REPORT OF THE THIRTY-FIRST ANNUAL MEETINGS OF THE COMMISSIONS

SAINT-MALO, FRANCE

3 – 6 JUNE 2014

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REPORT OF THE

THIRTY-FIRST ANNUAL MEETING OF

THE

NORTH AMERICAN COMMISSION

3 – 6 JUNE 2014
Saint-Malo, France

Chairman:	Mr Stephen Gephard (USA)
Vice-Chairman:	Mr Serge Tremblay (Canada)
Rapporteur:	Mr Tony Blanchard (Canada)
Secretary:	Dr Peter Hutchinson

NAC(14)7

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Report of the Thirty-First Annual Meeting of the North American Commission of the North Atlantic Salmon Conservation Organization

Le Nouveau Monde Hotel, Saint-Malo, France

3 - 6 June 2014

1. Opening of the Meeting

1.1 The Chairman, Mr Stephen Gephard (USA), opened the meeting and welcomed delegates to the Thirty-First Annual Meeting of the North American Commission.

1.2 The Chairman noted that as in the Council, in the interest of time, there would be no oral Opening Statements. A written Opening Statement on behalf of the Non-Government Organisations (NGOs) attending the Annual Meeting was distributed (Annex 1).

1.3 A list of participants at the Thirty-First Annual Meeting of the Council and Commissions is included on page 325 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, NAC(14)6 (Annex 2).

3. Nomination of a Rapporteur

3.1 Mr Tony Blanchard (Canada) was appointed as Rapporteur.

4. Election of Officers

4.1 Mr Tony Blanchard (Canada) was elected as the new Chairman and Mr Patrick Keliher (USA) was elected Vice-Chairman of the North American Commission, the terms to begin at the close of the 2014 Annual Meeting.

5. Review of the 2013 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5.1 The representative of ICES, Mr Ian Russell, presented the report from ICES on the status of salmon stocks in the Commission Area. The review of the Framework of Indicators concluded that there were no significant changes and no requirement for new advice. His presentation is available as document NAC(14)8. The Advisory Committee (ACOM) report from ICES, which contains the scientific advice relevant to all Commissions, is included on page 275 of this document.

5.2 The representatives of Canada and the United States thanked the representative of ICES and the Chairman of the North American Sub-Group of the Working Group on North Atlantic Salmon for their work.

5.3 The representative of the United States indicated that while the increased catch in St. Pierre and Miquelon in 2013 has been termed anomalous, 2012 was the anomalous year. The graph shows an increasing trend in catches since 1995, and while the total catch may be considered relatively small, returns to rivers in Canada and the United States can be affected by small harvests.

5.4 The representative of Canada questioned that if the number of released fish by anglers is not included in the catch statistics, are there implications for the stock estimates from the catch and release effort. The representative of ICES indicated that estimates of returns are based on a number of factors including total catch, and the catch and release effort is considered in the assessment. The representative of Canada also asked if ICES is reporting on indicators of smolt production. The representative of ICES indicated that there are 12 rivers in North America where smolt production was assessed and reported them.

5.5 The NGO representative questioned the representativeness of the river monitoring in Labrador. The representative of ICES responded that he could not comment on the detail of the river monitoring but did indicate that the Labrador area is large and it is important that the river monitoring be representative.

6. Management Objectives for Salmon Stocks in the US and Scotia-Fundy Region of Canada

6.1 The Chairman reminded the Commission that the United States had previously tabled a paper on this matter, NAC(13)4, and asked if there was any follow-up discussion or statement from the Parties required.

6.2 The representative of the United States indicated that the United States had tabled new management objectives at the North American Commission and West Greenland Commission in 2013 and subsequently requested that ICES review the management objectives and address implications for catch advice. The advice from ICES was received and the United States indicated that, as there were no objections to the approach, ICES should use the revised management objectives in the future. There is no requirement for the Council to adopt these management objectives and the United States feels there was sufficient rigor around the process to proceed with implementation.

6.3 The representative of Canada thanked the United States for its work and providing the update. Canada also advised that recovery objectives are currently being developed using a similar approach for the three designatable units of salmon in the Scotia-Fundy area.

7. The St Pierre and Miquelon Salmon Fishery

7.1 The Chairman referenced Council document CNL(14)15 (Annex 3) and indicated that a very good overview of the paper, which provided an update on the fishery in 2013, was provided in Council and invited an open discussion on the report.

7.2 The representative of the United States thanked France (in respect of St. Pierre and Miquelon) for the report and noted that the level of information provided is better at informing the Commission and this is appreciated. The United States invited France (in respect of St. Pierre and Miquelon) to continue to provide such information and to further engage with NASCO. As France (in respect of St. Pierre and Miquelon) is not a member of NASCO, there is no opportunity to discuss regulatory measures; however, the United States requested that management measures be adopted by France (in respect of St. Pierre and Miquelon) that are consistent with the goals of NASCO.

7.3 The representative of the United States noted that the catch in St. Pierre and Miquelon has increased and there seems to be no limit on the annual catch or number of permits issued. Without management controls the catch could increase significantly, and the United States hopes that France (in respect of St. Pierre and Miquelon) will join the members to talk further and adopt management measures that control and limit catch. The United States encouraged further engagement of France (in respect of St. Pierre and Miquelon).

7.4 The representative of Canada thanked France (in respect of St. Pierre and Miquelon) for the report. Canada also indicated full support for the statement by the United States. Canada added that COSEWIC has assessed some stocks being fished at St. Pierre and Miquelon as threatened or endangered. The representative of Canada stated that it is difficult to deal with stakeholders on the COSEWIC recommendations while the St. Pierre and Miquelon fishery continues and a country that is not a member of NASCO catching fish from stocks that are recommended by COSEWIC to be listed as endangered is a problem. He reiterated the belief that France (in respect of St. Pierre and Miquelon) should join NASCO so that it would have to abide by the same rules as other Parties. Canada stated that it is willing to work with St. Pierre and Miquelon on sampling from the fishery and invited France (in respect of St. Pierre and Miquelon) to become a member of NASCO.

7.5 In response to the remarks by the United States, the representative of France (in respect of St. Pierre and Miquelon) indicated that the number of fishing permits remains stable.

8. Salmonid Introductions and Transfers

8.1 The Chairman asked if the Parties had anything to present.

8.2 The United States presented document NAC(14)3 (Annex 4) and indicated that this document had been previously circulated and shared with Canada and that it was willing to entertain any questions. The United States did highlight page 1 related to releases and indicated that low level releases from aquaculture facilities are reported to other government agencies and NGOs.

8.3 Canada tabled document NAC(14)4 (Annex 5). The representative of Canada also indicated that some parties had stated they are not happy with the manner in which Canada reports on disease; however, these data are the property of the Canadian Food Inspection Agency and its website is updated on a real time basis. Canada has provided the link to the website and feels that this is more appropriate than providing outdated data in a report to the Commission. Regarding introductions and transfers, Canada confirmed that the Saga strain was imported from Iceland for use in a land-based production.

8.4 The representative of the United States thanked Canada for the additional information and ongoing dialogue on this issue and anticipates further cooperation in the future.

8.5 The representative of the NGOs indicated that it appreciates the United States reporting small escapes and asked if Canada could do the same.

8.6 The representative of Canada indicated that the existing regulatory regimes to report Canadian escapes are currently under review by Canada and its stakeholders. Although the thresholds to report the number of escapes vary per province, as aquaculture reporting is a responsibility of Canadian provincial partners, Canada noted that the province of New Brunswick currently is required to report on escapes of 100 fish or more. Canada also noted that this existing New Brunswick Regulation is currently under review, and it is anticipated that there will be a reduced threshold for reporting, potentially to be introduced at some point over the next year. For other Atlantic Canadian provinces, Canada noted that these provinces are reviewing existing regulations with the goal of further defining the necessary regulations to reduce the threshold of when to report escapes. In addition to changing the regulatory reporting obligations, and to ensure stakeholders are consulted and involved, a Containment Liaison Committee has been established in the Newfoundland region and one is scheduled to be developed in the Maritime region that will include regulators, the salmon farming industry and other stakeholders. These Committees meet to review the escapement data and review Codes of Containment on an annual basis. Canada would be happy to report to NASCO and its North American Commission partners, on any changes to the existing Regulations, when these changes take place.

8.7 The NGO representative indicated that from the websites referred to by Canada, there were numerous incidents (18 ISA, 9 IPN) of disease indicated for salmonids in eastern Canada for 2013 through to 30 April 2013; however, the website does not provide details on the location and types of operations where these diseases were found. Such information, similar in detail to that provided by the United States for BKD, would be useful. The representative of the NGOs asked that in the future, such information be provided by Canada in tabular form. Canada indicated that this would be considered for future years.

9. Sampling in the Labrador Fishery

9.1 The representative of the United States thanked Mr Gérald Chaput for the presentation on the results of the genetic studies in the Theme-based Special Session. In relation to this work, the United States has recommended, through the Standing Scientific Committee, a couple of questions to ICES concerning the origin of the fish taken in the Labrador fishery.

9.2 The representative of Canada also thanked Mr Chaput and the entire team involved in the project on genetic analysis.

9.3 The representative of the United States asked if Canada plans to continue monitoring the index rivers in Labrador and, given the small number of rivers currently being monitored out of the large number of rivers in Labrador, if Canada has plans to expand monitoring in future years.

9.4 The representative of Canada indicated that the sampling is funded by several departments and work will continue between departments to maintain the current monitoring programs. Expanded funding in the short term is unlikely; however it is Canada's intention to work with its partners to expand monitoring in the future if the funding is available.

10. Announcement of the Tag Return Incentive Scheme Prize

10.1 The draw for the North American Commission prize in the NASCO Tag Return Incentive Scheme was made by the auditor on 6 May. The winning tag was of Canadian origin. The tag was applied to a 1SW male salmon caught in the 'Millerton' estuary index trapnet operated by Fisheries and Oceans Canada in the Southwest Miramichi River on 10 September 2013. It was recaptured on 14 September 2013 at Forks Pool on the Renous River (a tributary of the Southwest Miramichi), an upstream migration of about 50km from the tagging location which it completed in about four days. The winner was Mr Claude Leblanc, of New Brunswick, Canada. The Commission offered its congratulations to the winner.

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

11.1 The Chairman of the Standing Scientific Committee thanked the members of the Committee for their participation in the process and presented its report of recommended questions for ICES advice.

11.2 The representative of Canada suggested an amendment to the North American Commission area question 3.4. The United States agreed with the change. The representative of Canada also indicated that it had some concern with question 3.6 and would require some time to discuss with members of his delegation to suggest alternative wording.

11.3 The Parties agreed to refer the finalisation of these questions to Council and the Chairman closed this agenda item. The request to ICES, as agreed by the Council, is contained in document CNL(14)10 (Annex 6).

12. Other Business

12.1 No other business was raised.

13. Date and Place of the Next Meeting

13.1 The next meeting of the Commission will be at the same time and place as the Thirty-Second Annual Meeting of NASCO.

14. Report of the Meeting

14.1 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 7.

NAC(14)7

Compte rendu de la Trente-et-unième session annuelle de la Commission Nord-Américaine de l'Organisation pour la conservation du saumon de l'Atlantique Nord

Hôtel le Nouveau Monde, Saint-Malo, France

3 - 6 juin 2014

1. Ouverture de la session

1.1 Le Président, M. Stephen Gephard (Etats-Unis), a ouvert la session et accueilli les délégués à la trente-et-unième session annuelle de la Commission nord-américaine.

1.2 Le Président a noté que comme dans le Conseil, pour gagner du temps, il n'y aurait pas de Déclarations d'ouverture. Une déclaration d'ouverture écrite de la part des Organisations non gouvernementales (ONGs) présentes à la session annuelle a été distribuée (Annexe 1).

1.3 Une liste des participants à la trente-et-unième session annuelle du Conseil et des Commissions est incluse en page 325 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour, NAC(14)6 (Annexe 2).

3. Nomination d'un rapporteur

3.1 M. Tony Blanchard (Canada) a été nommé rapporteur.

4. Election des Membres du Bureau

4.1 M. Tony Blanchard (Canada) a été élu en tant que nouveau Président et M. Patrick Keliher (Etats-Unis) a été élu Vice-président de la Commission nord-américaine, les termes devant commencer à la clôture de la session annuelle de 2014.

5. Examen de la pêcherie de 2013 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. Ian Russell, a présenté le compte-rendu du CIEM sur le statut des stocks de saumon dans la zone de la Commission. La révision du Cadre des indicateurs a conclu qu'il n'y avait des changements significatifs et qu'aucuns nouveaux conseils n'étaient exigés. Sa présentation est disponible dans le document NAC(14)8. Le rapport du Comité consultatif (ACOM) du CIEM, qui contient les conseils scientifiques pertinents pour toutes les Commissions, est inclus en page 275 de ce document.

5.2 Les représentants du Canada et des Etats-Unis ont remercié le représentant du CIEM et le Président du Sous-groupe Nord-américain du Groupe de travail sur le Saumon Nord-atlantique pour leur travail.

5.3 Le représentant des États-Unis a indiqué que si la croissance des prises à St Pierre et Miquelon en 2013 avait été considérée comme une anomalie, 2012 a été l'année anormale. Le graphique montre une tendance croissante des prises depuis 1995, et bien que la prise totale puisse être considérée comme étant relativement basse, les retours vers les rivières au Canada et aux États-Unis peuvent être affectés par des petites récoltes.

5.4 Le représentant du Canada a posé la question de savoir si dans le cas où le nombre des poisons relâchés par les pêcheurs à la ligne n'est pas inclus dans les statistiques de prise, s'il y a des implications pour les estimations de stock de l'effort de prise et de remise à l'eau. Le représentant du CIEM a indiqué que les estimations de retour sont basées sur un certain nombre de facteurs y compris le nombre total de prises, et l'effort de prise et de remise à l'eau est étudié dans l'évaluation. Le représentant du Canada a aussi demandé si le CIEM rend compte des indicateurs de la production de saumoneaux. Le représentant du CIEM a indiqué qu'il y a 12 rivières en Amérique du Nord où la production de saumoneaux était évaluée et en a fait la liste.

5.5 La représentante de l'ONG a posé la question de la représentativité du suivi des rivières dans le Labrador. Le représentant du CIEM a répondu qu'il ne pouvait commenter en détail le suivi des rivières mais a indiqué que la région du Labrador est grande et qu'il est important que le suivi des rivières soit représentatif.

6. Objectifs de gestion concernant les stocks de saumons aux Etats-Unis et dans la région de Scotia-Fundy au Canada

6.1 Le Président a rappelé à la Commission que les États-Unis avaient par le passé présenté un article sur ce sujet, NAC(13)4, et a demandé si des discussions ou déclarations étaient requises par les Parties.

6.2 Le représentant des États-Unis a indiqué que les États-Unis avaient présenté de nouveaux objectifs de gestion à la Commission nord-américaine et la Commission du Groenland occidental en 2013 et avait par la suite demandé que le CIEM révise les objectifs de gestion et traite les implications en matière de conseil sur les prises. Les conseils du CIEM ont été reçus et les États-Unis ont indiqué que, puisque cette approche ne soulevait pas d'objections, le CIEM devrait à l'avenir utiliser les objectifs de gestion révisés. Il n'est pas requis de la part du Conseil qu'il adopte ces objectifs de gestion et les États-Unis considèrent que la rigueur du processus est suffisante pour procéder à la mise en œuvre.

6.3 Le représentant du Canada a remercié les États-Unis pour leur travail et pour leur mise à jour. Le Canada a aussi informé que les objectifs de redressement sont actuellement développés en utilisant une approche similaire pour les trois unités désignables de saumon dans le secteur de Scotia-Fundy.

7. Pêcherie de saumons à St Pierre et Miquelon

7.1 Le Président a référencé le document du Conseil CNL(14)15 (Annexe 3) et a indiqué qu'un très bon aperçu de l'article, qui fournissait une mise à jour sur la pêcherie en 2013, été présenté en Conseil et a invité à une discussion ouverte sur le compte-rendu.

7.2 Le représentant des États-Unis a remercié la France (pour St Pierre et Miquelon) pour le compte-rendu et a noté que le niveau d'informations fournies destinées à la Commission est meilleur et que ceci est apprécié. Les États-Unis ont invité la France (pour St Pierre et Miquelon) à continuer à fournir de telles informations et de poursuivre son engagement auprès de l'OCSAN. Puisque la France (pour St Pierre et Miquelon) n'est pas membre de l'OCSAN, il n'existe pas d'opportunités pour discuter des mesures règlementaires ; cependant, les États-Unis ont demandé que des mesures de gestion adéquates soient adoptées par la France (pour St Pierre et Miquelon) qui se conforment aux objectifs de l'OCSAN.

7.3 Le représentant des États-Unis a noté que la prise à St Pierre et Miquelon a augmenté et il semble qu'il n'y ait pas de limite sur la prise annuelle ou sur le nombre de permis délivrés. Sans contrôles de gestion la prise pourrait augmenter de façon significative, et les États-Unis espèrent que la France (pour St Pierre et Miquelon) se joindra aux membres pour en discuter davantage et adopter des mesures de contrôle et limiter les prises. Les États-Unis ont encouragé la France (pour St Pierre et Miquelon) à poursuivre son engagement.

7.4 Le représentant du Canada a remercié la France (pour St Pierre et Miquelon) pour le compte-rendu. Le Canada a aussi exprimé son soutien à la déclaration des États-Unis. Le Canada a ajouté que le COSEPAC a évalué certains stocks péchés à St Pierre et Miquelon comme étant menacés ou en danger. Le représentant du Canada a déclaré qu'il était difficile de traiter avec les parties prenantes sur les recommandations du COSEPAC alors que la pêcherie à St Pierre et Miquelon se poursuit et qu'un pays qui n'est pas membre de l'OCSAN qui prend du poisson de stocks qui sont selon la recommandation du COSEPAC listés comme étant en danger constitue un problème. Il a réitéré la conviction que la France (pour St Pierre et Miquelon) devrait adhérer à l'OCSCAN et se plier aux mêmes règles que les autres Parties. Le Canada a déclaré qu'il était prêt à travailler avec St Pierre et Miquelon sur un échantillonnage de pêcherie et a invité la France (pour St Pierre et Miquelon) à devenir membre de l'OCSAN.

7.5 En réponse aux remarques des États-Unis, la représentante de la France (pour St Pierre et Miquelon) a indiqué que le nombre de permis de pêcherie reste stable.

8. Introductions et transferts de salmonidés

8.1 Le Président a demandé si les Parties avaient quelque chose à présenter.

8.2 Les États-Unis ont présenté le document NAC(14)3 (Annexe 4) et indiqué que ce document avait été distribué et communiqué au Canada et qu'ils étaient prêts à entendre toute question quelle qu'elle soit. Les États-Unis ont souligné la page 1 relative aux échappées indiqué que des niveaux bas depuis des aménagements d'aquaculture sont rapportés à d'autres agences gouvernementales et ONGs.

8.3 Le Canada a présenté le document NAC(14)4 (Annexe 5). Le représentant du Canada a aussi indiqué que certaines parties avaient déclaré qu'elles n'étaient pas satisfaites de la façon dont le Canada rend compte de maladies ; cependant, ces données sont la propriété de l'Agence canadienne d'inspection des aliments et son site web est mis à jour en temps réel. Le Canada a fourni un lien vers le site web et considère que cela est plus approprié que de fournir des données périmées dans un compte rendu destiné à la Commission. Concernant les introductions et transferts, le Canada a confirmé que la lignée de la Saga était importée d'Islande pour être utilisée dans une production à terre.

8.4 Le représentant des États-Unis a remercié le Canada pour les suppléments d'information sur le dialogue en cours relatif à ce problème et anticipe une plus ample coopération dans le futur.

8.5 La représentante des ONGs a indiqué qu'elle apprécie que les États-Unis rendent compte des petites fuites et a demandé au Canada s'il pouvait en faire autant.

8.6 Le représentant du Canada a indiqué que les régimes règlementaires existant actuellement pour rendre compte des fuites canadiennes sont actuellement en cours de révision par le Canada et ses parties prenantes. Bien que les seuils pour rendre compte des fuites canadiennes varient en fonction des provinces, puisque les provinces canadiennes en tant que partenaires sont responsables des rapports sur l'activité aquacole le Canada a noté que l'on s'attend actuellement à ce que la province de Nouveau-Brunswick rende compte de la fuite d'au moins 100 poissons. Le Canada a aussi noté que la Règlementation actuelle de Nouveau-Brunswick est actuellement en cours de révision, et l'on s'attend à ce que le seuil pour rendre compte soit revu à la baisse, et soit potentiellement introduit dans le courant de l'année prochaine. Pour d'autres provinces canadiennes atlantiques, le Canada a noté qu'elles passaient actuellement en revue les règlementations actuelles dans le but de mieux définir les règlementations nécessaires pour réduite le seuil auquel rapporter les fuites. Le Canada modifie les obligations de rapport règlementaire et pour s'assurer que les parties prenantes sont consultées et impliquées, et a établi un Comité de liaison de confinement dans la région de Terre-Neuve ; le développement d'un autre comité est prévu dans la région maritime, il inclura des législateurs, le secteur de l'élevage de saumon et d'autres parties prenantes. Ces Comités se réunissent pour passer en revue les données relatives aux fuites et les Codes de confinement sur une base annuelle. Le Canada serait ravi de rapporter à l'OCSAN et aux partenaires de la Commission nord-américaine tout changement quel qu'il soit effectué sur les Règlements existants, lorsque ces changements ont lieu.

8.7 Le représentant de l'ONG a indiqué que depuis les références faites à ces sites web, de nombreux incidents ont eu lieu (18 AIS, 9 NPI) des maladies indiquées pour les salmonidés dans l'est du Canada pour 2013 jusqu'au 30 avril 2013; cependant, le site web ne fournit pas d'informations détaillées sur le lieu et les types d'opérations dans les zones où ces maladies ont été identifiées. Ces informations, dont les détails sont similaires à ceux fournis par les États-Unis pour la bactérie de la maladie du rein, seraient utiles. Le représentant des ONGs, a demandé qu'à l'avenir, de telles informations soient fournies par le Canada sous forme de tableau. Le Canada a indiqué que cela serait envisagé pour les années à venir.

9. Echantillonnage de la pêcherie du Labrador

9.1 Le représentant des États-Unis a remercié M. Gérard Chaput pour la présentation des résultats d'études génétiques au cours de la Session spéciale thématique. En relation avec ce travail, les États-Unis, à travers le Comité scientifique permanent, ont recommandé des questions au CIEM concernant l'origine du poisson prélevé dans la pêcherie du Labrador.

9.2 Le représentant du Canada a aussi remercié M. Chaput et l'intégralité de l'équipe impliquée dans le projet d'analyse génétique.

9.3 Le représentant des États-Unis a demandé si le Canada prévoit de continuer le suivi des rivières-repère du Labrador et, étant donné le nombre réduit de rivières actuellement suivies parmi un grand nombre de rivières du Labrador, si le Canada prévoit d'étendre le suivi dans les années à venir.

9.4 Le représentant du Canada a indiqué que l'échantillonnage est financé par plusieurs départements et que le travail entre les départements se poursuivra pour maintenir les programmes de suivi actuels. Il est peu probable que le financement soit étendu sur le cours terme ; cependant l'intention du Canada est de travailler avec ses partenaires pour étendre le suivi à l'avenir si un financement est disponible.

10. Annonce du gagnant du prix du Programme incitatif au renvoi des étiquettes

10.1 Le tirage pour le prix de la Commission nord-américaine du Programme incitatif de l'OCSAN au renvoi des étiquettes a été effectué par le commissaire le 6 mai. L'étiquette gagnante était d'origine canadienne. L'étiquette a été appliquée au saumon mâle 1HM péché au filet trappe dans l'estuaire-repère 'Millerton' opéré par Pêches et Océans Canada dans la rivière Miramichi Sud-Ouest le 10 septembre 2013. Elle a était recapturée dans la fosse Forks de la rivière Renous (tributaire du Miramichi Sud-Ouest), une migration remontante de près de 50 km depuis le lieu d'étiquetage qui est couverte dans un délai d'environ quatre jours. Le gagnant était M. Claude LeBlanc, de Nouveau-Brunswick, au Canada. La Commission a offert ses félicitations au gagnant.

11. Recommandations au Conseil concernant la demande de conseils scientifiques auprès du CIEM

11.1 Le Président du Comité scientifique permanent a remercié les membres du Comité pour leur participation au processus et a présenté son compte rendu des questions recommandées pour les conseils du CIEM.

11.2 Le représentant du Canada a proposé un avenant à la question 3.4 de la zone de la Commission nord-américaine. Les États-Unis ont accepté la modification. Le représentant du Canada a également indiqué que la question 3.6 soulevait son inquiétude et qu'il aurait besoin d'un certain temps pour discuter avec les membres de sa délégation afin de proposer une autre formulation.

11.3 Les Parties s'accordent pour se référer au Conseil pour la finalisation de ces questions et le Président a clôturé cette section de l'ordre du jour. La demande au CIEM, telle que convenue avec le Conseil est contenue dans le document CNL(14)10 (Annexe 6).

12. Divers

12.1 Aucune autre question n'a été soulevée.

13. Date et lieu de la prochaine session

13.1 La prochaine assemblée de la Commission aura lieu à la même date et au même lieu que la trente-deuxième session annuelle de l'OCSAN.

14. Compte rendu de la session

14.1 La Commission a accepté un compte rendu de la session.

Note: Les annexes mentionnées ci-dessus commencent à la page 17. Une liste d'articles de la Commission nord-américaine est incluse en Annexe 7.

Annex 1

Opening Statement on behalf of the Non-Governmental Organizations

New genetics information on salmon caught in the mixed-stock fishery at Labrador is confirming that there is significant harvest of mixed populations of salmon originating from within Labrador. There is also interception of salmon originating from the United States, where salmon populations are listed as endangered, and from populations in Newfoundland, Quebec, and New Brunswick, where at-risk populations have been identified.

The Labrador and Greenland mixed-population fisheries have a cumulative impact on North American salmon populations already under siege from habitat loss, interactions with farmed salmon, and changing environmental conditions. The harvest at Labrador in mixed-stock fisheries amounted to 37.5 tonnes in 2013 and the number of large salmon that were harvested rose to 6,495 last year from 4,220 in 2012. Management of these fisheries requires a more precautionary approach since there is inadequate assessment to gauge the health of salmon populations in Labrador.

The NGOs urge Canada to work with Aboriginals to implement management measures, such as later season opening and in-river and selective harvest, which would further reduce interception of salmon off Labrador. Increased in-river assessment is needed to better ensure that only those populations that exceed conservation targets are being harvested, as is recommended by ICES.

The NGOs commend Canada for further restricting the numbers of grilse that can be retained in Nova Scotia and New Brunswick, and in mandating live release only in the recreational salmon fishery on the Northwest Miramichi River. This river achieved only 40% of its conservation limit in 2013, yet the agreements between First Nations and Canada still allow a significant harvest of large spawners. ASF would like to acknowledge and commend the Metepenagiag First Nation on its recent decision to no longer use gill nets to harvest its salmon and grilse allocation on the Northwest and Little Southwest Miramichi rivers. This First Nation has committed to release all large females.

And the final salmon fishery of concern to NGOs is the one at St Pierre and Miquelon, which harvested 5.3 tonnes in 2013. This is the largest harvest since reporting began in 1970. A new genetics study confirms that this fishery harvests salmon from the Gaspe, Newfoundland, the Maritimes and the Quebec North Shore. The NGOs urge more decisive action by NASCO to get France (in respect of St Pierre and Miquelon) to the table to discuss ways to control this fishery, and we hope that, in this setting in France, headway can be made this week.

Annex 2

NAC(14)6

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Review of the 2013 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area
6. Management Objectives for Salmon Stocks in the US and Scotia-Fundy Region of Canada
7. The St Pierre and Miquelon Salmon Fishery
8. Salmonid Introductions and Transfers
9. Sampling in the Labrador Fishery
10. Announcement of the Tag Return Incentive Scheme Prize
11. Recommendations to the Council on the Request to ICES for Scientific Advice
12. Other Business
13. Date and Place of the Next Meeting
14. Report of the Meeting

<u>**Annex 3**</u>

CNL(14)15

Management and Sampling of the St Pierre and Miquelon Salmon Fishery

1. As in previous years, we have received from France (in respect of St Pierre and Miquelon) a report containing information on the management of the fishery, details of catches and of the number of licenses issued. This information is contained in Annex 1. The total catch in 2013 was 5.302 tonnes and there were 73 licensed fishermen (9 professional permits and 64 recreational permits).

2. A report on the age and genetic mixed stock analysis of the catch at Saint-Pierre and Miquelon in 2013 has been provided and is included in Annex 2.

3. France (in respect of St Pierre and Miquelon) has been invited to attend the Thirty-First Annual Meeting and will be represented by Ms Christiane Laurent-Monpetit (Ministère des Outre-mer), Ms Marie-Sophie Dufau-Richet (Secrétariat Général de la Mer) and Mr Jean-Marc Philippeau (Ministère de l'écologie, du développement durable et de l'énergie).

4. In 2013, in the light of the findings of the External Performance Review, the President wrote to encourage France (in respect of St Pierre and Miquelon) to accede to the Convention. The response to this letter is contained in Annex 3 of this document.

Secretary
Edinburgh
29 May 2014

Annual report on the Atlantic Salmon Fishery at Saint Pierre and Miquelon 2013 Season

1. Legislation

Salmon fishing in the St Pierre and Miquelon archipelago is regulated by decree No 87-182 of 19 March 1987, implemented under the Order of 20 March 1987.

This legislation establishes the following:

- The fishery is under license and subject to an Annual Fishery Plan
- The minimum capture size is 48cm
- Nets must be declared and marked
- The minimum mesh size is 125mm
- The fishery season is restricted to 1 May – 31 July
- It is not permissible to place fishing gear within 300m of a river mouth.
- Restricted fishing effort:
  - 3 x 360m nets for professional fishermen
  - 1 x 180m net for recreational fishermen
- All catch must be declared (through annual declarations and a fishing log)
- All catch in the recreational fishery must be tagged

322 boat inspections were carried out in 2013, 299 of which were of recreational vessels and 23 were professional vessels. The inspections were carried out over 18 days, both in the morning and in the evening.

2. Permit allocation

Fishing permits are allocated to professional fishermen (who may sell their catch) and recreational fishermen (who are not authorised to sell their catch).

The allocation procedure is based on fishery precedence and on compliance with catch declaration obligations throughout the previous year.

The Maritime Centre deals with permit applications and allocates each permit holder with a specific site to fish for the entire season. The fishery site plan is published by Order of the Prefect.

In 2013, 9 professional permits were issued (as in 2011 and 2012) and 64 recreational permits were issued (60 were issued in 2012). There has been a slight increase in the number of licenses issued over the last 2 years, although the number of fishers has remained constant since 2005 (an average of 50 fishers per year over the last 10 years).

3. Salmon Catch

The total 2013 catch stands at:

Professional catch: 2,291 kg (278 kg in 2012). 974 salmon caught.
Recreational catch: 3,011 kg (1,168 kg in 2012). 1,151 salmon caught.

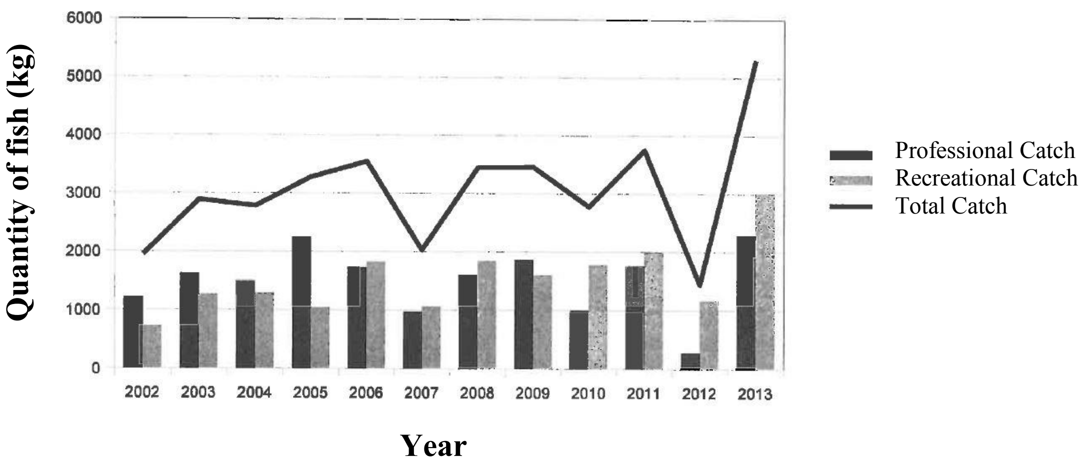
The total weight of the catch was 5,302kg.

The 1,151 salmon caught by 50 recreational boats averages around 23 salmon per recreational fisher. However, the highest catch by a single recreational vessel was 79 salmon. It should also be noted that many boats only fish for a very short period and bring their nets in well before the end of the permitted time-frame, as soon as they consider that their catch is sufficient for their personal use and that of their immediate circle.

The 974 salmon caught by 9 professional vessels averages around 108 salmon per professional fisher. The highest catch by a single professional vessel was 256 salmon, whereas one professional license holder did not fish.

