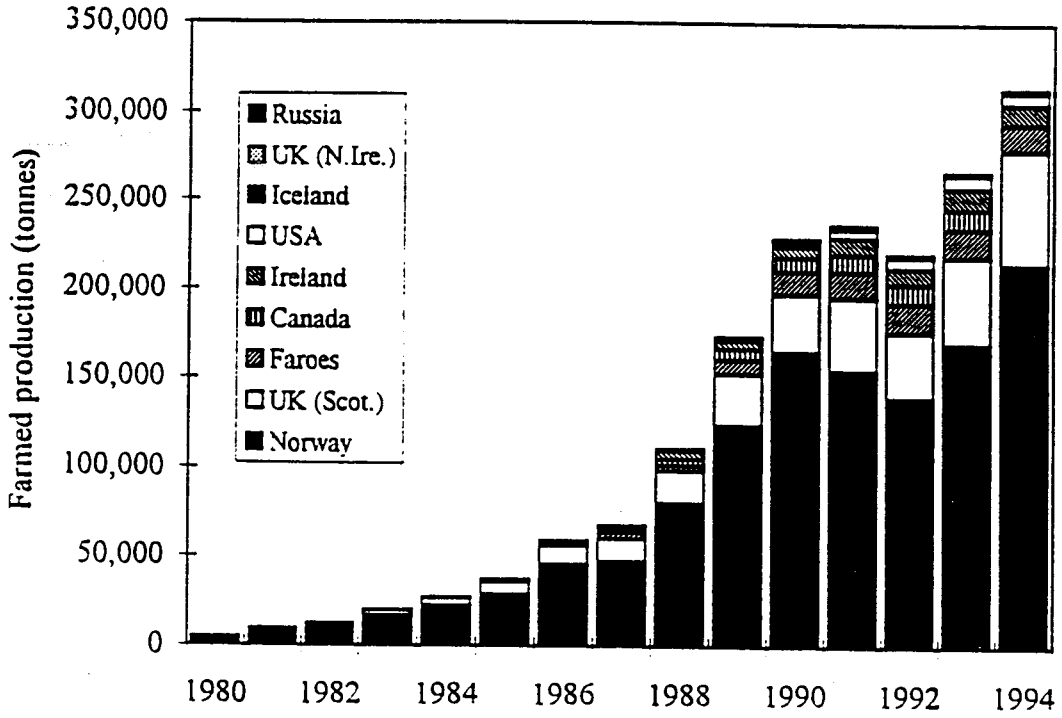


Figure 1.2.1 Catch per unit of effort (1000 hooks) inside the Faroes EEZ for the fishing seasons 1981/1982 to 1993/1994

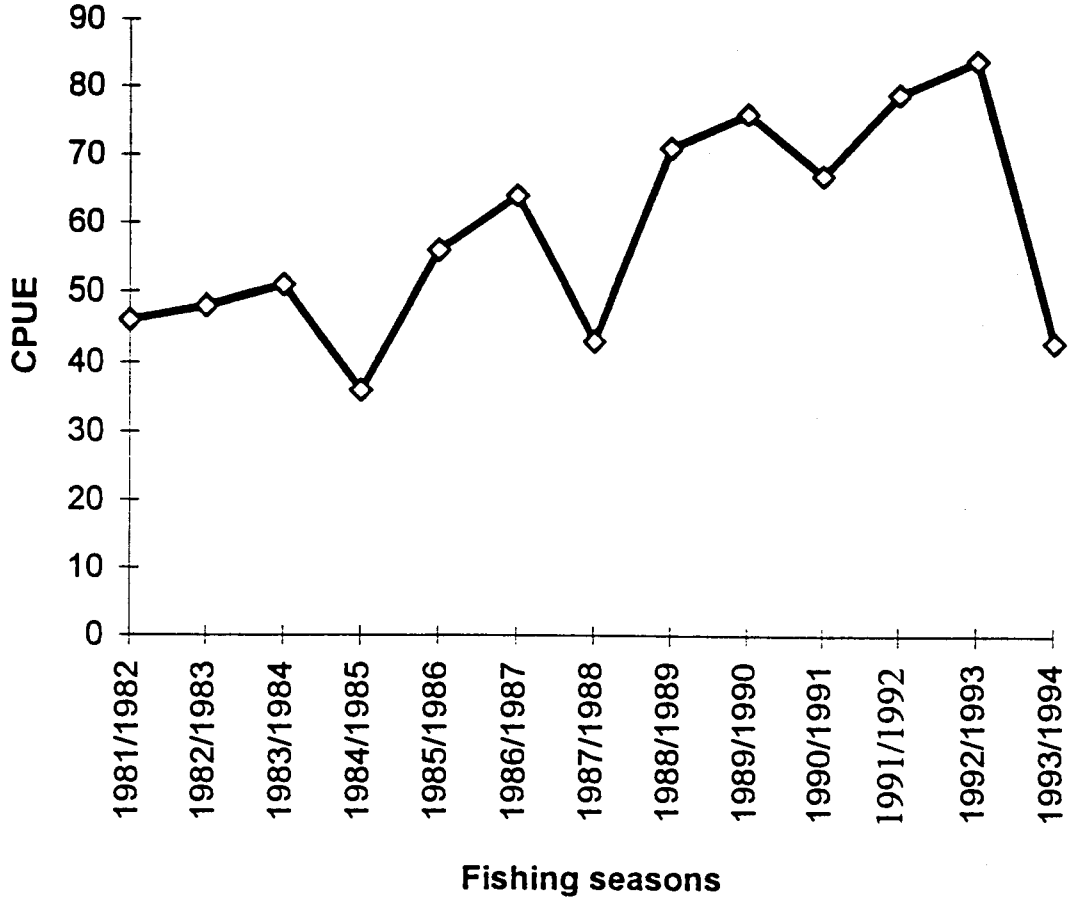


Figure 1.2.2 Catch per 1000 hooks (CPUE) in the Faroese fishery inside the EEZ since the 1982/83 fishing season. The catch is broken into wild and farmed fish. The seasons 1981/1982, 1983/1984 and 1984/1985 are not analysed yet.

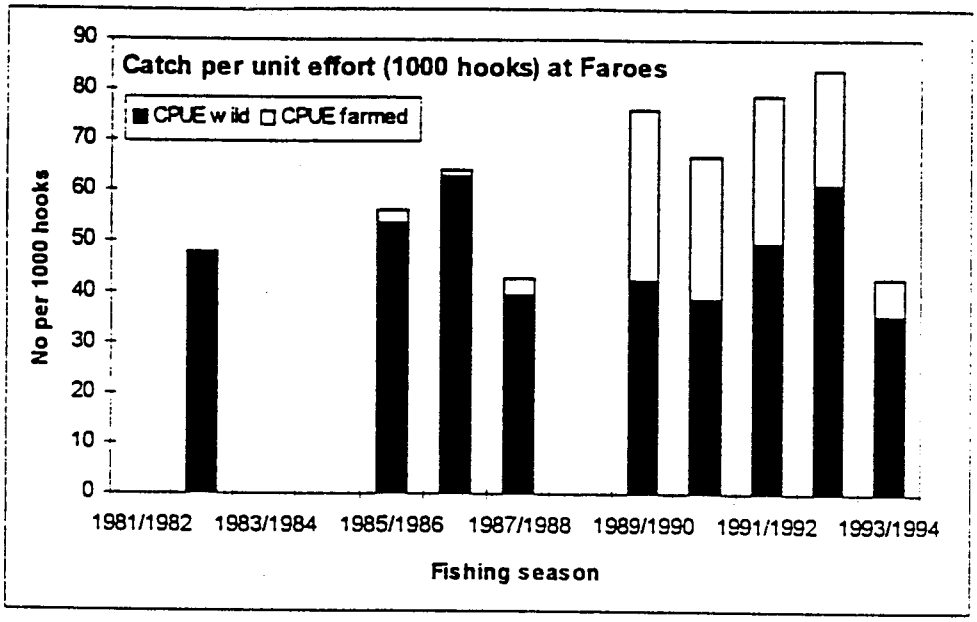


Figure 1.4.1 Extant exploitation of North American 2SW salmon stocks in Newfoundland-Labrador and Greenland commercial fisheries.

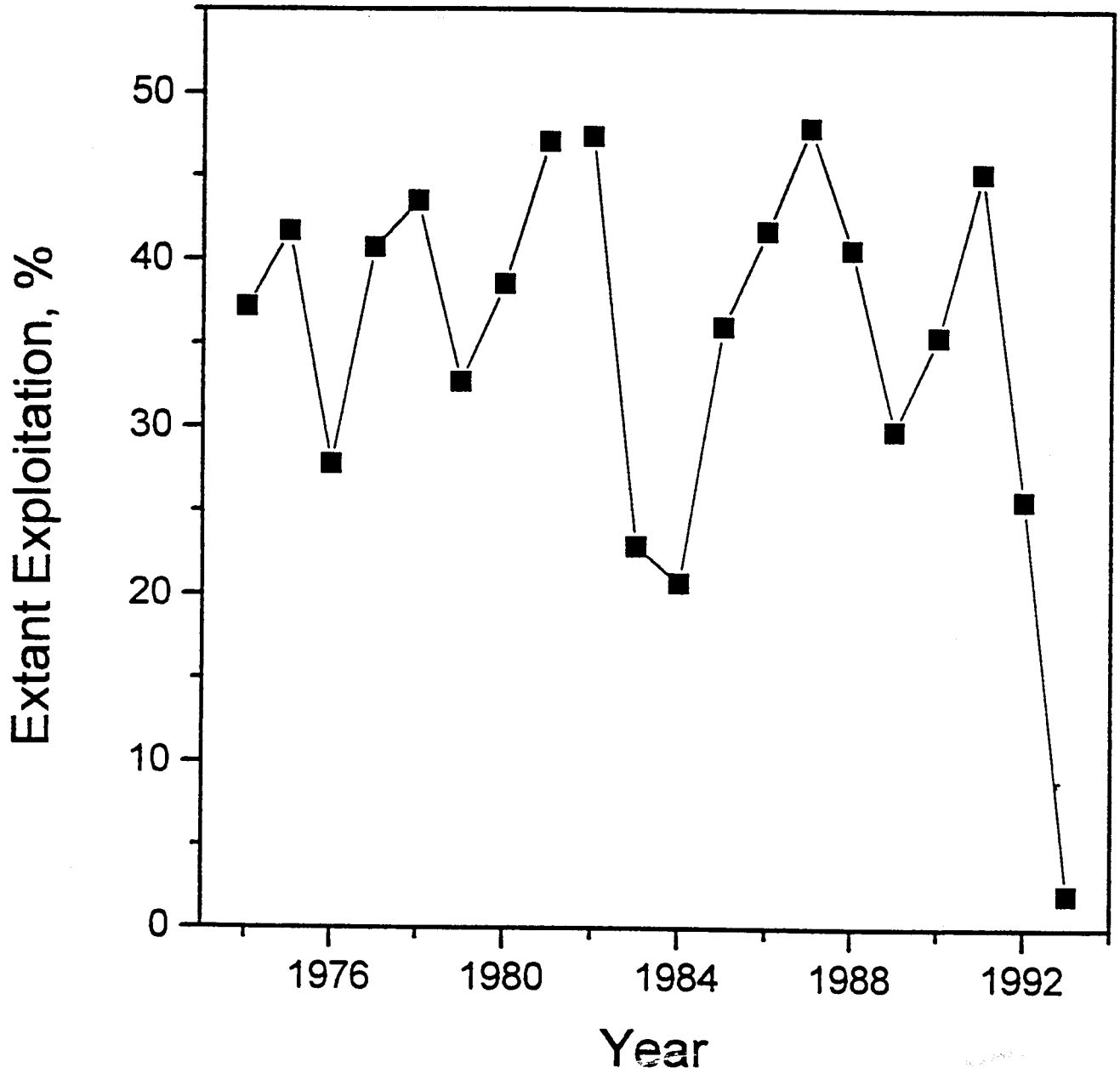


Figure 3.1.1 Pre-fishery abundance estimates of North American salmon, 1974-1993. Box plots show 5, 25, 50, 75, and 95% ranges of 200 stochastic realizations.

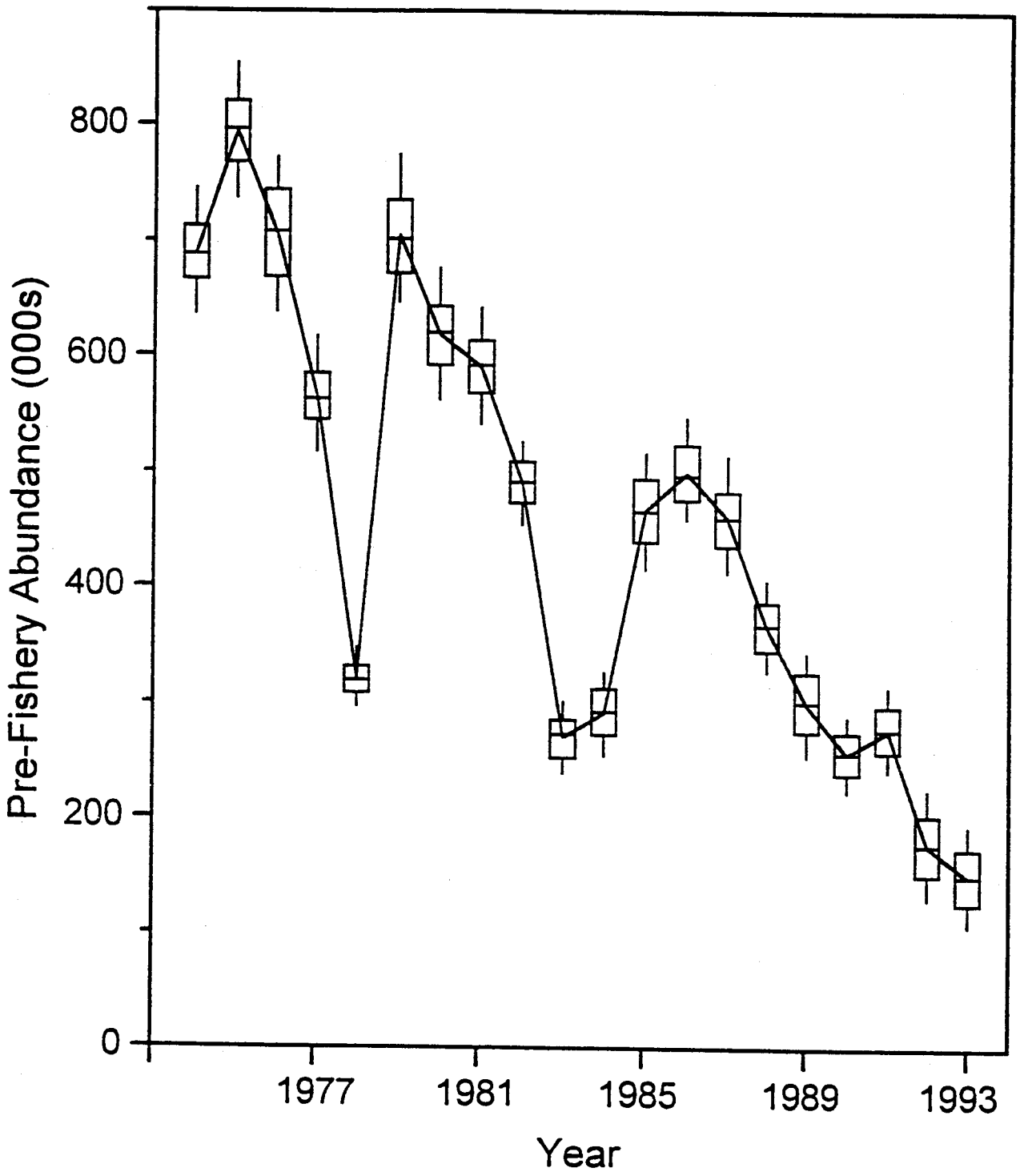


Figure 3.1.2 Residual analysis of the pre-fishery abundance regression estimate. A: Residual time series; B: Observed abundance versus residual.

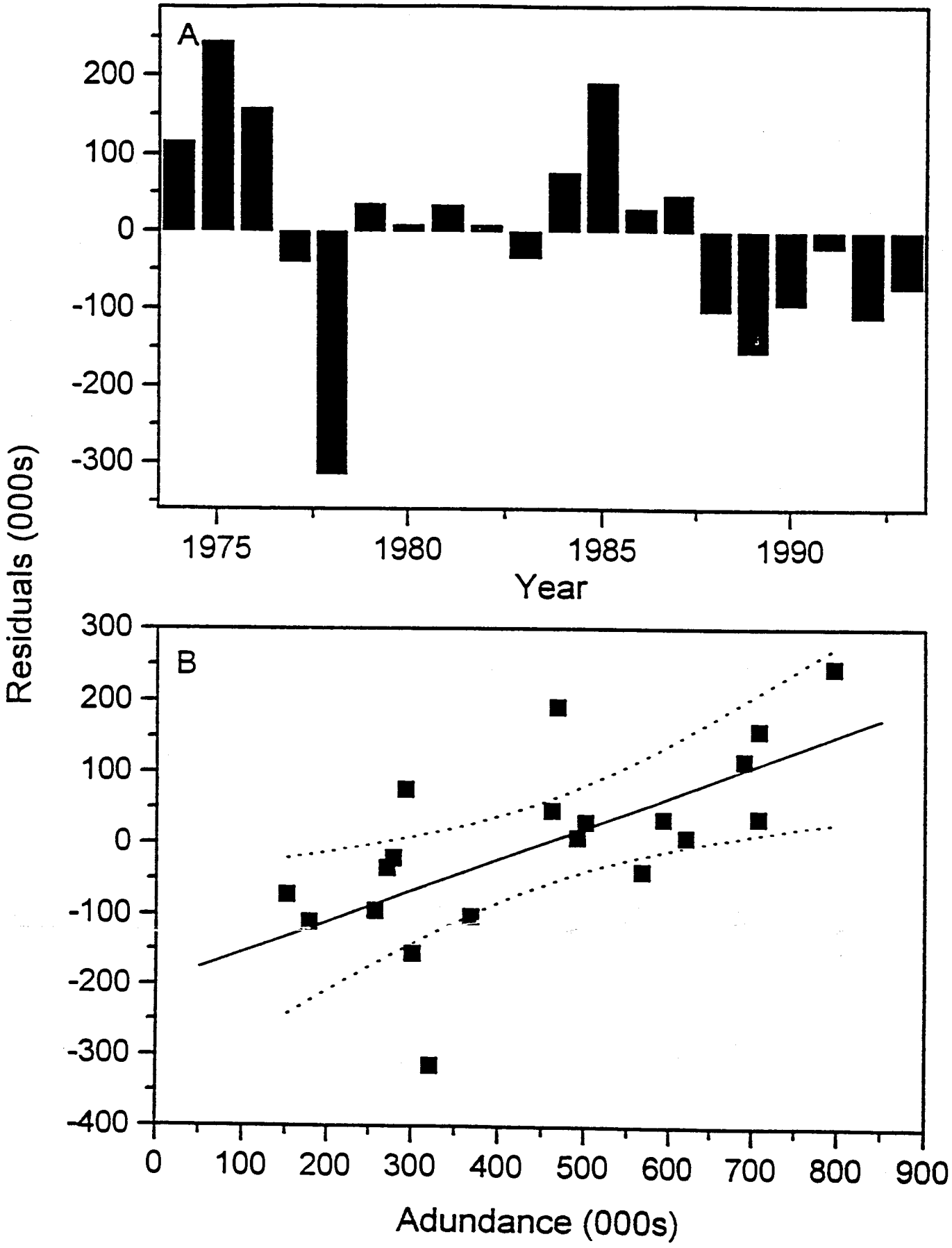


Figure 3.1.3 Comparison of the actual, predicted and unbiased predicted pre-fishery abundance values.

