REPORT OF THE TWENTY-NINTH ANNUAL MEETINGS OF THE COMMISSIONS

EDINBURGH, SCOTLAND, UK

5 – 8 JUNE 2012

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REPORT OF THE

TWENTY-NINTH ANNUAL MEETING

OF THE

NORTH AMERICAN COMMISSION

5 – 8 JUNE 2012
Edinburgh, Scotland, UK

Chairman:	Mr Stephen Gephard (US)
Vice-Chairman:	Mr Guy Beaupré (Canada)
Rapporteur:	Mr Doug Twining (Canada)
Secretary:	Dr Malcolm Windsor

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NAC(12)11

Report of the Twenty-Ninth Annual Meeting of the North American Commission of the North Atlantic Salmon Conservation Organization

George Hotel, Edinburgh, Scotland, UK

5 - 8 June 2012

1. Opening of the Meeting

1.1 The Chairman, Mr Stephen Gephard (US), opened the meeting and welcomed participants to the Twenty-Ninth Annual Meeting of the Commission.

1.2 An opening statement was made on behalf of the NGOs (Annex 1).

1.3 A list of participants at the Twenty-Ninth Annual Meeting of the Council and Commissions is included on page 181 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, NAC(12)12 (Annex 2).

3. Nomination of a Rapporteur

3.1 Mr Doug Twining (Canada) was appointed as Rapporteur.

4. Election of Officers

4.1 The Commission re-elected Mr Stephen Gephard (United States) as its Chairman and elected Serge Tremblay (Canada) as its Vice-Chairman.

5. Review of the 2011 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5.1 The representative of ICES, Mr Gérald Chaput, presented the report from ICES on the scientific advice concerning salmon stocks in the North American Commission (NAC) area, CNL(12)8. The ICES Advisory Committee (ACOM) report, which contains the scientific advice relevant to all Commissions, is included on page 117 of this document.

5.2 There were no comments provided by the Parties.

6. The St Pierre and Miquelon Salmon Fishery

6.1 The Chair noted that the representative of France (in respect of St Pierre and Miquelon) had summarized the 2011 fishery during the Council meeting earlier in the day. France (in respect of St Pierre and Miquelon) had previously tabled document CNL(12)14 which describes the management and sampling of the fishery.

6.2 The representative of Canada thanked the representative of France (in respect of St Pierre and Miquelon) for his earlier presentation and requested that they once again consider joining NASCO as a full member. The representative of Canada also thanked the representative of France (in respect of St Pierre and Miquelon) for continued assistance and partnership in sampling.

6.3 The representative of the US echoed Canada's call for France (in respect of St. Pierre and Miquelon) to accede to the Convention and highlighted a willingness to cooperate with France (in respect of St Pierre and Miquelon) in implementing its sampling program. The US also expressed its concern over the interception of endangered and threatened stocks by France (in respect of St Pierre and Miquelon).

6.4 The NGO representative expressed concern regarding the fishery particularly in light of the listing of many of these stocks as threatened and endangered in both the US and Canada.

6.5 The representative of France (in respect of St Pierre and Miquelon) thanked the Parties for their comments and stated that France (in respect of St Pierre and Miquelon) intends to remain as an observer. Following ICES advice, the representative of France (in respect of St Pierre and Miquelon) indicated that France (in respect of St Pierre and Miquelon) intended to collaborate more closely, in particular with Canada, to improve the quality of genetic analysis to come, by using a genetic baseline enriched with North American profiles. The representative of France (in respect of St Pierre and Miquelon) also stated that the harvest in the fishery is small, but significant for a small number of people.

6.6 In light of the recent External Performance Review (CNL(12)11), the NASCO President shall write a letter to France (in respect of St Pierre and Miquelon) requesting that France (in respect of St Pierre and Miquelon) become a member of NASCO.

7. Salmonid Introductions and Transfers

7.1 The representative of the US presented NAC(12)3 (Annex 3) and provided highlights of an existing application to the Food and Drug Administration to sell genetically modified salmon raised in hatcheries outside of the United States. The proposal would not result in live genetically modified salmon within the U.S.

7.2 The representative of Canada presented NAC(12)5, (Annex 4) and the representative of Canada re-iterated the intent to continue to live up to its obligations under the Williamsburg Resolution. The representative of the NGOs asked if the information reported to NAC by Canada on disease incidence is available to the public. The representative of Canada noted that reporting between countries through OIE

requirements is done in real time. Public reports are available after a verification process. No reportable outbreaks were reported in the NAC region of Canada in 2011. The representative of the NGOs requested that the date of escapes be indicated in the reporting to NAC; Canada agreed to provide this information. The representative of the NGOs suggested that ICES could be asked to compile information and provide full reports on aquaculture escapees annually and over time. The representative of the US agreed that information would be useful and suggested that the idea be brought before the Council for consideration because the need for that information applies throughout the North Atlantic, not just in the North American Commission Area.

8. Sampling in the Labrador Fishery

8.1 The representative of Canada tabled document NAC(12)8 (Annex 5), which provides an update on the sampling activity in the Labrador fishery in 2011. Representatives of Canada provided additional insight into the program. The representative of the US thanked Canada for its efforts to date. The representative of the NGOs expressed concern over the late tabling of the document and reminded parties of their obligation to provide copies of reports as soon as possible.

8.2 The representative of Canada tabled a paper (NAC(12)6) (Annex 6) that described the Labrador Inuit Food, Social, and Ceremonial Fishery. The paper describes the tag allocation process for the Food, Social, and Ceremonial fishery by Labrador Inuit communities.

8.3 The representative of the NGOs asked Canada to comment on estuarine fisheries as mixed-stock fisheries, as these fisheries may catch salmon from more than one Labrador river stock, some of which may not be meeting conservation requirements. The representative of Canada agreed to the possibility of the localized mixing of some stocks in estuaries, but the genetic work being done may provide more details. The results will be available in the fall of 2012 and will be shared with stakeholders.

8.4 The representative of the NGOs asked about the nature of the Labrador Aboriginal fishery (allocation or allowance). The representative of Canada clarified that effort controls are used, i.e. each user group receives a specific number of tags (Nunatsiavut Government – 8,400 tags; Innu Nation – 1,500 tags; Nunatukavut – 6,000 tags).

9. Announcement of the Tag Return Incentive Scheme Prize

9.1 The Chair announced that the draw for the North American Commission prize in the NASCO Tag Return Incentive Scheme was made by the Auditor on 9 May. The winning tag was of Canadian origin and had been applied to a 1-sea-winter male salmon in the Northwest Miramichi River on 12 September 2010. It was recaptured during the spring kelt fishery in tidal waters of the Southwest Miramichi River on 17 April 2011.The winner of the $1,500 prize is Mr Noe Thibodeau, Rogersville, New Brunswick.

10. Recommendations to the Council on the Request to ICES for Scientific Advice

10.1 The Commission considered the draft report of the Standing Scientific Committee (SSC(12)3). The questions posed were similar to previous years, with the addition of a question about potential threats to Atlantic salmon from exotic salmonids.

10.2 The representative of the NGOs requested the addition of a new question regarding aquaculture escapees. The representative of the US indicated that asking ICES to provide a summary of information on aquaculture escapees, although more of a management issue, would be useful. The representative of the NGOs pointed out that aquaculture escapees can have a genetic impact on wild stocks and an ICES report would be appropriate and timely.

10.3 The representative of the NGOs also asked that unreported catch information provided by ICES be broken down by river, estuarine and coastal catches. The NGOs asked for continued collaboration on how unreported catches are calculated. The representative of Canada responded that the focus is on educating the public and stakeholders on the impacts of these unreported catches.

10.4 The representative of the NGOs asked that Parties consider having an NGO representative on the Standing Scientific Committee. The Chair took it under advisement and suggested that it be raised at Council.

10.5 The Commission agreed to the request for scientific advice from ICES prepared by the Standing Scientific Committee in relation to the North American Commission area. The request to ICES, as agreed by the Council, is contained in document CNL(12)10, (Annex 7).

11. Other Business

11.1 The representative of the US tabled a paper NAC(12)4 (Annex 8), on Management Objectives, with the suggestion that NAC Parties meet intersessionally before the next NASCO meeting to discuss the current management objectives for Atlantic salmon stocks in the United States and the Scotia-Fundy Region of Canada. The representative of Canada agreed to distribute the document internally on its return from this annual meeting and to discuss intersessionally with the United States. The representative of the NGOs asked that NGOs be involved in the process. The representative of the US indicated that it would be open to stakeholder involvement in that effort.

11.2 The representative of Canada tabled a paper NAC(12)7 (Annex 9), on activities related to the status of Atlantic salmon in the context of the Species at Risk Act. The representative of the US thanked Canada for the report and indicated that including samples from the southern Newfoundland populations in the genetics baseline will be even more important in light of the threatened status of these stocks.

12. Date and Place of the Next Meeting

The Commission agreed to hold its next meeting at the same time and place as the Thirtieth Annual Meeting of the Council in 2013.

13. Report of the Meeting

The Commission agreed a report of the meeting.

Note: The annexes mentioned above begin on page 17, following the French translation of the report of the meeting. A list of North American Commission papers is included in Annex 10.

NAC(12)11

Compte rendu de la Vingt-neuvième réunion annuelle de la Commission Nord-Américaine de l'Organisation pour la Conservation du Saumon de l'Atlantique Nord

George Hotel, Édimbourg, Écosse, Royaume-Uni

5 - 8 juin 2012

1. Séance d'ouverture

1.2 Le Président, M. Stephen Gephard (États-Unis), a ouvert la réunion et a souhaité la bienvenue aux représentants à la Vingt-neuvième réunion annuelle de la Commission.

1.2 Une allocution d'ouverture a été prononcée conjointement au nom des ONG (annexe 1).

1.3 La liste des participants à la Vingt-neuvième réunion annuelle du Conseil et des Commissions de l'OCSAN figure à la page 181 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour NAC(12)12 (annexe 2).

3. Nomination d'un Rapporteur

3.1 M. Doug Twining (Canada) a été nommé Rapporteur.

4. Élection des membres du Comité directeur

4.1 La Commission a réélu Président, M. Stephen Gephard (États-Unis) et a élu Vice Président, M. Serge Tremblay (Canada).

5. Examen de la pêcherie de 2011 et du rapport du Comité Consultatif (ACOM) du CIEM sur les stocks de saumons dans la zone de la Commission

5.1 Le représentant du CIEM, M. Gérald Chaput, a présenté le rapport du CIEM sur les recommandations scientifiques particulières aux stocks de saumons de la zone de la Commission Nord-Américaine (CNA), CNL(12)8. Le rapport de l'ACOM, contenant les recommandations scientifiques pour l'ensemble des Commissions, figure à la page 117 de ce document.

5.2 Les Parties n'ont avancé aucun commentaire.

6. Pêcherie de saumons à Saint-Pierre et Miquelon

6.1 Le Président a fait remarquer que le représentant de la France (pour Saint-Pierre et Miquelon) avait résumé les points essentiels concernant la pêcherie de 2011 au cours de la réunion du Conseil qui avait eu lieu un peu plus tôt dans la journée. La France (pour Saint-Pierre et Miquelon) avait déjà présenté le document CNL(12)14 qui décrivait la gestion et l'échantillonnage effectuée dans cette pêcherie.

6.2 Le représentant du Canada a remercié le représentant de la France (pour Saint-Pierre et Miquelon) pour la présentation qu'il avait faite plus tôt et a demandé que la France envisage une fois de plus de se joindre à l'OCSAN en tant que membre à part entière. Le représentant du Canada l'a également remercié pour la continuité de son aide et partenariat en ce qui concernait l'échantillonnage.

6.3 La représentante des États-Unis a cautionné l'avis du Canada dans son appel à la France (pour Saint-Pierre et Miquelon) en ce qui concernait son accès à la Convention de l'OCSAN. Elle a par ailleurs souligné la volonté de son pays à coopérer avec la France (pour Saint-Pierre et Miquelon) dans l'exécution de son programme d'échantillonnage. Les États-Unis ont également exprimé leur inquiétude à propos de l'interception des stocks menacés et en danger par la France (pour Saint-Pierre et Miquelon).

6.4 Le représentant des ONG a exprimé son inquiétude concernant cette pêcherie ; en effet, plusieurs de ces stocks figuraient à la liste des espèces menacées et en danger d'extinction aux États-Unis comme au Canada.

6.5 Le représentant de la France (pour Saint-Pierre et Miquelon) a remercié les Parties de leurs commentaires et a déclaré que la France (pour Saint-Pierre et Miquelon) prévoyait de demeurer en tant qu'observatrice au sein de l'OCSAN. Le représentant de la France (pour Saint-Pierre et Miquelon) a indiqué que, conformément aux recommandations du CIEM, il était dans l'intention de la France (pour Saint-Pierre et Miquelon) de collaborer plus étroitement, avec le Canada en particulier, et ce, afin d'améliorer à l'avenir la qualité de l'analyse génétique en ayant recours à une base génétique enrichie des profils des stocks d'Amérique du Nord. Il a également déclaré que même si la pêche demeurait réduite, elle était, pour un petit nombre de personnes, d'une grande signification.

6.6 Fort de la recommandation avancée par l'étude externe des performances de l'OCSAN, le Président enverra un courrier aux autorités françaises pour inviter la France (pour Saint-Pierre et Miquelon) à devenir membre de l'OCSAN.

7. Introductions et transferts de salmonidés

7.1 La représentante des États-Unis a présenté le document NAC(12)3 (annexe 3) ainsi que les points saillants d'une demande en cours adressée à la FDA (Agence américaine des produits alimentaires et médicamenteux) pour vendre des saumons modifiés génétiquement, élevés dans des écloseries en dehors des États-Unis. La proposition n'entraînerait pas de présence de saumons modifiés génétiquement au sein des États-Unis.

7.2 Le représentant du Canada a présenté le NAC(12)5, (annexe 4) et a réitéré l'intention du Canada de remplir ses obligations, conformément à la Résolution de Williamsburg. Le représentant des ONG a cherché à savoir si les informations sur les cas de maladies que le Canada avait soumises à la CNA étaient disponibles au public. Le représentant du Canada a expliqué que les comptes rendus exigés par l'OIE s'effectuaient entre les pays en temps réel. Les rapports étaient mis à la disposition du public après vérification. En 2011, Il n'y avait eu aucune déclaration d'épidémie qui vaille la peine d'être déclarée dans la zone de la CNA au Canada. Le représentant des ONG a demandé que la date des échappements soit notée dans les comptes rendus adressés à la CNA; Le Canada a accepté de fournir cette information. Le représentant des ONG a suggéré que le CIEM soit prié de rassembler les informations sur les poissons échappés d'élevage et de fournir chaque année des rapports complets sur cette question et ce, pour une période de temps donné. La représentante des États-Unis a convenu que cette information s'avèrerait utile et a suggéré de présenter cette question au Conseil, pour étude. Cette information serait en effet précieuse pour tout l'Atlantique Nord et non pas uniquement pour la zone de la Commission Nord Américaine.

8. Échantillonnage dans la pêcherie du Labrador

8.1 Le représentant du Canada a présenté le document NAC(12)8 (annexe 5). Ce document fournissait une mise à jour des activités d'échantillonnage effectuées dans la pêcherie de 2011. D'autres représentants du Canada ont apporté une perspective supplémentaire au programme. La représentante des États Unis a remercié le Canada pour les efforts soutenus jusqu'à ce jour. Le représentant des ONG a exprimé sa contrariété à propos de la présentation tardive de ce document et a rappelé aux Parties leur devoir de fournir les exemplaires des rapports aussi tôt que possible.

8.2 Le représentant du Canada a soumis le document (NAC(12)6) (annexe 6) qui décrivait la pêche entreprise par les Inuits du Labrador à des fins alimentaires, dans un contexte social et cérémonial. Le document décrivait le processus d'allocation de marques pour la pêche effectuée par les communautés Inuit dans le cadre de leurs besoins alimentaires, sociaux et cérémoniels.

8.3 Le représentant des ONG a demandé au Canada de donner plus de détails sur la question des pêcheries en estuaire en tant que pêcheries de stocks mixtes. Ces pêcheries pourraient en effet comprendre des saumons provenant de plusieurs stocks de rivière du Labrador (et non pas d'un seul). Or, certains d'entre eux pourraient être en deçà des limites de conservation. Le représentant du Canada a convenu qu'il était possible qu'il y ait un mélange localisé de stocks dans les estuaires. L'examen génétique en cours devrait toutefois apporter des renseignements supplémentaires. Les résultats, qui seront disponibles en automne 2012, seront distribués aux personnes intéressées.

8.4 Le représentant des ONG a demandé en quoi consistait la pêcherie aborigène du Labrador (attribution ou droit). Pour clarifier, le représentant du Canada a indiqué qu'on avait recours à des contrôles d'effort de pêche ; chaque groupe d'usagers recevait ainsi un nombre spécifiques de marques (les autorités de Nunatsiavut – 8 400 marques; la Nation Innu – 1 500 marques; Nunatukavut – 6 000 marques).

9. Annonce du gagnant du prix du Programme d'encouragement au renvoi des marques

9.1 Le Président a annoncé que le tirage au sort du prix de la Commission Nord-Américaine du Programme d'encouragement au renvoi des marques de l'OCSAN a été effectué par le Commissaire aux comptes le 9 mai. La marque gagnante était d'origine canadienne. Elle avait été posée sur un saumon 1HM dans la Rivière Miramichi Nord-ouest, le 12 septembre 2010. Ce poisson avait été de nouveau capturé au cours de la pêche au ravalé de printemps dans les eaux de marée de la Rivière Miramichi Sud-ouest, le 17 avril 2011. M. Noe Thibodeau, de Rogersville du Nouveau-Brunswick, au Canada a remporté le prix de 1 500 dollars (US).

10. Recommandations au Conseil en matière de recherches scientifiques dans le cadre de la demande adressée au CIEM

10.1 La Commission a étudié l'avant-projet du Comité scientifique permanent (SSC(12)3). À l'exception de l'item concernant les menaces potentielles contre les saumons, posées par les salmonidés exotiques, les questions soulevées étaient du même ordre que celles posées les années précédentes.

10.2 Le représentant des ONG a sollicité l'ajout d'une nouvelle question concernant les échappés d'aquaculture. La représentante des États-Unis a indiqué qu'il serait en effet utile de demander au CIEM de fournir un résumé d'information sur les échappés d'aquaculture, même s'il s'agissait plutôt d'une question de gestion. Le représentant des ONG a fait remarquer que les échappés d'aquaculture peuvent modifier la génétique des stocks sauvages et qu'un rapport du CIEM sur cette question serait approprié et opportun.

10.3 Le représentant des ONG a également demandé que les informations, concernant les captures non déclarées, fournies par le CIEM, soient répertoriées par type de captures (de rivières, d'estuaire et côtières). Les ONG ont demandé que la manière dont le calcul des captures non déclarées était effectué continue à faire l'objet d'une collaboration. Le représentant du Canada a répondu que l'accent était mis sur la sensibilisation du public et des personnes intéressées aux effets nuisibles de ces captures non déclarées.

10.4 Le représentant des ONG a demandé si les Parties pouvaient considérer la présence d'un représentant des ONG au sein du Comité Scientifique Permanent. Le Président a dûment considéré cette question et a suggéré de la soulever lors du Conseil.

10.5 La Commission a accepté la demande au CIEM de recommandations scientifiques, telle qu'elle avait été préparée par le Comité Scientifique Permanent pour la zone de la Commission Nord-Américaine. La demande de recommandations scientifiques adressée au CIEM et approuvée par le Conseil figure dans le document CNL(12)10, (annexe 7).

11. Divers

11.1 La représentante des États-Unis a présenté un document NAC(12)4 (annexe 8), portant sur les Objectifs de gestion. Elle a également suggéré aux Parties de la CNA de se rencontrer au cours d'intersessions avant la prochaine réunion de l'OCSAN pour débattre des objectifs de gestion actuels concernant les stocks de saumons atlantiques des États-Unis et de la région de Scotia-Fundy au Canada. Le représentant du Canada a convenu de distribuer le document au sein de la Commission à son retour de la Réunion annuelle et d'organiser un débat d'intersession avec les États-Unis. Le représentant des ONG a revendiqué la participation des ONG au processus. La représentante des États-Unis a indiqué qu'elle serait ouverte à la participation de toute personne intéressée.

11.2 La représentante du Canada a soumis le document NAC(12)7 (annexe 9), concernant les activités relatives au statut du saumon atlantique dans le cadre de la loi régissant les espèces en danger. La représentante des États-Unis a remercié le Canada pour son rapport et a indiqué que l'inclusion des échantillons provenant des populations sud de Terre-neuve dans la base génétique s'avèrera encore plus opportune étant donné le statut d'espèce menacée de ces stocks.

12. Date et lieu de la prochaine réunion

La Commission a convenu de tenir sa prochaine réunion en même temps et au même endroit que la Trentième réunion annuelle du Conseil en 2013.

13. Compte rendu de la réunion

La Commission a accepté le compte rendu de la réunion.

Note : Les annexes mentionnées ci-dessus commencent à la page 17. Une liste des documents de la Commission Nord Américaine figure à l'annexe 10.

Annex 1

Joint NGO Opening Statement to the North American Commission

I am pleased to present a joint opening statement to this Commission on behalf of the NGO Group.

We enthusiastically welcome the recommendations of the international performance review. Three international experts recognize that the NASCO Convention does not adequately reflect current applicable law and practice, and recommend that it be reviewed with a view to strengthening and modernizing the legal mandate of NASCO and the obligations of the Parties. Among their recommendations are that NASCO ensure the application of the Precautionary Approach to all impacts of human activity on the Atlantic salmon life-cycle, close the remaining mixed-stock fisheries in home waters, and make further progress towards achieving the international goals for sea lice and containment. The NGOs heartily concur.

We hope that Canada and the United States will give thoughtful consideration to strengthening the NASCO mandate, with some sense of urgency, to enable implementation of strong measures to save and restore salmon within all Party jurisdictions. In the meantime, the NGOs support the recommendations of the Working Group on future Reporting Under Implementation Plans. We urge the support of Canada and the United States in ensuring that future reporting by Parties clearly specify actions to be taken to achieve the goals of NASCO agreements. Reporting must include the expected and measureable outcomes of Party actions, along with approaches to monitoring, including enforcement.

We commend the support provided by the US government and State of Maine in working with several conservation organizations, including the Atlantic Salmon Federation, and the Penobscot Indian Nation to remove three dams on Maine's Penobscot River. The first of these dams, the Great Works, a 1,000-foot mass of concrete, timber and cribwork, will be removed next Monday, on June 11, amidst great celebration and fanfare. Once all three dams are removed, this precedent-setting restoration project will reopen nearly 1,000 miles of habitat for Atlantic salmon, shad, alewives and other sea-run fish.

Annex 2

NAC(12)12

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Review of the 2011 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area
6. The St Pierre and Miquelon Salmon Fishery
7. Salmonid Introductions and Transfers
8. Sampling in the Labrador Fishery
9. Announcement of the Tag Return Incentive Scheme Prize
10. Recommendations to the Council on the Request to ICES for Scientific Advice
11. Other Business
12. Date and Place of the Next Meeting
13. Report of the Meeting

Annex 3

NAC(12)3

NAC Annual Report 2011
(Tabled by the US)

USA, 2011
Submitted by: National Marine Fisheries Service
Date: 15 May 2011

1. Summary of Salmonid disease incidences

None to report for 2011.

U.S. Point of Contact on Disease:
Sharon MacLean
28 Tarzwell Drive
Narragansett, RI 02882-1199 USA
PH: 401-782-3258
Sharon.Maclean@noaa.gov

2. Summary of breaches of containment of salmonids from net cages

Species (Strain, if applicable)	Number[1]	Average size of fish[2]	Location[3]	Result[4]	Cause of the breach
NONE					

Notes:
In early September 2011, the Maine Department of Marine Resources reported three putative aquaculture origin fish captured at the weir on the Dennys River. Scale analysis showed growth indicative of aquaculture-origin salmon.

1. This should be the best estimate possible, though it is recognized that exact numbers may be difficult to obtain.
2. Based on the codes of containment, it was agreed that average size is a more accurate measurement than lifestage.
3. The more specific the information the better, however Bay level is considered sufficient.
4. This refers to using recapture methods as detailed in the relevant code of containment and summarizing the results of the recapture attempt.

3. Summary of Salmonid introductions from outside the Commission Area

Species (strain, if applicable)	Number	Life Stage	Origin [1]	Destination [2]	Purpose [3]
None					

1. This would be the province or state for introductions from the west coast; or country for international introductions. It was decided that introductions between Canada and the US that are within the Commission Area (between Maine and NB, for example) would not be included here as those introductions would be captured in other avenues (ICES WGITMO, for example) and because these are not as relevant.
2. The more specific the information the better, however Bay level is considered sufficient.
3. This refers to the intention for the introduction – aquaculture, research, stock enhancement, etc.

4. Summary of Transgenic activities within the Country Annex 1 of NAC(10)6

The United States Food and Drug Administration (FDA) is currently considering approval of Genetically Engineered (GE) Atlantic salmon for commercial sale and human consumption in the U.S. The fish are being grown outside of the U.S. by a private biotechnology company called Aqua Bounty. The fish will be marketed as AquaAdvantage® salmon and will be sold in select retail stores as cleaned and gutted whole fish or further processed into filets. The application was reviewed under the authority of the Federal Food, Drug and Cosmetic Act as a new animal drug due to the genetic construct used to make genetically engineered animals qualifies as an "article" that meets the definition of a new animal drug. The FDA reviewed this application in regards to food safety issues focusing on consumption hazards and associated risks posed to the public. The assessment of environmental impacts included an evaluation of the following specific conditions for production and use; 1) production of eyed eggs in Prince Edward Island (PEI), Canada; 2) shipment of eyed eggs to Panama; 3) grow-out of fish in the highlands of Panama; 4) processing of fish in Panama; and 5) shipment of table-ready processed fish to the U.S. Any deviation from the above process will trigger a new action and will have to be reviewed under a separate application. Further, the FDA was required to consult with NOAA's National Marine Fisheries Service (NMFS) on environmental risks associated with GE seafood products, including the impact on wild fish stocks. Staff from NMFS Aquaculture Program and Office of Protected Resources in Silver Springs, Maryland consulted with the FDA on this matter. The FDA concluded that the action would not affect listed Atlantic salmon; NMFS concurred with this determination. Currently, public comments are being considered before any final approval is made.

Annex 4

NAC(12)5

NAC Annual Report 2011
(Tabled by Canada)

Canada, 2011
Submitted by: Fisheries and Oceans Canada
Date: May 29, 2012

1. Summary of Salmonid disease incidences

Following from previous discussions on this matter, and with advice from the Canadian Food Inspection Agency (CFIA), we recommend that a streamlined approach to reporting salmonid diseases be followed to meet our current mutual World Organization for Animal Health (OIE) requirements. We understand that both Canada and the United States comply with OIE reporting requirements and have full access to each others reports, in real time (which is preferable to annual reports to NAC).

The CFIA is Canada's Competent Authority for aquatic animal health and lead Agency with respect to meeting Canada's international reporting obligations under the World Trade Organization (WTO) Sanitary and Phytosanitary (SPS) Agreement. The OEI is the international standard setting body for aquatic animal health. Accordingly, CFIA reports to the OIE, following the OEI's *Aquatic Animal Health Code* and *Manual of Diagnostic Procedures*.

There are several forms of CIFA reports to OIE:
- Immediate notification when an exceptional epidemiological event occurs. Once verfiied by OIE, notifications are distributed the Delegates of Members, the OIE Reference Laboratories and Collaborating Centres and international and regional organisations.
- Affected countries submit weekly follow-up reports describing progress and results of the applied control measures.
- Affected country provided a final report once the event has been brought under control and there are no new reported outbreaks.
- Affected country provided follow-up reports, as needed.
- Semi-annual reports provide information on the presence or absence of diseases on the OIE List and the prevention and control measures applied.
- The official reporting focal point completes annual reports.

There are several mechanisms to provide these reports to OIE:
- World Animal Health Information System (WAHIS): a web-based application for reporting real-time information through official reports on any relevant animal disease detected within Canada. WAHIS is supported by the OIE Early Warning System which notifies countries when WAHIS reports are received.
- World Animal Health Information Database Interface (WAHID): online public reporting since 2006 which includes all emergency notifications and animal health reports provided to WAHIS. Data is provided on animal diseases, per country, region, week, month and year. Among others, the database also compiles country animal population, exceptional

epidemiological events maps, global animal diseases distribution maps or comparative disease status between two countries.

2. Summary of breaches of containment of salmonids from net cages

Species (Strain, if applicable)	Number[1]	Average size of fish[2]	Location[3]	Result[4]	Cause of the breach
Atlantic Salmon (Saint John River)	No change in bio mass observed (incident reported as potential breach; observations could not confirm losses of any fish)	1 kg	BMA 2B Grand Manan, NB	No recapture attempt	1 meter hole in containment net after storm event
Atlantic Salmon (Saint John River)	No change in bio mass observed (incident reported as potential breach; observations could not confirm losses of any fish)	2 kg	BMA 3A Maces Bay, NB	No recapture attempt	Hole in containment net after storm event
Steelhead trout	12382	2.1 kg	Hardy Cove, Bay d'Espoir, NL	Storm timelines made recapture non-productive	Submergered harvest cage collar during storm

Notes:

1. This should be the best estimate possible, though it is recognized that exact numbers may be difficult to obtain. Also note that methodologies for determining and numbers differ between provinces and are presently not directly comparable. Efforts are underway to resolve these differences.
2. Based on the codes of containment, it was agreed that average size is a more accurate measurement than life stage.
3. The more specific the information the better, however Bay level is considered sufficient.
4. This refers to using recapture methods as detailed in the relevant code of containment and summarizing the results of the recapture attempt.

3. Summary of Salmonid introductions from outside the Commission Area

As per the Memorandum of Understanding between Canada and the United States under the Williamsburg Resolution, Canada has notified the United States that Canada has received an application for an introduction. Canada has subsequently reviewed the application and denied the application.

Species (strain, if applicable)	Number	Life Stage	Origin[1]	Destination[2]	Purpose[3]
None made					

Notes:

1. This would be the province or state for introductions from the west coast; or country for international introductions. It was decided that introductions between Canada and the US that are within the Commission Area (between Maine and NB, for example) would not be included here as those introductions would be captured in other avenues (ICES WGITMO, for example) and because these are not as relevant.
2. The more specific the information the better, however Bay level is considered sufficient.
3. This refers to the intention for the introduction – aquaculture, research, stock enhancement, etc.

4. Summary of Transgenic activities within the Country

AquaBounty, a U.S.-based company with research facilities in PEI, Canada, has developed a genetically engineered Atlantic salmon with enhanced growth and feed conversion characteristics. AquaBounty is currently seeking U.S. Food and Drug Administration (USFDA) regulatory approval for food use of its GE salmon in the U.S. AquaBounty has indicated that it plans to produce the eggs in its Canadian facility and export them to Panama where the fish would be grown to maturity and processed for food use. In order to commercially produce the eggs in Canada, AquaBounty would be required to submit a regulatory package under the Canadian Environmental Protection Act, 1999 at least 120 days prior to the commencement of the commercial manufacture of the GE fish or fish eggs in Canada. Fisheries and Oceans Canada would conduct an environmental and indirect (i.e. not related to direct consumption) human health risk assessment and, if needed, recommend to Environment Canada any control measures needed to manage risks. Environment Canada retains authority for regulatory decision-making. Health Canada would regulate foods derived from genetically engineered fish. There are no genetically engineered fish or eggs currently approved for commercial use in Canada.

Annex 5

NAC(12)8

Report of The Labrador Atlantic Salmon Subsistence Fisheries, Sampling Program and Progress on Genetic Analyses of Stock Origin

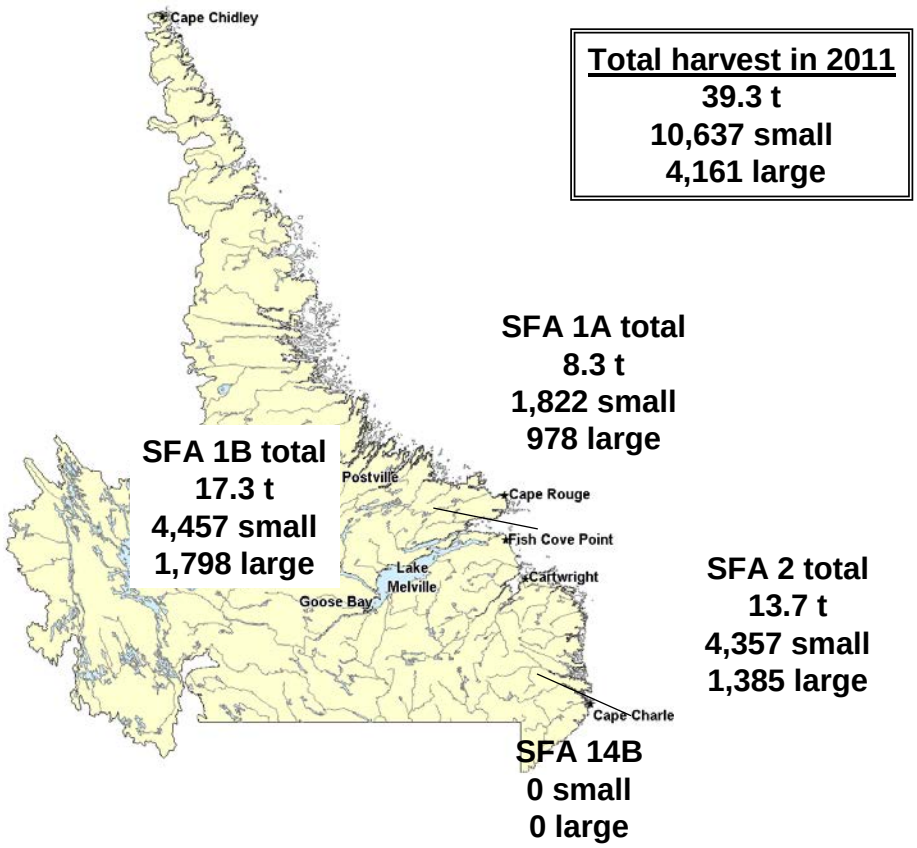
SALMON FISHERIES MANAGEMENT FOR LABRADOR

Three user groups in Labrador had access to Atlantic salmon in 2011.

Aboriginal fisheries

In Labrador (SFAs 1 and 2), Food, Social and Ceremonial (FSC) fishery arrangements with the Nunatsiavut Government, the Innu First Nation, and the NunatuKavut Community Council Inc., resulted in fisheries in estuaries and coastal areas. The communal licence generally stipulates gear (length of nets, and mesh sizes), season, and catch limits. All salmon must be tagged with carcass tags and logbooks are mandatory.

Labrador aboriginal FSC fisheries

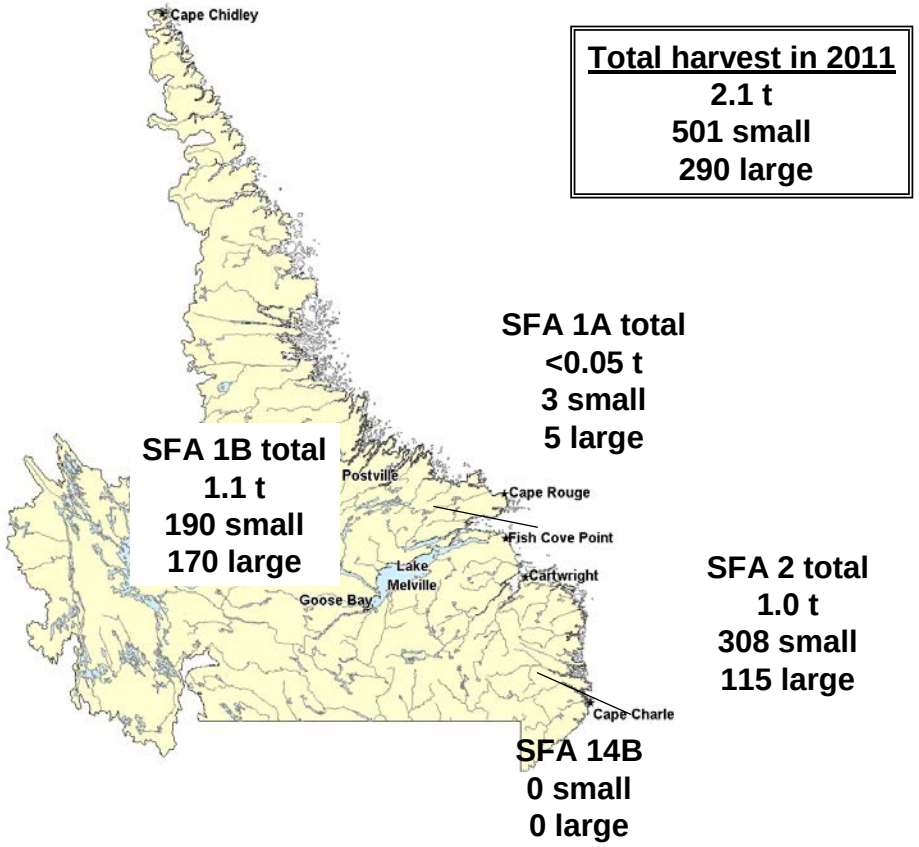


Reported harvests (overall weight and number by size group) in the Aboriginal FSC fisheries by SFA in 2011.

Resident food fishery

The Resident subsistence trout fishery, initiated in 2000, occurs in Lake Melville (SFA 1A), southern Labrador (SFA 2) coastal communities from Cartwright to Cape St. Charles, and on a very limited scale in northern Labrador (SFA 1). A total of 313 licences were issued in 2011. The resident subsistence trout fishery targets trout (*Salvelinus fontinalis*) and arctic charr (*Salvelinus alpinus*) using gillnets with restrictions on quantity (one per licence), length (15 fathoms), and mesh size (maximum mesh size of 4 inches). There is a possibility of a bycatch of Atlantic salmon and as a result a maximum of three salmon of any size can be retained by licence holders while fishing for trout and charr. This is a reduction from four fish in 2010 and previous years. Once the three salmon are captured, no more fishing is allowed. All salmon must be tagged and logbooks of catch and effort must be completed by the licence holders. Prior to 2004, a number of Aboriginal peoples (NunatuKavut Community Council Inc. in particular) reported their harvests under the resident subsistence trout fishery management plan.

Labrador resident food fisheries



Reported harvests (overall weight and number by size group) by SFA in the Labrador Resident food fisheries in 2011.

Recreational fishery

An important management change was introduced in 2011 stating that no retention of large salmon (≥ 63 cm fork length) was allowed. The recreational fishery in 2011 was managed by licence, season (June 15 to Sept. 15), and retention limits. The season retention limit was four tags, to only be used on small salmon (< 63 cm fork length). In all rivers, there was a daily catch and release limit of four fish of any size.

CATCHES AND HARVESTS

Total provisional harvests of Atlantic salmon in Labrador by all users in 2011 was 44.0 t comprised of 25.7 t of small salmon and 18.2 t of large salmon. By number, the harvest represented 12,707 small salmon and 4,451 large salmon.

The Aboriginal fisheries accounted for 89% (by weight) of the total harvest, followed by the recreational fishery at 6% and the resident food fishery at 5% (Table 1). In terms of number of fish harvested, the Aboriginal fishery accounted for 94.2% of the large salmon and 85.9% of the small salmon (Table 1). Recreational fisheries accounted for 10% of the small salmon and 0% of the large salmon harvested. The distribution of harvests among the user groups in 2011 was similar to those since 2004.

2011 Harvest (weight and number) of Atlantic salmon by user group in Labrador fisheries

User group	Small salmon	Large salmon	Total
By weight (t)	25.7	18.2	44.0
Aboriginal FSC	22.1 (85.9%)	17.2 (94.2%)	39.3 (89.3%)
Resident food fisheries	1.0 (4.0%)	1.1 (5.8%)	2.1 (4.7%)
Recreational	2.6 (10.1%)	0 (0%)	2.6 (5.9%)
By number	12,707	4,451	17,158
Aboriginal FSC	10,637 (83.7%)	4,161 (93.4%)	14,798 (86.2%)
Resident food fisheries	501 (3.9%)	290 (6.5%)	791 (4.6%)
Recreational	1,569 (12.3%)	0 (0%)	1,569 (9.1%)

The harvests (by number) of small and large salmon in the Aboriginal fisheries in 2011 were the highest of the time series beginning in 2000, whereas the Resident food fisheries were among the lowest of the time series. The harvest of small salmon in the Recreational fisheries in 2011 was the third lowest of the time series.

	Small salmon harvest (by number)			Large salmon harvest (by number)		
Year	Aboriginal	Resident	Recreational	Aboriginal	Resident	Recreational
2000	3,993	1,330	2,561	1,054	298	262
2001	3,259	1,530	2,049	1,272	449	338
2002	3,457	2,349	2,071	990	399	207
2003	4,183	2,294	2,112	1,568	608	222
2004	7,733	652	1,808	3,472	224	259
2005	9,515	921	2,007	2,588	228	291
2006	9,608	769	1,656	2,807	283	227
2007	8,567	640	1,762	2,559	93	235
2008	9,215	619	1,688	3,699	210	231
2009	7,182	806	1,355	3,031	313	216
2010	9,135	731	1,375	3,470	255	200
2011	10,637	501	1,569	4,161	290	0

Detailed harvests and catches for the Recreational fishery by SFA for the period 2000 to 2011 are provided in Annex 1.

HARVESTS BY LOCATION

All recreational fisheries occurred in rivers (freshwater).

For the purposes of reporting the location of the harvests, the following definition of an estuary is used:

> "Partly enclosed coastal body of water in which river water is mixed with seawater. An estuary is thus defined by salinity rather than geography. Many coastal features designated by other names are in fact estuaries (e.g., Chesapeake Bay). Some of the oldest continuous civilizations have flourished in estuarine environments (e.g., the land between the Tigris and Euphrates rivers, the Nile delta, the Ganges delta, and the lower Huang He valley). Cities such as London (River Thames), New York (Hudson River), and Montreal (St. Lawrence River) developed on estuaries and became important commercial centres.
>
> D.W. Pritchard (1967). What is an estuary: physical viewpoint. p. 3–5 in: G. H. Lauf (ed.) Estuaries, A.A.A.S. Publ. No. 83, Washington, D.C. States that an estuary must (1) be partially enclosed, (2) have river(s) running into it, (3) have mix of fresh and sea water. As such Lake Melville is considered to be an estuary" (D. Reddin DFO, ICES working document).

Based on interviews with guardian and fishery officers in Labrador, the following breakdown has been used to categorize the harvests of the subsistence fisheries (Aboriginal and Resident food) into estuary and coastal harvests (from D. Reddin DFO Unpublished data).

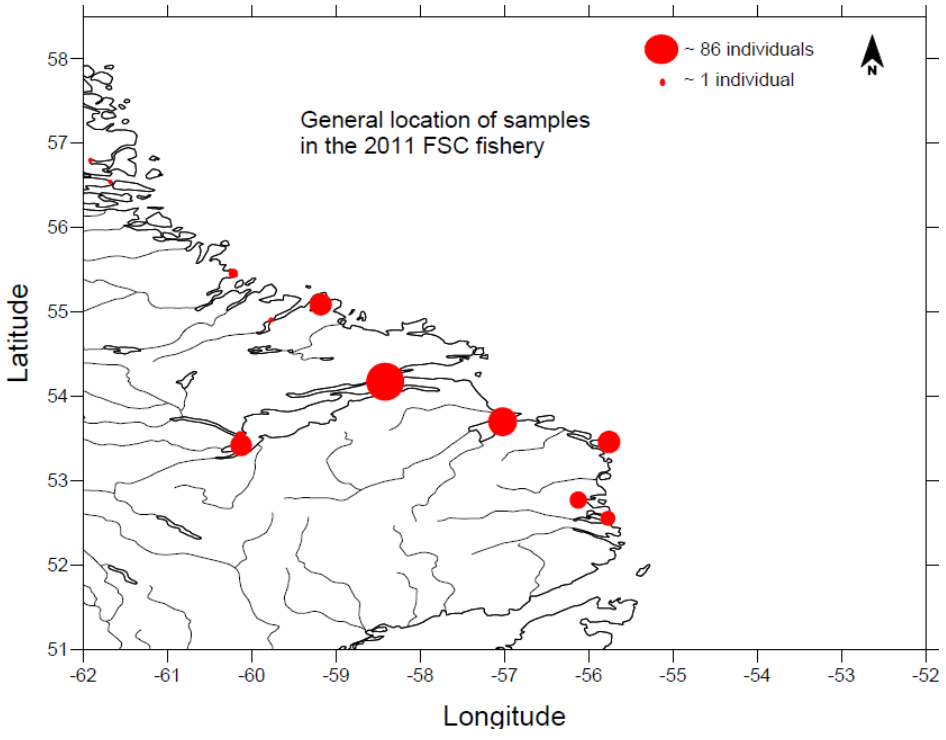
	Percent estuary	Percent coastal
SFA 1		
Lake Melville	100%	0%
Rigolet	85%	15%
Makkovik	75%	25%
Postville	90%	10%
Hopedale	10%	90%
Nain	0%	100%
SFA 2		
Sandwich Bay	85%	15%
Black Tickle	1%	99%
Ch'town-Lodge Bay	70%	30%

The majority of the Labrador subsistence food fisheries occur in areas classified as estuaries. About 44% of the total harvest of salmon in 2011, 18.3 t of 41.4 t, was reported from the Lake Melville area (SFA 1B) which is classified as estuary. Based on the above percentages, the subsistence fishery harvest from coastal areas was estimated at 7.6 t, representing 18.4% of the total subsistence fishery harvest. The coastal harvest in 2011 represented about 2,142 small salmon and 820 large salmon. The percent of the total subsistence fisheries harvest coming from costal areas in 2011 was among the lowest since 2001.