	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Professional Fishery												
No. of licenses	12	12	13	14	13	13	9	8	9	9	9	9
Catch volume	**1223**	**1620**	**1499**	**2243**	**1730**	**970**	**1604**	**1864**	**1002**	**1764**	**278**	**3011**
Recreational Fishery												
No. of licenses	42	42	42	52	52	53	55	50	57	58	60	64
Catch Volume	**729**	**1272**	**1285**	**1044**	**1825**	**1062**	**1846**	**1600**	**1780**	**1992**	**1168**	**2291**
Total catch	1952	2892	2784	3287	3855	2032	3450	3464	2782	3756	1446	5302

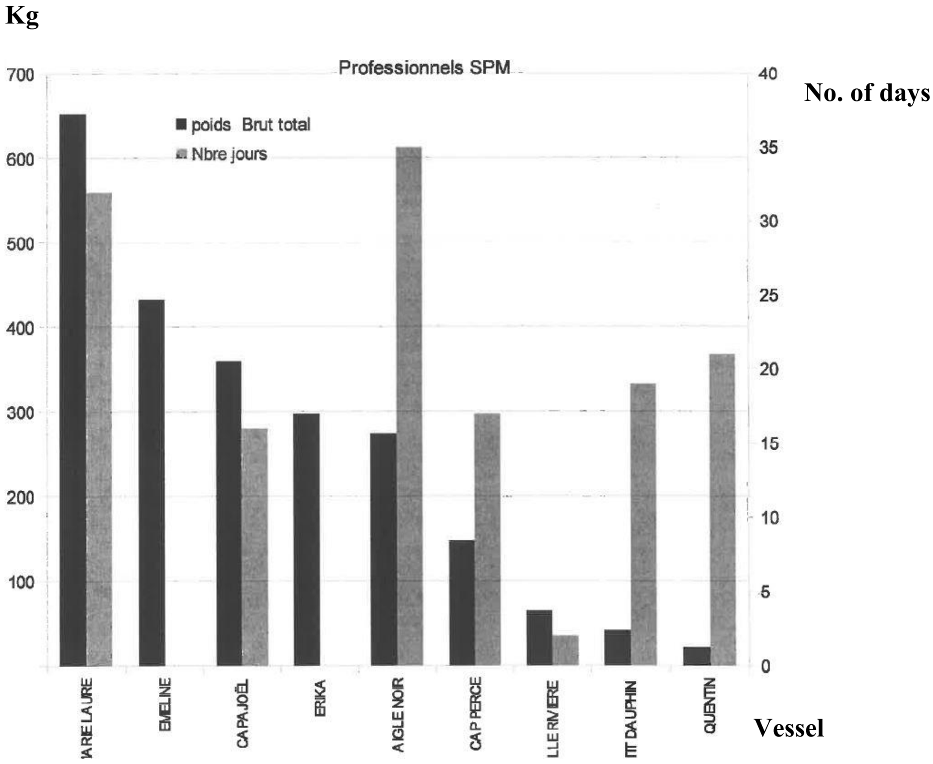
Salmon catch at St Pierre and Miquelon 2002 – 2013



There is no export of salmon and all salmon caught are consumed by the local market. Most salmon caught are retained for personal consumption, while only a few are sold to restaurants or individuals through a local fishmonger, or directly to the individual at market.

It should be noted that there is no fishing for salmon in the archipelago's rivers and that around 16 tonnes of farmed salmon are imported from Canada. The annual consumption of salmon is approximately 3 kg per inhabitant.

2013 Professional Salmon Catch

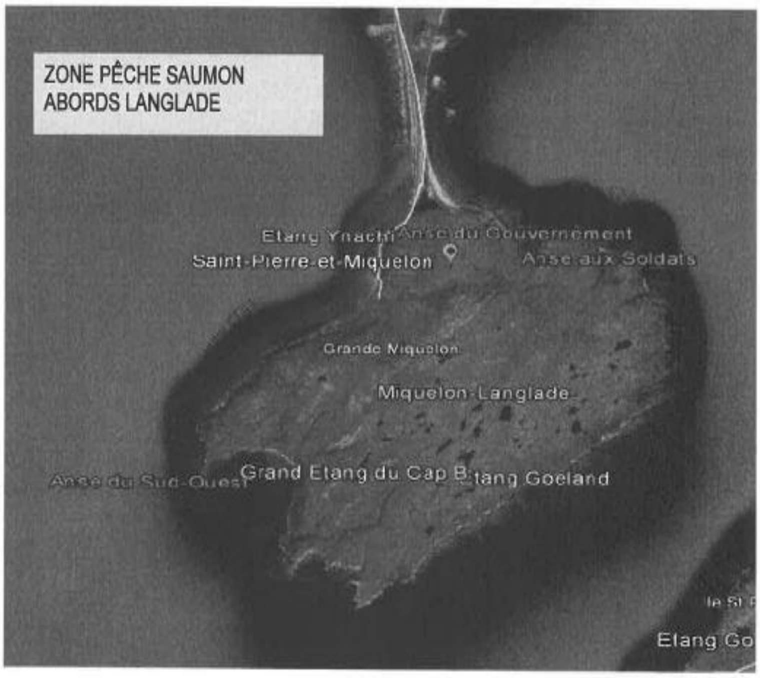


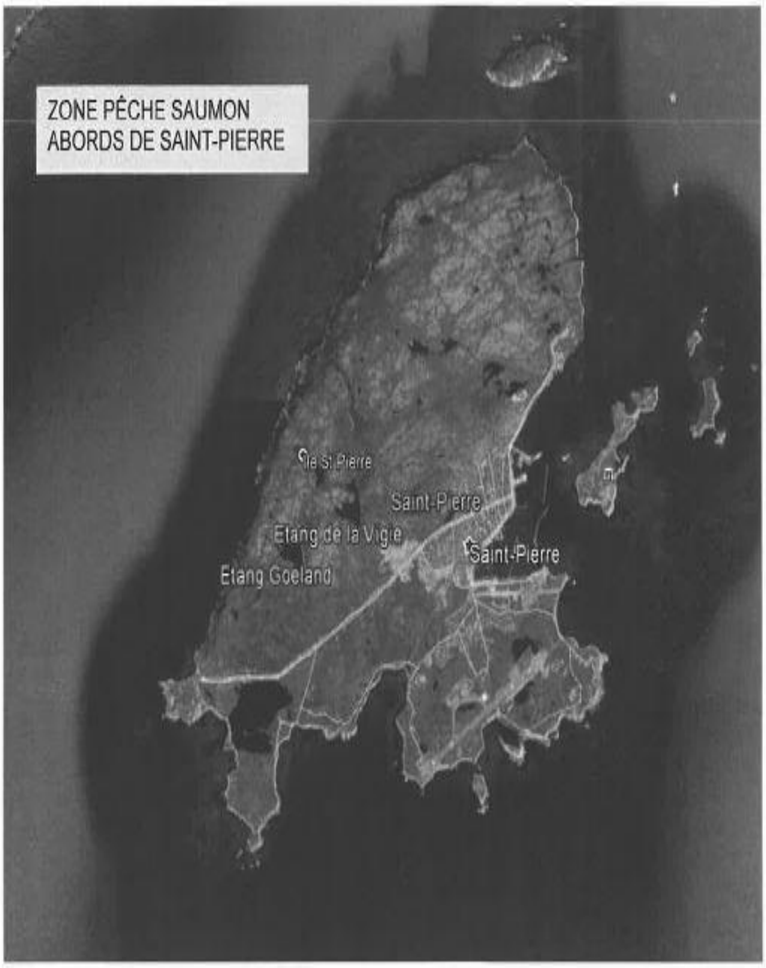
4. **Profile of fishers/location of fishing sites**

   The average fisher on the archipelago is male (there are no female salmon fishers on the archipelago) with an average age of 58 (the oldest being 76 and the youngest 38).

   The fishing sites are located around the archipelago as follows:


ZONE DE PÊCHE SAUMON
ABORDS DE MIQUELON
Saint Pierre et Miquelon


ZONE PÊCHE SAUMON
ABORDS LANGLADE
Anse du Gouvernement
Saint-Pierre-et-Miquelon
Anse aux Soldats
Grande Miquelon
Miquelon-Langlade
Grand Etang du Cap B
tang Goeland
Etang Go



Head of the St Pierre and Miquelon Maritime Office
Amaury de Guillebon

AGE ANALYSIS AND GENETIC MIXED STOCK ANALYSIS OF ATLANTIC SALMON HARVESTED IN THE SAINT-PIERRE ET MIQUELON FISHERY IN 2013

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SUMMARY

Age interpretation and genetic mixed stock ana1ysis was carried out on 74 scale samples and 71 tissue samples from 79 Atlantic salmon collected in the fishery in waters around Saint-Pierre et Miquelon in 2013. Bayesian mixture and assignment was conducted using a baseline for North American salmon containing 15 loci and 11,575 individuals which allowed for assignment to 11 regional groups throughout the Northwest Atlantic. The salmon sampled in 2013 comprised mostly two-sea-winter maiden salmon (49 samples) with fewer one-sea-winter maiden salmon (22 samples) and 3 repeat spawning salmon. Based on the genetic data, analysis indicated that the sample (n = 71) contained 37% Gaspe Peninsula salmon (30 fish), 34% Newfoundland salmon (23 fish), 22% Maritimes salmon (13 fish), and 7% Upper North Shore Quebec salmon (5 fish). Contributions of the other 7 regional groups were all negligible (i.e. <1%; n = 0). Scale analysis of fishery individuals by reporting group indicates river age increases and sea age declines with increasing latitude of regional group consistent with expectations based on known characteristics of these stocks. Continued analysis of additional years will be informative of the characteristics of the salmon, age and size structure and origin of the fish and the variation in the stock specific characteristics of the catches.

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). As well as being exploited at West Greenland primarily during their second summer feeding at sea, they may be exploited on their return migration in coastal fisheries in the waters around Saint Pierre and Miquelon and Labrador, as well as in rivers. Failure to identify the composition of mixed stock harvests may put at risk of over exploitation and extinction 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). 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 allelic variability frequently observed (Koljonen et al. 2007), though combined panels are also receiving support (Beacham et al. 2010). In previous work using microsatellites, Gauthier-Ouellet et al. (2009) estimated with greater than 90% accuracy simulated mixtures of Atlantic salmon caught off west Greenland to regions of North America (e.g., Labrador, New Brunswick, Maine). This baseline has recently been extended to encompass all North American salmon stocks and allows assignment of fish harvested in the Northwest Atlantic to region of origin (see Bradbury et al. in review).

OBJECTIVES

The main objective of this study was to estimate the region of origin of Atlantic salmon harvested in the Saint-Pierre et Miquelon salmon fishery using samples collected in 2013. Previous work (NASCO 2011, 2012) had indicated that all salmon sampled from this fishery were of North American origin, no European origin salmon had been identified from these samples.

METHODOLOGY

Baseline samples

Baseline samples encompassed 189 individual river samples ranging from Ungava Bay in the north to the Penobscot River in Maine to the south (Figure 1) (see Bradbury et al. 2014, Dionne et al. 2008 for regional analyses and further details). Reporting groups largely represent regional clusters identified in previous landscape analyses of population structure (e.g., Bradbury et al. 2014, Dionne et al. 2008) and were evaluated for use in mixture analysis for this study. In total, 11 regional groups were used for individual assignment and mixture analysis (Figure 1), based on both new data and previously published data from Quebec, Labrador, and New Brunswick from Dionne et al. (2008) and Newfoundland and Labrador from Bradbury et al. (2014). Regional groups comprise:

(1) Southern Labrador / Lower North Shore Quebec,

(2) Higher North Shore Quebec / Quebec City,

(3) the Gaspe Peninsula / Anticosti Island,

(4) Ungava Bay and Northern Labrador,

(5) Central Labrador,

(6) Avalon Peninsula,

(7) Northeast Brook Trepassey,

(8) remainder of insular Newfoundland,

(9) Maritimes samples (i.e. southern Gulf of St. Lawrence, Nova Scotia and New Brunswick),

(10) the Inner Bay of Fundy, and

(11) USA populations.

The USA Atlantic salmon regional group was characterized from 100 individual sampled fish (50 individuals from each of two years) collected from the Penobscot River.

Fishery Samples

Fishery samples were collected in 2013 from the fishery around the Island of Saint-Pierre as well as from the fishery conducted around the Island of Miquelon. Samples were provided by Ifremer (St Pierre et Miquelon). In total 77 salmon were sampled in 2013 from which scale samples for scale ageing were available for 74 sampled fish and fin clips for genetic analysis were collected from 69 sampled salmon in 2013 (plus 2 samples provided from the 2012 fishery). Samples for which both scales and tissues for genetic analyses totaled 66 fish in 2013.

DNA extraction and genotyping

DNA was extracted using the Qiagen DNeasy 96 Blood and Tissue extraction kit (Qiagen) following the guidelines of the manufacturer. DNA was quantified using QuantiT PicoGreen (Life Technologies), and diluted to a final concentration of 10ng/µL in 10mM Tris (Buffer EB, Qiagen). Microsatellite polymorphisms were quantified at 15 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 (hereafter referred to as U3) (Presa and Guyomard 1996), SSsp2201, SSsp2210, SSsp2215, SSsp2216 and SSspG7 (Paterson et al. 2004). Genotyping of baseline samples are described elsewhere (Bradbury et al. 2014, Dionne et al. 2008). Genotyping of fishery samples follows the methods outlined in Bradbury et al. (2014).

Genetic Stock Identification

Stock composition was estimated using the microsatellite data described above and an implementation of a Bayeisan mixture model from Pella and Masuda (2001) as implemented in cBAYES (Neaves et al. 2005). In this analysis eight 20,000 iteration Monte Carlo Markov chains were used each with starting values of 0.90. Convergence was assessed using a shrink factor (< 1.2 indicating convergence) and the last 1,000 iterations were used to calculate stock composition and individual assignments.

RESULTS AND DISCUSSION

Biological characteristics

Of the fish sampled in 2013 with recorded fork lengths, 23 were small salmon (< 63 cm fork length) and 46 were large salmon (>= 63 cm fork length). The river age of the fish sampled was almost equally distributed between two years (34 samples) and three years (38 samples) in freshwater. There were proportionally more river age 3 fish in the 1SW salmon group compared to the 2SW salmon group which had proportionally more river age 2 years fish.

As expected, the 1SW salmon were exclusively in the small salmon category (< 63 cm fork length) whereas the large salmon category was comprised of 2SW and repeat spawning salmon (Figure 2). The three repeat spawning salmon in the samples were all alternate spawning salmon with a maiden age of 1SW.

Table 1. Number of samples by age group.

Freshwater age (years)	Total sea age				All samples
	1SW	2SW	Repeat	Not determined	
2	7	27			34
3	15	20	3		38
Not determined		2		3	5
All samples	22	49	3	3	77

Region of origin

Bayesian mixture analysis of the genetic data from the 71 individuals indicated that the sample contained 37% Gaspe Peninsula salmon (30 samples), 34% Newfoundland salmon (23 samples), 22% Maritimes salmon (13 samples), and 7% Upper North Shore Quebec salmon (5 samples). Contributions of the other 7 regional groups were all negligible (i.e. <1%; no samples assigned to those regions) (Figure 3). The two samples from 2012 were assigned one to each of the Newfoundland and Gaspe groups.

Scale analysis indicated clear trends in biological characteristics of individuals analyzed consistent with the region to which they were assigned (Figure 4). Average river age of assigned individuals declined from Newfoundland to the Maritimes, and conversely average sea age increased from north to south (Figure 4).

Most (two-thirds) of the samples assigned to the Newfoundland region were 1SW salmon whereas most of the fish assigned to the other regions were 2SW salmon (Figure 5).

Assigned region	Se age				All age groups
	1SW	2SW	Repeat	Not determined	
Gaspe	3	23	2	2	30
Maritimes	4	9	0	0	13
Newfoundland	14	6	1	2	23
Quebec North	1	3	0	1	5
All samples	22	41	3	5	71

Also, scale analysis suggested one individual sampled in the fishery may have been an aquaculture escapee. This individual was screened using an existing database for aquaculture salmon currently in use in Newfoundland and Labrador and was identified as being from the Quebec Upper North Shore region. However, the baseline for aquaculture salmon only contains data on salmon currently in production in Newfoundland and Labrador and as such it's possible a miss-identification may occur if an escapee from elsewhere was sampled.

In terms of the timing of the samples, most of the small salmon were sampled after June 1 while most of the large salmon were sampled prior to June 1 in 2013 (Figure 6). Since most of the salmon assigned to the Newfoundland region of origin were small salmon, the fish from this region were mostly from the samples collected in June whereas fish from the other regions were mostly sampled in May.
This work is the first analysis of assignment to region of origin for eastern North

America using the extended baseline of samples from salmon populations of eastern North America.

The samples obtained from the fishery in 2013 differed in characteristics from the samples from the 2003 and 2004 fisheries (Lenormand et Briand 2004). In 2003 and 2004, approximately two-thirds of the fish sampled were small salmon (<63 cm fork length) but the sample size in those years was also much larger, 340 and 355 samples in each year respectively.

Where possible, it would be informative to analyse the samples from previous years using the extended baseline database from eastern North America to assess the region of origin of salmon in this fishery. Continued sampling of this fishery is recommended with a consideration of obtaining samples which are representative of the catches in the fishery in both the Saint-Pierre and the Miquelon areas. If tissue samples are too difficult to collect, scale samples could also be considered; scale samples could be collected by fishermen directly from their catches which could enhance the number of samples available for analysis.

Additional years of analysis would be needed to quantify the origin the catches in this fishery.

ACKNOWLEDGEMENTS

The ages of the scale samples were interpreted by Art Walsh (DFO Newfoundland Region) and Noella McDonald (DFO Gulf Region). Images of the scales were collected by Noella McDonald.

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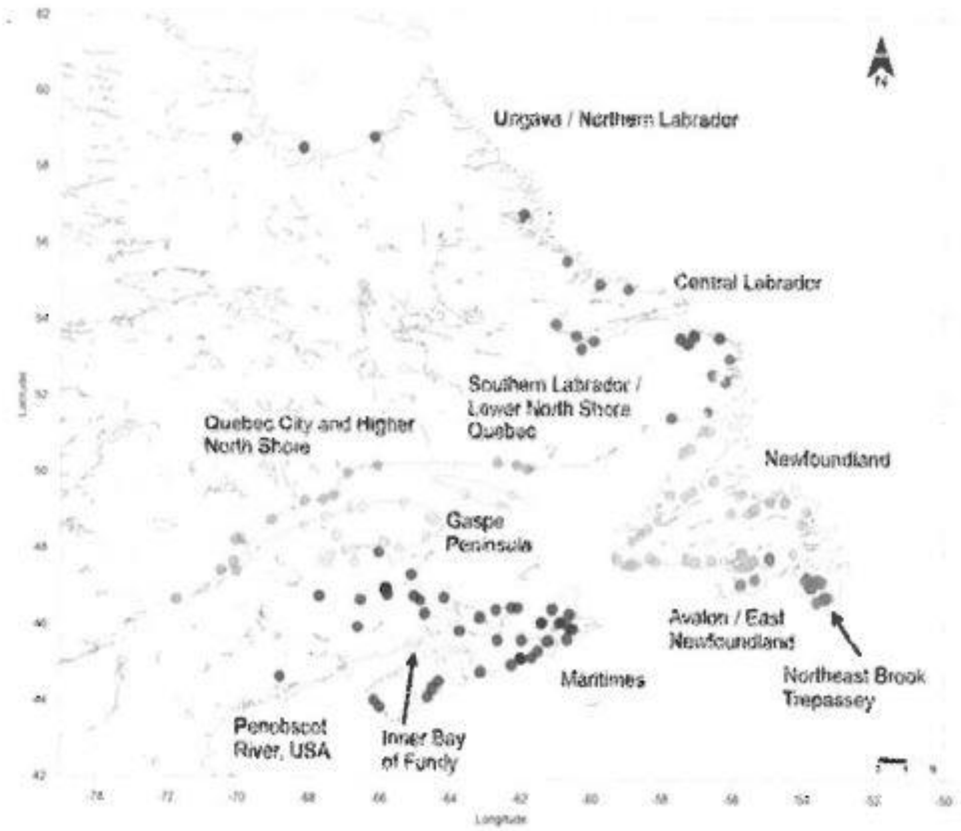

Figure 1: Map of baseline samples and reporting groups used in mixture and assignment analysis. Eleven reporting groups are included (See Methods for details regarding reporting groups). Figure from Bradbury et al. (in review).

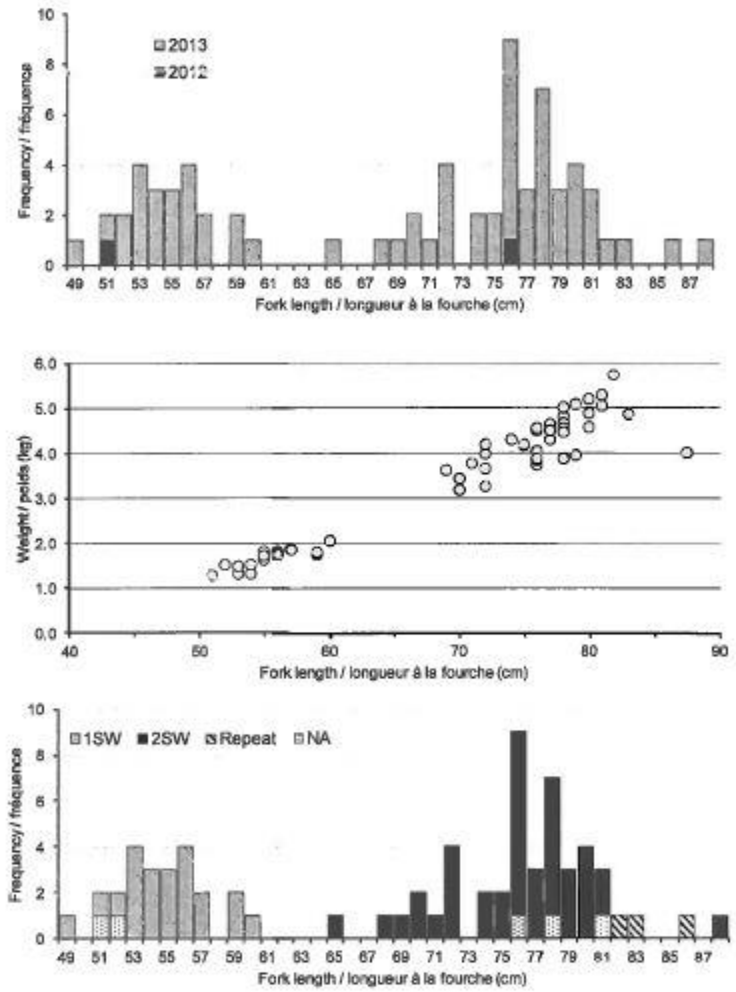

Figure 2: Biological characteristics of the Atlantic salmon sampled from the fishery at Saint-Pierre et Miquelon in 2013.

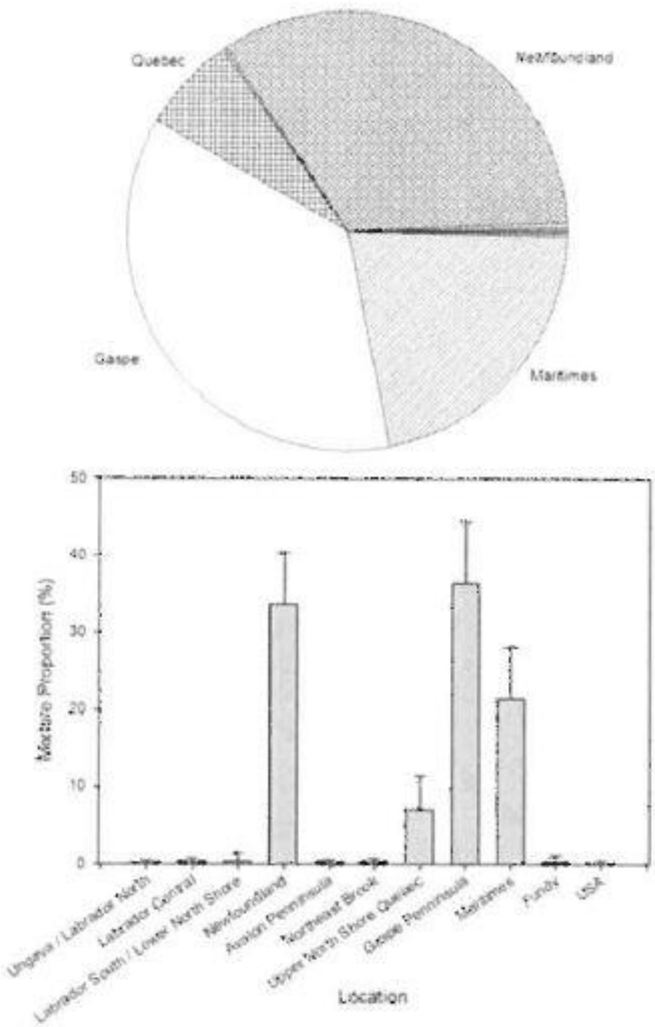

Figure 3: Mixture composition of fishery samples collected in Saint-Pierre et Miquelon in 2013. Eleven reporting groups are included (see Methods for details regarding reporting groups). Error bars represent standard deviation around estimate.

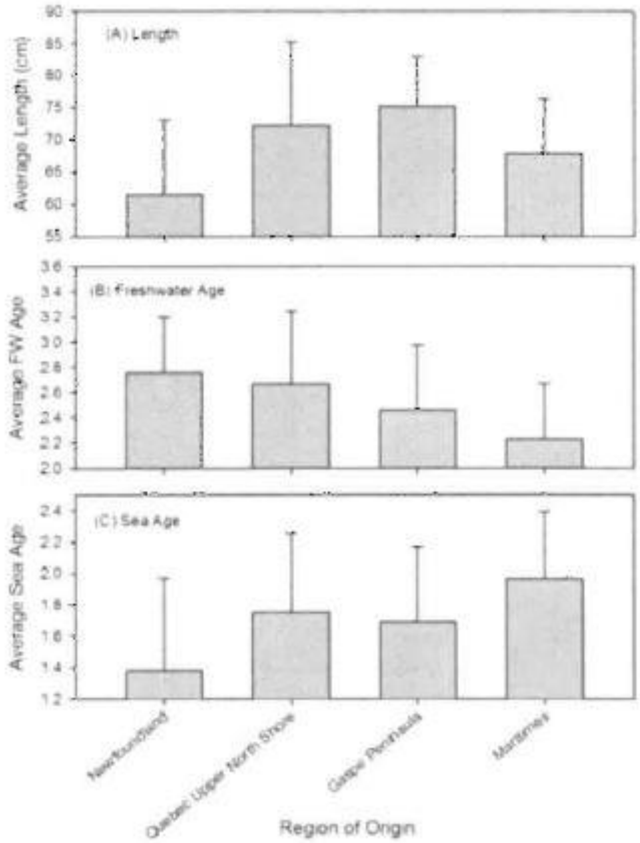

Figure 4: Average biological characteristics (A) length, (B) average freshwater age, and (C) average sea age of salmon sampled from the Saint-Pierre et Miquelon fishery in 2013, by region of origin as determined by genetic mixed stock analysis. Error bars represesnt standard deviation.

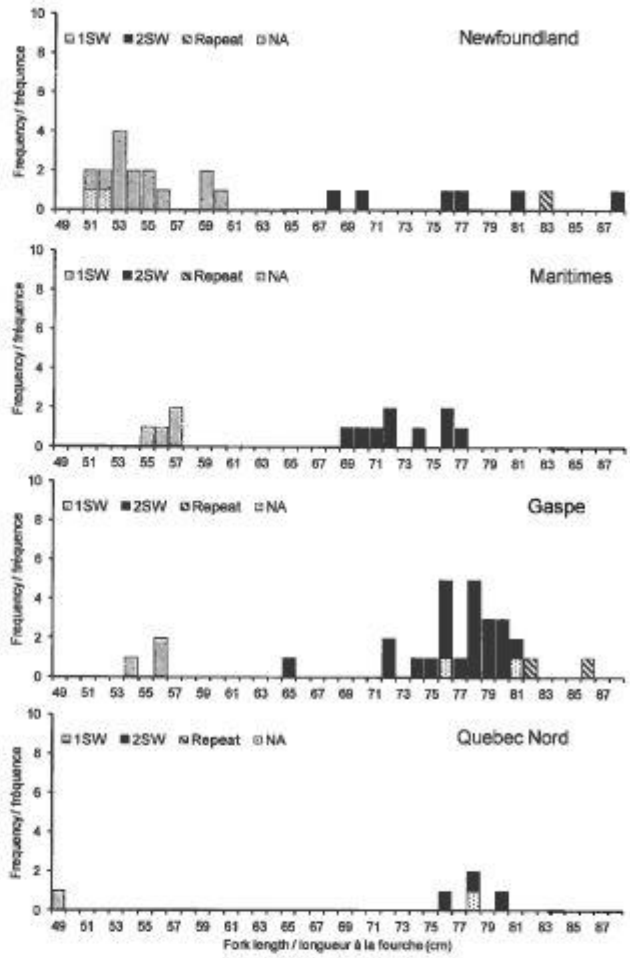

Figure 5: Fork length and sea age characteristics by assigned regional grouping of origin of Atlantic salmon sampled from the Saint-Pierre et Miquelon fishery in 2013. Two samples from 2012 are in the unaged (NA) category assigned to each of the Gaspe (76cm) and Newfoundland (51cm).

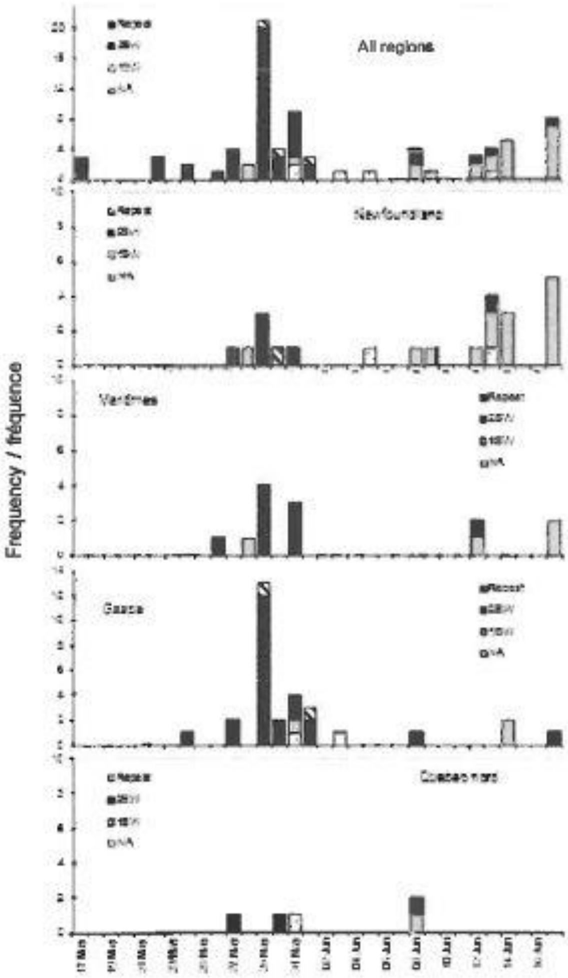

Figure 6: Timing of the samples from the Saint-Pierre et Miquelon fishery in 2013 by sea age group and assigned region of origin. Two samples from 2012 are in the unaged (NA) category assigned to each of Gaspe (3 June) and Newfoundland (5 June).

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RÉPUBLIQUE FRANÇAISE

PREMIER MINISTRE

Secrétariat général de la mer

Le Secrétaire général

N° 777/SGMER

Paris, 28 mai 2014

Madam,

France has the pleasure to welcome the upcoming annual meeting of the North Atlantic Salmon Conservation Organization (NASCO) in Brittany in Saint –Malo.

The status of France in respect of St-Pierre-et-Miquelon (SPM) holds our attention, but at this stage observer status seems satisfactory to meet our objectives. We would like, however, to emphasize that France in respect of SPM remains committed to close cooperation with NASCO and will pursue scientific cooperation with NASCO Contracting Parties.

We are truly pleased to participate, with increasing interest, in NASCO meetings, and to contribute to research on the Atlantic salmon with an ongoing sampling programme for age and genetic origin determination. Another step next year will be the collection of size and parasitism data for a significant number of salmons harvested around the islands. This has been made possible mainly by the decision to keep a permanent IFREMER scientist position in St Pierre, with additional human resources in both islands from the local State services (Pôle maritime) and, on the island of Miquelon, from the scientific staff, financed through the Office for the development of agriculture and aquaculture in overseas territories plus increasing involvement of the fishermen themselves.

Furthermore, I am pleased to send the report for the fishery in 2013:

- administrative information provided by the "Pôle maritime",
- scientific information by the IFREMER representative in St Pierre, in cooperation with DFO-Newfoundland and New Brunswick.

We would like to take this opportunity to sincerely congratulate you for your two mandates as president of NASCO.

Michel AYMERIC

Mrs Mary COLLIGAN
President of NASCO
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Annex 4

NAC(14)3

NAC Annual Report

United States, 2013
Submitted by: National Marine Fisheries Service
Date: 15 May 2014

1. Summary of Salmonid disease incidences

Renibacterium salmoninarum (causative agent of Bacterial Kidney Disease; BKD) was detected at two different Atlantic salmon net-pen facilities in Maine during the fall of 2013. Clinical signs were detected in some fish, but no elevated mortality was noted. All fish on both sites were treated with antibiotics for 14 days under veterinary supervision. Treatments have been effective at controlling the disease and mortalities. The remaining fish have been showing normal behavior and feeding regularly. Increased bio-security measures are being practiced to contain the disease on site and eliminate the likelihood of spreading between sites.

Renibacterium salmoninarum is considered a reportable pathogen in Maine. The Maine Department of Marine Resources (MDMR) Chapter 24 regulations define reportable pathogens as "those infectious agents of regulatory concern whose geographic distribution within the State of Maine is not fully known, but whose presence may pose a threat to wild or farmed marine organisms." The full regulations may be found at the following link: http://www.maine.gov/dmr/lawsandregs/regs/24080313emergency.pdf.

There were no plans to move or transfer the fish to any other facilities (MDMR's Chapter 24 regulations prohibit marine to marine transfers without a permit). MDMR consulted with the Aquatic Animal Health Technical Committee (AAHTC) regarding management options. The following actions were taken to contain or eradicate the pathogen:

- Mortality is monitored daily; mortalities collected 3 times a week.
- Strict disinfection and biosecurity protocols are being practiced.
- Contact with other sites is restricted.
- Sites are under supervision of a veterinarian who is monitoring weekly updates and reviewing results from disease surveillance.
- Sites were stocked in spring 2013 and are planned to be harvested fall 2014.

Approximately one month later, MDMR was notified of positive test results for BKD at a commercial aquaculture hatchery in Maine. Elevated mortality was not observed, but the pathogen was detected in several year classes during routine surveillance. Biosecurity measures and routine health surveillance have been increased. All broodstock in this facility underwent 100% lethal screening by Real Time PCR. The eggs from any broodstock that tested positive were culled, and all fry lots were tested prior to distribution to other facilities for rearing. A final report of all broodstock screening was submitted to MDMR upon completion of spawning. On March 12, 2014, the hatchery underwent a routine fish health inspection with screening of all lots on site. BKD, while detected at low levels during fall screening, was not detected during spring 2014.