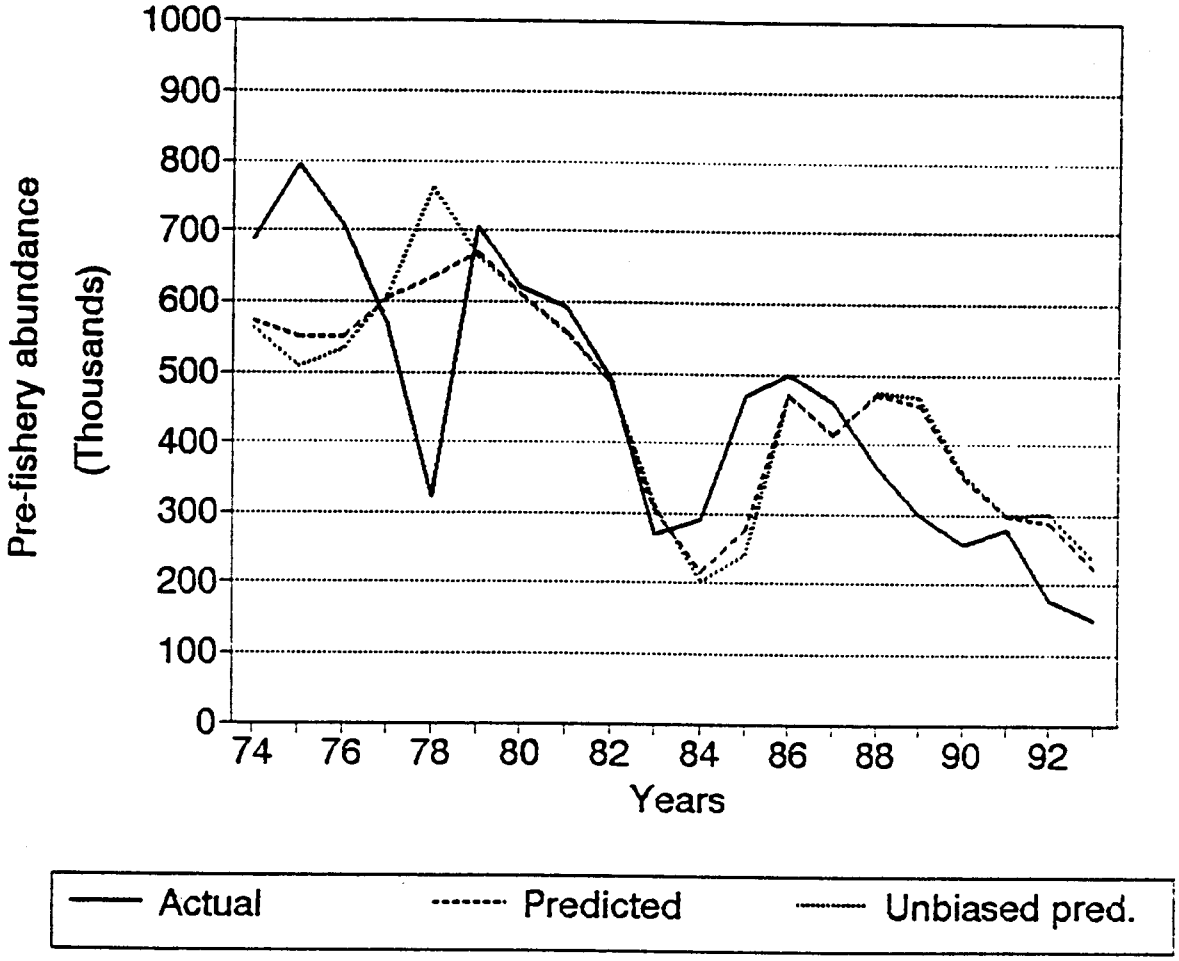


Figure 3.1.4 Pre-fishery Abundance and returns to North America

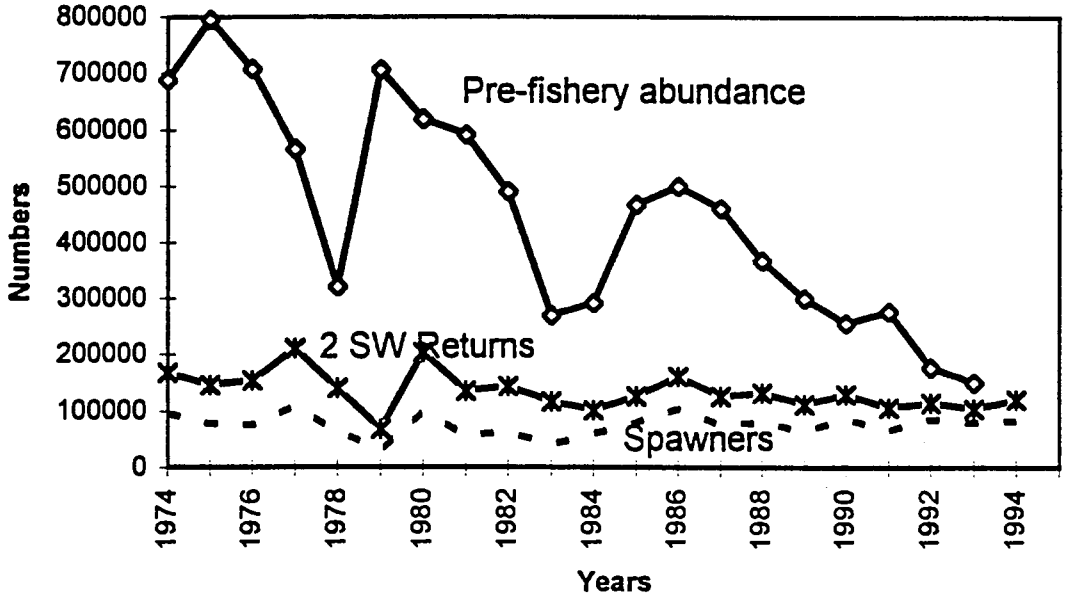
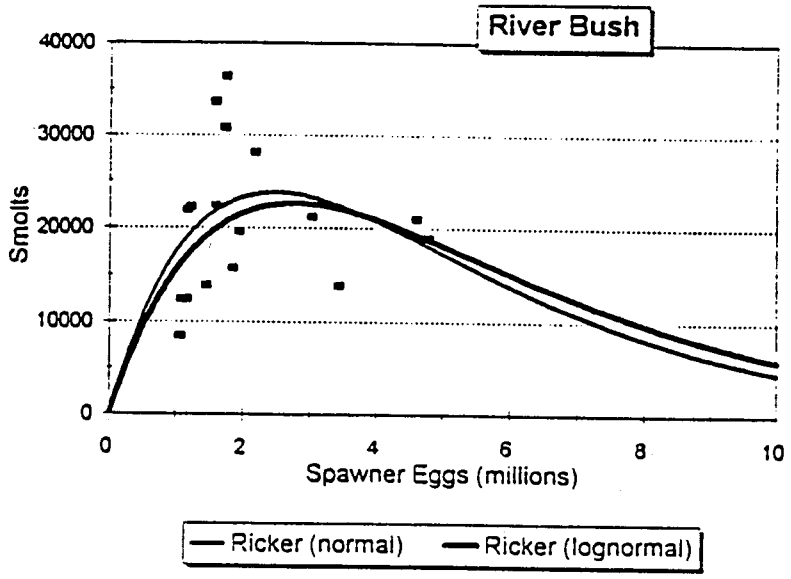
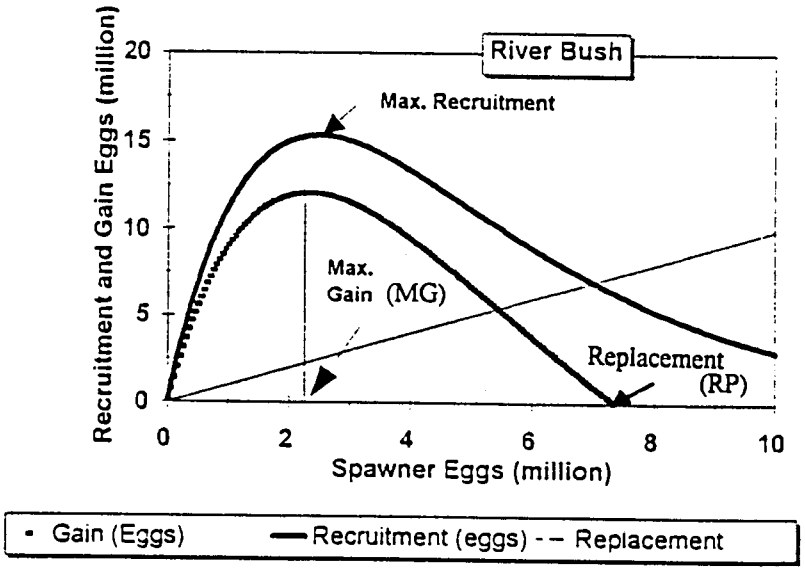


Figure 4.1.1 **Analysis of stock-recruitment data for River Bush UK(N.Ireland).**





Ricker model: Recruitment = alpha*Spawners*exp(-beta*Spawners)

Results assuming lognormal error structure

alpha	0.024	
beta	0.364	* E-06

Reference Points	Eggs (million)
Max. Gain (millions)	2.310
90% Max. Gain (millions)	3.385
Max. Recruitment	2.760
Replacement (millions)	7.335

Figure 4.2.1 **Maximum and minimum of recruitment of maturing (solid lines) and non-maturing (dotted lines) 1SW salmon in Southern European stock complex.**

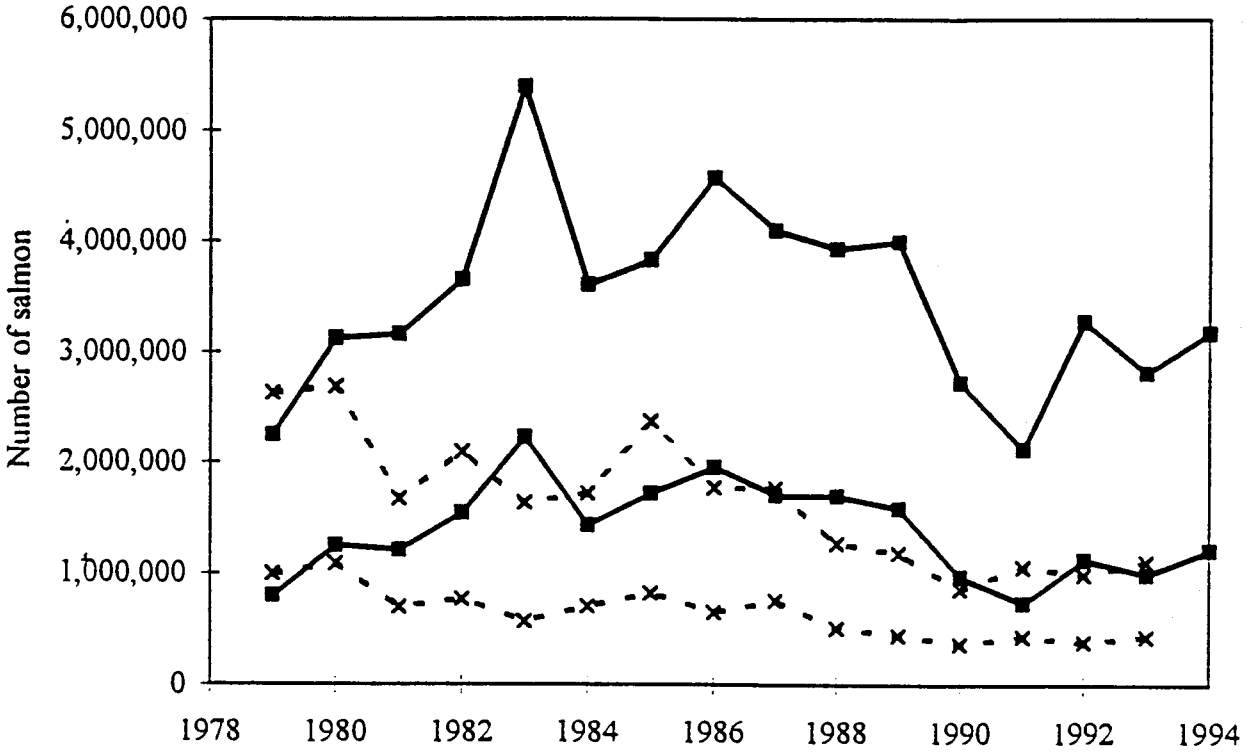
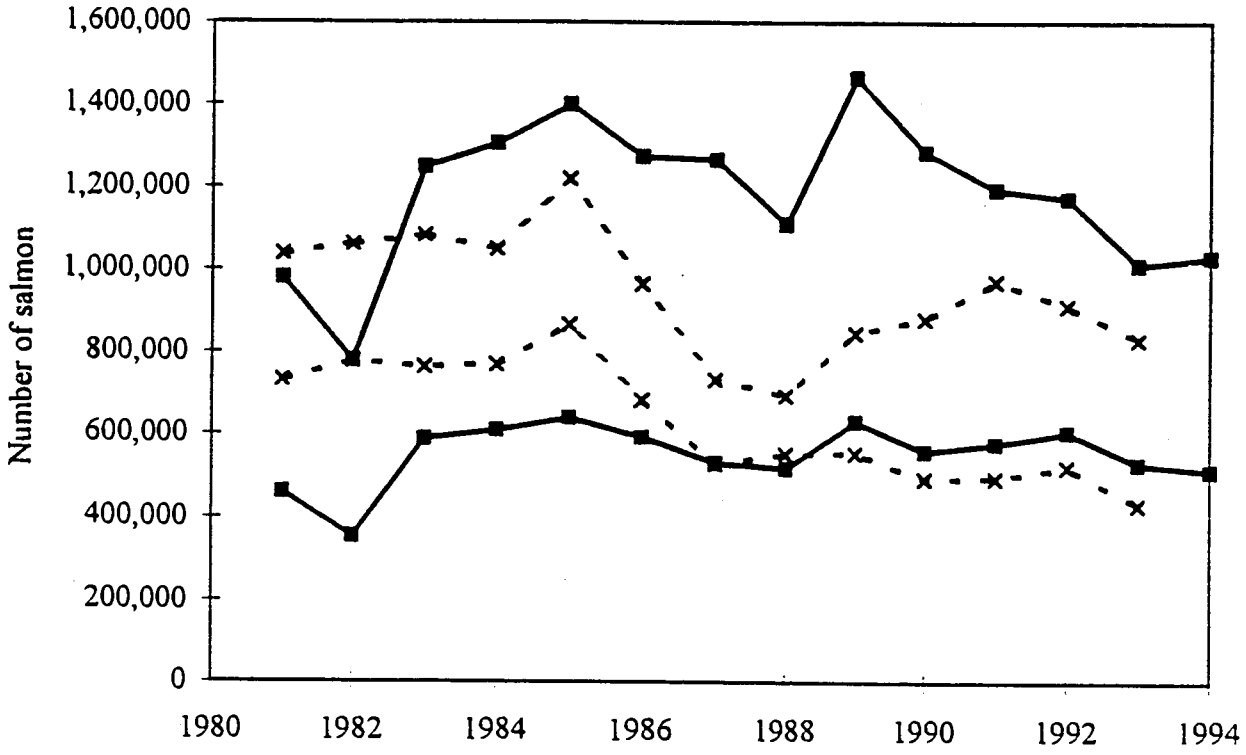


Figure 4.2.2 **Maximum and minimum estimates of recruitment of maturing (solid lines) and non-maturing (dotted lines) 1SW salmon in Northern European stock complex.**



APPENDIX 1

DECISION OF THE COUNCIL TO REQUEST SCIENTIFIC ADVICE FROM ICES

1. With respect to Atlantic salmon in each Commission area, where relevant:

   a) describe the events of the 1994 fisheries with respect to catches (including unreported catches), gear, effort, composition and origin of the catch (including fish farm escapees and sea-ranched fish) and rates of exploitation;
   b) describe the status of the stocks (including the contribution to these stocks of fish farm escapees and sea-ranched fish) occurring in the Commission area, and where possible evaluate spawning escapement against targets;
   c) specify data deficiencies and research needs.

2. Evaluate the effects of the following management measures on the stocks and fisheries occurring in the respective Commission areas:

   a) quota management and closures implemented after 1991 in the Canadian commercial salmon fisheries;
   b) the suspension of commercial fishing activity at Faroes;
   c) the suspension of commercial fishing activity at West Greenland.

3. With respect to the fishery in the West Greenland Commission area:

   a) provide catch options with an assessment of risks relative to the management objective of achieving target spawning escapement;
   b) review the target spawning level in US rivers in the light of the present condition of the rivers and the stocks.

4. With respect to fisheries and stocks in the North-East Atlantic Commission area:

   a) provide estimates of spawning targets for optimal production;
   b) develop methods which could be used in providing advice on catch quotas in relation to stock abundance and, if possible, provide catch options.

5. Report on significant research developments which might assist NASCO with the management of salmon stocks, with special reference to:

   a) the impacts of fish farm escapees and sea-ranched fish on the wild stocks;
   b) criteria for identifying recruitment overfishing of Atlantic salmon;
   c) predictive models of annual migration and distribution of Atlantic salmon stock complexes;
   d) biological (such as maturation, predation, forage base) and environmental (such as oceanographic, productivity) variables which provide interpretation of trends in salmon abundance.

6. With respect to Atlantic salmon in the NASCO area, provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1994.

APPENDIX 2

COMPUTATION OF CATCH ADVICE FOR WEST GREENLAND

The North American Spawning Target (SpT) for 2SW salmon has been set at 193,741 fish.