Labrador subsistence fisheries harvests (Aboriginal and Resident food) by location					
	Harvest (kg)			Percentage of harvest	
Year	Estuarine	Coastal	Total	Estuarine	Coastal
2000	13,278	2,335	15,613	85.0	15.0
2001	13,497	2,792	16,288	82.9	17.1
2002	13,987	3,585	17,572	79.6	20.4
2003	17,485	4,622	22,108	79.1	20.9
2004	24,862	6,787	31,649	78.6	21.4
2005	24,718	7,197	31,914	77.5	22.5
2006	24,955	7,766	32,721	76.3	23.7
2007	20,451	6,005	26,456	77.3	22.7
2008	27,040	9,321	36,361	74.4	25.6
2009	22,619	7,191	29,810	75.9	24.1
2010	29,364	6,229	35,593	82.5	17.5
2011	33,756	7,601	41,358	81.6	18.4

LABRADOR FISHERIES SAMPLING PROGRAM

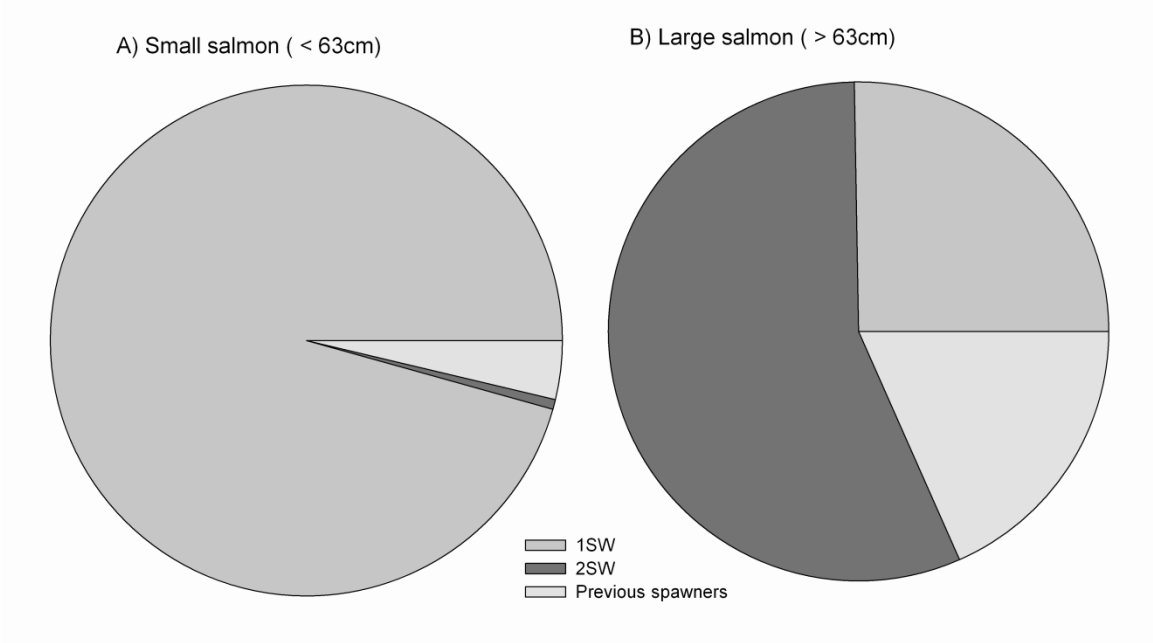
A sampling program of the subsistence fisheries in Labrador continued in 2011, conducted by the NunatuKavut Community Council (formerly the Labrador Metis Nation), Aboriginal guardians, and Conservation Officers of the Nunatsiavut Government. In 2011, a total of 391 samples were collected from the FSC fisheries, 66 from northern Labrador (SFA 1), 153 samples from Lake Melville (SFA 1), and 172 samples from southern Labrador (SFA 2). Of these samples, preliminary analysis of the 250 individuals which have been aged are used in subsequent comparisons below.



Location of samples collected from the Labrador Atlantic salmon subsistence fisheries in 2011.

Based on the interpretation of the scale data, 69.9% of all the samples taken were 1SW salmon, 20.9% were 2SW, 1% were 3SW, and 8.4% were previously spawned salmon.

By size group, small salmon (< 63 cm fork length) were 95% 1SW, 0.6% 2SW and 4% previously spawned salmon and large salmon (≥ 63 cm fork length) were 25% 1SW, 56% 2SW and 18% previously spawned salmon. These are similar to the age structure by size groups from previous years.



Proportions at sea age by small salmon and large salmon size groups.

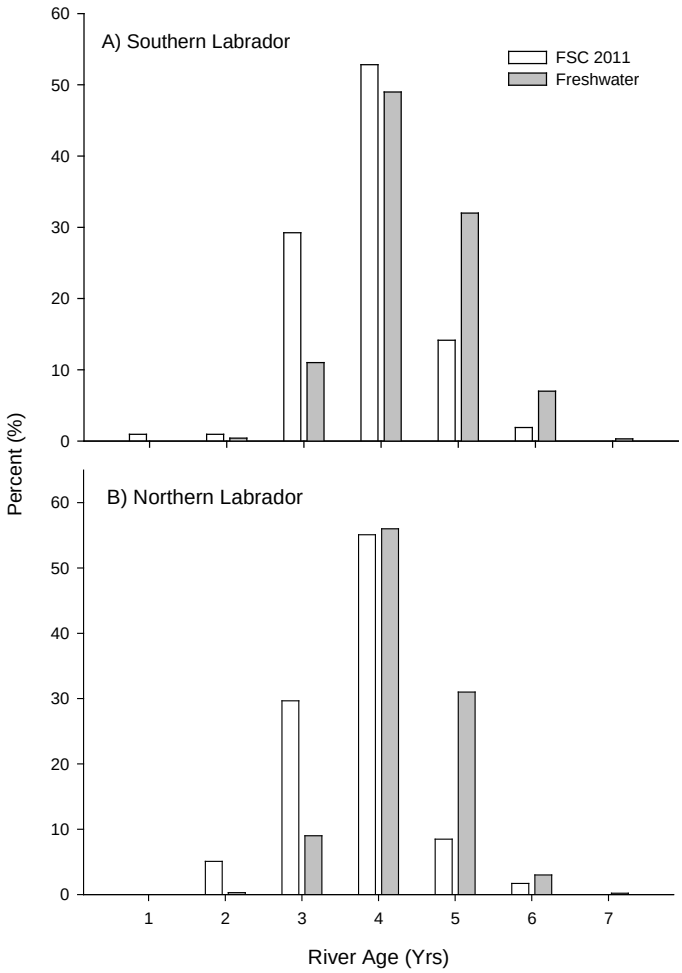
Applying these proportions by sea age to the catches of salmon considered to have been taken in coastal waters, there were approximately 472 2SW salmon harvested in the subsistence fisheries in the coastal areas of Labrador (820 large * 56% plus 2142 small * 0.6%).

The river ages of samples (53% in the north, 47% in the south) collected from the subsistence fisheries were compared to ages from scales (1,946 samples from north Labrador and 975 in southern Labrador) obtained from assessment facilities in 2000 to 2005. As noted in previous years, there was a difference in river age distribution of adults from the subsistence fisheries compared to the river age distributions of adults returning to rivers in northern Labrador, with higher proportions of river age 3 and lower proportions of river age 5 salmon in the subsistence fisheries compared to the assessment facilities. The same differences in relative proportions of river age 3 and 5 salmon were also noted for southern Labrador in 2011 The higher proportion of river age 3 smolts was also noted for Lake Melville samples, but no samples are available from inriver monitoring to assess whether salmon from these populations have similar smolt age distributions to those populations in the coastal rivers of northern Labrador.

There were few river age 1 or 2 fish in the samples from the Labrador fishery (SFA 1 and 2). The very low percentages of river age 1 and age 2 salmon in the catches of 2011, as in previous years, suggest that very few salmon from the most southern stocks of North America (USA, Scotia-Fundy) are exploited in these fisheries. The majority of salmon in the

fishery are river ages 3 to 6, indicating that the fisheries are exploiting northern area stocks, predominantly Labrador as well as some stocks from Quebec and portions of Newfoundland.

No tagged salmon were recovered or reported from the Labrador fisheries in 2011.



River age distributions of Atlantic salmon sampled from the subsistence fisheries of Labrador in 2011 relative to the river age distributions of adult salmon at inriver monitoring facilities in Labrador.

Update on genetic mixed stock analysis of Atlantic salmon harvested in the coastal Labrador subsistence fishery

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Summary

Starting in 2011, DFO was involved in a one year collaborative project with the Atlantic Salmon Federation, Nunatsiavut Government and NunatuKavut Community Council to examine the stock composition of the subsistence catch of salmon in coastal Labrador. This project involved collection of genetic samples from the 2011 catch and examination of scales collected in the 2006-2010 period. Genetic analysis involved the genotyping of 15 microsatellite loci. Genetic analysis of DNA from ~1600 Atlantic salmon from the subsistence harvest in coastal Labrador has recently been completed. Salmon baseline data for Newfoundland and Labrador (~80 rivers) collected by Fisheries and Oceans is nearing completion and will be integrated into the Canadian Atlantic salmon genetic database being produced by Laval University during the summer of 2012. Standardization and integration of the components of the Canadian baseline is currently underway. Once the standardized baseline is available, analysis of fishery composition is expected to occur early fall 2012. Preliminary analysis of simulated mixtures using the completed Newfoundland baseline samples suggests regional groupings can be identified with >95% accuracy strongly supporting the utility of this approach in addressing the question of fishery composition.

Project description:

Atlantic salmon from throughout the western Atlantic migrate to the Labrador Sea as smolts where they feed (Pippy 1982; Ritter 1989; Reddin and Short 1991; Reddin and Friedland 1999). During the summer months they move into inshore waters along the coasts of Newfoundland and Labrador and especially west Greenland where only potential MSW salmon are found. Fisheries targeting mixtures of populations have traditionally occurred either during this common feeding period in inshore waters and off Greenland or during the migratory phase of the life cycle. Failure to identify the composition of these mixed harvests risks the over exploitation and extinction of small and vulnerable populations, the loss of which may threaten the ability of species to respond to changing environmental conditions and ultimately the stability and persistence of populations and fisheries (Hilborn et al. 2003; Schindler et al 2010).

While commercial fishing on Atlantic salmon has ceased in Canadian waters, salmon of all sea ages migrating along the Labrador coast may be subject to exploitation associated with local subsistence fisheries. At present, there are four subsistence fisheries harvesting Atlantic salmon along the Labrador coast including 1)Nunatsiavut Government (formerly the Labrador Inuit Association) members fishing in the northern Labrador coastal communities of Rigolet, Makkovik, Hopedale, Postville, and Nain and in Lake Melville; 2) the Innu Nation members fishing in Natuashish and in Lake Melville from the community of Sheshatshiu; 3) Labrador residents fishing in Lake Melville and coastal communities in southern Labrador from Cartwright to Cape St. Charles and, 4) NunatuKavut Community Council (NCC - formerly the Labrador Métis Nation) members fishing in southern Labrador from Fish Cove Point to Cape St. Charles. The size of this harvest varies annually but has been estimated in

the tens of thousands of individuals (Reddin et al. 2005). The exploitation of non-Labrador salmon in this harvest remains unknown, but requires examination if the threat to depressed populations in the western Atlantic is to be evaluated.

Multiple approaches have been used to examine the composition of mixtures of salmon populations, though genetic approaches are considered the most practical and cost effective (Koljonen et al. 2007). The power of genetic approaches to resolve populations contributing to mixed harvests depends on the degree of isolation among the contributing populations and the markers used. Previous studies have utilized a variety of genetic markers including allozymes (e.g., Reddin et al. 1990, Koljonen and Pella 1997), mtDNA, microsatellites (e.g., Gauthier-Ouellet et al. 2009), and single nucleotide polymorphisms (e.g., Beacham et al. 2010). Presently, microsatellites remain the preferred marker due to the high variability frequently observed (Koljonen et al. 2007), though combined panels are also receiving support (Beacham et al. 2010). Using microsatellites, Gauthier-Ouellet et al. (2009) estimated greater than 90% accuracy when analyzing simulated mixtures of Atlantic salmon caught of west Greenland to regions of North America (e.g., Labrador, New Brunswick, Maine).

Objectives

The main objectives of this work are 1) to estimate the proportion of Labrador and non-Labrador salmon harvested in the subsistence fishery in coastal Labrador and assign all salmon sampled to river or region of origin, and 2) quantify the fishery induced mortality for the various stocks comprising the mixed harvest in coastal Labrador. The inclusion of multiple years of fishery data (2006-2011) will allow a temporal examination of mixture stability and the inclusion of a greater number of locations as not all areas of coastal Labrador have been sampled in each year.

Methodology

Sampling. Baseline samples of salmon parr from approximately 80 rivers throughout Newfoundland and Labrador have been collected and are presently being analyzed as part of ongoing work (see Figure 1). This baseline will be incorporated into the North American Atlantic salmon microsatellite baseline currently under development. Fishery samples were also collected from scales collected in conjunction in annual fishery sampling from 2006-2010 and tissue samples collected in 2011.

DNA Analysis. For each salmon, adipose fin clips were collected and stored in 95% ethanol. DNA was extracted from fin clips using the QIAGEN DNeasy Tissue Kit following the guidelines of the manufacturer. Microsatellite polymorphism will be quantified at 16 loci as follows: Ssa85, Ssa202, Ssa197 (O'Reilly *et al.* 1996), Ssosl417 (Slettan *et al.* 1995), SsaD85 (T. King, unpublished), SsaD58, SsaD71, SsaD144, SsaD486 (King *et al.* 2005), MST-3 (Presa & Guyomard 1996), Sssp1605, Sssp2201, Sssp2210, Sssp2215, Sssp2216 and SsspG7 (Paterson *et al.* 2004).

Data Analysis. Bayesian clustering without baseline data was performed using STRUCTURE v.2.2.3 (Pritchard et al. 2000) to provide an estimate of the number of distinct groups present without information on baseline populations. This approach assumes HWE and linkage equilibria among loci, introduces population structure, and assigns populations that are not in linkage equilibrium using a MCMC (Markov chain Monte Carlo) algorithm to estimate the number of populations (K). Mixture analysis was conducted using ONCOR (Kalinowski

2003), which uses a Bayesian approach and baseline data to perform genetic mixture analysis. The ability of available baselines to identify individual rivers and regional groupings was explored using the analysis of simulated mixtures of baseline data and a leave-one-out cross validation procedure. Once mixtures have been analyzed, mortality associated with the Labrador fishery will be estimated as the proportion of stocks taken in the mixed harvest estimated using the total number of fish harvested in a given year and the total estimated production of source populations used by the International Council for the Exploration of the Sea to provide advice to NASCO on salmon populations in North America (ICES, 2006).

Preliminary Results

Sampling and DNA analysis. Baseline samples have presently been analyzed from ~80 locations throughout Newfoundland and Labrador with sample sizes ranging from 50-100 per location. Microchecker (van Oosterhout et al. 2004) revealed little evidence of null alleles or large allele drop out and no deviations from Hardy Weinberg equilibrium or linkage disequilibrium were detected. Significant hierarchical spatial structuring was observed with average F_{ST} value of 0.025 among rivers and evidence of 4-6 large scale regional clusters present based on Bayesian analysis (Fig. 3). Similarly, genetic analysis has been completed on ~1600 Atlantic salmon collected from the subsistence harvest in coastal Labrador spanning the period 2006-2011. These samples were collected in conjunction with the annual subsistence harvest (see Fig. 1) and generally occurred between early July and early August (Fig 2). Analysis of Newfoundland and Labrador specific dataset is currently being conducted. Also standardization of the various components of the Canadian Baseline is currently underway and once the standardized baseline is available, analysis of fishery composition is expected to occur early fall 2012.

Mixture analysis. Two types of simulations using ONCOR were conducted to explore the accuracy of river and regional specific mixture analysis. 100% simulations using the 4 dominant spatial groups present in the baseline data revealed >97% accurate assignment of each mixture component (Fig. 4). Approximately 50% of individual rivers achieved assignment accuracy levels of >95% (data not shown). Realistic fishery mixture simulations also revealed highly accurate assignments to regional clusters independent of the proportion of Labrador salmon present in the fishery composition (Fig. 5). Similar analysis of accuracy and sensitivity will be conducted using the complete baseline once available, prior to actual fishery sample analysis.

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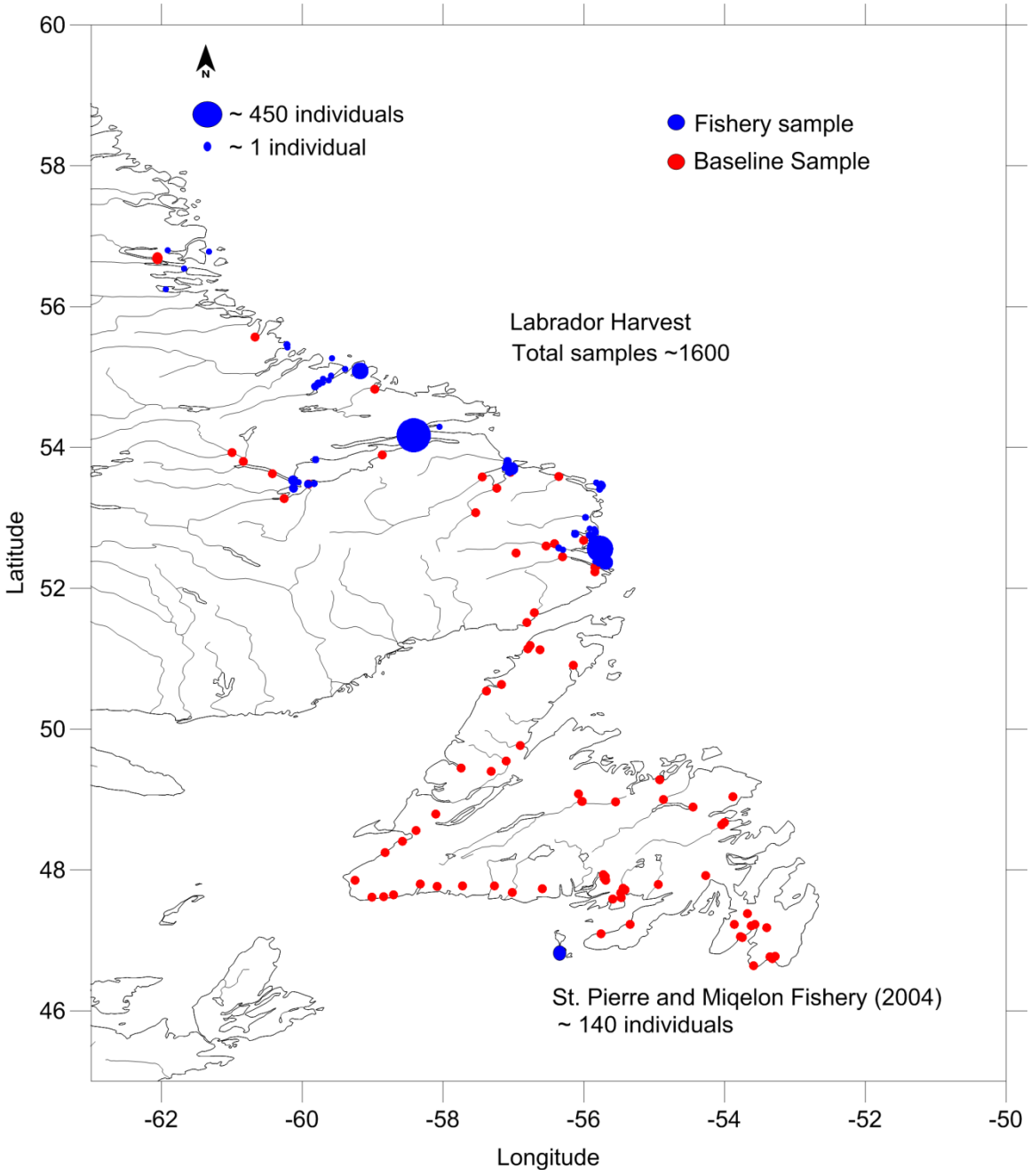

Figure 1. Map of baseline and fishery sample locations. Baseline samples were collected 2008-2011 and fishery samples are tissue samples from 2011 and scale samples from 2006-2010.

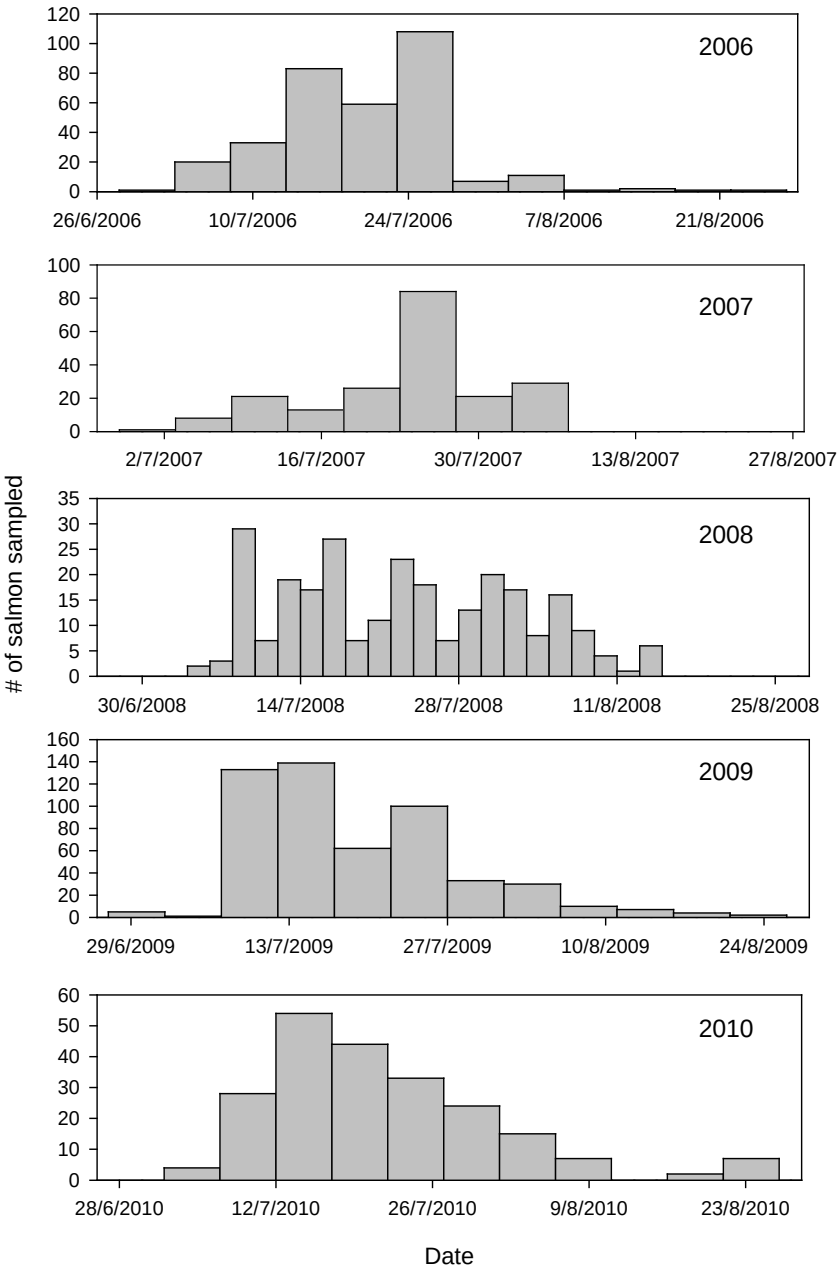

Figure 2. Distribution of sampling dates for fishery sample collected 2006-2010. 2011samples are presently being processed and results will be available in the near future.

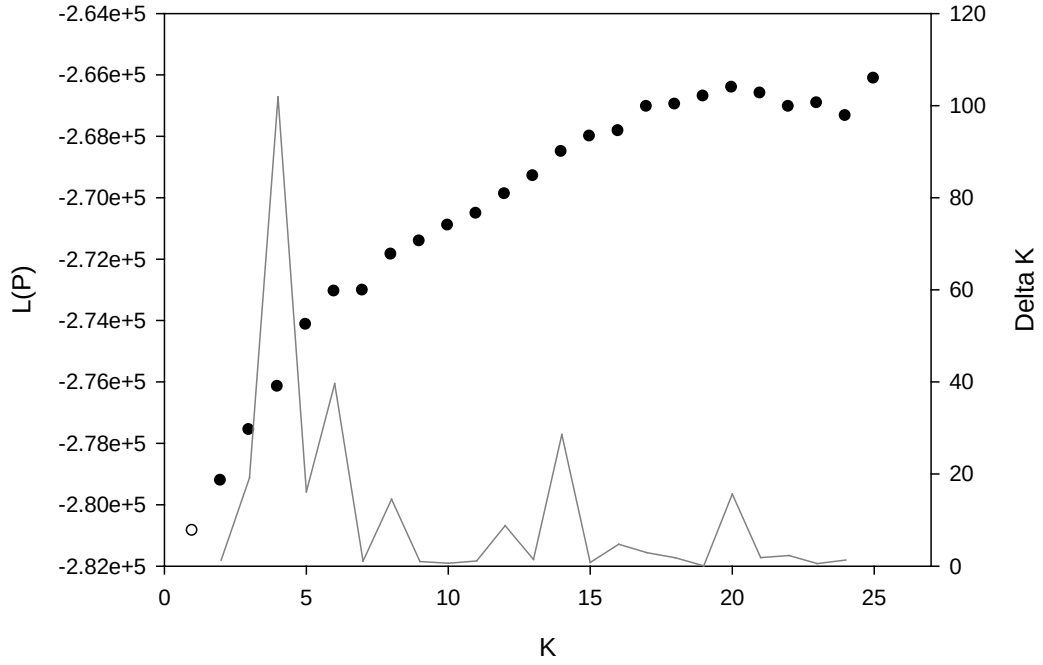

Figure 3. Bayesian clustering of Newfoundland and Labrador baseline Atlantic salmon sample using STRUCTURE. Solid dots represent likelihood associated with each possible number of clusters (k), and solid line represents the delta K value. Analysis conducted with 250,000 iterations burn in followed by 500,000 iterations and was repeated five times to ensure convergence.

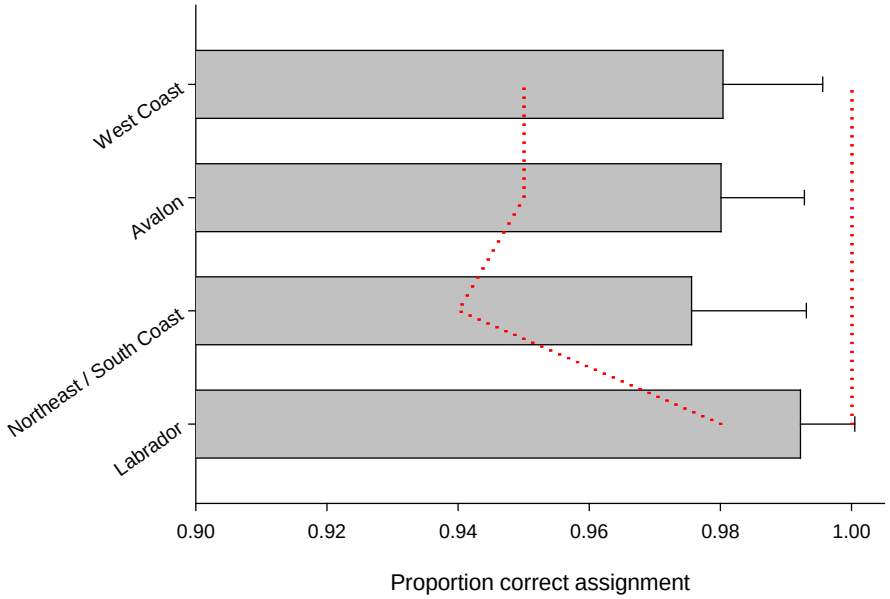

Figure 4. Assignment success for Atlantic salmon from Newfoundland and Labrador to four groups identified using Bayesian clustering and 100% mixture simulations. Values represent means of 1000 simulations, with standard deviations (error bars) and 95% confidence intervals (red dashed lines).

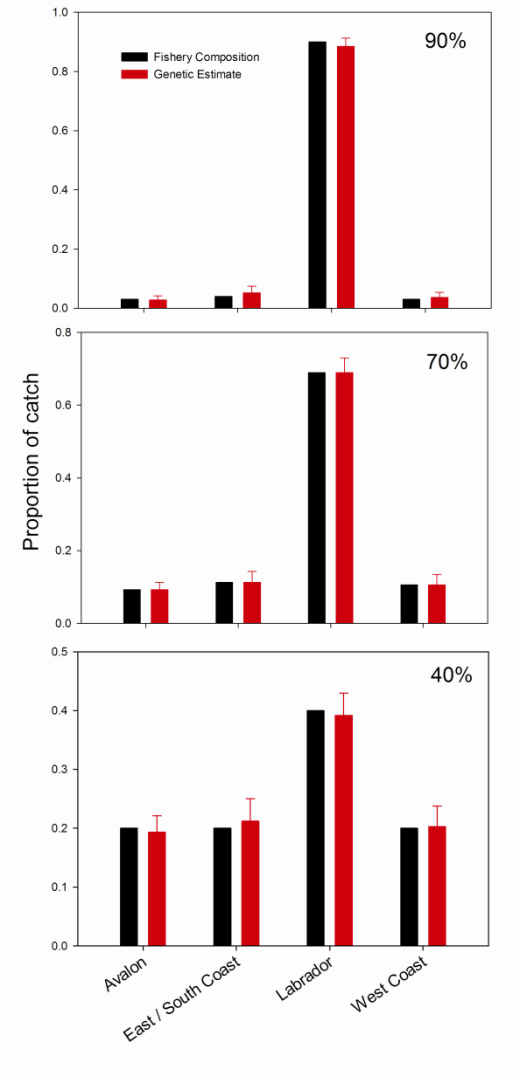

Figure 5. Assignment success for realistic fishery mixtures of Atlantic salmon from Newfoundland and Labrador to four groups identified using Bayesian clustering. Mixtures of 90, 70, 40% Labrador origin salmon were simulated. Black bars represent known values and red bars represents means of 1000 simulations, with standard deviations (error bars).

Annex 1. Recreational fisheries catches and harvests in Labrador and by Salmon Fishing Areas.

	Small salmon			Large salmon			% Total
Year	Retained	Released	Total	Retained	Released	Total	Released
Labrador							
2000	2,561	7,095	9,656	262	1,446	1,708	75.2%
2001	2,049	4,640	6,689	338	1,468	1,806	71.9%
2002	2,071	5,052	7,123	207	978	1,185	72.6%
2003	2,112	4,924	7,036	222	1,326	1,548	72.8%
2004	1,808	5,968	7,776	259	1,519	1,778	78.4%
2005	2,007	7,120	9,127	291	1,290	1,581	78.5%
2006	1,656	5,815	7,471	227	1,133	1,360	78.7%
2007	1,762	4,641	6,393	235	1,222	1,457	74.7%
2008	1,688	4,650	6,338	231	1,145	1,376	75.1%
2009	1,355	3,396	4,751	216	1,219	1,435	74.6%
2010	1,375	4,081	5,456	200	1,020	1,220	76.4%
2011	1,569	5,549	7,118	0	2,114	2,114	83.0%
SFA 1							
2000	363	801	1,164	79	232	311	70.0%
2001	352	681	1,033	75	130	205	65.5%
2002	129	482	611	28	140	168	79.8%
2003	174	777	951	36	633	669	87.0%
2004	116	1,152	1,268	24	582	606	92.5%
2005	192	1,044	1,236	36	192	228	84.4%
2006	170	1,156	1,326	28	357	385	88.4%
2007	185	1,286	1,461	36	240	276	87.9%
2008	153	890	1,043	34	438	472	87.7%
2009	207	877	1,084	48	347	395	82.8%
2010	205	1,010	1,215	50	261	311	83.3%
2011	273	868	1,141	0	715	715	85.3%
SFA 2							
2000	1,480	4,169	5,649	183	461	644	73.6%
2001	1,151	2,984	4,135	263	891	1,154	73.3%
2002	1,328	3,050	4,378	179	377	556	69.5%
2003	1,274	3,022	4,296	186	398	584	70.1%
2004	1,228	3,836	5,064	235	698	933	75.6%
2005	1,377	4,273	5,650	255	574	829	74.8%
2006	977	3,258	4,235	199	395	594	75.6%
2007	1,088	2,492	3,580	199	385	584	69.1%
2008	1,075	2,483	3,558	197	365	562	69.1%
2009	927	1,952	2,879	168	622	790	70.2%
2010	862	2,337	3,199	150	516	666	73.8%
2011	1,039	3,639	4,678	0	1,035	1,035	81.8%
SFA 14B							
2000	718	2,125	2,843	0	753	753	80.0%
2001	546	975	1,521	0	447	447	72.3%
2002	614	1,520	2,134	0	461	461	76.3%
2003	664	1,125	1,789	0	295	295	68.1%
2004	464	980	1,444	0	239	239	72.4%
2005	438	1,803	2,241	0	524	524	84.2%
2006	509	1,401	1,910	0	381	381	77.8%
2007	489	863	1,352	0	597	597	74.9%
2008	460	1,277	1,737	0	342	342	77.9%
2009	221	567	788	0	250	250	78.7%
2010	308	734	1,042	0	243	243	76.0%
2011	257	1,042	1,299	0	364	364	84.5%

Annex 6

NAC(12)6

Labrador Inuit Food, Social and Ceremonial Fishery

The traditional diet of Labrador Inuit primarily consisted of seal, caribou, salmon and char. At present, the Labrador Inuit Food, Social and Ceremonial (FSC) fishery is a trout, char and salmon net fishery which takes place in Northern and Central Labrador from May to August in a total of 7 communities. There are approximately 7500 Labrador Inuit of which one third reside in Central Labrador in the Lake Melville area in the communities of Happy Valley-Goose Bay and North West River, one third in the Labrador Inuit Settlement Area (LISA), in the communities of Rigolet, Makkovik, Postville, Hopedale and Nain and the other third reside elsewhere in Newfoundland Labrador, Canada and the world.

Each year, the Nunatsiavut Government has issued 8200 salmon tags for the FSC fishery. Each Labrador Inuit household is eligible to receive 1 licence with 7 salmon tags that can be harvested in the estuary of Lake Melville or in the LISA. The retention of salmon is only permitted from June 15th to August 31st with a mandatory weekly 24 hour take-up on Sunday as well as a 10 day closure in July for the Lake Melville area. 4000 tags are dedicated to the salmon fishery in Lake Melville while 4200 tags are distributed to the LISA communities. Of the 5 communities in LISA, 3 of the communities are in estuaries. The 2 most northern communities, Hopedale and Nain are considered to be in coastal waters as defined by DFO however it should be noted that these communities are sheltered by hundreds of islands and are 20 to 35 kilometers from open waters where the large salmon runs occur.

Unlike the other communities, the Nain and Hopedale FSC fishery primarily targets char. The majority of the nets are set from the shoreline or islands near the communities with few salmon being caught. It is estimated that only one third of the approximate 50 licence holders in Hopedale place target salmon as well as char. Only one licence holder travels away from the community to the outer islands for 1 to 2 weeks during summer months to harvest salmon. In Nain, about 15 of the estimated 60 licence holders seek out salmon at nearby islands, while the remaining licence holders harvest near the community for char.

In Makkovik, it is estimated that 75% of the fishery takes place in the estuary while 25% of the fishery takes place just outside the estuary on the coastline. Of the estimated 80 licence holders, there are approximately two licence holders that travel off the mainland to an island about 1 km away during 2 days in the summer to harvest salmon. The majority of licence holders in this community target trout, char and salmon.

It is estimated that 100 % of Postville's and Lake Melville's fishery takes place in estuaries while approximately 90% Rigolet's fishery takes place in estuaries. Postville's fishery targets char, trout and salmon while the fishery in Rigolet and Lake Melville target salmon and trout. There are 500 licences issued in the Lake Melville communities and 125 in Rigolet.

Annex 7

CNL(12)10

Request for Scientific Advice from ICES

1. With respect to Atlantic salmon in the North Atlantic area:

1.1 provide an overview of salmon catches and landings by country, including unreported catches and catch and release, and production of farmed and ranched Atlantic salmon in 2012[1];

1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management[2];

1.3 provide a review of examples of successes and failures in wild salmon restoration and rehabilitation and develop a classification of activities which could be recommended under various conditions or threats to the persistence of populations;

1.4 advise on the potential threats to Atlantic salmon from exotic salmonids including rainbow trout and brown trout where appropriate;

1.5 provide a compilation of tag releases by country in 2012;

1.6 identify relevant data deficiencies, monitoring needs and research requirements.

2. With respect to Atlantic salmon in the North-East Atlantic Commission area:

2.1 describe the key events of the 2012 fisheries[3];

2.2 review and report on the development of age-specific stock conservation limits;

2.3 describe the status of the stocks;

2.4 further develop a risk-based framework for the provision of catch advice for the Faroese salmon fishery reporting on the implications of selecting different numbers of management units[4];

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

2.5 provide catch options or alternative management advice for 2013-2016, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

2.6 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

3. With respect to Atlantic salmon in the North American Commission area:

3.1 describe the key events of the 2012 fisheries (including the fishery at St Pierre and Miquelon)[3];

3.2 update age-specific stock conservation limits based on new information as available;

3.3 describe the status of the stocks;

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

3.4 provide catch options or alternative management advice for 2013-2016 with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

3.5 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

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

4.1 describe the key events of the 2012 fisheries[3];

4.2 describe the status of the stocks[6];

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

4.3 provide catch options or alternative management advice for 2013-2015 with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

4.4 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

Notes:

1. *With regard to question 1.1, for the estimates of unreported catch the information provided should, where possible, indicate the location of the unreported catch in the following categories: in-river; estuarine; and coastal. Numbers of salmon caught and released in recreational fisheries should be provided.*
2. *With regard to question 1.2, ICES is requested to include reports on any significant advances in understanding of the biology of Atlantic salmon that is pertinent to NASCO, including information on any new research into the migration and distribution of salmon at sea and the potential implications of climate change for salmon management.*
3. *In the responses to questions 2.1, 3.1 and 4.1, ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality of the salmon gear used, on the by-catch of other species in salmon gear, and on the by-catch of salmon in any existing and new fisheries for other species is also requested.*
4. *In response to question 2.4, ICES is asked to advise on the limitations for defining management units smaller than the current NEAC stock complexes, the implications of applying probabilities of achieving CLs to separate management units versus the use of simultaneous probabilities and the choice of risk levels for achieving management objectives.*
5. *In response to questions 2.5, 3.4 and 4.3, provide a detailed explanation and critical examination of any changes to the models used to provide catch advice and report on any developments in relation to incorporating environmental variables in these models.*
6. *In response to question 4.2, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

*** The aim should be for NASCO to inform ICES by 31 January of the outcome of utilising the FWI**

Annex 8

NAC(12)4

Proposal by the US – Management Objectives

Management Objectives for Atlantic Salmon in the US and the Scotia-Fundy Region of Canada

Issue: Currently, the stated management objectives for Atlantic salmon stocks in the US and the Scotia-Fundy Region of Canada are a 25% increase in returns of 2SW salmon from the average returns in 1992-1996. This rebuilding objective was established in light of the extremely depleted state of these endangered populations. However, selection of this management objective is inconsistent with NASCO's Agreement on the Adoption of the Precautionary Approach, Action Plan for the Application of the Precautionary Approach, NASCO Guidelines for the Management of Salmon Fisheries, and scientific advice from ICES. We, therefore, recommend revisiting these management objectives.

Background:

NASCO has on many previous occasions stated a clear management objective of maintaining all stocks above their conservation limit. Some key examples are listed below:

Agreement on Adoption of the Precautionary Approach (CNL(98)46)

- An objective for the management of salmon fisheries for NASCO and its Contracting Parties is to promote the diversity and abundance of salmon stocks. For this purpose, management measures, taking account of uncertainty, should be aimed at maintaining all salmon stocks in the NASCO Convention area above their conservation limit (currently defined by NASCO as the spawning stock level that produces maximum sustainable yield), taking into account the best available information, and socio-economic factors including the interests of communities which are particularly dependent on salmon fisheries and the other factors identified in Article 9 of the Convention.
- The application of the Precautionary Approach to salmon fishery management is an integrated process which requires the following (below is a subset of what is contained in the Precautionary Approach Agreement):
    a. that stocks be maintained above the conservation limits by the use of management targets;
    b. that conservation limits and management targets be set for each river and combined as appropriate for the management of different stock groupings defined by managers;
    c. stock rebuilding programmes (including, as appropriate, habitat improvement, stock enhancement and fishery management actions) be developed for stocks that are below their conservation limits.

Action Plan for the Application of the Precautionary Approach (CNL(99)48)

- Management objectives should be aimed at maintaining all stocks above their conservation limits by the use of management targets.

NASCO Guidelines for the Management of Salmon Fisheries - 2009

- Fishing on stocks that are below CLs should not be permitted. If a decision is made to allow fishing on a stock that is below its CL, on the basis of overriding socio-economic factors, fishing should clearly be limited to a level that will still permit stock recovery within a stated timeframe.
- Mixed Stock Fisheries Management - actions should aim to protect the weakest of the contributing stocks.

In addition, ICES, the scientific advisor to NASCO, has offered the following:

- ICES considers that to be consistent with the maximum sustainable yield (MSY) and the precautionary approach, fisheries should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity.
- Conservation limits for North Atlantic salmon stocks have been defined by ICES as the level of stock (number of spawners) that will achieve long-term average maximum sustainable yield. These CLs are limit reference points; having populations fall below these limits should be avoided with high probability.
- ICES considers that to be consistent with the MSY and the precautionary approach, fisheries should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity.

Current Management Objectives for the US and the Scotia-Fundy Region of Canada and Current Status

- Provision of catch advice on fish exploited at West Greenland – 75% probability of simultaneous attainment of seven management objectives
    - Meet the 2SW CLs for the 4 northern areas of NAC (Labrador, Newfoundland, Quebec, Gulf)
    - Achieve a 25% increase in returns of 2SW salmon from the average returns in 1992-1996 for the Scotia-Fundy and USA regions
    - Meet the MSW southern NEAC CL
- Provision of catch advice on fish exploited within the NAC – 75% probability of simultaneous attainment of six management objectives
    - Meet the 2SW CLs for the 4 northern areas of NAC (Labrador, Newfoundland, Quebec, Gulf)
    - Achieve a 25% increase in returns of 2SW salmon from the average returns in 1992-1996 for the Scotia-Fundy and USA region

Region	Unit	Management objective (number of fish)	CL	Management Objective as % of CL
Scotia-Fundy	2SW Returns	10,976	24,705	44.4%
USA	2SW Returns	2,548	29,199	8.7%

ICES predicts the probability that the 2SW returns to the USA will meet or exceed management objectives in 2012 were 89%. However, even if the prediction was that there was 100% probability that US stocks would meet the management objective stated, it would mean that returns were minimally predicted to be 8.7% of the CL. This falls very short of the NASCO and ICES objective of having all stocks above CLs.