U.S. Point of Contact on Disease:

David Bean
Fisheries Biologist
NOAA's National Marine Fisheries Service
Maine Field Station
17 Godfrey Drive
Orono, Maine 04473 USA
Phone: 207-866-4172
Fax: 207-866-7342
Email: David.Bean@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	Date
North American origin farmed Atlantic salmon	66 individuals	Smolts – roughly 200 grams	Prince Cove, Cobscook Bay, Maine	No recapture attempted.	Interaction with fishing boat	25 June 2013
North American origin farmed Atlantic salmon	Unknown, but likely less than 50	4-5 kg	Deep Cove, Cobscook Bay, Maine	No fish were observed escaping; tear in net was repaired immediately and no recapture attempted.	Equipment malfunction (ripped net)	21 November 2013

Notes: The annual report for actions taken under the U.S. Implementation Plan shows only one escape event (the second event identified above). Federal permits for U.S. commercial aquaculture operations in Maine require reporting any escapes of 50 fish or greater, and specifically for marine sites; only fish larger than 2 kg or a loss of greater than 25% of cage biomass for fish smaller than 2 kg are reported (i.e., reportable escape). Accordingly, the events in the table above were technically not “reportable escape” events. For the purposes of transparency, however, we have included these in the table above as these were the only two known breaches of containment occurring in 2013. The first escape of 66 smolts was part of a small-scale research study being conducted in Cobscook Bay to investigate sea lice abundance. The study design included deploying 4 small sentinel cages that were strategically placed throughout the Bay, each of these cages held approximately 70 smolts for one week. After one week fish were removed from the cage and new fish were stocked. During the study, a commercial fishing vessel inadvertently dragged one of the cages and destroyed the gear. After the cage was recovered the next day, it was reported all of the fish were missing (66 smolts). The second event listed was a report from a marine site and occurred during a sea lice treatment; while providing oxygen to the fish during the bath treatment, one of the oxygen stones ripped a hole in the net. Since there were divers on site and in the water, the hole was repaired immediately; no fish were observed escaping.

There were no suspected aquaculture-origin captures in rivers in Maine in 2013. There were, however, seven in 2012. The incident reports from the fall of 2012 indicated the fish were all commercially reared with the majority not showing any external secondary characteristics of being sexually mature; however, one fish captured was a sexually mature female. The fish ranged in size from around 2 kg to over 6 kg. Preliminary genetic analyses conducted on these fish indicated that only one fish was of U.S. origin. However, final results received in July and November of 2013, indicated two fish captured in the Union River (Sept. 12 and 13, 2012) and two fish captured in the Penobscot River (Oct 5 and 8, 2012) were from U.S. farm sites; the remaining fish did not match any spawning pairs in either of the databases. All fish tested were of North American origin. Additionally, no fish matched any parents in the U.S. Fish and Wildlife Service conservation hatchery program database. No diseases of concern were detected. Follow up meetings with the U.S. Army Corps of Engineers, Cooke Aquaculture, MDMR, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Maine Department of Environmental Protection are being conducted to resolve any outstanding data needs and to determine the cause of the escapes.

Following the reports of these fish capture events, the MDMR reviewed their suspected aquaculture origin (AQS) protocol following concern that the notification contact list was outdated. There had been no AQS intercepts in the previous five years, so MDMR aquaculture and sea run fisheries staff took this opportunity to review the entire protocol. MDMR’s review found that existing identification protocol was robust and the AQS designations in 2011 and 2012 were made by experienced MDMR biologists. Accordingly, significant changes were made to the notification protocol only. The most significant revisions to the notification protocol are the establishment of a two-phase process with notification via email instead of phone to speed up the notification process.

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]	Date
Salmo trutta (Iijoki River strain)	50,000	Eyed egg (to support culture and release of 1-year smolts)	Taivalkoski Hatchery, Finland	Two small streams that flow directly into Long Island Sound	Promote a sea-run trout fishery	January 2014

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 (as processed product only) and human consumption within the United States. A New Animal Drug Application (NADA) was submitted by a private biotechnology company called Aqua Bounty for fish being grown outside of the United States and proposed to be sold in select retail stores labeled as AquaAdvantage® salmon (AAS). The application is being 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 draft environmental assessment (DEA) included an evaluation of effects from 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 United States. A preliminary Finding of No Significant Impact (FONSI) and DEA completed by the FDA were published in the Federal Register (77 FR 76050). An extended public comment period ended on April 26, 2013. Public comments are considered before any final decision and approval is made by the FDA. No decision has been announced.

Annex 5

NAC(14)4

NAC Annual Report (tabled by Canada)

Canada, 2013
Submitted by: Fisheries and Oceans Canada
Date: May 2014

1. Summary of salmonid disease incidents

Under the *Health of Animals Act*, Canada lists significant aquatic animal diseases which, when suspected or found, must be reported to the Canadian Food Inspection Agency (CFIA) for further investigation in order to prevent the introduction of and spread of disease. The disease lists include diseases of concern for protection of domestic aquatic animal resources and for international trade.

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 World Organization for Animal Health (OIE) is the international standard setting body for aquatic animal health. Accordingly, CFIA reports to the OIE, following the OIE's *Aquatic Animal Health Code* and *Manual of Diagnostic Tests for Aquatic Animals*. Canada reports on all notifications of disease that are confirmed by the CFIA. Canada notifies the OIE following the standards set out in the Aquatic Animal Health Code.

There are several types of CFIA reports to the OIE (http://www.oie.int/):

- Immediate notification of OIE-listed diseases when an exceptional epidemiological event occurs; for Canada, an exceptional event would be the presence of a new disease, or finding a known disease in a new location or in a new species. Once verified by the OIE, notifications are distributed to the Delegates of Member Countries, the OIE Reference Laboratories and Collaborating Centres and international and regional organizations.
- Affected country submits weekly follow-up reports describing progress and results of the applied control measures.
- Affected country provides a final report once the event has been brought under control and there are no new reported outbreaks.
- Semi-annual and annual reports provide information on the presence or absence of diseases listed by the OIE in the country and the prevention and control measures applied.

Information submitted to the OIE can be viewed by the public on the World Animal Health Information Database Interface (WAHID). Data is provided on animal diseases, per country, region, week, month and year. The database also compiles country animal population, exceptional epidemiological events maps, global animal diseases distribution maps or comparative disease status between two countries.
(http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home)

Of note, Canadian regulations also include diseases not listed in the OIE Aquatic Animal Health Code. Information on all confirmed findings of regulated diseases on a monthly basis can be found on the CFIA website at:
http://www.inspection.gc.ca/animals/aquatic-animals/diseases/reportable/2014/eng/1339174937153/1339175227861.

The CFIA also maintains information on the status in Canada of reportable diseases and immediately notifiable diseases:
http://www.inspection.gc.ca/animals/aquatic-animals/exports/eng/1299156521180/1320599162614.

Contact Points:

- Disease Status in Canada: Dr. Debbie Barr, Director, Animal Health, Biosecurity and Welfare Division, Programs and Policy Branch, CFIA. Debbie.barr@inspection.gc.ca

- International Trade: Dr. Francine Lord, Director, Animal Import/Export Division, Programs and Policy Branch, CFIA. Francine.lord@inspection.gc.ca

- Fisheries and Oceans Contact: Alastair Struthers, Director, Aquaculture Management Directorate, Fisheries and Oceans Canada. Alastair.Struthers@dfo-mpo.gc.ca

- Fisheries and Oceans Contact: Jay Parsons, Director, Oceans and Science, Fisheries and Oceans Canada. Jay.Parsons@dfo-mpo.gc.ca

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	Date of breach
Atlantic Salmon (Saint John River)	1000-1500	300 grams	Western Passage, Deer Island, NB	None	Torn net due to extreme high tide	June 24, 2013
Atlantic salmon	20,500	4.5kg	South Coast, NL	Directed Marine recapture fishery and experimental freshwater fishery ongoing.	Extreme weather caused cage to submerge and collapse.	Sept 18, 2013
Atlantic Salmon	200	4.5kg	South Coast, NL	None	Harvest error	May 15, 2013
Arctic Charr	Estimate* unavailable;	1.5kg	South Coast, NL	Recreational fishery; no catch reporting required.	Net damage – 0.5m tear in net bottom.	May 25, 2013
Rainbow Trout	2	60g	South Coast, NL	None	Offloading handling error.	June 5, 2013
Rainbow Trout	Estimate* unavailable	1.9kg	South Coast NL	Coastal waters; no bag limit recreational fishery. No catch reporting required.		July 5, 2013
Atlantic Salmon	Estimate* uncertain	3.5-4.5kg	South Coast, NL	Gillnet and recreational fishery in inland waters	Winter storm, escaped fish observed in coastal and inland waters in spring.	Unknown

*Estimates were unavailable because inventory reconciliation was not complete. The companies have indicated that feed responses pre- and post-incident were not materially different, and believe the losses were not significant.

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 the 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

Species (strain, if applicable)	Number	Life Stage	Origin [1]	Destination [2]	Purpose [3]
Saga strain*	13,946	eggs	Iceland	Nova Scotia	Aquaculture in land-based closed containment facility

*** Nova Scotia**

An Introductions and Transfers license was issued to a Nova Scotia company for the importation of European (Saga strain) Atlantic salmon eggs from an Icelandic facility to a land-based closed containment aquaculture facility in Nova Scotia.

The review of the license application assessed genetic, ecological and disease factors and determined that the introductions represented a low risk to fish and fish habitat. A site visit of the receiving facility concluded that the facility can accommodate European strain Atlantic salmon eggs for commercial grow out as it was found to have design and protocols in place to adequately protect against escapes.

The company has indicated it has no intentions or desire to produce fish for use in marine grow out sites and has stated that fish will never leave the land-based facility during their production life cycle. All market-size fish are to be killed on site and sent to a local processing facility. Should the client deviate from their original plan, they will be required to submit an application to the DFO Introductions and Transfers Committee for review and consideration.

Newfoundland and Labrador

In 2013, Icelandic-origin Atlantic salmon eggs were brought in to a land-based closed-containment facility in Newfoundland under an import permit from the Canadian Food Inspection Agency. The eggs were imported for research purposes. Neither the eggs nor the resulting fish were moved from the facility, and the fish were destroyed following completion of experimentation.

In 2013, Fisheries and Oceans Canada, under the Canadian Science Advisory Secretariat (CSAS), conducted a study to better inform future decision-making on the use of European-origin broodstock in Newfoundland. This report was completed in November 2013 (http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2013/2013_050-eng.pdf), and confirmed the possibility of ecological and genetic risk to wild Atlantic salmon and their habitats.

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

In August 2013, based on a rigorous, peer-reviewed environmental and indirect human health scientific risk assessment (see http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2013/2013_023-eng.html), Canada approved the commercial production of growth-enhanced, transgenic Atlantic salmon (AquAdvantage® Salmon) in contained facilities as prescribed in Section 3 of Significant New Activity Notice No. 16528 published in Vol. 147, No. 47 of the *Canada Gazette, Part 1* on November 23, 2013 (http://www.gazette.gc.ca/rp-pr/p1/2013/2013-11-23/html/notice-avis-eng.html#d106).

<u>Annex 6</u>

CNL(14)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 2014[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[3];
1.4 provide a compilation of tag releases by country in 2014; and
1.5 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 2014 fisheries[4];
2.2 review and report on the development of age-specific stock conservation limits;
2.3 describe the status of the stocks;
2.4 provide catch options or alternative management advice for 2015/16-2017/18 fishing seasons, with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding[5];
2.5 advise on options for taking into account the recent genetic analysis that suggests there was a significant contribution of North American origin stocks to historic mixed-stock fisheries in Faroese waters for the provision of catch advice[6];
2.6 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice; and
2.7 advise on what data would enhance the development of the catch options.

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

3.1 describe the key events of the 2014 fisheries (including the fishery at St Pierre and Miquelon)[4];
3.2 update age-specific stock conservation limits based on new information as available;
3.3 describe the status of the stocks;
3.4 provide catch options or alternative management advice for 2015-2018 with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, 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;

3.6 considering the available contemporary data on stock origin of salmon in the Labrador fisheries, estimate the catches by stock origin and describe their spatial and temporal distribution; and
3.7 considering the available contemporary data on stock origin of salmon in the Saint-Pierre et Miquelon fishery, estimate the catches by stock origin and describe their spatial and temporal distribution.

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

4.1 describe the key events of the 2014 fisheries[4];
4.2 describe the status of the stocks[7];
4.3 provide catch options or alternative management advice for 2015-2017 with an assessment of risk relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, 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; and
4.5 considering the available contemporary data on stock origin of salmon in the West Greenland fishery, estimate the catches by stock origin and describe their spatial and temporal distribution.

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. *With regards to question 1.3, NASCO is particularly interested in case studies highlighting successes and failures of various restoration efforts employed across the North Atlantic by all Parties/jurisdictions and the metrics used for evaluating success or failure.*
4. *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. Information on any other sources of fishing mortality for salmon is also requested.*
5. *In response to questions 2.4, 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 2.5, this should include consideration of the implications of the new genetic results with regard to the factors previously identified by ICES as requiring management decisions for the finalization of the risk framework for the provision of catch advice for the Faroes fishery (i.e. annual or seasonal catch advice, sharing arrangement, choice of management units to consider and specified management objectives).*
7. *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.*

Attendees:
Elena Samoylova (NEAC, manager representative)
Peder Fiske (NEAC, scientist representative)

Tony Blanchard (NAC, manager representative)
Tim Sheehan, Chairman (NAC, scientist representative)

Katrine Kaergaard (WGC, manager representative)
Ted Potter (WGC, scientist representative)

Ian Russell (ICES representative, Observer)

New questions, originator:

- 2.5, NEAC
- 2.7, EU
- 3.6, USA
- 3.7, USA
- 4.5, USA

Annex 7

List of North American Commission Papers

NAC(14)1	Provisional Agenda
NAC(14)2	Draft Agenda
NAC(14)3	NAC Annual Report (Tabled by the US)
NAC(14)4	NAC Annual Report (Tabled by Canada)
NAC(14)5	Draft Report of the Thirty-First Annual Meeting of the North American Commission
NAC(14)6	Agenda
NAC(14)7	Report of the Thirty-First Annual Meeting of the North American Commission
NAC(14)8	ICES Presentation to the North American Commission

REPORT OF THE

THIRTY-FIRST ANNUAL MEETING OF

THE

NORTH-EAST ATLANTIC COMMISSION

3 – 6 JUNE 2014
Saint-Malo, France

Chairman:	Mr Raoul Bierach (Norway)
Vice-Chairman:	Dr Ciaran Byrne (European Union)
Rapporteur:	Mr Marc Owen (European Union)
Secretary:	Dr Peter Hutchinson

NEA(14)5

CONTENTS

NEA(14)5

Report of the Thirty-First Annual Meeting of the North-East Atlantic Commission of the North Atlantic Salmon Conservation Organization

Le Nouveau Monde Hotel, Saint-Malo, France

3 - 6 June 2014

1. Opening of the Meeting

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

1.2 Because of the change to the meeting structure in 2014 to allow for a one-day Theme-based Special Session to be held, the Council had agreed that there would be no oral statements at the Opening Sessions of the Council and Commission meetings. A joint Opening Statement on behalf of the Non-Government Organisations (NGOs) attending the Annual Meeting of the Commission was distributed (Annex 1).

1.3 A list of participants at the Thirty-First Annual Meeting of the Council and Commissions is included on page 325 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, NEA(14)7 (Annex 2).

3. Nomination of a Rapporteur

3.1 Mr Marc Owen (European Union) was appointed as Rapporteur for the meeting.

4. Election of Officers

4.1 Dr Ciaran Byrne (European Union) was elected Chairman of the Commission and Dr Konstantin Drevetnyak (Russian Federation) was elected as its Vice-Chairman. The Commission thanked the Chairman for his excellent work over the last four years.

5. Review of the 2013 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5.1 The representative of ICES, Mr Ian Russell, presented the scientific advice on salmon stocks relevant to the North-East Atlantic Commission, CNL(14)8. The presentation is available as document NEA(14)6. The Advisory Committee (ACOM) report from ICES, which contains the scientific advice relevant to all Commissions, is included on page 275 of this document.

5.2 The Chairman thanked the representative of ICES for the presentation and asked whether Parties wished to ask any questions related to the presentation.

5.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that there has been no salmon fishery at the Faroe Islands for a number of years, but stocks are still not in a healthy condition. Acknowledging that it is a complex issue he asked whether the representative of ICES could advise what the main reasons for this may be. The representative of ICES responded that marine survival had been low since the 1990s and that there had been changes at sea, such as broad changes in ecosystems in the North Atlantic, that could have affected, for example, the availability of food.

5.4 The representative of the NGOs noted that the fact that the Southern NEAC stock as a whole is above its Conservation Limit (CL) masks big differences in stock status among jurisdictions, and asked whether the ICES representative could comment on the make-up of the stock. The representative of ICES acknowledged that the overall status of the Southern NEAC stock masks differences among rivers but indicated that the ICES website and WGNAS report should be referred to as they provide more information on individual countries. The representative of the NGOs acknowledged this but noted that it can give a skewed view and asked whether this issue could be considered for future presentations at NASCO/NEAC meetings? The representative of ICES stated that this would be borne in mind.

5.5 The representative of Denmark (in respect of the Faroe Islands and Greenland) asked whether scientific fisheries should be prosecuted with the aim of improving available data, given that ICES is working with old data. He also noted that genetic analysis of historical scale samples had indicated that North American salmon were present in the Faroese fishery area. The representative of ICES acknowledged that new data would be useful.

5.6 The Chairman indicated that consideration of the issue of by-catch is part of the Council's 'Action Plan', and that it would be wise to avoid duplication. The Council might decide if further action was needed, possibly including the need for an additional request to ICES. The representative of ICES stated that the ICES WGNAS already has a fairly challenging work schedule for 2015 particularly given this will be a full catch advice year.

5.7 The representative of the European Union noted the importance of new research/data, given the changed circumstances and the age of data being used. She stated that the EU supports discussion at NASCO to this end, including on a research protocol. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated he wanted to continue to have a dialogue with other Parties. The Chairman asked whether, following ICES recommendations further consideration of this matter should be referred to the Council; this was agreed by the Commission.

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

6.1 At the Commission's Twenty-Sixth Annual Meeting in 2009, the Chairman had noted that ICES had been unable to make progress in developing quantitative catch advice because the Commission had not agreed on appropriate management units or explicit management objectives for those units, and that there was no pre-agreed sharing agreement among NASCO Parties. Since 2010, the Commission had discussed the possible development of a Risk Framework for the Faroese fishery that would be needed before ICES could provide quantitative catch advice. The Commission had provided feedback to ICES on an appropriate sharing mechanism based on the catch share in the period 1984 – 1988 but not on the other elements. In the absence of such feedback from the Commission, ICES had developed a risk-based framework for providing catch advice for fish exploited in this fishery (mainly non-maturing 1SW fish from NEAC countries). Catch advice had been provided in 2013 at both the stock complex and country level and catch options tables provide both individual probabilities and the probability of simultaneous attainment of proposed management objectives. ICES had recommended that management decisions should be based principally on a 95% probability of attainment of CLs in each stock complex / country individually. The simultaneous attainment probability may also be used as a guide, but ICES had highlighted the need for managers to be aware that this will generally be quite low when large numbers of management units are used.

6.2 At the Thirtieth Annual Meeting, the representative of Denmark (in respect of the Faroe Islands and Greenland) had advised the Commission that it was not able to move forward on agreeing a Risk Framework but agreed to consider this issue further at the Thirty-First Annual Meeting.

6.3 The Commission agreed that it would be important to make further progress on this issue prior to negotiations in 2015 for a new regulatory measure/decision for the Faroese fishery to apply from 2016. The Chairman asked whether it would be possible to bring this to a conclusion during the Thirty-First Annual Meeting of the Commission. The representative of ICES made a short presentation updating members of the Commission on progress with this issue to date.

6.4 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that his delegation would be willing to follow ICES advice provided in 2015, and that a new regulation could be put in place that utilised the Framework of Indicators. There would be consultations on this matter in the Faroe Islands.

6.5 The Chairman noted that the presence of North American stocks was not included in the previous advice/recommendations provided by ICES on the Risk Framework. The Commission agreed a new question to ICES to address this issue.

7. Regulatory Measures

7.1 At the Twenty-Ninth Annual Meeting a multi-annual Decision regarding the salmon fishery in Faroese waters in 2013, 2014 and 2015 (NEA(12)7) was agreed, together with a Framework of Indicators (FWI). The Commission had agreed that the same procedure as that used in the West Greenland Commission would be used to apply the FWI in the North-East Atlantic Commission and this had been done in 2013. The Commission had agreed that the same approach should be used again in 2014.

7.2 A report describing the work of the FWI Working Group was tabled (NEA(14)3) and introduced by the Group's Coordinator, Mr Ian Russell. The Group had advised that the results of the assessment in 2014 are consistent with the previous PFA forecast for three of the four stock complexes while for the fourth stock complex (Northern NEAC MSW salmon) the FWI suggested that the forecast of PFA was an over-estimate. The Group had, therefore, concluded that 'no reassessment of the existing management advice for the Faroes fishery is required from ICES in 2014'. In accordance with the request for scientific advice adopted by the Council last year, ICES had been advised that it would not need to provide catch options or alternative management advice for the NEAC area in 2014. The Commission noted that the Decision adopted in 2012 will continue to apply to the 2015 fishery.

7.3 On behalf of Norway and the Russian Federation, the representative of the Russian Federation provided an update on discussions with Norway on matters of common interest in salmon management, which were discussed at a meeting between the two Parties in April 2014, and at which plans for new regulatory measures for the whole of Norway from 2016 were presented, together with information on the process for phasing-out bend net fishing in Finnmark by 2018. Russia was supportive of Norway's plans for new regulations to be implemented from 2016, and welcomed plans to ban bend nets, but due to the high proportion of salmon originating from Russian rivers taken in the sea fishery in the Varangerfjord, Russia insisted that new measures aimed at reducing the catch of Russian salmon in that region be implemented in 2015. It was agreed that, as before, Russia will be consulted on proposals for new regulations for 2016 and informed of progress in phasing-out bend nets in Finnmark. Norway and Russia agreed that regulation in Finnmark should be handled cooperatively, and that future cooperation would be facilitated by a Memorandum of Understanding (MoU) covering cooperation on research, monitoring, scientific advice and management. Russia and Norway will aim to sign such a MoU in Autumn 2014. The representative of Norway confirmed that its Environment Agency will investigate how catches of salmon originating in Russian rivers could be reduced in the Varangerfjord from 2015, and that the Russian Federation would be carefully consulted. He emphasised that the Varangerfjord fishery is historical and of significant importance for Sami culture and economic life and that making possible future restrictions would be a demanding task.

7.4 The representative of the Russian Federation made a statement on its position with regard to these issues. Russia appreciates that this is a difficult issue requiring the right balance between salmon conservation and indigenous peoples' interests. However, it is concerned about the large proportion of salmon from Russian rivers taken as catch in northern Norway, particularly given the overall decline in salmon abundance in the North Atlantic and its uncertain future prospects, and Russia's salmon conservation efforts at home where there is no sea fishery in the Barents Sea and catch and release fishing is predominantly exercised in recreational fisheries (including on the rivers from which salmon are intercepted in Norwegian waters). Russia strictly regulates all salmon fisheries, including by TAC and quotas, with a goal to maintain Russian salmon stocks in as healthy condition as possible given the contemporary challenges. She indicated that Russia also wants the resource to provide maximum possible benefit in Russia i.e. employment and income to local people, who sometimes do not have any other means to earn a living. Conservation of stocks and Norway's interception of salmon returning to Russian rivers has been the main reason for Russia's dialogue with Norway over the last years, with Russia's objective being for further steps to be taken and measures to be adopted to further reduce sea catches of salmon, first and foremost in areas where large catches of Russian salmon take place, such as the Varangerfjord, as has again been confirmed by recent findings from the Kolarctic-salmon project. Russia's intention is to continue the dialogue with Norway on this issue; Russia wishes to move this matter forward together to find a solution acceptable to both Parties.

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

8.1 While the Working Group on *G. salaris* in the North-East Atlantic Commission area had not met since 2008, the Commission had agreed to retain an agenda item on this issue so as to monitor developments in relation to the parasite.

8.2 The Chairman asked whether Parties had any updates to provide on their work to manage *G. salaris.* The representative of Norway reported that efforts to eradicate *G. salaris* will be continued in Norway as planned. The five infected rivers in the Rauma region (where NASCO's Annual Meeting was held in 2009) will be treated with rotenone for the second time this year. Norway will also do the necessary planning and mapping of two infected rivers in the Skibotn region with the aim of treatment of the rivers, which were last treated five years ago, to eradicate the parasite by the end of this year. If this is successful, Norway will have reduced the number of infected rivers from 49 to 7 by 2016.

8.3 The representative of the European Union gave a short update on the situation in Sweden, where a regulation was introduced in two steps (in 1999 and 2003) to prevent infestation in rivers. The last infection was in 2005. There are a number of Swedish rivers – all those emptying in Skaggerrak north of Gota alv – which are now declared free of the parasite. How the infections of *G. salaris* proceed in infected rivers and the impact on salmon stocks are followed up by a monitoring programme. There are indications that *G. salaris* does not have such a large impact on Swedish salmon stocks as it does on those in Norway, and that impact is declining over time, after the first documented infection. There is no plan to treat infected rivers with rotenone given the secondary effects of rotenone on the whole ecosystem.

8.4 The representative of the European Union indicated that rotenone is not approved in the EU as a biocide as a proper risk assessment has not been undertaken, but that it may be used by EU Member States as an emergency measure when other measures have been exhausted. The representative of the European Union also noted that there is a current regulatory proposal for the EU on invasive alien species. This is being discussed by the European Parliament and the European Council. *G. salaris* was one species covered by the Impact Assessment carried out in preparing this proposal. The proposed regulation will require EU Member States to have plans in place to intervene and to prevent introduction of *G. salaris* where possible.

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 6 May. The winning tag had been applied to a MSW female salmon at Chester Weir on the

River Dee in England. It was recaptured one week later at Corwen on the River Dee and subsequently released. The winner of the Commission's $1,500 prize was Mr Fred Miers, of Denbighshire, 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 Chairman noted that the Commission needed to appoint a second representative to the Standing Scientific Committee (SSC); a manager and a scientist from each Commission are SSC members, and a manager from NEAC needed to be appointed. The Commission appointed Ms Elena Samoylova (Russian Federation).

10.2 The Commission decided to refer the request for scientific advice from ICES to the Council. The request to ICES, as agreed by the Council, is contained in document CNL(14)10 (Annex 3).

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 Thirty-Second 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 77, following the French translation of the report of the meeting. A list of North-East Atlantic Commission papers is included in Annex 4.

NEA(14)5

Compte rendu de la trente-et-unième session annuelle de la Commission de l'Atlantique du Nord-Est de l'Organisation pour la conservation du saumon de l'Atlantique Nord Hôtel le Nouveau Monde, Saint-Malo, France

3 - 6 juin 2014

1. Ouverture de la session

1.1 Le Président, M. Raoul Bierach (Norvège), a ouvert la session et accueilli les délégués à la trente-et-unième session annuelle de la Commission.

1.2 Du fait du changement de structure de la session en 2014 pour permettre que se tienne une session spéciale thématique d'une journée, le Conseil a convenu qu'il n'y aurait pas de déclarations orales à l'ouverture de la session du Conseil et des sessions des Commissions. Une déclaration d'ouverture jointe au nom des Organisations non-gouvernementales (ONGs) présentes à la session annuelle de la Commission a été distribuée (Annexe 1).

1.3 Une liste des participants à la trente-et-unième session annuelle du Conseil et des Commissions est incluse en page 325 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour, NEA(14)7 (Annexe 2).

3. Nomination d'un rapporteur

3.1 M. Marc Owen (Union européenne) a été nommé Rapporteur pour la session.

4. Election des Membres du Bureau

4.1 Le Dr Ciaran Byrne (Union européenne) a été élu Président de la Commission et le Dr Konstantin Drevetnyak (Fédération de Russie) a été élu Vice-président. La Commission a remercié le Président pour son excellent travail au cours des quatre dernières années.

5. Examen de la pêcherie de 2013 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. Ian Russell, a présenté les conseils scientifiques adéquats sur les stocks de saumon à la Commission de l'Atlantique du Nord-Est, CNL(14)8. La présentation est disponible dans le document NEA(14)6. Le compte-rendu du Comité consultatif (ACOM) du CIEM, qui contient les conseils scientifiques pertinents pour toutes les Commissions, est inclus en page 275 du présent document.

5.2 Le Président a remercié le représentant du CIEM pour la présentation et demandé aux Parties si elles avaient des questions à poser concernant la présentation.

5.3 Le représentant du Danemark (pour les îles Féroé et le Groenland) a noté qu'il n'y avait pas eu de pêcherie au saumon aux îles Féroé depuis un certain nombre d'années, mais que l'état des stocks n'était toujours pas très sain. Il a reconnu qu'il s'agissait d'une question complexe et a demandé si le représentant du CIEM pouvait faire part des raisons principales probables. Le représentant du CIEM a répondu que la survie marine avait été basse depuis les années 1990 et que des changements en mer, tels que de vastes changements des écosystèmes en Atlantique du Nord, ont pu affecter, par exemple, la disponibilité alimentaire.

5.4 Le représentant des ONGs a noté que le fait que le niveau de stock du Sud de la CANE dans son ensemble se trouve au-dessus de sa Limite de conservation (CL) masque de grandes différences en matière de statut de stock entre les juridictions, et a demandé si le représentant du CIEM pourrait commenter la constitution du stock. Le représentant du CIEM a reconnu que le statut du stock du Sud de la CANE dans son ensemble masque des différences selon les rivières mais a indiqué qu'il fallait se référer au site web du CIEM et au compte-rendu WGNAS puisqu'ils fournissent davantage d'informations sur les pays individuels. Le représentant des ONGs a reconnu ceci mais a noté que ceux-ci peuvent donner une vision erronée, il a donc demandé si ce problème pouvait être étudié et faire l'objet de présentations futures aux sessions de l'OCSAN/ la CANE? Le représentant du CIEM a déclaré qu'ils en tiendraient compte.

5.5 Le représentant du Danemark (pour les îles Féroé et le Groenland) a demandé si les pêcheries scientifiques devaient être poursuivies en justice dans le but d'améliorer les données disponibles, étant donné que le CIEM travaille avec des données anciennes. Il a aussi noté que l'analyse génétique d'échantillons historiques avait indiqué que le saumon Nord-américain était présent dans la zone de pêche féringienne. Le représentant du CIEM a reconnu que de nouvelles données seraient utiles.

5.6 Le Président a indiqué que l'étude du problème de prises accessoires fait partie du Plan d'action du Conseil, et qu'il serait judicieux d'éviter les duplicats. Si nécessaire, le Conseil pourrait décider des mesures supplémentaires, y compris potentiellement une demande supplémentaire auprès du CIEM. Le représentant du CIEM a déclaré que le CIEM WGNAS a déjà un calendrier de travail chargé pour 2015 en particulier il s'agira en effet d'une année consultative complète sur les prises.

5.7 La représentante de l'Union européenne a noté l'importance de nouvelles recherches/données, étant données le changement des circonstances et l'âge des données utilisées. Elle a déclaré que l'UE entretien une discussion à l'OCSAN dans ce but, y compris une discussion sur un protocole de recherche. Le représentant du Danemark (pour les îles Féroé et le Groenland) a indiqué qu'il souhaitait poursuivre un dialogue avec d'autres Parties. Le Président a demandé si, suite aux recommandations du CIEM une étude plus avancée sur cette question devrait être référée au Conseil ; ceci a été accepté par la Commission.

6. Progrès dans l'élaboration d'un cadre des risques pour la pêcherie féringienne

6.1 Lors de la vingt-sixième session annuelle de la Commission en 2009, le Président avait souligné que le CIEM avait été incapable de faire progresser le développement des conseils quantitatifs sur les prises parce que la Commission n'avait pas accepté d'unités de gestion appropriée ou des objectifs de gestion explicites pour ces unités, et qu'aucun accord partagé n'était convenu à l'avance entre les Parties de l'OCSAN. Depuis 2010, la Commission avait discuté du développement possible d'un Cadre des risques nécessaire pour la pêcherie féringienne avant que le CIEM n'ait pu fournir des conseils quantitatifs sur les prises. La Commission avait fourni des comptes rendus au CIEM relatifs à un mécanisme de partage adéquat fondé sur le partage des prises au cours de la période 1984 – 1988 mais pas sur les autres éléments. En l'absence de tels comptes rendus de la part de la Commission, le CIEM a développé un cadre des risques pour fournir des conseils sur les prises pour le poisson exploité dans cette pêcherie (principalement des stocks non-maturant de saumon unibermarin des pays de la CANE). Des conseils en matière de prises ont été fournis en 2013 aussi bien au niveau du complexe du stock qu'au niveau des pays et les tableaux d'options de prises fournissent des probabilités individuelles aussi bien que la probabilité d'atteinte simultanée des objectifs de gestion proposés. Le CIEM avait recommandé que les décisions de gestion soient fondées principalement sur une probabilité de 95% pour l'atteinte des CLs dans chacun des complexes de stock/pays individuellement. La probabilité d'atteinte simultanée peut aussi être utilisée comme guide, mais le CIEM avait souligné que les gestionnaires avaient besoin d'être conscient qu'elle sera généralement assez basse lorsqu'un grand nombre d'unités de gestion est employé.

6.2 Lors de la trentième session annuelle, le représentant du Danemark (pour les îles Féroé et le Groenland) avait informé la Commission qu'il n'était pas capable d'avancer et de convenir d'un Cadre des risques mais a accepté d'étudier cette question plus avant lors de la trente-et-unième session annuelle.

6.3 La Commission a convenu qu'il serait important de progresser sur cette question avant les négociations de 2015 relatives à l'application d'une nouvelle mesure/décision pour la pêche féringienne à partir de 2016. Le Président a demandé s'il serait possible d'atteindre une conclusion au cours de la trente-et-unième session annuelle de la Commission. Le représentant du CIEM a fait une brève présentation pour mettre à jour les membres de la Commission sur le progrès relatif à cette question à ce jour.

6.4 Le représentant du Danemark (pour les îles Féroé et le Groenland) a indiqué que sa délégation serait prête à suivre les conseils fournis par le CIEM en 2015, et qu'un nouveau règlement employant le Cadre d'indicateurs pourrait être mis en place. Des consultations à ce sujet auraient lieu dans les îles Féroé.

6.5 Le Président a souligné que la présence de stocks en Amérique du Nord n'a pas été incluse dans les conseils / recommandations antérieures fournies par le CIEM au sujet du Cadre de risques. La Commission a accepté une nouvelle question pour que le CIEM résolve ce problème.