This number must be divided by the survival rate for the fish from the time of the West Greenland fishery to their return of the fish to home waters (11 months) to give the Spawning Target Reserve (SpR). Thus

Eq. 1 SpR = SpT*(exp(11*M) (where M = 0.01)

The Maximum Allowable Harvest (MAH) may be defined as the number of non-maturing 1SW fish that are available for harvest. This number is calculated by subtracting the Spawning Target Reserve from the pre-fishery abundance (PFA).

Eq. 2 MAH = PFA - SpR

To provide catch advice for West Greenland it is then necessary to decide on the proportion of the MAH to be allocated to Greenland (f_{NA}). The allowable harvest of North American non-maturing 1SW salmon at West Greenland (NA1SW) may then be defined as

Eq. 3 $NA1SW = f_{NA} * MAH$

The estimated number of European salmon that will be caught at West Greenland (E1SW) will depend upon the harvest of North American fish and the proportion of the fish in the West Greenland fishery that originate from North America [PropNA]. Because there are no samples for 1993, simple exponential smoothing of the observed 1978-1992 values of PropNA is used to generate a forecast for 1994. Thus

Eq. 4 E1SW = (NA1SW / PropNA) - NA1SW

To convert the numbers of North American and European 1SW salmon into total catch at West Greenland in metric tonnes it is necessary to incorporate the mean weights of salmon for North America [WT1SWNA] and Europe [WT1SWE] and an adjustment for the age composition of the catch [ACF]. The quota (in tonnes) at Greenland is then estimated as

Eq. 5 Quota = (NA1SW * WT1SWNA + E1SW * WT1SWE) * ACF/1000

where

WT1SWNA = mean weight (kg) of North American salmon at Greenland, the 1994 value was forecasted as described below

WT1SWE = mean weight (kg) of European salmon at Greenland, the 1994 value was forecasted as described below

ACF = age correction factor for multi-sea winter salmon at Greenland based on the total weight of salmon caught divided by the weight of 1SW salmon.

Mean weights by continent [WT1SWNA, WT1SWE] and the age correction factor [ACF] for 1994 were forecasted from the 1978-1992 observations. The exponentially smoothed values were based on estimation of an optimal smoothing coefficient and are given in Section 3.3.

ANNEX 13

COUNCIL

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

CNL(95)49

REQUEST FOR SCIENTIFIC ADVICE FROM ICES

1. With respect to Atlantic salmon in each Commission area:

   a) describe the events of the 1995 fisheries;
   b) describe the status of the stocks and, where appropriate, evaluate the causes for any changes in salmon abundance with special reference to changes in natural mortality;
   c) identify data deficiencies and research requirements relevant to the management of salmon stocks.

2. Report on significant research developments which might assist NASCO with the management of salmon stocks, with special reference to:

   a) possible explanations for changes in sea-age at maturity of Atlantic salmon;
   b) the criteria for defining salmon stocks.

3. Update the evaluation of the effects of the following measures on the stocks and fisheries occurring in the respective Commission areas:

   a) quota management and closures implemented after 1991 in the Canadian commercial salmon fisheries;
   b) the suspension of commercial fishing activity at Faroes since 1991;
   c) the suspension of commercial fishing activity during 1993 and 1994 at West Greenland.

4. With respect to the fishery in the West Greenland Commission area:

   a) review the age specific target spawning levels in Canadian rivers;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement.

5. With respect to fisheries and stocks in the North-East Atlantic Commission area:

   a) provide estimates of age specific spawning targets;
   b) provide catch options with an assessment of risks relative to the objective of achieving target spawning escapement.

6. With respect to Atlantic salmon in the NASCO area, provide a compilation of microtag, finclip and external tag releases by ICES Member Countries in 1995.

ANNEX 14

COUNCIL

CNL(95)17

CATCH STATISTIC RETURNS BY THE PARTIES

CNL(95)17

CATCH STATISTIC RETURNS BY THE PARTIES

1. The Official Catch Statistics, as submitted by the Parties, are tabulated overleaf (Table 1). The figures for 1994 are provisional. These catch statistics, rounded to the nearest tonne, will be used to calculate the contributions to NASCO for 1996 unless the Secretary is advised otherwise, except that the catch figures used to calculate the contribution of the European Union will include the catches of Finland and Sweden.

2. Under Article 12 of the Convention, the Secretary shall compile and disseminate statistics and reports concerning salmon stocks subject to the Convention. Table 2 presents catch statistics for the period 1960-1994 by Party to the NASCO Convention.

3. Tables 1 and 2 are set out in the format for the presentation of catch statistics which was agreed by the Council at its Fifth Annual Meeting. A further, more detailed, record of catch statistics during the period 1960-1994 is provided, for information only, in paper CNL(95)18.

Secretary
Edinburgh
25 May 1995

TABLE 1: OFFICIAL CATCH STATISTICS

	PROVISIONAL 1994 CATCH (TONNES)	PROVISIONAL 1994 CATCH ACCORDING TO SEA AGE						CONFIRMED 1993 CATCH (TONNES)
		1SW		MSW		TOTAL		
		NO	WT	NO	WT	NO	WT	
CANADA	351	-	138	-	213	-	351	373.3
DENMARK (in respect of Faroe Islands and Greenland)	18	-	-					35
FAROE ISLANDS *	6	0	0	2,072	6	2,072	6	23
GREENLAND *	12	-	-	-	-	-	-	12
EUROPEAN UNION	1,858	-	-	-	-	-	-	1,482.9
FINLAND	49	7,493	11	6,230	38	13,723	49	69.6
ICELAND	448	-	-	-	-	129,113	448	656
NORWAY	937	190,199	389	91,806	548	282,005	937	923
RUSSIAN FEDERATION	138	30,877	69.8	13,668	68.2	44,545	138	140
SWEDEN	43.8	8,034	18	4,661	25.8	12,695	43.8	56.4
UNITED STATES OF AMERICA	<0.1	12	-	1	-	13	<0.1	0.6

* Breakdown of the Faroese catch according to sea-age is for the 1993/94 season and excludes fish which were tagged and released. The Faroese and Greenland fisheries were subject to compensation agreements in 1993 and 1994.

TABLE 2: CATCHES OF ATLANTIC SALMON BY THE PARTIES TO THE NASCO CONVENTION

	CANADA	DENMARK*	EUROPEAN UNION	FINLAND	ICELAND	NORWAY	RUSSIAN FEDERATION	SWEDEN	USA
1960	1636	60	2641		100	1576	1100	40	1
1961	1583	127	2276		127	1456	790	27	1
1962	1719	244	3894		125	1838	710	45	1
1963	1861	466	3842		145	1697	480	23	1
1964	2069	1539	4242		135	2040	590	36	1
1965	2116	861	3693		133	1900	590	40	1
1966	2369	1338	3549		106	1823	570	36	1
1967	2863	1600	4492		146	2058	883	25	1
1968	2111	1167	3623		162	1752	827	150	1
1969	2202	2350	4407		133	2083	360	76	1
1970	2323	2354	4069		195	1861	448	52	1
1971	1992	2511	3745		204	1847	417	35	1
1972	1759	2146	4261	32	250	1976	462	38	1
1973	2434	2402	4604	50	256	2126	772	73	3
1974	2539	1945	4432	76	225	1973	709	57	1
1975	2485	2086	4500	76	266	1754	811	56	2
1976	2506	1479	2931	66	225	1530	772	45	1
1977	2545	1652	3025	59	230	1488	497	10	2
1978	1545	1159	3102	37	291	1050	476	10	4
1979	1287	1694	2572	26	225	1831	455	12	3
1980	2680	2052	2640	34	249	1830	664	17	6
1981	2437	2602	2557	44	163	1656	463	26	6
1982	1798	2609	2533	83	147	1348	354	25	6
1983	1424	1433	3532	79	198	1550	507	28	1
1984	1112	997	2308	75	159	1623	593	40	2
1985	1133	1430	3002	49	217	1561	659	45	2
1986	1559	1490	3524	38	330	1597	608	53	2
1987	1784	1539	2593	49	250	1385	559	47	1
1988	1311	1136	2833	34	412	1076	419	40	1
1989	1139	701	2450	52	277	905	359	29	2
1990	912	542	1645	59	426	930	316	33	2
1991	711	533	1139	69	505	877	215	38	1
1992	520	260	1506	77	636	867	166	49	1
1993	373	35	1483	70	656	923	140	56	1
1994	351	18	1858	49	448	937	138	44	0

NOTES: *In respect of the Faroe Islands and Greenland

1. The European Union catch consists of those countries that were member states of the EU on 31 December 1994 (where the data is available).
2. The catch for Denmark in respect of the Faroe Islands and Greenland includes the catch for Greenland when it was a member of the European Union and the catches up to 1983 by Denmark.
3. Figures from 1986 on are the official catch returns to NASCO. Figures to 1986 are based on data contained in the ICES Working Group Reports.
4. The Faroese fishery was subject to compensation agreements in 1991-1994. The West Greenland fishery was subject to a compensation agreement in 1993 and 1994.

ANNEX 15

COUNCIL

CNL(95)19

SUMMARY OF MICROTAG, FINCLIP AND EXTERNAL TAG RELEASES IN 1994

CNL(95)19

SUMMARY OF MICROTAG, FINCLIP AND EXTERNAL TAG RELEASES IN 1994

1. The annual summary of the information on tagging programmes conducted by the Parties in 1994 is attached as Table 1. In excess of 4.1 million fish were either tagged or marked prior to release during 1994, of which 39.7% were microtagged, 55.7% were finclipped (principally adipose clips), 4.1% were tagged with external tags (principally Carlin tags) and less than 0.4% were branded or dyemarked. Approximately 1.6 million fish bore auxiliary marks, principally adipose clips used in conjunction with microtagging. Almost 98% of the fish marked were of hatchery origin.

2. Table 2 presents a comparison of the tagging programmes in 1993 and 1994. The 1994 figure of 4.1 million released marked fish is almost 14% higher than the number released the previous year. The main reason for this increase was the large increase in the number of finclipped fish released. There was a large increase in the number of wild fish marked in 1994 compared to 1993 although wild fish still account for a small proportion of the total.

Secretary
Edinburgh
24 May 1995

TABLE 1

SUMMARY OF 1994 TAG RELEASES BY PARTY

PARTY	ORIGIN	MARKING METHOD				
		MICROTAGS	EXTERNAL TAGS	BRANDS, DYEMARKS ETC.	FINCLIPS	AUXILIARY TAGS, FINCLIPS, MARKS ETC.
CANADA	Hatchery	-	22,036	-	1,336,028	11,986
	Wild	-	11,819	-	1,282	419
	Mixed*	-	1,014	-	-	-
	TOTAL	-	34,869	-	1,337,310	12,405
EUROPEAN UNION	Hatchery	630,383	-	7,780	393,150	622,613
	Wild	56,449	9,607	330	1,500	61,493
	Mixed*	-	-	-	299	299
	TOTAL	686,832	9,607	8,110	394,949	684,405
FINLAND	Hatchery	-	-	-	-	-
	Wild	-	-	-	-	-
	TOTAL	-	-	-	-	-
ICELAND	Hatchery	284,366	388	10,000	-	294,366
	Wild	10,101	-	-	-	10,101
	TOTAL	294,467	388	10,000	-	304,467
NORWAY	Hatchery	-	105,872	-	66,426	-
	Wild	-	3,788	-	-	-
	TOTAL	-	109,660	-	66,426	-
RUSSIAN FEDERATION	Hatchery	-	4,649	-	353,200	-
	Wild	-	-	-	-	-
	TOTAL	-	4,649	-	353,200	-
SWEDEN	Hatchery	-	9,510	-	26,216	1,984
	Wild	-	388	-	-	-
	TOTAL	-	9,898	-	26,216	1,984
USA	Hatchery	655,646	437	-	119,198	655,891
	Wild	-	1,096	-	-	-
	TOTAL	655,646	1,533	-	119,198	655,891
TOTAL	**Hatchery**	**1,570,395**	**142,892**	**17,780**	**2,294,218**	**1,586,840**
	Wild	**66,550**	**26,698**	**330**	**2,782**	**72,013**
	Mixed*	**-**	**1,014**	**-**	**299**	**299**
	TOTAL	**1,636,945**	**170,604**	**18,110**	**2,297,299**	**1,659,152**

* Either not differentiated into hatchery or wild fish or origin unknown.

TABLE 2

COMPARISON OF 1993 AND 1994 TAGGING PROGRAMMES

	1993	1994	% CHANGE
MICROTAGS			
Hatchery	1,623,367	1,570,395	-3.3
Wild	25,182	66,550	+164.3
TOTAL	1,648,549	1,636,945	-0.7
EXTERNAL TAGS			
Hatchery	177,857	142,892	-19.7
Wild	20,001	26,698	+33.5
Mixed	1,353	1,014	-25.1
TOTAL	199,211	170,604	-14.4
BRANDS, DYEMARKS			
Hatchery	1,436	17,780	+1138.2
Wild	848	330	-61.1
TOTAL	2,284	18,110	+692.9
FINCLIPS			
Hatchery	1,769,340	2,294,218	+29.7
Wild	-	2,782	-
Mixed	-	299	-
TOTAL	1,769,340	2,297,299	+29.8
TOTAL			
HATCHERY	**3,572,000**	**4,025,285**	**+12.7**
WILD	**46,031**	**96,360**	**+109.3**
MIXED	**1,353**	**1,313**	**-2.9**
TOTAL	**3,619,384**	**4,122,958**	**+13.9**

ANNEX 16

COUNCIL

CNL(95)20

NASCO TAG RETURN INCENTIVE SCHEME

CNL(95)20

NASCO TAG RETURN INCENTIVE SCHEME

INTRODUCTION

1. At its Tenth Annual Meeting the Council considered the future of its Tag Return Incentive Scheme following the trial period which had been funded by the United States of America and which ended with the 1994 awards. It was agreed that the Scheme should continue and would be funded from 1995 by budgetary provision. Last year the Council reviewed the prizes offered and agreed that, in view of the recent changes in fishery regimes, it would retain the largest prizes but reduce the number of awards from 31 to 4: a Grand Prize of $2,500 and one prize in each Commission of $1,500. Revised Rules of the Scheme, which are based on those presented to the Council last year but which have been modified to reflect the agreed prize structure, are contained in Appendix 1. The Council is requested to agree these revised Rules. It was also agreed that the advantages, disadvantages and possible mechanisms for extending the Scheme to include microtags should be examined and a brief review is presented in paragraphs 4-8.

1994 AWARDS

2. The 31 awards presented in 1994 received good coverage in the media. The Grand Prize was presented to Mr Kenneth Justesen at a reception in Torshavn hosted by Fiskirannsoknarstovan. We received good publicity for this award in the press and on Faroese television, and there was also good publicity for the Commission prizes.

1995 AWARDS

3. In accordance with the Rules of the Scheme the participating Parties were requested to provide by 1 May a list of names and addresses of persons returning eligible external tags during the period 1 January - 31 December 1994. Details of the country in which the tag was recaptured were also requested in order that each tag could be allocated to the appropriate Commission area. A total of 6229 eligible tags was returned and entered into the draw for the Grand Prize. This is an increase over the number entered in the 1994 draw of 228%. This large increase is due to the inclusion in the Scheme for the first time of tag returns from Norwegian homewater fisheries. In previous years, only those Norwegian tags recaptured in other countries were included. 699, 5525 and 5 eligible tags were entered into the draws for the North American, North-East Atlantic and West Greenland Commissions respectively. The draw will be made by the auditors to NASCO in accordance with the Rules of the Scheme. The winner of the $2,500 prize will be announced by the President at the Twelfth Annual Meeting of the Council. The winners of the $1,500 prize in each Commission will be announced by the Chairmen of the respective Commissions.

INCLUSION OF MICROTAGS IN THE SCHEME

4. Since its inception the Tag Return Incentive Scheme has been restricted to external tags (Carlin, Floy, etc). These tags are easily identifiable by fishermen who return them to the appropriate authorities to claim the reward. Eligible tags are then

submitted to NASCO for inclusion in the draw. In recent years an average of approximately 270,000 external tags have been applied to salmon in the North Atlantic area from which between approximately 1700-6200 tag returns are included annually in the draw. In contrast, it is clear from the annual summary of microtags, finclips and external tag releases presented to the Council that the most commonly applied form of tag is the microtag. Although not all Parties use this form of tagging, approximately 1.5 million salmon were released to the wild bearing microtags in 1994.

5. The use of microtags requires an auxiliary mark to indicate that the fish is carrying a tag and it is normal practice in microtagging programmes to remove the adipose fin. Recovery programmes for microtags may either involve the cooperation of fishermen in reporting the capture of adipose clipped fish or the recovery may be independent of the fisherman and involve screening of catches by scientists. Where the cooperation of fishermen is sought, it is normal to publicise the fact that fish which have had their adipose fin removed may be microtagged and that a reward may be payable. In these recovery programmes, the reward may be paid for all reported fin clipped fish or more commonly only to those that are subsequently found to carry a microtag. On the other hand, in screening programmes, the catches are inspected at ports or fish processing plants and no reward is paid to the fisherman, although compensation may be paid to the owners of the processing plant for any disruption caused and for damage to fish.

Advantages of including microtags

6. The Tag Return Incentive Scheme was introduced in 1989 in order to encourage and improve the return of tags and recapture information. In 1993 the Council reviewed the operation of the Scheme, and in view of an increase in reporting rate and the favourable publicity which had been generated for the work of the Organization, decided to continue the Scheme. If the Scheme was extended to include microtags it is likely that the prizes offered would also stimulate the return of such tags by fishermen. It seems unlikely that 100% returns would ever be achieved so some assumption would be necessary about reporting rates but this is already a requirement of microtag recovery programmes which involve the cooperation of fishermen and the payment of a reward. A fisherman who has alerted the appropriate authorities to the capture of an adipose finclipped fish may have experienced more inconvenience than a fisherman who has returned an external tag which can be easily cut off and returned to the appropriate authority by post. It is possible, therefore, that the high rewards offered in the NASCO Scheme might serve to stimulate returns. As with external tags, the NASCO prize would be offered in addition to any reward paid nationally. (In Iceland, the desirability of high incentive rewards to stimulate returns of microtags has been recognised and a lottery is operated which offers prizes of fishing trips and tackle). Because of the increasing use of microtags compared to other tagging methods it is likely that the Organization will receive more widespread publicity for its conservation work by including these tags in the award scheme.

Disadvantages

7. One of the advantages of microtags over external tags is that recovery programmes can be operated which are free from the need to assess reporting rate. Some catches are subject to a screening process and no reward is paid to the fishermen. In these

scientific programmes there is no advantage and possibly a disadvantage to introducing a reward since they do not rely on voluntary returns and assessment of reporting rate is therefore not necessary. This would not apply, however, to microtags returned by individual fishermen, who already receive an award. In extending the Scheme to microtags there could be an increased workload in administering the Scheme. There would be a need for the Parties to collate the information for submission to NASCO and this information would need to be prepared for inclusion in the draw by the Secretariat. However, the information already exists and there need be little added effort if it is sent on disk. It is likely that considerably more microtags would be submitted than the relatively small number of external tags currently received, but procedures could be developed to handle this increase. The number of returns would be limited by restricting eligibility for inclusion in the Scheme to individuals whose fish were confirmed to carry a microtag rather than including all adipose clipped fish. Microtagged fish returning to commercial ranching stations would also be excluded.