Recommendation: NASCO and ICES clearly agree that conservation and rationale management of Atlantic salmon stocks require establishing conservation limits and only allowing fishing on stocks (individually or as part of a mixed stock) which are above their conservation limits. Atlantic salmon in the U.S. and in the Scotia-Fundy region of Canada are extremely depleted and are listed on the Endangered Species Act and the Species at Risk Act, respectively. Fifteen years ago, returns were so low relative to conservation limits, the decision was made to establish management objectives for rebuilding. As noted above, rebuilding targets of a 25% increase in returns were established for the US and Scotia Fundy regions. While these may have been acceptable interim targets during the rebuilding stage, they ultimately are not consistent with the precautionary approach, ICES advice, and previous agreements of NASCO.

It is recommended that managers and scientists from the US and Canada meet intercessionally to draft a recommendation for more appropriate management objectives for Atlantic salmon stocks in the U.S. and the Scotia-Fundy Region of Canada. The recommendation from this working group would be made during the 2013 annual meeting of the NAC and the WGC with the goal to reach consensus so that the new management objectives could be utilized by ICES in preparing scientific advice, if needed, for the 2014 meeting of NASCO.

Annex 9

NAC(12)7

Update on activities related to the status of Atlantic salmon in eastern Canada in the context of the *Species at Risk Act*

The *Species at Risk Act* (SARA) was developed by the federal government of Canada as a key contribution to the common national effort to protect and conserve species at risk in Canada. SARA came into force in 2003 and one of its purposes is "*to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity.*"

In the context of species at risk conservation, recovery is the process by which the decline of an endangered, threatened or extirpated species is arrested or reversed, and threats are removed or reduced to improve the likelihood of the species' persistence in the wild. A species is considered recovered when its long-term persistence in the wild has been secured.

A recovery strategy is a planning document that identifies what needs to be done to arrest or reverse the decline of a species. It sets goals and objectives and identifies the main areas of activities to be undertaken. Depending on the status of the species and when it was assessed, a recovery strategy has to be developed within one to two years after the species is added to the List of Wildlife Species at Risk(Schedule 1 of SARA). A listed species is protected under Schedule 1, Part 2 of SARA and is subject to the SARA provisions against the killing, harming, harassing, capturing or taking of individuals (section 32), and the damage or destruction of the species residence (section 33). The SARA also prohibits damaging or destroying their Residence or any part of their Critical Habitat. Section 2 of SARA defines critical habitat as the "*habitat necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species.*"

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is the organization that assesses the status of wildlife species which may be at risk of extinction in Canada. COSEWIC assesses the status of a species or components of the populations, referred to as Designatable Units (DUs). A Designatable Unit is a discrete and evolutionarily significant component of the taxonomic species, where "significant" means that the unit is important to the evolutionary legacy of the species as a whole and if lost would likely not be replaced through natural dispersion. More details on the identification of DUs and defintions of significant are available from the COSEWIC website (http://www.cosewic.gc.ca/eng/sct2/sct2_5_e.cfm).

COSEWIC assesses wildlife species relative to six status designations:

Status designation	Definition
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species that is likely to become endangered if

Status designation	Definition
	nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC)	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD)	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.
Not At Risk (NAR)	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Reference: http://www.cosewic.gc.ca/eng/sct0/assessment_process_e.cfm#tbl6	

For a species assessed as “threatened’, “endangered”, “extirpated”, or “extinct”, the Minister of Fisheries and Oceans (DFO) must decide whether or not to list the species population (or DU) under the *Species at Risk Act*. To inform this decision and provide the basis for other SARA related functions, a Recovery Potential Assessment (RPA) is conducted to provide the information and scientific advice required to meet the various requirements of the SARA, such as the authorization to carry out activities that would otherwise violate the SARA as well as the development of Recovery Strategies. The information is also used when analyzing the socio-economic impacts of adding the species to the list as well as during subsequent consultations, where applicable. The RPA summarizes the current understanding related to the distribution, abundance, trends, extinction risk and current state of populations as well as provides information on habitat and threats. Generic terms of reference have been developed by DFO for the RPAs of aquatic species (Annex 1).

Status of Atlantic Salmon in Canada in the context of SARA

In its November 2010 assessment, COSEWIC identified 16 Designatable Units (DU) for anadromous Atlantic salmon in eastern Canada (Figure 1).

The summaries of assessments on Atlantic salmon are available to the public on the COSEWIC website (www.cosewic.gc.ca). and on the Species at Risk Public Registry (www.sararegistry.gc.ca/default.asp?lang=En&n=357EF835-1).

The 16 DUs and their status as assessed by COSEWIC are (Figures 1, 2):

Designatable Unit	Status
Nunavik Population	Data Deficient
Labrador Population	Not at Risk
Northeast Newfoundland Population	Not at Risk
South Newfoundland Population	Threatened
Southwest Newfoundland Population	Not at Risk
Northwest Newfoundland Population	Not at Risk
Quebec Eastern North Shore Population	Special Concern
Quebec Western North Shore Population	Special Concern
Anticosti Island Population	Endangered
Inner St. Lawrence Population	Special Concern
Gaspé - Southern Gulf of St. Lawrence Population	Special Concern

Designatable Unit	Status
Eastern Cape Breton Population	Endangered
Nova Scotia Southern Upland Population	Endangered
Inner Bay of Fundy Population	Endangered
Outer Bay of Fundy Population	Endangered
Lake Ontario Population	Extinct

The Inner Bay of Fundy Atlantic Salmon DU (iBoF Salmon) was designated "endangered" by COSEWIC in 2001, listed in June 2003 as "endangered", and its status of "endangered" was re-confirmed by COSEWIC in 2006. A National Recovery Plan was prepared by the Department of Fisheries and Oceans Canada (DFO) in 2002 (National Recovery Team 2002). For iBoF Salmon, the RPA was conducted in March 2008. The main conclusions of the RPA included:

- Wild iBoF salmon have declined to critically low levels and are currently at risk of extinction.
- Population projections under current conditions indicate a very high probability that, without human intervention, iBoF salmon will be extinct within 10 years.
- To date, the primary activity that has been used to prevent the extinction of iBoF salmon has been Live Gene Banking (LGB), a form of captive breeding and rearing designed to minimize the loss of the genetic diversity and support the recovery of salmon populations into iBoF rivers once conditions are suitable for their survival.
- Modeling indicates that while iBoF salmon would rapidly become extinct without the LGB program, populations are expected to persist at low population sizes in the longer term with the LGB program in place.
- The Conservation Spawner Requirement for the designatable unit (DU) (~9,919 spawning adults) is considered to be a reasonable abundance target for iBoF salmon for recovery, representing about 25% of its past abundance. It is recommended that the distribution target include as many of the 32 rivers that iBoF salmon are known to have occupied just prior to their collapse as can be achieved.
- The factors that caused the collapse of iBoF salmon since the 1980s are not well understood, though the observed change in marine survival is large enough to explain the decline. While current threats to iBoF salmon have been identified, the primary factors limiting the survival and recovery of iBoF salmon are not known.

Subsequently in 2010, DFO published the recovery strategy of the Atlantic salmon of the inner Bay of Fundy populations (DFO 2010).

The Lake Ontario DU was assessed as "extinct" by COSEWIC in May 2006. A RPA was conducted in March 2007 (DFO 2009). Key results of the RPA included:

- The Lake Ontario Atlantic Salmon population is not currently self-sustaining and the population should be considered "extinct".
- The Recovery Target for the Lake Ontario population was proposed to be based on the number of spawners returning each year with a target of 20% of historic levels.

- The entire wetted areas of the three rivers were considered Critical Habitat and Atlantic salmon redds were considered to have met the definition of a residence under SARA.
- The bottleneck to recovery is in the pre-adult (YOY, age 1+ and smolt) stages and if this bottleneck is dealt with, an Allowable Harm of 2% would not be considered an impediment to recovery for Lake Ontario Atlantic salmon.

Following on the COSEWIC assessment of November 2010, four other DUs were assessed as "threatened" or "endangered". Analyses in support of the RPA for these DUs hae begun and the schedule of RPAs to date is as follows:

- South Newfoundland Population:
    - Assessed as "threatened"
    - RPA science peer review meeting was conducted February 14-16, 2012
    - Advisory report presently being drafted and to be distributed for review
- Nova Scotia Southern Upland Population:
    - Assessed as "endangered"
    - RPA science peer review meeting was conducted May 22-25, 2012
    - Advisory report presently being drafted.
- Anticosti Island Population:
    - Assessed as "endangered"
    - Analyses have begun
    - RPA science peer review meeting anticipated by March 2013
- Eastern Cape Breton Population:
    - Assessed as "endangered"
    - Analyses have begun
    - RPA science peer review meeting anticipated by March 2013
- Outer Bay of Fundy Population:
    - Assessed as "endangered"
    - Analyses have begun
    - RPA science peer review meeting anticipated by March 2013

REFERENCES

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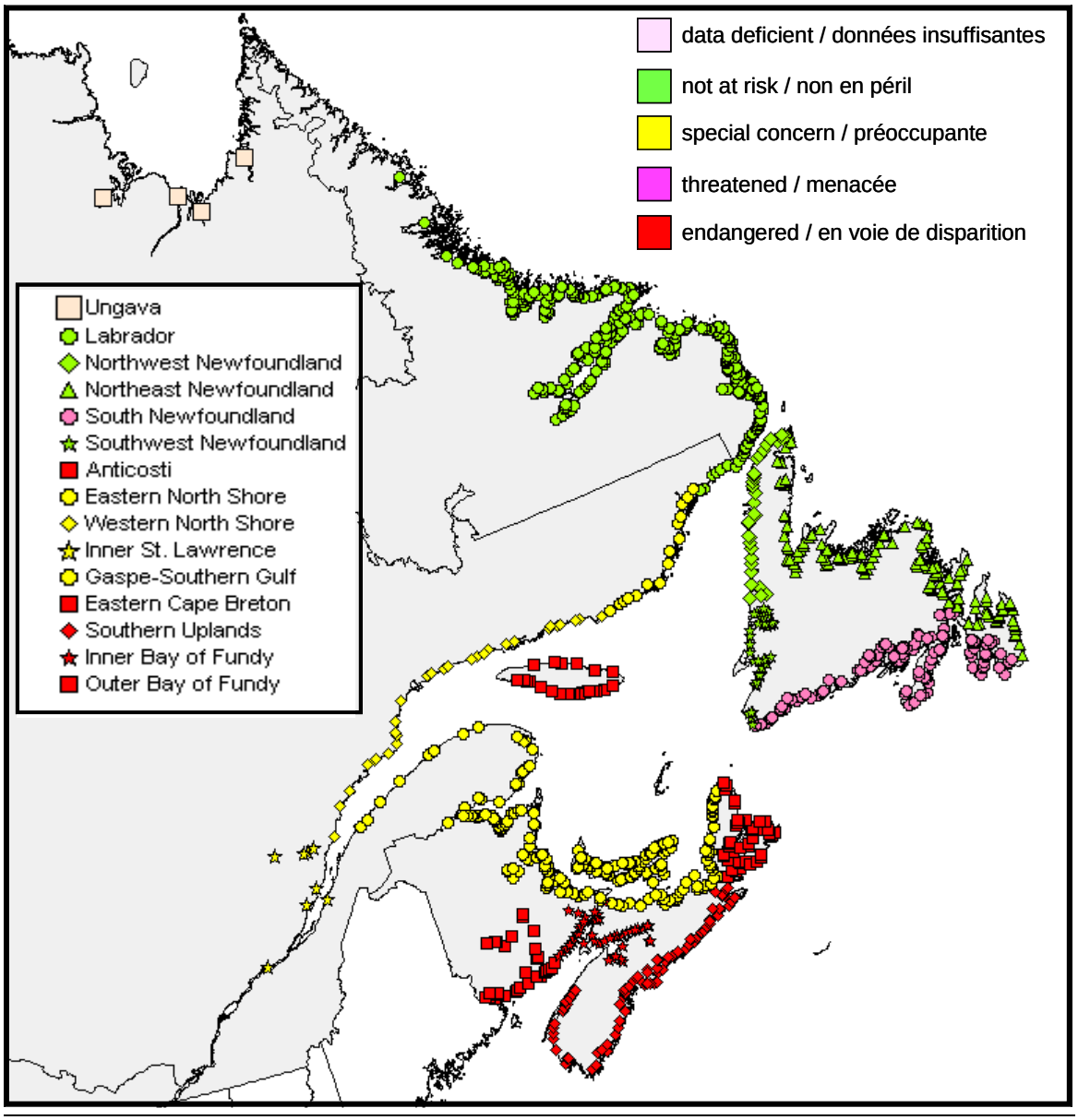

Figure 1. Summary of identified Designatable Units and their status for Atlantic salmon from eastern Canada as assessed by COSEWIC, November 2010. The Lake Ontario DU is not shown, it is located inland at the bottom left of the map.

Annex 1. Generic terms of reference developed for the Recovery Potential Assessment of aquatic species in Canada.

Context

When the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designates aquatic species as threatened or endangered, Fisheries and Oceans Canada (DFO), as the responsible jurisdiction under the Species at Risk Act (SARA), is required to undertake a number of actions. Many of these actions require scientific information on the current status of the species, population or designable unit (DU), threats to its survival and recovery, and the feasibility of its recovery. Formulation of this scientific advice has typically been developed through a Recovery Potential Assessment (RPA) that is conducted shortly after the COSEWIC assessment. This timing allows for the consideration of peer-reviewed scientific analyses into SARA processes including recovery planning.

Within context, consider inclusion of brief descriptions of:
a) species status, SARA listing decision timeframes or other regulatory timeframes.
b) any prior RPA or critical habitat assessment or analyses.
c) status of Recovery Strategy, recovery team activities, etc.

In support of listing recommendations for this species, population or designable unit (DU) by the Minister, DFO Science has been asked to undertake an RPA, based on the National Frameworks (DFO 2007a and b). The advice in the RPA may be used to inform both scientific and socio-economic elements of the listing decision, as well as development of a recovery strategy and action plan, and to support decision-making with regards to the issuance of permits, agreements and related conditions, as per section 73, 74, 75, 77 and 78 of SARA. The advice generated via this process will also update and/or consolidate any existing advice regarding this species/population/DU.

Objectives

To assess the recovery potential of species/population/DU.

<u>Assess current/recent species/ status</u>

1. Evaluate present status for abundance and range and number of populations.

2. Evaluate recent species trajectory for abundance (i.e., numbers and biomass focusing on mature individuals) and range and number of populations.

3. Estimate, to the extent that information allows, the current or recent life-history parameters (total mortality, natural mortality, fecundity, maturity, recruitment, etc.) or reasonable surrogates; and associated uncertainties for all parameters.

4. Estimate expected population and distribution targets for recovery, according to DFO guidelines (DFO 2005, and 2011).

5. Project expected population trajectories over three generations (or other biologically reasonable time), and trajectories over time to the recovery target (if possible to achieve), given current parameters for population dynamics and associated uncertainties using DFO guidelines on long-term projections (Shelton et al. 2007).

6. Evaluate residence requirements for the species, if any.

Assess the Habitat Use

7. Provide functional descriptions (as defined in DFO 2007b) of the required properties of the aquatic habitat for successful completion of all life-history stages.

8. Provide information on the spatial extent of the areas that are likely to have these habitat properties.

9. Identify the activities most likely to threaten the habitat properties that give the sites their value, and provide information on the extent and consequences of these activities.

10. Quantify how the biological function(s) that specific habitat feature(s) provide to the species varies with the state or amount of the habitat, including carrying capacity limits, if any.

11. Quantify the presence and extent of spatial configuration constraints, if any, such as connectivity, barriers to access, etc.

12. Provide advice on how much habitat of various qualities / properties exists at present.

13. Provide advice on the degree to which supply of suitable habitat meets the demands of the species both at present, and when the species reaches biologically based recovery targets for abundance and range and number of populations.

14. Provide advice on feasibility of restoring habitat to higher values, if supply may not meet demand by the time recovery targets would be reached, in the context of all available options for achieving recovery targets for population size and range.

15. Provide advice on risks associated with habitat "allocation" decisions, if any options would be available at the time when specific areas are designated as critical habitat.

16. Provide advice on the extent to which various threats can alter the quality and/or quantity of habitat that is available.

Scope for Management to Facilitate Recovery

17. Assess the probability that the recovery targets can be achieved under current rates of parameters for population dynamics, and how that probability would vary with different mortality (especially lower) and productivity (especially higher) parameters.

18. Quantify to the extent possible the magnitude of each major potential source of mortality identified in the pre-COSEWIC assessment, the COSEWIC Status Report, information from DFO sectors, and other sources.

19. Quantify to the extent possible the likelihood that the current quantity and quality of habitat is sufficient to allow population increase, and would be sufficient to support a population that has reached its recovery targets.

20. Assess to the extent possible the magnitude by which current threats to habitats have reduced habitat quantity and quality.

Scenarios for Mitigation and Alternative to Activities

21. Using input from all DFO sectors and other sources as appropriate, develop an inventory of all feasible measures to minimize/mitigate the impacts of activities that are threats to the species and its habitat (steps 18 and 20).

22. Using input from all DFO sectors and other sources as appropriate, develop an inventory of all reasonable alternatives to the activities that are threats to the species and its habitat (steps 18 and 20).

23. Using input from all DFO sectors and other sources as appropriate, develop an inventory of activities that could increase the productivity or survivorship parameters (steps 3 and 17).

24. Estimate, to the extent possible, the reduction in mortality rate expected by each of the mitigation measures in step 21 or alternatives in step 22 and the increase in productivity or survivorship associated with each measure in step 23.

25. Project expected population trajectory (and uncertainties) over three generations (or other biologically reasonable time), and to the time of reaching recovery targets when recovery is feasible; given mortality rates and productivities associated with specific scenarios identified for exploration (as above). Include scenarios which provide as high a probability of survivorship and recovery as possible for biologically realistic parameter values.

26. Recommend parameter values for population productivity and starting mortality rates, and where necessary, specialized features of population models that would be required to allow exploration of additional scenarios as part of the assessment of economic, social, and cultural impacts of listing the species.

Allowable Harm Assessment

27. Evaluate maximum human-induced mortality which the species can sustain and not jeopardize survival or recovery of the species.

Expected Publications

Include a bulleted list with the types of publications that are expected to be produced from the meeting.

- Science Advisory Report(s)
- Proceedings
- Research Document(s)

Participation

Include a bulleted list of the groups (not individuals) invited to participate in the meeting.

- Fisheries and Oceans Canada (DFO) (specify sectors e.g., Ecosystems and Oceans Science, and Ecosystems and Fisheries Management sectors)
- Provincial/Territorial jurisdictions/Wildlife Management Boards (specify)

Academia or Academics
Aboriginal communities/organizations
Industry (specify e.g., fishing industry, shipping industry)
Other invited experts (if there are participants invited that do not fit into the other categories e.g., environmental non-government organizations)

References

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Annex 10

NAC(12)00

List of Papers

NAC(12)00	List of papers
NAC(12)1	Provisional Agenda
NAC(12)2	Draft Agenda
NAC(12)3	NAC Annual Report 2011 (Tabled by the US)
NAC(12)4	Proposal by the US – Management Objectives
NAC(12)5	NAC Annual Report 2011 (Tabled by Canada)
NAC(12)6	Labrador Inuit Food, Social and Ceremonial Fishery
NAC(12)7	Update on activities related to the status of Atlantic salmon in eastern Canada in the context of the Species at Risk Act
NAC(12)8	Report of the Labrador Atlantic salmon subsistence fisheries, sampling programme and progress on genetic analyses of stock
NAC(12)9	Draft Report of the Twenty-Ninth Annual Meeting of the North American Commission
NAC(12)10	Report of the Twenty-Ninth Annual Meeting of the North American Commission – First version
NAC(12)11	Report of the Twenty-Ninth Annual Meeting of the North American Commission – Final Version
NAC(12)12	Agenda
NAC(12)13	ICES Presentation to the North American Commission

REPORT OF THE

TWENTY-NINTH ANNUAL MEETING

OF THE

NORTH-EAST ATLANTIC COMMISSION

5 – 8 JUNE 2012
Edinburgh, Scotland, UK

Chairman: Mr Raoul Bierach (Norway)

Vice-Chairman: Dr Ciaran Byrne (European Union)

Rapporteur: Mr Manson Wright (European Union)

Secretary: Dr Malcolm Windsor

NEA(12)6

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Report of the Twenty-Ninth Annual Meeting of the North-East Atlantic Commission of the North Atlantic Salmon Conservation Organization

George Hotel, Edinburgh, Scotland, UK

5 - 8 June, 2012

1. Opening of the Meeting

1.1 The Chairman, Mr Raoul Bierach (Norway), opened the meeting and welcomed participants to the Twenty-Ninth Annual Meeting of the Commission.

1.2 An opening statement was made on behalf of the Non-Government Organizations (NGOs) attending the Annual Meeting (Annex 1).

1.3 A list of participants at the Twenty-Ninth Annual Meeting of the Council and Commissions is included on page 181 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its agenda, NEA(12)3 (Annex 2).

3. Nomination of a Rapporteur

3.1 Mr Manson Wright (European Union) was appointed as Rapporteur for the meeting.

4. Election of Officers

4.1 Mr Raoul Bierach (Norway) was re-elected as Chairman and Dr Ciaran Byrne (European Union) was re-elected as Vice-Chairman of the Commission for a period of two years commencing at the close of the Twenty-Ninth Annual Meeting.

5. Review of the 2011 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5.1 The representative of ICES, Mr Gérald Chaput, presented the scientific advice on salmon stocks relevant to the North-East Atlantic Commission, CNL(12)8. His presentation is available as document CNL(12)19. The Advisory Committee (ACOM) report from ICES, which contains the scientific advice relevant to all Commissions, is included on page 117 of this document.

5.2 The representative of the NGOs asked for clarification from the European Union on the reasons for the increase in coastal netting in England and Wales and Sweden in 2011. The representative of the EU indicated that in Sweden the increase was due to one fisherman using a new fishing method that is not regulated and that had resulted

in a catch of about 2,000 salmon in 2011. The Swedish authorities are exploring options to prevent the use of this fishing method in the future. In England and Wales, the increase was due to increased abundance of salmon, as confirmed from counters in rivers, and catch per unit effort. The operation of the fishery was considered to be justified because all stocks contributing to the fishery are stable or increasing according to the EU Habitat Restoration Directive.

5.3 The representative of the NGOs commented that there had also been an increase in abundance of salmon at West Greenland but no increase in that fishery had been permitted so the increased catch in England and Wales does not seem to be in accordance with NASCO's goal of increasing fairness and balance in the management of distant-water and homewater fisheries. The representative of the EU responded that in the case of the mixed-stock fishery in England and Wales all the contributing stocks were stable or increasing and that is not the case for the stocks being fished at West Greenland. The representative of the NGOs indicated that he did not accept that argument.

5.4 The representative of Denmark (in respect of the Faroe Islands and Greenland) commented that no decision had been taken by NASCO concerning a sharing agreement for the salmon fishery at Faroes but there had been discussions within the Commission. In response to a question from Denmark (in respect of the Faroe Islands and Greenland), the representative of ICES indicated that much effort had been put into developing forecast models at the country level and that this should be possible in the near future. The representative of the EU noted that advice is presently provided at the stock complex level and that the extent that advice can be provided at a finer scale would depend on data availability. He asked if the way forward would be for ICES to explore the implications of using different numbers of management units in terms of data availability and risk levels. The representative of ICES indicated that managers would need to consider the implications of providing advice on the basis of finer-scale units as the more stocks that are considered the harder it is to achieve conservation limits in all stocks.

6. Progress with development of a Risk Framework for the Faroese Fishery

6.1 The Chair noted that the representative of ICES had indicated that feedback was sought from managers on the seasons that would apply to a fishery at Faroes (January – December or October to May), the choice of management units, the specification of management objectives and a sharing agreement for the Faroes fishery. Previous discussions on these issues had been held both at the 2011 Annual Meeting and inter-sessionally and these had been summarized in document NEA(11)3. ICES had been requested to further develop the risk framework and progress reports had been provided in both 2011 and 2012. The representative of ICES advised the Commission that following the work over the last year the same elements used to provide advice for the West Greenland fishery are now available in relation to the fishery at Faroes.

6.2 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that she was not ready to move forward on agreeing a risk framework as there is a need for internal discussions including consultations with stakeholders. The representative of the Russian Federation asked if deadlines could be set but the representative of Denmark (in respect of the Faroe Islands and Greenland) indicated

that she could not commit to a deadline at this stage. However, she intended to use the momentum from the Annual Meeting to commence this process and she would like to return to this issue at the next Annual Meeting. She referred to the mixed-stock fisheries in other parts of the Commission area and wished to see progress from States of Origin with regard to these fisheries. The Chairman noted that a problem could arise if there was a harvestable surplus and no mechanism had been agreed for setting a quota. He indicated that it was, therefore, important to make progress on this issue and he asked that the representative of Denmark (in respect of the Faroe Islands and Greenland) keep him advised of progress and that the Commission would return to this issue at its meeting next year.

7. Regulatory Measures

7.1 At its 2011 Annual Meeting, the Commission had adopted a decision regarding the salmon fishery in Faroese waters in 2012, NEA(11)10.

7.2 The Chairman asked the Parties if they could accept the Framework of Indicators (FWI) as a way to identify if there had been any significant change in the previously provided multi-annual management advice for the Faroese salmon fishery and that could be used in support of a multi-annual measure or decision. The Commission adopted the FWI developed by ICES. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that a multi-annual measure would be acceptable to the Faroe Islands if the same wording was used as that contained in NEA(11)10 but adjusted to reflect the fact that it would be a three year measure. This wording states that the Commission had decided not to set a quota for the salmon fishery and that that the Faroe Islands will manage any salmon fishery on the basis of the advice from ICES regarding the stocks contributing to the fishery in a precautionary manner and with a view to sustainability. Accordingly, the Chairman circulated a Draft Decision regarding the salmon fishery in Faroese waters in 2013, 2014 and 2015, NEA(12)5. The Commission adopted this Decision, NEA(12)7 (Annex 3) on the assumption that the Faroe Islands would again manage any fishery on the basis of the ICES advice and in a precautionary manner.

7.3 The Commission agreed to adopt the same procedure as the West Greenland Commission in order to apply the FWI. Under this arrangement a small group comprising one representative from each member of the Commission would be established towards the end of this year and would work by correspondence to coordinate the data collection and application of the FWI. The Secretary will contact the Parties to seek their nominations for the Group and liaise with the Chairman of the Commission. He would also report the Group's findings to the Parties and to ICES in January in each year when the FWI is used.

7.4 The representative of Norway informed the Commission that in accordance with the procedure agreed in 2009, the Russian Federation and the EU had been consulted with regard to the salmon fisheries in Finnmark in 2012. There had also been constructive discussions at this annual meeting.

7.5 The representative of the Russian Federation indicated that the results of earlier tagging experiments and recent genetic projects indicate that quite a large number of salmon of Russian origin are harvested in the interceptory mixed-stock coastal

fisheries in Northern Norway. This fishery cannot avoid harvesting salmon from rivers where the stocks are most at risk, and this is a concern for the Russian Federation. He indicated that the position of the Russian Federation is that this mixed-stock fishery should be phased out. In 2011, in order to provide a better scientific basis for the future development of a sustainable, long-term and knowledge-based management regime for salmon stocks in the Barents region of Norway, Russia and Finland, a new ENPI cross-border-cooperation (CBC) project 'Kolarctic salmon' was launched. The project is a joint venture between management, research, salmon fishing organizations and salmon fishermen in the participating countries. The project will run from 2011 to 2013 and the results will provide a better basis for the decision-making process to regulate the coastal fisheries in both Norway and Russia. In 2009, at the Twenty-Sixth Annual Meeting of NASCO, Norway and the Russian Federation started informal consultations to review the regulations for coastal salmon fisheries in Northern Norway, and these have been conducted on an annual basis. Informal consultations continued at this Annual Meeting and the Parties have agreed that their dialogue will continue.

7.6 The representative of Denmark (in respect of the Faroe Islands and Greenland) agreed with the intervention of the Russian Federation and urged Norway to start a process to end the coastal fishery in the same way that the Faroe Islands had done in its waters. She suggested that there should be an agenda item at the next annual meeting to allow for a focus on the management of mixed-stock fisheries on the basis of information contained in the Implementation Plans. The Commission agreed to this proposal.

7.7 The representative of the European Union expressed gratitude to Norway for the consultations that had taken place and he looked forward to further cooperation on this matter.

7.8 The representative of the NGOs indicated that he was pleased to hear about progress on this matter and supported the proposal for an agenda item on mixed-stock fisheries at the 2013 annual meeting. He asked the representatives of Norway and the European Union when management measures might be introduced for the coastal fishery and the fishery in the Tana River. The representative of Norway indicated that management measures are in place, having been introduced in 2008 and again in 2010, and have significantly reduced the coastal mixed-stock fishery in Finnmark. The representative of the European Union advised that it is difficult to predict but is pleased that the process has commenced again.

8. Risk of Transmission of *Gyrodactylus salaris* in the Commission Area

8.1 The representative of Norway informed the Commission that out of a total of 48 rivers that had been infected with *G. salaris*, 20 rivers are now free from the parasite after successful rotenone treatments and 3 rivers have been treated and are being monitored for five years to assess the success of the treatment. It had been planned to treat the Vefsna region in northern Norway in 2010 and 2011. There are 10 infected rivers in this region and *G. salaris* had been found on Arctic char (*Salvelinus alpinus*) in lakes. An extensive survey carried out in 2010 had found the parasite on Arctic char in a total of three lakes located in the same catchment area. The largest lake has an area of 10 square kilometers and a depth of 68 meters and a lake of this size had not been previously treated with rotenone. Studies indicated that the best time for lake

treatment is in the autumn before the fall turnover. The plan is to treat all 10 infected rivers in this region twice; the first treatment was conducted in 2011 and the second treatment will take place in 2012. The lakes will be treated once.

8.2 The representative of Norway further reported that in 2011 a new attempt was made to eliminate *G. salaris* by the use of acid aluminium in the River Lærdalselva. The treatment will be repeated in 2012. While it has not yet been possible to eradicate *G. salaris* in an infected river using this treatment method, there have been some significant developments concerning the use of acid aluminium in the last two years.

8.3 He indicated that in the river Driva, in the central part of Norway, salmon can migrate 90 km upstream. To reduce the area to be treated with rotenone it is planned to build a fish barrier at a point 30 km upstream in the river. If all the permits are granted and funding obtained, the barrier will be built during the winter of 2013/2014. In the Rauma region, in western Norway, there are 5 infected rivers; surveys are being conducted and planning is underway with the aim of carrying out rotenone treatment in 2013 and 2014. The Norwegian programme to eradicate *G. salaris* cost £14 million pounds in 2012.

8.4 The representative of the NGOs commended Norway for the measures it has taken in relation to this parasite.

9. Announcement of the Tag Return Incentive Scheme Prize

9.1 The Chairman announced that the draw for the North-East Atlantic Commission prize in the NASCO Tag Return Incentive Scheme was made by the Auditor on 9 May. The winning tag was applied to a 7lb salmon on 6 May 2011 and was recaptured by fly on the Dongray Hall beat of the River Dee in Wales on 11 October 2011. The fish was returned to the water. The winner of the Commission's prize of $1,500 was Mr B. Green, Wrexham, Wales. The Commission offered its congratulations to the winner.

10. Recommendations to the Council on the Request to ICES for Scientific Advice

10.1 The Commission agreed the request for scientific advice from ICES prepared by the Standing Scientific Committee in relation to the North-East Atlantic Commission area. The request to ICES, as agreed by the Council, is contained in document CNL(12)10 (Annex 4).

11. Other Business

11.1 There was no other business.

12. Date and Place of the Next Meeting

12.1 The Commission agreed to hold its next meeting during the Thirtieth Annual Meeting of the Council.

13. Report of the Meeting

13.1 The Commission agreed a report of its meeting.

Note: The annexes mentioned above begin on page 81, following the French translation of the report of the meeting. A list of North-East Atlantic Commission papers is included in Annex 5.

NEA(12)6

Compte rendu de la Vingt-neuvième réunion annuelle de la Commission de l'Atlantique du Nord-Est de l'Organisation pour la Conservation du Saumon de l'Atlantique Nord

George Hotel, Édimbourg, Écosse, Royaume-Uni

5 - 8 juin, 2012

1. Ouverture de la réunion

1.1 Le Président, M. Raoul Bierach (Norvège), a ouvert la réunion et a souhaité la bienvenue aux délégués à la Vingt-neuvième réunion annuelle de la Commission.

1.2 Une déclaration d'ouverture a été prononcée conjointement au nom des Organisations non gouvernementales (ONG) présentes à la Réunion annuelle (annexe 1).

1.3 La liste des participants à la Vingt-neuvième réunion annuelle du Conseil et des Commissions de l'OCSAN figure à la page 181 de ce document.

2. Adoption de l'ordre du jour

2.2 La Commission a adopté son ordre du jour, NEA(12)3 (annexe 2).

3. Nomination d'un Rapporteur

3.1 La Commission a nommé M. Manson Wright (Union européenne) Rapporteur de la réunion.

4. Élection des membres du Comité directeur

4.1 M. Raoul Bierach (Norvège) a été réélu Président et le Dr Ciaran Byrne (Union européenne) Vice-président de la Commission pour un mandat de deux ans, débutant à partir de la clôture de la Vingt-neuvième réunion annuelle.

5. Examen de la pêcherie de 2011 et du rapport du Comité Consultatif (ACOM) du CIEM sur les stocks de saumons dans la zone de la Commission

5.1 Le représentant du CIEM, M. Gerald Chaput, a présenté les recommandations scientifiques concernant les stocks de saumons particuliers à la Commission de l'Atlantique du Nord-Est, CNL(12)8. Sa présentation est reproduite dans le document CNL(12)19. Le rapport de l'ACOM du CIEM, qui renferme les recommandations scientifiques pour l'ensemble des Commissions, figure à la page 117 de ce présent document.

5.2 Le représentant des ONG a cherché à obtenir auprès de l'Union européenne la clarification des raisons expliquant l'augmentation des captures en filets en 2011 le long des côtes de l'Angleterre, du Pays de Galles et de la Suède. Le représentant de l'UE a indiqué qu'en Suède, l'augmentation avait été causée par un pêcheur qui avait utilisé une nouvelle technique de pêche, non réglementée. Une récolte d'environ 2 000 saumons en 2011 en était la conséquence. Les autorités suédoises examinaient les options qui permettraient d'empêcher, à l'avenir, le recours à ce type de pêche. En Angleterre et au Pays de Galles, l'augmentation était due à une plus grande abondance du saumon, comme l'avaient confirmé les compteurs dans les rivières et le nombre de captures par unité d'effort. Étant donné que tous les stocks qui contribuaient à la pêcherie s'avéraient stables, voire même en augmentation, selon la directive de l'UE concernant la restauration de l'habitat, on considérait comme justifiée l'opération de cette pêcherie.

5.3 Le représentant des ONG a souligné qu'il y avait également eu une augmentation de l'abondance du saumon au Groenland Occidental. Toutefois il n'avait pas été autorisé d'augmenter les captures au sein de cette pêcherie. Par conséquent, l'augmentation de la récolte en Angleterre et au Pays de Galles ne semblerait pas s'accorder avec l'objectif de l'OCSAN d'une approche plus équitable et pondérée dans le cadre de la gestion des pêcheries dans les eaux territoriales et dans les eaux éloignées. Le représentant de l'UE a répondu que, dans le cas de la pêcherie de stocks mixtes en Angleterre et au Pays de Galles, chacun des stocks qui en faisait partie était soit stable ou en augmentation ce qui n'était pas le cas pour les stocks soumis à la pêche au Groenland Occidental. Le représentant des ONG a indiqué qu'il n'acceptait pas cet argument.

5.4 La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué qu'aucune décision n'avait été prise par l'OCSAN à propos d'un accord de partage dans le cadre de la pêcherie de saumons aux Îles Féroé. Néanmoins, des débats avaient eu lieu au sein de la Commission. En réponse à une question posée par la représentante du Danemark (pour les Îles Féroé et le Groenland), le représentant du CIEM a précisé que de nombreux efforts avaient été déployés pour élaborer des modèles de prévisions d'abondance particuliers à chaque pays et que, de ce fait, la prévision de l'abondance à l'échelle de chaque pays devrait être possible dans un avenir proche. Le représentant de l'UE a fait remarquer que les recommandations étaient fournies, à l'heure actuelle, en fonction des complexes de stock et la possibilité d'offrir ces recommandations à une échelle plus précise dépendrait de la disponibilité des données. Il a demandé si la façon de faire progresser la situation, serait que le CIEM examine les implications d'un recours à différents nombres d'unités de gestion, par rapport à la disponibilité des données et aux niveaux de risque. Le représentant du CIEM a indiqué qu'il importait aux gestionnaires de considérer les conséquences des propositions de recommandations à une échelle plus précise. En effet plus le nombre des stocks pris en considération est important, plus il est difficile d'atteindre des limites de conservation dans tous les stocks.

6. Etat d'avancement de l'élaboration d'un cadre des risques pour la pêcherie féringienne

6.1 Le Président a noté que, selon le représentant du CIEM, les gestionnaires désiraient recevoir un retour d'information sur : les saisons de pêche à appliquer aux Îles Féroé (janvier à décembre ou octobre à mai), le choix des unités de gestion, la spécification des objectifs de gestion et sur un accord de partage concernant la pêcherie féringienne. Ces questions avaient étés débattues au cours de la Réunion annuelle précédente et, depuis, par correspondance. Un résumé de ces débats figurait dans le document NEA(11)3. Le CIEM avait été prié d'affiner le cadre des risques et, en 2011 et 2012, l'organisme avait présenté des rapports sur l'avancement de ce travail. Le représentant du CIEM a informé la Commission, qu'à la suite du travail accompli au cours de l'année précédente, on pouvait désormais avoir recours, pour la pêcherie aux Îles Féroé, aux mêmes éléments que ceux employés pour fournir les recommandations propres à la pêcherie du Groenland Occidental.

6.2 La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué qu'elle n'était pas encore prête à donner son accord à un cadre des risques car ceci nécessitait des débats internes, y compris des consultations avec toutes personnes ou organismes intéressés. Le représentant de la Fédération de la Russie a demandé si des dates limites pouvaient être fixées mais la représentante du Danemark (pour les Îles Féroé et le Groenland) a répondu qu'elle ne pouvait pas, à ce stade, s'engager à fournir une date butoir. Cependant, elle avait l'intention d'utiliser l'élan de la Réunion annuelle pour entamer ce processus. Elle aimerait ainsi revoir cette question lors de la prochaine Réunion annuelle. Elle s'est reportée aux pêcheries de stocks mixtes dans d'autres parties de la zone de la Commission et a exprimé son souhait de voir les États d'origine réaliser des progrès à propos de ces pêcheries. Le Président a fait remarquer qu'un problème pourrait se poser si un surplus récoltable se présentait et qu'aucun mécanisme n'avait été mis en place pour fixer un quota. Il a indiqué qu'il était par conséquent important d'aller de l'avant sur cette question et a demandé à la représentante du Danemark (pour les Îles Féroé et le Groenland) de le tenir au courant des progrès effectués. La Commission reverrait cette question lors de sa réunion, l'année prochaine.

7. Mesures de réglementation

7.1 Lors de sa Réunion annuelle de 2011, la Commission avait pris une décision concernant la pêcherie de saumons dans les eaux féringiennes en 2012, NEA(11)10.

7.2 Le Président a demandé aux Parties si elles étaient en mesure d'accepter le cadre des indicateurs (FWI) comme moyen d'identifier tout changement important dans les recommandations de gestion pluriannuelles déjà fournies pour la pêcherie de saumons féringienne et comme justification à une mesure ou décision pluriannuelle. La Commission a adopté le cadre des indicateurs élaboré par le CIEM. La représentante du Danemark (pour les Îles Féroé et le Groenland) a précisé que, du moment que le texte de la nouvelle mesure pluriannuelle était identique au texte contenu dans le document NEA(11)10 – à l'exception de la légère modification apportée pour illustrer le fait qu'il s'agissait d'une mesure pour 3 ans – celui-ci serait acceptable aux Îles Féroé. Ce texte indiquait que la Commission avait décidé de ne pas fixer de quota pour la pêcherie de saumons et que les Îles Féroé géreraient toute pêche au saumon

préventivement et d'une manière qui en garantirait la viabilité, selon les options proposée par le CIEM à propos des stocks qui alimentent cette pêcherie. En conséquence, le Président a distribué un avant-projet de décision concernant la pêche au saumon dans les eaux féringiennes pour 2013, 2014 et 2015, NEA(12)5. La Commission a adopté cette Décision, NEA(12)7 (annexe 3) dans l'hypothèse que les Îles Féroé continueraient de gérer toute pêcherie selon les recommandations du CIEM et d'une manière préventive.

7.3 La Commission a convenu d'adopter la même procédure que celle déjà choisie par la Commission du Groenland Occidental pour appliquer le Cadre des indicateurs (FWI). Selon cet arrangement, un petit groupe comprenant un représentant de chaque membre de la Commission serait établi vers la fin de cette année. Ce groupe travaillerait par correspondance à la coordination de la collecte des données et à l'application du FWI. Le Secrétaire contactera les Parties en vue d'obtenir leurs nominations pour le Groupe ainsi que le Président de la Commission. En janvier, les années lorsque le FWI est employé, il rendra également compte aux Parties et au CIEM des conclusions du Groupe.

7.4 Le représentant de la Norvège a informé la Commission que la Fédération de la Russie et l'UE avait été consultées à propos des pêcheries de saumons au Finnmark en 2012, conformément à la procédure convenue en 2009. Des débats productifs avaient également eu lieu au cours de cette Réunion annuelle.

7.5 Le représentant de la Fédération de la Russie a indiqué que d'après les résultats antérieurs d'essais de marquage ainsi que les récents projets génétiques, un grand nombre de saumons d'origine russe était récolté dans les pêcheries côtières d'interception de stock mixtes au nord de la Norvège. Il est en effet impossible à cette pêcherie d'éviter de récolter des saumons dans les rivières où les stocks sont les plus vulnérables, et ceci inquiétait la Fédération de la Russie. Le représentant de la Fédération de la Russie a ajouté que l'avis de la Fédération de la Russie était de supprimer progressivement cette pêcherie de stocks mixtes. En 2011, on avait lancé un nouveau projet de coopération inter frontière (CBC ENPI), intitulé "Kolarctic Salmon » (Saumon Kolartic). Ce projet visait à proposer une meilleure base scientifique à la prochaine élaboration d'un régime de gestion des stocks de saumons dans la région Barents de la Norvège, Russie et Finlande qui soit à la fois durable, à long terme et fondé sur des faits concrets. Le projet est une co-initiative faisant intervenir des organismes de gestion, de recherche et de pêche au saumon ainsi que des pêcheurs de saumons des pays participants. Le projet durera de 2011 à 2013 et les conclusions tirées de cette expérience formeront une base plus solide au processus de prise de décision qui réglemente les pêcheries côtières en Norvège et dans la Fédération de Russie. En 2009, lors de la Vingt-sixième réunion annuelle de l'OCSAN, la Norvège et la Fédération de la Russie avaient amorcé des consultations entre elles à titre informel en vue de revoir la réglementation des pêcheries côtières de saumons dans le nord de la Norvège. Ces consultations s'étaient effectuées tous les ans. Elles se sont poursuivies au cours de cette Réunion annuelle et les Parties avaient convenu de continuer leur dialogue.

7.6 La représentante du Danemark (pour les Îles Féroé et le Groenland) a abondé dans le sens de la Fédération de la Russie et a incité vivement la Norvège à commencer le processus nécessaire pour mettre fin à la pêcherie côtière comme l'avaient fait les Îles Féroé dans leurs eaux. Elle a suggéré l'ajout d'un nouveau point à l'ordre du jour de la prochaine Réunion annuelle. Ceci permettrait de se pencher particulièrement sur la gestion des pêcheries de stocks mixtes à la lumière des informations contenues dans les programmes de mise en application. La Commission a accepté cette proposition.

7.7 Le représentant de l'Union européenne a exprimé sa gratitude à la Norvège pour les consultations qui avaient eu lieu. Il se réjouissait d'avance de la continuation de leur coopération à ce sujet.

7.8 Le représentant des ONG a indiqué qu'il était heureux d'apprendre que cette question avait progressé et a soutenu la proposition de consacrer un point de l'ordre du jour de la Réunion annuelle de 2013 aux pêcheries de stocks mixtes. Il a demandé aux représentants de la Norvège et de l'Union européenne la date d'application des mesures de gestion seraient introduites pour la pêcherie côtière et la pêcherie dans la rivière Tana. Le représentant de la Norvège a répondu que des mesures de gestion étaient en place, introduites en 2008 puis de nouveau en 2010. Ceci avait réduit considérablement la pêcherie côtière de stocks mixtes au Finnmark. Le représentant de l'Union européenne a annoncé qu'il était difficile d'émettre une prédiction. Il était toutefois heureux que le processus ait été relancé.