7. Mesures de réglementation

7.1 À la vingt-neuvième session annuelle une décision multi-annuelle concernant la pêcherie au saumon dans les eaux des îles Féroé en 2013, 2014 et 2015 (NEA(12) 7) a été convenue, avec un cadre d'indicateurs (FWI). La Commission avait accepté que la procédure utilisée dans la Commission du Groenland occidental serait là encore utilisée pour appliquer la FWI à la Commission de l'Atlantique du Nord-Est et cela avait été effectué en 2013. La Commission avait décidé que la même approche devrait à nouveau être utilisée en 2014.

7.2 Un rapport décrivant les travaux du Groupe de travail FWI a été déposé (NEA(14)3) et présenté par le coordinateur du groupe, M. Ian Russell. Le Groupe a indiqué que les résultats de l'évaluation de 2014 sont conformes aux prévisions d'abondance avant pêcheries (AaP) précédentes pour trois des quatre complexes de stocks alors que pour le quatrième complexe de stocks (saumon PHM du nord de la CANE) la FWI a suggéré que les prévisions de la AaP étaient une surestimation. Le Groupe a donc conclu qu'«aucune réévaluation des conseils de gestion existant pour la pêcherie des îles Féroé n'est nécessaire de la part du CIEM en 2014 ». Conformément à la demande d'avis scientifique adopté par le Conseil l'an dernier, le CIEM avait été informé qu'il ne devrait pas fournir des alternatives de prise ni de conseils en gestion alternatives pour la CANE en 2014. La Commission a souligné que la décision adoptée en 2012 continuerait à s'appliquer à la pêcherie de 2015.

7.3 Au nom de la Norvège et la Fédération de Russie, le représentant de la Fédération de Russie a fourni une mise à jour sur les discussions avec la Norvège portant sur les questions d'intérêt commun dans la gestion du saumon, qui ont été discutées lors d'une réunion entre les deux Parties en avril 2014, et auxquelles des plans de nouvelles mesures réglementaires ont été présentés pour l'ensemble de la Norvège à partir de 2016, ainsi que des informations sur le processus de suppression progressive de la pêche au filet '*bend*' (un type de filet maillant fixe) dans le Finnmark d'ici à 2018. La Russie était favorable aux projets de la Norvège de mise en œuvre de nouvelles réglementations à partir de 2016, et s'est félicité des plans d'interdiction des filets '*bend'*, mais en raison de la forte proportion de saumon provenant de fleuves russes capturés dans la pêcherie en mer dans le Varangerfjord, la Russie a insisté pour que de nouvelles mesures visant à réduire les captures de saumon russe dans cette région soient mises en œuvre en 2015. Il a été convenu que, comme auparavant, la Russie sera consultée sur les propositions de nouveaux règlements pour 2016 et informée des progrès de l'élimination progressive des filets '*bend'* dans le Finnmark. La Norvège et la Russie ont convenu que la réglementation dans le Finnmark doit être manipulé en coopération à l'avenir ce qui serait facilité par un protocole d'accord (MoU) portant sur la coopération en matière de recherche, de surveillance, de conseil scientifique et de gestion. La Russie et la Norvège viseront à signer un tel protocole d'accord à l'automne 2014. Le représentant de la Norvège a confirmé que son Agence de l'Environnement étudiera la réduction des captures de saumons originaires de fleuves russes dans le Varangerfjord à partir de 2015, et prendrait soin de consulter la Fédération de Russie. Il a souligné que la pêcherie dans le Varangerfjord est historique et d'une grande importance pour la culture et la vie économique sami et que le fait de possibles restrictions futures serait une tâche difficile.

7.4 Le représentant de la Fédération de Russie a fait une déclaration concernant sa position sur ces questions. La Russie reconnait qu'il s'agit d'une question difficile qui exige de trouver un équilibre entre la conservation du saumon et les intérêts des populations autochtones. Elle s'inquiète cependant de la proportion importante de saumon issu de rivières russes qui sont capturés au nord de la Norvège, en particulier compte tenu du déclin dans l'ensemble de l'abondance du saumon en Atlantique Nord et de l'incertitude des perspectives d'avenir, et les efforts en matière de conservation du saumon de la part de la Russie sur son territoire où il n'y a pas de pêcherie en mer dans la Mer de Barents et la pêche avec remise à l'eau est majoritairement pratiquée dans des pêcheries récréatives (y compris dans des rivières où les saumons sont interceptés dans les eaux norvégiennes). La Russie règlemente strictement toutes les pêcheries au saumon, y compris via des TAC et quotas, son objectif étant de maintenir les stocks de saumon russe dans les meilleures conditions possibles dans un contexte contemporain riche en défis. Elle a indiqué que la Russie souhaitait également les ressources pour fournir le plus de bénéfice possible en Russie i.e. emploi et revenu pour la population locale, qui parfois n'a pas d'autres moyens de gagner sa vie. La conservation des stocks et les interceptions par la Norvège de saumons retournant vers les rivières russes est l'origine principale du dialogue entre la Russie et la Norvège ces dernières années, l'objectif de la Russie étant que de nouvelles mesures soient adoptées pour réduire les prises de saumon en mer, en tout premier lieu dans les régions où des prises importantes de saumon russe ont lieu, tel que dans le Varangerfjord, comme cela a encore été confirmé par des découvertes récentes par le projet saumon Kolarctique. L'intention de la Russie est de poursuivre le dialogue avec la Norvège sur cette question ; la Russie souhaite faire avancer ce sujet et trouver des solutions acceptables par les deux Parties.

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

8.1 Le Groupe de travail sur le *G. salaris* de la Commission de l'Atlantique du Nord-Est ne s'est pas réuni depuis 2008, alors que la Commission avait convenu de consacrer un point de l'ordre du jour sur cette question afin de suivre les développements relatifs au parasite.

8.2 Le Président a demandé si les Parties avaient des mises à jour à fournir sur leur travail de gestion sur le *G. salaris.* Le représentant de la Norvège a rapporté que des efforts pour éradiquer le *G. salaris* seront poursuivis en Norvège comme prévu. Les quatre rivières infectées de la région de Rauma (où la session annuelle de l'OCSAN s'est déroulée en 2009) seront traitées au roténone pour la deuxième fois cette année. La Norvège va aussi effectuer la planification et le mapping nécessaire des deux rivières infectées dans la région de Skibotn avec pour objectif le traitement des rivières qui n'a pas eu lieu depuis cinq ans, pour éradiquer le parasite d'ici la fin de cette année. Si ce traitement réussit, la Norvège aura réduit le nombre de rivières infectées de 49 à 7 en 2016.

8.3 La représentante de l'Union européenne a donné une brève mise à jour sur la situation en Suède, ou une règlementation a été introduite en deux étapes (en 1999 et 2003) pour prévenir l'infestation des rivières. La dernière infection a eu lieu en 2005. Un certain nombre de rivières suédoises – toutes celles qui se vident à Skaggerrak au Nord de Gota alv – sont aujourd'hui déclarées exemptes du parasite. La façon dont les infections de *G. salaris* procèdent dans les rivières infectées et l'impact sur les stocks de saumon sont suivis par un programme de suivi. Il semble que l'impact du *G. salaris* est moindre sur les stocks de saumon suédois qu'il ne l'est sur les stocks norvégiens, et que l'impact se réduit avec le temps, après la première infection documentée. Aucun programme de traitement des rivières infectées au roténone n'est en place étant donnés les effets secondaires du roténone sur l'ensemble de l'écosystème.

8.4 La représentante de l'Union européenne a indiqué que le roténone n'est pas approuvée par l'Union européenne en tant que biocide parce qu'aucune évaluation adéquate des risques n'a encore été entreprise, mais qu'il peut être utilisé par les États membres de l'UE comme mesure d'urgence lorsque les autres mesures ont été épuisées. La représentante de l'Union européenne a également souligné qu'il existe une proposition de réglementation pour l'Union européenne sur les espèces exotiques envahissantes. Ladite proposition est actuellement étudiée par le Parlement européen et le Conseil européen. *G. salaris* était une des espèces sur lesquelles l'étude d'impact réalisée dans la préparation de cette proposition porte son attention. Le règlement proposé exigera des États membres de l'UE qu'ils mettent en place des plans d'intervention et préviennent l'introduction du G. salaris lorsque ceci est possible.

9. Annonce du gagnant du prix du Programme incitatif au renvoi des étiquettes

9.1 Le Président a annoncé que le tirage au sort pour le prix de la Commission de l'Atlantique du Nord-Est du Programme incitatif de l'OCSAN au renvoi des étiquettes a été effectué par le commissaire, le 6 mai. L'étiquette gagnante avait été appliquée à un saumon PHM femelle au barrage de Chester sur la rivière Dee en Angleterre. Il a été repris une semaine plus tard à Corwen sur la rivière Dee puis libéré. Le gagnant du prix de la Commission de 1500 $: M. Fred Miers, de Denbighshire, au Pays de Galles. La Commission a adressé ses félicitations au gagnant.

10. Recommandations au Conseil concernant la demande de conseils scientifiques auprès du CIEM

10.1 Le Président a souligné que la Commission doit désigner un second représentant au Comité scientifique permanent (SSC); un gestionnaire et un scientifique de chaque Commission sont membres de la SSC, et un gestionnaire de NEAC doit être désigné. La Commission a nommé Mme Elena Samoylova (Fédération de Russie).

10.2 La Commission a décidé de référer la demande de conseil scientifique du CIEM au Conseil. La demande au CIEM, comme convenu par le Conseil, est contenue dans le document CNL(14)10 (Annexe 3).

11. Divers

11.1 Aucune autre question n'a été soulevée.

12. Date et lieu de la prochaine session

12.1 La Commission a accepté que sa prochaine session ait lieu au cours de la trente-deuxième session annuelle du Conseil.

13. Compte rendu de la session

13.1 La Commission a accepté un compte rendu de la session.

Note: Les annexes mentionnées ci-dessus commencent à la page 77. Une liste d'articles de la Commission Nord-américaine est incluse en Annexe 4.

<u>Annex 1</u>

Opening Statement on behalf of the Non-Governmental Organizations

The NGOs welcome this opportunity to address the North-East Atlantic Commission.

Despite ICES reporting that the southern European salmon stock is meeting its overall Conservation Limit, many individual river stocks in Europe are not. Some populations, particularly in England and Wales, are in a perilous state, and the medium term assessment is for little, if any improvement. At the 'Salmon Summit' in La Rochelle in 2011, there was agreement that the most effective objective for fishery managers is to produce the maximum number of healthy smolts from river systems as possible. To that end, there are still common issues to overcome in the freshwater environment, including excessive water abstraction, diffuse pollution, hydropower schemes and other barriers to fish passage, both on inward and outward migration. However, these are matters best served by individual Parties.

The two most important dangers to the protection of European salmon are the impact of aquaculture on wild fish, and the exploitation of stocks failing to meet their conservation limits, especially those intercepted by coastal mixed-stock fisheries.

We are looking forward to taking part in Wednesday's Theme-based Special Session on the management of single and mixed-stock fisheries, where we will be particularly looking for a commitment from all relevant Parties that commercial coastal fisheries will be phased-out in their home waters. We continue to be frustrated that the limitations placed on fisheries in Greenland and the Faroe Islands are not matched by similar controls on mixed-stock fisheries in other NASCO partners' home waters, and we urge NASCO Parties to adopt management policies that are fair and equitable to all.

NGO frustration deepens even further over the continuing impact of aquaculture on wild salmon and sea trout. We are especially concerned by the continued denial by some jurisdictions that salmon farming has any detrimental impact, despite overwhelming scientific evidence of the dangers of sea lice and disease potentially causing significant mortality in wild fish, and escaped farmed salmon diluting gene pools by interbreeding with indigenous stocks. Once again we urge all Parties to face up to their responsibilities at NASCO. Remember that their primary objective in this forum is the conservation of wild Atlantic salmon, and that this should not be overridden by their support for commercial activities with a proven record of obstructing that protection. NASCO's aquaculture objectives are zero lice and zero escapes, but there is little evidence that those objectives are taken seriously by Parties supporting salmon farming industries. To this end, the NGOs will be calling for a special aquaculture session next year.

Thank you again for this opportunity to address the Commission, and we look forward to a frank discussion over the issues surrounding the conservation of Atlantic salmon in the North-East Atlantic Region.

Annex 2

NEA(14)7

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Election of Officers
5. Review of the 2013 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

CNL(14)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 2014[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[3];
1.4 provide a compilation of tag releases by country in 2014; and
1.5 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 2014 fisheries[4];
2.2 review and report on the development of age-specific stock conservation limits;
2.3 describe the status of the stocks;
2.4 provide catch options or alternative management advice for 2015/16-2017/18 fishing seasons, with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding[5];
2.5 advise on options for taking into account the recent genetic analysis that suggests there was a significant contribution of North American origin stocks to historic mixed-stock fisheries in Faroese waters for the provision of catch advice[6];
2.6 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice; and
2.7 advise on what data would enhance the development of the catch options.

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

3.1 describe the key events of the 2014 fisheries (including the fishery at St Pierre and Miquelon)[4];
3.2 update age-specific stock conservation limits based on new information as available;
3.3 describe the status of the stocks;
3.4 provide catch options or alternative management advice for 2015-2018 with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, 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;
3.6 considering the available contemporary data on stock origin of salmon in the Labrador fisheries, estimate the catches by stock origin and describe their spatial and temporal distribution; and

3.7 considering the available contemporary data on stock origin of salmon in the Saint-Pierre et Miquelon fishery, estimate the catches by stock origin and describe their spatial and temporal distribution.

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

4.1 describe the key events of the 2014 fisheries[4];
4.2 describe the status of the stocks[7];
4.3 provide catch options or alternative management advice for 2015-2017 with an assessment of risk relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, 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; and
4.5 considering the available contemporary data on stock origin of salmon in the West Greenland fishery, estimate the catches by stock origin and describe their spatial and temporal distribution.

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. *With regards to question 1.3, NASCO is particularly interested in case studies highlighting successes and failures of various restoration efforts employed across the North Atlantic by all Parties/jurisdictions and the metrics used for evaluating success or failure.*
4. *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. Information on any other sources of fishing mortality for salmon is also requested.*
5. *In response to questions 2.4, 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 2.5, this should include consideration of the implications of the new genetic results with regard to the factors previously identified by ICES as requiring management decisions for the finalization of the risk framework for the provision of catch advice for the Faroes fishery (i.e. annual or seasonal catch advice, sharing arrangement, choice of management units to consider and specified management objectives).*
7. *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.*

Attendees:
Elena Samoylova (NEAC, manager representative)
Peder Fiske (NEAC, scientist representative)

Tony Blanchard (NAC, manager representative)
Tim Sheehan, Chairman (NAC, scientist representative)

Katrine Kaergaard (WGC, manager representative)
Ted Potter (WGC, scientist representative)

Ian Russell (ICES representative, Observer)

New questions, originator:

- 2.5, NEAC
- 2.7, EU
- 3.6, USA
- 3.7, USA
- 4.5, USA

Annex 4

List of North-East Atlantic Commission Papers

NEA(14)1	Provisional Agenda
NEA(14)2	Draft Agenda
NEA(14)3	Report on the Use of the Framework of Indicators in 2014
NEA(14)4	Draft Report of the Thirty-First Annual Meeting of the North-East Atlantic Commission
NEA(14)5	Report of the Thirty-First Annual Meeting of the North-East Atlantic Commission
NEA(14)6	ICES Presentation to the North-East Atlantic Commission
NEA(14)7	Agenda

REPORT OF THE

THIRTY-FIRST ANNUAL MEETING OF

THE

WEST GREENLAND COMMISSION

3 – 6 JUNE 2014
Saint-Malo, France

Chairman:	Mr Ted Potter (European Union)
Vice-Chairman:	Mr Carl McLean (Canada)
Rapporteur:	Ms Kimberly Blankenbeker (USA)
Secretary:	Dr Peter Hutchinson

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Report of the Thirty-First Annual Meeting of the West Greenland Commission of the North Atlantic Salmon Conservation Organization

Le Nouveau Monde Hotel, Saint-Malo, France

3 - 6 June 2014

1. Opening of the Meeting

1.1 The Chairman, Mr Ted Potter (European Union), opened the meeting and welcomed participants to the Thirty-First Annual Meeting of the Commission. The Chairman noted that Opening Statements should be submitted in writing given the limited amount of time available to the Commission this year. The NGOs submitted a statement (Annex 1).

1.2 A list of participants at the Thirty-First Annual Meeting of the Council and Commissions is included on page 325 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, WGC(14)10 (Annex 2).

3. Nomination of a Rapporteur

3.1 Ms Kimberly Blankenbeker (USA) was appointed as Rapporteur.

4. Election of Officers

4.1 The current Chairman, Mr Ted Potter (European Union), was first elected to this position at the Thirtieth Annual Meeting of NASCO to complete the term of then Chairman George Lapointe. Similarly, Mr Carl McLean (Canada) was first elected as Vice-Chairman at the Thirtieth Annual Meeting of NASCO to complete the term of then Vice-Chairman Ted Potter. Both the Chairman and Vice Chairman were therefore eligible for re-election. The Commission re-elected Mr Potter and Mr McLean to their respective positions.

5. Review of the 2013 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5.1 The representative of ICES, Mr Ian Russell, presented a report on the scientific advice on salmon stocks in the West Greenland Commission area, CNL(14)8. His presentation to the Commission is available as document WGC(14)12. The ICES Advisory Committee (ACOM) report, which contains the scientific advice relevant to all Commissions, is included on page 275 of this document. The Chairman noted that the representative of Denmark (in respect of the Faroe Islands and Greenland) had presented a report on the 2013 fishery at the inter-sessional meeting of the Commission (Annex 10 of document WGC(14)4).

5.2 The representative of the United States recalled that the United States had developed a new management rebuilding objective for its salmon populations, which was presented to the Commission in 2013 for the sake of transparency. He welcomed the 2014 review by ICES of the implications of the new management objectives and noted that the impact of the change on the ICES scientific advice for 2012-2014 would have been negligible. The Commission acknowledged that the new objective would be used by ICES in the provision of scientific advice in 2015 and beyond, unless and until further revisions to the management objective were made.

6. Report of the Inter-sessional Meeting of the Commission

6.1 The Chairman introduced the report of the April 2014 inter-sessional meeting of the West Greenland Commission (WGC(14)4) (Annex 3). He presented a brief summary of the information and issues considered at that meeting, noting that discussions were quite detailed and productive. He drew attention to the Chair's working proposal tabled at that meeting regarding the management of the fishery at West Greenland in 2014, appended as Annex 4 to WGC(14)4. He stressed that the proposal was provided to stimulate ideas and discussion of the issue prior to the 2014 meeting of the West Greenland Commission.

6.2 There was general agreement that the inter-sessional meeting had provided an important opportunity to share information and exchange views prior to the 2014 NASCO Annual Meeting. In addition, the Chair's proposal for a possible addendum to the current West Greenland regulatory measure was considered to provide a valuable framework for further discussions.

7. Regulatory Measures

7.1 A multi-annual measure for the West Greenland fishery was adopted at the Twenty-Ninth Annual Meeting of the Commission, WGC(12)12, to apply to the fishery in 2012, 2013 and 2014. Under the measure, the catch at West Greenland would be restricted to the amount used for internal consumption in Greenland, which in the past has been estimated to be 20t annually. The Commission also agreed in 2012 that the same procedure used during the previous regulatory measure for applying the Framework of Indicators (FWI) would apply during the period of the new regulatory measure. The Report on the Use of the Framework of Indicators in 2014 (WGC(14)3) was presented by Mr Rory Saunders (USA), Coordinator of the FWI Working Group. He reported that application of the FWI indicated that there had been no significant change in the stock indicators and, therefore, that a reassessment of the ICES management advice for the 2014 fishery at West Greenland was not required.

7.2 The Chairman noted that the multi-annual regulatory measure adopted in 2012 continued to apply in 2014. He also recalled that the Chair's proposal from the 2014 West Greenland Commission inter-sessional meeting for a possible addendum to this regulatory measure was on the table for discussion. He reminded the Parties that the proposal had three operative paragraphs. He suggested discussing each in turn.

7.3 The Chair recalled that the first paragraph of the proposed addendum concerned the potential for assisting Greenland on the development of approaches to improve the monitoring of landings to ensure full reporting. The representative of Denmark (in respect of the Faroe Islands and Greenland) recalled that the Greenland Government had adopted an Executive Order in 2012 aimed at improving catch accounting. He noted that given the proximity of the 2014 fishing season, developing and implementing new monitoring and management approaches was not feasible. He noted that discussions should focus on finding solutions for 2015.

7.4 The representative of the United States noted that effective monitoring is the first step in asserting management control. He stressed that the sampling program had demonstrated that there is underreporting in the fishery and that he hoped the new Executive Order would result in improvement.

7.5 There was general agreement that cooperative work to develop ideas for improving the monitoring and control regime for the West Greenland fishery for 2015 would be useful and should be undertaken in a timely way to ensure that any agreed approaches could be implemented in time for the 2015 season. To advance this work, the United States tabled a proposal to establish an *Ad hoc* Working Group on Monitoring and Control, to be made up of individuals with relevant expertise, that would meet as early as possible to consider relevant information, generate ideas, and make recommendations. In response to a question, it was confirmed that Greenland would have time to make adjustments to its management structure in time for the 2015 fishing season even if the Working Group did not complete its work until the Spring of 2015. The proposal was refined to clarify the Terms of Reference of the Working Group and the timetable for completing the work. The revised proposal, WGC(14)8 (Annex 4), was adopted by the Commission. The *Ad hoc* Working Group will meet in Greenland and complete its work by the end of January 2015 to allow time for Greenland to consider the recommendations and develop a draft plan for discussion at a March West Greenland Commission inter-sessional meeting. The representative of Canada offered Canada's services to chair the Working Group given Canada's experience with managing subsistence fisheries. This offer was accepted by the Commission. The representative of the European Union noted that they would be pleased to offer up to two experts to participate on the Working Group. The Chairman indicated that the composition of the Working Group would be determined later and noted that it should be kept as small as possible to facilitate timely completion of its ambitious task.

7.6 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that his government would translate Greenland's new Executive Order into English so that it could be part of the information available to the Working Group. He noted that some of the concern of the Parties might stem from a lack of knowledge of the monitoring and management regulations Greenland has in place. He indicated that, in the past, Greenland had implemented a management system that allowed in-season action to be taken for the fishery based on pre-fishery abundance information.

7.7 The representative of the NGOs asked if NGO participation on the Working Group was possible, noting that they would like to contribute a scientist to help support the work. The Parties were open to this proposal provided that the participating NGO would agree to non-disclosure of certain information given the confidential nature of some data to be made available to the Working Group.

7.8 The Chairman noted that the second paragraph of the proposed addendum concerned limiting the total catch at West Greenland in 2014 to the average for 2004 - 2013 (28t). The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that such a limitation was not acceptable. He noted that the internal consumption fishery at West Greenland would continue as it had in previous years, including that there would be no export of salmon. The representative of Canada expressed concern about the potential catch level for 2014 and asked for some indication of the controls that would be on the fishery for the coming season. Canada stated that, at a minimum, it would like to see controls such that the 2014 catch level would not exceed that of 2013. The representative of the United States also expressed concern about the recent increasing catch trend in the fishery. He further noted that the catch levels of two of the three components of the fishery were unrestricted and that there is a potential for more increases in catch if fish are available. He stated that the West Greenland Commission needed to further consider what might be possible with regard to improving management of the 2014 fishery.

7.9 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that he could not say at this time whether the 2014 factory landings quota would be set higher or lower than previous years. He noted that the Greenland Government was still considering the recent performance of the fishery and other factors, which would inform their decision-making on this matter. In response to a question, he clarified that any quota that was set would only restrict the factory landings component of the fishery.

7.10 The representative of the United States acknowledged that catch reporting for factory landed fish was better than for other components of the West Greenland fishery, but he stressed that such landings had not been contemplated in the current regulatory measure. He stated that the current measure was based on the understanding that the internal use fishery was delimited by a three-month season and that harvests would be used for personal consumption or sold as fresh product at local markets, restaurants and various institutions. He stated that the factory quota extends the means to expand the fishery, which has now occurred. He expressed his deep concern and disappointment at the current management decisions by Greenland. Given that the scientific advice for 2015 is likely to be the same as for the last 12 years, he indicated that the United States would need assurances that more effective management can and will be put in place by Greenland in 2015. He further indicated that some positive action by Greenland in 2014 would demonstrate good faith and would be important going into the 2015 discussions on the management of the West Greenland fishery.

7.11 The representative of Canada asked if the fact that factories appear to have reached their processing and freezing capacity for salmon would influence Greenland's decision on the size of the factory landings quota for 2014. Greenland noted that the factory landings quota had not been met for the last two years and that Greenland will consider this fact as well as the concerns of the Parties when it sets its factory landings quota in June or July.

7.12 The representative of the European Union expressed disappointment with the current situation, noting that the EU had high hopes for progress on this issue after the West Greenland Commission inter-sessional meeting. She stated the concern of the EU that Parties would be leaving the meeting with no indication of how Greenland would manage its fishery in 2014, which was a different situation than in 2013. She acknowledged that the issue was a difficult one but that she felt some practical steps forward were possible. She stated that there was an inconsistency in how the mixed-stock fishery off West Greenland was being addressed by NASCO and how NASCO was handling the situation of the Faroe Islands. She noted that consideration should be given in 2015 to addressing this inconsistency in light of the clarity of the scientific advice.

7.13 The representative of Denmark (in respect of the Faroe Islands and Greenland) reiterated that Greenland would implement the current agreement and that they intended to establish a factory landings quota for some small settlements. Considering the concerns expressed by the Parties and taking into account that the factory landings quota has not been fully utilised in either 2012 or 2013, he stated he would recommend to his Minister a minor reduction in the factory landings quota for 2014. He also indicated that he would inform the Commission of the final factory landings quota decision taken by Greenland.

7.14 The Chairman opened the floor for comments on paragraph 3 of the proposed addendum, which concerned the development of a new regulatory measure to begin in 2015. The representative of the United States indicated that consideration must be given to a number of things if a harvest is to be allowed at West Greenland despite scientific advice to the contrary. He highlighted that NASCO document CNL(09)43, which provides guidance on fisheries management, calls for the ability of Parties to fully manage a fishery, including to effectively monitor it, to close it when limits are reached, and to enforce the rules. He stressed that such management control gives Parties confidence that rules can and will be followed. With regard to the West Greenland fishery, he noted that there is significant uncertainty and risk under the current management structure with regard to the level of catches in the fishery and that this impacts the application of control measures, including stopping a fishery when a catch limit is reached. The result is that there is pressure to reduce catch limits in order to decrease risk. He underscored that effective catch accountability as well as fishery control and enforcement are essential components of fisheries management and that these basics will underpin the US view when considering the management of the West Greenland fishery.

7.15 It was suggested that an inter-sessional meeting of the Commission would be needed to advance discussions on the future management of the West Greenland fishery. The Parties agreed that an inter-sessional meeting would be useful to establish, at a minimum, a framework or parameters for the development of a new agreement, which could be adopted at the 2015 NASCO Annual Meeting, taking into consideration the draft plan developed by Greenland referenced in WGC(14)8. The Commission agreed to convene an inter-sessional meeting in Nuuk, Greenland, in early March 2015 to avoid conflicts with other meetings.

8. Sampling in the West Greenland Fishery

8.1 The West Greenland fishery sampling program 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. Mr Tim Sheehan (USA) presented a Draft West Greenland Fishery Sampling Agreement for 2014, WGC(14)7, noting that the sampling team would include an additional participant from the European Union (Ireland). In addition, the Greenland Government, in cooperation with the Greenland Institute of Natural Resources and the Sampling Program Coordinator, will work with all factories receiving harvested salmon to collect biological characteristics data and samples from a proportion of the landed fish via factory staff. The Commission adopted the agreement, WGC(14)13 (Annex 5).

9. Announcement of the Tag Return Incentive Scheme Prize

9.1 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 6 May 2014. The winning tag had been applied to a smolt on the River Ure in Yorkshire, England, in 1975. The smolts from this tagging programme were trapped at a fixed smolt trap on a weir and transported down to the estuary for release. The tag was recovered at West Greenland, probably in 1976 or 1977 but was returned in 2013. The winner of the Commission's prize of $1,500 was Ms Susanne Thorin, Aasiaat, Greenland. 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 to defer a decision on the request for scientific advice from ICES prepared by the Standing Scientific Committee (SSC) in relation to the West Greenland Commission area to the final Council session. The request to ICES, as agreed by the Council, is contained in document CNL(14)10 (Annex 6).

11. Other Business

11.1 There was no other business.

12. Date and Place of Next Meeting

12.1 The Commission agreed to hold an inter-sessional meeting in early March 2015 in Nuuk, Greenland, after which it will meet at the same time and place as the Thirty-Second Annual Meeting of the Council in 2015.

13. Report of the Meeting

13.1 The Commission agreed a report of the meeting.

Note: The annexes mentioned above begin on page 107, following the French translation of the report of the meeting. A list of West Greenland Commission papers is included in Annex 7.

WGC(14)11

Compte rendu de la trente-et-unième session annuelle de la Commission du Groenland Occidental de l'Organisation pour la conservation du saumon de l'Atlantique Nord

Hôtel le Nouveau Monde, Saint-Malo, France

3 - 6 juin 2014

1. Ouverture de la session

1.1 Le Président, M. Ted Potter (Union européenne), a ouvert la session et accueilli les participants à la trente-et-unième session annuelle de la Commission. Le Président a souligné que les déclarations d'ouverture devaient être soumises par écrit étant donné le peu de temps disponible à la Commission cette année. Les ONGs ont soumis une déclaration (Annexe 1).

1.2 Une liste des participants à la trente-et-unième session annuelle du Conseil et des Commissions est incluse en page 325 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté son ordre du jour, WGC(14)10 (Annexe 2).

3. Nomination d'un rapporteur

3.1 Mme Kimberly Blankenbeker (Etats-Unis) a été nommée Rapporteur.

4. Election des Membres du Bureau

4.1 Le Président actuel, M. Ted Potter (Union européenne), a été élu pour la première fois à ce poste à la trentième session annuelle de l'OCSAN pour terminer le mandat du Président d'alors George Lapointe. De même, M. Carl McLean (Canada) a été élu pour la première fois en tant que Vice-président à la trentième session annuelle de l'OCSAN pour terminer le mandat du Vice-président d'alors Ted Potter. Le Président et le Vice-président sont donc éligibles pour une réélection. La Commission a réélu M. Potter et M. McLean à leurs positions respectives.

5. Examen de la pêcherie de 2013 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. Ian Russell, a présenté un compte rendu des conseils scientifiques sur les stocks de saumon dans la zone de la Commission du Groenland occidental, CNL(14)8. Sa présentation à la Commission est disponible dans le document WGC(14)12. Le rapport du Comité consultatif (ACOM) du CIEM, qui contient les conseils scientifiques pertinents pour toutes les Commissions, est inclus en page 275 de ce document. Le Président a noté que le représentant du Danemark (pour les îles Féroé et le Groenland) avait présenté un rapport sur la pêcherie de 2013 lors de la réunion d'intersession de la Commission (Annexe 10 du document WGC(14)4).

5.2 Le représentant des États-Unis a rappelé que les États-Unis avaient mis au point un nouvel objectif de gestion de la reconstruction pour ses populations de saumon, qui a été présenté à la Commission en 2013 pour des raisons de transparence. Il a accueilli l'examen de 2014 par le CIEM des implications des nouveaux objectifs de gestion et a noté que l'impact du changement sur les conseils scientifiques du CIEM pour la période 2012-2014 aurait été négligeable. La Commission a reconnu que le nouvel objectif serait utilisé par le CIEM pour la fourniture de conseils scientifiques en 2015 et au-delà, à moins que et jusqu'à ce que de nouvelles révisions de l'objectif de gestion soient effectuées.

6. Compte rendu de la réunion d'intersession de la Commission

6.1 Le Président a présenté le rapport de la réunion d'intersession d'avril 2014 de la Commission du Groenland occidental (WGC(14)4) (Annexe 3). Il a présenté un bref résumé des informations et des questions examinées au cours de cette réunion, notant que les discussions étaient très détaillées et productives. Il a attiré l'attention sur la proposition du Président présentée lors de cette réunion et relative à la gestion de la pêcherie du Groenland occidental en 2014, jointe en tant qu'annexe 4 du WGC(14)4. Il a souligné que la proposition a été soumise pour stimuler des idées et la discussion de la question avant la session de 2014 de la Commission du Groenland occidental.

6.2 Il est généralement admis que la réunion d'intersession a fourni une occasion importante de partage d'informations et d'échange de points de vue avant la session annuelle de l'OCSAN de 2014. En outre, le Président a proposé la possibilité d'un avenant à la mesure de réglementation actuelle du Groenland occidental qui a été envisagée pour fournir un cadre utile à la poursuite des discussions.

7. Mesures de réglementation

7.1 Une mesure pluri-annuelle pour la pêcherie du Groenland occidental a été adoptée lors de la vingt-neuvième session annuelle de la Commission, WGC(12)12, qui doit s'appliquer à la pêcherie en 2012, 2013 et 2014. En vertu de la mesure, les prises au Groenland occidental seront limitées à la quantité utilisée pour la consommation interne au Groenland, qui a été estimée par le passé à 20t par an. La Commission a également convenu en 2012 que la même procédure utilisée lors de la mesure de réglementation précédente pour l'application du Cadre d'indicateurs (FWI) s'applique pendant la période de la nouvelle mesure réglementaire. Le Rapport sur l'utilisation du Cadre des indicateurs en 2014 (WGC(14)3) a été présenté par M. Rory Saunders (Etats-Unis), Coordinateur du Groupe de travail FWI. Il a indiqué que l'application de du FWI a indiqué qu'il n'y avait eu aucun changement significatif des indicateurs de stock et, par conséquent, une réévaluation des conseils de gestion du CIEM pour la pêcherie de 2014 du Groenland occidental n'était pas nécessaire.

7.2 Le Président a noté que la mesure règlementaire pluri-annuelle adoptée en 2012 est toujours d'application en 2014. Il a aussi rappelé que la proposition du Président lors de la réunion d'intersession de la Commission du Groenland occidental de 2014 de la possibilité d'un avenant à cette mesure règlementaire était sur la table de discussion. Il a rappelé aux Parties que la proposition comprenait trois paragraphes opérationnels. Il a suggéré de discuter de chacun l'un après l'autre.