Conclusion

8. Tagging programmes are expensive to conduct and extension of the Tag Return Incentive Scheme to include microtags might well lead both to improvements in the return of adipose clipped (microtagged) salmon and result in favourable publicity for conservation. It is proposed that recovery programmes involving screening of catches by scientists would not be eligible for a reward. Only those returns where a reward is already paid to fishermen would be eligible. The added higher reward may well offer benefits. If the Council decides that it is willing to extend the Scheme to include microtags participation by any Party would still be on a voluntary basis as is the case with external tags. Microtags would be eligible but no Party need submit microtags if it chose not to. Only minor changes would be necessary to the Rules of the Scheme. If the Council agreed to proceed with the inclusion of microtags on this voluntary basis, it seems likely that arrangements could be in place for the 1996 season (1997 draw). It might also be possible to obtain sponsorship for the Scheme and the Council might wish the Secretary to explore this possibility and report back to the Thirteenth Annual Meeting.

Secretary
Edinburgh
19 May 1995

Appendix 1

RULES OF THE NASCO TAG RETURN INCENTIVE SCHEME

1. The objectives of the Scheme are to encourage and improve the return of tags and recapture information.

2. Participation by the Parties in the NASCO Tag Return Incentive Scheme is on a voluntary basis.

3. The Council will review the operation of the Scheme at three year intervals.

4. The Scheme only applies to individually identifiable external tags. Only tags returned to the appropriate official agency of a NASCO member Party and deemed to be legitimate by the official agency will be eligible. The authorities where the tag originates report the tag to NASCO.

5. The Secretary will, in December prior to the year when the prizes will be awarded, request each Party wishing to participate to send a list of the names and addresses of eligible participants who have returned tags during the calendar year ending on 31 December. A Party may choose to submit only a list of eligible tag numbers for each Commission area as long as that Party knows the identity of the tag holder and can supply this information in the event of the tag winning an award. The Secretary will request that this be provided to NASCO by 1 May. Only tag returns received by that date will be eligible.

6. All tag returns will be subject to a random selection procedure in which they will be mixed in a closed container and one tag will be selected blind. The procedure will be scrutinised by a representative of the auditors to NASCO. The persons who returned the selected tag will receive a Grand Award of £2500 which the President will announce at the Annual Meeting of the Council. This tag will not be eligible for a further award.

7. The remaining returns will be sorted into the three Commission areas of NASCO according to the place of recapture of the tagged fish. For the purposes of the Scheme, the Commission areas shall be considered to include the river systems flowing into the appropriate Commission area. For each Commission one tag will be selected blind. The person who returned the selected tag in each Commission area will receive an award of $1500 which will be announced by the Chairman at the Annual Meeting of the respective Commission.

8. The Secretary will send cheques to the winners within 60 days of the announcement of the awards. The Secretary will circulate a list of winners to the Parties.

9. In the event of any dispute by a participant in this Scheme the decision of the Secretary shall be final.

COUNCIL

CNL(95)21

DATABASE OF SALMON RIVERS FLOWING INTO THE NASCO CONVENTION AREA

CNL(95)21

DATABASE OF SALMON RIVERS FLOWING INTO THE NASCO CONVENTION AREA

1. At its Sixth Annual Meeting the Council decided to establish a database of all salmon rivers flowing into the Convention area with an indication of their status. A format for provision of the information was agreed in 1990 (Appendix 1) and the information was requested from the Parties on 13 March 1991. In addition to the basic information requested (ie river name, location, category and information on the cause of loss or threats to the salmon stocks) additional information on the size of the rivers (expressed as either catchment area or mean annual flow) and on catch has been provided in some cases.

2. Last year it was reported that returns had been received from five Parties (987 rivers). Since then information from one other Party has been received and updated information (including details of additional rivers) has been received from a Party which had previously made a return. In total, information on 1,356 rivers has now been included in the database and the percentage of rivers in each category is illustrated in Figure 1. Of these rivers approximately 72% are categorised as being 'not threatened with loss'. However, a total of approximately 9% of the rivers fall into the categories lost and maintained and approximately 15% are considered to be threatened with loss. For these rivers the most commonly identified threats were deterioration of water quality (including acidification); water regulation and abstraction; diseases and parasites; introductions and transfers (including escapes from fish farms); high marine mortality and over-exploitation (including illegal fishing). It should be remembered, however, that the information presented here is based on data for six Parties and it may not, therefore, be representative of the North Atlantic as a whole.

3. Last year the President encouraged the Parties to provide the relevant information to the Secretary as soon as possible so that a comprehensive review of all salmon rivers flowing into the North Atlantic may be prepared. This important initiative will then enable the Organization to monitor its progress in conserving, restoring and enhancing salmon stocks.

Secretary
Edinburgh
5 April 1995

NASCO SALMON RIVERS DATABASE
FORMAT FOR SUBMISSION OF INFORMATION

CLASSIFICATION OF RIVERS

A river is named as the main stem of the system of rivers and tributaries at the point, within the NASCO Convention area, where it reaches the sea. A tributary is defined as any river or stream which does not flow directly into the sea but flows into a river as defined above.

CATEGORY 1: LOST
Rivers in which there is no natural or maintained stock of salmon but which are known to have contained salmon in the past.

CATEGORY 2: MAINTAINED
Rivers in which there is no natural stock of salmon, which are known to have contained salmon in the past, but in which a salmon stock is now only maintained through human intervention.

CATEGORY 3: RESTORED
Rivers in which the natural stock of salmon is known to have been lost in the past but in which there is now a self-sustaining stock of salmon as a result of restoration efforts or natural recolonization.

CATEGORY 4: THREATENED WITH LOSS
Rivers in which there is a threat to the natural stock of salmon which would lead to loss of the stock unless the factor(s) causing the threat is(are) removed.

CATEGORY 5: NOT THREATENED WITH LOSS
Rivers in which the natural salmon stocks are not considered to be threatened with loss (as defined in Category 4).

INFORMATION REQUIRED

A form for the return of information is attached. For each river details of the river name, its category and locational information (latitude and longitude bearings) for the point at which it enters the sea are requested. In addition a section for other information has been included. It would be useful if the following information, in particular, could be provided if available:

Category 1: Information on the cause and approximate date of the loss.
Category 2: Information on the cause and approximate date of the loss prior to the stock being maintained.
Category 3: Information on the cause and approximate date of the loss prior to restoration.
Category 4: Information on the nature of the threat(s) to the salmon stock.
Category 5: Details of any major losses known to have occurred within these rivers, e.g. major tributaries lost to salmon production.

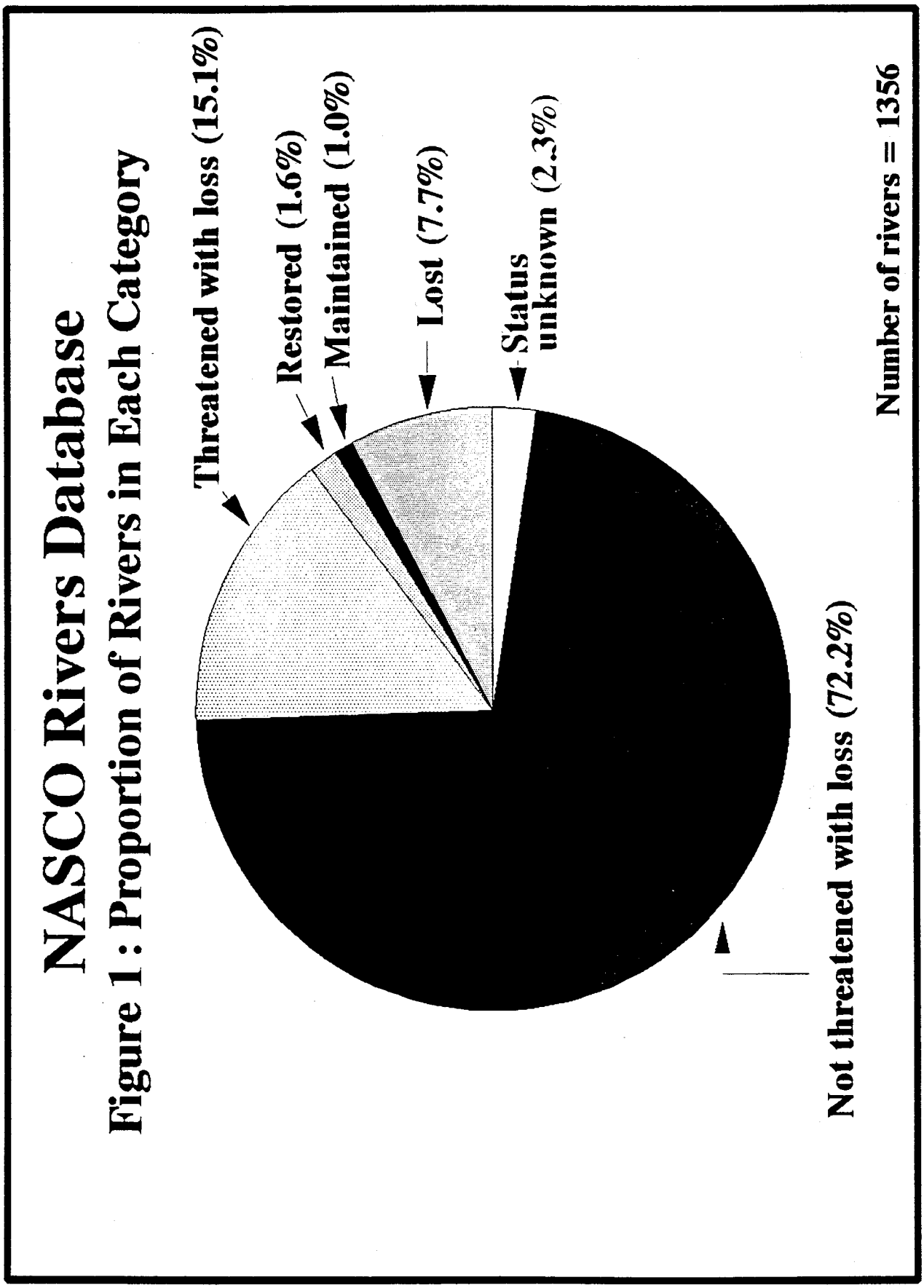
In the case of Categories 4 and 5 it would be useful if those stocks which are considered to be of particular conservation value could be identified.

In the case of border and cross-border rivers each Party should provide information.

SALMON RIVERS DATABASE - RETURN FORM

PARTY:		COUNTRY/REGION/STATE:		
Category	River Name	Location		Other Information
		Latitude	Longitude	

Figure 1


NASCO Rivers Database
Figure 1 : Proportion of Rivers in Each Category
Threatened with loss (15.1%)
Restored (1.6%)
Maintained (1.0%)
Lost (7.7%)
Status unknown (2.3%)
Not threatened with loss (72.2%)
Number of rivers = 1356

ANNEX 18

COUNCIL

CNL(95)24

RETURNS UNDER ARTICLES 14 AND 15 OF THE CONVENTION

CNL(95)24

RETURNS UNDER ARTICLES 14 AND 15 OF THE CONVENTION

The form for the return of information relevant to the period 1 January - 31 December 1994 was circulated on 25 January 1995 for completion by the Parties. All Parties were requested to complete and return the form even if there had been no changes since the last notification. Where changes have been notified under Article 15, the Laws, Regulations and Programmes concerned have been lodged with the Secretariat and this information will be incorporated into the Laws, Regulations and Programmes database. Copies of the detailed submissions are available from the Secretariat. A summary of the new actions taken under Articles 14 and 15 of the Convention is attached. At the time of preparation of this paper, information has not been received from all of the EU's member states which have salmon interests.

Secretary
Edinburgh
25 May 1995

ARTICLE 14

1. ACTIONS TAKEN TO MAKE EFFECTIVE THE PROVISIONS OF THE CONVENTION *(Article 14, paragraph 1)*

1.1 The prohibition of fishing for salmon beyond 12* nautical miles from the baselines from which the breadth of the territorial sea is measured. ***(Article 2, paragraph 2)***

* 40 nautical miles at West Greenland
* Area of fisheries jurisdiction of the Faroe Islands

Norway

The Norwegian coastguard has continued the inspection of the high seas area.

1.2 Inviting the attention of States not party to the Convention to any matter relating to the activities of the vessels of that State which appears to affect adversely the salmon stocks subject to the Convention. ***(Article 2, paragraph 3)***

USA

Cable traffic from the US Department of State regarding the alleged continuation of fishing activities in international waters by non-Contracting Parties to NASCO.

1.3 Measures to minimise the by-catches of salmon originating in the rivers of the other member. ***(Article 7, paragraph 2)*** **[North American Commission members only]**

Canada

The 80 tonne allowance for the commercial fishery in northern Labrador was replaced by a 24 tonne quota to reflect the removal of effort as a result of commercial licence retirement. The quota for the commercial salmon fishery in southern Labrador was reduced from 98 tonnes to 68 tonnes in 1994.

1.4 Alteration in fishing patterns in a manner which results in the initiation of fishing or increase in catches of salmon originating in the rivers of another Party, except with the consent of the latter. ***(Article 7, paragraph 3)*** **[North American Commission members only]**

NO NEW ACTIONS

2. ACTIONS TAKEN TO IMPLEMENT REGULATORY MEASURES UNDER ARTICLE 13 *(Article 14, paragraph 1)*

NO NEW ACTIONS

ARTICLE 15

3. LAWS, REGULATIONS AND PROGRAMMES ADOPTED OR REPEALED SINCE THE LAST NOTIFICATION *(Article 15, paragraph 5(a))*

European Union

In the United Kingdom a number of new regulations were introduced in 1994. These include:

England and Wales

NRA Wessex Region - The National Rivers Authority (NRA) (Poole Harbour and Christchurch Harbour) (Limitation of draft and seine net licences) October 1993 which limits the number of net licences which may be issued for salmon and trout in the areas defined.

The Wessex Water Authority (Limitation of Draft and Seine Net Licences) 1981 Order has been revoked.

NRA South West Region - Byelaw to prohibit the use of certain baits on the River Tamar after 31 August in any year.

NRA Welsh Region - Byelaws governing the use of lures, baits and hooks, the annual close season, the number of rods that may be used, catch returns and where fishing may take place and amendments to byelaws governing the annual close season for commercial fishing for salmon.

Scotland

The Salmon (Fish Passes and Screens) (Scotland) Regulations 1994.

Northern Ireland

Fisheries (Licence Duties) Byelaws (NI) 1994 which increase the licence duties payable for fishing with rod and line, hand line and commercial fishing engines and the fee payable for a licence authorising the holder to buy and sell salmon.

Fisheries Amendment Byelaws (Northern Ireland) 1994 - Byelaw 3 prescribes the maximum number of licences for fishing with tidal draft nets which may be issued in any calendar year, provides for a closing date for receipt of applications for licences and for the priority in which licences are to be issued.

Iceland

The Icelandic Salmon Act has been revised in part. An English translation is not yet available.

Norway

Management alterations

In the process of altering the organisation of river and salmon stock management pursuant to the Salmon Act the state authorities have focused on the development and activisation of local management. Local management includes the municipalities, the landowners, holders of fishing rights and fishermen. After formally establishing the "National council for salmon management and fishing regulations" in 1994 Norway spent NOK 0.3 million to establish local "Salmon River Councils" and to support local river and salmon stock management planning (§ 25). The duty of management planning is passed onto holders of fishing rights pursuant to section 25 in the Salmon Act.

Guidelines for management planning are worked out by the organisations of land owners in cooperation with the Directorate for Nature Management (DN). The state effort of financial support will be prolonged and strengthened in 1995. In addition there have been established some "Regional Salmon Management Councils". Both local and regional councils are supposed to advise the authorities concerning fishing- and stock-management regulations etc. in rivers and sea areas.

Furthermore the DN has prepared a major delegation of provisions in sections of the Salmon Act and in regulations pursuant to the act to the municipalities. Subsequently the management of salmon stocks by detailed rules and regulations given by state authorities will be altered to management by aims and result demands. Due to this management goal the Directorate for Nature Management has worked out a guideline with national aims and strategies for salmon stock management which has to be followed by the authorities and private organisations.

Supervision in territorial sea areas and watercourses

A special program enforcing supervision activity in the coastal areas of Norway, the Mid-Norway project, was continued in 1994 at a cost of NOK 550.000. Action-levelled supervision will also be conducted next year. The total cost in 1994 of supervision in territorial sea areas and watercourses was NOK 7,8 million.

4. OTHER NEW COMMITMENTS RELATING TO THE CONSERVATION, RESTORATION, ENHANCEMENT AND RATIONAL MANAGEMENT OF SALMON STOCKS SUBJECT TO THE CONVENTION *(Article 15, paragraph 5(b))*

European Union

Ireland

Extensions have been granted to the 1994 season for fishing with rod and line and draft nets in a number of rivers. In the river Slaney the opening of the fishing season for draft nets has been deferred 1 month.

Norway

Register of salmon rivers

Every year since 1993 the Directorate for Nature Management has continued and improved the categorisation of rivers according to the present state of their Atlantic salmon stocks. The division into categories in the Norwegian classification system diverges from the categories used in the NASCO salmon rivers database. However, it is quite simple to convert the categories from the Norwegian system into the NASCO system. We present here the division into categories based upon the Norwegian system. A complete survey of Norwegian watercourses that contain Atlantic salmon modified to the NASCO categories will be presented separately.

The watercourses are classified in five main categories. Category 1 is rivers whose natural stocks have become extinct. Category 2 includes rivers whose stocks are threatened by extinction. Category 3 consists of rivers that have a reduced production or whose stocks are vulnerable. Category 4 is rivers that have small natural stocks, and category 5 is rivers whose stocks are, or have been, large for many years. In addition some of the rivers are classified into category "?" (uncertainty as to whether the species forms a stock) and into category "(x)" (a stock is present, but its status is unknown because the level of information is too poor to assess it). As of 31 December 1994, 629 rivers are registered as having stocks of Atlantic salmon. In 35 rivers the stocks have been made extinct due to acid rain, river regulation, *Gyrodactylus salaris* or interference with salmon escaped from salmon farms. 56 rivers have threatened stocks caused by *Gyrodactylus*, acid rain, overfishing and interference with fish escaped from fish farms. 126 rivers are categorised as having vulnerable stocks. The threats in these rivers are river regulation and other physical encroachments, acidification, agricultural pollution and other pollution, escaped farmed salmon, *Gyrodactylus salaris*, other fish diseases and overfishing. 247 rivers have naturally small stocks with no significant human impact. 120 rivers have large stocks not influenced by any threats. In addition 2 rivers whose natural stocks have been made extinct, in which new stocks have been established on the level of category 3. Finally we have 43 rivers where a stock is present, but its status is unknown.