8. Risque de Transmission du *Gyrodactylus salaris* dans la zone de la Commission

8.1 Le représentant de la Norvège a informé la Commission que, sur un total de 48 rivières contaminées par le *G. salaris*, 20 rivières étaient désormais exemptes du parasite (à la suite de traitements positifs à la roténone). De plus, trois autres rivières (sur ces 48) avaient subi un traitement et avait été placées sous contrôle pour une durée de cinq ans afin de mesurer le succès du traitement. Il avait été prévu de traiter la région Vefsna au nord de la Norvège en 2010 et 2011. Il existe 10 cours d'eau contaminés dans cette région et des ombles chevaliers (*Salvelinus alpinus*) avaient présenté des cas de *G. salaris* dans certains lacs. Une étude étendue entreprise en 2010 avait trouve ce parasite sur l'omble chevalier dans un total de trois lacs. Ces lacs se trouvaient dans le même bassin hydrographique. Le plus grand des lacs a une surface de 10 kilomètres carrés et une profondeur de 68 mètres. Un lac de cette étendue n'a jamais encore été traité à la roténone. Les études indiquent que le moment opportun pour le traitement des lacs se situe avant le brassage des eaux de l'automne. Le plan consistait à effectuer le traitement des 10 rivières contaminées de cette région en deux temps; le premier traitement avait eu lieu en 2011 et le second sera effectué en 2012. Les lacs seront soumis à un seul traitement.

8.2 Le représentant de la Norvège a ajouté que l'on avait à nouveau essayé, en 2011, d'éliminer le *G. salaris* de la rivière Lærdalselva en ayant recours à l'aluminium. Le traitement sera répété en 2012. Bien qu'il n'ait pas encore été possible de supprimer le *G. salaris* dans une rivière contaminée en utilisant ce type de traitement, ces deux dernières années, de nombreux progrès ont été réalisés dans le développement de cette méthode.

8.3 Le représentant de la Norvège a indiqué que, dans la rivière Driver, au centre de la Norvège, les saumons peuvent parcourir 90 km au cours de leur migration en amont. Afin de réduire la zone à traiter à la roténone, il est prévu de construire une barrière à poissons à 30 km en amont de la rivière. Cette barrière sera construite au cours des hivers de 2013/2014, à condition que tous les permis soient alloués et les fonds obtenus. Il existe dans la région Rauma à l'ouest de la Norvège, 5 rivières contaminées; des études sont en cours. Une planification du traitement à la roténone est également en cours, l'objectif étant de l'effectuer en 2013 et 2014. Le programme norvégien d'éradication du *G. salaris* a coûté £14 millions de livres sterling in 2012.

8.4 Le représentant des ONG a félicité la Norvège pour les mesures qu'elle avait prises à propos de ce parasite.

9. Annonce du gagnant du prix du Programme d'encouragement au renvoi des marques

9.1 Le Président a annoncé que le tirage au sort du prix de la Commission de l'Atlantique du Nord-Est du Programme d'encouragement au renvoi des marques de l'OCSAN a été effectué par le Commissaire aux comptes le 9 Mai. La marque gagnante avait été posée le 6 mai 2011 sur un saumon de 7 livres. Ce poisson fut par la suite re-capturé et remis à l'eau le 11 Octobre 2011, lors d'une pêche à la ligne dans la section Dongray Hall de la rivière Dee au Pays de Galles. M. B. Green de Wrexham au Pays de Galles, a remporté le prix de 1 500 dollars (US) de la Commission. La Commission a offert ses félicitations au gagnant.

10. Recommandations au Conseil en matière de recherches scientifiques dans le cadre de la demande adressée au CIEM

10.1 La Commission a accepté la demande au CIEM de recommandations scientifiques, telle qu'elle avait été préparée par le Comité Scientifique Permanent pour la zone de la Commission de l'Atlantique du Nord-Est. La demande de recommandations scientifiques au CIEM, approuvée par le Conseil, figure dans le document CNL(12)10 (annexe 4).

11. Divers

11.1 Aucune autre question n'a été traitée.

12. Date et lieu de la prochaine réunion

12.1 La Commission a convenu de tenir sa prochaine réunion pendant la Trentième réunion du Conseil.

13. Compte rendu de la réunion

13.1 La Commission a accepté le compte rendu de la réunion.

Note: Les annexes mentionnées ci-dessus commencent à la page 81. Une liste des documents de la Commission de l'Atlantique du Nord-Est figure à l'annexe 5.

Annex 1

Joint NGO Opening Statement to the North-East Atlantic Commission

Mr Chairman, I'm pleased to present a joint opening statement to this Commission on behalf of the NGO Group.

NGOs welcome the recommendations of the External Performance Review. We note that two of our long-term concerns for this Commission area, mixed stock fishing in home-waters and minimising the impacts of aquaculture, are specifically mentioned in the report and we look forward to working with the Parties in taking these recommendations forward.

Every year NGOs have expressed concern at failure by some Parties to act decisively to close mixed-stock fisheries in their home-waters following the good example set by EU - Ireland in 2007. This year we note with even more concern trends of a significant increase in catch by coastal nets in EU - Sweden and EU - UK (England & Wales) and an increase in effort in EU – UK (Scotland). As a result the proportion of salmon taken by coastal nets in the NEAC area is now more than a third of the total.

ICES advice has been consistent for the past several years, pointing out the threats posed by mixed-stock fishing on both components of the NEAC stock, which continue to remain close to historic low levels. NGOs have campaigned for many years for the closure of mixed-stock coastal fisheries in line with the NASCO principle of fairness between distant and home-water fisheries. We trust that Denmark in respect of Greenland and The Faroes will also deplore any increase in coastal mixed-stock fishing by any jurisdiction, and join us in putting pressure on the Parties who continue to permit the operation of such fisheries.

Some of the largest remaining mixed-stock fisheries continue to operate on the Norwegian coast and within the cross-border River Tana (Teno). We are pleased to note that discussions to limit mixed-stock fisheries in the Tana (Teno) have been instigated by Finland and Norway, and the start of the Trilateral project in Finnmark aimed at determining the genetic make-up of the Norwegian coastal fishery. However, these are unlikely to result in management changes before 2014. We are also pleased to note the request that coastal drift netting should cease in UK Northern Ireland, thanks to threats of action under the EU Habitats Directive.

In this context we acknowledge the availability of powerful genetic tools arising from the SALSEA-Merge programme to facilitate the identification of individual populations of salmon, and we urge Parties to make full use of these tools in eliminating the adverse impacts from the remaining mixed-stock coastal fisheries.

Progress in achieving the BMP guidance (in relation to minimising the impacts of aquaculture) continue to be disappointing. The twin targets of zero escapes and "natural" lice levels are far from being achieved in all jurisdictions. In Norway the number of escaped farm salmon rose last year to 365,000, a long way from zero. However, we do welcome Norway's commitment to make lice levels one of the defining factors in future salmon farming applications. I can also report that ASF and AST are working with partners to promote a range of alternative containment technologies.

The External Performance Review indicates that both these areas need further action. In the meantime the new Implementation Plan structure and reporting guidelines approved by Council offer the opportunity for more rapid progress, particularly, as the Review points out, if failures from the first cycle are identified and firm commitments obtained from the jurisdictions involved.

In terms of fish passage in freshwater, we want to re-iterate our concerns about the impacts from the proliferation of micro-hydro schemes across Europe. The good news is that three major dams have been removed in EU France, significantly improving fish passage on the Allier and Selune rivers.

Mr Chairman, wild Atlantic salmon stocks are still at perilously low levels. The Parties round this table manage some of the largest remaining stocks in the Northern hemisphere, and we call on you to honour NASCO's agreements and guidelines with firm and prompt action.

Annex 2

NEA(12)3

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Review of the 2011 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area
6. Progress with development of a Risk Framework for the Faroese Fishery
7. Regulatory Measures
8. Risk of Transmission of *Gyrodactylus salaris* in the Commission Area
9. Announcement of the Tag Return Incentive Scheme Prize
10. Recommendations to the Council on the Request to ICES for Scientific Advice
11. Other Business
12. Date and Place of the Next Meeting
13. Report of the Meeting

Annex 3

NEA(12)7

Decision regarding the salmon fishery in Faroese waters in 2013, 2014 and 2015

The North-East Atlantic Commission:

RECOGNIZING the right of the Faroe Islands to fish for salmon in their area of fisheries jurisdiction;

ACKNOWLEDGING the restraint demonstrated by the Faroe Islands by not having commercial salmon fisheries for a number of years;

RECALLING that the Parties to the North-East Atlantic Commission have previously agreed decisions for the Faroese fishery based on the scientific advice from ICES;

ACKNOWLEDGING that in the past the Faroe Islands have managed the salmon fishery in the area of its fisheries jurisdiction in consideration of the advice from ICES concerning the biological situation and the status of the stocks contributing to the fishery;

AGREEING to continue to work together to establish an agreed mechanism to allocate any exploitable surplus between the Faroe Islands and homewater fisheries on a fair and equitable basis;

NOTING that the Faroe Islands will manage any salmon fishery on the basis of the advice from ICES regarding the stocks contributing to the Faroese salmon fishery in a precautionary manner and with a view to sustainability, taking into account relevant factors, such as socio-economic needs;

ACKNOWLEDGING that Faroese management decisions will be made with due consideration to the advice of ICES concerning the biological situation and the status of the stocks contributing to the fishery;

RECOGNIZING that ICES considers it highly unlikely that the catch options provided for the North-East Atlantic Commission will change during the next three years;

NOTING that Denmark (in respect of the Faroe Islands and Greenland) will, in case of any decision to open the fishery, inform the NASCO Secretariat and all members of the Commission of that decision and the attached conditions. In that event, other members of the Commission could call for a Commission meeting in accordance with Article 10 (7) of the Convention. In such a case, it is agreed to derogate from the provisions of Rule 16 of Procedure;

RECOGNISING that a Framework of Indicators has been provided by ICES and will be applied in 2013 and 2014 to evaluate if a significant change is signalled by the indicators and therefore that a reassessment is warranted;

HEREBY DECIDES:

Not to set a quota for the salmon fishery in the Faroese Fisheries Zone for 2013. This decision will also apply in 2014 and 2015 unless the application of the Framework of Indicators shows that a reassessment is warranted.

Annex 4

CNL(12)10

Request for Scientific Advice from ICES

1. With respect to Atlantic salmon in the North Atlantic area:

1.1 provide an overview of salmon catches and landings by country, including unreported catches and catch and release, and production of farmed and ranched Atlantic salmon in 2012[1];

1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management[2];

1.3 provide a review of examples of successes and failures in wild salmon restoration and rehabilitation and develop a classification of activities which could be recommended under various conditions or threats to the persistence of populations;

1.4 advise on the potential threats to Atlantic salmon from exotic salmonids including rainbow trout and brown trout where appropriate;

1.5 provide a compilation of tag releases by country in 2012;

1.6 identify relevant data deficiencies, monitoring needs and research requirements.

2. With respect to Atlantic salmon in the North-East Atlantic Commission area:

2.1 describe the key events of the 2012 fisheries[3];

2.2 review and report on the development of age-specific stock conservation limits;

2.3 describe the status of the stocks;

2.4 further develop a risk-based framework for the provision of catch advice for the Faroese salmon fishery reporting on the implications of selecting different numbers of management units[4];

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

2.5 provide catch options or alternative management advice for 2013-2016, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

2.6 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

3. With respect to Atlantic salmon in the North American Commission area:

3.1 describe the key events of the 2012 fisheries (including the fishery at St Pierre and Miquelon)[3];

3.2 update age-specific stock conservation limits based on new information as available;

3.3 describe the status of the stocks;

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

3.4 provide catch options or alternative management advice for 2013-2016 with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

3.5 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

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

4.1 describe the key events of the 2012 fisheries[3];

4.2 describe the status of the stocks[6];

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

4.3 provide catch options or alternative management advice for 2013-2015 with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

4.4 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

Notes:

1. *With regard to question 1.1, for the estimates of unreported catch the information provided should, where possible, indicate the location of the unreported catch in the following categories: in-river; estuarine; and coastal. Numbers of salmon caught and released in recreational fisheries should be provided.*
2. *With regard to question 1.2, ICES is requested to include reports on any significant advances in understanding of the biology of Atlantic salmon that is pertinent to NASCO, including information on any new research into the migration and distribution of salmon at sea and the potential implications of climate change for salmon management.*
3. *In the responses to questions 2.1, 3.1 and 4.1, ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality of the salmon gear used, on the by-catch of other species in salmon gear, and on the by-catch of salmon in any existing and new fisheries for other species is also requested.*
4. *In response to question 2.4, ICES is asked to advise on the limitations for defining management units smaller than the current NEAC stock complexes, the implications of applying probabilities of achieving CLs to separate management units versus the use of simultaneous probabilities and the choice of risk levels for achieving management objectives.*
5. *In response to questions 2.5, 3.4 and 4.3, provide a detailed explanation and critical examination of any changes to the models used to provide catch advice and report on any developments in relation to incorporating environmental variables in these models.*
6. *In response to question 4.2, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

*** The aim should be for NASCO to inform ICES by 31 January of the outcome of utilising the FWI**

Annex 5

NEA(12)00

List of Papers

NEA(12)00	List of papers
NEA(12)1	Provisional Agenda
NEA(12)2	Draft Agenda
NEA(12)3	Agenda
NEA(12)4	Draft Report of the Twenty-Ninth Annual Meeting of the North-East Atlantic Commission
NEA(12)5	Draft Decision regarding the salmon fishery in Faroese waters in 2013, 2014 and 2015
NEA(12)6	Report of the Twenty-Ninth Annual Meeting of the North-East Atlantic Commission
NEA(12)7	Decision regarding the salmon fishery in Faroese waters in 2013, 2014 and 2015
NEA(12)8	ICES Presentation to the North-East Atlantic Commission

REPORT OF THE

TWENTY-NINTH ANNUAL MEETING

OF THE

WEST GREENLAND COMMISSION

5 – 8 JUNE 2012
Edinburgh, Scotland, UK

Chairman:	Mr Alan Gray (European Union)
Vice-Chairman:	Mr George Lapointe (US)
Rapporteur:	Ms. Marie Debieuvre (European Union)
Secretary:	Dr Malcolm Windsor

WGC(12)9

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WGC(12)9

Report of the Twenty-Ninth Annual Meeting of the West Greenland Commission of the North Atlantic Salmon Conservation Organization

George Hotel, Edinburgh, Scotland, UK

5 - 8 June 2012

1. Opening of the Meeting

1.1 In the absence of the Chairman, the Vice-Chairman, Mr George Lapointe (United States), opened the meeting and welcomed participants to the Twenty-Ninth Annual Meeting of the Commission.

1.2 An opening statement was made on behalf of the NGOs (Annex 1).

1.3 A list of participants at the Twenty-Ninth Annual Meeting of the Council and Commissions is included on page 181 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, WGC(12)10 (Annex 2).

3. Nomination of a Rapporteur

3.1 Ms Marie Debieuvre (European Union) was appointed as rapporteur.

4. Election of Officers

4.1 The Commission elected Mr George Lapointe (United States) as its Chairman and Mr Ted Potter (European Union) as its Vice-Chairman.

5. Review of the 2011 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5.1 The representative of ICES, Mr Gérald Chaput, presented a report on the scientific advice on salmon stocks in the West Greenland Commission area, CNL(12)8. His presentation to the Commission is available as document WGC(12)11. The ICES Advisory Committee (ACOM) report, which contains the scientific advice relevant to all Commissions, is included on page 117 of this document.

5.2 The representative of the US supported the recommendation from ICES that arrangements be made to enable sampling of the fishery in Nuuk where an important proportion of the catch is landed annually and requested the assistance of the Greenlandic authorities in this regard. While in the last three years samples had been obtained through the enhanced sampling programme, this had now ended so it would be important to have other arrangements in place. She also indicated that it was the

intention of the US to make a proposal in the North American Commission for inter-sessional consultations with Canada to review the management objectives for the Scotia Fundy and US regions. At present the rebuilding objective is to achieve a 25% increase in returns of 2SW salmon compared to the average returns in the period 1992 - 1996. She noted that if this was achieved it would still only represent approximately 10% of the conservation limits for US stocks which is not consistent with NASCO agreements The External Performance Review panel had also encouraged progress in relation to initiatives for endangered species. The US would, therefore, wish to work with Canada to review these objectives with a view to considering a sequential approach to moving these objectives towards those contained in NASCO's agreements.

5.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) presented a report on the 2011 fishery, WGC(12)3 (Annex 3). The representative of the US thanked the representative of Denmark (in respect of the Faroe Islands and Greenland) for the report and expressed appreciation for the consideration being given to amending the current regulation with a view to improving catch reporting so as to obtain a more comprehensive picture of the fishery. She asked if unlicensed fishermen fishing for salmon for private consumption were required to report their catch. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that while fishermen fishing only for private consumption do not require a licence, they are urged to report their catch to GLFK and there have been media campaigns to encourage this. Fishermen wishing to sell their catch and tourist fishermen require a licence and are required to report their catch.

6. Regulatory Measures

6.1 The multi-annual measure for the West Greenland fishery adopted at the Twenty-Sixth Annual Meeting of the Commission, WGC(09)7, applied to the fishery in 2009, 2010 and 2011. The Commission considered a proposal for a multi-annual regulatory measure for the West Greenland salmon fishery, WGC(12)7. This measure was adopted for the calendar years 2012 - 2014, WGC(12)12 (Annex 4).

6.2 The representative of the US stated that it could have accepted the proposal from the Chair, WGC(12)4, as it reflected the latest scientific advice from ICES. She stated that the language in the draft was not intended to interfere with internal management in Greenland, but to reinforce the ICES recommendations regarding monitoring and catch statistics. She stated that the report from Denmark (in respect of the Faroe Islands and Greenland) on the 2011 fishery was very helpful including the information on the licensing and reporting. She requested that future reports also include progress in implementing a logbook programme and any other measures to improve monitoring of the fishery and improve catch statistics.

6.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that the additional text that had been included in WGC(12)4 compared to the previous agreement, could not be accepted as it related to internal Greenlandic affairs.

6.4 The Commission agreed that the same procedure as used during the previous regulatory measure for applying the Framework of Indicators (FWI) would apply during the new regulatory measure. Under this arrangement a small group comprising one representative from each member of the Commission would work by correspondence to coordinate the data collection and application of the FWI. The Secretary will contact the Parties to seek their nominations for the Group and liaise with the Chairman and would report the findings to the Parties and to ICES in January in each year when the FWI is used.

7. Sampling in the West Greenland Fishery

7.1 The West Greenland salmon fishery sampling programme provides valuable biological data to the stock assessments conducted by ICES that inform science-based management decisions for this fishery. The Parties to the West Greenland Commission have worked cooperatively over the past three decades to collect these biological data. The Commission adopted a West Greenland Fishery Sampling Agreement for 2012, WGC(12)13 (Annex 5).

8. Announcement of the Tag Return Incentive Scheme Prize

8.1 The Chairman announced that the draw for the West Greenland Commission prize in the NASCO Tag Return Incentive Scheme was made by the Auditor on 9 May 2012. There have been some difficulties contacting the winner and this matter will be resolved after the Annual Meeting.

9. Recommendations to the Council on the Request to ICES for Scientific Advice

9.1 The Commission appointed Ms Kristina Guldbaek (Denmark (in respect of the Faroe Islands and Greenland) to serve on the Standing Scientific Committee. The Commission agreed to the request for scientific advice from ICES prepared by the Standing Scientific Committee in relation to the West Greenland Commission area. The request to ICES, as agreed by the Council, is contained in document CNL(12)10 (Annex 6).

10. Other Business

10.1 There was no other business.

11. Date and Place of Next Meeting

11.1 The Commission agreed to hold its next meeting at the same time and place as the Thirtieth Annual Meeting of the Council in 2013.

12. Report of the Meeting

12.1 The Commission agreed a report of the meeting.

Note: The annexes mentioned above begin on page 103, following the French translation of the report of the meeting. A list of West Greenland Commission papers is included in Annex 7.

WGC(12)9

Compte rendu de la Vingt-neuvième réunion annuelle de la Commission du Groenland Occidental de l'Organisation pour la Conservation du Saumon de l'Atlantique Nord

George Hotel, Édimbourg, Écosse, Royaume-Uni

5 - 8 juin 2012

1. Séance d'ouverture

1.1 En l'absence du Président, le Vice-président, M. George Lapointe (États-Unis) a ouvert la réunion et a souhaité la bienvenue aux participants à la Vingt-neuvième réunion annuelle de la Commission.

1.2 Une déclaration d'ouverture a été prononcée conjointement au nom des Organisations non gouvernementales (ONG) (annexe 1).

1.3 La liste des participants à la Vingt-neuvième réunion annuelle du Conseil et des Commissions figure à la page 181 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour, WGC(12)10 (annexe 2).

3. Nomination d'un Rapporteur

3.1 Ms Marie Debieuvre (Union Européenne) a été nommée Rapporteur.

4. Élection des membres du comité directeur

4.1 La Commission a élu Président M. George Lapointe (États-Unis) et Vice-Président M. Ted Potter (Union Européenne).

5. Examen de la pêcherie de 2011 et du rapport du Comité Consultatif (ACOM) du CIEM sur les stocks de saumons dans la zone de la Commission

5.1 Le représentant du CIEM, M. Gerald Chaput, a présenté le rapport du CIEM sur les recommandations scientifiques concernant les stocks de saumons de la zone de la Commission du Groenland Occidental, CNL(12)8. Sa présentation est reproduite dans le document WGC(12)11. Le rapport de l'ACOM du CIEM contenant les recommandations scientifiques pour l'ensemble des Commissions figure à la page 117 de ce document.

5.2 La représentante des États-Unis a appuyé la recommandation du CIEM à savoir que des dispositions soient prises pour que l'échantillonnage de la pêcherie puisse s'effectuer à Nuuk, étant donné que l'on y débarque tous les ans une grande proportion des captures. À ce propos, elle a également sollicité l'aide de la part des autorités groenlandaises. Les échantillonnages des trois dernières années avaient été obtenus par le biais du programme élargi d'échantillonnage. Ce programme terminé, il importait donc de mettre en place d'autres arrangements. Elle a aussi indiqué que les États-Unis prévoyaient de proposer, au sein de la Commission Nord-Américaine, des consultations en intersession avec le Canada afin de revoir les objectifs de gestion établis pour les régions de *Scotia Fundy* et des États-Unis. Actuellement, l'objectif de repeuplement consistait à atteindre une augmentation de 25% des remontées de saumons 2HM par rapport à la moyenne de la période 1992 à 1996. Elle a fait remarquer que, si ceci se réalisait, cela ne représenterait qu'environ 10% des limites de conservation des stocks américains, ce qui ne respectait pas les accords de l'OCSAN. Le panel chargé de l'étude externe des performances de l'OCSAN avait également encouragé tout développement des initiatives visant les espèces en danger. Aussi les États-Unis désiraient-ils revoir ces objectifs de gestion en collaboration avec le Canada ; le but étant de rapprocher progressivement ces objectifs de ceux contenus dans les accords de l'OCSAN.

5.3 La représentante du Danemark (pour les Îles Féroé et le Groenland) a présenté un rapport concernant la pêcherie de 2011, WGC(12)3 (annexe 3). La représentante des États-Unis l'a remercié de sa présentation. Elle a également exprimé son appréciation quant à l'amendement envisagé du règlement actuel. Ces modifications viseraient à améliorer les comptes rendus de captures et, ainsi, à obtenir un tableau plus complet de la pêcherie. Elle a cherché à savoir si les pêcheurs sans permis qui pêchaient le saumon pour leur consommation personnelle étaient censés déclarer leurs captures. La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué que même si les pêcheurs, qui s'adonnaient à la pêche pour leur propre consommation, n'avaient pas besoin de permis, ils avaient été incités à rendre compte de leurs captures au GLFK. Des campagnes médiatiques avaient été organisées pour encourager ces déclarations. En revanche, les pêcheurs qui désiraient vendre leurs captures et les touristes pêcheurs devaient avoir un permis. Ils étaient également tenus de déclarer leurs captures.

6. Mesures de réglementation

6.1 La mesure pluriannuelle concernant la pêcherie du Groenland Occidental, adoptée lors de la Vingt-sixième réunion annuelle de la Commission, WGC(09)7, avait été appliquée à ladite pêcherie en 2009, 2010 et 2011. La Commission a étudié une nouvelle proposition de mesure de réglementions pluriannuelle pour la pêcherie du Groenland occidental, WGC(12)7. Cette mesure a été retenue pour les années civiles de 2012 à 2014, WGC(12)12 (annexe 4).

6.2 La représentante des États-Unis a déclaré qu'elle aurait été en mesure d'accepter la proposition soumise par le Président, WGC(12)4, car celle-ci reflétait les dernières recommandations du CIEM. Elle a assuré que la formulation employée dans l'avant-projet n'était pas censé représenter une ingérence dans la gestion interne du Groenland. Il s'agissait en fait de renforcer les recommandations du CIEM à propos de la surveillance et des statistiques de captures. Elle a déclaré que le rapport du

Danemark (pour les Îles Féroé et le Groenland) sur la pêcherie de 2011, qui comprenait en particulier des renseignements sur les permis octroyés et les déclarations faites, était très utile. Elle a demandé, qu'à l'avenir, les progrès réalisés dans l'exécution du programme des journaux de bord soient également inclus dans les rapports ; ainsi que toute autre mesure qui améliorerait la surveillance de la pêcherie et les statistiques de captures.

6.3 La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué que, par rapport à l'accord précédent, le texte supplémentaire, qui avait été ajouté au WGC(12)4, ne pouvait pas être approuvé étant donné qu'il se rapportait aux affaires groenlandaises.

6.4 La Commission a convenu que la même procédure que celle employée lors de la mesure réglementaire précédente, pour l'application du cadre des indicateurs (FWI), serait appliquée dans le cadre de la nouvelle mesure de réglementation. Conformément à cet arrangement, un petit groupe comprenant un représentant provenant de chaque membre de la Commission travaillerait, par correspondance, à la coordination de la collecte des données et à l'application du cadre des indicateurs. Le Secrétaire se mettra en rapport avec les Parties pour obtenir leurs nominations pour le Groupe. Il contactera également le Président et proposera un rapport des conclusions aux Parties et au CIEM en janvier de chaque année où intervient le FWI.

7. Echantillonnage dans la pêcherie du Groenland occidental

7.1 Le programme d'échantillonnage de la pêche au saumon au Groenland Occidental fournit des données précieuses d'ordre biologique pour l'évaluation des stocks entreprise par le CIEM, ce qui, à son tour fournissait une base scientifique pour la prise de décisions de gestion de cette pêcherie. Les Parties de la Commission du Groenland Occidental avait travaillé en coopération pour collecter ces données biologiques au cours des trois dernières décennies. La Commission a adopté un accord d'échantillonnage de la pêche au Groenland Occidental pour 2012, WGC(12)13 (annexe 5).

8. Annonce du gagnant du prix du Programme d'encouragement au renvoi des marques

8.1 Le Président a annoncé que le tirage au sort du prix de la Commission du Groenland Occidental du Programme d'encouragement au renvoi des marques de l'OCSAN avait été effectué par le Commissaire aux comptes le 9 Mai 2012. Il s'est avéré difficile de contacter le gagnant. Cette question sera résolue après la Réunion annuelle.

9. Recommandations au Conseil en matière de recherches scientifiques dans le cadre de la demande adressée au CIEM

9.1 La Commission a nommé Ms Kristina Guldbaek (Danemark (pour les Îles Féroé et le Groenland)) membre du Comité Scientifique Permanent. La Commission a accepté la demande au CIEM de recommandations scientifiques, telle qu'elle avait été préparée par le Comité Scientifique Permanent pour la zone de la Commission du Groenland Occidental. La demande de recommandations scientifiques au CIEM, approuvée par le Conseil, figure dans le document CNL(12)10 (annexe 6).

10. Divers

10.1 Aucune autre question n'a été traitée.

11. Date et lieu de la prochaine réunion

11.1 La Commission a convenu de tenir sa prochaine réunion en même temps et au même endroit que la Trentième réunion annuelle du Conseil, en 2013.

12. Compte rendu de la réunion

12.1 La Commission a accepté le compte rendu de la réunion.

Note: Les annexes mentionnées ci-dessus commencent à la page 103. La liste des documents de la Commission du Groenland Occidental figure à l'annexe 7**.**

Annex 1

Joint NGO opening Statement to the West Greenland Commission

I am pleased to present a joint opening statement to this Commission on behalf of the NGO Group.

We urge NASCO Parties to heed ICES advice and implement another three-year agreement for a zero quota on Greenland's commercial salmon fishery. Scientific advice from ICES is that there is no option for a fishery in Greenland in the next three years that would allow the number of large Atlantic salmon returning to North American rivers to reach their minimum overall conservation limit. Although ICES did predict that large salmon returns will continue to increase over the next three years, their numbers will not increase enough to sustain a harvest at Greenland. In 2011, 91% of the salmon harvested in Greenland were of North American origin. In addition, ICES states that despite some increases in salmon stock size of southern NEAC, these stocks are at or near historic low levels and there is no basis for fishing them at Greenland.

ICES indicates that fishing mixed stocks poses a particular threat. Because salmon from many rivers are mixing in feeding grounds off Greenland, it is impossible to restrict harvest to healthy stocks. Stocks that are endangered or threatened, such as those from Maine, southern Newfoundland, and the Atlantic coast of Nova Scotia are also vulnerable to harvest at Greenland.

Negotiating a zero commercial quota at Greenland for the next three years requires leadership from other Parties to NASCO. The External Review experts recognized the need for fairness and balance between regulating mixed-stock fisheries in the distant waters of Greenland and Faroe Islands and those in the jurisdictions of NASCO Parties. Their recommendations include the closure of the remaining mixed-stock fisheries in home-waters.

In conclusion, we need to ensure that we give ample time and opportunity to restore the large salmon of both North America and Europe, and this requires following ICES advice not only for distant water fisheries, but for fisheries in the home-waters of NASCO Parties as well.

Annex 2

WGC(12)10

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Review of the 2011 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area
6. Regulatory Measures
7. Sampling in the West Greenland Fishery
8. Announcement of the Tag Return Incentive Scheme Prize
9. Recommendations to the Council on the Request to ICES for Scientific Advice
10. Other Business
11. Date and Place of Next Meeting
12. Report of the Meeting

Annex 3

WGC(12)3

The 2011 Fishery at West Greenland
Tabled by Denmark (in respect of the Faroe Islands and Greenland))

At the Annual Meeting of NASCO in June 2011, the West Greenland Commission agreed to restrict the catch of Atlantic salmon at West Greenland to that amount used for internal subsistence consumption in Greenland. Furthermore, no commercial export of salmon was allowed.

In accordance with the Regulatory Measure adopted by the West Greenland Commission, the Government of Greenland decided to set the national quota for commercial landings of Atlantic salmon to fishing plants for export to zero tonnes. As a consequence, any export of salmon from Greenland in 2011 was prohibited. Only a subsistence fishery was allowed, i.e. fishery for private consumption, and fishery with the aim of supplying local open air markets, hotels and institutions etc. The latter activity is only allowed for professional fishermen holding licences.

In 2011, the fishery opened 1 August and closed at the end of October. During this period a total catch of 27.5 tonnes of salmon was reported to the Greenland Fishery Licence Control (GFLK). Of this, 16.5 tonnes were reported by licensed fishermen as sold at open air markets etc, and the remaining 11 tonnes were reported as used for private consumption. However, 179 kilos of the private consumption was reported by licensed fishermen. Compared to the previous year the total catch decreased by 10.6 tonnes corresponding to 28 %.The decrease mainly occurred in NAFO area 1A where the reported catches decreased from an significant amount of 17.3 tonnes to 1.9 tonnes while catches in all other areas were relatively stable. For the third year in a row, catches were reported from East Greenland in the amount of 117 kilos as compared to 1.7 tonnes in 2010.

The fishery is regulated in the Greenland Home Rule Executive Order No 21 of 10 August 2002 on Salmon Fishery. The executive order distinguishes between 1) commercial fishery for Atlantic salmon to be landed at fish plants for export, 2) subsistence fishery by residents of Greenland, and 3) rod fishery by tourists/non-residents.

All fishermen who wish to sell Atlantic Salmon must hold a licence as well as report the catches to GFLK. In 2011, 242 licences were issued, but only 30 of these were utilized for selling according to the reports received. The catches were either sold at local open air markets or to local institutions, hotels etc, or kept for private consumption. The number of salmon caught is reported to 8.381.

The wildlife and fisheries officers of GFLK make random checks at local markets in towns and settlements along the west coast of Greenland, and in hotels, restaurants, shops etc. in order to compare purchase of salmon with reported catches. In 2011, the wildlife and fisheries officers once again have put a lot of effort into handing out reporting forms to all fishermen whom they have observed fishing for salmon, and informing them that all catches must be reported to GFLK.

The Ministry of Fisheries, Hunting and Agriculture is contemplating amendments to the current regulation with a view to improving catch reporting so to establish a more comprehensive picture of the fishery as such. In this process scientists need much more detailed information and biological data. The Ministry will continue its information services in terms of reminding fishermen to report salmon catches, allowed gear to be used etc. and this information will mainly be disseminated by transmitting TV spots during the salmon fishing season.

Annex 4

WGC(12)12

Regulatory Measure for Fishing for Salmon at West Greenland for 2012, 2013, and 2014

RECALLING that the Parties to the West Greenland Commission have previously agreed to regulatory measures for the West Greenland fishery based on the scientific advice from the International Council for the Exploration of the Sea (ICES);

RECALLING that at its 2006 Annual Session, the West Greenland Commission adopted a multiannual regulatory measure, as suggested within the 'Next Steps' Process, for 2006 that was continued in 2007 and 2008, as the result of application of the Framework of Indicators;

RECALLING that at its 2009 Annual Session, the West Greenland Commission adopted a multiannual regulatory measure, as suggested within the 'Next Steps' Process, for 2009 that was continued in 2010 and 2011, as the result of application of the Framework of Indicators;

RECALLING that NASCO has requested that ICES advice for 2012 include annual catch options or alternative management advice for 2012-2014 and an update of the Framework of Indicators for the West Greenland Commission area;

ACKNOWLEDGING the good work undertaken by Greenland to improve the estimates of the annual catches of salmon taken for private sales and local consumption in Greenland and encouraging Greenland to continue this work;

ENCOURAGING Greenland to obtain the additional information ICES recommends from fishers in West Greenland including catch site, catch date, numbers of nets, net dimensions, and numbers of hours nets were fished;

COMMITTING to continue to cooperate in the design and implementation of a sampling program in close coordination with the fishery;

CONSIDERING that ICES considers the stock complex at West Greenland to be below conservation limits and, thus, is suffering reduced reproductive capacity;

CONSIDERING FURTHER that ICES has advised that none of the stated management objectives which would allow a fishery at West Greenland will be met in 2012, 2013 or 2014;

RECOGNIZING that an updated Framework of Indicators has been provided by ICES and will be applied in 2013 and 2014 to evaluate if a significant change is signaled by the indicators and, therefore, a reassessment is warranted;

The Parties agree that:

> (1) In 2012 the catch at West Greenland will be restricted to that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tons annually. There will be no commercial export of salmon.

(2) This regulatory measure applies in 2013 and 2014 unless application of the Framework of Indicators indicates that there had been a significant change in the indicators and, therefore, a reassessment is warranted.

(3) Denmark (in respect of the Faroe Islands and Greenland) will inform NASCO of the outcome of the 2012, 2013 and 2014 fisheries.

Annex 5

WGC(12)13

West Greenland Fishery Sampling Agreement, 2012

The West Greenland Commission recognizes the important contribution of sound biological data to science-based management decisions for fisheries prosecuted in the West Greenland Commission area. The Parties in the West Greenland Commission have worked cooperatively over the past four decades to collect biological data on Atlantic salmon harvested at West Greenland. These data provide critical inputs to the stock assessment completed by the International Council for the Exploration of the Seas (ICES) North Atlantic Salmon Working Group annually.

The objectives of the sampling program in 2012 are to:

- Continue the time series of data (1969-2011) on continent of origin and biological characteristics of the salmon in the West Greenland Fishery

- Provide data on mean weight, length, age and continent of origin for input into the North American and European run-reconstruction models

- Collect information on the recovery of internal and external tags

To this end, the sampling program in 2012 will collect:

- Biological characteristics data including lengths and weights of landed fish
- Information on tags, fin clips, and other marks
- Scale samples to be used for age and growth analyses
- Tissue samples to be used for genetic analyses
- Other biological data requested by the ICES scientists and NASCO cooperators

External Staffing Inputs:

Parties external to Greenland with interests in the mixed stock fishery at West Greenland, including Canada, the European Union, and the United States, have historically provided personnel and analytical inputs into the cooperative sampling programs. The NASCO Parties agree to provide the following inputs to the cooperative sampling program at West Greenland during the 2012 fishing season:

- The European Union[1] agrees to provide a minimum of 6 person weeks[2] to sample Atlantic salmon at West Greenland during the 2012 fishing season
- Canada agrees to provide a minimum of 2 person weeks[2] to sample Atlantic salmon at West Greenland during the 2012 fishing season
- The United States agrees to provide a minimum of 2 person weeks[2] to sample Atlantic salmon at West Greenland during the 2012 fishing season

[1] The Republic of Ireland and the United Kingdom.
[2] For the purposes of this agreement, a person week of sampling is defined as a trained individual who works on site in West Greenland to collect samples of Atlantic salmon for a period of 7 days.

- The United States agrees to co-ordinate the sampling program for 2012
- The Government of Greenland, in cooperation with the Greenland Institute of Natural Resources, agrees to provide support for the sampling program by facilitating the sampling of Atlantic salmon by the samplers identified above.

In addition, NASCO Parties agree to provide the following technical support for sample analysis and data collected at West Greenland:

- The United States agrees to provide microsatellite DNA analysis of tissue samples collected from Atlantic salmon harvested at West Greenland

- The United States agrees to provide oversight for the processing of all collected biological samples

- The United States agrees to report the sampling program results to the ICES North Atlantic Salmon Working Group in support of the stock assessment completed by the ICES North Atlantic Salmon Working Group

- The United States agrees to coordinate the publishing of a report that details the preliminary results of the sampling program. The report will be compiled in cooperation with individuals participating in the sampling program and will be published via a participating institution's official report series.

- Canada agrees to provide ageing of scale samples collected from Atlantic salmon harvested at West Greenland

- Canada agrees to maintain the historical West Greenland sampling database

- The European Union (UK (England & Wales)) agrees to act as a clearing house for coded wire tags recovered from the fishery

Government of Greenland Coordination Efforts:

The Government of Greenland agrees to identify a mechanism to provide sampling access to landed Atlantic salmon before grading/culling and before fish are subject to health regulations that would restrict or prohibit activities associated with sampling.

The Government of Greenland agrees to inform persons designated by cooperating NASCO Parties of important developments in the management of the West Greenland fishery including planned openings and closures of the Atlantic salmon fishery at West Greenland.

The allocation of available scientific sampling personnel will be determined annually by ICES scientists to provide spatial and temporal coverage to characterize both the fishery and the Atlantic salmon populations along the West Greenland coast. Parties participating in the cooperative sampling program will share access to resulting data and work cooperatively in the publication of information.

Annex 6

CNL(12)10

Request for Scientific Advice from ICES

1. With respect to Atlantic salmon in the North Atlantic area:

1.1 provide an overview of salmon catches and landings by country, including unreported catches and catch and release, and production of farmed and ranched Atlantic salmon in 2012[1];

1.2 report on significant new or emerging threats to, or opportunities for, salmon conservation and management[2];

1.3 provide a review of examples of successes and failures in wild salmon restoration and rehabilitation and develop a classification of activities which could be recommended under various conditions or threats to the persistence of populations;

1.4 advise on the potential threats to Atlantic salmon from exotic salmonids including rainbow trout and brown trout where appropriate;

1.5 provide a compilation of tag releases by country in 2012;

1.6 identify relevant data deficiencies, monitoring needs and research requirements.

2. With respect to Atlantic salmon in the North-East Atlantic Commission area:

2.1 describe the key events of the 2012 fisheries[3];

2.2 review and report on the development of age-specific stock conservation limits;

2.3 describe the status of the stocks;

2.4 further develop a risk-based framework for the provision of catch advice for the Faroese salmon fishery reporting on the implications of selecting different numbers of management units[4];

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

2.5 provide catch options or alternative management advice for 2013-2016, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

2.6 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

3. With respect to Atlantic salmon in the North American Commission area:

3.1 describe the key events of the 2012 fisheries (including the fishery at St Pierre and Miquelon)[3];

3.2 update age-specific stock conservation limits based on new information as available;

3.3 describe the status of the stocks;

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

3.4 provide catch options or alternative management advice for 2013-2016 with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

3.5 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

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

4.1 describe the key events of the 2012 fisheries[3];

4.2 describe the status of the stocks[6];

*In the event that NASCO informs ICES that the Framework of Indicators (FWI) indicates that reassessment is required:**

4.3 provide catch options or alternative management advice for 2013-2015 with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[5];

4.4 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice.

Notes:

1. *With regard to question 1.1, for the estimates of unreported catch the information provided should, where possible, indicate the location of the unreported catch in the following categories: in-river; estuarine; and coastal. Numbers of salmon caught and released in recreational fisheries should be provided.*
2. *With regard to question 1.2, ICES is requested to include reports on any significant advances in understanding of the biology of Atlantic salmon that is pertinent to NASCO, including information on any new research into the migration and distribution of salmon at sea and the potential implications of climate change for salmon management.*
3. *In the responses to questions 2.1, 3.1 and 4.1, ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality of the salmon gear used, on the by-catch of other species in salmon gear, and on the by-catch of salmon in any existing and new fisheries for other species is also requested.*
4. *In response to question 2.4, ICES is asked to advise on the limitations for defining management units smaller than the current NEAC stock complexes, the implications of applying probabilities of achieving CLs to separate management units versus the use of simultaneous probabilities and the choice of risk levels for achieving management objectives.*
5. *In response to questions 2.5, 3.4 and 4.3, provide a detailed explanation and critical examination of any changes to the models used to provide catch advice and report on any developments in relation to incorporating environmental variables in these models.*
6. *In response to question 4.2, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

*** The aim should be for NASCO to inform ICES by 31 January of the outcome of utilising the FWI**

Annex 7

WGC(12)00

List of Papers

WGC(12)00	List of papers
WGC(12)1	Provisional Agenda
WGC(12)2	Draft Agenda
WGC(12)3	The 2011 Fishery at West Greenland - Tabled by Denmark (on behalf of the Faroe Islands and Greenland)
WGC(12)4	Regulatory Measure for Fishing for Salmon at West Greenland for 2012, 2013, and 2014
WGC(12)5	Draft Report of the Twenty-Ninth Annual Meeting of the West Greenland Commission
WGC(12)6	Draft West Greenland Fishery Sampling Agreement, 2012
WGC(12)7	Draft Regulatory Measure for Fishing for Salmon at West Greenland for 2012, 2013, and 2014
WGC(12)8	Not issued
WGC(12)9	Report of the Twenty-Ninth Annual Meeting of the West Greenland Commission
WGC(12)10	Agenda
WGC(12)11	ICES Presentation to the West Greenland Commission
WGC(12)12	Regulatory Measure for Fishing for Salmon at West Greenland for 2012, 2013, and 2014
WGC(12)13	West Greenland Fishery Sampling Agreement, 2012

Report of the ICES Advisory Committee (Sections 10.2 to 10.4 only)

10.2.1 Advice May 2012

ECOREGION North Atlantic
STOCK Atlantic salmon from the Northeast Atlantic

Advice for 2012 to 2015

On the basis of the MSY approach, ICES advises that fishing should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity. Furthermore, because of the different status of individual stocks within stock complexes, mixed-stock fisheries present particular threats. The management of a fishery should ideally be based upon the individual status of all stocks exploited in the fishery.

In the absence of any fisheries in 2012 to 2015, there is less than 95% probability of meeting the CL (full reproductive capacity) in the two age groups of the southern NEAC stock complex. Therefore, in the absence of specific management objectives, ICES advises that there are no mixed-stock fisheries options on the NEAC complexes at Faroes in 2012 to 2015. In all years, there is 71% to 73% probability of meeting the CLs for the NEAC complexes simultaneously, in the absence of any mixed-stock fisheries (Table 10.2.1).