7.3 Le Président a rappelé que le premier paragraphe de l'avenant proposé concerne le potentiel d'aide au Groenland par l'élaboration d'approches visant à améliorer le suivi des débarquements pour assurer un compte-rendu complet. Le représentant du Danemark (pour les îles Féroé et le Groenland) a rappelé que le gouvernement du Groenland a adopté un décret en 2012 visant à améliorer la comptabilisation des captures. Il a noté que, compte tenu de l'approche de la saison de pêche 2014, l'élaboration et la mise en œuvre de nouvelles méthodes de surveillance et de gestion n'a pas été possible. Il a noté que les discussions devraient se concentrer sur la recherche de solutions pour 2015.

7.4 Le représentant des Etats-unis a noté qu'un suivi efficace constitue la première étape pour imposer le contrôle de la gestion. Il a souligné que le programme d'échantillonnage avait révélé qu'il y avait du sous-reporting dans la pêcherie et qu'il espérait que le nouveau décret entrainerait une amélioration.

7.5 Il est généralement admis qu'un travail de coopération et de développement des idées pour améliorer le suivi et le contrôle de régime de la pêcherie du Groenland occidental pour 2015 serait utile et devrait être effectué en temps voulu afin de s'assurer que toutes les approches convenues puissent être mises en œuvre à temps pour la saison 2015. Pour faire avancer ce travail, les États-Unis ont présenté une proposition visant à établir un groupe de travail *ad hoc* pour la surveillance et le contrôle, composé de personnes ayant l'expertise souhaitée, qui répondrait le plus tôt possible pour examiner les renseignements adéquats et proposer des idées, et faire recommandations. En réponse à une question, il a été confirmé que le Groenland aurait le temps d'effectuer des ajustements sur sa structure de gestion à temps pour la saison de pêche 2015, y compris si le Groupe de travail n'a pas terminé ses travaux d'ici le printemps de 2015. La proposition a été affinée afin de clarifier les termes de référence du Groupe de travail et le calendrier d'achèvement des travaux. La proposition révisée, WGC(14)8 (Annexe 4), a été adoptée par la Commission. Le Groupe de travail *ad hoc* se réunira au Groenland et achèvera ses travaux d'ici la fin janvier 2015 pour laisser le temps au Groenland d'examiner les recommandations et élaborer un projet de plan de discussion lors d'une réunion d'intersession de la Commission du Groenland occidental en mars. Le représentant du Canada a offert les services du Canada qui pourrait présider le Groupe de travail compte tenu de l'expérience du Canada dans la gestion des pêcheries de subsistance. Cette offre a été acceptée par la Commission. La représentante de l'Union européenne a indiqué qu'ils seraient heureux d'offrir jusqu'à deux experts pour participer au Groupe de travail. Le Président a indiqué que la composition du Groupe de travail serait déterminée plus tard et a noté qu'il devrait rester aussi réduit que possible pour faciliter l'achèvement en temps voulu de son travail ambitieux.

7.6 Le représentant du Danemark (pour les îles Féroé et le Groenland) a indiqué que son gouvernement traduirait en anglais le nouveau décret du Groenland afin qu'il puisse être intégré aux informations à la disposition du Groupe de travail. Il a noté que certaines des préoccupations des Parties pourraient provenir d'un manque de connaissance de la surveillance et de la réglementation de la gestion mis en place par le Groenland. Il a indiqué que, par le passé, le Groenland a mis en œuvre un système de gestion qui a permis que des actions soient menées au cours de saison de pêche sur la base des informations concernant l'abondance avant pêcheries.

7.7 La représentante des ONG a demandé si les ONG pouvaient participer au Groupe de travail, et noté qu'elles aimeraient offrir la contribution d'un scientifique qui participerait au soutien des efforts. Les Parties étaient ouvertes à cette proposition à condition que l'ONG participante accepte le principe de non-divulgation de certaines informations étant donnée la nature confidentielle de certaines données devant être mises à la disposition du Groupe de travail.

7.8 Le Président a noté que le deuxième alinéa de l'avenant proposé concerne la limitation du total des captures au Groenland occidental en 2014 pour revenir à la moyenne de 2004 à 2013 (28t). Le représentant du Danemark (pour les îles Féroé et le Groenland) a déclaré qu'une telle limitation n'est pas acceptable. Il a noté que la pêcherie pour la consommation interne au Groenland occidental se poursuivra comme elle l'a fait au cours des années précédentes, y compris qu'il n'y aurait pas d'exportation de saumon. Le représentant du Canada s'est dit préoccupé par le niveau de capture potentiel pour 2014 et a demandé des indications sur les contrôles exercés sur la pêcherie au cours de la saison à venir. Le Canada a déclaré qu'il aimerait au minimum que des contrôles s'assurent que le niveau de capture de 2014 ne dépasse pas celui de 2013. Le représentant des États-Unis s'est également inquiété de la tendance récente à l'augmentation des captures de pêche. Il a noté en outre que les niveaux de capture de deux des trois composantes de la pêcherie n'étaient pas restreintes et que les captures pourraient encore augmenter si les poissons sont disponibles. Il a déclaré que la Commission du Groenland occidental devrait examiner plus avant ce qui serait possible de faire pour améliorer la gestion de la pêcherie en 2014.

7.9 Le représentant du Danemark (pour les îles Féroé et le Groenland) a déclaré qu'il ne pouvait pas dire à ce stade si les quotas de débarquement d'usine de la pêcherie de 2014 sont plus ou moins élevés que les années précédentes. Il a noté que le gouvernement du Groenland étudiait encore la performance récente de la pêcherie et d'autres facteurs, qui informent leur prise de décision sur cette question. En réponse à une question, il a précisé que tout quota qui a été créé ne restreindrait que la composante débarquement d'usine de la pêcherie.

7.10 Le représentant des États-Unis a reconnu que la déclaration des prises pour les poissons débarqués était meilleure que pour d'autres composantes de la pêcherie du Groenland occidental, mais il a souligné que ces débarquements n'ont pas été envisagés dans le cadre de la mesure réglementaire actuelle. Il a déclaré que la mesure actuelle est fondée sur l'idée que la pêcherie à usage interne a été délimitée par une saison de trois mois et que les récoltes seraient utilisées pour la consommation personnelle ou vendues comme produits frais sur les marchés locaux, restaurants et diverses institutions. Il a déclaré que le quota d'usine étend les moyens d'élargir la pêcherie, ce qui a maintenant eu lieu. Il a exprimé sa profonde inquiétude et sa déception face aux décisions de gestion actuelles prises par le Groenland. Étant donné que les conseils scientifiques pour 2015 sont susceptibles d'être les mêmes que pour les 12 dernières années, il a indiqué que les États-Unis souhaiteraient être assurés qu'une gestion plus efficace peut et sera mis en place par le Groenland en 2015. Il a en outre indiqué que des actions positives de la part du Groenland en 2014 feraient la preuve de bonne foi et qu'elles seraient importantes pour entamer les discussions de 2015 sur la gestion de la pêcherie du Groenland occidental.

7.11 Le représentant du Canada a demandé si le fait que les usines semblent avoir atteint leur capacité de traitement et de congélation pour le saumon pourrait influencer la décision du Groenland sur la taille du contingent des débarquements d'usine en 2014. Le Groenland a noté que le quota des débarquements de l'usine n'avait pas été atteint au cours des deux dernières années et que le Groenland se penchera sur ce fait ainsi que les préoccupations des Parties quand il définira son quota de débarquements d'usine en juin ou juillet.

7.12 La représentante de l'Union européenne a exprimé sa déception concernant la situation actuelle, et noté que l'UE avait de grands espoirs de progrès sur cette question après la réunion d'intersession de la Commission du Groenland occidental. Elle a exprimé la préoccupation de l'UE que les Parties quitteraient la session sans aucune indication de la façon dont le Groenland gérerait sa pêcherie en 2014, la situation étant différente de celle de 2013. Elle a reconnu que la question était difficile, mais qu'elle considérait que des mesures pratiques étaient possibles. Elle a déclaré qu'il y avait une incohérence dans la façon dont la pêcherie de stocks mixtes au large du Groenland occidental a été traitée par l'OCSAN et la façon dont l'OCSAN gérait la situation dans les îles Féroé. Elle a souligné que cette question devrait être considérée en 2015 pour traiter cette incohérence à la lumière des conseils scientifiques.

7.13 Le représentant du Danemark (pour les îles Féroé et le Groenland) a réitéré que le Groenland mettrait en œuvre l'accord actuel et qu'ils avaient l'intention d'établir un quota de débarquements d'usine pour certains petits établissements. Compte tenu des préoccupations exprimées par les Parties et compte tenu du fait que le quota des débarquements d'usine n'a été entièrement utilisé ni en 2012 ni en 2013, il a déclaré qu'il recommanderait à son ministre une légère réduction du quota des débarquements d'usine pour 2014. Il a également indiqué qu'il informerait la Commission de la décision finale du Groenland quant aux quotas de débarquements.

7.14 Le Président a invité les participants à s'exprimer sur le paragraphe 3 de l'avenant proposé, qui concernait le développement d'une nouvelle mesure réglementaire à partir de 2015. Le représentant des États-Unis a indiqué qu'un certain nombre de choses devaient être examinées, pour qu'une récolte soit autorisée au Groenland occidental, malgré des avis scientifiques contraires. Il a souligné que le document CNL(09)43, qui fournit des directives sur la gestion des pêcheries, appelle à la capacité des Parties à pleinement gérer une pêcherie, y compris la surveillance efficace, et la fermeture lorsque les limites sont atteintes, et de faire respecter les règles. Il a souligné que le contrôle de gestion donne confiance aux Parties que les règles peuvent et seront suivies. En ce qui concerne la pêcherie du Groenland occidental, il a noté que l'incertitude et le risque à l'égard du niveau des captures de la pêche sont importants en vertu de la structure de gestion actuelle et que cela a un impact sur l'application des mesures de contrôle, y compris l'arrêt d'une pêcherie une fois la limite de capture atteinte. Le résultat est qu'il existe une pression pour réduire les limites de capture afin de diminuer le risque. Il a souligné le comptage des captures efficace ainsi que le contrôle de la pêcherie et de l'application sont des éléments essentiels de la gestion des pêcheries et que ces bases détermineront le point de vue des États-Unis lors de l'examen de la gestion de la pêcherie du Groenland occidental.

7.15 Une réunion d'intersession de la Commission a été suggérée, elle serait nécessaire pour faire avancer les discussions sur la gestion future de la pêcherie du Groenland occidental. Les Parties ont convenu qu'une réunion d'intersession serait utile pour établir, au minimum, un cadre ou des paramètres pour l'élaboration d'un nouvel accord, qui pourrait être adopté lors de la session annuelle de l'OCSAN de 2015, en tenant compte du plan provisoire élaboré par le Groenland et référencé dans WGC(14)8. La Commission a accepté de convoquer une réunion d'intersession à Nuuk, au Groenland, au début de Mars 2015 pour éviter les conflits avec d'autres sessions.

8. Echantillonnage dans la pêcherie du Groenland occidental

8.1 Le programme d'échantillonnage de la pêcherie du Groenland occidental fournit des données biologiques précieuses pour les évaluations de stocks menées par le CIEM qui informent les décisions de gestion fondées sur la science pour cette pêcherie. Les Parties de la Commission du Groenland occidental ont collaboré au cours des trois dernières décennies pour recueillir ces données biologiques. M. Tim Sheehan (Etats-Unis) a présenté un projet d'Accord d'échantillonnage de la pêcherie du Groenland occidental pour 2014, WGC(14)7, et souligné que l'équipe d'échantillonnage comprendrait un participant supplémentaire de l'Union européenne (Irlande). En outre, le gouvernement du Groenland, en coopération avec l'Institut des Ressources naturelles du Groenland et le coordinateur du programme d'échantillonnage, travaillera avec toutes les usines qui recevront les saumons récoltés pour recueillir des données de caractéristiques biologiques et des échantillons d'une proportion du poisson débarqué par le personnel de l'usine. La Commission a adopté l'accord, WGC(14)13(Annexe 5).

9. Annonce du gagnant du prix du Programme incitatif au renvoi des étiquettes

9.1 Le Président a annoncé que le tirage au sort pour le prix de la Commission du Groenland occidental du Programme incitatif de l'OCSAN au renvoi des étiquettes a été effectué par le commissaire, le 6 mai. L'étiquette gagnante a été appliquée à un saumoneau sur la rivière Ure dans le Yorkshire, en Angleterre en 1975. Les saumoneaux de ce programme d'étiquetage ont été capturés par un piège à saumoneaux fixe au niveau d'un barrage et transportés en aval vers l'estuaire pour être relâchés. L'étiquette a été récupérée au Groenland occidental, probablement en 1976 ou 1977 mais a été rendu en 2013. La gagnante du prix de la Commission de 1500 $ était Ms Susanne Thorin, Aasiaat, Groenland. La Commission a adressé ses félicitations à la gagnante.

10. Recommandations au Conseil concernant la demande de conseils scientifiques auprès du CIEM

10.1 La Commission a accepté de déférer une décision sur la demande de conseils scientifiques auprès du CIEM préparés par le Comité scientifique permanent (SSC) en relation avec la zone de la Commission du Groenland occidental à la session finale du Conseil. La demande auprès du CIEM, convenue par le Conseil, est contenue dans le document CNL(14)10 (Annexe 6).

11. Divers

11.1 Aucune autre question n'a été soulevée.

12. Date et lieu de la prochaine session

12.1 La Commission a convenu de tenir une réunion d'intersession début mars 2015 à Nuuk, Groenland, après quoi elle se réunira à la même date et au même lieu que la trente-deuxième session du Conseil en 2015.

13. Compte rendu de la session

13.1 La Commission a accepté un compte rendu de la session.

Note: Les annexes mentionnées ci-dessus commencent à la page 107. Une liste des articles de la Commission du Groenland occidental est incluse en Annexe 7.

Annex 1

Opening Statement on behalf of the Non-Governmental Organizations

The NGOs accredited to NASCO are very concerned over the escalation in the salmon harvest at Greenland to 47 tonnes in 2013, the largest harvest since 1997. This amounts to 14,200 large spawners, 11,500 of which are destined for North American rivers. In addition, an arbitrary estimate of ten tonnes is given for unreported catch, which amounts to the harvest of another 2,500 salmon.

The ICES advice is very clear – there should be no harvest at Greenland where salmon from North America and Southern Europe migrate to feed. The Greenland harvest is especially devastating to Canadian and US populations. Most of the salmon harvest at Greenland, 82% in 2013, is of North American origin, including those from the endangered populations of the southern range.

The Greenland salmon fishery is undermining the costly restoration programs being carried out by conservation organizations, governments and riverside volunteers in eastern Canada and northeastern United States. These projects are many and vary from removal of beaver dams, anti-poaching programs, large and small dam removal and liming to counteract acid rain. Just one example is dam removal costing $62,000,000 on Maine's Penobscot River to open up 1,000 miles of fish habitat. In 2013, the Penobscot met only 5% of its Conservation Limit.

We appreciate the effort by all countries that are party to the West Greenland Commission in preparing the "strawman" proposal that will inform discussions and guide decisions on the Greenland salmon fishery for 2014 and beyond.

We urge Greenland to base the cap on its fishery on scientific advice rather than economic considerations. It is very concerning that the factory harvest can increase based on the year-round demand for wild salmon by consumers within Greenland.

In working with Greenland to improve regulation, management, monitoring and reporting, we urge Parties to consider approaches that will both protect Atlantic salmon at Greenland and within their own jurisdictions. The NGOs urge all NASCO Parties to adhere to ICES advice and the Precautionary Approach to ensure conservation of the resource and advance the principle of fairness in regulation between salmon fisheries in distant waters and those in homewaters.

Annex 2

WGC(14)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 2013 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area
6. Report of the Inter-Sessional Meeting of the Commission
7. Regulatory Measures
8. Sampling in the West Greenland 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 Next Meeting
13. Report of the Meeting

Annex 3

West Greenland Commission

WGC(14)4

Report of the Inter-sessional Meeting of the West Greenland Commission

WGC(14)4

Report of the Inter-sessional Meeting of the West Greenland Commission

Fishmongers' Hall, London Bridge, London, UK
14 - 15 April 2014

1. Opening of the Meeting

1.1 The Chairman of the West Greenland Commission (WGC), Mr Ted Potter (EU), opened the meeting and welcomed the participants (Annex 1). The United States made an opening statement (Annex 2). The Co-Chair of the Non-Governmental Organizations (NGOs) also made an opening statement (Annex 3).

1.2 A list of participants is attached as Annex 4.

2. Adoption of the Agenda

2.1 The Chairman proposed that he would like to take item 6b, (the presentation of the report of the *Ad hoc* Scientific Working Group) before item 6a (the presentation of the report on the management regulations at West Greenland). This proposal was agreed and the agenda was adopted with this small change, WGCIS(14)20 (Annex 5).

3. Nomination of the Rapporteur

3.1 Ms Kimberly Blankenbeker (US) was appointed rapporteur.

4. Objectives of the Meeting

4.1 The Chairman briefly recalled the reason why the WGC agreed to hold a special inter-sessional meeting and noted that an important outcome of the meeting would be to identify and discuss principles to help guide decisions related to the conservation and management of the West Greenland fishery. He indicated that relevant information related to stocks exploited by the fishery, the management of fisheries and other conservation measures would be provided and would help create a strong basis for discussion.

5. Status of MSW salmon stocks

5.1 The representative of ICES, Mr Ian Russell, reviewed the relevant scientific information from the 2013 ICES Advisory Committee report relevant to the West Greenland Commission (CNL(13)8). His presentation to the Commission is available as document WGCIS(14)18.

5.2 The Chairman invited Commission members to give updates for 2013 on the status of the multi-sea winter (MSW) stocks in their jurisdictions that contribute to the West Greenland fishery as well as more detailed information where this would be useful. From the European Union, presentations were made by UK (England and Wales), WGCIS(14)6, UK (Northern Ireland), WGCIS(14)7, UK (Scotland), WGCIS(14)8, and Ireland, WGCIS(14)14. These presentations are appended as Annex 6. The United States also provided a brief update on status and trends for US returns, WGCIS(14)12 (Annex 7).

5.3 Based on the presentations, the Chairman summarized that the status of MSW stocks in North America, particularly in the southern area, was more depleted than stocks from the southern NEAC, with all US stocks and many southern Canadian stocks well below their conservation limits and several other Canadian stocks also below theirs. While, the southern European stock complex has been above (but close to) its conservation limit in recent years, there are several stocks in Europe that contribute to the West Greenland fishery that are severely depleted.

6. Review of the internal use fishery at West Greenland

6.1 The Chairman noted that, in support of the WGC inter-sessional meeting, an *Ad hoc* West Greenland Commission Scientific Working Group was set up to develop a working paper that compiled available data on the West Greenland salmon fishery from 1990 to 2013. The Group worked by correspondence and included one scientist from each of the members of the WGC. Mr Tim Sheehan (US) presented the Group's report (WGCIS(14)4), which is appended as Annex 8. His presentation is available as document WGCIS(14)24.

6.2 The representative of the United States sought clarification on the process used to adjust landings in cases where samplers sampled more fish from a particular region than was reported landed by Greenland. Mr Sheehan explained that samplers are not deployed in all areas during the fishing season and they are only in-country for a portion of the season; therefore, temporal and spatial coverage of the fishery by samplers during the salmon fishing season is not comprehensive. He noted that upward adjustments are only made to catch data if there is an observed discrepancy between total fish sampled for a region and total catches reported by Greenland on a NAFO Division-specific basis. Currently, there is no attempt to apply an expansion factor to the available data to make an estimate of possible underreporting with respect to those times and places where sampling does not occur. The representative of the United States noted that, due to this, the adjustment applied is likely a minimum estimate.

6.3 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that fishermen that sell in the open-air market are obliged to report their catch but reporting from factory landed fish is considered more accurate. At factories, fish are weighed and catches are reported weekly. Fishermen selling in local markets are obliged to record data on their catches in logbooks and must report by the end of the fishing season (31 October of each year).

6.4 The representative of the United States sought confirmation that catch location information is based on where salmon are caught and not on where they are landed. Mr Sheehan reported that some catch data reflected the landing site rather than the catch site but that any such occurrence is likely not significant so no adjustment is made to account for this issue. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that catch data are supposed to reflect where fish are harvested.

6.5 With regard to Section 3 of WGCIS(14)4, Mr Sheehan noted in response to a question on Figure 3.7 that the percent contribution of US salmon to the fishery at West Greenland appears to be relatively consistent over the years despite a decrease in overall abundance. He noted that although US stock status has decreased, there has also been a concurrent decline in the Canadian stocks and, therefore, it isn't surprising that the US contribution has remained consistent over the time series available. He also noted that the ongoing genetic analyses will provide the most comprehensive results of the contributions of European and North American stocks to the Greenland fishery.

6.6 In response to another question, Mr Sheehan noted that the United States experienced a 50% loss in spawner returns in 2002, which was linked to the 2001 commercial export fishery at West Greenland. He also noted that 2001 was not a year of higher overall abundance for these populations.

6.7 In his response to a question about whether the relative contributions of salmon from the southern NEAC and from North America to the West Greenland fishery are approximate to PFA estimates for these stocks, Mr Sheehan noted that preliminary analysis suggests this is true for southern NEAC stocks. While this might also be the case for the North American stock complex, there was more uncertainty for these stocks. Mr Sheehan noted that the genetic work being discussed was very preliminary and that genetic assignment groups differ from stock assessment groupings used by ICES. It is expected that this work will be further developed and used to inform stock assessments.

6.8 The representative of the United States noted that the relative contribution of the various stocks to the Greenland fishery was a very important issue. While from a percentage standpoint, the impact on US stocks might not look significant, in fact, in numbers of fish, the impact is highly significant given how low overall returns are to US rivers. In 2013, US returns totalled only 608 individuals. The US noted that, based on the estimates provided, a 60t harvest at Greenland would result in an estimated harvest of approximately 180 US origin salmon.

6.9 The representative of Denmark (in respect of the Faroe Islands and Greenland) asked if there was any explanation for the apparent variable abundance of salmon in Greenland waters. As an example, in 2010 there were large reported landings of salmon in NAFO Division 1A which had not been realized in previous years or since that time. Mr Sheehan responded that there weren't any clear explanations for this. Annual variations in the migration patterns of Atlantic salmon could be one factor influencing the distribution of salmon in Greenlandic waters although we do not have detailed knowledge of these patterns. The Chairman noted that changes in the migration of salmon appear to be occurring but even in the very early days of harvests at West Greenland a greater proportion of MSW salmon originating from North America than MSW fish originating from Europe were thought to migrate to West Greenland.

6.10 The representative of Denmark (in respect of the Faroe Islands and Greenland) asked if a table had been prepared showing total catches across the North Atlantic. The representative of ICES noted that this harvest level was 1,296t for 2013. The Chairman noted that a more relevant data set for the WGC to consider would be 2013 harvests of North American and southern NEAC multi-sea winter salmon. ICES reported that, of the 166t of harvests (including unreported catch) in North America, 70t were of large salmon (a proxy for and likely over-estimate of MSW fish). For southern NEAC, of the 337t of harvest (including unreported catch), 171t were of MSW salmon. Thus, the total harvest in homewaters of MSW salmon from stocks contributing to the West Greenland fishery was about 241t.

6.11 The representative of the United States asked if it is possible to analyse available genetic and other information in order to explore the feasibility of finer scale management actions, such as adjustment to where and when harvests in the West Greenland fishery might occur to minimise impacts on more vulnerable stocks. Mr Sheehan noted that such information could be provided but that it would need to be caveated given uncertainties. Moreover, risks associated with these uncertainties would have to be carefully considered by managers when evaluating possible conservation and management alternatives.

6.12 A question was asked about the differences in the growth rates of salmon over time. Mr Sheehan noted that growth of salmon at Greenland was exceptional. On average there appears to be an increase of approximately 1.3kg per fish during the fishing season. These types of data could be used in support of the development of future management plans.

6.13 The Secretary presented a paper developed by the WGC Chairman and Secretary that provided an overview of the regulatory measures applying to the West Greenland fishery over the years, WGCIS(14)5 (Annex 9).

6.14 The representative of the United States noted that the management approach agreed in the 2001 regulatory measure was substantially different to that in place for the three prior years. The Secretary noted that there was substantial uncertainty in the PFA estimate and consequently about whether a commercial fishery should be authorized. A management approach was developed that required the collection of CPUE data from the fishery in real time to determine, based on pre-agreed rules, whether or not additional harvests could take place. The Chairman noted that, operationally, this was a difficult approach to implement.

6.15 The representative of Denmark (in respect of the Faroe Islands and Greenland) made a presentation on the management of its fishery, WGCIS(14)15 (Annex 10). In response to a question about how it controls its fishing season, Greenland explained that it sets a three-month season. If the factory landings quota is exhausted before the end of the season, the factory landings sector would be closed. The personal consumption and local sales components of the fishery, however, do not close until 31 October of each year.

6.16 The Chairman asked why landings to factories stopped before the quota was exhausted in 2012 and 2013. The representative of Denmark (in respect of the Faroe Islands and Greenland) explained that the factories accepting salmon are located in small settlements and that they had accepted all the product they could use. The representative of Denmark (in respect of the Faroe Islands and Greenland) also noted that the reason there was a change between 2012 and 2013 regarding which factories were operational was due to some internal business difficulties related to the ownership and financial soundness of some factories. Greenland reminded the Parties that its commercial fishery started in 1960 but before that time there had still been an internal use fishery in Greenland.

6.17 The representative of the United States noted that the first NASCO regulatory measures establishing an internal consumption fishery for Greenland were in 1998, 1999, and 2000. During this period, Greenland managed its fishery by setting a 20t quota, closely monitoring catches, and closing the fishery when the quota limit was reached. Because the text of the current regulatory measure is virtually identical to those in place in 1998-2000, the representative of the United States asked why Greenland's approach to management had changed so substantially. The representative of Denmark (in respect of the Faroe Islands and Greenland) explained that in the early days of the internal use measure, it had set internal limits but that this was very difficult to administer for such a small administration. Given the size of the fishery and the significant effort it took to manage it, Greenland determined that it was not worth the effort to manage the fishery with output controls, such as a quota. Instead, they adopted input controls, such as effort limitations. In addition, the representative of Denmark (in respect of the Faroe Islands and Greenland) noted that there have been times when the science provided for the possibility of a commercial fishery but these opportunities were not utilised.

6.18 The representative of Denmark (in respect of the Faroe Islands and Greenland) reported that salmon are being caught around Greenland all year long as bycatch in other fisheries, which may indicate a change in stock status or residence time (i.e. salmon remaining at Greenland for longer periods of time). The Chairman noted that if this was occurring, a signal should be picked up in the data - in particular, with regard to increases in older fish in the Greenland catch (3SW fish). Mr Sheehan referred the meeting to Figure 5.2 of the *Ad hoc* Scientific Working Group Report. He stated there was some variability but that the proportions of 1SW to 2SW fish were fairly consistent from the 1990s to the present with the overwhelming proportion of fish being 1SW. He also noted that care should be taken with interpreting these trends as many data points are based on a small number of fish. The Chairman noted that, regardless, the data suggests that there may be some fish staying longer around Greenland and if this is true the question is why such a change in behaviour would occur. The representative of the European Union asked Denmark (in respect of the Faroe Islands and Greenland) if salmon bycatch data was available and could be reported. The representative of Denmark (in respect of the Faroe Islands and Greenland) said he did not have the data yet but it is supposed to be included in logbook reports; he indicated that he would look into getting these data reported to NASCO.

6.19 The representative of the United States, asked Denmark (in respect of the Faroe Islands and Greenland) to explain the local context of Greenland's salmon fishery *vis a vis* other fisheries resources, such as its relative importance and relevance. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that salmon is an important resource for the settlements in mid and southern Greenland. The fishery for Greenland halibut occurs in Disko Bay, and trawlers operate on the west coast of Greenland and land in cities. The representative of Denmark (in respect of the Faroe Islands and Greenland) highlighted Table 1.4 in the *Ad hoc* Scientific Working Group's report, noting that salmon are landed in factories in settlements that don't have much other economic activity. Cod fishing is also done in these settlements but the cod fishery is not sufficiently economically viable at the present time. The Chairman noted that Table 2.1 of the *Ad hoc* Scientific Working Group's report might be more relevant to the discussion as it shows a spread of landings from various components of the fishery across all areas. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it has 2,800 licensed dinghies and that 900 of them are in the north and fish for Greenland halibut. 323 dinghies plus 11 licensed vessels over 6 meters received licences to fish for salmon in West Greenland in 2013.

6.20 The representative of the European Union asked why Greenland had turned to salmon to offset the difficulties caused by the condition of the cod stock when salmon is not recovering either. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that the cod fishery remains important to Greenland. The offshore fishery is in good shape; the inshore fishery needs to rebuild. Because cod is not very valuable at this time, salmon can help supplement needs. This is a key reason why the factories in these areas were opened.

6.21 The representative of the United States drew attention to Table 2.1 in WGCIS(14)15 and asked if output controls, such as bag limits, could be used to control harvests by unlicensed fishermen rather than input controls. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that there was no limit on what this component of the fishery could catch. The representative of the United States asked how Greenland reaches its fishermen to inform them of those aspects of the fishery they need to know about. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it uses TV spots, the fisherman's association (KNAPK), license requirements and other means. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that KNAPK is fully representative of the licensed fishermen component of its fishery as all licensed fishermen are members of that organization. The representative of Denmark (in respect of the Faroe Islands and Greenland) also noted that it supports KNAPK and that the association has 77 representatives in the country. With regard to rod caught salmon, the representative of Denmark (in respect of the Faroe Islands and Greenland) reported that such harvests are rare and that more harvests of salmon occur as a bycatch in the Arctic charr fishery, which occurs in the fjords.

6.22 The representative of the United States noted that Table 1.5 of the *Ad hoc* Scientific Working Group's report indicates that in 2013 only 66 fishermen reported salmon catches but there are 323 fishermen that are licensed. A question was raised if this discrepancy could indicate underreporting. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it did not indicate a problem with reporting and explained that not all licensed fishermen fish for salmon every year. There may be other fisheries that are more lucrative in a given year, for instance. The representative of Denmark (in respect of the Faroe Islands and Greenland) also confirmed that there is no limit on the number of salmon fishing licenses that can be issued although there are eligibility requirements. The representative of the United States expressed a concern that the current licensing situation in Greenland could lead to a large increase in fishing effort in the salmon fishery if at some point licensed fishermen who have not been active in the fishery decide to enter it. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that this was not a likely scenario given past experience and the size of the market in Greenland. The representative of the United States remarked that, according to Table 1.5, it appeared that the fishery was trending toward fewer participants, which was odd if indeed the cod fishery was not very lucrative at the moment, while the amount of reported catches are increasing. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that it needed to undertake a more detailed analysis of the data in the *Ad hoc* Scientific Working Group paper before it could comment on what it might mean. Mr Sheehan pointed out that in the same Table, 1.3t of salmon was reported sold by unlicensed fishermen, which according to Greenlandic rules, is illegal. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that he would look into this.

6.23 The Chairman asked how complete catch reporting is by Greenlandic fishermen given the new and extensive data elements now being required by Greenland in its logbooks. The representative of Denmark (in respect of the Faroe Islands and Greenland) reported that they are having some implementation issues but these are being worked out and that they hope to see significant improvement within two years' time. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that in 1997 Greenland began requiring all catches to be reported by both licensed and unlicensed fishermen. In that regard, Greenland also now requires both licensed and unlicensed fishermen to complete and submit a logbook.

6.24 In response to a question from the representative of the United States, the representative of Denmark (in respect of the Faroe Islands and Greenland) explained how the distribution of factory landed salmon works in Greenland. Salmon that are landed to factories in smaller settlements are sold to distributors. These distributors supply fish to cities and settlements throughout Greenland. Most of the salmon, however, is shipped to the north. The distributors supplying Greenland's cities and settlements handle wild caught Atlantic salmon from Greenland, Norwegian farmed salmon and other supplies.

6.25 A question was raised by the representative of the United States about the basis for setting the factory landings quota at 35t. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it had worked with the distributors to establish an estimate of potential market demand in Greenland. The representative of the United States noted that this decision appears to have been based on economic considerations rather than biological ones. With regard to the effort to displace imported Norwegian farmed salmon in the marketplace with Greenlandic salmon, the representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that this objective fits in with Greenland's overall policy in place for the last five years to use domestic natural resources rather than imported products, wherever possible. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it is too early to tell if they will reach the sales goal for salmon, but retailers believe they can sell more. Regarding factory involvement in salmon processing and sale, the representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that there is no limit on the number of factories that could accept salmon or their locations but the larger ones likely would not participate as they are fully subscribed with processing other species and to change over operations is likely not economical at this time. In addition, the representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that there remains some price differential between factory landed salmon (lower) and salmon sold as fresh product in local markets, etc.

6.26 The representative of the United States noted that last year Greenland had said that any increase in the factory landings quota would be offset by decreases in the local sales component of the fishery. Several Parties expressed concern that this would not be the case as the incentive would be to increase fishing effort to harvest more so incomes would rise. It appears from the data that the concerns expressed last year are being realised. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it needed to study this matter before commenting fully but that it did not necessarily think that effort in the fishery had increased. The representative of the United States referred to Figure 1.2 in the *Ad hoc* Scientific Working Group's report, which showed that at least commercial landings were up in 2013 and that other components of the fishery remained about the same so no offset occurred. The representative of the United States expressed alarm that Greenland appeared to be pursuing a policy of promoting increased consumption of wild Atlantic salmon domestically and of the potential consequences to the stocks if consumers begin to prefer such salmon on a large scale and management in Greenland changes again.

6.27 The representative of Canada noted concern that the markets in Greenland are new and will develop further and asked whether salmon fisheries were part of Greenland's self sufficiency goal. The representative of Canada also asked if the domestic market for wild salmon could grow to 35t or beyond. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it was not feasible at this time to raise the factory quota as they cannot currently process all 35t allocated for factory landings. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that the salmon harvested by its fishermen do not leave Greenland.

7. Review of management measures for MSW salmon in homewater fisheries

7.1 Each of the members of the WGC presented information on their efforts to conserve and manage salmon in their homewaters. The representative of Canada made the first presentation, WGCIS(14)21 (Annex 11). The representative of the European Union presented an overview of three EU Directives (Habitats Directive, Marine Strategy Framework Directive, Water Framework Directive) and the Common Fisheries Policy to provide the relevant EU context for the conservation and management of Atlantic salmon by European Union Member States, WGCIS(14)23 (Annex 12). The representative of the European Union stressed that foundational concepts supporting its work to conserve and manage fisheries resources are the Precautionary Approach and Ecosystem Approach. Several European Union Member States also made presentations under this agenda item: UK (England and Wales), WGCIS(14)9, UK (Northern Ireland), WGCIS(14)10, UK (Scotland), WGCIS(14)11, and Ireland, WGCIS(14)14. These presentations are appended as Annex 13. The representative of the United States also made a presentation on US efforts to conserve and restore Atlantic salmon, WGCIS(14)13 (Annex 14).