The categorisation of salmon rivers is important and determines how a river will be managed and the priority given to it with regard to implementation of protective and other measures. Guidelines for determining the periods when fishing will be permitted

on a watercourse are also based on this categorisation. Data and facts from all Norwegian salmon rivers is collected in the Salmonid Register.

Monitoring

The monitoring of salmon stocks in rivers and the sea has continued in 1994 at the same level as in 1993. The monitoring of, for example, development of total stock size, stock recruitment in different rivers, the further spreading of *Gyrodactylus* and stock development in rivers infected, sea-lice infestation, fish diseases, the number of fish escaped from fish farms and damage to wild salmon caused by fixed salmon gear are being investigated in a number of rivers and in sea areas. The Directorate spends approximately NOK 7,450 million each year to support and finance monitoring programmes. The cost of monitoring of *Gyrodactylus* was NOK 0,600 million, monitoring of sea-lice and fish diseases etc. NOK 0,250 million, monitoring connected with acidification and liming NOK 2,500 million, monitoring of escaped farmed salmon NOK 0,350 million and finally the cost of monitoring of total stock size, stock recruitment was NOK 3.750 million. In addition research institutes and the owners of waterpower plants contribute in the financing of this monitoring activity.

Liming

In 1994 the liming of 9 rivers of Atlantic salmon continued. Norway spent NOK 8,8 million in 1994 conducting liming measures.

Rotenone treatment

In 1994 two watercourses were treated against *Gyrodactylus* with rotenone. The total number of watercourses treated in Norway reached including these two is 23. The experience with rotenone treatment is good. So far 10 rivers have been taken off the sick list. Another 3 rivers are expected to be taken off the sick list in 1995. The Norwegian authorities spent NOK 3,8 million in 1994 on these activities. The prospects of exterminating the parasite from Norwegian rivers are good. A committee has proposed a strategy which implies rotenone treatment of 14 rivers in the period 1995-1999.

Mandatory releases of salmon juveniles

The imposed releases of Atlantic salmon fry and smolt in about 60 regulated rivers have continued in 1994. This activity is carried out by the owners of the water power plants. Approximately 1,5 million salmon fry and 0,5 million smolts are released every year.

In the river Suldalslågen a research program continues to examine whether it is possible to replace juvenile releases with measures of habitat improvement and restoration. In about 8 rivers effort has been made to establish salmon stocks in previously uninhabited stream habitat.

In several rivers research programmes are conducted to investigate possible impacts of regulation on salmon stocks. Software to simulate the impacts of different factors

on the river environment caused by regulating a watershed has been developed and is beginning to be used.

Gene bank and sperm bank

By the end of 1994 sperm from in total 5698 salmon from 163 stocks had been frozen in the Norwegian gene banks to provide a possibility of rescuing them from extinction. 28 characteristic and valuable stocks have been taken into the "living gene banks" in Haukvik (Mid-Norway), in Eidfjord (Southwest Norway) and in Mo i Rana (North-Norway).

In 1994 sperm from 610 salmon from 66 stocks was frozen. Male and female salmon from 10 stocks were taken into a "living gene bank". Norway is spending about NOK 7 million every year to operate the gene bank. In addition approximately NOK 3 million was invested in new facilities and equipment.

International research programmes

The research program in cooperation between Norway, Iceland, Sweden and the Faroe Islands has continued in 1994. The purpose of this project is to explore the stock structure and the distribution of Atlantic salmon caught and tagged in the sea within the Faroese economic zone.

Cooperation between Norway and Russia on environmental issues on research and management of Atlantic salmon continues. Cooperation between Norway, Finland and Karelia in Russia is under preparation in connection with research and monitoring of *Gyrodactylus salaris*.

USA

The United States continues its efforts to implement into law the protocols for the introduction and transfer of salmonids. Currently an initiative is under way to develop an Environmental Impact Statement prior to the Federal Register for comments, public hearings and final action.

5. OTHER FACTORS WHICH MAY SIGNIFICANTLY AFFECT THE ABUNDANCE OF SALMON STOCKS SUBJECT TO THE CONVENTION *(Article 15, paragraph 5(c))*

European Union

Ireland

Intensification of protection efforts by the Naval Service and Fisheries Boards continues to have effect in reducing the level of illegal fishing. Two new high-speed patrol vessels up to 50 feet in length are being put into service in 1995 by the Foyle Fisheries Commission and the Central Fisheries Board.

Norway

Acidification

Acidification is one of the main threats to the salmon stocks in Norway. In the Agder counties in southern parts of Norway almost all natural stocks are extinct because of heavy acidification. There are also strong indications that acidification is becoming a serious problem in salmon rivers in the western parts of Norway. In 1994 there has been some progress in determining values of chemical parameters in river habitats, which are critical for salmon survival at different juvenile stages. River habitat studies indicate that zones where less acid water is mixed with highly acid water are extremely toxic especially to juvenile salmon at the smolt stage. When conducting liming measures in watersheds with watercourses of different pH this has to be taken into consideration. Studies have also shown that acid water reduces the ability of smolts to adapt from fresh to salt water. Acid water decreases the salmon's ability to regulate the salinity in the cells.

Gyrodactylus salaris

The monogenean parasite *Gyrodactylus salaris* is one of the most serious threats to the Atlantic salmon in Norway today.

In 1994 the total number of Norwegian rivers infested with *Gyrodactylus salaris* was 38, which is one more than in 1993. The parasite has also been reported in a total of 37 hatcheries. Rotenone treatment of the infested watercourses and clearing of infested hatcheries are carried out to get rid of the parasite. This method has been used in 23 *Gyrodactylus*-infested rivers, and there are only 3 infested hatcheries today.

A report "Alarming trends in salmon populations in Swedish westcoast rivers" was discussed at the meeting of NASCO in 1994. After this discussion, the Directorate for Nature Management desires to establish cooperation with the Swedish authorities for nature management regarding the group of problems.

Salmon farming and sea lice

The problem of sea lice in fish farming is steady in 1994 compared with 1993. We have increased the use of wrasse in order to reduce the sea lice problem.

Furunculosis

By the end of 1994 approximately 80 Norwegian watercourses were affected by the furunculosis bacteria (*Aeromonas salmonicida* sub-species *salmonicida*). The situation is better than previous years. In 1994 serious effects in rivers affected by the bacteria have not been reported.

Escaped farmed salmon

There has been a decrease of the quantity of escaped farmed salmon from farming plant compared with the 1.5-2.0 million escaped farmed salmon some years ago. The number of fish escaped from fish farms was 570,000 in 1994 (455,000 in 1993). The

proportion of farmed Atlantic salmon in marine fisheries by the coast in Norway was 34% in 1994 (47% in 1993). In the fjord fisheries the proportion in 1994 was 19% (20% in 1993). There is good reason to hope that the decrease will continue next year.

Bullhead

Bullhead (*Gottus gobio L. Cottidae*) has been introduced in the river Tana. In competition with juvenile stages of salmon the presence of bullhead is supposed to have a negative influence on the salmon.

Sweden

At the Eleventh Annual Meeting of the North-East Atlantic Commission of NASCO the Swedish Delegation presented a document concerning alarming trends in Swedish west-coast rivers. The representative of Norway referred to similar trends in some Norwegian rivers following the introduction of *Gyrodactylus salaris*. In view of the fact that this parasite had also been found in Swedish west-coast rivers the representative of Norway underlined the need for cooperation between the two Parties to control the parasite and prevent its spread. In December 1994 a first meeting took place between administrators and scientists from the two Parties. A number of issues for cooperation were discussed and decided upon.

A specific project meant to improve the knowledge on the status of i.a. the west-coast salmon and sea trout stocks has been started. As a consequence it will be easier in the future to follow the extent, intensity and type of the salmonid fishery. Through cooperation between the National Board of Fisheries and the Swedish Coast Guard the number of salmonid gears will be counted in certain selected areas. Today there is a serious lack of knowledge on the fishing effort of the non-commercial fishery. All data on fishing activities, from electro-fishing etc. will be stored in a common database.

ANNEX 19

COUNCIL

CNL(95)25

FISHING FOR SALMON IN INTERNATIONAL WATERS

CNL(95)25

FISHING FOR SALMON IN INTERNATIONAL WATERS

1. At its Ninth Annual Meeting in Washington DC, the Council unanimously adopted the "Protocol Open for Signature by States not Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean" and the "Resolution on Fishing for Salmon on the High Seas". Development in relation to the Protocol and actions taken in accordance with the Resolution are detailed below.

Protocol

2. Following adoption of the Protocol by the Council, copies were transmitted to the governments of Panama and Poland in December 1992 through their embassies in London. To date neither of these governments have agreed to sign the Protocol. Nevertheless the diplomatic efforts of the Parties and the Organization have resulted in actions by these two governments as if they had signed it. Last year we obtained evidence that Panama had removed the vessel 'Brodal' from its register. Prior to the Tenth Annual Meeting we received a response indicating that the government of Poland was in the process of reviewing the draft Maritime Fisheries Act, the provisions of which would authorise the Minister of Transport and Maritime Economy to prohibit fishing on the high seas, as well as the landing and sale of certain species of fish. The Polish government advised that it would not review the question of signing the Protocol until there was clarity regarding the draft Maritime Fisheries Act. The Polish authorities also indicated that the landing of salmon in Polish ports by vessels registered abroad had ceased. In recent consultations with the Polish authorities they have advised that their new Maritime Fisheries Act will soon be in force, possibly as soon as July 1995. This Act will then give them the formal powers to prevent the landing of salmon taken in international waters and to sign the NASCO Protocol.

3. Following its removal from the Panamanian register, it is possible that the registers of other States could now be sought by 'Brodal' and by other vessels in future so we shall have to remain alert. The action of the FAO in developing an "Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas" is a useful initiative complementary to the NASCO Protocol. This Agreement was approved by the 61st Session of the FAO Committee on Constitutional and Legal Matters and was subsequently adopted at the 27th session of the Food and Agriculture Organization Conference in Rome during 6-25 November 1993. This Agreement will enter into force, for those who have signed it, following receipt of the twenty-fifth instrument of acceptance, although this could take a considerable length of time. To date, only seven Parties (Canada, St Kitts & Nevis, Georgia, Myanmar, Sweden, Madagascar and Norway) have deposited instruments of acceptance. The main provisions of this agreement are:

   1) each Party shall take measures to ensure that fishing vessels entitled to fly its flag do not engage in any activity that undermines the effectiveness of international conservation and management measures;

2) no Party shall allow any fishing vessel entitled to fly its flag to be used for fishing on the high seas unless authorised to do so;

3) no Party shall authorise any fishing vessel, previously registered in the territory of another Party that has undermined the effectiveness of international conservation and management measures, to be used for fishing on the high seas unless certain conditions are satisfied.

Actions taken in accordance with the Resolution

Obtain and Compile Information on Sightings

4. Since 1990, information on the activities of vessels in international waters has been obtained principally from Norwegian and Icelandic coastguard airborne surveillance flights. The following surveillance flights have been undertaken between April 1992 and April 1995:

Icelandic Coastguard				Norwegian Coastguard			
1992	**1993**	**1994**	**1995**	**1992**	**1993**	**1994**	**1995**
2 Apr	15 Mar	28 Mar	23 Feb	10 Apr	3 Apr	11 Feb	18 Mar
4 Sep	21 Apr	22 Jun		24 Apr	17 Apr	18 Feb	
15 Sep	14 Jun	8 Aug		6 May	13 May	26 Feb	
2 Nov	7 Jul	1 Dec		8 May	19 May	2 Mar	
	16 Sep			24 May	3 Jun	29 Mar	
				5 Jun	28 Jun	27 May	
				22 Jun	23 Jul	16 Jun	
				7 Jul	17 Sep	19 Jun	
						22 Jul	
						25 Aug	
						17 Sep	

It is evident that very few surveillance flights have been conducted over the last autumn and winter period between September 1994 and February 1995 but it is known that fishing for salmon does occur at this time of year. A report on actions taken to improve cooperation on surveillance is presented separately, CNL(95)26.

5. The information on sightings from airborne surveys which has been received by the Secretary to date is as follows:-

Icelandic Coastguard				Norwegian Coastguard			
Date	Vessel Name	Location		Date	Vessel Name	Location	
17/01/90	Brodal	67°04'N	05°41'W	28/01/90	Uncle Sam	66°27'N	00°48'W
	Seagull	66°40'N	04°22'W	22/02/90*	Name unknown	66°51'N	01°09'W
26/01/90	Minna	66°22'N	04°15'W		Name unknown	66°55'N	00°24'W
	Seagull	67°41'N	04°22'W		Name unknown	67°05'N	00°20'W
21/02/90	Brodal	66°49'N	01°15'W		Name unknown	66°56'N	03°02'W
	Seagull	66°55'N	00°36'W		Name unknown	67°43'N	00°34'W
02/03/90	Brodal	66°58'N	02°33'W		Name unknown	67°41'N	00°30'W
	Annette Bri	66°58'N	02°33'W		Name unknown	67°50'N	00°40'W
				10/03/90	Brodal	66°45'N	03°17'W
				24/02/91	Name unknown	68°33'N	01°08'E
				06/05/92	Brodal	72°00'N	06°00'E
					Netanya	72°00'N	06°00'E
				08/05/92	Brodal	72°17'N	06°25'E
					Netanya	71°57'N	05°28'E
				19/05/93	Brodal	70°30'N	04°02'E
				03/06/93	Brodal	71°35'N	04°20'E
					Sea Gull	71°35'N	06°32'E
				11/02/94	Brodal	66°48'N	03°22'W

* Photographs taken of Annette Bri, Seagull, Minna, Brodal.

There have been no sightings since February 1994 but, as indicated in paragraph 4, there have been only three surveillance flights and these would not have covered the whole area.

6. In addition the following information has been received from ports about vessels known to fish for salmon in international waters:

Date	Vessel Name	Port
18/1/90	Minna	Torshavn
2/2/90	Minna	Torshavn
28/1/91	Brodal	Bodø
4/3/91	Brodal	Bodø
5/12/91	Brodal	Bodø
5/3/92	Brodal	Bodø
31/01/94	Brodal	Bodø

Drawing the Attention of Non-Contracting Parties to the Activities of their Vessels

7. Copies of the Protocol Open for Signature by States not Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean were transmitted to the governments of Poland and Panama through their respective London missions in December 1992 (see paragraph 2). No other non-Contracting Parties are known to have been involved in fishing in international waters.

Obtain and Compile Information on Landings and Transshipments

8. At the Eleventh Annual Meeting in Oslo new information was referred to which had been provided to NASCO, through the Atlantic Salmon Trust, by a lorry driver who had been requested to transport a consignment of salmon to Switzerland. This information (detailed in my memo CNL27.168 of 23 June 1994) indicated that the

vessel 'Brodal' managed to land its catch of 11,093kg at the Polish port of Wladyslawowo, although it must be stressed that this information is from an unconfirmed source. The Polish authorities have been alerted with a view to closing this loophole. They indicated that the documentation on this consignment of salmon showed that the salmon was Danish. The Polish authorities assumed that a transfer of salmon of Danish origin to Switzerland was perfectly acceptable and the documentation did not show that the "Danish" salmon came from a Panamanian vessel.

Obtain and Compile Scientific and Technical Data on the Fishery

9. To date six vessels are known to have been involved in fishing for salmon in international waters. Their details are given below:

Name of Vessel	Registration Number	Country of Registration	Call Sign	Size of Vessel	
				Weight (GRT)	Length (m)
BRODAL	--	PANAMA	HP5157	133	29
MINNA	WLA69	POLAND	OZTH	84.5	
SEA GULL 1	--	PANAMA	3ELD6	148	--
ANNETTE BRI	WLA12	POLAND	OUHZ	--	
UNCLE SAM	--	PANAMA	OYXP	--	
NETANYA	SG76	SWEDEN	--	--	--

* A number of vessels do not display a registration number.

In addition, there are unconfirmed reports that two other vessels, 'Bermuda' and 'Marie Viking', have also been involved. The vessel 'Bermuda' was registered in Panama but it is believed that this vessel may have reflagged to Poland in March 1991. Its call sign is OWRG and its Polish registration number is understood to be LEB72.

10. It is expected that most of the catch from international waters would be salmon of European origin. Information on catches by individual vessels has been obtained as a result of vessels calling at ports and following the boarding of the vessel 'Brodal' by Scottish Fisheries Protection Agency officials. When the vessel 'Minna' called at Torshavn harbour in February 1990 it had 5 tonnes of salmon on board but the Faroese authorities were advised that the intention was to catch 25 tonnes before returning to Poland. When the vessel 'Brodal' was boarded it had 30 tonnes of salmon on board and we have information on landings by this vessel at Polish ports, which indicates catches of 36 tonnes and 11 tonnes (see paragraph 8). The catch by the vessel 'Netanya' is believed to have been 150kg.

11. Estimates of the catch in international waters by reflagged vessels based on known catches by individual vessels and the number of sightings have been made by ICES over the last six years and the time series of information is as follows:

Year	Estimated catch (tonnes)
1989/90	180-350
1990/91	25-100
1991/92	25-100
1992/93	25-100
1993/94	25-100
1994/95	25-100

Establish Contacts with Other International Organizations with Interests in the Area

12. We have continued to develop our links with other international organizations - the Northwest Atlantic Fisheries Organization (NAFO); the North-East Atlantic Fisheries Commission (NEAFC) and the International Commission for the Conservation of Atlantic Tunas (ICCAT) - who also have concerns about the activities of vessels registered to non-Contracting Parties fishing within their Convention areas.

Secretary
Edinburgh
19 May 1995

ANNEX 20

COUNCIL

CNL(95)26

INTERNATIONAL COOPERATION ON SURVEILLANCE

CNL(95)26

INTERNATIONAL COOPERATION ON SURVEILLANCE

1. One of the recommendations arising from the Special Meeting on Fishing for Salmon in International Waters held in 1992 was that there should be increased cooperation on surveillance. In accordance with this recommendation, a meeting of coastguard and fisheries protection organizations from the North-East Atlantic area was held at NASCO Headquarters in March 1993 to examine the methods of surveillance available and the scope for improvements, where appropriate, through international cooperation. A number of recommendations were formulated concerning: a specific salmon fishing surveillance project; longer term cooperation; sources of information from the military and from ports; publicity and future communication of information. These recommendations were endorsed by the Council at its Tenth Annual Meeting.