A Framework of Indicators (FWI) has been developed in support of the multi-year catch advice and the potential approval of multi-year regulatory measures for Faroes (Table 10.2.2). The FWI can be applied at the beginning of 2013, with the returns or return rate data for 2012, to evaluate the appropriateness of the 2013/2014 advice, and again at the beginning of 2014, with the returns or return rate data for 2013, to evaluate the appropriateness of the 2014/2015 advice.

Stock status

National stocks within the NEAC area are combined into two stock groupings for the provision of management advice for the distant water fisheries at West Greenland and Faroes. The Northern group consists of: Russia, Finland, Norway, Sweden, and the northeast regions of Iceland. The Southern group consists of: UK (Scotland), UK (England and Wales), UK (Northern Ireland), Ireland, France, Spain, and the southwest regions of Iceland.

Recruitment, expressed as pre-fishery abundance (PFA; split by maturing and non-maturing 1SW salmon, at 1 January of the first winter at sea) is estimated by stock complex (northern NEAC and southern NEAC) and interpreted relative to the spawner escapement reserve (SER) (Figures 10.2.1 to 10.2.3). SERs are the conservation limits (CLs; expressed in terms of spawner numbers) increased to take account of natural mortality (M = 0.03 per month) between 1 January of the first winter at sea and return time to homewaters for each of the maturing (6 to 9 months) and non-maturing (16 to 21 months) 1SW salmon from the northern NEAC and southern NEAC stock complexes.

Recruitment (PFA) of maturing 1SW salmon and of non-maturing 1SW salmon for northern NEAC shows broadly similar patterns of a general decline during 1983–2010, interrupted by a short period of increased recruitment from 1998 to 2003 (Figure 10.2.3). Both components (1SW maturing and 1SW non-maturing) have been at full reproductive capacity prior to the

commencement of distant water fisheries throughout the time-series. Recruitment of maturing 1SW salmon and of non-maturing 1SW salmon for southern NEAC also shows broadly similar declining trends during 1971–2010 (Figure 10.2.3). Both components have been at full reproductive capacity over most of the time period, but the non-maturing 1SW component has been at risk of suffering reduced reproductive capacity before any fisheries took place in two (2006 and 2008) of the last five PFA years. This is broadly consistent with the general pattern of decline in marine survival in most monitored stocks in the area.

Trends in spawner numbers for the Northern stock complex for 1SW and MSW salmon are similar (Figure 10.2.3). Throughout most of the time-series, both 1SW and MSW spawners have been either at full reproductive capacity or at risk of reduced reproductive capacity. The spawner estimates indicated that the 1SW and MSW stock complexes were both at full reproductive capacity in 2011, with the MSW complex showing a further improvement since 2010. Declining trends in spawner numbers are evident in the southern NEAC stock complex for 1SW and MSW salmon. The 1SW stock has been at risk of reduced reproductive capacity or suffering reduced reproductive capacity for most of the time-series. In contrast, the MSW stock has been at full reproductive capacity for most of the time-series until 1997. Thereafter, the stock was either at risk of reduced reproductive capacity or suffering reduced reproductive capacity, with the exception of 2004 and 2011 when the stock was at full reproductive capacity.

Estimated exploitation rates have generally been decreasing over the time period in northern and southern NEAC areas (Figure 10.2.4). Despite management measures aimed at reducing exploitation in recent years, there has been little improvement in the status of stocks over time. This is mainly a consequence of continuing poor survival in the marine environment attributed to climate effects.

Management plans

The North Atlantic Salmon Conservation Organization (NASCO) has adopted an Action Plan for Application of the Precautionary Approach which stipulates that management measures should be aimed at maintaining all stocks above their conservation limits by the use of management targets. Conservation limits (CLs) for North Atlantic salmon stock complexes have been defined by ICES as the level of stock (number of spawners) that will achieve long-term average maximum sustainable yield (MSY). NASCO has adopted the region-specific CLs as limit reference points (S_{lim}); having populations fall below these limits should be avoided with high probability. Advice for the Faroes fishery (both 1SW and MSW) is based upon all NEAC area stocks. The advice for the West Greenland fishery is based upon the southern NEAC non-maturing 1SW stock.

Biology

Atlantic salmon (*Salmo salar*) is an anadromous species found in rivers of countries bordering the North Atlantic. In the Northeast Atlantic area, their current distribution extends from northern Portugal to the Pechora River in Northwest Russia and Iceland. Juveniles emigrate to the ocean at ages of one to eight years (dependent on latitude) and generally return after one or two years at sea. Long distance migrations to ocean feeding grounds are known to take place, with adult salmon from the Northeast Atlantic stocks being exploited at both West Greenland and the Faroes.

Environmental influence on the stock

Environmental conditions in both freshwater and marine environments have a marked effect on the status of salmon stocks. Across the North Atlantic, a range of problems in the freshwater environment play a significant role in explaining the poor status of stocks. In many cases river damming and habitat deterioration have had a devastating effect on freshwater environmental conditions. In the marine environment, return rates of adult salmon have declined through the 1980s and are now at the lowest levels in the time-series for some stocks, even after closure of marine fisheries. Climatic factors modifying ecosystem conditions and predator fields of salmon at sea are considered to be the main contributory factors to lower productivity, which is expressed almost entirely in terms of lower marine survival.

The fisheries

No fishery for salmon has been prosecuted at Faroes since 2000. No significant changes in gear type used were reported in the NEAC area in 2011. The NEAC area has seen a general reduction in catches since the 1980s (Figure 10.2.5; Table 10.2.3). This reflects the decline in fishing effort as a consequence of management measures, as well as a reduction in the size of stocks. The provisional total nominal catch for 2011 was 1003 t in northern NEAC and 422 t in southern NEAC. The catch in the southern area, which comprised around two-thirds of the total NEAC catch in the early 1970s, has been lower than in the northern area since 1999 (Figure 10.2.5).

1SW salmon constituted 49% of the total catch in the northern area in 2011 and was the lowest value in the time-series (Figure 10.2.6). For the southern European countries, the overall percentage of 1SW fish in the catch in 2011 (44%) was also the lowest value in the time-series. There is considerable variability among individual countries (Figure 10.2.6).

The contribution of escaped farmed salmon in catches in the NEAC area in 2011 was again generally low in most countries, and similar to the values that have been reported in previous years, with the exception of Norway, Iceland, and Sweden. From sampling in northern Norway, 12% of the fish were escaped farmed salmon. Presence of escaped farmed salmon in central and southern Norway was highest from two coastal locations (48%), whereas samples from three locations in fjords showed lower proportions of escaped farmed salmon (13%).

Monitoring of new and expanded fisheries for mackerel in Iceland and Faroes has provided samples of Atlantic salmon bycatch, primarily as post-smolts.

Effects of the fisheries on the ecosystem

The current salmon fishery probably has no or only minor influence on the marine ecosystem. However, the exploitation rate on salmon may affect the riverine ecosystem through changes in species composition. There is a limited knowledge on the magnitude of these effects.

Quality considerations

Uncertainties in input variables to the stock status and stock forecast models are incorporated in the assessment. Provisional catch data for 2010 were updated, where appropriate, and the assessment extended to include data for 2011.

Scientific basis
Assessments are carried out using common input variables across stock complexes. Run-reconstruction models and Bayesian forecasts are performed taking into account uncertainties in the data and process error, and the results are presented in a risk analysis framework.

Supporting information: WGNAS.

ECOREGION **North Atlantic**
STOCK **Atlantic salmon from the Northeast Atlantic**

Reference points

National run-reconstruction models have been used for all countries that do not have river-specific CLs (i.e. all countries except France, Ireland, UK (England & Wales), and Norway). To provide catch options to NASCO, CLs are required for stock complexes. These have been derived either by summing individual river CLs to national level, or by taking overall national CLs as provided by the national model, and then summing to the level of the four NEAC stock complexes. The CLs have also been used to estimate the spawner escapement reserves (SERs), which are the CLs increased to take account of natural mortality (M = 0.03 per month) between 1 January of the first winter at sea and return time to homewaters for each of the maturing (6–9 months) and non-maturing (16–21 months) 1SW salmon components from the northern NEAC and southern NEAC stock complexes.

Complex	Age group	CL (number)	SER (number)
Northern NEAC	1SW	167 615	212 986
	MSW	128 778	218 259
Southern NEAC	1SW	599 197	758 477
	MSW	241 269	406 436

Outlook for 2012 to 2015

PFA (pre-fishery abundance at 1 January of the first winter at sea) forecasts for the southern and northern NEAC complexes were developed within a Bayesian model framework. Probabilities that the PFAs are above or equal to spawner escapement reserves in 2011 to 2015 are given in Table 10.2.6. Probabilities of meeting SERs are higher in the northern than in the southern complex.

MSY approach

Atlantic salmon has characteristics of short-lived fish stocks; mature abundance is sensitive to annual recruitment because there are only a few age groups in the adult spawning stock. Incoming recruitment is often the main component of the fishable stock. For such fish stocks, the ICES maximum sustainable yield (MSY) approach is aimed at achieving a target escapement (MSY $B_{escapement}$, the amount of biomass left to spawn). No catch should be allowed unless this escapement can be achieved. The escapement level should be set so there is a low risk of future recruitment being impaired, similar to the basis for estimating B_{pa} in the precautionary approach. In short-lived stocks, where most of the annual surplus production is from recruitment (not growth), MSY $B_{escapement}$ and B_{pa} might be expected to be similar. Conservation limits (CLs) for North Atlantic salmon stock complexes have been defined by ICES as the level of stock (number of spawners) that will achieve long-term average maximum sustainable yield (MSY $B_{escapement}$).

ICES considers that to be consistent with the MSY and the precautionary approach, fisheries should only take place on salmon from stocks that can be shown to be above CLs. Due to the different status of individual stocks, mixed-stock fisheries present particular threats.

In the absence of any fisheries in 2012 to 2015, there is less than 95% probability of meeting the CLs for the two age groups of the southern NEAC complex (Table 10.2.1). Therefore, in the absence of specific management objectives, ICES advises that there are no mixed-stock fisheries options on the NEAC complexes at Faroes in 2012 to 2015.

Additional considerations

ICES emphasizes that the national stock CLs discussed above are not appropriate for the management of homewater fisheries, particularly where these exploit separate river stocks. This is because of the relative imprecision of the national CLs and because they will not take account of differences in the status of different river stocks or sub-river populations. Management at finer scales should take account of individual river stock status. Nevertheless, the combined CLs for the main stock groups (national stocks) exploited by the distant water fisheries could be used to provide general management advice to the distant water fisheries.

Fisheries on mixed stocks pose particular difficulties for management, when they can not target only stocks that are at full reproductive capacity. The management of a fishery should ideally be based upon the status of all stocks exploited in the fishery. Conservation would be best achieved if fisheries target stocks that have been shown to be at full reproductive capacity. Fisheries in estuaries and, especially, rivers are more likely to meet this requirement.

There has been an overall declining trend in marine survival rates of hatchery smolts in northern and southern NEAC areas. Most of the survival indices for wild and reared smolts are below the previous 5- and 10-year averages. For wild smolts the decline is also apparent for the northern NEAC areas; however, for the southern NEAC areas the trends are more variable (Figure 10.2.7). Comparison of survival indices for the 2008 and 2009 smolt years show a general increase in 2009 compared to 2008 for wild smolts in northern and southern NEAC areas, but a decline in 2010. Results from these analyses are consistent with the information on estimated returns and spawners as derived from the PFA model, and suggest that returns are strongly influenced by factors in the marine environment.

Scientific basis

Data and methods

Input data to estimate the historic PFAs are the catch in numbers of 1SW and MSW salmon in each country, unreported catch levels (minimum and maximum) and exploitation rates (minimum and maximum). Data beginning in 1971 are available for most countries . In addition, catches at the Faroes and catches of NEAC-origin salmon at West Greenland are incorporated. Results are presented in Tables 10.2.4 and 10.2.5.

The Bayesian inference and forecast models for the southern NEAC and northern NEAC complexes have the same structure and are run independently. For both southern and northern NEAC complexes, PFA forecasts were derived based on lagged spawners and productivity. PFA was forecasted from 2012 to 2015 for maturing 1SW salmon and and from 2011 to 2015 for non-maturing 1SW salmon.

The risk framework was used to evaluate catch options for the Faroes fishery in the 2012/13, 2013/14, and 2014/15 fishing seasons, based on the northern and southern NEAC stock complexes of maturing and non-maturing 1SW salmon. The catch options examined assumed that homewater fisheries would also take the total catch allocation based on a share of 8.4% of the total catch at Faroes. The risk analysis calculates the probability of stocks achieving the management objective for each of the age groups of the NEAC stock complexes and can display the resulting probabilities in tabular and/or graphic form. Further work is required to permit running the risk framework based on management units defined at finer scales, to improve the data in order to attribute the historical Faroes catch to these management units, and to seek additional data to improve the quality of the assessment.

The computing platform for conducting the run-reconstruction and the derivation of CLs for jurisdictions without river-specific CLs is being moved from Crystal Ball (CB) to "R". During that transition, modifications to the algorithms have been implemented, particularly in the derivation of CLs from the pseudo stock–recruitment relationships. Differences in CLs derived for countries as a whole can be attributed to changes in the methods used to aggregate regional CLs. For countries with more than one region, the CB model derives CLs from the national CL model aggregated over all regions. In the R model, the method more closely matches how stock complex CLs are derived from regional data, with CLs estimated for each region separately and then summed to produce the overall country CL. This modification will be implemented for the next assessment.

Uncertainties in assessments and forecasts

The model estimates the PFA from the catch in numbers of 1SW and MSW salmon in each country. Uncertainties are accounted for using minimum and maximum ranges for unreported catches and exploitation rates. A natural mortality value of 0.03 (range 0.02 to 0.04) per month is applied during the second year at sea. Monte Carlo simulation is used to generate confidence intervals of the eggs from spawners and the returns to each country.

Risks were defined each year as the posterior probability that the number of spawners would be above the age- and stock-specific CLs under various catch scenarios.

The large uncertainty in the PFA forecasts encompasses the historic range of estimated abundance (Figures 10.2.1 and 10.2.2). This increased uncertainty also results in increased risk of not achieving the CLs. As a result, the advice is more cautious regarding fishing opportunities.

The surpluses to SER for the northern NEAC complex forecasted for 2012 to 2015 arise because of the high productivity estimated for 2010, which is applied when forecasting PFA in future years. Productivity increased in 2010 for the northern and southern NEAC areas, but increases and decreases have been noted in the past. The returns of 1SW maturing salmon to NEAC countries in 2011, the first indication of the possible strength of the MSW returns to homewaters in 2012, were lower than in 2010 but at similar levels to 2009, a year when the non-maturing PFA age group was estimated to have been above SERs prior to any exploitation in high seas fisheries and in homewaters.

ICES (2010, 2011) previously emphasized the problem of basing the risk analysis on management units comprising large numbers of river stocks. However, at present, the performance of individual stocks in all countries in the NEAC area cannot be assessed.

Comparison with previous assessment and catch options

Previously, ICES assessed the status of stocks and provided advice on management of the stock complexes in the NEAC area based on the uncertainties in the estimates of spawners relative to CLs. Specifically, if the lower bound of the 95% confidence interval of the current estimate of spawners was above the CL, then the stock was considered at full reproductive capacity. When the lower bound of the confidence limit was below the CL, but the midpoint was above, the stock was considered to be at risk of suffering reduced reproductive capacity. Finally, when the midpoint was below the CL, the stock was considered to be suffering reduced reproductive capacity.

The risk assessment framework in this year's advice directly evaluates the risk of meeting or exceeding the stock complex objectives. Managers can choose the risk level which they consider appropriate. ICES considers, however, that to be consistent with the MSY and the precautionary approach, and given that the CLs are considered to be limit reference points to be avoided with high probability, managers should choose a risk level that results in a low chance of failing to meet the CLs. ICES recommends that the probability of meeting or exceeding CLs for individual stocks should be greater than 95%.

Assessment and management area

National stocks are combined into southern NEAC and northern NEAC groups. The groups fulfilled an agreed set of criteria for defining stock groups for the provision of management advice (ICES, 2005). Consideration of the level of exploitation of national stocks resulted in the advice for the Faroes fishery (both 1SW and MSW) being based upon all NEAC area stocks, and the advice for the West Greenland fishery being based upon the southern NEAC non-maturing 1SW stock only.

ICES (2010, 2011) previously emphasized the problem of basing a risk assessment and catch advice for Faroes fishery on management units comprising large numbers of river stocks. In providing catch advice at the age and stock complex levels for northern and southern NEAC, consideration needs to be given to the recent performance of the stocks within individual countries. At present, insufficient data are available to assess performance of individual stocks in all countries in the NEAC area. In some instances CLs are in the process of being developed (UK (Scotland) and Iceland). Alternatively, the probability that the country-specific PFAs have exceeded their SERs should be assessed for a recent time period (five years) and consideration given to simultaneously attaining the management objectives for the four large management units.

Sources of information

b) ICES. 2001. Report of the Working Group on North Atlantic Salmon. Aberdeen, 2–11 April 2001. ICES CM 2001/ACFM:15. 290 pp.
c) ICES. 2003. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 31 March–10 April 2003. ICES CM 2003/ACFM:19. 297 pp.
d) ICES. 2005. Report of the Working Group on North Atlantic Salmon. Nuuk, Greenland, 4–14 April 2005. ICES CM 2005/ACFM:17. 290 pp.
e) ICES. 2010. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 22–31 March 2010. ICES CM 2010/ACOM:09. 302 pp.

f) ICES. 2011. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 22–31 March 2011. ICES CM 2011/ACOM:06. 283 pp.
g) ICES. 2012. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 26 March–4 April 2012. ICES CM 2012/ACOM:09. 337 pp.
h) NASCO. 1998. North Atlantic Salmon Conservation Organization. Agreement on the adoption of a precautionary approach. Report of the 15th annual meeting of the Council. CNL(98)46. 4 pp.
i) NASCO. 1999. North Atlantic Salmon Conservation Organization. Action plan for the application of the precautionary approach. CNL(99)48. 14 pp.

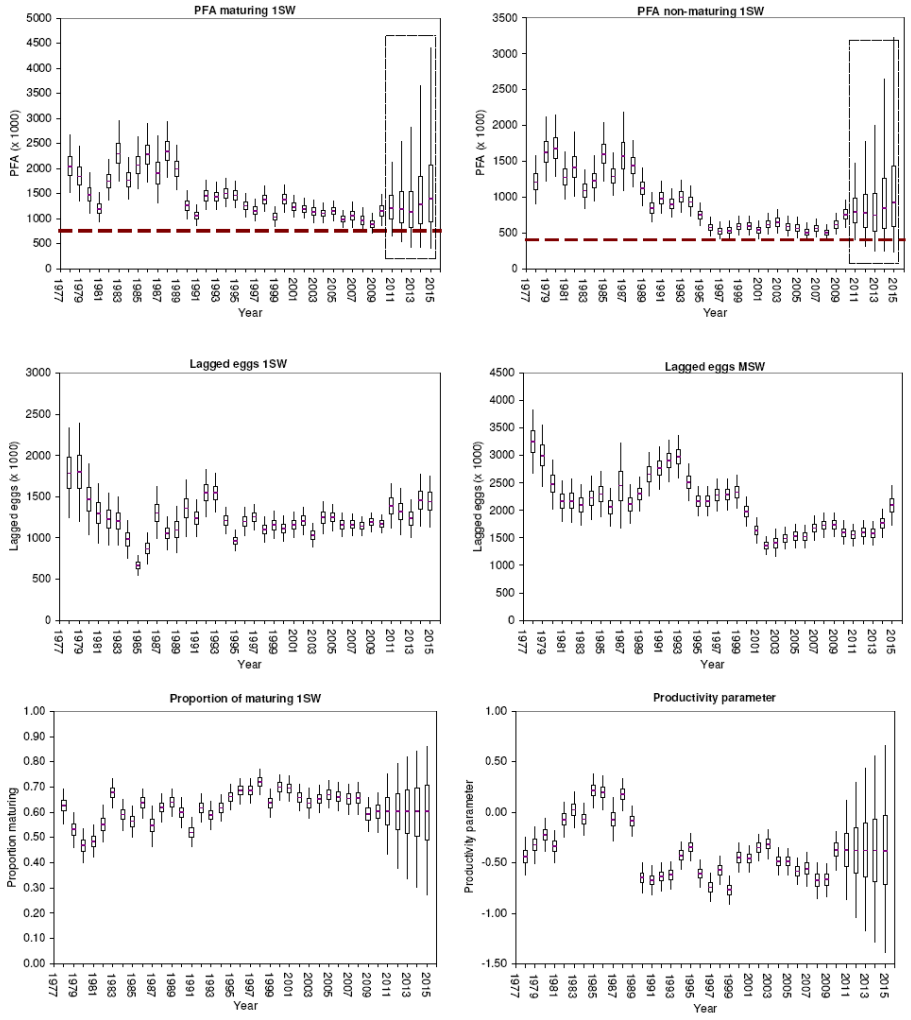

Figure 10.2.1 Southern NEAC PFA for maturing 1SW and non-maturing 1SW fish, lagged eggs from 1SW and MSW, proportion 1SW maturing, and productivity (in logarithmic scale, i.e. logarithm of PFA per lagged egg), for PFA years 1978 to 2015. The last five years (2011 to 2015) are forecasts in all cases. The dashed horizontal lines in the upper panels are the age-specific SER values.

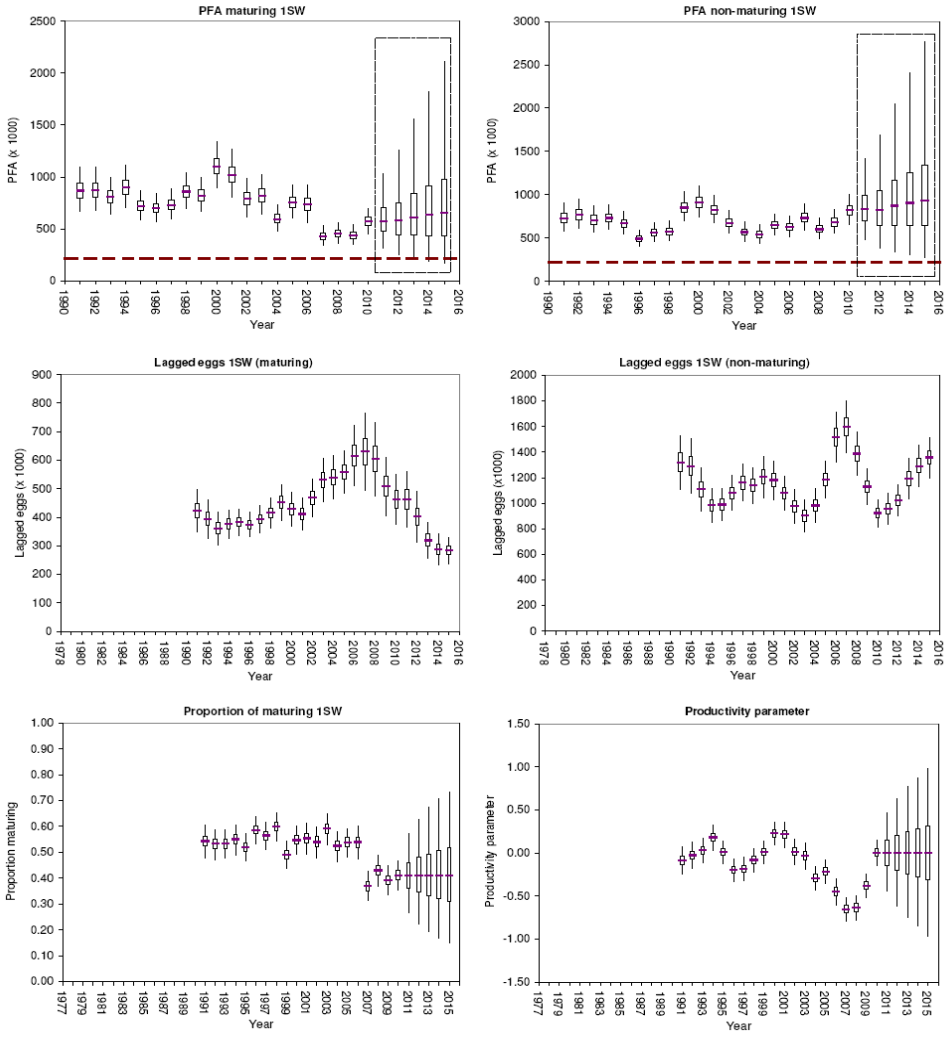

Figure 10.2.2 Northern NEAC PFA for maturing 1SW and non-maturing 1SW fish, lagged eggs from 1SW and MSW, proportion 1SW maturing, and productivity (in logarithmic scale, i.e. logarithm of PFA per lagged egg), for PFA years 1991 to 2015. The last five years (2011 to 2015) are forecasts in all cases. The dashed horizontal lines in the upper panels are the age-specific SER values.

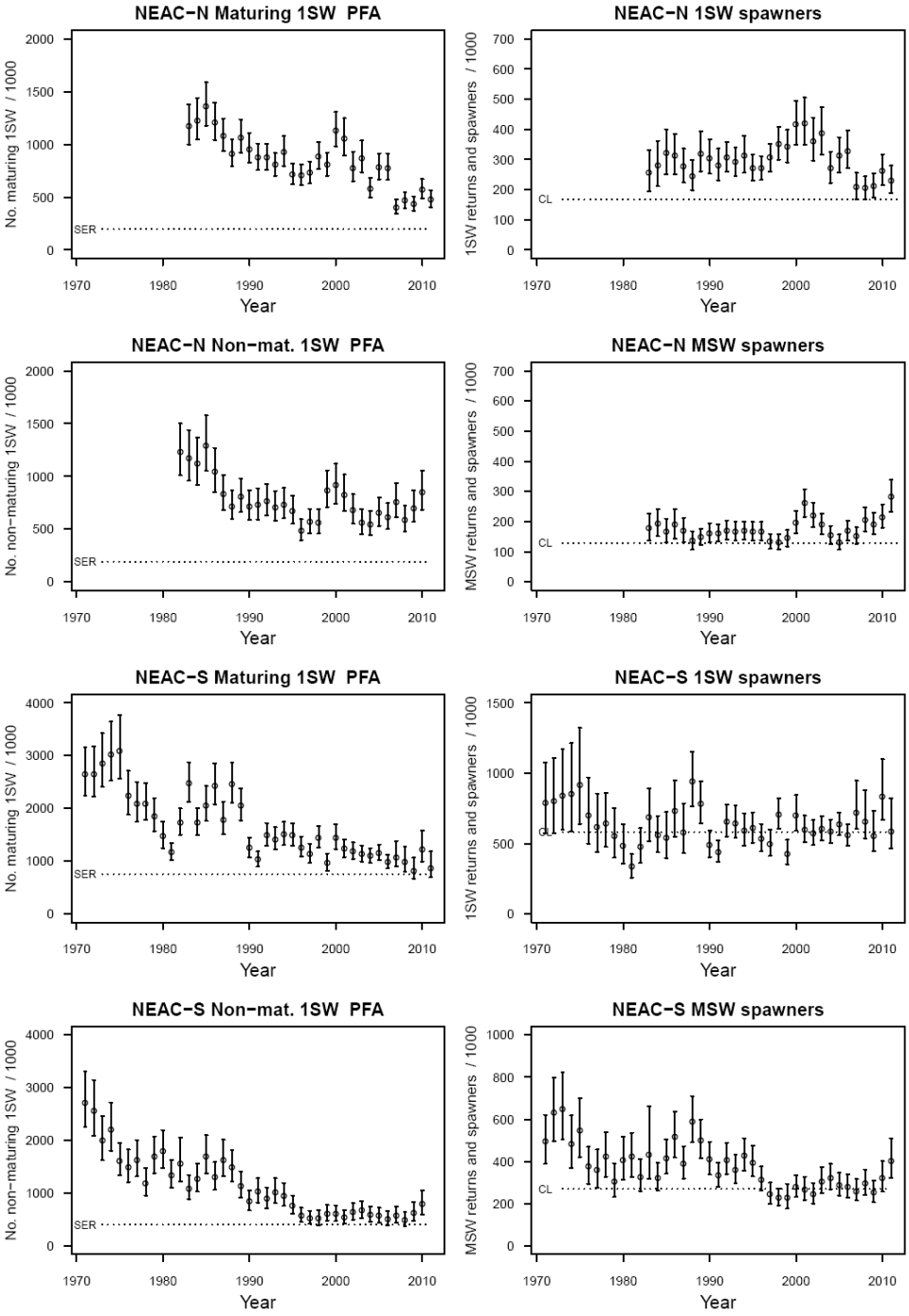

Figure 10.2.3 Estimated PFA (recruits; left panels) and spawning escapement (right panels), with 95% confidence limits, for maturing 1SW (1SW) and non-maturing 1SW (MSW) salmon in northern Europe (NEAC-N) and southern Europe (NEAC-S). **The dashed horizontal lines in the left panels are the age-specific SER values, and in the right panels the age-specific CL values.**

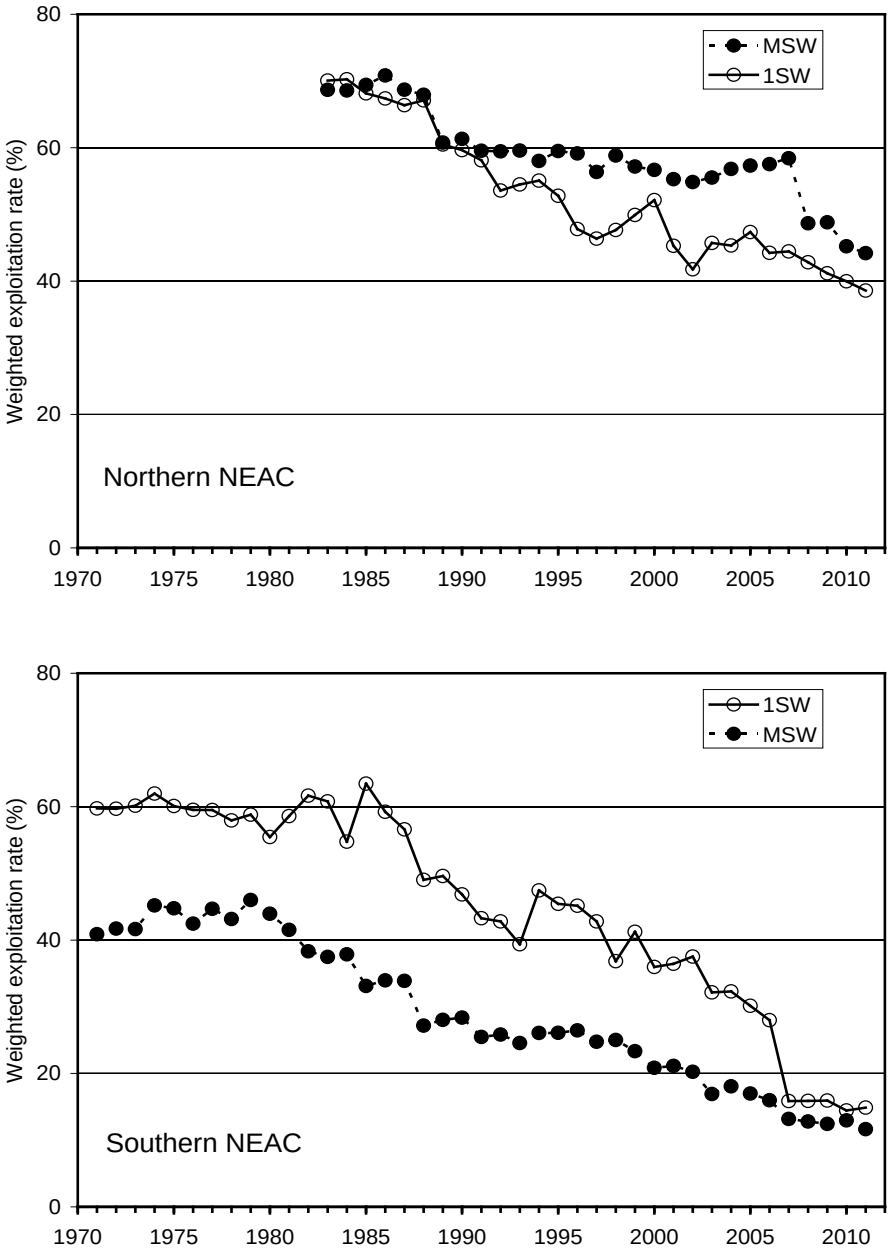

Figure 10.2.4 Exploitation rates of wild 1SW and MSW salmon in all fisheries in the northern NEAC area (upper panel) and the southern NEAC area (lower panel), from 1971 to 2011.

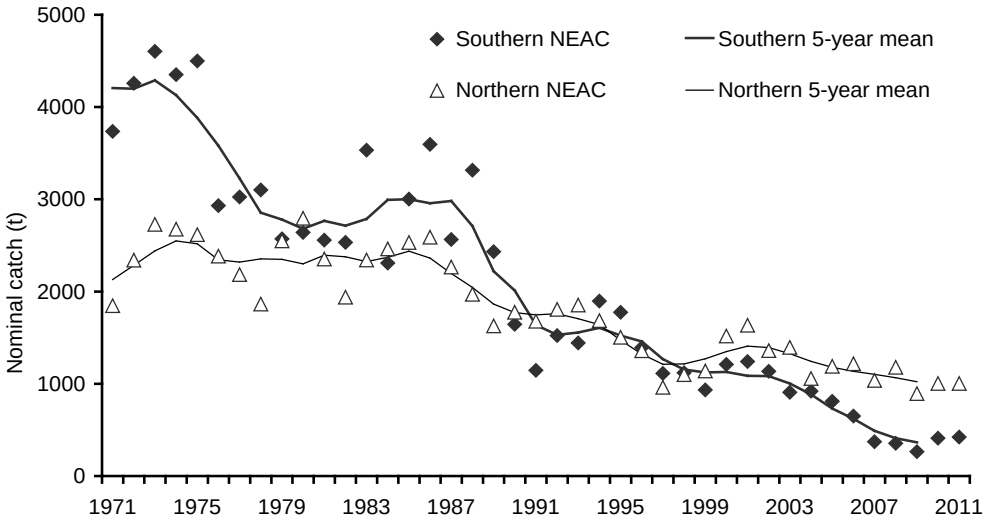

Figure 10.2.5 Nominal catch of salmon and 5-year running means in the southern NEAC and northern NEAC areas, 1971 to 2011.

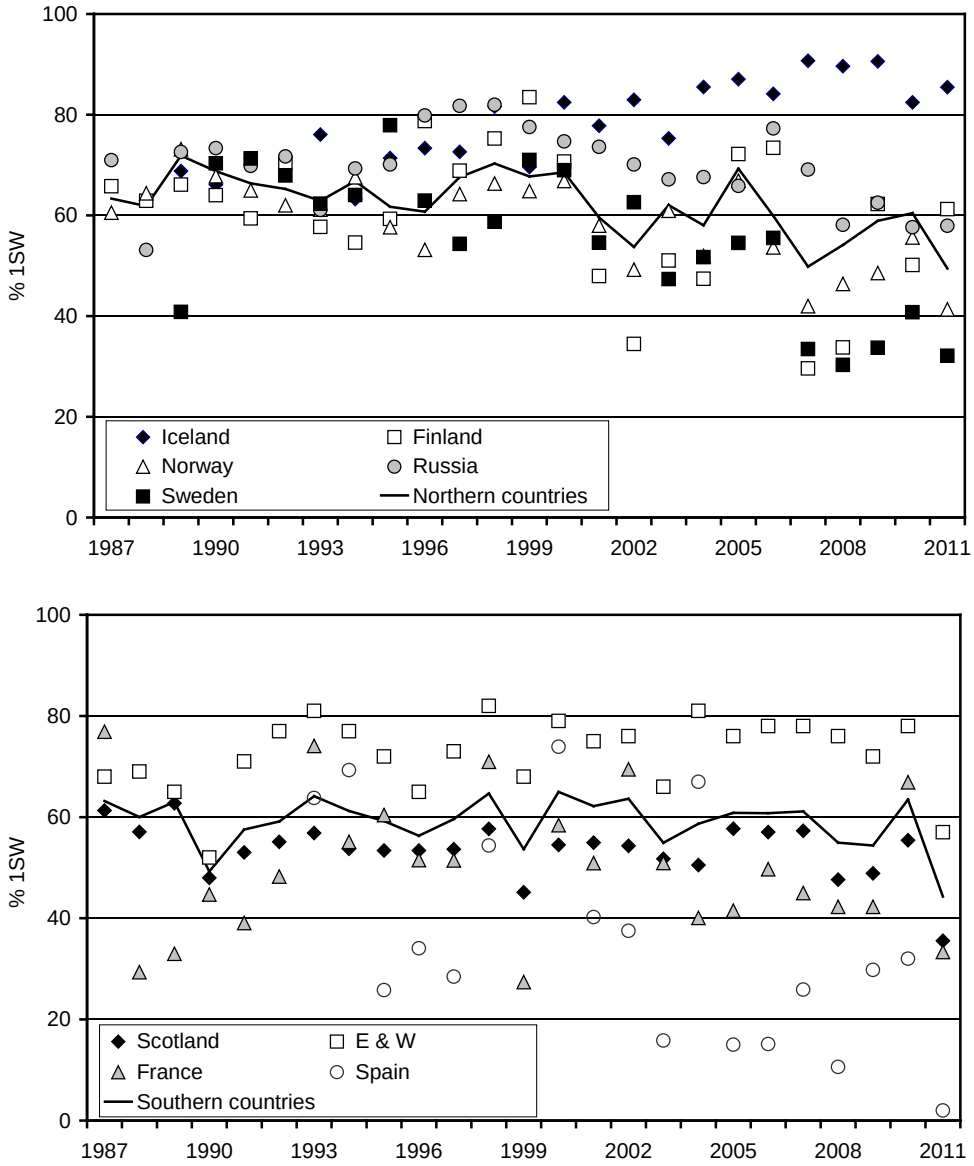

Figure 10.2.6 Percentage of 1SW salmon in the reported catch for northern NEAC countries (upper panel) and southern NEAC countries (lower panel), 1987 to 2011. Solid line denotes mean value from catches in all countries within the complex.

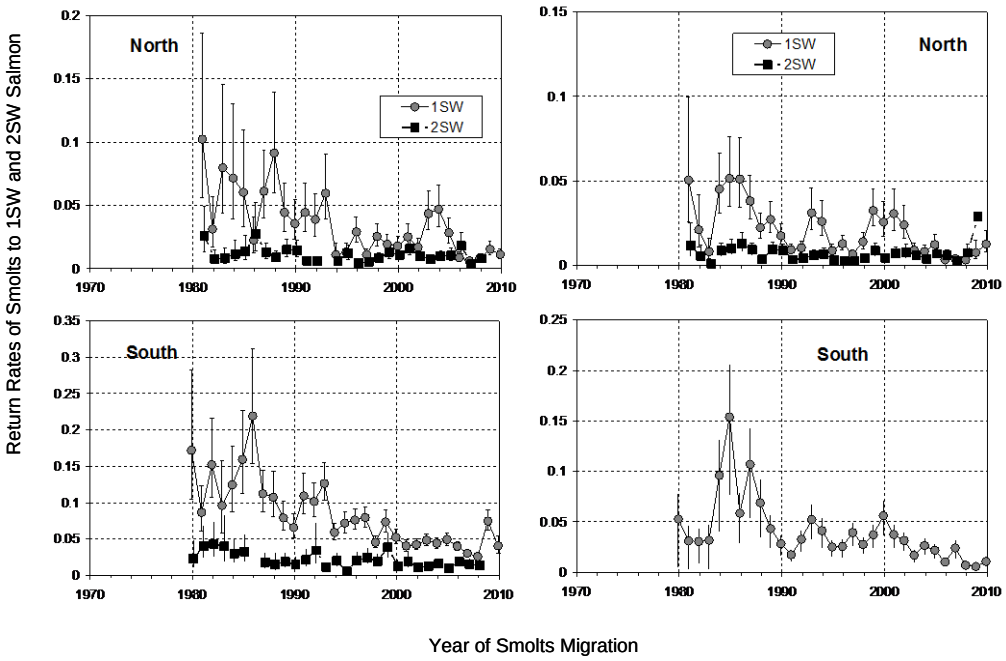

Figure 10.2.7 Median (one standard error bars) annual return rates (proportion) of wild (left panels) and hatchery origin (right panels) smolts to 1SW and 2SW adult salmon to northern and southern NEAC areas. The standardized values are derived from a general linear model analysis of rivers in a region. Note differences in vertical axes' scales among panels.

Table 10.2.1 Probability (%) of 1SW and MSW salmon spawner abundance in northern and southern NEAC areas being at or above the CLs for different catch options in Faroes for the 2012/2013, 2013/2014 and 2014/2015 fishing seasons.

Catch options for 2012/13 season: (2013 PFA)	TAC option (t)	NEAC-N-1SW	NEAC-N-MSW	NEAC-S-1SW	NEAC-S-MSW	All complexes
	0	98	100	81	87	71
	20	97	99	80	85	69
	40	97	99	80	82	66
	60	97	98	80	80	64
	80	97	97	80	77	61
	100	97	96	80	74	58
	120	97	95	80	71	55
	140	97	93	79	68	52
	160	97	91	79	65	49
	180	96	89	79	62	46
	200	96	86	79	59	43

Catch options for 2013/14 season: (2014 PFA)	TAC option (t)	NEAC-N-1SW	NEAC-N-MSW	NEAC-S-1SW	NEAC-S-MSW	All complexes
	0	96	99	84	88	73
	20	96	99	84	86	71
	40	96	98	84	84	69
	60	96	97	84	82	67
	80	96	96	83	80	64
	100	96	95	83	78	62
	120	96	93	83	75	59
	140	95	92	83	73	56
	160	95	89	83	71	53
	180	95	87	83	68	50
	200	95	84	82	66	47

Catch options for 2014/15 season: (2015 PFA)	TAC option (t)	NEAC-N-1SW	NEAC-N-MSW	NEAC-S-1SW	NEAC-S-MSW	All complexes
	0	95	99	84	88	72
	20	95	98	84	87	70
	40	95	97	84	85	68
	60	95	96	84	83	66
	80	95	95	84	81	64
	100	94	94	84	79	62
	120	94	92	84	77	59
	140	94	90	84	75	56
	160	94	88	83	73	54
	180	94	86	83	71	51
	200	93	84	83	69	48

Table 10.2.2 FWI spreadsheet at the stock complex level for NEAC. The conclusion of the spreadsheet in this illustration is irrelevant in the absence of data.