7.2 The NGO Co-Chair expressed some doubt that EU Directives and the relevant fisheries policy regulation were doing what they needed to, noting that Member State implementation needed to be improved. The representative of the European Union responded that a critical review of these documents had just been completed. It was determined that they were sufficient to meet needs but that better integration was needed. The process also recognised that Member State implementation needed to be improved. The representative of the European Union noted that there is now a strong commitment on the part of the European Commission to improve the situation, including the provision of additional resources.

7.3 Regarding the US report, the NGO Co-Chair noted that the total cost associated with the Penobscot River Restoration Project had risen to about $62 million. In response to a question, the representative of the United States noted that there are fewer than 20 documented US Atlantic salmon rivers. All these rivers are actively monitored. Habitat protection occurs even in rivers where no salmon have been documented.

8. Future Regulation and Management of the West Greenland salmon fishery

8.1 The Chairman noted that the information presented and discussed in the previous agenda items clarified the status of the various stocks contributing to the fishery at West Greenland as well as the efforts being undertaken to conserve and manage Atlantic salmon both at West Greenland and in homewaters. While not foreclosing additional discussion on the previous agenda items, he suggested that there was now a strong foundation from which to try to tackle the main objective of the meeting; namely, to identify and discuss principles and approaches with the aim of helping to guide decisions related to the conservation of Atlantic salmon and the management of the West Greenland fishery in 2014 and into the future.

8.2 The representative of the United States asked Denmark (in respect of the Faroe Islands and Greenland) to consider the relevance of the current regulatory measure, how it views its current approach to management in the context of that measure, and where management of this important resource should go. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that Greenland had taken a wide variety of actions to manage its fishery, including limiting it to internal consumption and restricting export, adopting technical measures, such as mesh sizes, restricting the fishing season, restricting who can sell salmon, and expanding data collection requirements, among other actions. The Chairman asked Denmark (in respect of the Faroe Islands and Greenland) if it felt its management approach was consistent with the expectation of the other WGC members and the spirit of the agreement. The representative of Denmark (in respect of Faroe Islands and Greenland) declined to answer and indicated that he did not know who had provided the historical estimate of the internal use harvest of 20t.

8.3 The Chairman noted that that figure was provided by Denmark (in respect of the Faroe Islands and Greenland) in about 1997 and has been in regulatory measures going back to 1998.

8.4 The representative of Canada recalled his surprise from last year when he learned that Greenland had changed its management approach to allow a 35t factory landings quota since it can result in an increase in catch when the science is clear that the stocks cannot take it. The representative of Canada stressed that it is difficult to understand how Greenland can support such a management program in light of the terms of the regulatory measure and the status of the stocks.

8.5 The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that Greenland has taken strong measures on the commercial fishery for 30 years, yet the stocks never improve. He did not believe that the West Greenland fishery is the reason for the failure of the stocks to improve. Moreover, homewater fisheries are continuing. The representative of Denmark (in respect of the Faroe Islands and Greenland) suggested that if everyone would agree to suspend fishing across the North Atlantic, they would be ready to discuss decreasing Greenland's harvest.

8.6 The Chairman asked if, based on that remark, Denmark (in respect of the Faroe Islands and Greenland) did not see any of the actions that have been taken in homewaters as meaningful. The representative of Canada noted that they understand Greenland's perspective. Canada has a small aboriginal catch. Still, this fishery is well-managed, including using carcass tags, and data are fully reported. The representative of Canada expressed doubt that the data collection for Greenland's fishery is sufficient and asked Denmark (in respect of the Faroe Islands and Greenland) if they could take steps to improve monitoring for the non-factory component of the fishery. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that improving monitoring in this way would require substantial effort and was not feasible. Moreover, he stressed that it was not possible for consumption in Greenland to increase substantially.

8.7 The Chairman noted his perspective that the issue was less about the 20t figure and more about steps taken by Greenland that allow the fishery to expand. The Chairman reiterated that the fishery has expanded since the advent of the factory landings quota, and there appears to be scope for it to expand further. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it does not expect any increase in effort or landings. He suggested that they might expect to see a small decrease in the open air market sales.

8.8 The representative of Canada recalled the idea of establishing a common understanding of what is meant by internal consumption. The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that it sees its internal fishery as stable although it does need to analyse the changes that have been seen over the last two fishing seasons. The representative of Denmark (in respect of the Faroe Islands and Greenland) also reminded the Parties that it is seeing an abundance of fish locally, including those taken as bycatch in various fisheries. The Chairman indicated that we need to be careful not to assume that pockets of local abundance reflect the status of the stocks overall.

8.9 The representative of the United States asked Denmark (in respect of the Faroe Islands and Greenland) how it sets quotas in other fisheries. The representative of Denmark (in respect of the Faroe Islands and Greenland) responded that NAFO gives advice on shrimp and Greenland halibut and that these quotas take into account the scientific advice. Greenland implements the NAFO limits in its domestic fisheries and monitors and controls them. He noted that the Greenland shrimp fishery is MSC certified. The representative of the United States pointed out that Greenland takes science into account for other fisheries but does not seem to do so in the case of salmon. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that there are too many uncertainties in the scientific advice for the salmon stocks but they don't have a biologist with them who can speak to this aspect.

The representative of the United States underscored that the more uncertainty there is in the science and the more imperfections in implementation of a management measure, the more cautious managers must be when establishing those measures. This idea is a key aspect of fisheries management. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it could not respond as its delegation did not contain a biologist.

8.10 The representative of the European Union reiterated that European Union Member State jurisdictions had taken major steps to regulate and close some fisheries. She also stressed that management should be based on sound scientific advice, not just on perceptions of what we believe. If uncertainties exist, one must apply the Precautionary Approach, as this organization has already agreed to do. This question is not an issue for biologists; it is an issue for managers. Overall, the abundance of stocks contributing to the West Greenland fishery is very low. It is clear there is a clash in how Denmark (in respect of the Faroe Islands and Greenland) understands the current situation compared to the way other Parties understand things. It is not appropriate to be increasing catches. Rather, catches need to be at the lowest level possible. With regard to Greenland's internal consumption fishery, the specific reference to 20t is very important. The science advice could not be clearer. There should be no fishery at West Greenland. All of these aspects must inform how we understand implementation of the current regulatory measure.

8.11 To stimulate ideas for actions the WGC might take to enhance management of the West Greenland fishery in 2014, the Chairman presented a 'strawman' proposal for discussion reflecting the views expressed by the Parties, (WGIS(14)16). It was presented in the form of an addendum to the current regulatory measure, WGC(12)12, and included a short summary of what the Chairman viewed as key observations arising from the discussion of the updated status and trends data concerning the stocks that contribute to the West Greenland fishery and conservation and management information through 2013 presented by both West Greenland and States of origin concerning actions in their homewaters.

8.12 The representative of the United States indicated, and the Chairman confirmed, that the proposal as written, which does not reference a factory landings quota, would not preclude Greenland from managing the internal fishery as they saw fit, including establishing such a quota. The representative of Canada noted that the 'strawman' was interesting food for thought and that they were supportive of some type of internal consumption fishery for Greenland. He stated, however, that it would be difficult, if not impossible, for Canada to accept a document that explicitly referenced a factory landings quota. Part of the concern was that this would set a bad precedent and could increase pressure in other jurisdictions, including Canada, to re-open fisheries that are currently closed. The representative of the European Union expressed a similar concern in relation to the pressure for reopening some fisheries. The representative of the European Union also noted that they consider the Chairman's 'strawman' to be a good basis for further consideration of how the 2014 fishery at West Greenland might be managed. The representative of the European Union expressed a reservation until its official position is developed. The representative of the European Union also noted that they are ready to help Denmark (in respect of the Faroe Islands and Greenland) by sharing their experiences on how to improve the catch monitoring.

8.13 The representative of Denmark (in respect of the Faroe Islands and Greenland) stated that paragraph 3 of the 'strawman' proposal was not acceptable to them as drafted as they consider it represented an inappropriate reach by NASCO into Greenland's national sovereignty. They also noted that catch levels in Greenland's fishery have been stabilizing over the last few years and that the catches sold at the open air market had decreased by about 11t when the factory landings quota was instituted.

8.14 The representative of the United States mentioned that unreported catch in Greenland was estimated to be 10t but that there was no clear rationale for this figure. He also noted a concern about the latent capacity in the fishery, which, if activated, could substantially increase the catch. He noted the difficulty in agreeing to a catch limit for the West Greenland fishery when effective methods are not in place to monitor and control the fishery.

8.15 The representative of the United States asked Denmark (in respect of the Faroe Islands and Greenland) if any of the monitoring and control measures implemented by Parties in their homewater fisheries, such as Canada's carcass tagging scheme, might be something they would explore to help improve management of the West Greenland fishery. The representative of Denmark (in respect of the Faroe Islands and Greenland) noted that it would need to confer with its control office in Nuuk on this point but that some of the ideas presented could overwhelm their small administration and be a high financial burden. The representative of the United States noted that there may be ways to limit the cost of such programs by using relatively inexpensive electronic technology, such as iPhones and/or perhaps to use the KNAPK network to assist in implementation. The representative of the United States reiterated the need for Greenland to improve monitoring of, and accountability in, the West Greenland fishery before the United States would be able to support a particular harvest level. The NGO Co-Chair stressed once again that the West Greenland fishery should be firmly limited to no more than a 20t subsistence fishery.

8.16 The Chairman thanked the Parties for their comments and noted that his 'strawman' was intended to start the Parties thinking about possible ways forward with regard to the management of the West Greenland fishery for 2014 and beyond. He recognized that there were elements of the proposal that were controversial for some Parties but asked if it could be appended to the report, still as a Chairman's text, so that it could be available for Parties to reference as they continued their discussions of this important issue. The Parties thanked the Chairman for the document and agreed with the proposal to attach the document to the meeting report for this purpose. This document, WGCIS(14)17, is contained in Annex 15.

9. Other Business

9.1 There was no other business.

10. Report of the Meeting

10.1 A report of the meeting was agreed.

11. Close of the Meeting

11.1 The Chairman thanked the participants for contributing to an open dialogue that should facilitate further discussions at the NASCO Annual Meeting. The Parties expressed their sincere gratitude to the Chairman for his excellent organization and leadership leading up to and during the inter-sessional meeting.

11.2 The Chairman closed the meeting.

Annex 1 of WGC(14)4

Opening Statement by the Chairman of the West Greenland Commission

Good morning Ladies and Gentlemen. It is my great pleasure to welcome you all to London, and the magnificent surroundings of Fishmongers' Hall, for this inter-sessional meeting of the West Greenland Commission. I know that some of you have had difficult journeys to be here, and I greatly appreciate your participation.

NASCO's objective is to contribute through consultation and cooperation to the conservation, restoration, enhancement and rational management of salmon stocks, taking into account the best scientific evidence available to it. The past work of this Commission has been characterised by an excellent spirit of international cooperation and a strong commitment to developing regulatory measures that are closely aligned with the scientific advice from ICES. In most years since 1998, the fishery at West Greenland has been restricted to internal-use only harvests in response to the greatly reduced abundance of multi-sea-winter salmon in many rivers in North America and Southern Europe. This has involved major sacrifices for Greenland that we all recognise and appreciate as important conservation measures.

You will recall that in Drogheda, last June, the Commission held initial but fairly detailed discussions on a change in Greenlandic management measures in 2012 which permitted landings to fish factories subject to a quota of 35 tonnes. Different opinions were expressed about how this change would affect harvests in the fishery, and these were well documented in the report of the meeting. We agreed to reconvene once data from the 2013 fishery became available and we now have that information to hand. We are also aware now that the Framework of Indicators has confirmed that re-assessment of the 2012 ICES catch advice was not required for the 2014 fishery so the 2012 regulatory measure will continue to apply.

While the importance of this fishery to Greenland is recognised, there are real concerns about possible increases in the harvest. These concerns are compounded because, since 2007, over 80% of the salmon contributing to the fishery have originated from North America, and some of these stocks are critically endangered. The most recent advice provided by ICES in 2012 is clear - '*There are no mixed-stock fisheries catch options at West Greenland in 2012, 2013 and 2014 and 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'*.

So, we have important issues to consider over the next day and a half, and Peter and I very much look forward to working with you all in order to thoroughly review the issues and hopefully find a way forward that is acceptable to all Parties.

I am very keen that our discussions here in London are based upon a full understanding of the present status of MSW salmon stocks and of the management measures applying to the internal-use fishery at West Greenland and the fishery regulations and other conservation measures that have been introduced by States of origin. Our agenda has been structured accordingly. This is consistent with NASCO's Strategic Approach which highlights the need for fairness and balance in the management of distant-water and homewater fisheries. So, I hope we will have a thorough and open exchange in the cooperative spirit that characterises NASCO's work.

Because the advice on events in the 2013 fishery and on stock status will not be available until May, ICES will provide an overview of the 2013 advice relating to the status of North American and southern European stocks. There will then be an opportunity for the Parties to provide any updates on MSW stock status for 2014 and highlight specific concerns relating to the status of these stocks. Because the ICES advice is not yet available, the Commission agreed to establish a scientific working group to compile available catch data for the West Greenland salmon fishery, including reported and unreported catches; the spatial and temporal breakdown of the catches; the origin of the catches and exploitation rates. A paper providing that information has also been distributed. I would then like to review the NASCO regulatory measures for the West Greenland fishery, their implementation and the terminology used; the Secretariat and I have prepared a paper on this which has been distributed. Greenland will then have an opportunity to describe the management measures relating to the internal-use fishery and the monitoring and surveillance programmes in place. Finally, there will be an opportunity for the States of origin to describe the management measures they have taken, and plan to take, for MSW salmon. With that detailed background, I very much hope that we will be in a much better position to discuss the future regulation and management of the West Greenland fishery.

So, we have much to do in these impressive surroundings over the next two days. I would like to thank the Secretariat for the arrangements made for this meeting and the Fishmongers' Company for allowing us to use their facilities. I would now ask if there are any Opening Statements.

Opening Statement on Behalf of the United States

Mr. Chairman, Mr. Secretary, Distinguished Delegates, Observers, Ladies and Gentlemen:

On behalf of the United States, I would like to begin by thanking our Chairman, Ted Potter, and Secretary, Peter Hutchinson, for their hard work pulling together this inter-sessional meeting of the West Greenland Commission. The extra work needed to organize this meeting undoubtedly comes at a challenging time as the Secretariat is already in preparations for the annual meeting. Please extend our thanks, Peter, to Mairi and Louise, who no doubt helped with your preparations for this meeting.

I also wish to thank the other parties for supporting this meeting. I know it's a busy season for you, as well. I am personally pleased to see you all. I think it's a testament to the importance you place on NASCO and on the work of this Commission that you agreed to carve out the extra time to talk through and work through what are some tough and very important issues. I sincerely appreciate the attendance of our NGO partners, who provide an important reminder that many others beyond the delegations in this room are paying attention to what we do here today and tomorrow.

I know that everyone in the United States who cares about Atlantic salmon, and there are many, is watching what happens here in London as prior to this meeting, I received numerous calls and e-mails from stakeholders concerning the work of this Commission. A key US stakeholder is the State of Maine, which hosts our endangered runs of salmon. Our newly appointed non-federal commissioner, Patrick Keliher, whom you'll meet in June, is the head of the state agency in Maine that manages marine fisheries and sea-run fish. His office and other agencies involved in the enforcement of fishing prohibitions, coordinated management, and other protective activities in our salmon rivers are eager to know what happens here. In addition, dozens of state and national level NGOs and local communities that are investing heavily in the recovery of Atlantic salmon through reopening and improving habitat, are watching. And I cannot forget to mention the interest of the native American Penobscot tribe, who voluntarily suspended their sustenance fishery on the mighty Penobscot River over twenty-five years ago – even before Atlantic salmon populations were listed on the US Endangered Species Act. They, too, are watching.

My delegation is in close touch with our superiors in the National Marine Fisheries Service, NOAA, and the Department of Commerce, as well as senior officials in the US Department of State – to whom we'll be reporting when we return home. As you may know, Ambassador Balton and NOAA's Deputy Assistant Secretary for International Fisheries Russell Smith recently visited Greenland and in the course of their meetings concerning the Arctic to discuss Atlantic salmon with the Premier of Greenland as well as Mr Rosing and other Greenlandic government officials.

The discussion by this Commission over the next two days will be an important step toward determining where the conservation and management of Atlantic salmon should go. As has been the case in the past here in NASCO, an open dialogue, cooperation, and collaboration amongst us all – even, or especially, on the difficult questions – will be critical to this work. We hope others share our view so that the meeting can be as productive as possible and result in concrete outcomes.

We are committed to NASCO, to science-based management that takes appropriate account of uncertainties, and to the process we have begun here today. As you all know, we are seriously concerned about our critically endangered populations of Atlantic salmon. The risk of extinction of these populations is real, and our responsibility, individually and collectively, to avoid such an outcome cannot be overstated.

It will come as no surprise, therefore, that the marked uptick in landings at West Greenland in 2012 and 2013 is concerning. At the annual meeting last June, we cited the approval of landings to factories as providing an incentive for increasing fishing effort and means to extend the market. It seems that concern has been realized.

So for today and tomorrow, we are keen to further broaden the Commission's dialogue on the conservation and management of Atlantic salmon from where it was last June. We look forward to sharing with you a report on US efforts to conserve and restore Atlantic salmon over the years and an update on the status and trends of US returns. And we look forward to hearing similar reports from the other parties, and, in particular, to enhancing our understanding of the fishery at West Greenland; its importance to Greenland, and how it is managed – all in hopes that we can find common ground on the question of how to effectively conserve and manage this iconic species in line with our responsibilities under the NASCO Convention as well as the various agreements and decisions we have reached over the years.

Thank you, Mr Chairman.

Opening Statement by Non-Governmental Organisations

Preliminary information indicates that the total catch of North American and European salmon at Greenland increased from 34 tonnes in 2012 to 47 tonnes in 2013. In addition, there is an unreported catch assumed to be ten tonnes. The majority of the salmon caught in 2013 (82%) were of North American origin. Salmon from endangered populations in the United States and threatened, endangered and at-risk populations in Canada migrate to West Greenland and are potentially harvested there. The rest of the harvest in 2013 (18%) originated from southern Europe, where many salmon populations are not meeting conservation limits. Millions of dollars in public and private money are spent to recover these salmon populations in their home rivers. For example, a $62 million project focused on dam removal to restore sea-run fish in the Penobscot River in Maine will come to completion in the next couple of years. This huge investment on behalf of wild salmon is jeopardized by an increasing fishery at Greenland to sell to factories.

Advice from the International Council for the Exploration of the Sea (ICES) is that the number of North American two-sea-winter salmon is substantially below the conservation limits, and there should be no harvest where salmon from various rivers are mixed together, which is the case in Greenland waters. The NGOs accredited to NASCO implore all Parties at this WGC meeting to take all necessary steps to reach the goal of reducing the harvest of salmon at Greenland to a well-managed subsistence fishery of no more than 20 tonnes.

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Annex 5 of WGC(14)4

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Objectives of the Meeting
5. Status of MSW salmon stocks
6. Review of the internal-use fishery at West Greenland
    - catches and catch composition
    - management measures
    - monitoring and surveillance
7. Review of management measures for MSW salmon in homewater fisheries
8. Future regulation and management of the West Greenland salmon fishery
9. Other Business
10. Report of the Meeting
11. Close of the Meeting

Background Information from European Union Member States on the Status of MSW Salmon Stocks

WGCIS(14)6

Status of MSW salmon stocks contributing to West Greenland fishery in EU - UK (England and Wales)

(Inter-sessional meeting agenda item 5)

Overview

In England and Wales the MSW stock as a whole (assessed using the ICES approach) is estimated to be above the Conservation Limit but this is not the case for each individual river stock.

This reflects marked improvements in the status of some MSW stocks over the past two decades (e.g. the River Tyne), but this has masked the decline of other historically significant MSW salmon stocks, some of which (e.g. the Wye and the Avon) remain in a depleted state.

Detail

There are 64 principle salmon rivers in England and Wales. Information on the status of the salmon stocks and fisheries in these rivers in 2013 has been provided in the national report submitted to ICES in March.

Assessments of these stocks are based, in part, on rod catch returns. Information from rod catch returns is also used to inform estimates of the relative status of 1SW and MSW stock components. The provisional declared rod catch in 2013 of 13,491 fish was the 7th lowest in the available time series (since 1956). Catches of 1SW salmon (grilse) were the lowest since 2003. However catches of MSW salmon, while lower than in 2011 and 2012, remained among the highest for more than 15 years. There has also been a marked increase in the proportion of MSW salmon in the catch in the last three years (despite a poor total catch in 2013).

Conservation Limits, based on total egg deposition requirements, have been set for each of the 64 principal salmon rivers in England and Wales, in line with NASCO requirements. We do not use a separate CL for MSW salmon, but take account of trends in the age composition of the stocks when making management decisions.

In 2013, 40% of the 64 principal salmon rivers in England and 68% of those in Wales were assessed as being ‘at risk’ (<5% probability of achieving the Conservation Limit in four years out of five). Some of these ‘at risk’ rivers, such as the Wye and Hampshire Avon, have traditionally supported predominately MSW runs.

The total England and Wales salmon stock is also assessed annually using the method applied by ICES. This indicates that the MSW component of the national stock is above CL, but the 1SW component is below. This assessment is not used when making local management decisions.

WGCIS(14)7

Status of MSW salmon stocks contributing to West Greenland fishery in EU -UK (Northern Ireland)

(Inter-sessional meeting agenda item 5)

Typically most of the rivers in NI are dominated by grilse stocks with the MSW component averaging around 10-30% in most rivers. The only long term data is from the River Bush where up until 2011 the MSW component was consistently around 10% of the total run (Fig. 1). Over the last two years the MSW component on the River Bush has risen to c. 30 %, although it should be noted that this increase was due in part to reduced returns of 1SW salmon particularly in 2012. The relative (smolt to adult) survival rate of 2SW salmon returning to the River Bush has increased during the last decade from 0.15% in 2002 (2000 smolt year) to 1.34% in 2012 (2010 smolt year) (Fig. 2). Biological sampling on the Lower Bann River (the largest salmon producing river in the DCAL area) indicated that MSW fish composed around 30% of the total run in 2010-11. Recent increases in spawning escapement for MSW fish in Northern Ireland may be influenced by natural processes particularly in the marine environment. However they may also be due, in part, to a range of management measures introduced around 2000-1 which targeted the conservation of MSW stocks (see below).

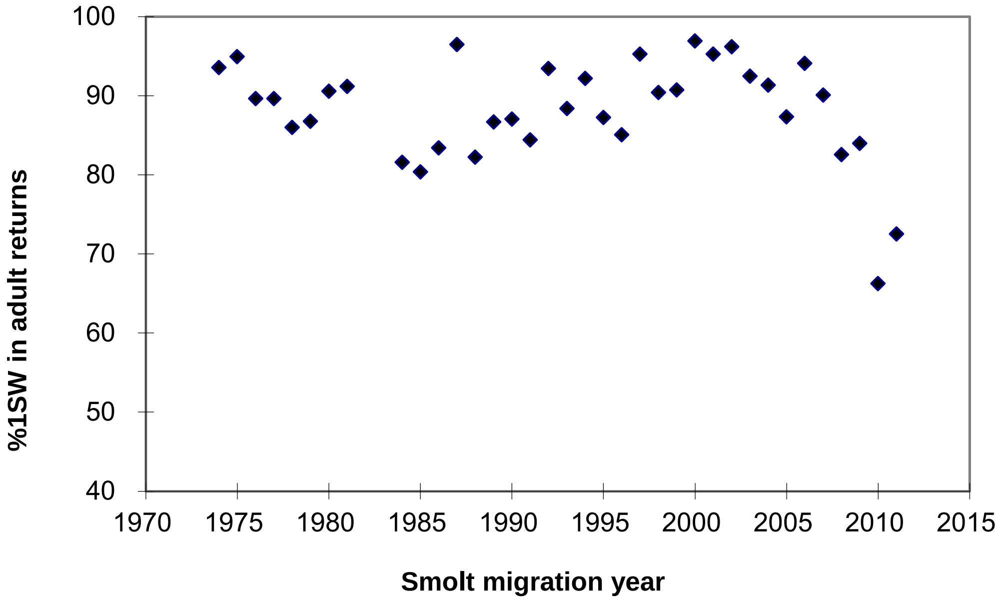

Fig. 1 Percentage of salmon maturing as 1SW adults to the R. Bush from each smolt cohort.

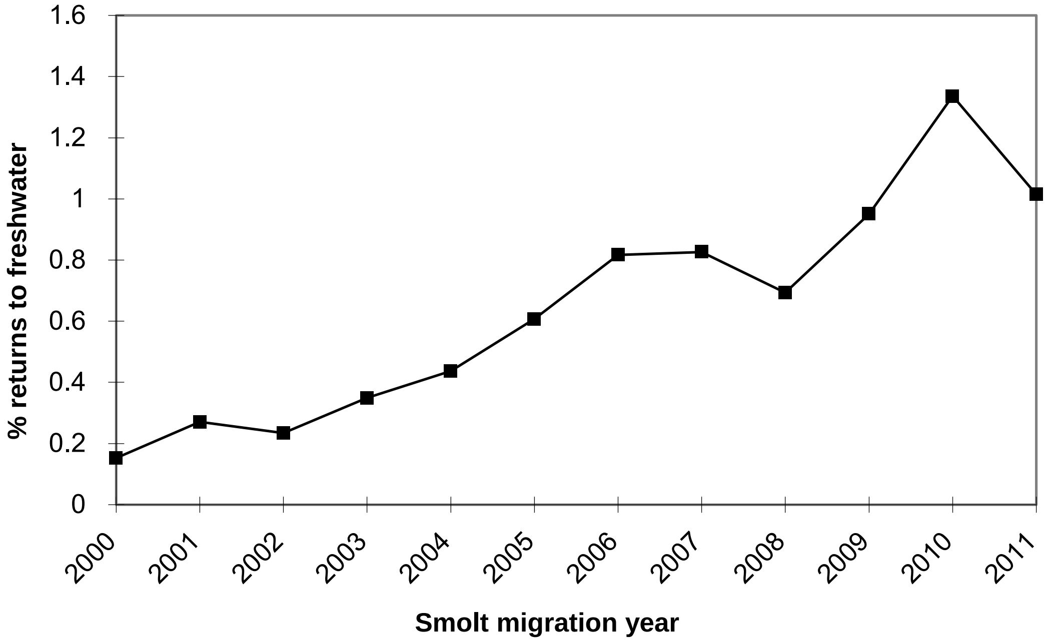

Fig. 2 Returns to freshwater of 2SW wild salmon from the River Bush, N. Ir

WGCIS(14)8

Status of MSW salmon stocks contributing to West Greenland fishery in EU-UK (Scotland)

(Inter-sessional meeting agenda item 5)

1. The Scottish Government (Marine Scotland) are developing CLs/spawning escapement estimates (see Implementation Plan: http://www.nasco.int/pdf/2013%20papers/CNL(13)50%20FINAL.pdf)

2. In the meantime, national assessment is carried out using rod catch data (indirect measure) in conjunction with direct measures of abundance where available (see Scottish Salmon and Sea Trout Fishery Statistics: http://www.scotland.gov.uk/Topics/marine/science/Publications/stats/SalmonSeaTroutCatches and Status of Salmon Stocks: http://www.scotland.gov.uk/Resource/0044/00446406.pdf).

3. The data suggest that it is the early running (spring) component of the MSW stock that is of most concern.

   As the work on developing CLs continues, Scotland, along with a number of other countries, contributes to the stock assessment work of ICES/NASCO by using the NEAC PFA run-reconstruction model which provides stock assessment measures at the national scale (http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/WGNAS/wgnas_2013.pdf). However the referenced report makes the following statement regarding the use of stock status measures derived by this method (for large scale assessments) for management in homewaters as follows:

   "The Working Group also emphasized that the national stock CLs are not appropriate to the management of homewater fisheries. This is because fisheries in homewaters usually target individual or smaller groups of river stocks and can therefore be managed on the basis of their expected impact on the status of the separate stocks. Nevertheless, the Working Group agreed that the combined CLs for national stocks exploited by the distant water fisheries could be used to provide general management advice at the level of the stock complexes."

   The output from this model indicates that, for Scotland, both returns and spawners have remained relatively stable since the late 1990s and that spawner values fluctuate around the CL.

WGCIS(14)14

Status of MSW salmon stocks contributing to West Greenland fishery and Management measures for MSW salmon in home water fisheries in EU-Ireland

(Inter-sessional meeting agenda items 5 and 7)

1. Ireland's management measures to support the conservation of salmon stocks

In 2007, Ireland closed its mixed stock salmon fisheries and facilitated the closure of many commercial fisheries with a "Hardship Scheme"; the cost to the Irish government of this scheme was in the region of €25m. It is also at this time that Ireland moved to management of all salmon rivers on a catchment by catchment basis.

Ireland expends a significant amount of resources in researching and providing advice on the status of Ireland's salmon. Each of Ireland's 143 salmon rivers has an established Conservation Limit (CL) and is managed individually. Ireland Standing Scientific Committee on Salmon provides advice each year on the predicted salmon returns by catchment for the year ahead; this information is used to establish any potential surplus/deficit for each river. Based on this advice managers draft and implement legislation to ensure the conservation of salmon stocks.

		Number of Rivers 2014	Number of Rivers 2013
1SW	**Open**	57	57
1SW	**Catch & release**	30	15
1SW	**Closed**	56	71
	Total	143	143
MSW	**Open**	11	11
MSW	**Catch & release**	2	2
MSW	**Closed**	3	3
	Total	16	16

Table 1

Salmon Conservation Funds are generated from the sale of salmon angling and commercial fishing licences which represents a major contribution by licence holders to wild salmon conservation. The revenue generated from the Salmon Conservation Fund is reinvested to promote the recovery and conservation of our salmon stocks. Since 2007 over €3.7m has been generated by this fund with over 140 projects supported, across a diverse range of areas including:

- River Bank Protection
- Spawning Ground Rehabilitation
- In-stream Works
- Weirs and Pools Rehabilitated
- Fish Pass Improvements
- Assessment of Attainment CL
- Removal of Trees/Overgrowth

- Fish counter installation
- Salmonid Research

Projects are assessed based on the river's conservation limit status, its water quality (Q-value) and the maximum potential project benefits to the river with funding prioritised for those rivers in most need of rehabilitation. Inland Fisheries Ireland (IFI) manages this fund and also supports additional measures to salmon habitat restoration though the Environmental Riverine Enhancement Programme (EREP). The EREP programme is a collaborative programme between IFI and the Office of Public Works (OPW) which has spent approximately €2.5m/yr. for the past 6 years on formerly arterially drained channels to restore and preserve salmonid habitat; approximately 90% of these works directly support salmon production. It is also worth noting that expert IFI staff in each River Basin District support the restoration and development of their local salmon catchments.

Inland Fisheries Ireland is tasked with the protection and conservation of Ireland's salmon stocks. The protection element involves the protection of stocks and the enforcement of salmon conservation legislation. This includes patrolling out to 12 miles at sea using IFI's fleet of 22 Ribs and large patrol vessel; the Irish Air Corp and Navy also support this protection activity. It is estimated that Ireland spends in the region of 10 to 12 million euros annually on this activity.

Salmon as a species are protected under EU Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats of wild fauna and flora and under Ireland implementation (S.I. No. 94 of 1997 & S.I. 477 of 2011) of this directive. This legislation required Ireland to take measures to maintain or restore salmon habitat and to strive to maintain or restore salmon to favourable conservation status. Ireland is obliged to monitor and report on the status of salmon under this directive, and has just completed a six year reporting cycle. The implementation of the EU's Habitats and Water Framework Directives and the embedding of their principles have supported the conservation of salmon in Ireland, these achievements have only been garnered through the provision of extensive supports and resources from the state and its citizens.

2. MSW Stocks and management measures for MSW salmon in home water fisheries in Ireland

2.1. MSW Stocks

Each of Ireland's 143 salmon rivers has an established Conservation Limit (CL) and is managed individually. Ireland Standing Scientific Committee on Salmon provides advice each year on the predicted salmon returns by catchment for the year ahead; this information is used to establish any potential surplus/deficit for each river. Based on this advice managers draft and implement legislation to ensure the conservation of salmon stocks. Multi sea winter salmon enter the majority of Irelands 143 salmon rivers either as early running spring fish over the January to May period or as summer or autumn MSW salmon. There are sixteen rivers where there is a significant stock of early running multi sea winter salmon where specific scientific assessment and advice is given annually. For the 214 advice, 11 of these stocks are meeting Conservation Limits (CL) with an exploitable surplus, two stocks are below CL but open for catch and release angling and 3 stocks are significantly below CL and are closed to angling (see table 1).

2.2 Commercial fishery

No commercial fishing takes place until after 12th May as a conservation measure to protect early running multi sea winter salmon in Ireland.

2.3 Angling Regulations

Anglers are only permitted to kill one salmon per day prior to 12th May and may only kill 3 salmon in total from the season opening until 12th May as a conservation measure to protect early running multi sea winter salmon. For multi sea winter salmon entering rivers in the summer or autumn, these fish are present along with the large numbers of one sea winter fish and separate management is not possible for the two sea age groups. There is a season bag limit of 10 salmon per angler and a three salmon per day limit in place on all rivers. In September, anglers are restricted to taking only one salmon per day as a conservation measure.

WGCIS(14)12

Agenda item 5: Status of MSW salmon stocks
Additional US stock status information - brief status and trends update of US returns

Summary:

Atlantic salmon stocks within the United States are currently listed as endangered under the Endangered Species Act (ESA; 74 Federal Register 29344, 19 June 2009). The US population was segregated into three Distinct Population Segments (DPS, Figure 1): Long Island Sound (LIS), Central New England (CNE) and Gulf of Maine (GOM) for the purpose of listing under the ESA. The LIS and CNE segments were extirpated in the 1800's; limited restoration programs are ongoing within these two DPSs.

Estimated Atlantic salmon returns to rivers within the United States totaled 608 individuals in 2013 (Table 1). The 2013 total is 65% of the 2012 total (939) and 26% of the previous 5-year mean (2008-2012; 2,349). Total adult returns in 2012 were 23% of the 2011 total (4,167), which was the highest since 1990 (4,375). Adult abundance of Atlantic salmon declined through the 1990's and early 2000's (Figure 2). With slight increases in marine survival in the late 2000's (Figure 3), adult abundance increased slightly. Marine survival and adult abundance returned to their previous low levels in 2012 and 2013.