2. Last year, a report (CNL(94)27) was presented to the Council containing proposals as to how these recommendations might be progressed. This report proposed that a cooperative surveillance project aimed specifically at assessing the scale of the problem be conducted on three occasions between November 1994 and May 1995 and that the results of this project and progress with the other recommendations be assessed at a second meeting of the coastguard authorities and NASCO in May 1995. In view of the importance of the surveillance information in assessing the scale of the problem and in support of our diplomatic initiatives the Council supported these proposals and urged the Parties to participate to the full extent possible in the surveillance project. There are large periods of the year when there is no airborne surveillance, particularly during the winter months, and in the past the only direct information we have received on salmon fishing in international waters has been as a result of the vessel concerned calling into port in a NASCO member Party because of mechanical problems or to refuel or take on supplies. This suggests that we may well have missed some of the activity and we will also need to consider how to improve surveillance in the longer term.

3. Following consultations with the relevant coastguard authorities, it became clear that because of other commitments, which were not anticipated, it had not been possible in all cases to contribute fully to the salmon surveillance project during 1994/95. It was therefore agreed that the second meeting of coastguard authorities should be delayed for one year to allow the necessary surveillance to be conducted and for other sources of surveillance information to be evaluated. For example, in September this year the Canadian Radar Sat satellite will be launched which will have a resolution of 9m and could therefore be a valuable source of information in future. In addition, a new optical satellite is expected to be launched in 1996 with a resolution of 1m. We will consult the Atlantic Centre for Remote Sensing of the Oceans in Canada and other relevant organizations with a view to assessing the value of these satellites for NASCO's purposes. During the next few months we will also consult with the coastguard authorities in the appropriate countries with a view to operating the salmon surveillance project during 1995/96. The results of this project and those from the 1994/95 project will then be reviewed at a second meeting of coastguard authorities and NASCO in May 1996 and a report will be presented to the Council at its Thirteenth Annual Meeting.

Secretary
Edinburgh
12 May 1995

ANNEX 21

COUNCIL

CNL(95)27

RESEARCH FISHING IN RELATION TO THE PROVISIONS OF ARTICLE 2 OF THE CONVENTION

CNL(95)27

RESEARCH FISHING IN RELATION TO THE PROVISIONS OF ARTICLE 2 OF THE CONVENTION

1. In March last year the Faroese Home Government advised the Organization that it proposed to extend the joint research programme in the Faroese zone into international waters. Some concerns were expressed and the Faroese authorities did not proceed. However, as a result of this proposal the issue of whether there should be exceptions to Article 2 of the Convention was raised at the Council's last Annual Meeting and it was agreed that the Secretary should be asked to prepare a report offering some options for dealing with this matter. The attention of the Council was drawn to the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean which might be of relevance. It was suggested that this issue might be resolved by interpretation of, rather than modification to, the NASCO Convention.

2. Article 2 of the Convention states that:

   1. Fishing of salmon is prohibited beyond areas of fisheries jurisdiction of coastal States.

   2. Within areas of fisheries jurisdiction of coastal States, fishing of salmon is prohibited beyond 12 nautical miles from the baselines from which the breadth of the territorial sea is measured, except in the following areas:

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

3. It is clear from Article 2 of the NASCO Convention that no provision has been made for research fishing. Research fishing is, however, permitted under a number of other Conventions such as the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean. Under this Convention the Parties are committed to cooperation in the conduct of scientific research for the purpose of conservation of anadromous stocks including research on other ecologically related species. The scope of the research includes collection, reporting and exchange of biostatistical information, fisheries data, biological samples and other relevant data. The Parties to the North Pacific Anadromous Fish Commission must submit details of scientific research programmes to the Commission sufficiently in advance of the conduct of such research to allow appropriate scientific review by all Parties. If all Parties that are States of Origin notify the Commission, within 30 days of their receipt of the programme from the Commission, that they regard the fishing to be in violation of the Convention the programme is not implemented pending a decision by the Commission. Furthermore the taking of anadromous fish for scientific purposes must be consistent with the needs of a scientific program and with the provisions of the Convention and catches from scientific research must be reported to the Commission within nine months.

4. The Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean has many similarities to the NASCO Convention in that it prohibits directed fishing for anadromous fish within the Convention area, i.e. waters of the North Pacific Ocean and its adjacent seas north of 33°N beyond 200 nautical miles. Other Conventions also include provisions concerning research fishing. For example the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea states that 'For any year in which the AHL (allowable harvest level) is zero, the Annual Conference may authorise trial fishing operations for pollock in the Convention Area to be conducted by the fishing vessels of the Parties in accordance with a research plan that is submitted by any Party concerned and is approved by the Annual Conference.... The terms and conditions for such operations shall be established by the Annual Conference'. A number of other Conventions, although not specifically referring to research fishing, include provisions for cooperation on research. For example, the Convention on Fishing and Conservation of the Living Resources in the Baltic Sea and the Belts states that it shall be the duty of the Commission 'to promote co-ordination, as appropriate, of scientific research and when desirable, of joint programmes of such research in the Convention area'. Similarly, the International Convention for the Conservation of Atlantic Tunas states that '... the Commission shall be responsible for the study of the populations of tuna and tuna-like fishes ... Such study shall include research on the abundance, biology and ecology of the fishes, the oceanography of their environment, and the effects of natural and human factors upon their abundance'.

5. Last year the question arose as to whether, if research fishing was to be permitted, a two-tier approach might be needed in view of the prohibitions beyond and within areas of fisheries jurisdiction. Option 2 and 3 below reflect this approach.

Option 1: Retain the present prohibition on fishing beyond areas of fisheries jurisdiction, and within areas of fisheries jurisdiction as defined in Article 2, paragraph 2 of the Convention, i.e. no change to the present arrangement.

Option 2: Retain the present prohibition on fishing beyond areas of fisheries jurisdiction but allow scientific research fishing for salmon by a Party within its area of fisheries jurisdiction, subject to the conditions detailed in Appendix 1.

Option 3: Option 2 plus a mechanism to allow international cooperation on scientific research fishing for salmon beyond areas of fisheries jurisdiction subject to the conditions detailed in Appendix 2.

6. In the event that the Council decides that it wishes to allow research fishing (i.e. favours Option 2 or 3) there are two mechanisms by which the change could be implemented.

Modification of the Convention

The Council could amend Article 2 of the Convention by indicating that with regard to fishing for Atlantic salmon for research purposes the provisions of paragraphs 1 and 2 shall not apply provided that such research fishing is undertaken in accordance with

the conditions laid down by the Council. Such an amendment would require a unanimous vote of the Council and, under Article 19 of the Convention, the Secretary would be required to transmit the text of the amendment to the Depositary which would then inform the Parties. The amendment would enter into force for all Parties 30 days after the date specified in the notification by the Depositary of receipt from all Parties of instruments of ratification or approval.

Interpretation of Article 2

There might be a unanimous decision of the Council or a Resolution concerning the interpretation of Article 2 in respect of research fishing by the Parties. This measure would be less formal than changing the Convention and would not require the Parties to ratify any change.

7. In conclusion, it is clear that there is, and has in the past been, interest by the Parties in research fishing for salmon both in international waters and within areas of fisheries jurisdiction beyond 12 nautical miles. Such research fishing might be considered a normal activity and could provide valuable management information but at present it would appear to contravene the provisions of Article 2 of the Convention. The Council may therefore take the view that it would wish to allow such fishing under carefully controlled conditions. Clearly, it would be undesirable to permit such fishing without careful consideration in view of the recent incidents of fishing in international waters involving vessels which had reflagged to non-Contracting Parties and in the light of the Council's initiatives in developing a Protocol extending the prohibition in Article 2 to other States. The Council's views are sought on how it wishes to resolve the issues raised here.

Secretary
Edinburgh
20 April 1995

Appendix 1

Cooperation between the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean on Research Fishing for Atlantic Salmon Within Areas of Fisheries Jurisdiction

1. Research fishing for salmon beyond 12 nautical miles and up to 200 nautical miles from the baselines from which the breadth of the territorial sea is measured is permitted provided that the Party concerned shall notify the Secretary before it commences such research fishing advising of the purpose of the research. The Secretary shall immediately advise the Parties of the receipt of this notification.

2. Research fishing for Atlantic salmon must be consistent with the objectives of the Convention. The results of this research fishing shall be made available to the Council of NASCO and to ICES as soon as practicable, including details of any catches.

3. Atlantic salmon caught during research fishing as defined in paragraph 1 will not count towards any allowance established by a regulatory measure agreed within NASCO and any Atlantic salmon caught shall not be sold.

Appendix 2

Cooperation between the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean on Research Fishing for Atlantic Salmon beyond areas of fisheries jurisdiction

1. Any Party or Parties wishing to undertake research fishing for Atlantic salmon beyond areas of fisheries jurisdiction shall submit a proposal to the Secretary no less than 30 days before it wishes to commence fishing.

2. The proposal shall include details of:

    1) the purpose of the research fishing
    2) the dates during which the research fishing will take place
    3) the area in which the research fishing will take place
    4) the name, registration, call sign and a description of any participating vessels
    5) the type and amount of gear to be used
    6) the weight of salmon to be retained

3. The Secretary shall immediately transmit copies of the proposal to all Parties. Any Party may object to the proposal by informing the Secretary within 30 days of the date of the Secretary's notification. In the event of an objection being received by the Secretary the research programme shall not be implemented pending a decision by the Council.

4. Any research fishing carried out beyond areas of fisheries jurisdiction must be consistent with the objectives of the Convention. The results of this research shall be made available to the Council of NASCO and to ICES as soon as practicable, including details of any catches.

5. Atlantic salmon caught by a Party or Parties during research fishing beyond areas of fisheries jurisdiction will not count towards any allowance under a regulatory measure agreed within NASCO.

6. Atlantic salmon caught during research fishing beyond areas of fisheries jurisdiction shall not be sold.

7. The Parties shall cooperate where appropriate in programmes involving research fishing for Atlantic salmon beyond areas of fisheries jurisdiction. Such cooperation could include participation by scientific observers.

ANNEX 22

COUNCIL

CNL(95)45

DRAFT RESOLUTION BY THE PARTIES TO THE CONVENTION FOR THE CONSERVATION OF SALMON IN THE NORTH ATLANTIC OCEAN CONCERNING SCIENTIFIC RESEARCH FISHING

CNL(95)45

DRAFT RESOLUTION BY THE PARTIES TO THE CONVENTION FOR THE CONSERVATION OF SALMON IN THE NORTH ATLANTIC OCEAN CONCERNING SCIENTIFIC RESEARCH FISHING

The Parties,

NOTING the provisions of the Convention for the Conservation of Salmon in the North Atlantic Ocean of 2 March 1982 (the "Convention") which seeks to promote the conservation, restoration, enhancement and rational management of salmon stocks;

NOTING that under Article 2 of the Convention fishing of salmon is prohibited beyond areas of fisheries jurisdiction and within areas of fisheries jurisdiction beyond 12 nautical miles except in the West Greenland Commission area (up to 40 nautical miles) and in the North-East Atlantic (within the area of fisheries jurisdiction of the Faroe Islands);

NOTING that under Article 4.1e of the Convention the Council can make recommendations to the Parties, the International Council for the Exploration of the Sea and other appropriate fisheries and scientific organizations concerning the undertaking of scientific research;

DESIRING to promote the acquisition, analysis and dissemination of scientific information pertaining to salmon stocks in the North Atlantic Ocean;

DESIRING to cooperate on scientific research fishing for Atlantic salmon that is consistent with the objectives of the Convention;

RECOGNISING the possible benefits to rational management of salmon stocks from scientific research fishing in the sea;

RESOLVE as follows:

ARTICLE 1

Scientific Research Fishing within Areas of Fisheries Jurisdiction where Salmon Fishing is Not Permitted

Scientific research fishing within areas of fisheries jurisdiction where salmon fishing is not permitted may be undertaken by the Parties subject to the conditions detailed in Annex 1 to this Resolution.

ARTICLE 2

Scientific Research Fishing in Areas outside Fisheries Jurisdiction or Scientific Research Fishing that Results in NASCO Quotas being exceeded

Scientific research fishing in areas outside fisheries jurisdiction or scientific research fishing that results in NASCO quotas being exceeded may be undertaken by the Parties subject to the conditions detailed in Annex 2 to this Resolution.

Annex 1

1. [Research fishing for salmon shall, according to Article 1 of this Resolution, be permitted provided that the Party concerned shall notify the Secretary before it commences such research fishing setting out the purpose of the research. The Secretary shall immediately advise the Parties of the receipt of this notification.]

OR

[Any Party or Parties wishing to undertake research fishing for Atlantic salmon according to Article 1 of this Resolution shall submit a proposal to the Secretary no less than 60 days before it wishes to commence fishing.

The proposal shall include details of:

a) the purpose of the research fishing
b) the dates during which the research fishing will take place
c) the area in which the research fishing will take place
d) the name, registration, call sign and a description of any participating vessels
e) the type and amount of gear to be used
f) the estimated total weight of salmon to be retained

The Secretary shall immediately transmit copies of the proposal to all Parties. Any Party may object to the proposal by informing the Secretary within 45 days of the date of the Secretary's notification. In the event of an objection being received by the Secretary the research programme shall not be implemented pending a decision by the Council, based upon a review of the scientific merits of such research.]

2. The results of this research fishing shall be made available to the Council of NASCO and to ICES as soon as practicable, including details of any catches.

3. Atlantic salmon caught during research fishing according to Article 1 of this Resolution shall not be used for commercial transactions.

Annex 2

1. Any Party or Parties wishing to undertake research fishing for Atlantic salmon according to Article 2 of this Resolution shall submit a proposal to the Secretary no less than 60 days before it wishes to commence fishing.

   The proposal shall include details of:

   a) the purpose of the research fishing
   b) the dates during which the research fishing will take place
   c) the area in which the research fishing will take place
   d) the name, registration, call sign and a description of any participating vessels
   e) the type and amount of gear to be used
   f) the estimated total weight of salmon to be retained

   The Secretary shall immediately transmit copies of the proposal to all Parties. Any Party may object to the proposal by informing the Secretary within 45 days of the date of the Secretary's notification. In the event of an objection being received by the Secretary the research programme shall not be implemented pending a decision by the Council, based upon a review of the scientific merits of such research.

2. The results of this research shall be made available to the Council of NASCO and to ICES as soon as practicable, including details of any catches.

3. Atlantic salmon caught during research fishing according to Article 2 of this Resolution shall not be used for commercial transactions.

COUNCIL

CNL(95)37

PROVISION OF INFORMATION UNDER ARTICLE 5 OF THE RESOLUTION BY THE PARTIES TO THE CONVENTION FOR THE CONSERVATION OF SALMON IN THE NORTH ATLANTIC OCEAN TO MINIMISE IMPACTS FROM SALMON AQUACULTURE ON THE WILD SALMON STOCKS

CNL(95)37

PROVISION OF INFORMATION UNDER ARTICLE 5 OF THE RESOLUTION BY THE PARTIES TO THE CONVENTION FOR THE CONSERVATION OF SALMON IN THE NORTH ATLANTIC OCEAN TO MINIMISE IMPACTS FROM SALMON AQUACULTURE ON THE WILD SALMON STOCKS

1. Last year the Council unanimously adopted a Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks. This Resolution includes measures to minimise the risk of genetic and other biological interactions (Article 2), measures to minimise the risk of transmission of diseases and parasites to the wild stocks of salmon (Article 3) and requires that each Party engaged in salmon aquaculture shall develop practices, including research and development as appropriate, which minimise effects on wild salmon stocks and improve the effectiveness of the measures contained in the Resolution (Article 4). Under Article 5 of the Resolution each Party shall provide to the Organization, on an annual basis, information of a scope to be determined by the Council, concerning the measures adopted under Articles 2 and 3 and the research and development carried out under Article 4. A draft format for the provision of this information is contained in Appendix 1 and the Council is asked to consider this as a basis for the annual return in accordance with the Resolution. If the Council agrees, this format could be distributed to the Parties together with the request for the annual returns in accordance with Articles 14 and 15 of the Convention.

2. The alternative to establishing a return in the format outlined here is to adopt a system where, each year, each Party is requested to present to the Council a review of any measures to minimise impacts from salmon aquaculture on the wild stocks.

Secretary
Edinburgh
25 May 1995

Appendix 1

PROVISION OF INFORMATION UNDER ARTICLE 5 OF THE RESOLUTION BY THE PARTIES TO THE CONVENTION FOR THE CONSERVATION OF SALMON IN THE NORTH ATLANTIC OCEAN TO MINIMISE IMPACTS FROM SALMON AQUACULTURE ON THE WILD SALMON STOCKS

1. Have any measures been taken to minimise genetic and other biological interactions? (If yes, please give details).

YES	NO

The scope of measures referred to in Article 2 of the Resolution is listed in Parts 1 and 2 of the Appendix to the Resolution.

2. Have any measures been taken to minimise the risk of transmission of diseases and parasites to the wild stocks of salmon? (If yes, please give details).

YES	NO

The scope of the measures referred to in Article 3 of the Resolution is listed in Parts 1 and 3 of the Appendix to the Resolution.

3. Has any research, small-scale testing and full-scale implementation been carried out in support of the Resolution? (If yes, please give details).

YES	NO

The scope of the research and development envisaged under the Resolution is listed in Part 4 of the Appendix to the Resolution.

ANNEX 24

COUNCIL

CNL(95)28

ADVANCES IN RELEVANT RESEARCH IN RELATION TO IMPACTS OF SALMON AQUACULTURE

CNL(95)28

ADVANCES IN RELEVANT RESEARCH IN RELATION TO IMPACTS OF SALMON AQUACULTURE

SUMMARY

1. The Resolution to Minimise Impacts from Salmon Aquaculture on the Wild Stocks which was adopted by NASCO last year in Oslo requires each Party engaged in salmon aquaculture to develop practices, including research and development as appropriate, which minimise effects on wild salmon stocks and improve the effectiveness of the measures contained in the Agreement. A number of areas for research, small-scale testing and full-scale implementation were identified. This paper summarises the progress which has been made in relevant research.

2. Salmon which have escaped from farms are known to occur in the wild and successful spawning, although with reduced breeding success compared to wild fish, has been demonstrated and genetic changes in wild salmon documented. Research aimed at assessing the implications for the fitness of the wild stocks is now being undertaken and the preliminary results suggest that wild and farmed fish differ in performance in the wild and that the superior growth that has been observed in farmed fish and farmed/wild hybrids does not necessarily equate to fitness in the wild. These preliminary results suggest that NASCO was right to adopt a cautious approach with regard to genetic impacts. Physical or biological containment, as advised by the scientific community, would offer protection to the wild stocks from adverse genetic impacts.

3. Research on the use of sterile salmon in aquaculture has shown that there are advantages but also some difficulties with the husbandry of these fish. Recent studies have shown that immature salmon which had escaped from fish farming entered a river in Canada despite being incapable of spawning but all-female triploid salmon would be both hormonally and functionally sterile and studies with Pacific salmon suggest that such fish may not enter freshwater. The use of sterile fish in aquaculture could therefore offer protection against genetic impacts but there are some concerns about the ecological effects of such fish in the wild. A research programme has recently commenced focusing on these aspects but the results will not be available for some years. In the meantime the risk of genetic damage to the wild stocks remains and the dilemma facing managers is whether the potential genetic threats to the wild stocks outweigh any ecological threats sterile salmon might pose.