FWI NEAC	2013	Indicators suggest:	REASSESS

Indicators for Northern NEAC 1SW PFA

		Insert data from 2012 here	N reg	Slope	Intercept	r^2	Median PFA	12.5%ile	87.5%ile	Reassess in year 2013? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% confidence limits below	Outside 75% confidence limits above
1	Returns all 1SW NO PFA est		23	0.536108	-73170.20	0.91	577600	194219.71	278751.74	0	0	Uninformative	Uninformative
2	Survivals W 1SW NO Imsa		28	0.000012	-4.14	0.42	577600	-1.59	7.56	0	0	Uninformative	Uninformative
3	Survivals H 1SW NO Imsa		29	0.000006	-1.11	0.26	577600	-0.75	5.47	0	0	Uninformative	Uninformative
4	Counts all NO Øyensåa (1SW)		13	0.002703	256.13	0.33	577600	708.37	2926.92	0	0	Uninformative	Uninformative
5	Counts all NO Nausta (1SW)		14	0.002486	-490.54	0.39	577600	2.84	1888.12	0	0	Uninformative	Uninformative
								Sum of scores		0	0		
												Indicators suggest that the PFA forecast is an overestimation. REASSESS	Indicators suggest that the PFA forecast is an underestimation. REASSESS

Indicators for Northern NEAC MSW PFA

		Insert data from 2012 here	N reg	Slope	Intercept	r^2	Median PFA	12.5%ile	87.5%ile	Reassess in year 2013? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% conf.lim. below	Outside 75% conf.lim. above
1	PFA-MSW-CoastNorway		23	0.344433	-12251.11	0.71	824900	240360.77	303382.23	0	0	Uninformative	Uninformative
2	Orkla counts		17	0.013484	-3478.47	0.57	824900	5669.61	9619.69	0	0	Uninformative	Uninformative
3	Målselv counts		21	0.003871	14.46	0.22	824900	2126.89	4289.14	0	0	Uninformative	Uninformative
4	Counts all NO Nausta		14	0.004249	-1647.46	0.36	824900	865.86	2849.54	0	0	Uninformative	Uninformative
								Sum of scores		0	0		
												Indicators suggest that the PFA forecast is an overestimation. REASSESS	Indicators suggest that the PFA forecast is an underestimation. REASSESS

Indicators for Southern NEAC 1SW PFA

		Insert data from 2012 here	N reg	Slope	Intercept	r^2	Median PFA	12.5%ile	87.5%ile	Reassess in year 2013? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% conf.lim. below	Outside 75% conf.lim. above
1	Ret. W 1SW UK(E&W) Itchen M		24	0.000330	-106.71	0.34	1187000	80.15	489.51	0	0	Uninformative	Uninformative
2	Ret. W 1SW UK(E&W) Frome M		39	0.000497	65.49	0.31	1187000	103.51	1206.63	0	0	Uninformative	Uninformative
3	Ret. W 1SW UK(Sc.) North Esk M		31	0.006129	5122.42	0.52	1187000	9092.67	15701.63	0	0	Uninformative	Uninformative
4	Ret. W 1SW UK(NI) Bush M		18	0.004420	-2435.32	0.61	1187000	1028.93	4593.43	0	0	Uninformative	Uninformative
5	Ret. Freshw 1SW UK(NI) Bush		37	0.000673	478.23	0.23	1187000	477.32	2078.00	0	0	Uninformative	Uninformative
								Sum of scores		0	0		
												Indicators suggest that the PFA forecast is an overestimation. REASSESS	Indicators suggest that the PFA forecast is an underestimation. REASSESS

Indicators for Southern NEAC MSW PFA

		Insert data from 2012 here	N reg	Slope	Intercept	r^2	Median PFA	12.5%ile	87.5%ile	Reassess in year 2013? Outside 75% conf.lim. below	Outside 75% conf.lim. above	Outside 75% conf.lim. below	Outside 75% conf.lim. above
1	Ret. W 2SW UK(Sc.) Baddoch NM		24	0.000034	3.23	0.45	781000	15.75	43.05	0	0	Uninformative	Uninformative
2	Ret. W 2SW UK(Sc.) North Esk NM		31	0.003676	4605.52	0.21	781000	4124.05	10828.88	0	0	Uninformative	Uninformative
3	Ret. W 1SW UK(Sc.) North Esk NM		30	0.006340	8457.39	0.35	781000	9640.38	17176.92	0	0	Uninformative	Uninformative
4	Ret. W MSW UK(E&W) Itchen NM		24	0.000289	-96.89	0.70	781000	60.20	198.12	0	0	Uninformative	Uninformative
5	Ret. W 1SW UK(E&W) Itchen NM		23	0.000426	-2.64	0.25	781000	108.40	551.24	0	0	Uninformative	Uninformative
6	Ret. W MSW UK(E&W) Frome NM		39	0.000737	104.10	0.44	781000	157.03	1202.63	0	0	Uninformative	Uninformative
7	Ret. W 1SW UK(E&W) Frome NM		38	0.000720	119.80	0.37	781000	151.71	1212.30	0	0	Uninformative	Uninformative
8	Catch W MSW Ice Ellidaar NM		40	0.000092	-22.38	0.55	781000	-8.28	107.53	0	0	Uninformative	Uninformative
9	Ret. Freshw 2SW UK(NI) Bush		36	0.000157	41.30	0.24	781000	25.26	302.32	0	0	Uninformative	Uninformative
10	Ret. W 1SW UK(NI) Bush NM		18	0.005612	-802.38	0.66	781000	1940.95	5220.71	0	0	Uninformative	Uninformative
11	Ret. W 1SW UK(E&W) Tamar NM		14	0.009158	-1853.33	0.44	781000	4034.89	6563.82	0	0	Uninformative	Uninformative
12	Count MSW UK(E&W) Lune NM		15	0.003815	-1088.59	0.36	781000	1290.37	2491.09	0	0	Uninformative	Uninformative
13	Count MSW UK(E&W) Fowey NM		15	0.000200	-45.65	0.24	781000	68.31	152.17	0	0	Uninformative	Uninformative
								Sum of scores		0	0		
												Indicators suggest that the PFA forecast is an overestimation. REASSESS	Indicators suggest that the PFA forecast is an underestimation. REASSESS

Table 10.2.3 Nominal catch of salmon in NEAC Area (in tonnes, round fresh weight), 1960 to 2011 (2011 figures are provisional).

Year	Southern countries	Northern countries	Faroes (1)	Other catches in international waters	Total Reported Catch	Unreported catches	
						NEAC Area (3)	International waters (2)
1960	2641	2899	-	-	5540	-	-
1961	2276	2477	-	-	4753	-	-
1962	3894	2815	-	-	6709	-	-
1963	3842	2434	-	-	6276	-	-
1964	4242	2908	-	-	7150	-	-
1965	3693	2763	-	-	6456	-	-
1966	3549	2503	-	-	6052	-	-
1967	4492	3034	-	-	7526	-	-
1968	3623	2523	5	403	6554	-	-
1969	4383	1898	7	893	7181	-	-
1970	4048	1834	12	922	6816	-	-
1971	3736	1846	-	471	6053	-	-
1972	4257	2340	9	486	7092	-	-
1973	4604	2727	28	533	7892	-	-
1974	4352	2675	20	373	7420	-	-
1975	4500	2616	28	475	7619	-	-
1976	2931	2383	40	289	5643	-	-
1977	3025	2184	40	192	5441	-	-
1978	3102	1864	37	138	5141	-	-
1979	2572	2549	119	193	5433	-	-
1980	2640	2794	536	277	6247	-	-
1981	2557	2352	1025	313	6247	-	-
1982	2533	1938	606	437	5514	-	-
1983	3532	2341	678	466	7017	-	-
1984	2308	2461	628	101	5498	-	-
1985	3002	2531	566	-	6099	-	-
1986	3595	2588	530	-	6713	-	-
1987	2564	2266	576	-	5406	2554	-
1988	3315	1969	243	-	5527	3087	-
1989	2433	1627	364	-	4424	2103	-
1990	1645	1775	315	-	3735	1779	180-350
1991	1145	1677	95	-	2917	1555	25-100
1992	1523	1806	23	-	3352	1825	25-100
1993	1443	1853	23	-	3319	1471	25-100
1994	1896	1684	6	-	3586	1157	25-100
1995	1775	1503	5	-	3283	942	-
1996	1392	1358	-	-	2750	947	-
1997	1112	962	-	-	2074	732	-
1998	1120	1099	6	`	2225	1108	-
1999	934	1139	0	-	2073	887	-
2000	1210	1518	8	-	2736	1135	-
2001	1242	1634	0	-	2876	1089	-
2002	1135	1360	0	-	2495	946	-
2003	908	1394	0	-	2302	719	-
2004	919	1058	0	-	1977	575	-
2005	810	1189	0	-	1999	605	-
2006	651	1217	0	-	1868	604	-
2007	372	1036	0	-	1407	465	-
2008	354	1179	0	-	1533	433	-
2009	264	893	0	-	1158	317	-
2010	410	1003	0	-	1414	357	-
2011	422	1003	0	-	1424	382	
Means							
2006-2010	410	1065	0	-	1476	435	-
2001-2010	707	1196	0	-	1903	611	-

1. Since 1991, fishing carried out at the Faroes has only been for research purposes.
2. Estimates refer to season ending in given year.
3. No unreported catch estimate available for Russia since 2008.

Table 10.2.4 **Estimated-pre fishery abundance (median values) of maturing 1SW salmon (potential 1SW returns) by NEAC country or region and year.**

Year	Northern NEAC								Southern NEAC									NEAC Area		
	Finland	Iceland	Norway	Russia	Sweden	Total			France	Iceland	Ireland	UK(EW)	UK(NI)	UK(Scot)	Total			Total		
		N&E				2.5%	50.0%	97.5%		S&W					2.5%	50.0%	97.5%	2.5%	50.0%	97.5%
1971	33017	11939		NA	22965				64039	79531	1336003	127529	231590	785565	2246686	**2642715**	3159368			
1972	51763	10947		152309	18226				127107	64473	1432179	110895	202412	684566	2220061	**2642770**	3168941			
1973	46804	13125		223378	22452				78009	69126	1557038	128619	177299	820748	2402318	**2851656**	3442788			
1974	92965	13122		221482	31782				36422	49079	1777789	158786	193745	781478	2525595	**3010439**	3648429			
1975	64817	15969		339942	34049				72373	76546	1964053	161101	158652	637576	2573847	**3085977**	3762824			
1976	44589	16087		237641	19326				66541	60170	1332046	107398	110311	548416	1873699	**2237184**	2712415			
1977	22849	22295		151123	9110				51199	61797	1147060	120318	108622	570748	1743215	**2069867**	2489086			
1978	31059	22689		153015	10473				52899	80922	1006432	134923	141573	656071	1777096	**2084772**	2475250			
1979	36307	21700		212000	11020				59799	74952	924715	127534	99649	539589	1561459	**1842132**	2198122			
1980	16343	3293		151585	14365				125956	33956	702747	119136	126362	338403	1244310	**1462537**	1740303			
1981	25251	16963		127276	26247				100767	43759	373931	125506	99879	420132	1024824	**1175958**	1345236			
1982	7362	7840		110717	22635				61848	45011	768684	106450	143042	597902	1503486	**1733308**	2008655			
1983	36288	11509	896506	184977	30513	994664	**1163910**	1367963	66728	56970	1357452	153875	201293	614308	2120385	**2463408**	2893361	3193609	**3631612**	4143157
1984	40640	4182	928727	196330	41359	1037407	**1215165**	1439771	108197	34933	710441	131906	78932	645048	1495274	**1723724**	1990509	2612312	**2942223**	3325476
1985	61316	28889	948898	270595	49287	1176129	**1363916**	1589674	40593	56795	1180526	132313	102592	532895	1762742	**2056417**	2425397	3023275	**3425540**	3899312
1986	55835	35926	824055	230511	51929	1043200	**1203925**	1397222	61869	93210	1323097	150256	114970	660633	2078965	**2427963**	2858717	3199542	**3634831**	4157813
1987	71288	21162	692349	245332	41981	933436	**1078773**	1247266	109797	57971	851365	156116	62688	509458	1512435	**1782332**	2124455	2515567	**2863831**	3276223
1988	34093	30649	636773	170260	35472	791088	**909142**	1047775	38352	103850	1155735	212610	148025	773442	2110128	**2449397**	2863115	2964469	**3360598**	3839387
1989	79715	16476	701048	252260	11685	923233	**1063926**	1240282	20868	58099	827847	140298	142433	844915	1778609	**2050817**	2374957	2763195	**3116975**	3528759
1990	75346	12316	627570	208368	25155	823989	**952083**	1101769	34304	53338	517699	101511	117518	405702	1075839	**1244086**	1441830	1947727	**2199730**	2477978
1991	91797	17951	547161	178294	30088	752199	**868607**	1006172	25076	59092	369646	98791	65696	402359	896240	**1032013**	1191626	1693219	**1902071**	2143710
1992	121549	33803	460298	218528	32890	761214	**872649**	1000421	45541	67504	536435	101745	132895	585497	1292046	**1487662**	1718196	2100553	**2361442**	2651311
1993	85574	27769	462991	188710	35383	704454	**803860**	918061	65594	66226	436650	139722	155552	525296	1232169	**1411419**	1633064	1978499	**2218019**	2498937
1994	33969	8851	624670	222796	26783	793466	**921898**	1079421	50700	54335	559006	154778	106955	560248	1306760	**1506405**	1743568	2151727	**2431150**	2745942
1995	33458	25502	408452	200046	39262	620643	**710266**	818288	17221	74119	622589	118860	99042	549666	1296228	**1489834**	1727660	1957933	**2203555**	2490148
1996	77591	13649	311652	272170	24388	613840	**703325**	811029	21134	63603	582110	85561	102445	394195	1087101	**1259488**	1464441	1737367	**1964662**	2226534
1997	66227	18594	359292	267368	11008	630783	**726169**	838251	10736	46564	579293	77816	121475	283729	969389	**1128051**	1322634	1644462	**1856909**	2108231
1998	76428	31756	468021	292231	9777	768464	**883656**	1019374	21045	63531	608334	86819	264510	386717	1253294	**1442384**	1674795	2068309	**2327773**	2631096
1999	109415	16185	434397	226204	14390	702637	**804926**	923538	6995	51895	565934	70908	68843	191149	817391	**962393**	1143232	1564307	**1769526**	2011304
2000	115243	16967	717225	247272	28563	979218	**1130060**	1304006	18131	45982	786874	107069	99914	371185	1230462	**1438265**	1697258	2269351	**2575130**	2924131
2001	52106	15412	618665	333197	18663	888755	**1046605**	1243983	15749	41249	627581	94616	78950	365299	1074897	**1233134**	1415642	2022238	**2284743**	2582503
2002	36491	26644	378661	303750	19103	650853	**771945**	930497	35281	51397	546825	88899	156644	294083	1038794	**1187228**	1360564	1740044	**1962554**	2228358
2003	43286	14114	524011	269848	11547	738990	**869096**	1033879	23442	61485	535803	63136	102174	335511	995334	**1133924**	1298456	1778983	**2006098**	2267396
2004	16753	38168	317719	189929	10049	493365	**577567**	682639	28375	61776	395390	106820	91408	398839	961214	**1096141**	1253134	1489227	**1676376**	1885535
2005	42493	33911	471031	215702	8506	667171	**778790**	916506	18126	91081	394263	89818	116103	431818	1016676	**1153303**	1307737	1724138	**1934578**	2169722
2006	80495	35985	381014	260624	10322	661843	**774744**	916925	25739	64092	301910	83584	73971	419680	862071	**981868**	1122377	1565185	**1756716**	1985668
2007	14983	26532	213523	140559	4924	344446	**403529**	477515	20253	73577	343823	79107	120509	412035	898161	**1073366**	1383858	1273570	**1483719**	1814720
2008	15399	24306	267104	146322	6333	394666	**463601**	548360	19853	88844	338369	76895	71570	354392	804049	**977270**	1280732	1236602	**1447654**	1769649
2009	31523	39257	214145	137704	6684	370734	**432470**	506550	7207	100668	282800	47605	54594	304099	670357	**817778**	1067970	1074081	**1254647**	1529087
2010	29385	31210	317984	179407	11147	487920	**572955**	672935	24189	103439	359413	95151	50284	554347	992322	**1225349**	1594190	1528303	**1804849**	2198409
2011	35803	26922	223085	179083	9375	405861	**477454**	564031	16995	72796	340567	59165	41715	312454	697491	**867503**	1186267	1140947	**1351895**	1691318
10yr Av.	34661	29705	330828	202293	9799	521585	612215	724984	21946	76916	383916	79018	87897	381726	893647	1051373	1285528	1455108	1667909	1953986

Table 10.2.5 **Estimated pre-fishery abundance (median values) of non-maturing 1SW salmon (potential MSW returns) by NEAC country or region and year.**

Year	Northern NEAC								Southern NEAC										NEAC Area		
	Finland	Iceland	Norway	Russia	Sweden	Total			France	Iceland	Ireland	UK(EW)	UK(NI)	UK(Scot)	Total			Total			
		N&E				2.5%	50.0%	97.5%		S&W					2.5%	50.0%	97.5%	2.5%	50.0%	97.5%
1971	63137	26034		265888	7303				55559	63444	396707	388650	31912	1725628	2216230	**2678268**	3250411			
1972	74959	24345		421923	10262				36017	57185	392601	291937	27861	1715313	2072861	**2535279**	3129730			
1973	111504	22843		390276	6917				19423	49157	403953	206126	30412	1198672	1569859	**1916110**	2374454			
1974	124904	25411		427122	5760				30674	52569	453466	266735	25080	1335999	1770476	**2177685**	2692288			
1975	102226	20878		361428	5926				26941	45219	338590	176731	17391	960383	1309100	**1574554**	1907449			
1976	62443	28733		250259	4127				18612	44057	277072	176300	17155	906217	1181728	**1448739**	1786526			
1977	39935	36826		212800	3307				18878	56789	243101	151591	22320	1076175	1274728	**1577828**	1957916			
1978	42806	24526		199144	6383				18735	36534	215762	84960	15695	810518	960459	**1187113**	1481494			
1979	44620	34544		344162	13016				35580	51699	255085	221693	19800	1040261	1334617	**1633434**	2008613			
1980	49130	13217		250099	12687				25955	35373	208863	291138	15540	1118558	1394577	**1708696**	2089524			
1981	63417	14847		225773	16387				17779	25373	141053	136422	22503	926374	1044301	**1275568**	1559830			
1982	69796	11302	876602	276258	12137	1026289	**1249859**	1524521	17681	41017	297026	139550	31518	937184	1178370	**1503390**	1990184	2258690	**2764175**	3413023
1983	65972	13936	836073	254336	10929	970723	**1183517**	1451017	23409	34571	150283	102023	12391	724655	856199	**1051601**	1302315	1862691	**2238186**	2694368
1984	51483	9231	787568	274983	7758	930343	**1134453**	1385839	17568	25206	160601	140211	16073	861498	991668	**1226106**	1526465	1962990	**2359084**	2853761
1985	45289	24220	949184	281557	9033	1073741	**1311170**	1602414	21257	21398	199934	201491	18101	1172056	1330625	**1642480**	2041856	2451160	**2960571**	3572027
1986	56258	24970	737477	218168	13207	865588	**1054184**	1287207	12363	18997	229618	161060	9237	790516	1004117	**1227638**	1514742	1905845	**2283504**	2743747
1987	36039	16011	577757	198350	10252	688857	**839801**	1024617	28240	21213	173094	202167	26075	1147099	1296797	**1606764**	1992005	2023426	**2450239**	2963250
1988	40945	13780	449366	198464	23546	600780	**728273**	881483	16241	19067	167450	171050	20787	1044344	1176391	**1445067**	1775249	1805161	**2176447**	2617282
1989	51364	14296	494640	237846	15314	667799	**814867**	990937	12762	18770	77252	182860	18877	800932	896935	**1116639**	1392836	1594664	**1931685**	2342275
1990	61928	9902	403124	224587	16037	587767	**718054**	871537	10964	18509	101582	79120	9702	592984	657622	**815331**	1020081	1267636	**1534343**	1857932
1991	66014	14511	418684	206515	19527	594755	**727958**	889816	14880	20786	85206	67884	22200	807193	817615	**1021561**	1279683	1441400	**1751216**	2125873
1992	76066	16353	399786	242552	26226	628164	**763819**	929055	7369	10251	79260	68634	52315	653264	703377	**877856**	1104778	1356382	**1643459**	1996381
1993	63193	13886	391704	219264	19220	582687	**710537**	866349	12895	16547	115478	86328	18459	753249	800296	**1006674**	1272001	1408995	**1718941**	2098378
1994	39069	9713	422261	247125	13841	601963	**733799**	897173	6162	18671	111515	87845	15586	699387	748330	**942987**	1194040	1377859	**1679067**	2046968
1995	34432	12690	418589	187498	17213	552690	**672540**	823273	11275	12034	77308	89386	17155	543388	601611	**754865**	955112	1178716	**1429559**	1743588
1996	50029	7075	266370	147656	10824	396182	**484990**	594355	5919	13408	96507	56051	21370	372293	453194	**571300**	725985	868688	**1058586**	1292724
1997	42112	10301	319865	181164	7945	461655	**563474**	691359	4903	8281	55577	36900	29444	387932	420733	**526373**	663272	901355	**1090465**	1323907
1998	39586	11827	340127	162281	6790	457407	**561917**	692737	10291	16153	85646	78023	13288	297464	394371	**516987**	682811	875319	**1080744**	1336906
1999	87459	6932	471368	280406	14840	708764	**863840**	1056059	7181	4391	107197	83128	17713	380034	478922	**606880**	773447	1216501	**1472826**	1790981
2000	126622	7983	556031	200056	17977	741296	**911670**	1124097	8689	7712	97737	91725	13056	370884	468621	**600333**	771299	1241623	**1516069**	1853560
2001	101401	7531	481478	218080	13169	670742	**823924**	1017287	7907	8377	111303	81296	15532	299582	419150	**533399**	682042	1115475	**1359474**	1659891
2002	71722	7931	426679	153415	15095	551599	**677185**	831896	11396	13334	116807	97212	10112	374167	495636	**634188**	811969	1072266	**1312332**	1602425
2003	34446	7748	386156	117685	10849	452607	**557338**	690979	20746	10784	63723	74806	9067	477166	524718	**665683**	850814	1001779	**1224574**	1505026
2004	26695	9649	356095	141087	8262	441813	**543228**	667362	12847	9517	82939	85088	11480	377667	459900	**586982**	754255	922864	**1132332**	1389929
2005	46779	9279	449967	134560	8279	532268	**650437**	799586	12954	7884	59936	72329	7329	391740	439965	**563411**	727301	995562	**1214405**	1488140
2006	66414	8908	382729	138323	11381	499214	**608855**	747101	12241	4864	27341	69151	10060	376616	393335	**507964**	656917	915675	**1118658**	1373612
2007	63017	11435	442276	220699	16258	613096	**757408**	933767	13583	5579	40740	74559	6117	422685	441600	**572062**	743534	1084316	**1331222**	1631691
2008	29517	9154	346468	185341	14693	477572	**588566**	727442	7078	8598	45501	56870	7949	351461	371811	**485391**	634434	873059	**1074610**	1324231
2009	46536	13131	381348	238634	18226	565949	**700591**	867517	5944	17811	29442	83398	7335	470439	474597	**624157**	818303	1073874	**1326996**	1640385
2010	36648	14943	531213	238093	23481	683744	**846905**	1054257	15570	6695	30794	133893	18370	567824	593701	**786246**	1056289	1317582	**1638495**	2041292
10yr Av.	52318	9971	418441	178592	13969	548860	675444	833719	12027	9344	60852	82860	10335	410935	461441	595948	773586	1037245	1273310	1565662

Table 10.2.6 Probability (%) that the forecast PFA for the components of the southern NEAC and northern NEAC stock complexes will meet or exceed the spawner escapement reserve (SER) by age group, in 2011 to 2015

Southern NEAC		Maturing	Non-maturing
	SER	758 477	406 436
Year			
2011		95	98
2012		87	93
2013		81	87
2014		84	89
2015		84	88

Northern NEAC		Maturing	Non-maturing
	SER	212 986	218 259
Year			
2011		100	100
2012		99	100
2013		98	100
2014		96	99
2015		95	99

10.3 **Advice May 2012**

ECOREGION **North Atlantic**

STOCK **Atlantic salmon from North America**

Advice for 2012 to 2015

On the basis of the MSY approach, ICES advises that fishing should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity. Furthermore, because of the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats. The management of a fishery should ideally be based upon the individual status of all stocks exploited in the fishery.

Management advice in the form of catch options is only provided for the non-maturing 1SW and maturing 2SW components, as the maturing 1SW component is not fished outside of home waters.

As there is less than 75% probability that the numbers of 2SW salmon returning to the six regions of North America will be above the management objectives (conservation limits for the four northern areas, rebuilding objectives for the two southern areas) simultaneously, there are no mixed-stock fisheries catch options on 1SW non-maturing and 2SW salmon in North America in 2012 to 2015 (Table 10.3.1).

The Framework of Indicators (FWI; ICES, 2009) was updated in support of the multi-year catch advice and the potential approval of multi-year regulatory measures (Table 10.3.2). The FWI can be applied at the beginning of 2013, with the returns or return rate data for 2012, to evaluate the appropriateness of the 2013 advice, and again at the beginning of 2014, with the returns or return rate data for 2013, to evaluate the appropriateness of the 2014 advice.

Stock status

Stock status is presented for six regions and overall for North America (Figure 10.3.1). Recruitment (pre-fishery abundance (PFA), defined as the number of maturing and non-maturing 1SW on 1 August of the second summer at sea) estimates suggest continued low abundance of North American salmon (Figure 10.3.2). The total PFA in the northwest Atlantic has oscillated around a generally declining trend since the 1970s, with a period of persistent low abundance since the early 1990s. The maturing 1SW salmon PFA in 2011 increased 37% from the 2010 value and ranked 10th of the 41-year time-series. The non-maturing 1SW salmon PFA estimate for 2010 increased by 100% over the 2009 estimate, but ranked 23rd of the 40-year time-series.

In 2011, 2SW median spawner estimates for Newfoundland and Gulf were above the conservation limits (CL), for Quebec marginally below, and for Labrador, Scotia–Fundy, USA, and the North American Commission overall below CLs (Figure 10.3.3). Particularly large deficits are noted in the Scotia–Fundy and USA regions. Egg depositions by all sea-ages combined in 2011 exceeded or equaled the river-specific CLs in 45 of the 74 assessed rivers (61%), an improvement on the 44% of the 71 rivers assessed in 2010. Egg depositions in 2011 were less than 50% of CLs in 15 other rivers (Figure 10.3.4).

Exploitation rates of both small salmon (mostly 1SW maturing) and large salmon (all other sea age groups) fluctuated annually but remained relatively stable until 1984 and 1992, when they declined sharply with the introduction of the restrictive management measures (Figure 10.3.5). Declines continued in the 1990s. In the last few years, exploitation rates have remained at the lowest in the time-series, averaging 15%.

Despite major changes in fisheries management around 18 to 25 years ago, and increasingly more restrictive fisheries measures since then, returns have remained near historical lows and many populations are currently threatened with extirpation. The continued low abundance of salmon stocks across North America, with a slight upturn observed in 2011, despite significant fishery reductions, further strengthens the conclusions that factors other than fisheries, acting both in freshwater and at sea, are constraining production.

Management plans

The North Atlantic Salmon Conservation Organization (NASCO) has adopted an Action Plan for Application of the Precautionary Approach which stipulates that management measures should be aimed at maintaining all stocks above their conservation limits by the use of management targets. NASCO has adopted the region-specific CLs as limit reference points (S_{lim}); having populations fall below these limits should be avoided with high probability. Within the agreed management plan, a risk level (probability) of 75% for simultaneous attainment of management objectives has been agreed for the provision of catch advice on 2SW salmon exploited at West Greenland (as non-maturing 1SW fish) and in North America (as non-maturing 1SW and 2SW salmon). For the North American Commission, the management objectives are the 2SW CLs in the four northern areas (Labrador, Newfoundland, Quebec, Gulf), and to achieve a 25% increase in regional returns relative to a baseline period (average returns in 1992–1996) for the two southern regions (Scotia–Fundy, USA).

Biology

Atlantic salmon (*Salmo salar*) is an anadromous species found in rivers of countries bordering the North Atlantic. In the Northwest Atlantic they range from the Connecticut River (USA, 41.6°N) northward to 58.8°N (Quebec, Canada). Juveniles emigrate to the ocean at ages of one to eight years (dependent on latitude) and generally return after one or two years at sea. Long distance migrations to ocean feeding grounds are known to take place, with adult salmon from both the North American and Northeast Atlantic stocks migrating to West Greenland to feed in their second summer and fall at sea.

Environmental influence on the stock

Environmental conditions in both freshwater and marine environments have a marked effect on the status of salmon stocks. Across the North Atlantic, a range of problems in the freshwater environment play a significant role in explaining the poor status of stocks. In many cases river damming and habitat deterioration have had a devastating effect on freshwater environmental conditions. In the marine environment, return rates of adult salmon have declined through the 1980s and are now at the lowest levels in the time-series for some stocks, even after closure of marine fisheries. Climatic factors modifying ecosystem conditions and predator fields of salmon at sea are considered to be the main contributory

factors to lower productivity, which is expressed almost entirely in terms of lower marine survival.

The fisheries

Three groups exploited salmon in Canada: Aboriginal peoples, residents fishing for food in Labrador, and recreational fishers. The provisional harvest of salmon by all users in 2011 was 179 t (Table 10.3.3). The dramatic decline in harvested tonnage since 1988 is in large part the result of the reductions in commercial fisheries effort, with closure of the insular Newfoundland commercial fishery in 1992, closure of the Labrador commercial fishery in 1998, and closure of the Quebec commercial fishery in 2000 (Figure 10.3.6). All commercial fisheries for Atlantic salmon remained closed in Canada in 2011 and the catch therefore was zero. The total reported harvests for the Aboriginal peoples' food fisheries was 70.4 t, 2.1 t for residents fishing for food in Labrador, and 106.2 t (about 54 200 small and large salmon) were harvested in the recreational fisheries. In 2011, approximately 77 600 salmon (about 41 200 small and 36 400 large) were caught and released by recreational fishers, representing about 59% of the total number caught (including retained fish). France (Islands of Saint-Pierre and Miquelon) reported a total harvest of 3.8 t in the professional and recreational fisheries in 2011 (Table 10.3.3). There are no commercial or recreational fisheries for Atlantic salmon in USA (Table 10.3.3).

	Canada				St Pierre & Miquelon	USA
	Commercial	Aboriginal	Labrador resident	Recreational		
2011 catch (t)	0	70.4	2.1	106.2	3.8	0
% of NAC total	-	39	1	58	2	-

Effects of the fisheries on the ecosystem

The current salmon fisheries probably have no or only minor influence on the marine ecosystem. However, the exploitation rate on salmon may affect the riverine ecosystem through changes in species composition. There is a limited knowledge on the magnitude of these effects.

Quality considerations

Uncertainties in input variables to the stock status and stock forecast models are incorporated in the assessment. Because of absence of catch data from some regions in Canada, the values were estimated based on historical exploitation rates. Estimates of abundance of adult salmon in some areas, in particular Labrador, are based on a small number of counting facilities raised to a large production area.

Scientific basis

Assessments are carried out using common input variables across regions. Run-reconstruction models and Bayesian forecasts are performed, taking into account uncertainties in the data.

Supporting information: WGNAS.

10.3.1 **Supporting information May 2012**

ECOREGION **North Atlantic**

STOCK **Atlantic salmon from North America**

Reference points

Conservation limits for 2SW salmon to North America total 152 548 fish. Management objectives for Scotia–Fundy and USA are based on an increase of 25% in returns of 2SW salmon from the mean return in the base years 1992 to 1996.

COUNTRY AND COMISSION AREA	STOCK AREA	2SW CONSERVATION LIMIT (NUMBER OF FISH)	MANAGEMENT OBJECTIVE (NUMBER OF FISH)
	Labrador	34 746	34 746
	Newfoundland	4022	4022
	Gulf of St. Lawrence	30 430	30 430
	Quebec	29 446	29 446
	Scotia–Fundy	24 705	10 976
Canada Total		123 349	
USA		29 199	2 548
North American Commission		152 548	

Outlook for 2012 to 2015

Pre-fishery abundance (PFA, recruitment of non-maturing 1SW salmon at 1 August in the second summer at sea) forecasts are derived from abundance of lagged spawners and a productivity parameter by region for the six regions of North America (Figure 10.3.1).

The estimated productivity (PFA divided by lagged spawners) in 2010 increased to the highest value since 1991, but is still below the peak productivity in 1980 (Figure 10.3.7). Productivity by region is displayed in Figure 10.3.8. In all regions, the productivity over the past decade remains low compared to values estimated during 1978 to 1990.

Following on the estimated improvements in productivity for 2010 and sustained or improved estimates of lagged spawners in the 2011 to 2014 PFA years, the medians of the PFAs for North America overall and for the six regions are predicted to remain high or to increase over the 2011 to 2014 period (Figures 10.3.7 and 10.3.9). The PFA forecasts have very high uncertainty and the uncertainties increase as the forecasts move farther forward in time.

MSY approach

Atlantic salmon has characteristics of short-lived fish stocks; mature abundance is sensitive to annual recruitment because there are only a few age groups in the adult spawning stock. Incoming recruitment is often the main component of the fishable stock. For such fish stocks, the ICES maximum sustainable yield (MSY) approach is aimed at achieving a target escapement (MSY $B_{escapement}$, the amount of biomass left to spawn). No catch should be allowed unless this escapement can be achieved. The escapement level should be set so there is a low risk of future recruitment being impaired, similar to the basis for estimating B_{pa} in

the precautionary approach. In short-lived stocks, where most of the annual surplus production is from recruitment (not growth), MSY $B_{escapement}$ and B_{pa} might be expected to be similar. Conservation limits (CLs) for North Atlantic salmon stock complexes have been defined by ICES as the level of stock (number of spawners) that will achieve long-term average maximum sustainable yield (MSY $B_{escapement}$).

ICES considers that to be consistent with the MSY and the precautionary approach, fisheries should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity. Furthermore, due to the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats.

In the absence of any fisheries in 2012–2015, there is less than 75% probability that the numbers of 2SW salmon returning to the six regions of North America will be above the management objectives (conservation limits for the four northern areas, rebuilding objectives for the two southern areas) simultaneously (Table 10.3.1). Therefore, there are no mixed-stock fisheries catch options on 1SW non-maturing and 2SW salmon in North America in 2012 to 2015.

Additional considerations

Fisheries on mixed stocks pose particular difficulties for management, as they cannot target only stocks that are at full reproductive capacity. The management of a fishery should ideally be based upon the status of all stocks exploited in the fishery. Conservation would be best achieved if fisheries target stocks that have been shown to be at full reproductive capacity. Fisheries in estuaries and, especially, rivers are more likely to meet this requirement.

Most catches (92%) in North America now take place in rivers or in estuaries. Fisheries are principally managed on a river-by-river basis and, in areas where retention of large salmon is allowed, it is closely controlled. The commercial fisheries are now closed and the remaining coastal food fisheries in Labrador are mainly located in bays, generally inside the headlands. The coastal fishery in St. Pierre & Miquelon (SPM) is a mixed-stock fishery which catches salmon from stocks in Canada and USA; there are no salmon producing rivers in SPM.

It would be desirable to resolve the outstanding issues regarding stock origin of the salmon caught in the estuarine and coastal fisheries at Labrador and in SPM. Genetic analysis techniques offer the opportunity to identify the origin of harvested individuals at varying levels of origin and can provide the information necessary to evaluate the effect that these mixed-stock fisheries have on the contributing populations. Sampling of these fisheries catches and the development of appropriate baselines that represent all populations subjected to the fisheries is occurring and the results should be available in the near future.

The returns of 2SW fish in 2011 increased in all six geographic areas relative to 2010 (range 16 to 218%) and the previous 5-year mean (19 to 184%) (Figure 10.3.3). Returns of 1SW salmon in 2011 relative to 2010 increased in Labrador (196%), Quebec (37%), and USA (106%), decreased in Gulf (6%) and Scotia–Fundy (36%), and remained the same in Newfoundland (Figure 10.3.10). Returns of 1SW salmon were also above (18 to 132%) the previous 5-year mean (2006 to 2010) in all regions except for Scotia–Fundy (10% decrease).

The rank of the estimated returns in the 1971 to 2011 time-series and the proportions of the 2SW CL achieved in 2011 for six regions in North America are shown below:

Region	Rank of 2011 returns in 1971 to 2011, (41=lowest)		Rank of 2011 returns in 2002 to 2011 (10=lowest)		Median estimate of 2SW spawners as percentage of Conservation Limit
	1SW	2SW	1SW	2SW	(%)
Labrador	1	1	1	1	81
Newfoundland	3	8	2	1	133
Québec	8	27	1	1	96
Gulf	17	3	3	1	204
Scotia–Fundy	34	27	5	1	18
USA	5	12	1	1	13

Scientific basis

Data and methods

The returns for individual river systems and management areas for both sea-age groups were derived from a variety of methods. These methods included counts of salmon at monitoring facilities, population estimates from mark–recapture studies, and applying angling and commercial catch statistics, angling exploitation rates, and measurements of freshwater habitat. The 2SW component of the large returns was determined using the sea-age composition of one or more indicator stocks. Returns of small (1SW), large, and 2SW salmon (a subset of large) to each region were originally estimated by the methods and variables developed by Rago *et al.* (1993) and reported by ICES (1993).

Returns are the number of salmon that returned to the geographic region, including fish caught by homewater commercial fisheries, except in the case of the Newfound-land and Labrador regions, where returns do not include landings in commercial and food fisheries.

Estimates and forecasts of the pre-fishery abundance for the non-maturing 1SW salmon (PFA) are derived using a Bayesian framework that incorporates the estimates of lagged 2SW spawners and works through the fisheries at sea to determine the corresponding returns of 2SW salmon, conditioned by fisheries removals and natural mortality at sea. The model considered regionally disaggregated lagged spawners and returns of 2SW salmon for the six regions of North America. Annually varying and regionally specific PFA estimates are assumed to be proportional to lagged spawners for that year and region. The proportionality coefficient between lagged spawners and PFA, referred to as the productivity, for each region is modelled dynamically as a random walk (in logarithmic scale).

Uncertainties in assessments and forecasts

To date, 1082 Atlantic salmon rivers have been tabulated in eastern Canada and 21 rivers in eastern USA, where salmon are or have been present within the last half century. Conservation requirements in terms of eggs have been defined for 45% (485) of the 1082 rivers in Canada. For over 59% of the rivers with defined conservation requirements, these are less than 1 million eggs, which translates roughly into 200 to 300 spawners, depending upon life history type. Collectively, 91% of the rivers have conservation requirements of less than five million eggs. Assessments were reported for 74 of these rivers in 2011.

Recreational catch statistics for Atlantic salmon are not collected regularly in Canada and there is no mechanism in place that requires anglers to report their catch statis-tics, except in Quebec. The reliability of recreational catch statistics could be improved in all areas of Canada.

The unreported catch estimate for Canada is complete and is estimated at 29 t in 2011, mostly from illegal retentions in fisheries directed at salmon.

Comparison with previous assessment and catch options

The NASCO Framework of Indicators of North American stocks for 2011 did not indicate the need for a revised analysis of catch options. Therefore, no assessment and no new management advice was provided for 2011. The assessment was updated this year using returns data to 2011 and the stock status was consistent with the previous assessment (ICES, 2009). The predicted values of the PFA for 2009 and 2010 were very close to the realized values based on this year's assessment, and there is little change (+17%) in the updated prediction for the 2011 PFA from the 2009 assessment to the present assessment. The previous advice provided by ICES (in 2009) indicated that there were no mixed-stock fishery catch options on the 1SW non-maturing salmon component for the 2009 to 2011 PFA years, and this year's assessment confirms that advice.

Assessment and management area

The advice for the North America Commission is based upon the objectives defined by management in six geographic areas of North America (Figure 10.3.1).

Sources of information

ICES. 1993. Report of the North Atlantic Salmon Working Group. Copenhagen, 5–12 March 1993. ICES CM 1993/Assess:10.

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NASCO. 1998. North Atlantic Salmon Conservation Organization. Agreement on the adoption of a precautionary approach. Report of the 15th annual meeting of the Council. CNL(98)46. 4 pp.

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Rago, P. J., Reddin, D. G., Porter, T. R., Meerburg, D. J., Friedland, K. D., and Potter, E. C. E. 1993. A continental run-reconstruction model for the non-maturing component of North American Atlantic salmon: analysis of fisheries in Greenland and Newfoundland Labrador, 1974–1991. ICES CM 1993/M:25.

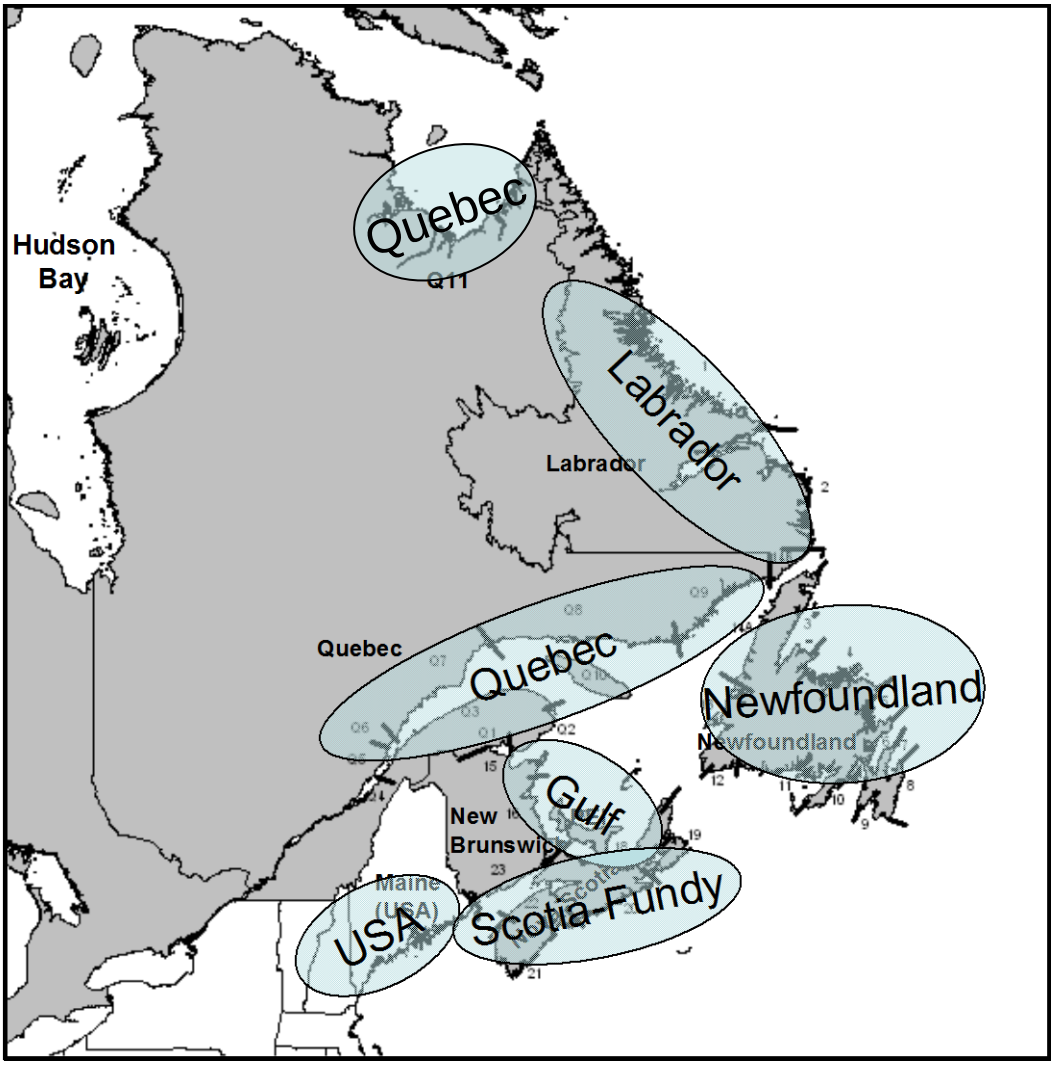

Figure 10.3.1 Regional groupings of Atlantic salmon in the North American Commission.

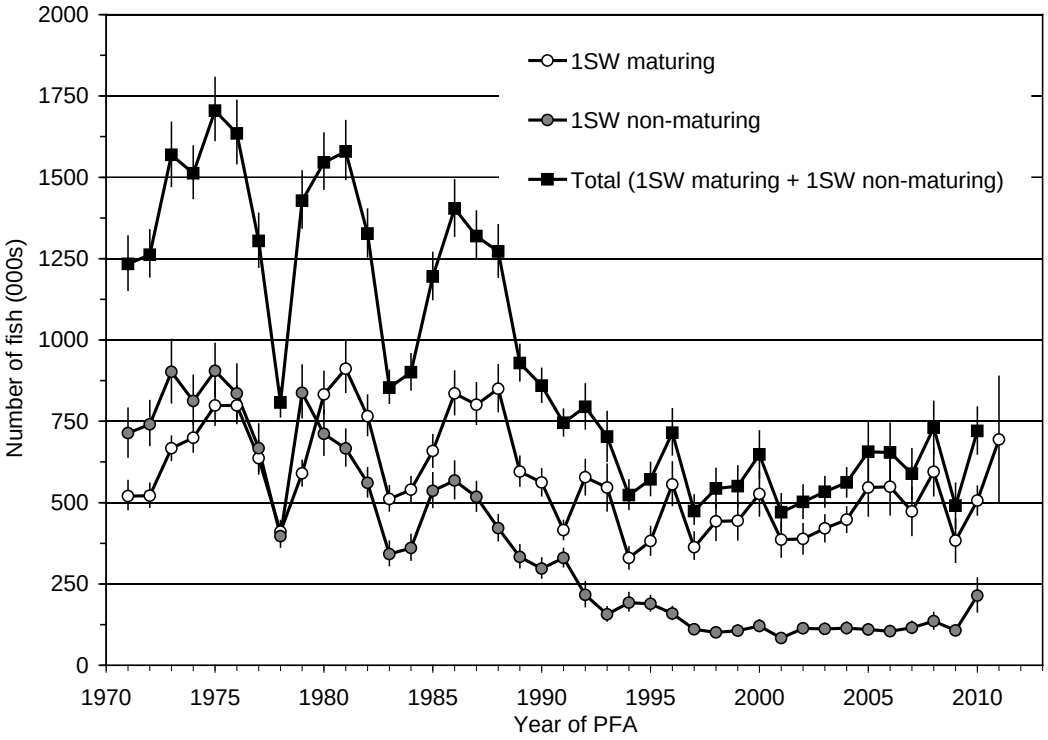

Figure 10.3.2 Estimates of PFA for 1SW maturing salmon, 1SW non-maturing salmon, and the total cohort of 1SW salmon based on the Monte Carlo simulations of the run-reconstruction model for NAC. Median and 95% CI interval ranges derived from Monte Carlo simulations are shown.