All Atlantic salmon within the United States face numerous challenges in both freshwater and marine environments. River-specific management options are tailored to account for river-specific threats and opportunities. In 11 out of the 24 years since 1990, the GOM DPS has replaced itself in subsequent generations (i.e., more adults have returned than returned 5 years prior; Figure 4). Although the overall abundance of U.S. salmon stocks remains low, a combination of management actions and natural reproduction has resulted in population growth in some years. Continued efforts and favorable conditions are required to rebuild U.S. stock stocks to self-sustaining levels.

Table 1. Estimated total US adult returns by Distinct Population Segments (DPS) from 1990-2013. These data are reproduced in Figure 2.

Year	Long Island Sound DPS	Central New England DPS	Gulf of Maine DPS	Total
1990	271	321	3783	4375
1991	208	322	2089	2619
1992	496	203	2671	3370
1993	200	133	2099	2432
1994	328	47	1281	1656
1995	190	70	1531	1791
1996	261	134	2428	2823
1997	202	98	1516	1816
1998	301	151	1411	1863
1999	164	260	1143	1567
2000	78	137	632	847
2001	40	152	894	1086
2002	44	102	821	967
2003	49	190	1188	1427
2004	70	147	1413	1630
2005	188	59	1028	1275
2006	215	121	1120	1456
2007	143	98	1030	1271
2008	141	180	2310	2631
2009	75	92	2192	2359
2010	52	104	1494	1650
2011	115	496	3556	4167
2012	56	139	744	939
2013	94	24	490	608

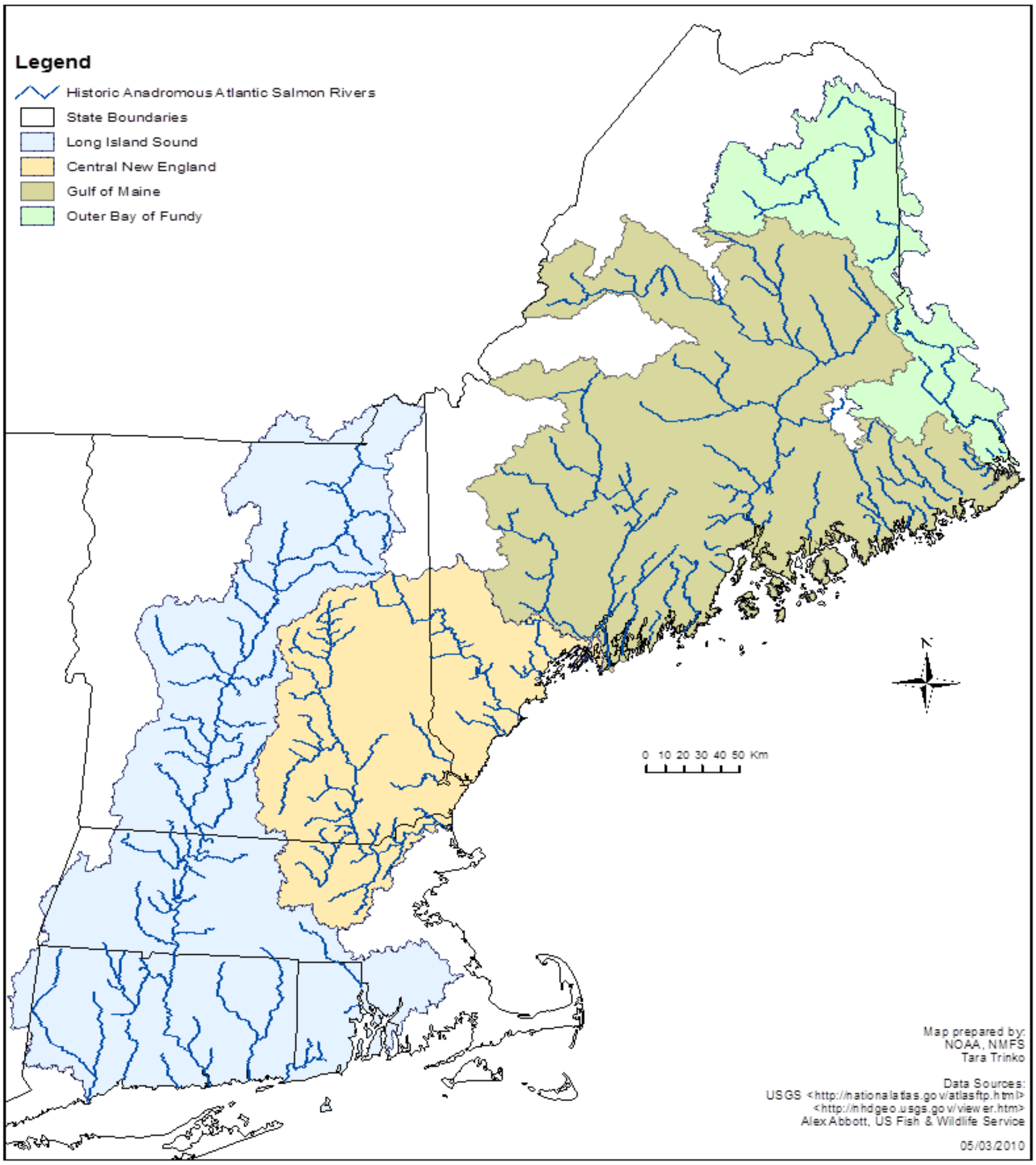

Figure 1. Historical range of U.S. Atlantic populations delineated by Distinct Population Segments (DPS) from north to south: outer Bay of Fundy (OBF), Gulf of Maine DPS (GoM), central New England (CNE), and Long Island Sound (LIS) regions.

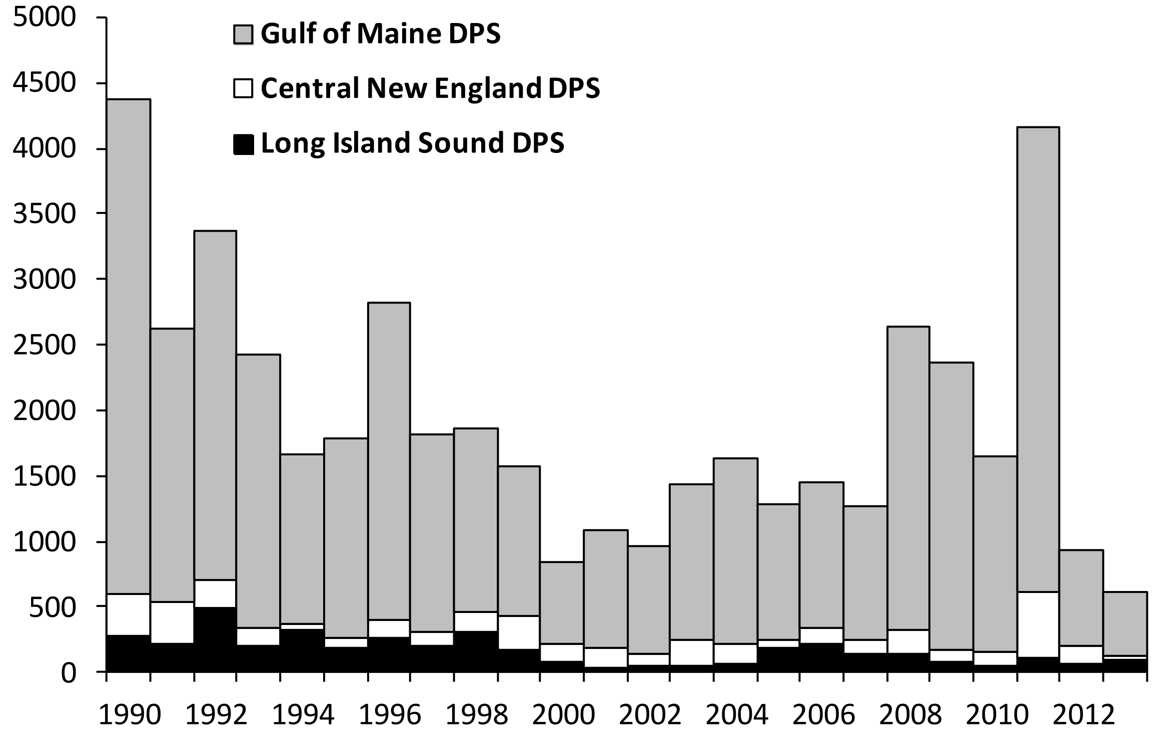

Figure 2. Estimated total US adult returns by Distinct Population Segment (DPS) from 1990-2013.

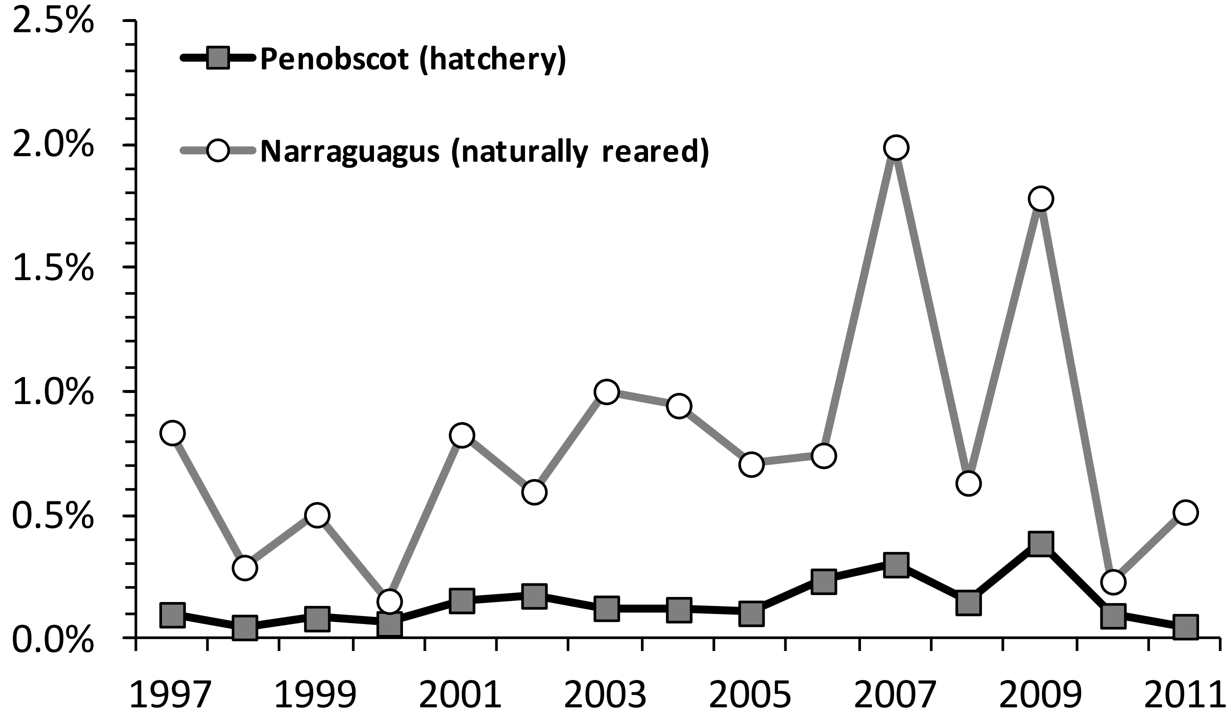

Figure 3. Return rate of 2SW adults to Gulf of Maine area for the Penobscot (hatchery reared smolts) and Narraguagus Rivers (naturally reared smolts) by smolt migration year for the time period 1997-2011. 2SW adult returns in 2013 originated from the 2011 smolt migration year.

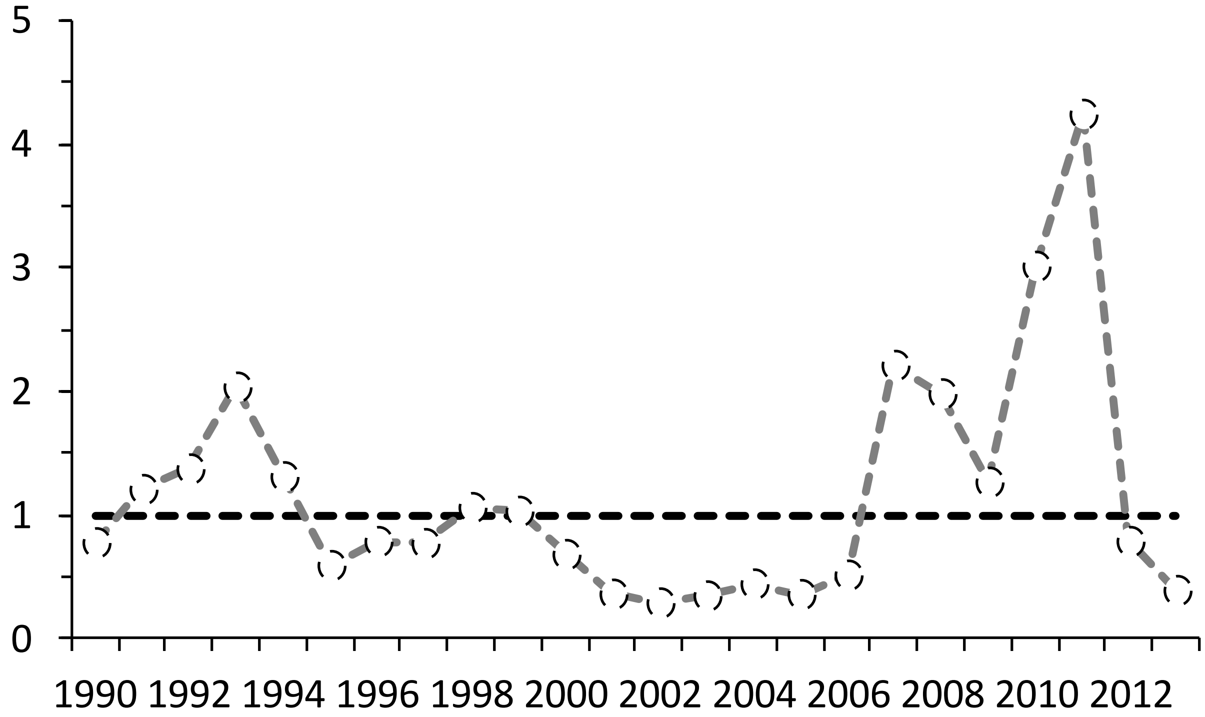

Figure 4. Estimated replacement rates for the Gulf of Maine DPS, 1990-2013. Replacement rate was calculated by dividing the estimated number of naturally reared spawners in $year_t$ by the estimated number of naturally reared spawners in $year_{t-5}$. Estimates greater than 1 represent a growing population; estimates equal to one represent a stable population; and estimates below one represent a declining population.

WGCIS(14)4

Report of NASCO's Ad Hoc West Greenland Commission Scientific Working Group

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INTRODUCTION

Recognising that the 2014 advice from ICES relevant to the West Greenland Commission (WGC), developed in response to the request contained in document CNL(13)10, will not be available to inform discussions at the intersessional meeting of the WGC on 14 and 15 April 2014, the Commission agreed to the following:

To convene a group of scientific representatives, nominated by the Members of the WGC, to develop a working paper to be presented at both the WGNAS and the WGC intersessional meetings. This working paper will not provide catch options or alternative management advice, but will compile available data on catches in the West Greenland salmon fishery from **1990 to 2013**, including:

a) **Reported and unreported catches;**

b) **The spatial and temporal breakdown of the catches;**

c) **The origin of the catches by continent and at finer scales where possible (e.g. country or region of origin);**

d) **Rates of exploitation on contributing stocks or stock complexes; and**

e) **Any additional scientific data related to the fishery.**

This working paper addresses this request from NASCO. The Working Paper is subdivided into five sections addressing each of the terms of references outlined above. Within each section, a series of tables and figures are presented, which present data relevant to the term of reference and is followed by a short text summary. A map of West Greenland displaying the NAFO Divisions boundaries and key communities that have historically reported Atlantic salmon landings is presented in Figure 1. The original term of reference for the group is included in Appendix 1.

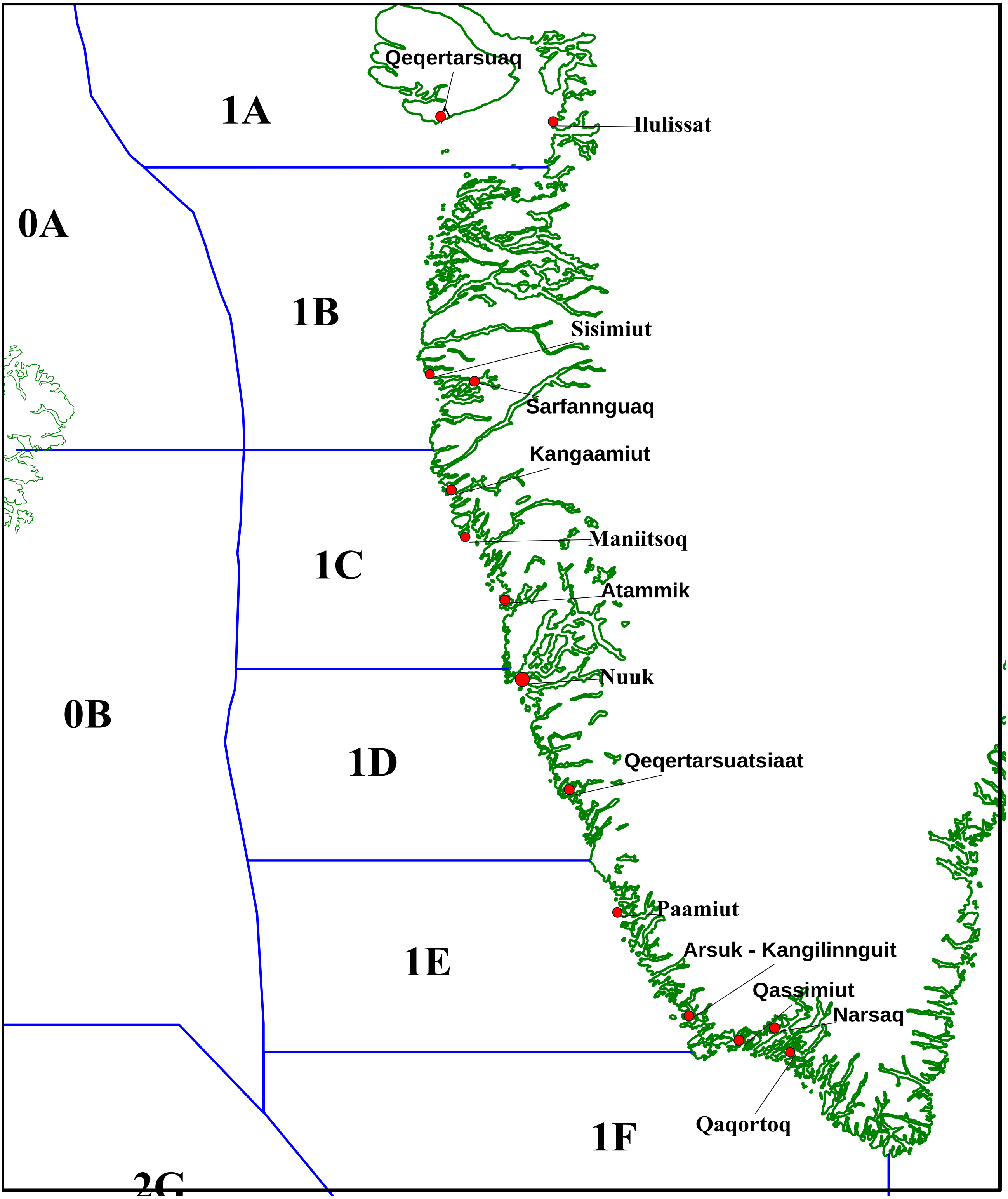


Figure 1: Location of NAFO divisions along the coast of West Greenland.

SECTION 1: REPORTED AND UNREPORTED CATCHES

Table 1.1: Reported landings (t) for East and West Greenland, unreported catch, adjusted landings, total landings and corresponding quota for the Greenland Atlantic salmon fishery, 1990-2013. Adjusted landings occur when the sampling team documented more fish landed than reported. When this occurs the adjusted landings are carried forth for assessment purposes, but do not supplant the reported landings.

Year	East	West	Total	Unreported	Adjusted	Grand Total	Quota	Comments
1990	-	274	274	-		274	924	
1991	4	472	476	-		476	840	
1992	5	237	242	-		242	258	Quota set by Greenland authorities
1993	-	-	0	< 12		0	89	The fishery was suspended. NASCO adopt a new quota allocation model.
1994	-	-	0	< 12		0	137	The fishery was suspended and the quotas were bought out.
1995	2	83	85	20		105	77	Quota advised by NASCO
1996	0.1	92	92.1	20		112.1	174	Quota set by Greenland authorities
1997	1	58	59	5		64	57	Private (non-commercial) catches to be reported from now
1998	0	11	11	11		22	20	Fishery restricted to catches used for internal consumption in Greenland
1999	0.4	19	19.4	12.5		31.9	20	
2000	0	21	21	10		31	20	
2001	0	43	43	10		53	114	Final quota calculated according to the ad hoc management system
2002	0	9	9	10	0.7	20	55	Quota bought out, quota represented the maximum allowable catch (no factory landing allowed), and higher catch figures based on sampling programme information are used for the assessments
2003	0	9	9	10	3.6	23		Quota set to nil (no factory landing allowed), fishery restricted to catches used for internal consumption in Greenland, and higher catch figures based on sampling programme information are used for the assessments
2004	0	15	15	10	2.5	27		same as previous year
2005	0	15	15	10	2.0	27		same as previous year
2006	0	22	22	10	0	32		Quota set to nil (no factory landing allowed) and fishery restricted to catches used for internal consumption in Greenland
2007	0	25	25	10	0.2	35		Quota set to nil (no factory landing allowed), fishery restricted to catches used for internal consumption in Greenland, and higher catch figures based on sampling programme information are used for the assessments
2008	0	26	26	10	2.5	38		same as previous year
2009	0	26.3	26.3	10	2.5	39		same as previous year
2010	0	39.7	39.7	10	5.1	55		same as previous year
2011	0	28	28	10	0	38		Quota set to nil (no factory landing allowed) and fishery restricted to catches used for internal consumption in Greenland
2012	0	33	33	10	2.0	45		Quota set to nil (unilateral decision made by Greenland to allow factory landing with a 35 t quota), fishery restricted to catches used for internal consumption in Greenland, and higher catch figures based on sampling programme information are used for the assessments
2013	0	47	47	10	0.7	58		same as previous year
10-yr mean (2004-2013)	**0**	**28**	**28**	**10**	**1.7**	**39**		
Overall	**1**	**73**	**67**	**11**	**2**	**77**		

Table 1.2: Reported landings (t) of Atlantic salmon at Greenland by landings category, 1997-2013. Adjusted landings figures are not available prior to 2002. Average values are shown for 2012-2013 (contemporary factory landings era), 2002-2011 (contemporary pre-factory landings era) and 1997-2001 (historical era). Unreported catch is not included.

	Commercial	Private	Factory	Total	Adjusted
1997	1.4	2.8	55.2	59.3	*na*
1998	7.5	3.6	0.0	11.1	*na*
1999	15.4	3.6	0.0	19.0	*na*
2000	*na*	*na*	*na*	*na*	*na*
2001	0.0	8.0	34.5	42.5	*na*
2002	6.4	2.6	0.0	9.0	9.8
2003	6.0	2.7	0.0	8.7	12.3
2004	10.1	4.6	0.0	14.7	17.2
2005	7.4	7.9	0.0	15.3	17.3
2006	13.2	9.8	0.0	23.0	23.0
2007	16.6	8.1	0.0	24.6	24.8
2008	13.2	13.0	0.0	26.1	28.6
2009	14.9	11.4	0.0	26.3	28.8
2010	12.4	27.3	0.0	39.7	44.8
2011	16.5	11.0	0.0	27.5	27.5
2012	5.5	14.1	13.7	33.2	35.1
2013	7.9	13.4	25.6	47.0	47.7
2012-2013 ave.	6.7	13.7	19.6	40.1	41.4
2002-2011 ave.	11.7	9.8	0.0	21.5	23.4
1997-2001 ave.	6.1	4.5	22.4	33.0	*na*

Table 1.3: Reported landings by landings category (kg) of Atlantic salmon for cities (bold) and settlements in Greenland, 2012 and 2013. Unreported catch is not included.

NAFO/ICES Area	Landing site	2012 Commercial	2012 Private	2012 Factory	2012 Total	2013 Commercial	2013 Private	2013 Factory	2013 Total
1A	Aappilattoq					52	0	0	52
1A	Kangersuatsiaq					925	89	0	1014
1A	**Upernavik**		224		224	39	0	0	39
1A	Upernavik Kujalleq					40	0	0	40
1A	Illorsuit		180		180				
1A	Ikerasak								
1A	niagornat								
1A	Qaarsut		38		38				
1A	**Uummannaq**		86		86				
1A	**Aasiaat**	331	687		1018	139	12	0	151
1A	Akunnaaq								
1A	Ikamiut		45		45	34	111	0	145
1A	Ilimanaq								
1A	**Ilulissat**	443	114		557	172	487	0	659
1A	kangerluk								
1A	Kitsissuarsuit								
1A	**Qasigiannguit**		111		111				
1A	**Qeqertarsuaq**	499	2595		3094	89	863	0	952
1B	Attu								
1B	Kangaatsiaq		206		206	0	3	0	3
1B	Niaqornaarsuk								
1B	**Sisimiut**	69	506		578	1449	907	0	2356
1C	Atammik			2709	2709	0	0	6891	6891
1C	Kangaamiut	366		3132	3498	609	455	5388	6452
1C	**Manitsoq**	1390	1154	6240	8784	1602	2117	0	3719
1C	Napasoq					0	888	0	888
1D	**Nuuk**	1430	1560	1574	4564	499	4876	0	5375
1D	Qeqertarsuatsiaat					0	0	7981	7981
1E	Arsuk		1377		1377	858	0	5336	6194
1E	Ivittuut		64		64				
1E	Kangilinnguit		452		452				
1E	**Paamiut**	836	1264		2100	41	207	0	248
1F	Alluitsup Paa		521		521	194	0	0	194
1F	Eqalugaarsuit								
1F	Nanortalik		166		166	67	204	0	271
1F	**Narsaq**		1324		1324	956	2220	0	3176
1F	**Qaqortoq**	109	442		551	133	0	0	133
1F	Saarloq		389		389				
XIV	Kulusuk		83		83				
XIV	Kuumiut		253		253				
XIV	Tasiilaq		206		206	28	0	0	28
	TOTALS	**5473**	**14047**	**13655**	**33178**	**7926**	**13439**	**25596**	**46961**

Table 1.4: Total reported landings (t) for the periods 2010-2011 and 2012-2013 by landing type for communities that received factory landings in 2012 or 2013.

	2010-2011			**2012-2013**		
Community (NAFO Div.)	**Commercial**	**Private**	**Factory**	**Commercial**	**Private**	**Factory**
Atammik (1C)	0.0	0.1	0.0	0.0	0.0	9.6
Kangaamiut (1C)	0.3	0.0	0.0	1.0	0.5	8.5
Manitsoq (1C)	3.6	5.2	0.0	3.0	3.3	6.2
Nuuk (1D)	8.7	8.0	0.0	1.9	6.4	1.6
Qeqertarsuatsiaat (1D)	0.0	0.0	0.0	0.0	0.0	8.0
Arsuk (1E)	0.0	0.5	0.0	0.9	1.4	5.3
TOTAL	12.6	13.7	0.0	6.8	11.5	39.3

Table 1.5: Reported landings (t) by landings type, number of fishers reporting landings and number of reports received by licensed and unlicensed fishers, 2009-2013.

				Reported Landings			
Year	**licensed**	**# of Fishermen**	**# of Reports**	**Commercial**	**Private**	**Factory**	**Total**
2009	no	45	67	0.1	4.2		4.3
2010	no	98	164	0.1	12.3		12.4
2011	no	56	81	0.0	6.1		6.1
2012	no	43	112	0.0	4.1	0.0	4.1
2013	no	29	72	1.3	0.1	0.0	1.4
2009	yes	100	171	14.8	7.2		22.0
2010	yes	110	225	12.3	15.0		27.3
2011	yes	61	313	16.5	4.9		21.4
2012	yes	79	441	5.5	9.9	13.7	29.1
2013	yes	66	481	6.6	13.4	25.6	45.6

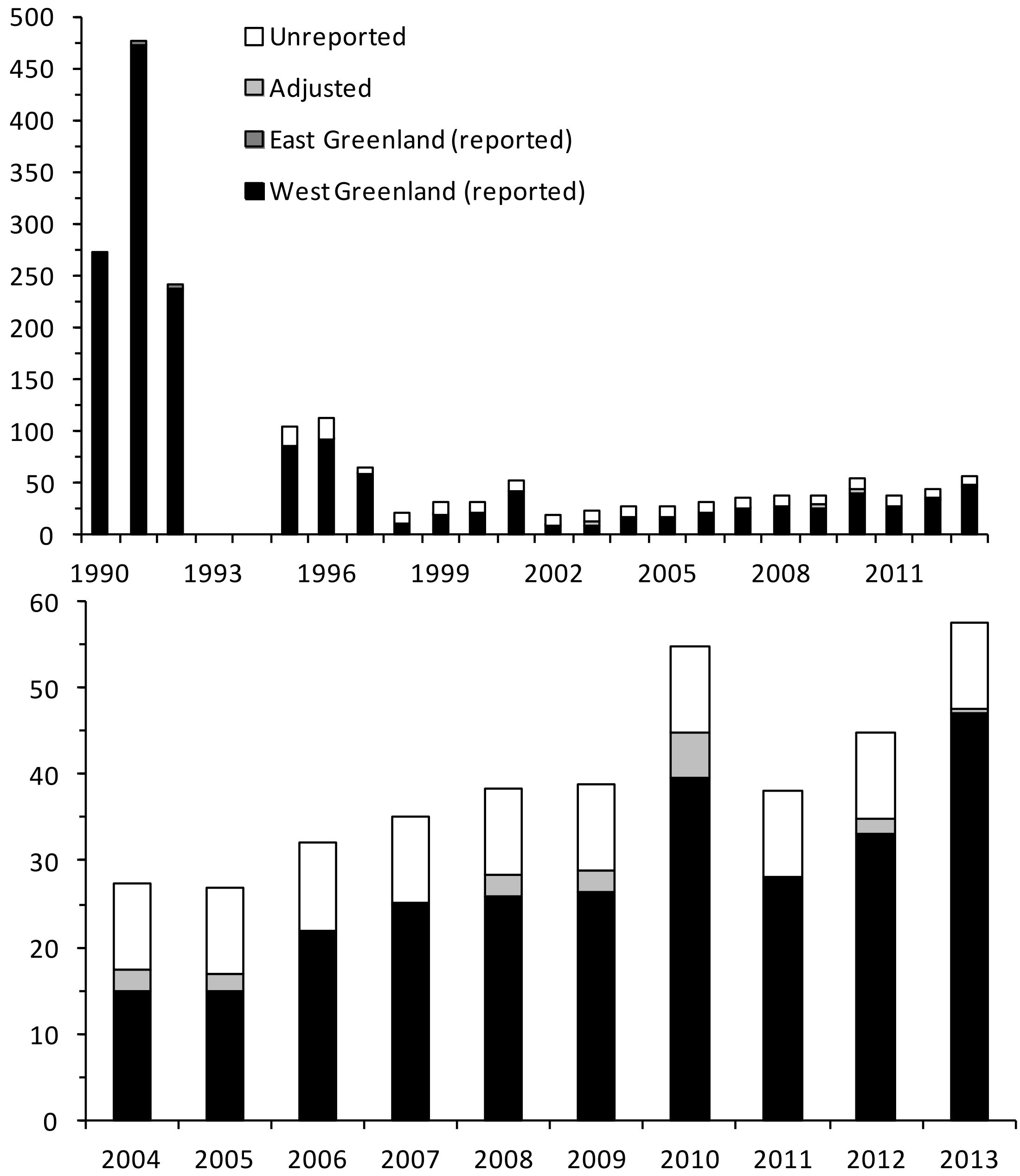


Figure 1.1: Reported landings (t) for East and West Greenland, unreported catch, and adjusted landings, for the Greenland Atlantic salmon fishery, 1990-2013 (top) and 2004-2013 (bottom).

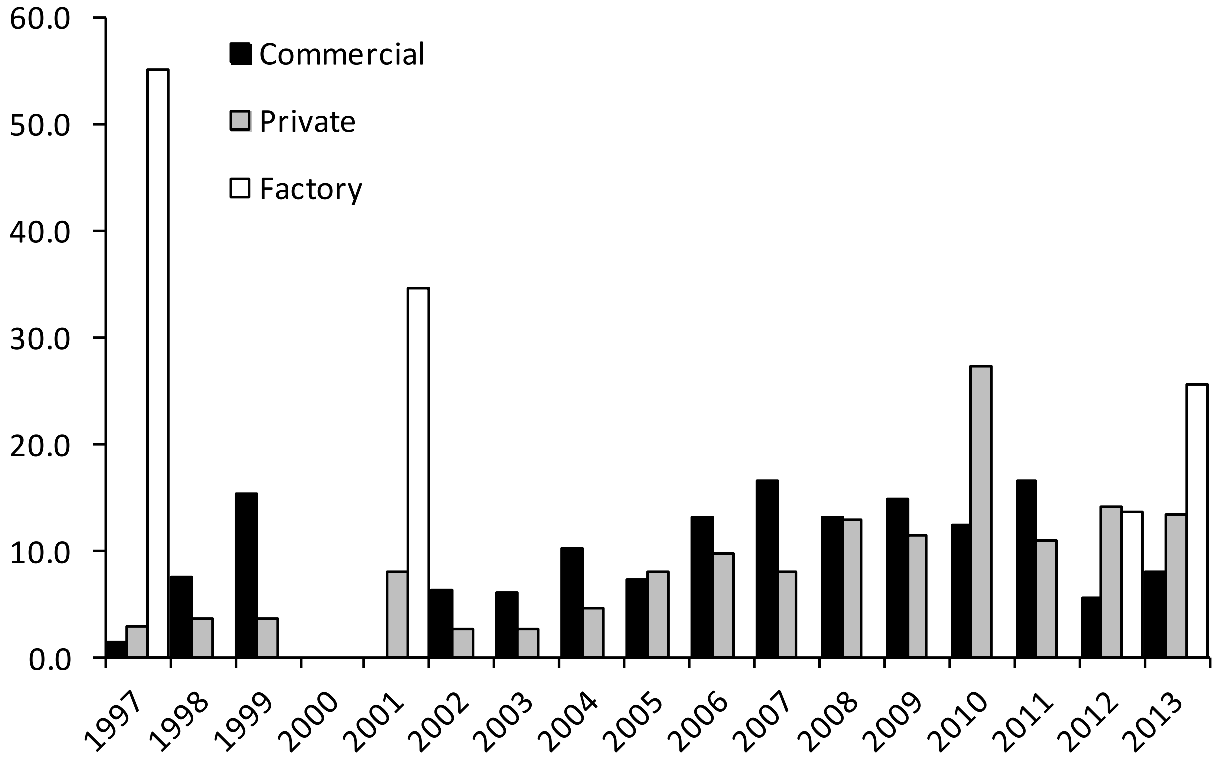


Figure 1.2: Reported landings (t) for Greenland Atlantic salmon fishery by landings category, 1997-2013.