4. Tagging or marking, particularly microtagging, of farmed fish might offer benefits to the industry and would allow the source of escapes to be traced to individual farms which could then be advised of appropriate measures to reduce escapes. It is expected that tagging of all farmed fish would result in costs of about 0.6-0.9% of the first sale value of the harvest but sampling programmes in the wild to recover the tags so as to provide managers with useful information could lead to significant costs since sampling would be needed over wide geographical areas.

5. Sea lice are a serious problem to fish farmers in some countries and there is concern about transfer to wild stocks. There is evidence of reduced sensitivity of sea lice to

the traditional chemotherapeutants and there is a considerable research effort to find alternative methods of combating the lice problem, including the development of a vaccine. Fish such as wrasse which feed on sea lice on farmed salmon are being used on a commercial scale in sea cages in order to reduce the need for chemical treatment and research on the husbandry of these species is being undertaken.

6. There have been no significant developments of which the Secretariat is aware on the other area of research and development identified in the NASCO Resolution but progress will be monitored and reported to the Council. In this regard the proposal to establish a Liaison Group with industry representatives (see paper CNL(95)29) should facilitate monitoring of developments in future.

CNL(95)28

ADVANCES IN RELEVANT RESEARCH IN RELATION TO IMPACTS OF SALMON AQUACULTURE

Introduction

1. Last year the Council unanimously adopted a NASCO Resolution to Minimise Impacts from Salmon Aquaculture on the Wild Stocks. This NASCO Resolution included a number of recommendations on measures to minimise the risk of genetic and other biological interactions (Article 2) and the risk of transmission of diseases and parasites to the wild stocks (Article 3). It also required each Party engaged in salmon aquaculture to develop practices, including research and development as appropriate, which minimise effects on wild salmon stocks and improve the effectiveness of the measures contained in the Agreement (Article 4). Part 4 of the Annex to the NASCO Resolution identifies a number of areas for research, small-scale testing and full-scale implementation and relevant research which has been conducted on a number of these topics is summarised.

Background

2. Salmon aquaculture is dominated by the production of farmed salmon. After a period of relatively stable production in the period 1990-1992 there was renewed growth in 1993 and production rose again in 1994 to more than 326,000 tonnes or 85 times the harvest of wild salmon (Anon, 1995a). There are forecasts of a further substantial rise in 1995 with Norwegian production alone anticipated to be between 260,000-350,000 tonnes (Anon, 1995b). Production of ranched salmon has also increased significantly since the late 1980's but with the exception of ranching in Iceland it is not on a commercial scale. In 1994, production in Iceland was 308 tonnes, a reduction of 211 tonnes compared to 1993. Elsewhere, in Ireland, Northern Ireland and Norway production from ranching was less than 11 tonnes (Anon, 1995a).

3. Information provided by the ICES Working Group on North Atlantic Salmon (Anon, 1995a) shows that in the North-East Atlantic area fish farm escapes are observed at variable levels in fisheries in a number of countries. Studies carried out at a number of coastal netting stations in Scotland during June-August 1993 indicated that between 2-37% of catches were of escaped farmed salmon with highest levels occurring at fishing stations within the area of coast used by the cage rearing industry (Webb, 1995). There has been a reduction in the frequency of escapes in Norwegian coastal waters attributable to improved cage design, better farm management practices and increased enforcement of regulations. In 1991 approximately 2 million salmon escaped from Norwegian farms but this figure was reduced to 455,000 in 1993 and 570,000 in 1994 (see CNL(95)24). However in 1994 farmed fish still accounted for 34%, 19% and 21% of the Norwegian catches on the coast, in fjords and by rod and line (August - November) respectively. Sampling at Faroes showed that 17% of fish examined in 1993/94 were of farmed origin. This is a reduction from 27% in 1992/93, 37% in 1991/92 and 42% in 1990/91. In the North American Commission area the occurrence of fish farm escapees is highest in the Bay of Fundy area where the majority of the aquaculture industry is located. It is estimated that 20,000-40,000 salmon may have escaped from cages in this area in both 1993 and 1994 but escaped farmed fish at nearby river counting facilities increased significantly in 1994. In 1994,

54% and 90% of the returns to the St Croix and Magaguadavic rivers respectively were estimated to be of aquaculture origin. In addition, escaped farmed fish were observed in the Dennys River (89% of the trap catch and 97% of the rod catch), the Pennamaquan River (numerous adults and juveniles in the lower portion of the river) and the Narraguagus River (1.9% of trap catch). It is clear then that, despite measures taken by the industry, escaped farmed salmon are still present in considerable numbers in the wild.

4. A cooperative research programme involving the Atlantic Salmon Federation, the Department of Fisheries and Oceans of Canada, and the Magaguadavic Watershed Management Association is being conducted on the spawning interactions between wild and aquaculture salmon in the Magaguadavic river in New Brunswick. This study has shown that in the fall of 1994 escaped farmed fish outnumbered the wild population by 3 to 1. The farm origin fish were healthy and were immature so they would not spawn with wild fish at that time. Acoustic tags have been applied to a number of these fish in order to find out if they feed, if they spend the winter in freshwater and to what extent they interact with spawning wild fish. Studies of carotenoid pigments in eggs from redd sampling indicated that up to 53% of the redds contained eggs from aquaculture origin fish (Jonathan Carr, personal communication). These results confirm earlier studies which demonstrated successful spawning by farmed fish.

Research and Development

Sterile Fish

5. The Working Group on Impacts of Aquaculture recommended that the use of sterile fish should be investigated as a matter of urgency as it may offer new opportunities to eliminate genetic interactions. The only technique presently available for use on a commercial scale is the production of all-female triploid salmon. All-female triploid salmon have in the past been used in salmon farming and all-female, and to a lesser extent all-female triploid, fish are used in trout farming, for example in rainbow trout farming in the UK and in Newfoundland. Another technique with potential in commercial aquaculture is the immune control of maturation by a vaccine which would generate a reaction to the hormones controlling maturation and render the fish sterile. However, one company which was conducting the research with a view to developing this product has been reorganised and is no longer working on fish vaccines. Research on the Magaguadavic River in New Brunswick has shown that immature Atlantic salmon which had escaped from farms had entered freshwater despite being incapable of spawning. All-female triploid salmon would be hormonally as well as functionally sterile and there is evidence from studies with Pacific salmon to suggest that in the absence of maturation sterile fish may not enter freshwater. While this would offer protection to the wild stocks from genetic interactions the NASCO Resolution states that further research is needed on production characteristics, disease susceptibility and the marketing aspects of sterile salmon and on the ecological implications of escaped sterile salmon. If sterile salmon did enter freshwater they could have a genetic effect by reducing the size of the effective breeding population.

6. Research on the production of sterile salmon is being conducted in a number of North Atlantic countries. For example, research on the sterilization of salmonids for use in aquaculture has been conducted in Canada for over a decade. Three separate groups

are involved in research on sterile salmon and one group (the Atlantic Salmon Federation, University of New Brunswick and New Brunswick Salmon Growers Association) has reared triploid salmon through to harvest at market size. These results, although on a pilot scale, have indicated that triploid survival during the freshwater phase is good (but variable for different year classes) but reduced in seawater. The appearance of market-sized triploids has been excellent except that approximately 5% of the fish had lower jaw deformities (Benfey and Friars, 1994). Research is presently being undertaken to assess the ability of triploid salmon to withstand stress, temperature extremes and competition; their resistance to disease and their nutritional requirements.

7. Research carried out at the Salmon Research Agency of Ireland, and reported in recent Annual Reports, indicates that juvenile triploid salmon did not grow quite as well in freshwater as diploids. However the researchers believed that the economic benefits from elimination of maturation and prolonged growth at sea is far greater than the disadvantage of higher egg cost, slightly lower growth and slightly higher mortality at first feeding. Some triploid losses occurred due to spinal problems but triploid fish did not suffer from "pale gill" syndrome which caused significant losses in some diploid stocks. Growth and survival of triploid stocks in the sea was good with minimal losses until the time of harvest.

8. A joint programme involving research workers from the Institute of Marine Research, Bergen, Norway; University College, Galway, Ireland; St Andrews University, Scotland and the SOAFD Marine Laboratory, Aberdeen, Scotland commenced in October 1994. This programme, funded by the Commission of the European Union, aims to better understand the value of triploid Atlantic salmon in reducing the interaction between wild and farmed stocks; to improve knowledge of the biology of the triploid condition (comparative circulatory and exercise physiology and disease physiology of triploids and diploids); and to further characterise the performance of triploids in culture. These ongoing projects will certainly provide a better understanding of the behaviour and ecological interactions of sterile fish in the wild but the results will not be available for some years. In the meantime the risk of genetic damage to the wild stocks from fish reared in aquaculture remains.

9. It is anticipated that by the year 2025 the growing world population will require an increase in production of wild and reared aquatic organisms from 100 to 165 million tonnes. In order to meet this demand it is likely that aquaculture will turn increasingly to biotechnology (Donaldson, 1994). In the early 1980s a revolutionary technique was developed to introduce isolated genes into living animals and this technique has been used to produce transgenic animals in various species (Ozato, 1989). There is now considerable interest worldwide in applying genetic engineering to aquaculture (Hindar, 1993) and genes that have been transferred include those coding for growth hormone and antifreeze protein (Kapucinski and Hallerman, 1990). For example, Devlin et al (1994) developed a gene construct derived from sockeye salmon which was used to produce transgenic coho salmon which on average were more than 11 times heavier than non-transgenic controls, but one individual was 37 times heavier. Because the performance and ecological impacts of transgenic organisms in the natural environment are unknown (Kapucinski and Hallerman, 1990) effective physical and biological containment of transgenic fish will be necessary to protect wild populations (Devlin and Donaldson, 1992). Hindar (1993) concluded that the use of transgenic fish in aquaculture would only be compatible with internationally

established goals for genetic conservation if they were rendered sterile. There is also a possibility that "suicide genes" which would express themselves following escape could be developed but these would need careful evaluation to ensure that they couldn't be transferred to wild fish.

10. Research on the production and performance of sterile salmon has been and continues to be conducted in a number of countries. Given that the industry is currently based on cage rearing in the marine environment and that escape from such units is inevitable, protection of the wild stocks from genetic interactions would be facilitated by biological containment of escaped fish. Concern about the impact of Atlantic salmon reared in aquaculture on native Pacific salmon stocks has resulted in the Provincial Government in British Columbia introducing a requirement that from 1998 only all-female Atlantic salmon stocks may be reared. The need for containment of fish reared in aquaculture will become even more important if transgenic fish are used. While there have been some problems with the husbandry of triploid salmon (e.g. in commercial rearing in Scotland cataract formation was a problem) the research reported above indicates that there are also some advantages. Concerns about sterile "super fish" growing to a large size and feeding voraciously in coastal waters have not been substantiated by the research which has been conducted on Pacific salmon, but experiments are now being carried out to improve our understanding of the behaviour of triploid Atlantic salmon in the wild. If the salmon farming industry is eventually obliged to farm sterile fish the NASCO Working Group on Impacts of Aquaculture recognised that the industry in any one North Atlantic country should not be disadvantaged in its competitive status. Any regulation requiring the use of sterile fish that led to a more expensive product should be introduced throughout NASCO countries and under such conditions the industry might find it acceptable. There are other countries producing farmed salmon outside the North Atlantic and which are not members of NASCO, e.g. Tasmania and Chile. Consultations have indicated that if there was adverse reaction to farmed salmon because of public concern about damage caused to the wild stocks, the Chilean industry would also suffer as the consumer would not differentiate between the origin of the farmed fish purchased. They might therefore be willing to consider parallel actions.

Genetics

11. In 1989 NASCO held a joint meeting with ICES on the genetic threats to wild stocks from salmon aquaculture. At this meeting a number of views was expressed about the impacts of farmed fish on the wild stocks, ranging from no impact (or even benefits) to serious impacts. The only evidence presented, however, suggested that adverse effects were possible but there was general agreement on the need for further experimentation to assess the genetic impacts. This view was supported by the International Symposium on Interactions between Cultured and Wild Atlantic Salmon held in 1990 in Loen, Norway, which recommended that deliberate experimental releases of genetically distinguishable cultured fish into a river with a native salmon stock should be undertaken since this may provide the most effective means of defining the extent of genetic and ecological interactions between these fish of genetically different background. It is now known that escaped farmed fish occur on the marine feedings grounds in coastal fisheries and in rivers where they have been demonstrated to spawn although with reduced breeding success compared to wild fish. Spawning between farmed and wild salmon has been observed and genetic changes in the wild salmon following spawning by fish farm escapees have been detected

(Crozier, 1993). The question which, as yet, remains unanswered is whether or not genetic changes in the wild stocks will affect the fitness of these populations.

12. Research aimed at assessing the impact of reared salmon on wild stocks is being conducted with funding from the Commission of the European Union and involves research workers from Ireland, Northern Ireland, Scotland and Spain. The objectives of this study are: to determine whether genetic changes have occurred in wild populations as a result of escaped farm salmon and stocking; to determine whether genetic differences among cultured and wild stocks affect their biological performance in the wild and to determine whether the distribution of different classes of genetic variation within and between populations provides evidence of adaptive population differentiation.

13. Plantings of pure wild; pure farm; wild male x farm female; and farm male x wild female eyed ova have been made in the Burrishoole system in Ireland to enable the fitness of the different groups to be examined in a simulated escape situation. Results to date indicate significant differences among the groups in growth rate in the first year with the pure farm group having the highest growth rate which is not unexpected given selection used in farm stocks. The study has also revealed significant differences in the number of 0+ parr in the different groups with greater than expected numbers of the farm male x wild female group and fewer than expected from the pure wild group. However, it is not yet known if this is due to differences in survival or different rates of emigration. Studies being carried out as part of the project in Galicia, Spain are examining the performance of native and foreign salmon populations stocked side by side. The combined results from these experiments to date indicate that foreign juveniles were growing twice as fast and surviving 20% as well as the native salmon stock with the large hybrids being particularly vulnerable to predation while the small native juveniles were least vulnerable.

14. The project is at an early stage but initial results suggest that farmed and wild stocks differ in performance in the wild and that superior growth does not necessarily equate with fitness in the wild. The argument which has been put forward that hybrid vigour (high growth rate), as a result of spawning between farmed and wild salmon, might be good for the wild stocks does not appear to be supported by the results to date. These results suggest that NASCO was right to adopt a cautious approach and to act on the basis of the available scientific advice since preliminary results suggest that the genetic interaction may have adverse effects on the wild stocks. Containment of farmed stocks, either through physical or biological means, as the scientists have already advised, would offer protection to the wild stocks against adverse genetic impacts.

Tagging/Marking

15. The NASCO Resolution states that tagging or marking could be used in order to facilitate the identification of farmed salmon in the wild and their separation from wild fish, to determine the sources of escapes and to assess the interactions of escaped farmed salmon with the wild stocks; the statistical significance of proposed tagging or marking studies should be assessed prior to implementation; and the economic viability of tagging or marking large numbers of salmon produced in aquaculture should be evaluated. When this question was discussed by the Working Group on Impacts of Aquaculture industry representatives indicated that if the cost of such a

programme was reasonable then it may be acceptable to industry and the increasing use of vaccines by the farming industry might facilitate microtagging. It was stated that there may even be benefits to the industry in terms of allowing identification of stolen fish and control of numbers should quotas be introduced by producer organizations in future.

16. Production of farmed salmon in the North Atlantic area in 1994 was more than 326,000 tonnes. While precise figures on the number of smolts stocked into marine cages are not available it is likely that this would be of the order of 100-150 million smolts. With these numbers of fish to tag it is essential that the tags are cheap and can be applied quickly. The Working Group on Impacts of Aquaculture concluded that coded wire tags (CWTs) offer advantages since they would allow the source of escapes to be traced to individual farms which could then be advised of appropriate technical measures to reduce escapes. CWTs can be applied quickly (in excess of 800 per hour), there are many thousands of unique codes available and they are cheap.

17. If the industry is to benefit from production control as a result of tagging 100% of the stock would probably need to be tagged and from the point of view of sampling farmed fish in the wild, tagging of all farmed fish would offer advantages. Estimates based on tagging of 100 million fish suggest that the hardware cost (tagging and quality control equipment) would be about 6 cents (US) per smolt and using present methods the cost of applying the tag would be about 2 cents (US) although this might be reduced in future if an automated tagging system is developed. It has been estimated that the total cost of this tagging would be about 0.6-0.9% of the first sale value of the harvest. However, perhaps the greatest concern about tagging farmed fish is not about sampling strategies or even the logistics of tagging such large numbers of fish, but how information that would be useful to managers can be recovered from the wild. At present there is limited sampling for microtags concentrated around particular fisheries but the salmon farming industry covers a wide geographical area. In order to identify those farms with a problem of escapes extensive screening of catches would be required over wide geographical areas and these recovery programmes are likely to lead to significant costs.

Diseases and Parasites

18. The NASCO Resolution recognizes that transmission of diseases and parasites from salmon reared in aquaculture to the wild stocks is an area of considerable concern. Research on methods to prevent and control disease and parasite outbreaks in aquaculture should be encouraged. The Working Group on Impacts of Aquaculture recognised that the farming industry has moved towards lower stocking densities in order to reduce diseases and parasite problems and techniques such as fallowing and single bay management also offer benefits in terms of fish health. Much progress has also been made in the development of vaccines for the prevention of diseases such as furunculosis, vibriosis and hitra disease (Anon, 1995d).

19. In recent years particular concern has been expressed about the possible effects of sea lice on wild salmonids (Costello, 1993, Jakobsen, 1993) since the populations of this parasite may have increased due to salmon farming (Wootten et al, 1992) and because the parasite can be a vector for diseases such as infectious salmon anaemia (Nylund et al, 1994). Salmon lice are recognised as one of the major loss factors in salmon farming and in the Norwegian industry alone the losses are estimated to be in the

region of £50-60 million a year (Boxaspen, 1994). Sea lice are also a major problem in other salmon farming countries such as Ireland, Scotland and the Faroe Islands and although there has been progress in management practices for controlling the infestations there is an urgent need for improvements in control methods and development of alternative treatments (Anon, 1994a).