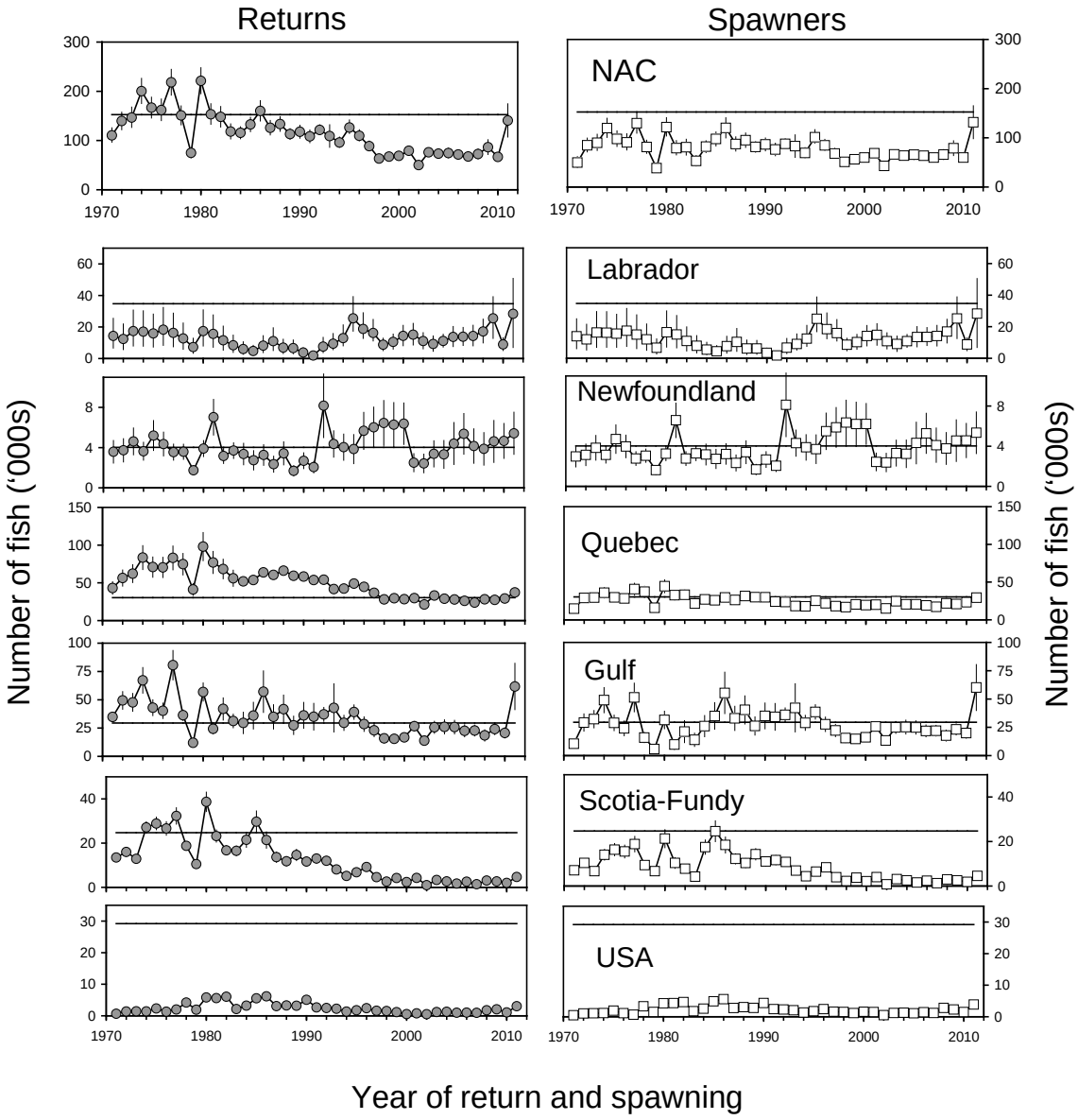

Figure 10.3.3 **Comparison of the 2SW conservation limits (solid horizontal lines) to 2SW returns (medians, 95% confidence interval range; left panels) and to 2SW spawners (right panels), in six geographic areas of NAC and in NAC overall. Returns and spawners for Scotia–Fundy do not include those from salmon fishing area (SFA) 22 and a portion of SFA 23. For USA, estimated spawners may exceed the estimated returns due to adult stocking restoration efforts.**

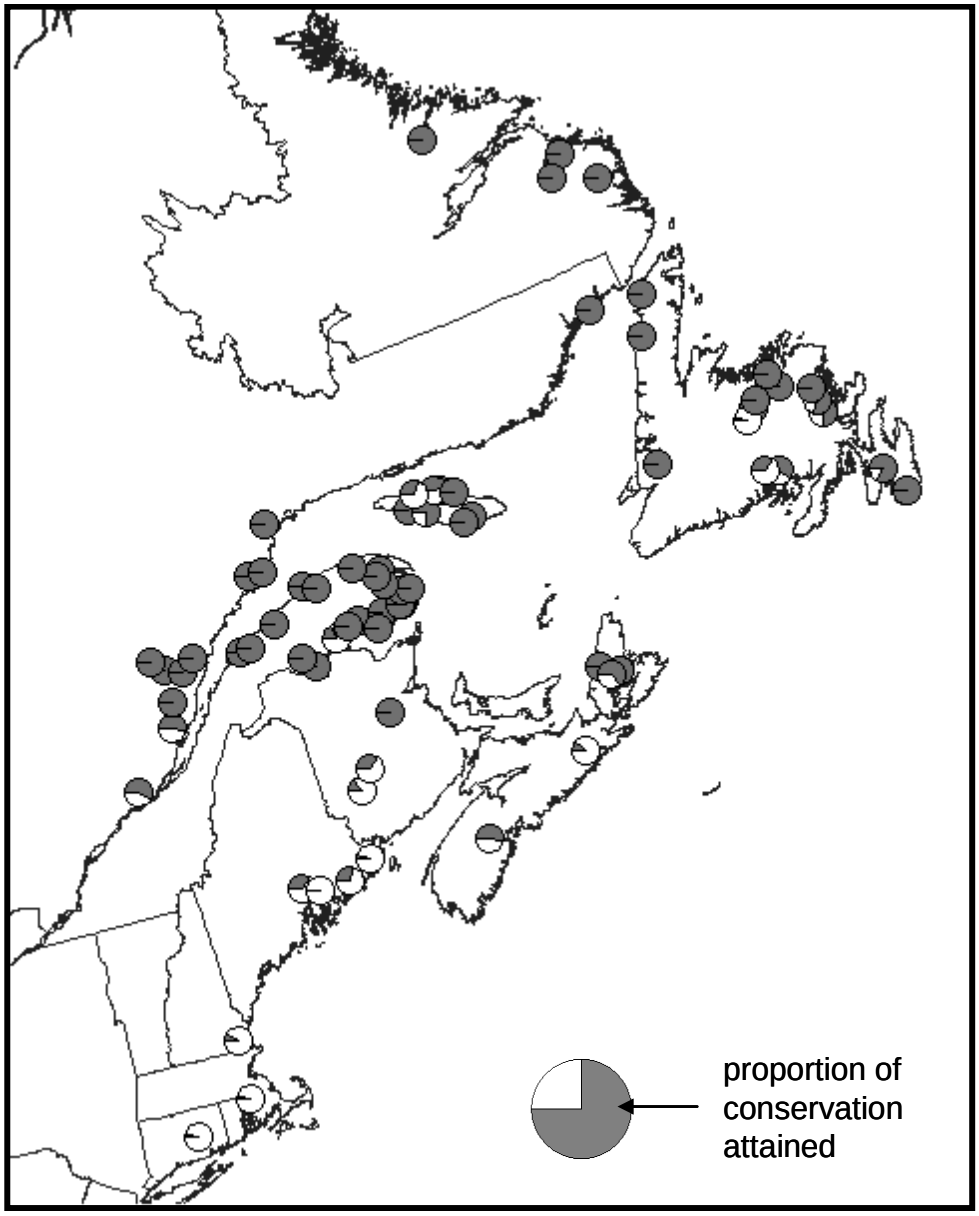

Figure 10.3.4 **Proportion of the conservation egg requirement attained in assessed rivers of the North American Commission area in 2011.**

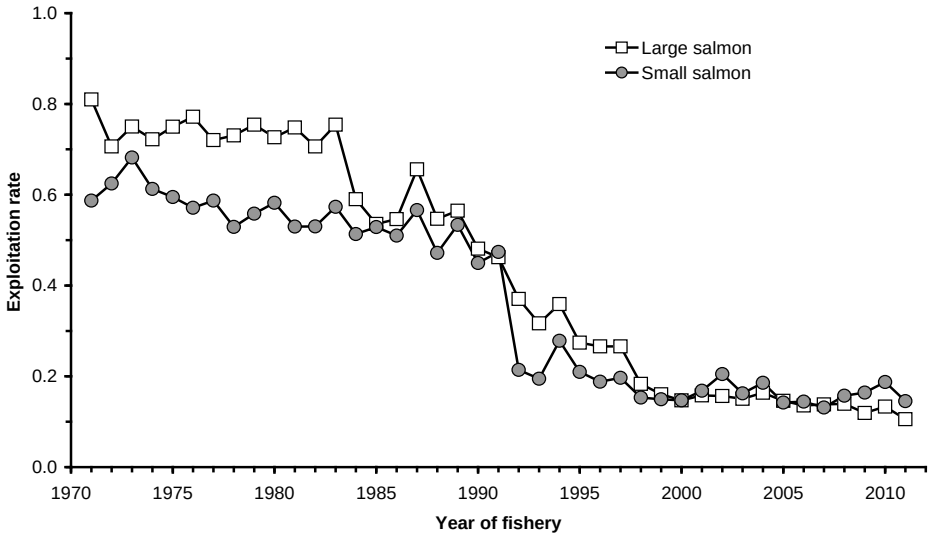

Figure 10.3.5 Exploitation rates in North America on the North American stock complex of small salmon (mostly 1SW) and large salmon (2SW, 3SW, and repeat spawners).

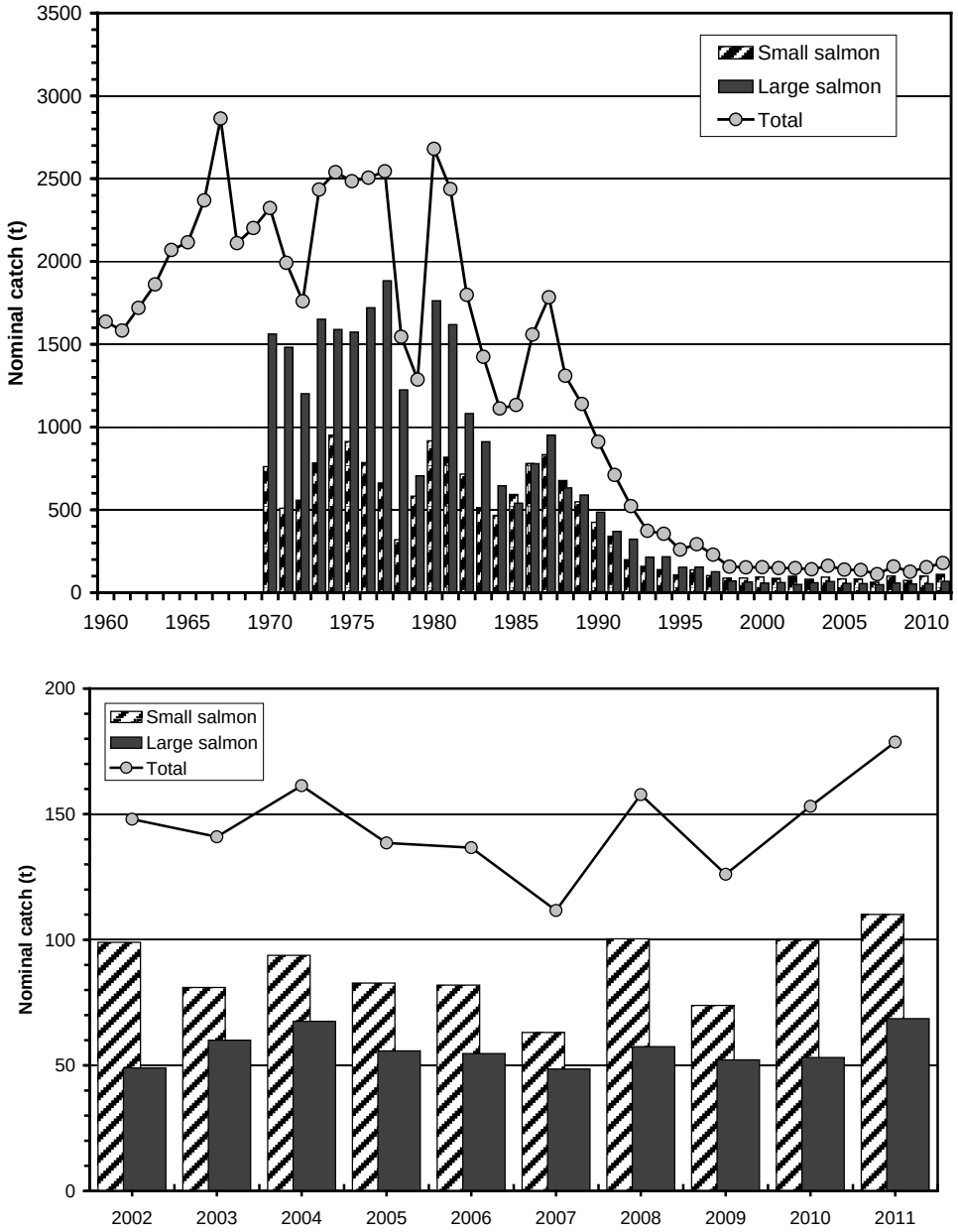

Figure 10.3.6 Harvest (t) of small salmon, large salmon and combined for Canada, 1960 to 2011 (top panel) and 2002 to 2011 (bottom panel) by all users.

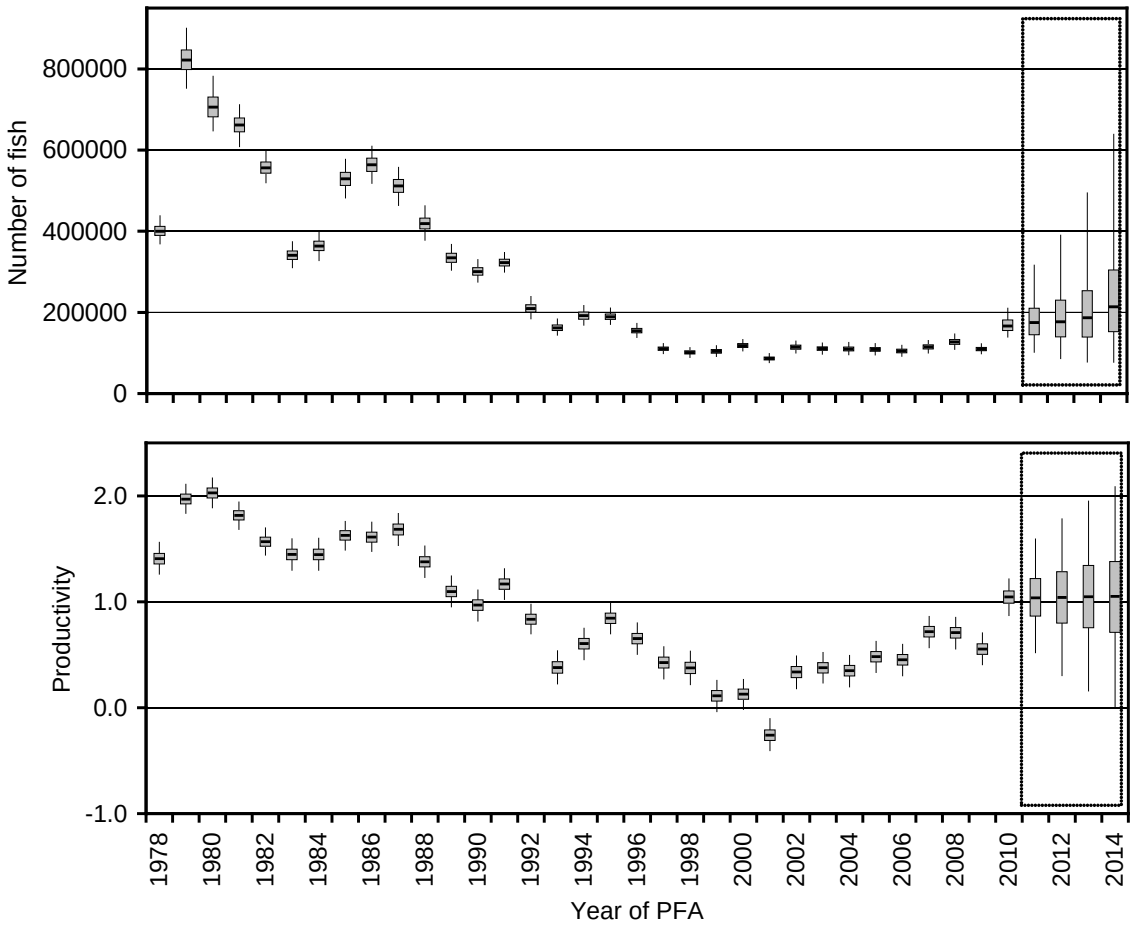

Figure 10.3.7 Estimated pre-fishery abundance (PFA; upper panel) and overall productivity (in logarithmic scale, i.e. logarithm of PFA per lagged spawner; lower panel) for the North America 1SW non-maturing salmon complex. The distributions for years 2011 to 2014, shown in the dotted rectangle, are predicted values.

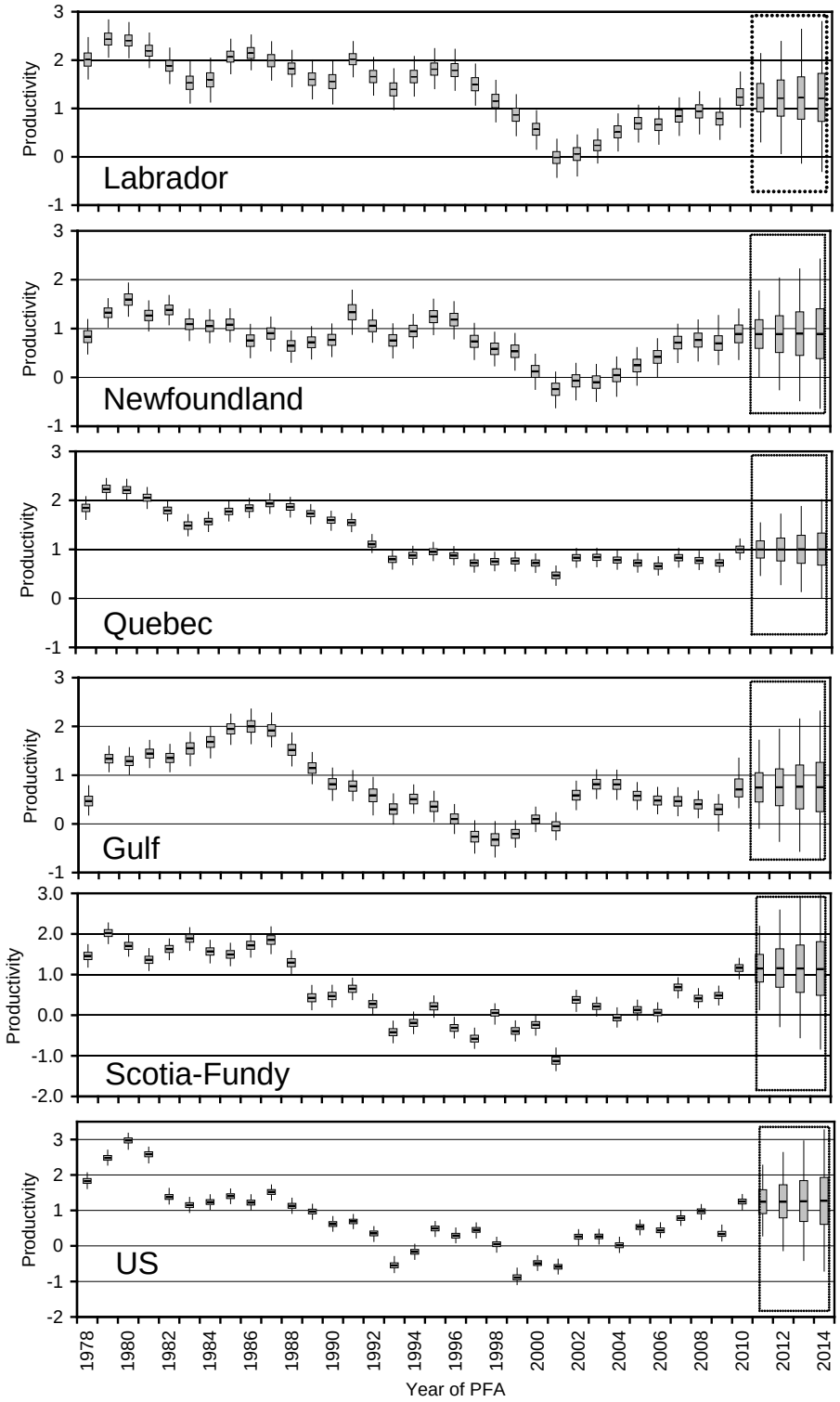

Figure 10.3.8 Estimated productivity (in logarithmic scale, i.e. logarithm of PFA per lagged spawner) for the six regions of North America by year of pre-fishery abundance (PFA). The distributions for years 2011 to 2014, shown in the dotted rectangle, are predicted values.

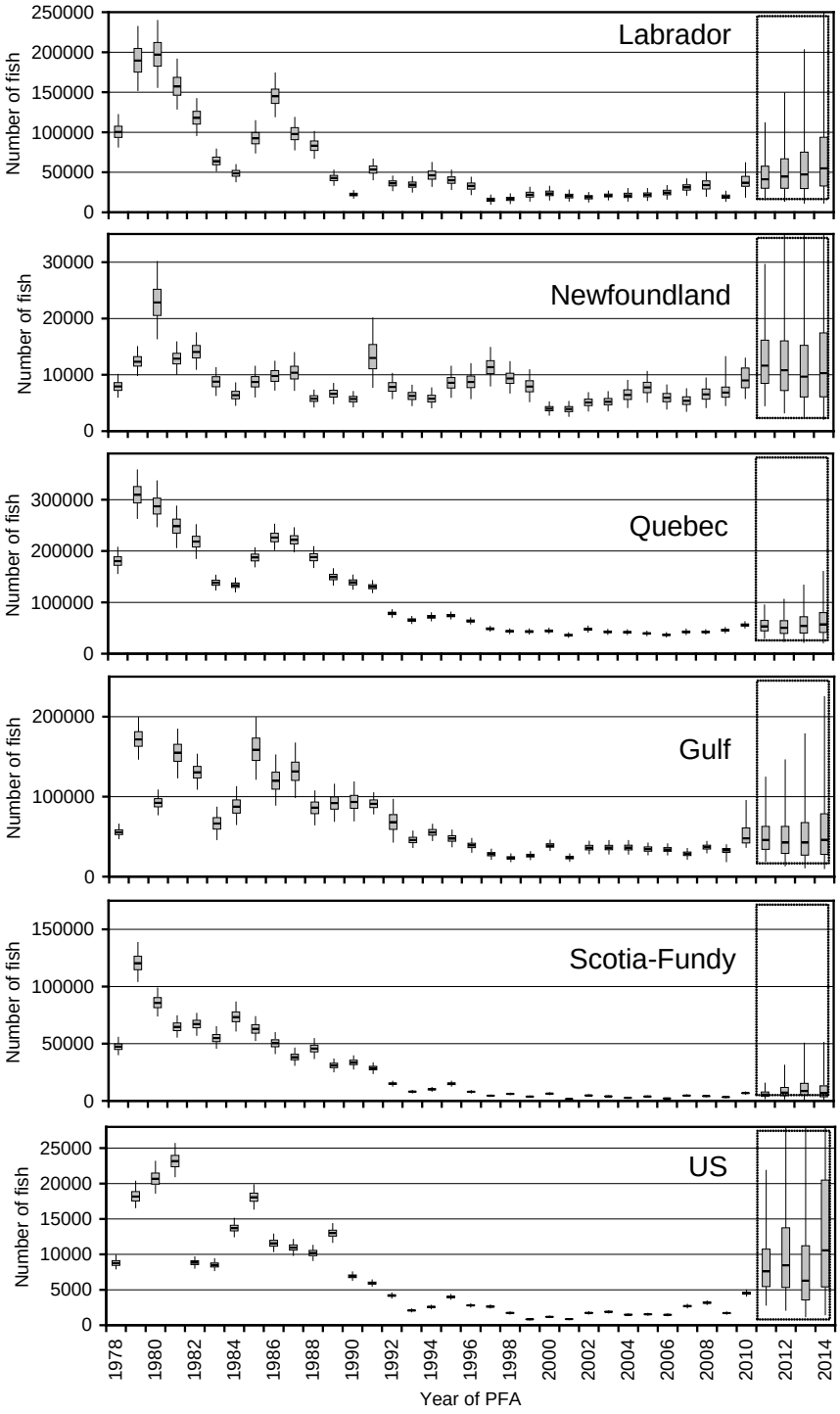

Figure 10.3.9 Estimated pre-fishery abundance (PFA; number of fish) for the six regions of North America by year of PFA. The distributions for years 2011 to 2014, shown in the dotted rectangle, are predicted values.

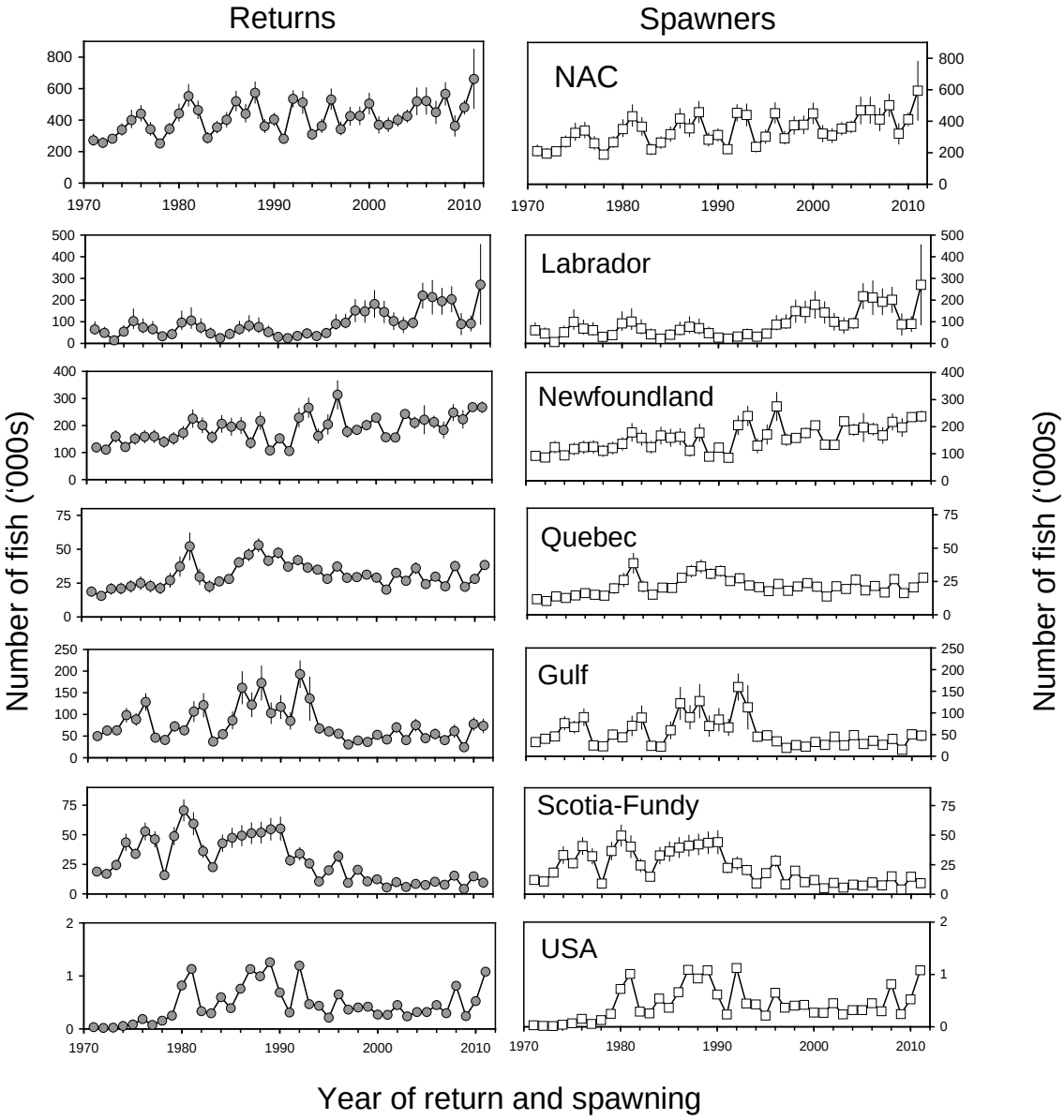

Figure 10.3.9 Estimated pre-fishery abundance (PFA; number of fish) for the six regions of North America by year of PFA. The distributions for years 2011 to 2014, shown in the dotted rectangle, are predicted values.

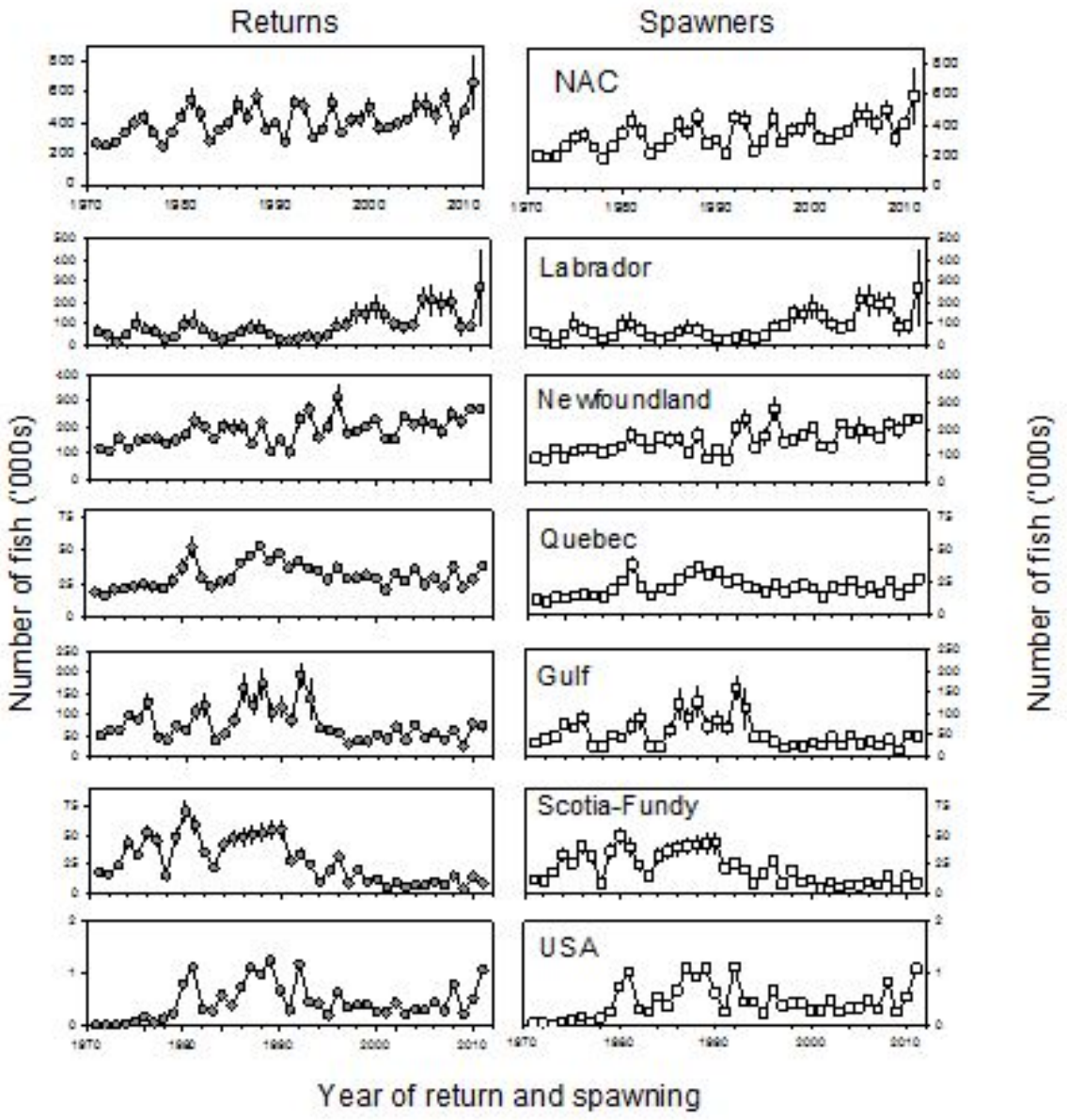

Figure 10.3.10 **Estimates (median, 95% confidence interval range) of 1SW maturing returns (left panels) and 1SW maturing spawners (right panels), in six geographic areas of NAC and in NAC overall. Returns and spawners for Scotia–Fundy do not include those from SFA 22 and a portion of SFA 23.**

Table 10.3.1 Probability that the 2SW salmon returns to regions in North America will meet or exceed the management objectives, by region and simultaneously in all six regions, in 2012 to 2015, in the absence of fisheries.

Region	Management objective (No. of fish)	Probability of meeting or exceeding the management objective in the absence of fisheries			
		2012	2013	2014	2015
Labrador	34 746	0.38	0.45	0.48	0.56
Newfoundland	4 022	0.93	0.86	0.78	0.78
Quebec	29 446	0.83	0.71	0.73	0.75
Gulf	30 430	0.57	0.50	0.50	0.55
Scotia–Fundy	10 976	0.03	0.15	0.25	0.20
USA	2 548	0.94	0.90	0.75	0.86
Simultaneous		0.01	0.06	0.08	0.09

Table 10.3.2 Framework of indicators spreadsheet for the North American Commission and West Greenland Commission areas. For illustrative purposes, the 2011 value of returns or survival rates for the 40 retained indicators is entered in the cells corresponding to the annual indicator variable values.

Catch Advice	Catch option > 0 (Yes = 1, No = 0)	0

Overall Recommendation

No Significant Change Identified by Indicators

Geographic Area	River/ Indicator	2011 Value	Ratio Value to Threshold	Threshold	True Low	True High	Indicator State	Probability of Correct Assignment	Indicator Score	Management Objective Met?
USA	Penobscot 2SW Returns	2368	167%	1415	100%	92%	1	0.92	0.92	
	Penobscot 1SW Returns	741	197%	377	83%	88%	1	0.88	0.88	
	Penobscot 2SW Survival (%)	0.39	170%	0.23	100%	60%	1	0.6	0.6	
	Penobscot 1SW Survival (%)	0.12	133%	0.09	85%	73%	1	0.73	0.73	
	Narraguagus Returns	196	196%	100	95%	61%	1	0.61	0.61	
	possible range				*-0.93*	*0.75*				
	Average		173%						**0.75**	**Yes**
Scotia-Fundy	Saint John Return Large	294	9%	3 329	96%	100%	-1	0.96	-0.96	
	Lahave Return Large	146	51%	285	77%	85%	-1	0.77	-0.77	
	St. Mary's Return Large	14	6%	221	100%	73%	-1	1	-1	
	North Return Large	1 193	168%	712	95%	67%	1	0.67	0.67	
	Saint John Return 1SW	582	26%	2 276	86%	80%	-1	0.86	-0.86	
	LaHave Return 1SW	565	34%	1 679	94%	67%	-1	0.94	-0.94	
	St. Mary's Return 1SW	331	16%	2 038	95%	93%	-1	0.95	-0.95	
	Saint John Survival 2SW (%)	0.13	59%	0.22	95%	81%	-1	0.95	-0.95	
	Lahave Survival 2SW (%)	0.88	367%	0.24	81%	81%	1	0.81	0.81	
	Saint John Survival 1SW (%)	0.12	16%	0.76	86%	73%	-1	0.86	-0.86	
	Lahave Survival 1SW (%)	0.72	50%	1.44	92%	78%	-1	0.92	-0.92	
	Liscomb Survival 2SW (%)	0.03	60%	0.05	86%	91%	-1	0.86	-0.86	
	East Sheet Harbour Survival 2SW (%)	0.005	25%	0.02	67%	82%	-1	0.67	-0.67	
	possible range				*-0.88*	*0.81*				
	Average		68%						**-0.64**	**No**
Gulf	Miramichi Return 2SW	28 977	183%	15 800	100%	85%	1	0.85	0.85	
	Miramichi Return 1SW	45 880	110%	41 790	89%	67%	1	0.67	0.67	
	possible range				*-0.95*	*0.76*				
	Average		147%						**0.76**	**Yes**
Quebec	Cascapédia Return Large	3 815	167%	2 280	69%	92%	1	0.92	0.92	
	Bonaventure Return Large	1 259	85%	1 479	75%	81%	-1	0.75	-0.75	
	Grande Rivière Return Large	533	121%	442	100%	94%	1	0.94	0.94	
	Saint-Jean Return Large	688	91%	758	86%	89%	-1	0.86	-0.86	
	Dartmouth Return Large	1 171	155%	756	86%	89%	1	0.89	0.89	
	Madeleine Return Large	996	153%	653	70%	93%	1	0.93	0.93	
	Sainte-Anne Return Large	871	201%	433	67%	88%	1	0.88	0.88	
	Godbout Return Large	694	108%	641	86%	100%	1	1	1	
	De la Trinite Return Large	317	82%	385	75%	100%	-1	0.75	-0.75	
	York Return Return Large	1 585	113%	1405	63%	83%	1	0.83	0.83	
	Grande Rivière Return Small	237	119%	199	59%	80%	1	0.8	0.8	
	Saint-Jean Return Small	343	87%	394	53%	80%	-1	0.53	-0.53	
	Godbout Return Small	623	123%	508	85%	92%	1	0.92	0.92	
	De la Trinite Return Small	949	238%	399	89%	83%	1	0.83	0.83	
	De la Trinite Survival Large (%)	0.76	155%	0.49	88%	96%	1	0.96	0.96	
	De la Trinite Survival Small (%)	2.54	170%	1.49	63%	89%	1	0.89	0.89	
	Saint-Jean Survival Small (%)	1.86	258%	0.72	100%	64%	1	0.64	0.64	
	possible range				*-0.77*	*0.88*				
	Average		143%						**0.50**	**Yes**
Newfoundland	Exploits Return Small	34 085	137%	24 924	83%	56%	1	0.56	0.56	
	Middle Brook Return Small	2 642	141%	1 868	84%	63%	1	0.63	0.63	
	Torrent Return Small	2 784	67%	4 154	94%	64%	-1	0.94	-0.94	
	possible range				*-0.87*	*0.61*				
	Average		115%						**0.08**	**Yes**
Labrador										
	possible range									
	Average								**NA**	**Unknown**
Southern NEAC										
	possible range									
	Average								**NA**	**Unknown**

Table 10.3.3 Total reported nominal catch of salmon in homewaters by country (in tonnes, round fresh weight), 1980–2011 (2011 figures include provisional data).

	Canada			USA	St. P&M
Year	Total	Large	Small	Total	Total
1980	2 680	1 763	917	6	-
1981	2 437	1 619	818	6	-
1982	1 798	1 082	716	6	-
1983	1 424	911	513	1	3
1984	1 112	645	467	2	3
1985	1 133	540	593	2	3
1986	1 559	779	780	2	3
1987	1 784	951	833	1	2
1988	1 310	633	677	1	2
1989	1 139	590	549	2	2
1990	911	486	425	2	2
1991	711	370	341	1	1
1992	522	323	199	1	2
1993	373	214	159	1	3
1994	355	216	139	0	3
1995	260	153	107	0	1
1996	292	154	138	0	2
1997	229	126	103	0	2
1998	157	70	87	0	2
1999	152	64	88	0	2
2000	153	58	95	0	2
2001	148	61	86	0	2
2002	148	49	99	0	2
2003	141	60	81	0	3
2004	161	68	94	0	3
2005	139	56	83	0	3
2006	137	55	82	0	3
2007	112	49	63	0	2
2008	158	58	100	0	4
2009	126	52	67	0	3
2010	153	53	100	0	3
2011	179	69	110	0	4

ECOREGION **North Atlantic**

STOCK **Atlantic salmon at West Greenland**

Advice for 2012 to 2014

On the basis of the MSY approach, ICES advises that fishing should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity. Furthermore, because of the different status of individual stocks within stock complexes, mixed-stock fisheries present particular threats. The management of a fishery should ideally be based upon the individual status of all stocks exploited in the fishery.

There are no mixed-stock fisheries catch options at West Greenland in 2012, 2013, and 2014. In the absence of fishing mortality there is only a 6% to 8% chance of simultaneously meeting or exceeding the management objectives of the seven management units in 2012 to 2014 (Table 10.4.1).

The Framework of Indicators (FWI; ICES, 2009) was updated in support of the multi-year catch advice and the potential approval of multi-year regulatory measures (Table 10.4.2). The FWI can be applied at the beginning of 2013, with the returns or return rate data for 2012, to evaluate the appropriateness of the 2013 advice, and again at the beginning of 2014, with the returns or return rate data for 2013, to evaluate the appropriateness of the 2014 advice.

Stock status

For West Greenland (Figure 10.4.1), stock status for 1SW non-maturing salmon (destined to be 2SW salmon) of North America and the Southern NEAC MSW complex are relevant.

Recruitment (pre-fishery abundance (PFA) of non-maturing 1SW salmon) estimates suggest continued low abundance of North American salmon (Figure 10.4.2). The non-maturing 1SW salmon PFA estimate for 2010 increased by 100% over the 2009 estimate, but ranked 23rd of the 40-year time-series. Estimated PFA for the Southern NEAC non-maturing 1SW complex has declined to low levels over the period 1996 to 2008, with a slight improvement in 2009 and 2010 (Figure 10.4.3).

North American 2SW spawner estimates (medians) were below CLs in four of the six regions in 2011 (Figure 10.4.4). Within each of the geographic areas in NAC there are varying numbers of individual river stocks which are failing to meet CLs, particularly in Scotia–Fundy and the USA. Declining trends in spawner numbers are evident in the Southern NEAC MSW complex (Figure 10.4.3). The MSW stock has been at full reproductive capacity for most of the time-series until 1997 and, thereafter, the stock was generally either at risk of reduced reproductive capacity or suffering reduced reproductive capacity. Within all countries in Southern NEAC there are individual river stocks that are not meeting CLs.

The exploitation rate (catch in Greenland / PFA) on NAC fish in 2010 was about 6%, which is among the lowest in the time-series (Figure 10.4.5). The exploitation rate on salmon from NAC peaked in 1971 at 39%. The exploitation rate on NEAC salmon in 2010 was less than

1%, which is also among the lowest in the time-series (Figure 10.4.5). The exploitation rate on NEAC salmon peaked in 1975 at 29%.

In European and North American areas, the overall abundance of stocks contributing to the West Greenland fishery has recently increased, but it is low compared to historical levels. Despite major changes in fisheries management around 18 to 25 years ago, and increasingly more restrictive fisheries measures since then, returns in many regions have remained near historical lows and many populations are currently threatened with extirpation. The continued low abundance of salmon stocks across North America and in the Northeast Atlantic, despite significant fishery reductions, further strengthens the conclusions that factors other than fisheries are constraining production.

Management plans

The North Atlantic Salmon Conservation Organization (NASCO) has adopted an Action Plan for Application of the Precautionary Approach which stipulates that management measures should be aimed at maintaining all stocks above their conservation limits by the use of management targets. NASCO has adopted the region-specific CLs as limit reference points (S_{lim}); having populations fall below these limits should be avoided with high probability. Within the agreed management plan, a risk level (probability) of 75% of simultaneous attainment of seven management objectives has been agreed for the provision of catch advice on fish exploited at West Greenland (non-maturing 1SW fish from North America and non-maturing 1SW fish from Southern NEAC). The management objectives are to meet the 2SW CLs for the four northern areas of NAC (Labrador, Newfoundland, Quebec, Gulf), to achieve a 25% increase in returns of 2SW salmon from the average returns in 1992–1996 for the Scotia–Fundy and USA regions, and to meet the MSW southern NEAC CL.