20. Studies in Ireland in relation to the sea trout stock collapse in the mid-western region showed that both sea trout smolts and kelts returned prematurely to freshwater and many of these fish were severely infested with juvenile lice which had caused severe skin and flesh damage (Tully and Whelan, 1992). The Irish Sea Trout Task Force established by the Minister of the Marine concluded that research points to infestation by sea lice in the vicinity of sea farms as the factor most closely associated with the marked incidence of adverse pressure on sea trout stocks in recent years (Anon, 1994b). A recent report into the decline of wild sea trout and salmon in the West Highlands of Scotland concluded that while there was circumstantial evidence that sea lice had been implicated, and a widespread perception that this was the case, there was a lack of conclusive proof that heavy infestation by sea lice from salmon farming had been the principal cause of the decline (Anon, 1995c). Research on salmon lice/wild salmonid interactions is being carried out by researchers at the University of Bergen in collaboration with the Directorate for Nature Management. In one study, prevalence of lice on sea trout post-smolts in rivers close to (exposed) and distant from salmon farms (control rivers) was investigated. The results showed that many lice-infested fish returned prematurely to rivers close to salmon farms while few were found in control rivers. The prevalence of lice ranged from 47-94% in exposed rivers and 0-50% in control rivers. Median lice infestation was higher on fish from exposed rivers (142.5 lice) than on fish from control rivers (3 lice) (Birkeland, personal communication). In another experiment, lice-infested (exposed) and uninfested (control) sea trout post-smolts were released simultaneously to the sea. The exposed fish were found to return to the estuarine area earlier than control fish and within 2 days migrated further into freshwater at which stage they were infested with a median of 57.5 lice (mainly chalimus larvae and pre-adults) (Birkeland, personal communication). Experimental studies with Atlantic salmon smolts have shown that even at high infection intensities (30-250 lice per fish) early chalimus stages of the lice did not have a severe physiological impact. However, there was a sudden increase in mortality after the appearance of the first pre-adult stage. The results imply that infection intensities above 30 salmon lice larvae per fish cause death of Atlantic salmon post-smolts soon after the lice reach the pre-adult stage (Grimnes, personal communication).

21. It is clearly of great importance to both the salmon farming and wild fish interests that an effective treatment against sea lice is available for use in salmon farms and the industry has invested considerably in relevant research programmes. To date the principal treatment of sea lice on salmon farms has been the organophosphorous pesticide dichlorvos (Roth et al, 1993) but there is evidence that sea lice are showing reduced sensitivity to this treatment (Sommerville, 1995). A wide range of compounds is being tested under field evaluation including hydrogen peroxide, azimethipos, invermectin, pyrethrum, formalin and natural remedies such as onions and garlic (Roth et al, 1993). There have been some encouraging results. For example, studies in Norway have shown that both pyrethrins and dichlorvos gave adequate delousing but the ongrowth of lice was more rapid in some of the dichlorvos groups (Boxaspen, 1994). Research is presently being undertaken to develop a

vaccine for the control of sea lice but since salmon infected with sea lice are not known to develop immunity to subsequent sea lice infection, development of a vaccine depends on the identification of a "hidden antigen" and the first few potentially protective antigens are currently being tested (Raynard et al, 1994). Another treatment which is receiving considerable attention is the use of cleaner fish such as wrasse, which have been found to reduce sea lice to non-pathogenic levels on salmon farms in Norway, Scotland and Ireland. As with all lice control methods the use of wrasse has limitations but it can be used to reduce the use of chemotherapeutants and further research is being undertaken in a number of countries in attempts to overcome some of the present limitations (Costello, 1994). Commercial experience to date indicates that careful attention is needed to net mesh size and net maintenance, stocking density of wrasse, early introduction of wrasse and provision of refuges for the wrasse (Young, 1994). Fallowing is becoming more common and offers disease control benefits. For example, Bron et al (1993) found that fallowing led to low numbers of sea lice on newly introduced fish for several months after stocking with less need for chemotherapy compared to unfallowed sites where fish became infected very rapidly and needed treatment within two months.

Other Research and Development

22. The NASCO Resolution also identified for research, small-scale testing and full-scale implementation: alternative production methods (land-based, closed or contained floating facilities, water recirculation and other containment technologies); wild salmon protection areas; use of local broodstocks and aquaculture regions (where all steps in the production process are carried out and which are separated from similar regions by areas without aquaculture). The Working Group on Impacts of Aquaculture recognised that salmon farming is predominantly conducted in cage units and that under the present conditions it would be uneconomical for the industry to transfer to on-growing in land-based units. The Group also recognised that a requirement to use local broodstocks might create serious economic and husbandry problems and that efforts should therefore focus on containment measures, both biological (sterile fish) and physical (minimising escapes). With regard to physical containment there have been some improvements but farmed fish still make a significant contribution to catches and stocks in a number of countries (see paragraph 3). Submersible net cages have been used on an experimental basis in Norway and there is interest in this technique for overwintering wrasse for use in controlling sea lice numbers on salmon (Bjelland et al, 1994). The technique is not, however, used on a commercial scale. Zones for the protection of wild salmon, where aquaculture is restricted or prohibited, have been established in a number of countries. The Secretariat is not aware of any significant developments on any of these issues since last year's meeting but the Liaison Group proposed with the aquaculture industry (see paper CNL(95)29) should assist in monitoring developments in these areas in future.

Secretary
Edinburgh
8 June 1995

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COUNCIL

CNL(95)32

GUIDELINES ON CATCH AND RELEASE

CNL(95)32

GUIDELINES ON CATCH AND RELEASE

1. At its last annual meeting the Council considered a review of catch and release fishing. The practice is common in North America and in response to concern about declining stock levels, or components of these stocks, there is increasing interest in catch and release in a number of North-East Atlantic countries. To be of value as a management tool, salmon which have been caught and released must survive without a substantial reduction in fitness. Canadian studies have shown that catch and release had minimal impact on the survival of salmon caught late in the season or on their subsequent reproduction. This research also showed that the likelihood of delayed mortality in multi-sea-winter salmon as a result of late season angling was no greater, and possibly less, than in grilse. Last year's review concluded that the effects of catch and release on early running fish required further evaluation. There is also a need for studies on the survival of fish following repeated capture and on behavioural aspects such as whether or not catch and release affects the salmon's ability to construct and defend redds. The need for fisheries managers to emphasise proper handling of fish intended for release has been stressed (Ferguson and Tufts, 1992) and the Council agreed that it would be useful to develop guidelines on techniques for handling and releasing fish for use as appropriate in the North Atlantic area.

2. Since last year, interest in catch and release fishing in the North-East Atlantic area has continued to develop. For example, in a recent report by the UK Government's Salmon Advisory Committee entitled 'Run Timing in Salmon' (Anon, 1994a) it is stated that 'there is no doubt that carefully handled, undamaged fish can be released after capture by rod and line and may survive to spawn'. The Committee recommended that further research be conducted to evaluate catch and release as a technique for the protection of spring (early running multi-sea-winter) salmon although the Committee did not wish to discourage catch and release as a voluntary restraint. In a recent Policy Statement concerning spring fish (Anon, 1994b), the Atlantic Salmon Trust recommends that anglers should exercise restraint over the exploitation of spring fish and should consider a catch and release policy.

3. Catch and release, already widely practised in North America, is becoming more commonly practised in the North-East Atlantic area in response to concern about stock levels. In order to encourage anglers to return fish to the river after capture, salmon swapping schemes have been introduced in some countries. For example, on the Hampshire Avon, a scheme run by Wessex Salmon Association and the supermarket chain Tesco offers to replace live salmon spawners with a farmed fish (Anon, 1995). Such schemes have also been introduced by owners of salmon fishing in Newfoundland.

4. Guidelines on catch and release have been developed by a number of national and international organizations including the Atlantic Salmon Federation and the Scottish Anglers National Association. A Game Angling Code which includes information on catch and release fishing has also been produced by a number of UK organizations including the Atlantic Salmon Trust, the Scottish Anglers National Association, the Association of Scottish District Salmon Fishery Boards, the Ulster Angling Federation and the Salmon and Trout Association, all of which have NGO status to NASCO.

The attached draft guidelines (Appendix 1) have been developed after reviewing the provisions of these existing documents and other literature. So that there might be some uniformity of approach to this conservation measure, there may be benefits to having an internationally agreed structure which can be amended as appropriate for national use. The Council is asked to consider and adopt these guidelines which would then be available for use by the Parties on a voluntary basis.

Secretary
Edinburgh
23 May 1995

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DRAFT GUIDELINES ON CATCH AND RELEASE

1. Introduction

Catch and release fishing originated in North America in the 1950's when anglers were urged to exercise restraint by releasing trout after capture. Slogans such as 'limit your catch, rather than catch your limit' developed and catch and release fishing grew substantially in popularity both as a fishery management tool and the personal philosophy of anglers. Outside North America there is growing interest in catch and release salmon angling in a number of countries in response to concern about stock levels.

To be of value as a conservation measure Atlantic salmon which may have been caught by anglers, handled and then released must survive without a substantial reduction in fitness. While further studies are needed to assess the effects of catch and release, particularly on salmon caught early in the season, the research to date indicates that the survival following catch and release is high. Fish which have been carefully played and gently handled will have the best chance of surviving. If you intend to return salmon to the water after capture the following guidelines should assist you in your efforts to conserve the Atlantic salmon. In many countries, kelts and species other than salmon caught while salmon angling are released and use of these guidelines should improve the chance of survival of these fish following release.

2. Type of Gear

NASCO

Artificial flies should be used since fish caught by this means are less likely to suffer serious damage than fish caught using baited hooks or lures.

NASCO

Barbless single or double hooks should be used since they are easier to remove and reduce handling time which can be an important factor influencing survival.

NASCO

Gaffs and tailers should not be used if the fish are intended for release but a large landing net with knotless mesh should be used if necessary.

NASCO

The fishing gear used should enable the fish to be brought in quickly and should take account of the prevailing conditions and the possible size of fish that might be caught.

3. Bringing the Fish In

If a fish is caught it should be brought in quickly by keeping pressure on it until it can be guided into quiet water for handling and release. Alternatively the fish could be broken off after a couple of runs if it is showing no signs of tiring.

4. Handling the Fish

Fish intended for release should, wherever possible, be kept in the water. The weight of the fish can be estimated from its length so as to avoid removing the fish from the water. The table below gives approximate conversion values.

If the fish must be removed from the water use a landing net or support the fish from beneath and expose the fish to air for the shortest time possible. Fish should not be placed on dry or abrasive surfaces and should not be dragged across the ground prior to handling.

Handling of the fish should be minimised but when necessary the fish should be gently supported from beneath with wetted hands but should not be squeezed or held by the gills.

If the hook cannot be removed, the leader should be cut close to the hook prior to release.

After removing the hook, or cutting the leader if the hook could not be removed, the fish should be supported in the water facing into the current and allowed to recover until it swims off.

Fish which have suffered serious damage (hooked in the gills or eyes) should be retained in preference to lightly hooked fish unless this contravenes local or national regulations which prohibit such retention.

If the fish is to be photographed this should be done while supporting it in the water.

The North Atlantic Salmon Conservation Organization (NASCO) is an inter-governmental Commission established in 1984 to conserve, restore, enhance and rationally manage salmon stocks in the North Atlantic Ocean. The member Parties are Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Iceland, Norway, the Russian Federation and the United States of America. Further details about the Organization and copies of these guidelines can be obtained from:

NASCO
11 Rutland Square
Edinburgh EH1 2AS
Scotland

Tel: Int (44) 131 228 2551
Fax: Int (44) 131 228 4384

Length in centimetres	Approximate weight in kilograms	Length in centimetres	Approximate weight in kilograms	Length in centimetres	Approximate weight in kilograms
47	1.16				
48	1.23				
49	1.31				
50	1.39	70	3.77	90	7.95
51	1.48	71	3.94	91	8.21
52	1.56	72	4.10	92	8.48
53	1.65	73	4.27	93	8.76
54	1.75	74	4.45	94	9.04
55	1.85	75	4.63	95	9.33
56	1.95	76	4.82	96	9.62
57	2.05	77	5.01	97	9.92
58	2.16	78	5.20	98	10.23
59	2.27	79	5.40	99	10.54
60	2.39	80	5.61	100	10.86
61	2.51	81	5.82	101	11.19
62	2.63	82	6.03	102	11.52
63	2.76	83	6.25	103	11.86
64	2.89	84	6.48	104	12.20
65	3.03	85	6.71	105	12.55
66	3.17	86	6.95	106	12.91
67	3.31	87	7.19	107	13.27
68	3.46	88	7.44	108	13.64
69	3.62	89	7.69	109	14.02
				110	14.41

This table is based on measurements of salmon taken by SOAFD during catch sampling programmes undertaken at salmon fisheries throughout Scotland in 1964-1994. If you have measured your fish in inches, multiply by 2.54 to get the length in centimetres. The approximate weight in pounds can be calculated by multiplying the weight in kilograms by 0.45.

COUNCIL

CNL(95)47

PRESS RELEASE

Inter-governmental meetings on the conservation, restoration, enhancement and rational management of the Atlantic salmon took place during the Twelfth Annual Meeting of the North Atlantic Salmon Conservation Organization (NASCO) which was held in Glasgow during 12-16 June. The Convention which established this Organization has as its Parties Canada, Denmark (in respect of the Faroe Islands and Greenland), the European Union, Finland, Iceland, Norway, the Russian Federation, Sweden and the United States of America. NASCO comprises a Council and three Commissions (North American Commission, North-East Atlantic Commission and West Greenland Commission).

NASCO's regional Commissions establish regulatory measures for salmon fisheries. In the West Greenland Commission, as part of a five-year agreement made in 1993, a quota of 77 tonnes was established for the 1995 fishery with a recommendation of a research survey in 1995. The North-East Atlantic Commission established a quota of 470 tonnes for the Faroese fishery in 1996. The North-East Atlantic Commission also agreed in principle on new recommendations to protect salmon stocks from introductions and transfers which pose ecological and genetic threats and can lead to the spreading of diseases and parasites to the wild stocks. The North American Commission reviewed the 1994 fisheries and the salmon management measures for 1995.

The Council took a forward look at the future issues which it might work on over the next decade. The Council also agreed on a number of other areas of cooperation, for example, to develop advice on catch and release fishing and on stocking. Conditions under which research fishing by the Parties might be undertaken were also decided and the Council agreed to continue to act to prevent fishing for salmon in international waters by vessels which have been registered so as to avoid the provisions of the NASCO Convention. The Council agreed that at its Thirteenth Annual Meeting it would hold a Special Session entitled "Atlantic Salmon as Predator and Prey".

Last year, because of growing concern about the potential threats posed by salmon aquaculture, the Council of NASCO adopted a Resolution containing principles and practical measures to minimise the risks of adverse impacts on the wild salmon stocks. At this year's Annual Meeting steps to implement this Resolution were discussed and it was agreed that a Liaison Group should be established with the salmon farming industry to provide a forum for consideration of issues of mutual interest.

The Thirteenth Annual Meeting of the Organization will be held in Gothenburg, Sweden during 10-14 June 1996.

ANNEX 27

LIST OF COUNCIL PAPERS

CNL(95)0	List of Council Papers
CNL(95)1	Provisional Agenda
CNL(95)2	Draft Agenda
CNL(95)3	Explanatory Memorandum on the Draft Agenda
CNL(95)4	Proposed Schedule of Meetings
CNL(95)5	Secretary's Report
CNL(95)6	Audited Accounts for 1994
CNL(95)7	Contributions by the Parties
CNL(95)8	Budget Commentary
CNL(95)9	Report of the Finance and Administration Committee
CNL(95)10	Report on the Activities of the North Atlantic Salmon Conservation Organization in 1994
CNL(95)11	Ten Year Review of the Activities of the Organization
CNL(95)12	Review of the Provisions of Article 13 of the Convention
CNL(95)13	The Future Issues for NASCO
CNL(95)14	Report of the ICES Working Group on North Atlantic Salmon
CNL(95)15	Report of the ICES Advisory Committee on Fishery Management
CNL(95)16	Draft Request for Scientific Advice from ICES
CNL(95)17	Catch Statistic Returns by the Parties
CNL(95)18	Historical Catch Record 1960-1994
CNL(95)19	Summary of Microtag, Finclip and External Tag Releases in 1994
CNL(95)20	NASCO Tag Return Incentive Scheme
CNL(95)21	Database of Salmon Rivers Flowing into the NASCO Convention Area
CNL(95)22	Review of Salmon Related Literature

CNL(95)23	Report on Laws, Regulations and Programmes
CNL(95)24	Returns Under Articles 14 and 15 of the Convention
CNL(95)25	Fishing for Salmon in International Waters
CNL(95)26	International Cooperation on Surveillance
CNL(95)27	Research Fishing in Relation to the Provisions of Article 2 of the Convention
CNL(95)28	Advances in Relevant Research in Relation to Impacts of Salmon Aquaculture
CNL(95)29	Cooperation with the Salmon Farming Industry
CNL(95)30	Long Term Trends in Abundance
CNL(95)31	Predators and Prey
CNL(95)32	Guidelines on Catch and Release
CNL(95)33	Guidelines on Stocking
CNL(95)34	Dates and Places of 1996 and 1997 Meetings
CNL(95)35	UN Resolutions on Large-Scale Pelagic Drift-Net Fishing and on Unauthorized Fishing in Zones of National Jurisdiction
CNL(95)36	Draft Report of the Twelfth Annual Meeting of the Council
CNL(95)37	Provision of Information Under Article 5 of the Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Salmon Aquaculture on the Wild Salmon Stocks
CNL(95)38	NASCO Tag Return Incentive Scheme - 1995 Grand Prize
CNL(95)39	Draft Press Release
CNL(95)40	Some Items Related to the Future Issues for NASCO - A Working Paper Presented by the Icelandic Delegation
CNL(95)41	Not Issued
CNL(95)42	Comments on Article 13 (submitted by Denmark (in respect of the Faroe Islands and Greenland))
CNL(95)43	Some Items Related to the Future Issues for NASCO - A Working Paper Presented by the Norwegian Delegation
CNL(95)44	Agenda

CNL(95)45	Draft Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean Concerning Scientific Research Fishing
CNL(95)46	Report of the Twelfth Annual Meeting of the Council
CNL(95)47	Press Release
CNL(95)48	Outline of 1996 Budget and 1997 Forecast Budget and Schedule of Contributions
CNL(95)49	Request for Scientific Advice from ICES
CNL(95)50-CNL(95)69	Not Issued
CNL(95)70	NGO Statement - The Atlantic Salmon Trust
CNL(95)71	NGO Statement - The Salmon and Trout Association
CNL(95)72	NGO Statement - Sami Parliament
CNL(95)73	NGO Statement - The Association of Scottish District Salmon Fishery Boards
CNL(95)74	NGO Statement - The Federation of Icelandic River Owners
CNL(95)75	NGO Statement - The Ulster Angling Federation
CNL(95)76	NGO Statement - The Federation of Irish Salmon and Sea-Trout Anglers
CNL(95)77	NGO Statement - The Scottish Anglers National Association
CNL(95)78	NGO Statement - The Salmon Net Fishing Association of Scotland

NOTE: This list contains all papers submitted to the Council prior to and at the meeting. Some, but not all, of these papers are included in this report as annexes.