Biology

Atlantic salmon (*Salmo salar*) is an anadromous species found in rivers of countries bordering the North Atlantic. In the Northeast Atlantic, their current distribution extends from northern Portugal to the Pechora River in Northwest Russia and Iceland. In the Northwest Atlantic, they range from the Connecticut River (USA, 41.6°N) northward to the Leaf River, Quebec (Canada, 58.8°N). Juveniles emigrate to the ocean at ages of one to eight years (dependent on latitude) and generally return after one or two years at sea. Long distance migrations to ocean feeding grounds are known to take place, with adult salmon from both the North American and Northeast Atlantic stocks migrating to West Greenland to feed on abundant fish and invertebrate prey during their second summer and fall at sea.

Environmental influence on the stock

Environmental conditions in both freshwater and marine environments have a marked effect on the status of salmon stocks. Across the North Atlantic, a range of problems in the freshwater environment play a significant role in explaining the poor status of stocks. In many cases river damming and habitat deterioration have had a devastating effect on freshwater environmental conditions. In the marine environment, return rates of adult salmon have declined through the 1980s and are now at the lowest levels in the time-series for some stocks, even after closure of marine fisheries. Climatic factors modifying ecosystem conditions and predator fields of salmon at sea are considered to be the main contributory

factors to lower productivity, which is expressed almost entirely in terms of lower marine survival.

The fisheries

Catches of Atlantic salmon at West Greenland (Table 10.4.3) decreased until the closure of the commercial fishery for export in 1998, but the subsistence fishery has been increasing in recent years (Figure 10.4.6). A total catch of 27.5 t of salmon was reported for the 2011 fishery, representing a 31% decrease with respect to the 40 t of salmon caught in the 2010 fishery. In total, 92% of the salmon sampled were of North American origin and 8% of European origin (Figure 10.4.7), and the 1SW age group constituted 93% of the catch (Table 10.4.4). Approximately 6800 (25 t) fish of American origin and 600 (2 t) fish of European origin were harvested. These totals remain among the lowest in the time-series (Figure 10.4.8).

Effects of the fisheries on the ecosystem

The current salmon fishery is practiced with nearshore surface gillnets. There is no information on bycatch of other species with this gear.

Quality considerations

Uncertainties in input variables to the stock status and stock forecast models are incorporated in the assessment. Catch reporting is considered to be incomplete.

Scientific basis

Assessments are carried out using common input variables across stock complexes in NEAC and NAC. Run-reconstruction models and Bayesian forecasts are performed, taking into account uncertainties in the data.

Supporting information: WGNAS.

10.4.1 **Supporting information May 2012**

ECOREGION **North Atlantic**

STOCK **Atlantic salmon at West Greenland**

Reference points

The management objectives are to meet the 2SW CLs for the four northern areas of the NAC (Labrador, Newfoundland, Quebec, Gulf), to achieve a 25% increase in returns of 2SW salmon from the average returns in 1992–1996 for the Scotia–Fundy and USA regions, and to meet the southern NEAC MSW CL.

Region	Unit	Management objective (number of fish)
Labrador	2SW CL	34 746
Newfoundland	2SW CL	4 022
Quebec	2SW CL	29 446
Gulf	2SW CL	30 430
Scotia–Fundy	2SW Return	10 976
USA	2SW Return	2 548
Southern NEAC	MSW CL	241 269

Outlook for 2012 to 2014

The region-specific abundances, even in the absence of fishing, are predicted to be below the management objectives in several regions in 2012 to 2014 (Table 10.4.1).

MSY approach

Atlantic salmon has characteristics of short-lived fish stocks; mature abundance is sensitive to annual recruitment because there are only a few age groups in the adult spawning stock. Incoming recruitment is often the main component of the fishable stock. For such fish stocks, the ICES maximum sustainable yield (MSY) approach is aimed at achieving a target escapement (MSY $B_{escapement}$, the amount of biomass left to spawn). No catch should be allowed unless this escapement can be achieved. The escapement level should be set so there is a low risk of future recruitment being impaired, similar to the basis for estimating B_{pa} in the precautionary approach. In short-lived stocks, where most of the annual surplus production is from recruitment (not growth), MSY $B_{escapement}$ and B_{pa} might be expected to be similar. Conservation limits (CLs) for North Atlantic salmon stock complexes have been defined by ICES as the level of stock (number of spawners) that will achieve long-term average maximum sustainable yield (MSY $B_{escapement}$).

ICES considers that to be consistent with the MSY and the precautionary approach, fisheries should only take place on salmon from rivers where stocks have been shown to be at full reproductive capacity. Due to differences in the status of individual stocks within stock complexes, mixed-stock fisheries present particular threats.

Harvest at Greenland cannot be targeted towards individual stocks, so weaker performing stocks are at risk. The advice for the West Greenland fishery is based upon simultaneously achieving the seven management objectives with a 75% probability. In the absence of any marine fishing mortality at Greenland, there is only a 6% to 8% chance of simultaneously

meeting or exceeding the management objectives for all seven management units in 2012 to 2014 (Table 10.4.1). Therefore, there are no mixed-stock fishery catch options on salmon for West Greenland in 2012 to 2014.

Additional considerations

Fisheries on mixed stocks pose particular difficulties for management, as they cannot target only stocks that are meeting or exceeding CLs. The management of a fishery should ideally be based upon the status of all stocks exploited in the fishery. Conservation would be best achieved if fisheries target stocks that have been shown to be meeting or exceeding CLs. Fisheries in estuaries and, especially, rivers are more likely to meet this requirement.

Scientific basis

Data and methods

The international sampling programme for the fishery at West Greenland agreed by the parties at NASCO continued in 2011. The sampling was undertaken in four communities representing four NAFO divisions (Figure 10.4.1). As in previous years, no sampling occurred in the fishery in East Greenland. The decentralised landings and broad geographic distribution of the fishery causes practical problems for the sampling programme. In total, 970 individual salmon (12% by weight of the reported landings) were sampled for length and weight, and scale and genetics samples were collected for age and origin determination.

In all years since 2002, except for 2006 and 2011, non-reporting of harvest becomes evident by comparing reported landings to the sample data. In at least one of the divisions where international samplers were present, the sampling team observed more fish landed than were reported. When there is this type of weight discrepancy, the reported landings are adjusted according to the total weight of the fish identified as being landed during the sampling effort. These adjusted landings are carried forward for all future assessments (Table 10.4.5).

Uncertainties in catch reporting and fishing activities

The fluctuations in the number of people reporting catches and the catches them-selves in each of the NAFO divisions suggest that there are inconsistencies in the catch data and highlight the need for better data. Since 2002, in at least one of the divisions where international samplers were present, the sampling team observed more fish landed than were reported, except for 2006 and 2011. There is presently no quantitative approach for estimating the unreported catch, but the 2011 value is likely to have been at the same level proposed in recent years (10 t).

Over the past ten years, reported harvests have mostly remained within the 15–25 t range. Landings of Atlantic salmon to factories are banned and freezing salmon for shipping to other communities is illegal, so only local harvest is available for local consumption. The increase in landings in 2010 could have been due to an increase in abundance of salmon, especially in NAFO Division 1A (Figure 10.4.1). If more salmon were available to a larger part of the population, this may have resulted in increased effort in 2010 and subsequently increased reported landings. Considering the regulations preventing the exporting of salmon for sale or the freezing of salmon for shipping to other communities, it is assumed that all salmon harvested is consumed in Greenland. Continued and increased participation in a logbook

programme would allow a better assessment of annual variation in fishing patterns and harvests.

Comparison with previous assessment and catch options

The management advice for the West Greenland fishery for 2012 to 2014 is based on the models previously used by ICES. The current modelling approaches have provided stable comparisons with predictions of the previous years. In the previous assessment for the mixed-stock fishery at West Greenland, ICES (2009) advised that there were no catch options at West Greenland in 2009, 2010, and 2011 that would be consistent with a 75% or greater chance of simultaneously meeting the seven management objectives. The assessment this year confirmed the validity of that advice.

Assessment and management area

The advice for the West Greenland fishery is based upon the Southern NEAC non-maturing 1SW stock complex and the North American 2SW complex.

Sources of information

ICES. 2009. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 30 March–8 April 2009. ICES CM 2009/ACFM:06. 283 pp.

ICES. 2012. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 26 March–4 April 201. ICES CM 2012/ACOM:09.337 pp.

NASCO. 1998. North Atlantic Salmon Conservation Organization. Agreement on the adoption of a precautionary approach. Report of the 15th annual meeting of the Council. CNL(98)46. 4 pp.

NASCO. 1999. North Atlantic Salmon Conservation Organization. Action plan for the application of the precautionary approach. CNL(99)48. 14 pp.

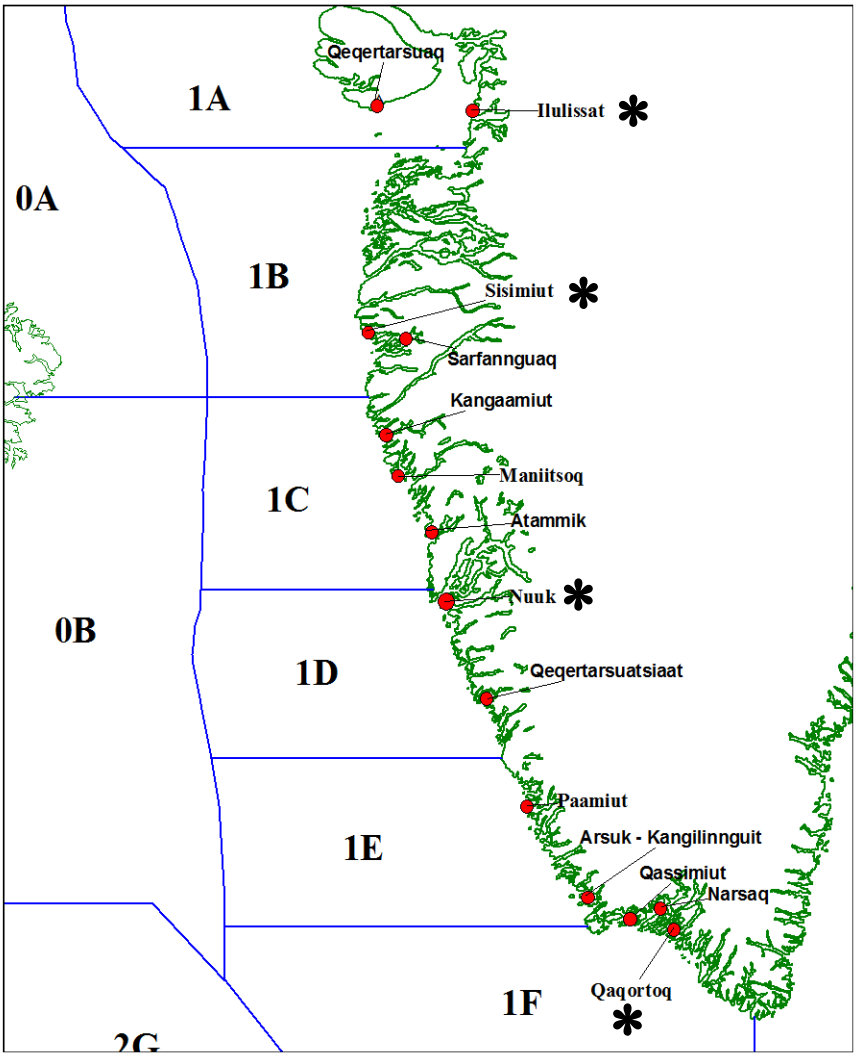

Figure 10.4.1 Location of NAFO divisions and communities (∗) where the fishery catches were sampled in 2011 at West Greenland**.**

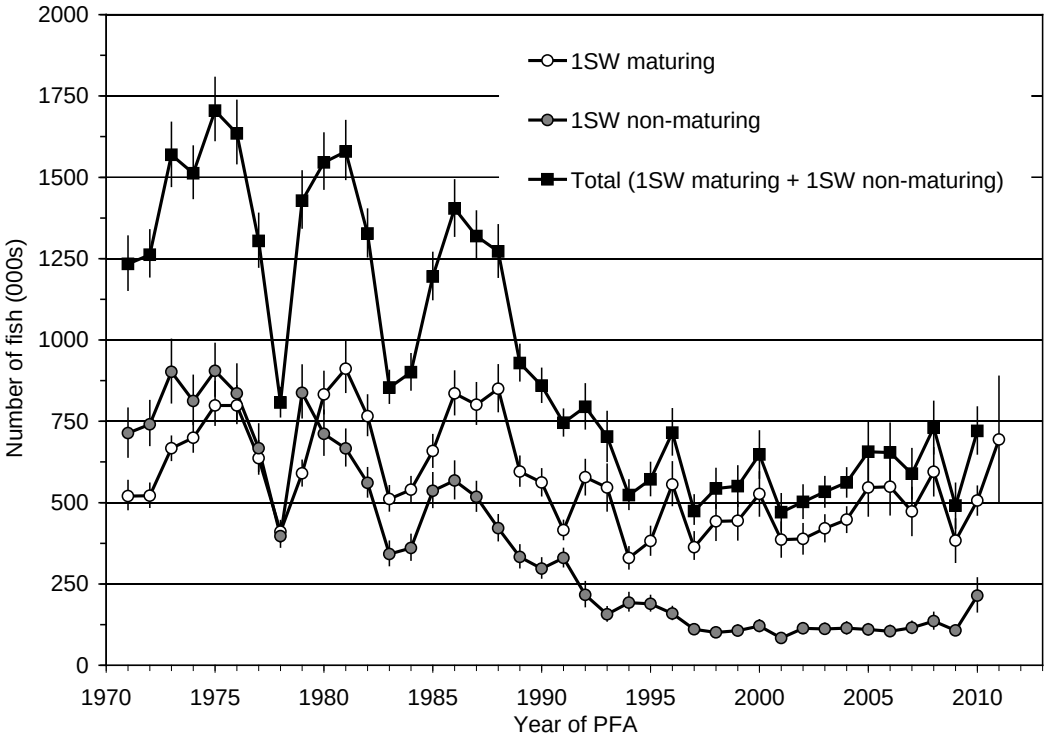

Figure 10.4.2 Estimates of PFA for 1SW maturing salmon, 1SW non-maturing salmon, and the total cohort of 1SW salmon for North America.

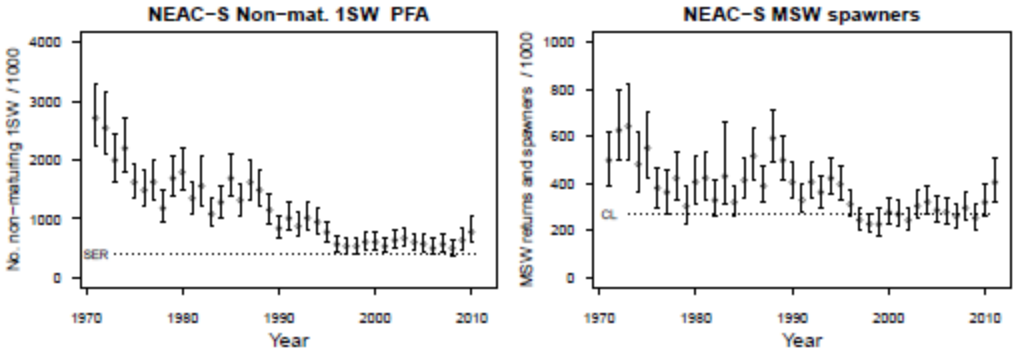

Figure 10.4.3 Estimated (median, 95% confidence interval range) PFA (recruitment, as 1SW non-maturing; left panel) and spawners (as MSW salmon; right panel) for Southern NEAC. PFA is shown relative to the Spawner Escapement Reserve (SER), which is the conservation limit for spawners adjusted for natural mortality from the time of PFA estimation (1 January of the first winter at sea) to spawning time.

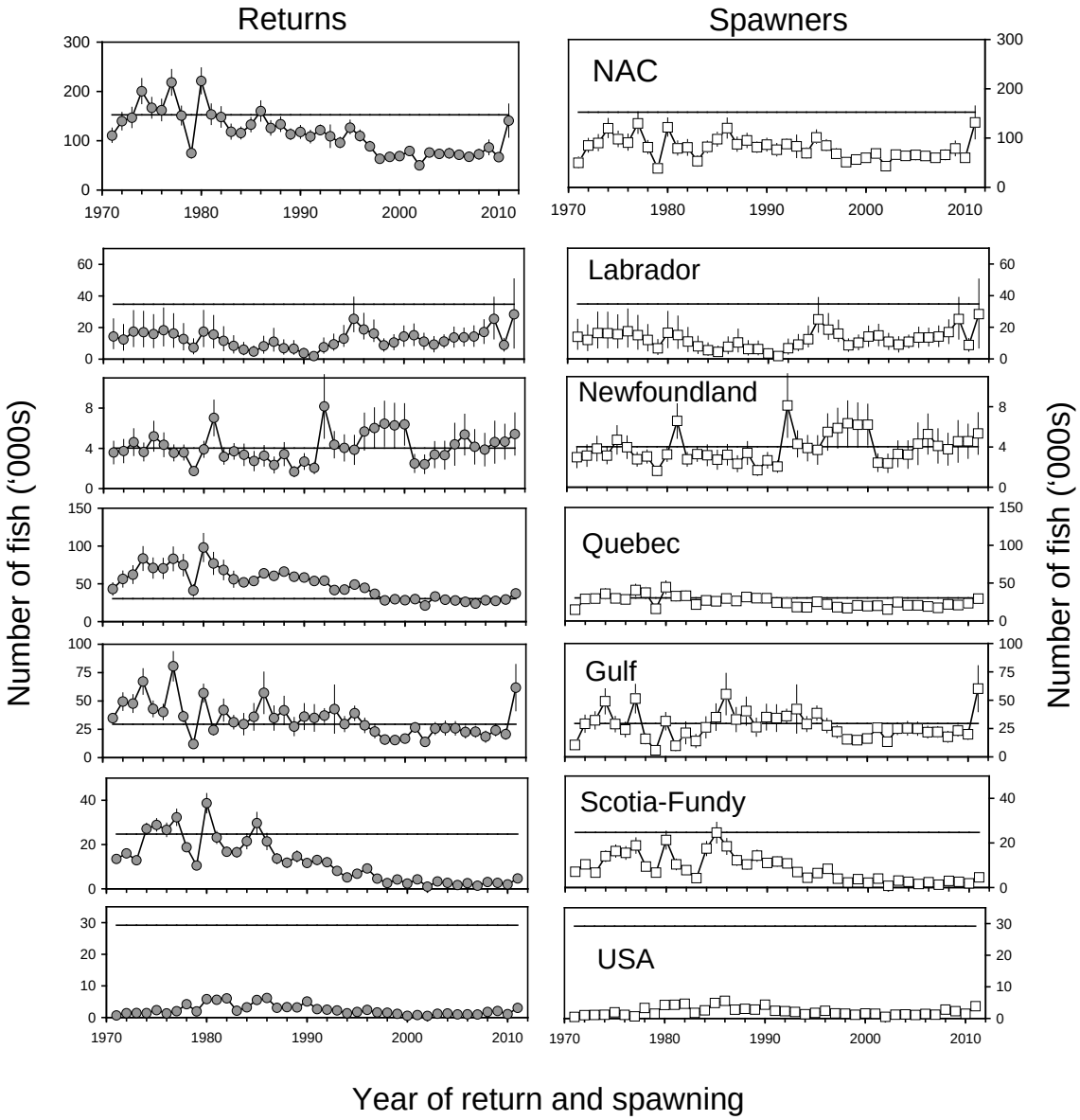

Figure 10.4.4 Comparison of the 2SW conservation limits (solid horizontal lines) to 2SW returns (medians and 95% confidence interval ranges; left panels), and to 2SW spawners (right panels), in six geographic areas of NAC and in NAC overall. Returns and spawners for Scotia–Fundy do not include those from SFA 22 and a portion of SFA 23. For USA, estimated spawners may exceed the estimated returns due to adult stocking restoration efforts.

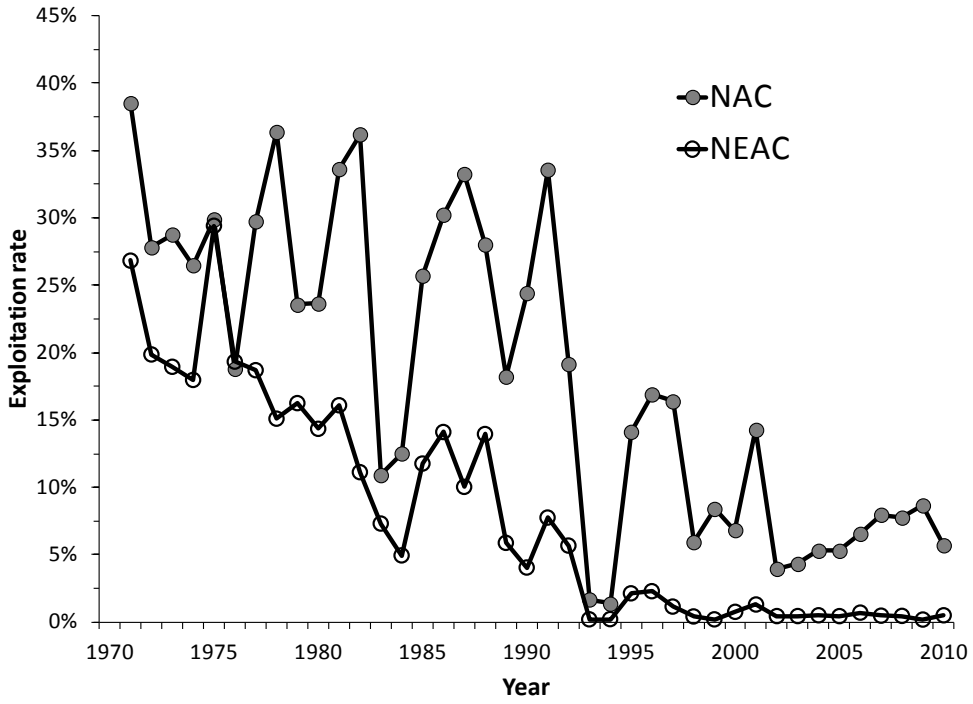

Figure 10.4.5 Exploitation rate (%) for NAC 1SW non-maturing and southern NEAC non-maturing Atlantic salmon at West Greenland, 1971–2010. Exploitation rate estimates are only available until 2010, as 2011 exploitation rates are dependent on 2012 2SW NAC or MSW southern NEAC returns.

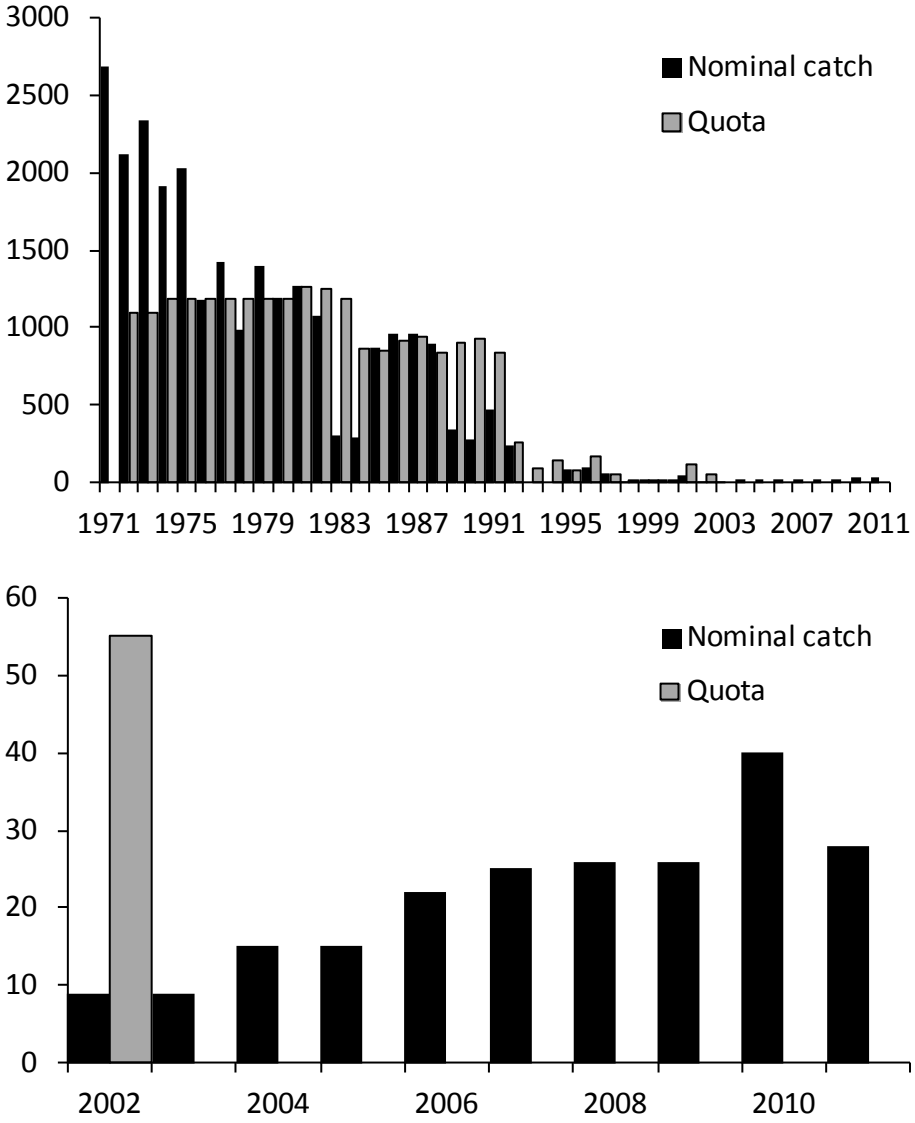

Figure 10.4.6 Nominal catches and commercial quotas (metric tonnes, round fresh weight) of salmon at West Greenland for 1971–2011 (top panel) and 2002–2011 (bottom panel).

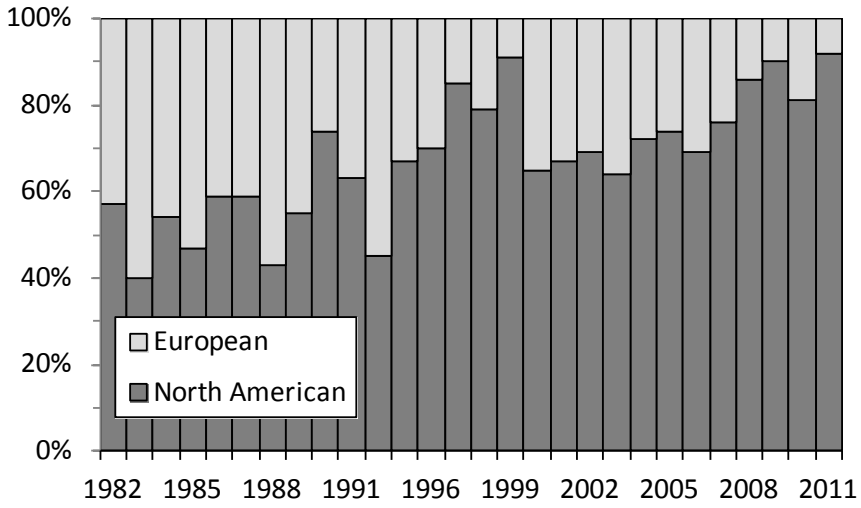

Figure 10.4.7 Percent of the sampled catch by continent of origin for the 1982 to 2011 Atlantic salmon, West Greenland fishery.

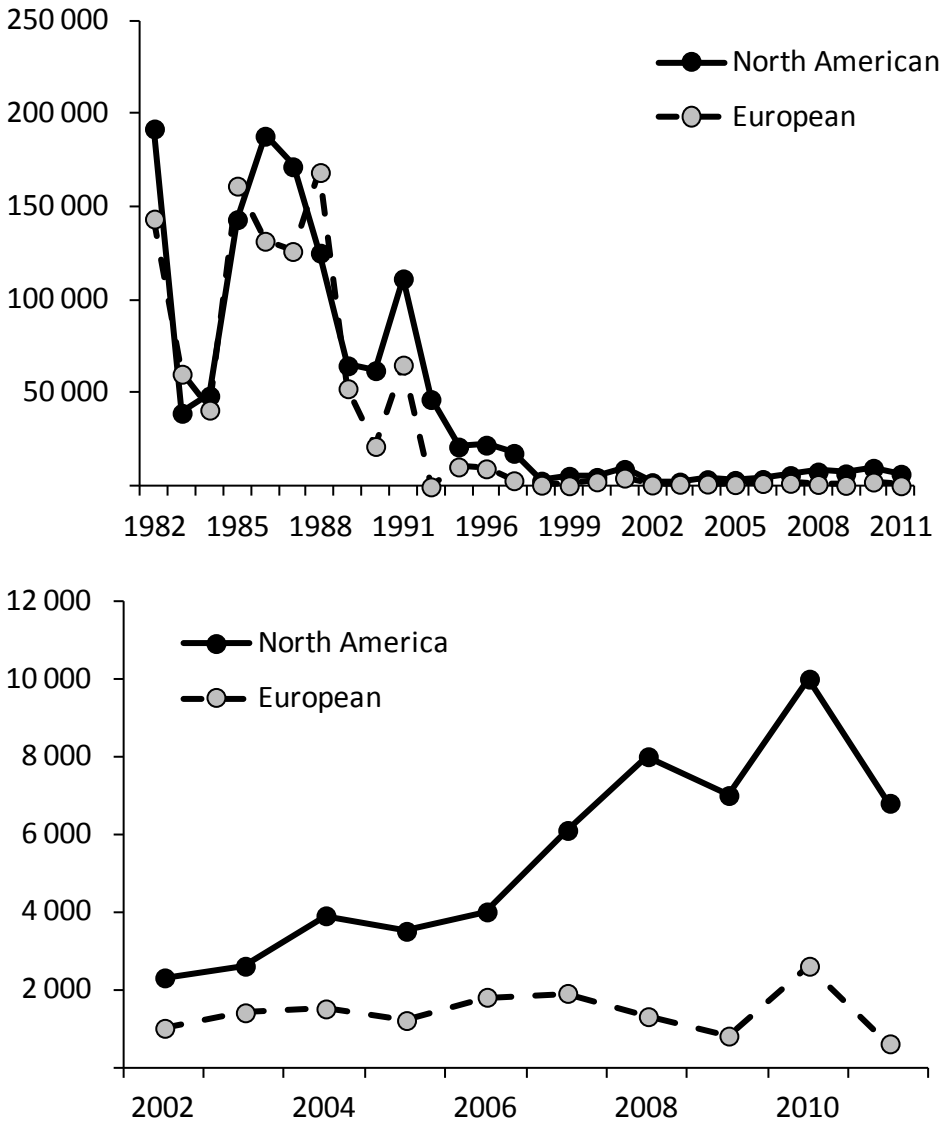

Figure 10.4.8 Number of North American and European Atlantic salmon caught at West Greenland from 1982 to 2011 (upper panel) and 2002 to 2011 (lower panel).

Table 10.4.1 Catch options tables for the mixed-stock fishery at West Greenland by fishing year, 2012 to 2014.

2012 Catch	Probability of meeting or exceeding region-specific management objectives							
option	LAB	NFLD	QC	GULF	SF	USA	S-NEAC	ALL
0	0.45	0.86	0.71	0.50	0.15	0.89	0.92	0.06
10	0.42	0.84	0.67	0.48	0.14	0.88	0.92	0.05
20	0.40	0.83	0.63	0.45	0.13	0.87	0.92	0.05
30	0.38	0.81	0.59	0.42	0.12	0.85	0.92	0.04
40	0.36	0.78	0.54	0.40	0.12	0.83	0.92	0.04
50	0.34	0.76	0.50	0.38	0.11	0.81	0.92	0.03
60	0.32	0.73	0.46	0.36	0.10	0.79	0.92	0.03
70	0.30	0.70	0.42	0.33	0.09	0.77	0.92	0.03
80	0.28	0.67	0.39	0.31	0.08	0.74	0.92	0.03
90	0.26	0.64	0.35	0.29	0.08	0.72	0.92	0.02
100	0.24	0.60	0.32	0.27	0.07	0.68	0.92	0.02
2013 Catch	Probability of meeting or exceeding region-specific management objectives							
option	LAB	NFLD	QC	GULF	SF	USA	S-NEAC	ALL
0	0.48	0.78	0.73	0.50	0.25	0.75	0.86	0.08
10	0.46	0.76	0.70	0.48	0.24	0.73	0.86	0.07
20	0.44	0.75	0.67	0.46	0.23	0.72	0.85	0.06
30	0.42	0.73	0.63	0.44	0.22	0.70	0.85	0.06
40	0.41	0.70	0.60	0.42	0.21	0.68	0.85	0.06
50	0.39	0.68	0.56	0.40	0.20	0.66	0.85	0.05
60	0.37	0.65	0.53	0.38	0.19	0.64	0.85	0.05
70	0.35	0.63	0.50	0.36	0.18	0.62	0.85	0.05
80	0.33	0.60	0.47	0.34	0.17	0.59	0.85	0.04
90	0.31	0.57	0.44	0.32	0.16	0.57	0.85	0.04
100	0.30	0.54	0.41	0.31	0.15	0.55	0.85	0.04
2014 Catch	Probability of meeting or exceeding region-specific management objectives							
option	LAB	NFLD	QC	GULF	SF	USA	S-NEAC	ALL
0	0.56	0.78	0.75	0.55	0.20	0.86	0.87	0.08
10	0.55	0.77	0.73	0.53	0.20	0.85	0.87	0.08
20	0.53	0.75	0.70	0.51	0.19	0.84	0.87	0.07
30	0.52	0.73	0.67	0.49	0.18	0.83	0.87	0.07
40	0.50	0.71	0.64	0.47	0.17	0.82	0.87	0.06
50	0.48	0.69	0.62	0.46	0.17	0.81	0.87	0.06
60	0.46	0.67	0.59	0.44	0.16	0.79	0.87	0.06
70	0.45	0.65	0.56	0.42	0.16	0.77	0.87	0.05
80	0.43	0.63	0.54	0.41	0.15	0.76	0.87	0.05
90	0.42	0.61	0.51	0.39	0.14	0.74	0.87	0.05
100	0.40	0.59	0.49	0.38	0.14	0.72	0.86	0.05

Table 10.4.2 Framework of indicators spreadsheet for the West Greenland fishery. For illustrative purposes, the 2011 value of returns or survival rates for the 40 retained indicators is entered in the cells corresponding to the annual indicator variable values.

Catch Advice	Catch option > 0 (Yes = 1, No = 0)	0

Overall Recommendation

No Significant Change Identified by Indicators

Geographic Area	River/ Indicator	2011 Value	Ratio Value to Threshold	Threshold	True Low	True High	Indicator State	Probability of Correct Assignment	Indicator Score	Management Objective Met?
USA	Penobscot 2SW Returns	2368	167%	1415	100%	92%	1	0.92	0.92	
	Penobscot 1SW Returns	741	197%	377	83%	88%	1	0.88	0.88	
	Penobscot 2SW Survival (%)	0.39	170%	0.23	100%	60%	1	0.6	0.6	
	Penobscot 1SW Survival (%)	0.12	133%	0.09	85%	73%	1	0.73	0.73	
	Narraguagus Returns	196	196%	100	95%	61%	1	0.61	0.61	
	possible range				*-0.93*	*0.75*				
	Average		173%						**0.75**	**Yes**
Scotia-Fundy	Saint John Return Large	294	9%	3 329	96%	100%	-1	0.96	-0.96	
	Lahave Return Large	146	51%	285	77%	85%	-1	0.77	-0.77	
	St. Mary's Return Large	14	6%	221	100%	73%	-1	1	-1	
	North Return Large	1 193	168%	712	95%	67%	1	0.67	0.67	
	Saint John Return 1SW	582	26%	2 276	86%	80%	-1	0.86	-0.86	
	LaHave Return 1SW	565	34%	1 679	94%	67%	-1	0.94	-0.94	
	St. Mary's Return 1SW	331	16%	2 038	95%	93%	-1	0.95	-0.95	
	Saint John Survival 2SW (%)	0.13	59%	0.22	95%	81%	-1	0.95	-0.95	
	Lahave Survival 2SW (%)	0.88	367%	0.24	81%	81%	1	0.81	0.81	
	Saint John Survival 1SW (%)	0.12	16%	0.76	86%	73%	-1	0.86	-0.86	
	Lahave Survival 1SW (%)	0.72	50%	1.44	92%	78%	-1	0.92	-0.92	
	Liscomb Survival 2SW (%)	0.03	60%	0.05	86%	91%	-1	0.86	-0.86	
	East Sheet Harbour Survival 2SW (%)	0.005	25%	0.02	67%	82%	-1	0.67	-0.67	
	possible range				*-0.88*	*0.81*				
	Average		68%						**-0.64**	**No**
Gulf	Miramichi Return 2SW	28 977	183%	15 800	100%	85%	1	0.85	0.85	
	Miramichi Return 1SW	45 880	110%	41 790	89%	67%	1	0.67	0.67	
	possible range				*-0.95*	*0.76*				
	Average		147%						**0.76**	**Yes**
Quebec	Cascapédia Return Large	3 815	167%	2 280	69%	92%	1	0.92	0.92	
	Bonaventure Return Large	1 259	85%	1 479	75%	81%	-1	0.75	-0.75	
	Grande Rivière Return Large	533	121%	442	100%	94%	1	0.94	0.94	
	Saint-Jean Return Large	688	91%	758	86%	89%	-1	0.86	-0.86	
	Dartmouth Return Large	1 171	155%	756	86%	89%	1	0.89	0.89	
	Madeleine Return Large	996	153%	653	70%	93%	1	0.93	0.93	
	Sainte-Anne Return Large	871	201%	433	67%	88%	1	0.88	0.88	
	Godbout Return Large	694	108%	641	86%	100%	1	1	1	
	De la Trinite Return Large	317	82%	385	75%	100%	-1	0.75	-0.75	
	York Return Return Large	1 585	113%	1405	63%	83%	1	0.83	0.83	
	Grande Rivière Return Small	237	119%	199	59%	80%	1	0.8	0.8	
	Saint-Jean Return Small	343	87%	394	53%	80%	-1	0.53	-0.53	
	Godbout Return Small	623	123%	508	85%	92%	1	0.92	0.92	
	De la Trinite Return Small	949	238%	399	89%	83%	1	0.83	0.83	
	De la Trinite Survival Large (%)	0.76	155%	0.49	88%	96%	1	0.96	0.96	
	De la Trinite Survival Small (%)	2.54	170%	1.49	63%	89%	1	0.89	0.89	
	Saint-Jean Survival Small (%)	1.86	258%	0.72	100%	64%	1	0.64	0.64	
	possible range				*-0.77*	*0.88*				
	Average		143%						**0.50**	**Yes**
Newfoundland	Exploits Return Small	34 085	137%	24 924	83%	56%	1	0.56	0.56	
	Middle Brook Return Small	2 642	141%	1 868	84%	63%	1	0.63	0.63	
	Torrent Return Small	2 784	67%	4 154	94%	64%	-1	0.94	-0.94	
	possible range				*-0.87*	*0.61*				
	Average		115%						**0.08**	**Yes**
Labrador										
	possible range									
	Average								**NA**	**Unknown**
Southern NEAC										
	possible range									
	Average								**NA**	**Unknown**

Table 10.4.3 Distribution of nominal catches (metric tonnes) by Greenland vessels since 1977. NAFO Divisions are represented by 1A–1F.

Year	1A	1B	1C	1D	1E	1F	Unk.	W. Greenland	E. Greenland	Total
1977	201	393	336	207	237	46	-	1 420	6	1426
1978	81	349	245	186	113	10	-	984	8	992
1979	120	343	524	213	164	31	-	1 395	+	1395
1980	52	275	404	231	158	74	-	1 194	+	1194
1981	105	403	348	203	153	32	20	1 264	+	1264
1982	111	330	239	136	167	76	18	1 077	+	1077
1983	14	77	93	41	55	30	-	310	+	310
1984	33	116	64	4	43	32	5	297	+	297
1985	85	124	198	207	147	103	-	864	7	871
1986	46	73	128	203	233	277	-	960	19	979
1987	48	114	229	205	261	109	-	966	+	966
1988	24	100	213	191	198	167	-	893	4	897
1989	9	28	81	73	75	71	-	337	-	337
1990	4	20	132	54	16	48	-	274	-	274
1991	12	36	120	38	108	158	-	472	4	476
1992	-	4	23	5	75	130	-	237	5	242
1993[1]	-	-	-	-	-	-	-	-	-	-
1994[1]	-	-	-	-	-	-	-	-	-	-
1995	+	10	28	17	22	5	-	83	2	85
1996	+	+	50	8	23	10	-	92	+	92
1997	1	5	15	4	16	17	-	58	1	59
1998	1	2	2	4	1	2	-	11	-	11
1999	+	2	3	9	2	2	-	19	+	19
2000	+	+	1	7	+	13	-	21	-	21
2001	+	1	4	5	3	28	-	43	-	43
2002	+	+	2	4	1	2	-	9	-	9
2003	1	+	2	1	1	5	-	9	-	9
2004	3	1	4	2	3	2	-	15	-	15
2005 *	1	3	2	1	3	5	-	15	-	15
2006 *	6	2	3	4	2	4	-	22	-	22
2007 *	2	5	6	4	5	2	-	25	-	25
2008 *	5	2	10	2	3	5	0	26	-	26
2009 *	0.2	6	7	3	4	5	0	26	1	26
2010 *	17	5	2	3	7	4	0	38	2	40
2011 *	2	4	5	8	4	5	0	28	+	28

[1] The fishery was suspended.

+ Small catches <5 t.

- No catch.

*** Corrected from gutted weight to total weight (factor 1.11).**

Table 10.4.4 Summary of biological characteristics of catches at West Greenland in 2011.

Distribution of 2011 nominal catch (metric tonnes)

Total	NAFO Division					
	1A	1B	1C	1D	1E	1F
28	2	4	5	8	4	5

River age distribution (%) by origin (NA – North America, E – Europe)

	1	2	3	4	5	6	7	8
NA	1.5	36.1	44.5	15.1	2.8	0	0	0
E	19.0	51.7	27.6	1.7	0	0	0	0

Length and weight by origin and sea age

	1 SW		2 SW		Previous spawners		All sea ages	
	Fork length (cm)	Whole weight (kg)	Fork length (cm)	Whole weight (kg)	Fork length (cm)	Whole weight (kg)	Fork length (cm)	Whole weight (kg)
NA	66.2	3.56	85.6	5.48	72.5	4.53	66.7	3.67
E	65.0	3.24	76.3	5.18	76.3	5.11	66.9	3.82

Continent of origin (%)

North America	Europe
91.5	8.5

Sea age composition (%) by continent of origin:
North America (NA) and Europe (E)

	1SW	2SW	Previous spawners
NA	93.8	1.5	4.7
E	82.8	12.1	5.2

Table 10.4.5 Reported landings (kg) for the West Greenland Atlantic salmon fishery from 2002 by NAFO Division as reported by the Home Rule Government, and the division-specific adjusted landings where the sampling teams observed more fish landed than were reported.

Year		1A	1B	1C	1D	1E	1F	Total
2002	Reported	14	78	2100	3752	1417	1661	9022
	Adjusted						2408	9769
2003	Reported	619	17	1621	648	1274	4516	8694
	Adjusted			1782	2709	5912		12 312
2004	Reported	3476	611	3516	2433	2609	2068	14 712
	Adjusted				4929			17 209
2005	Reported	1294	3120	2240	756	2937	4956	15 303
	Adjusted				2730			17 276
2006	Reported	5427	2611	3424	4731	2636	4192	23 021
	Adjusted							
2007	Reported	2019	5089	6148	4470	4828	2093	24 647
	Adjusted						2252	24 806
2008	Reported	4882	2210	10024	1595	2457	4979	26 147
	Adjusted				3577		5478	28 627
2009	Reported	195	6151	7090	2988	4296	4777	25 496
	Adjusted				5466			27 975
2010	Reported	17263	4558	2363	2747	6766	4252	37 949
	Adjusted		4824		6566		5274	43 056
2011	Reported	1858	3662	5274	7977	4021	4613	27 407
	Adjusted							

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List of Participants

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