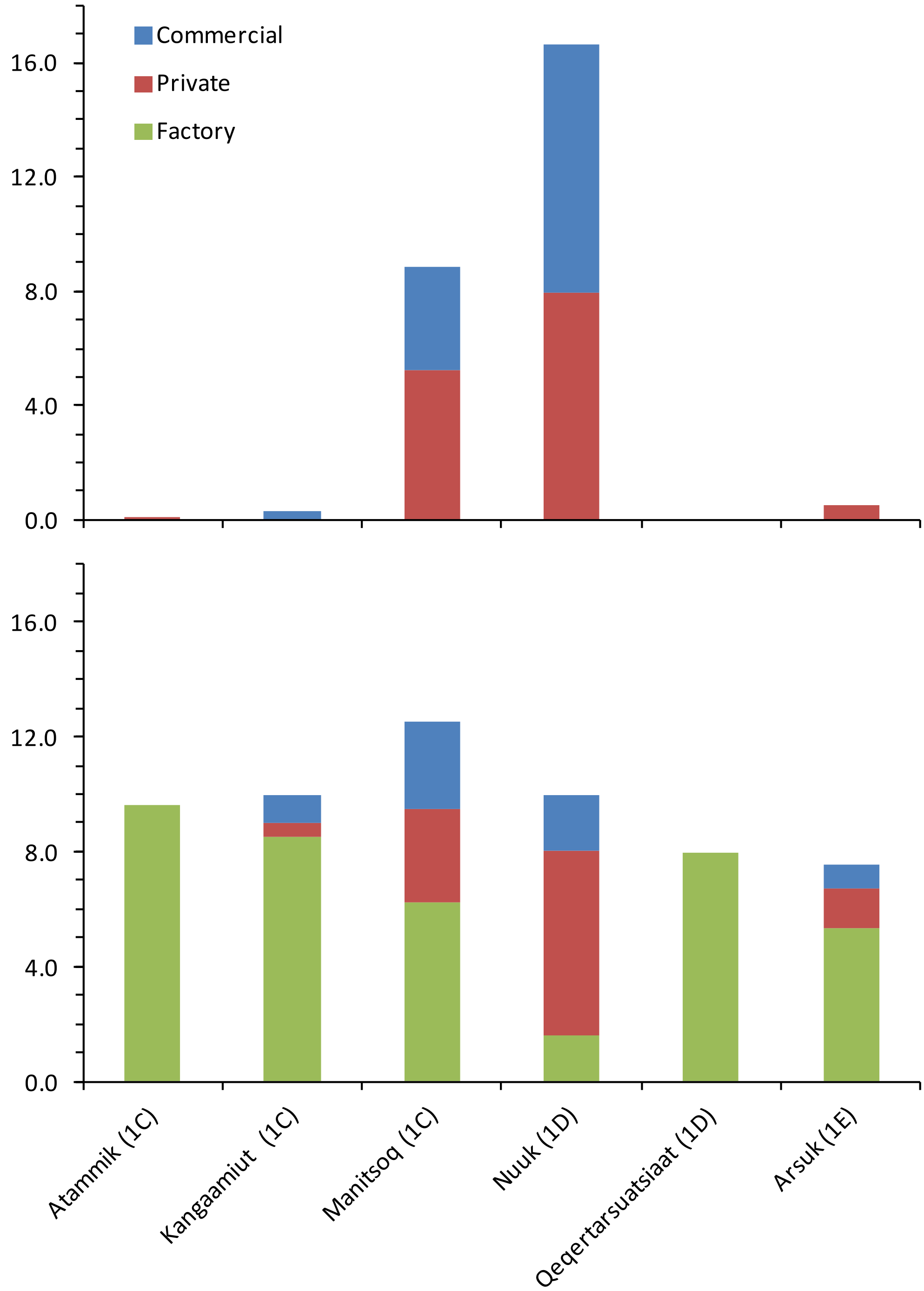
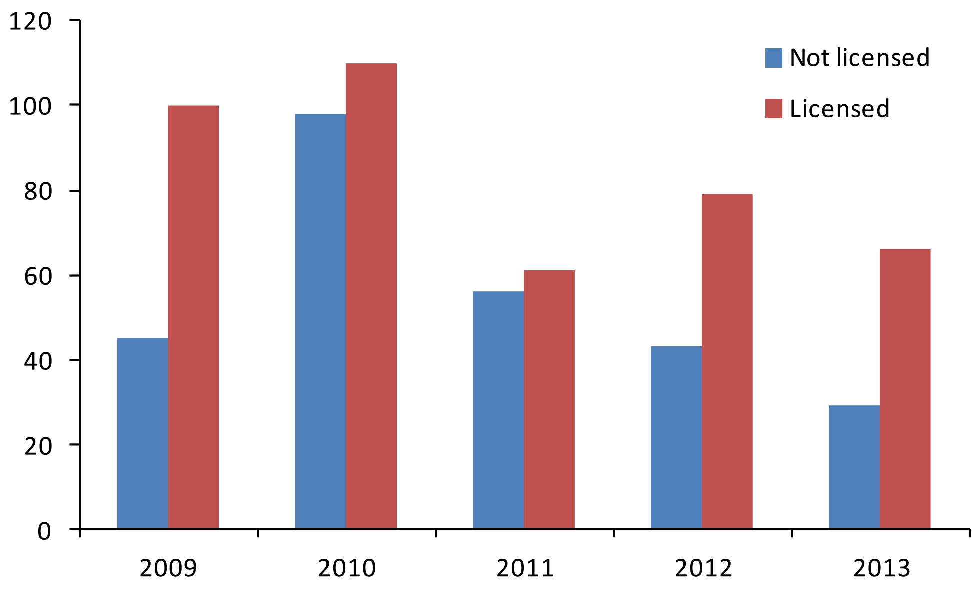


Figure 1.3: Reported landings (t) for the periods 2010-2011 (top) and 2012-2013 (bottom) by landing type for communities that received factory landings in 2012 or 2013.



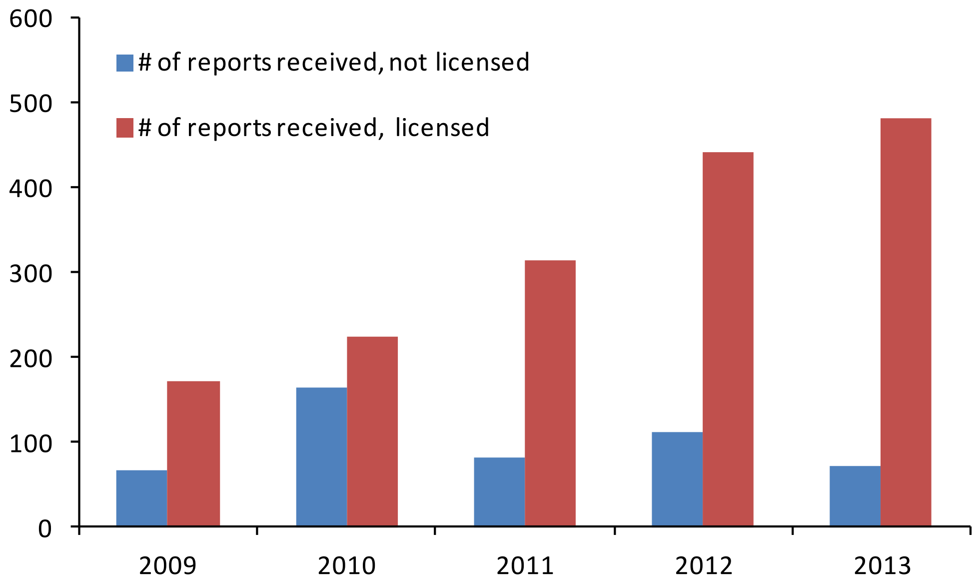


Figure 1.4: Number of licensed and unlicensed fishermen reporting landings (top) and the number of landing reports received (bottom) by licensed and unlicensed fishermen for the 2009-2013 Greenland fisheries.

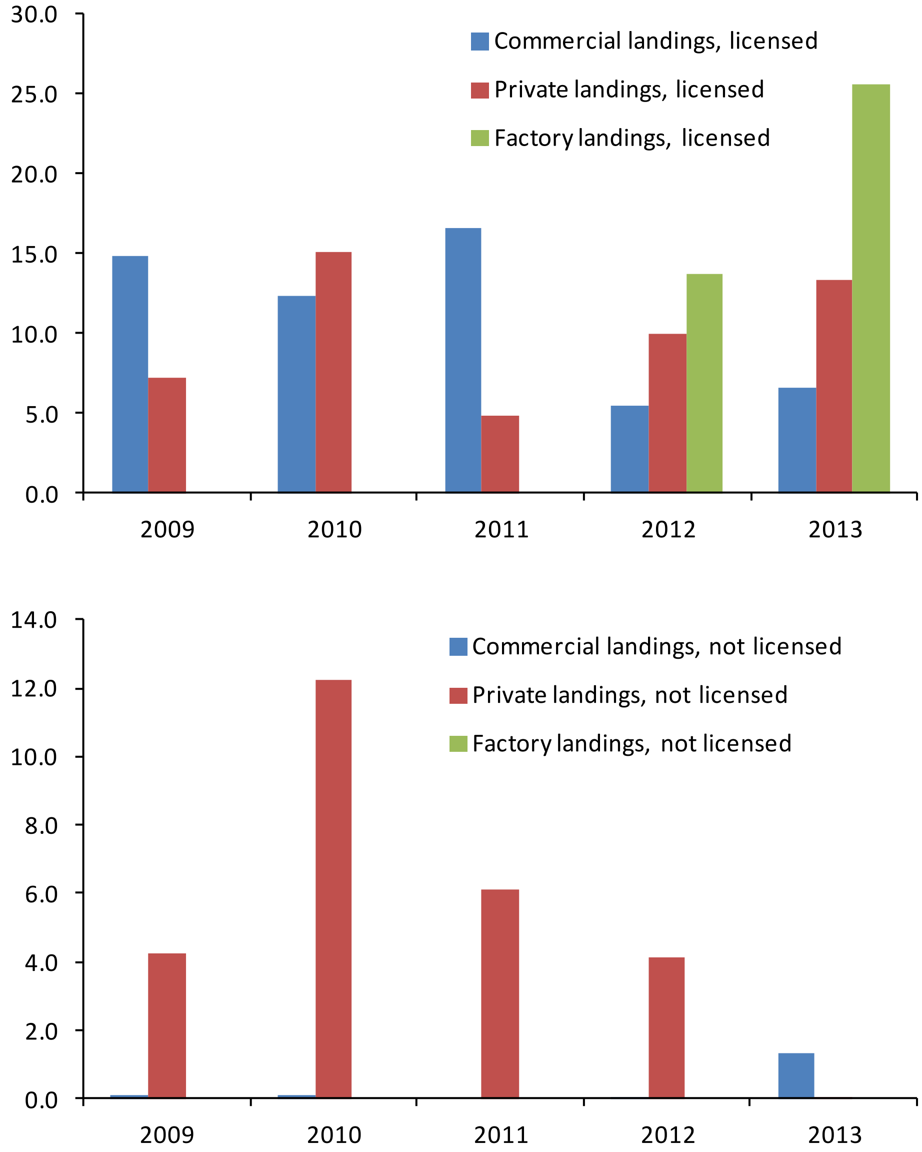


Figure 1.5: Reported landings (t) by landing type for licensed (top) and unlicensed (bottom) fishers during the 2009-2013 Greenland fisheries.

SECTION 1: REPORTED AND UNREPORTED CATCHES

SUMMARY:

Reported landings have been summarized for the period 1990-2013. The maximum reported landings correspond to 472 t reported in 1991 with a minimum of 9 t in 2002. Overall mean reported landings is 73 t with mean reported landings of 28 t for the recent 10 year period (2004-2013). Negligible reported landings have been reported for East Greenland (in most years <1 t) and the unreported landings have been estimated at 10 t since 2002. In all years since 2002, with the exception of 2006 and 2011, an adjustment to the reported landing has been performed. Adjusted landings occur when the sampling team documented more fish landed than reported. When this occurs the adjusted landings are carried forth for assessment purposes, but the reported landings statistics remained unchanged.

Since 1997, factory landings have only been reported in 4 years (1997, 2001, 2012 and 2013). In 2012-2013 combined, they accounted for 49% of the reported landings whereas commercial and private landings accounted for 17% and 34% respectively. Since 1997, commercial landings have accounted for 36% of the total reported landings, private 34% and factory landings 30%.

Since 2009, information is available on the reported landings by landings type for licensed and unlicensed fishers. Overall, the number of licensed and unlicensed fishers reporting landings since 2010 has decreased; the number of reports from licensed fishers has increased while the number from unlicensed fishers has decreased. The reported landings from unlicensed fishers for private use increased from 2009 to 2010 but have decreased since that time. Private landings from licensed fishers have remained approximately the same since 2009. Commercial landings from licensed fishers remained approximately the same from 2009-2011 and decreased slightly in 2012 and 2013.

SECTION 2: SPATIAL AND TEMPORAL BREAKDOWN OF THE CATCHES

Table 2.1: Reported landings (t) by NAFO Division for the fishery at West Greenland, 1990-2013.

Year	1A	1B	1C	1D	1E	1F	Unk.	West Greenland	East Greenland	Total
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										
1994										
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	4.9	2.2	10	1.6	2.5	5	0	26.2	0	26
2009	0.2	6.2	7.1	3	4.3	4.8	0	25.6	0.8	26
2010	17.3	4.6	2.4	2.7	6.8	4.3	0	38.1	1.7	40
2011	1.8	3.7	5.3	8	4	4.6	0	27.4	0.1	28
2012	5.4	0.8	15	4.6	4	3	0	32.6	0.5	33
2013	3.1	2.4	17.9	13.4	6.4	3.8	0	47.0	0	47

+ Small catches <5 t.

- No catch.

Table 2.2: Reported NAFO Division-specific factory landings (t), 2012 and 2013. Standard week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov.

	2012			2013			
Standard week	**1C**	**1D**	**Total**	**1C**	**1D**	**1E**	**Total**
31	0	0	**0**	0	0.43	0	**0.43**
32	0	0	**0**	0	1.15	0	**1.15**
33	0	0	**0**	0.44	1.21	0	**1.65**
34	0.97	0	**0.97**	0.62	2.85	0	**3.46**
35	1.42	0	**1.42**	0.49	0.36	0	**0.84**
36	0.90	0	**0.90**	1.76	0.49	0	**2.25**
37	0.99	0.61	**1.61**	3.41	0.27	0	**3.68**
38	1.53	0	**1.53**	2.36	0.47	0	**2.83**
39	3.44	0.75	**4.18**	3.19	0.76	0.97	**4.92**
40	2.44	0	**2.44**	0	0	4.36	**4.36**
41	0	0	**0**	0	0	0	**0**
42	0	0	**0**	0	0	0	**0**
43	0	0	**0**	0	0	0	**0**
Total	**12.40**	**1.36**	**13.76**	**12.26**	**7.98**	**5.33**	**25.58**

Table 2.3: Reported landings (t) by NAFO standard week for the fishery at West Greenland, 1990-2006. Data provided by P. Kanneworff (retired, Greenland Institute of Natural Resources) in April 2004. Spatial segregation of landings data is assumed to be accurate during the time period presented, but is believe to be unreliable post-2006 due to changing fishery dynamics. Minor differences in reported landings are noted between Table 2.3 and Table 1.1, but are still assumed to be reflective of the spatial dynamics of the fishery during the 1990-2006. Standard week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov.

Std wk.	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
26												0.01						0.03
27			0.04															0.04
28																		
29	1.22		0.02															1.24
30																		
31	29.42	77.51	17.41													0.23		153.30
32	11.18	111.14	31.39								0.19			0.11	0.31	1.40	0.80	224.46
33	37.15	44.57	17.35			27.29	14.50	24.81		0.66	19.49	11.01	2.30	1.82	0.17	0.57	1.74	254.59
34	39.05	24.34	23.84			27.39	10.28	14.69	2.19	3.73	0.82	8.79	0.64	1.00	1.29	0.40	0.87	338.38
35	39.04	53.14	16.74			13.66	4.59	3.53	0.77	0.72		5.71	1.03	0.45	0.42	2.10	0.58	564.82
36	17.71	28.22	12.86				8.72	3.73	1.13	3.68		8.42	0.39	0.16	0.41	1.36	1.93	215.44
37	21.76	33.38	8.75				10.45	7.86	0.59	1.43		5.38	0.45	0.43	0.27	1.12	1.01	150.60
38	18.51	20.79	6.34				17.14	3.55	2.40	0.85		1.75	0.61	0.37	1.09	1.52	0.33	141.98
39	12.15	7.82	25.83				10.52		0.48	3.19		1.33	0.57	0.40	0.35	1.18	0.46	107.43
40	25.20	47.58	2.41				3.69		0.12	2.04		0.06	0.47	0.28	0.61	1.09	0.58	166.89
41	8.16	10.71	3.19				0.92		0.13	2.55		0.05	0.43	0.31	0.94	1.09	1.29	68.18
42	1.99	5.88	2.81				0.37		0.03	0.20				1.88	0.97	0.70	0.86	20.35
43	5.20	2.32	0.52				0.44		0.35				0.28	0.06	0.57	0.79	1.10	14.46
44	2.95	4.32	3.90				0.09		0.73					0.44	1.45	0.24	9.20	25.94
45	1.45	0.19	0.08				0.01		0.11				0.31	0.53	1.15			4.68
46	1.69	0.04	0.05				0.00		1.57				0.35	0.33				4.26
47	0.25	0.02	0.02						0.40				0.66					1.36
48	0.05	0.36	0.62						0.00				0.21					1.87
49	0.03												0.21					3.56
50									0.02				0.11	0.24				0.37
51			0.03						0.04									0.07
52									0.01									0.01
53																		0.01
unk															4.74			4.74
TOTAL	274	472	174	0	0	68	82	58	11	19	21	43	9	9	15	14	21	2,469

Table 2.4: Number of biological samples collected by NAFO Division and NAFO standard week for the fishery at West Greenland, 1990-2013. Sample size entries were coded with three shades of grey representing small to large sample sizes across all years (dark grey to light grey respectively) to aid in visualization. Standard week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov.

Year/NAFO Div.	Standard Week														Grand Total
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
1990 total	98	446	664												**1208**
1A															
1B															
1C		168	151												**319**
1D	98	185	311												**594**
1E		93	202												**295**
1F															
1991 total		177	634	536											**1347**
1A															
1B															
1C		177	173	121											**471**
1D			253	248											**501**
1E			208	167											**375**
1F															
1992 total		387	265	608	352	72									**1684**
1A															
1B															
1C		220		284	167										**671**
1D															
1E		167	96	126	185	72									**646**
1F			169	198											**367**
1995 total			767	1468	236										**2471**
1A															
1B															
1C			183	986											**1169**
1D			133	312	236										**681**
1E			451	170											**621**
1F															
1996 total			618	335	287			57							**1297**
1A															
1B															
1C			426	181	218										**825**
1D			192		57			57							**306**
1E				154	12										**166**
1F															
1997 total				196	59	27									**282**

	Standard Week														
Year/NAFO Div.	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**Grand Total**
1A															
1B															
1C					59	27									**86**
1D				196											**196**
1E															
1F															
1998 total		8	181	217											**406**
1A															
1B															
1C															
1D			181	217											**398**
1E		8													**8**
1F															
1999 total				247	145	148	20	28	29						**617**
1A															
1B				17	98	5			8						**128**
1C				7	43	53		28	21						**152**
1D				202	4	52									**258**
1E															
1F				21		38	20								**79**
2000 total			491												**491**
1A															
1B															
1C															
1D			250												**250**
1E															
1F			241												**241**
2001 total			1207	612	683	249	65	45	20						**2881**
1A															
1B															
1C					307										**307**
1D			795	409	131	129									**1464**
1E															
1F			412	203	245	120	65	45	20						**1110**
2002 total			211	459	228	117	145	143	13						**1316**
1A															
1B															
1C					41	62	82	108	13						**306**
1D			211	399			63	35							**708**
1E															
1F				60	187	55									**302**

Year/NAFO Div.	Standard Week 31	32	33	34	35	36	37	38	39	40	41	42	43	44	Grand Total
2003 total		114	512	290	270	453	158					38			**1835**
1A															
1B															
1C			10	2	23	140	118								**293**
1D		22	338	48	125	176						38			**747**
1E															
1F		92	164	240	122	137	40								**795**
2004 total		52	403	136	109	416	279	185	57		22	32			**1691**
1A															
1B															
1C						4	176	185	40						**405**
1D		50	313	65	84	380	98		17		22	32			**1061**
1E															
1F		2	90	71	25	32	5								**225**
2005 total		7	70	259		119	208	90		14					**767**
1A						1									**1**
1B															
1C							71	90							**161**
1D			25	161		118	137			14					**455**
1E															
1F		7	45	98											**150**
2006 total	85	78	3	218	377	114	51	67	126	36	54				**1209**
1A										5	54				**59**
1B															
1C	85					31	11								**127**
1D		78	3	218	342			57	126	31					**855**
1E						12	19	10							**41**
1F					35	71	21								**127**
2007 total		144	273	135	207	97	58	42	91	72	5	1			**1125**
1A						1		1	2		5	1			**10**
1B															
1C								20	89	72					**181**
1D		144	185	47	118	31									**525**
1E			53	68	51										**172**
1F			35	20	38	65	58	21							**237**
2008 total	69	20	64	174	181	558	299	193	131	69	9	54		45	**1866**
1A															
1B					45	184	57	92	131	59					**568**
1C															
1D	69	20	64	112	53	183	46	101		10	9	54		45	**766**
1E															

Year/NAFO Div.	Standard Week 31	32	33	34	35	36	37	38	39	40	41	42	43	44	Grand Total
1F				62	83	191	196								**532**
2009 total			110	137	379	305	96	123	360	141	6	6			**1663**
1A															
1B					117	50		93	259	129					**648**
1C									41						**41**
1D			70	104	174	123	87	30	60	12	6	6			**672**
1E															
1F			40	33	88	132	9								**302**
2010 total			157	187	31	265	97	172	220	103	16	12		5	**1265**
1A															
1B			78	97	15	132	47	87	112	52	10	4		3	**637**
1C															
1D			21	36	8	53	27	32	32	18	2	1			**230**
1E															
1F			58	54	8	80	23	53	76	33	4	7		2	**398**
2011 total		1		37	213	358	181	88	64	24	4				**970**
1A								8	19	24	4				**55**
1B					25	76	89	66	16						**272**
1C															
1D		1			114	197	32	14	29						**387**
1E															
1F				37	74	85	60								**256**
2012 total					72	328	197	144	189	448					**1378**
1A															
1B						154	158	70	72	12					**466**
1C								33	117	436					**586**
1D															
1E															
1F					72	174	39	41							**326**
2013 total					29	107	218	308	259	154	81				**1156**
1A															
1B						4	203	308	167						**682**
1C						34	6		53	128	81				**302**
1D															
1E															
1F					29	69	9		39	26					**172**

Table 2.5: Spatial distribution (NAFO Divisions) of the number of commercial Atlantic salmon fishing licenses issued in Greenland, 1990-2013.

Year	1A	1B	1C	1D	1E	1F	ICES	Unk.	Licenses	Total
1990	32	15	46	52	54	155		0		362
1991	53	39	100	41	54	123		0		410
1992	3	9	73	9	36	82		0		212
1993										
1994										
1995	0	17	52	21	24	31		0		145
1996	1	8	74	15	23	42		0		163
1997	0	16	50	7	2	6		0		80
1998	16	5	8	7	3	30		0		69
1999	3	8	24	18	21	29		0		102
2000	1	1	5	12	2	25		0		43
2001	2	7	13	15	6	37		0	452	76
2002	1	1	9	13	9	8		0	479	41
2003	11	1	4	4	12	10		0	150	42
2004	20	2	8	4	20	12		0	155	66
2005	11	7	17	5	17	18		0	185	75
2006	43	14	17	20	17	30		0	159	141
2007	29	12	26	10	33	22		0	260	132
2008	44	8	41	10	16	24		0	260	143
2009	19	11	35	15	25	31	9	0	294	145
2010	86	17	19	16	30	27	13	0	309	208
2011	25	9	20	15	20	23	5	0	234	117
2012	35	9	32	8	16	16	6	0	279	122
2013	28	8	21	19	7	11	1	0	228	95

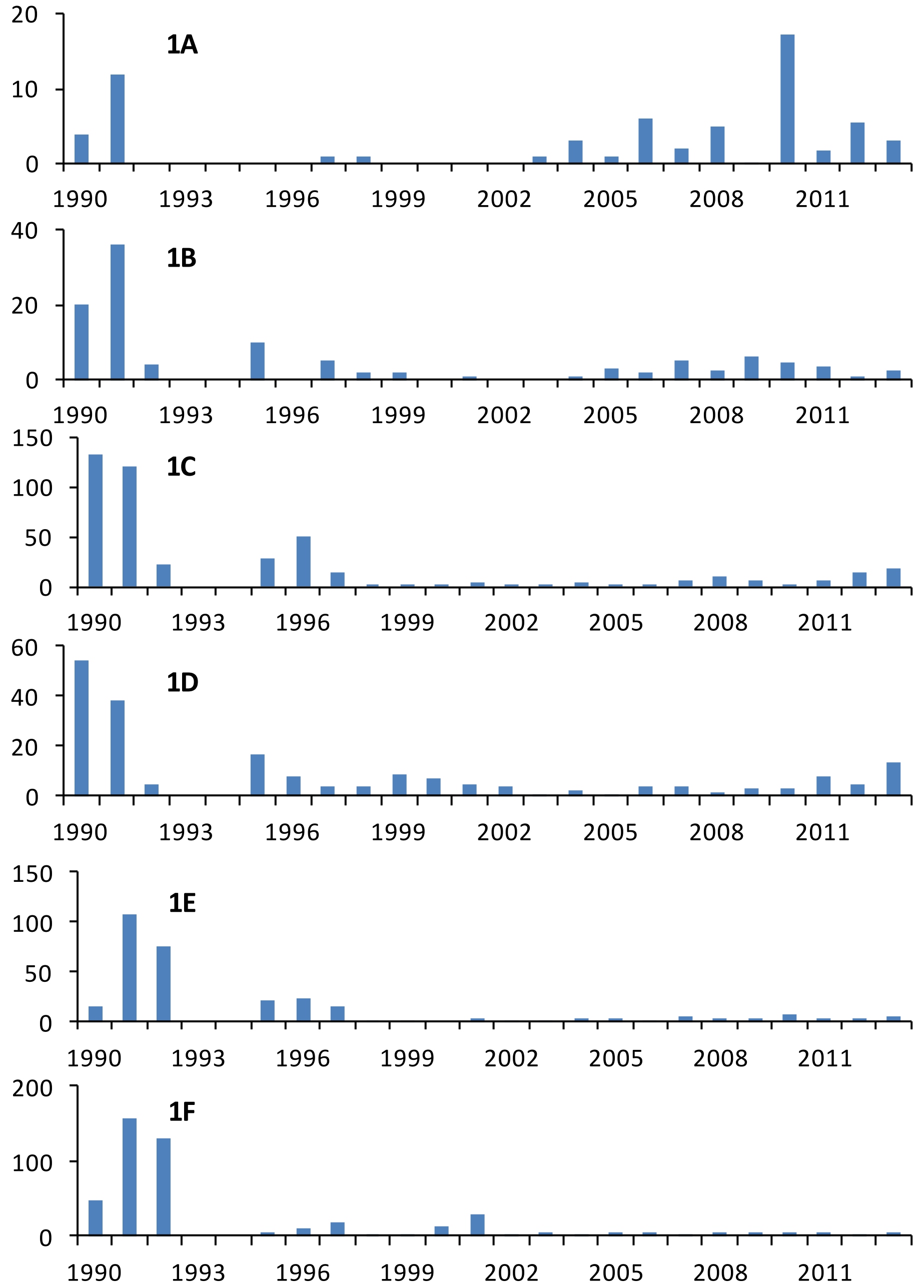


Figure 2.1a: Reported landings (t) by NAFO Division for the fishery at West Greenland, 1990-2013. Note the varying y-axes scales.

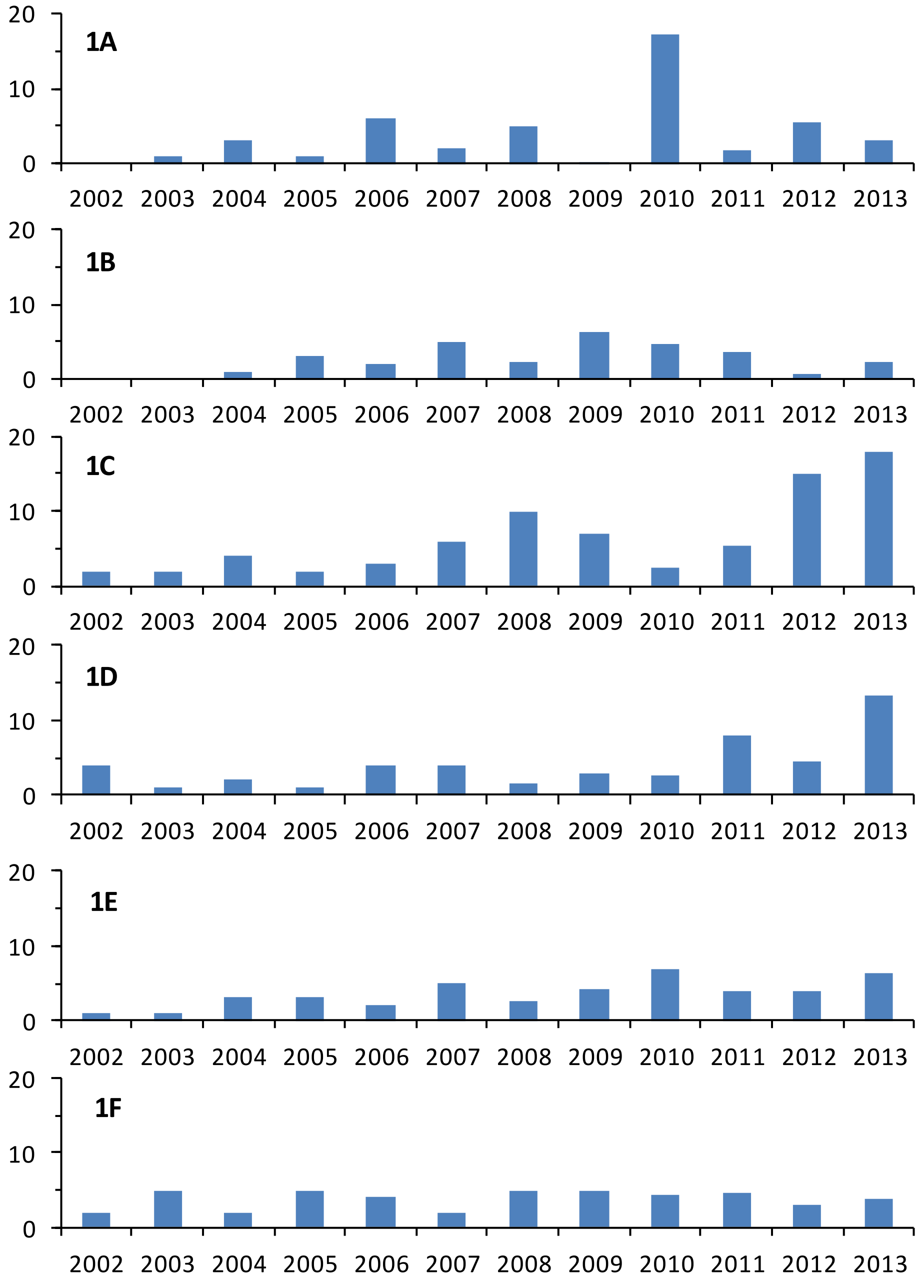
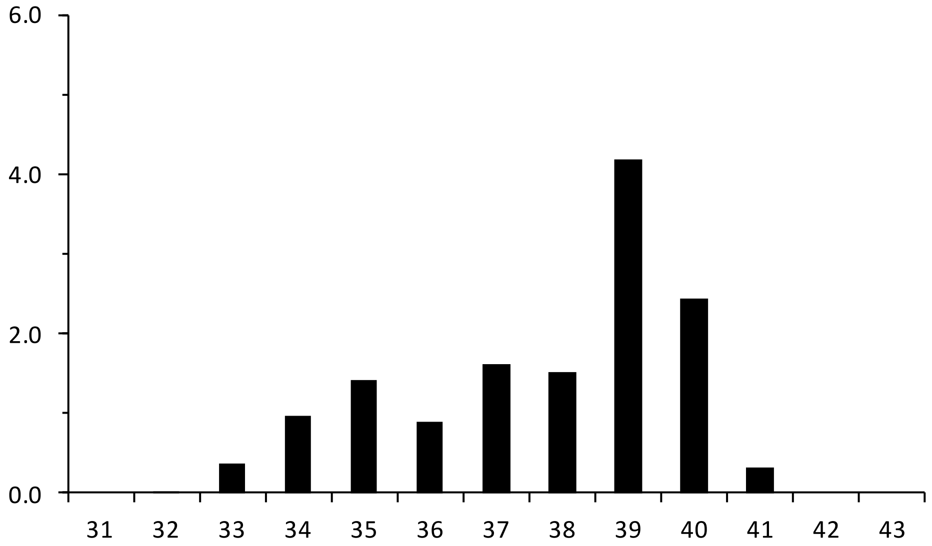


Figure 2.1b: Reported landings (t) by NAFO Division for the fishery at West Greenland, 2002-2013. Note the y-axes scales have been standardized for all plots.



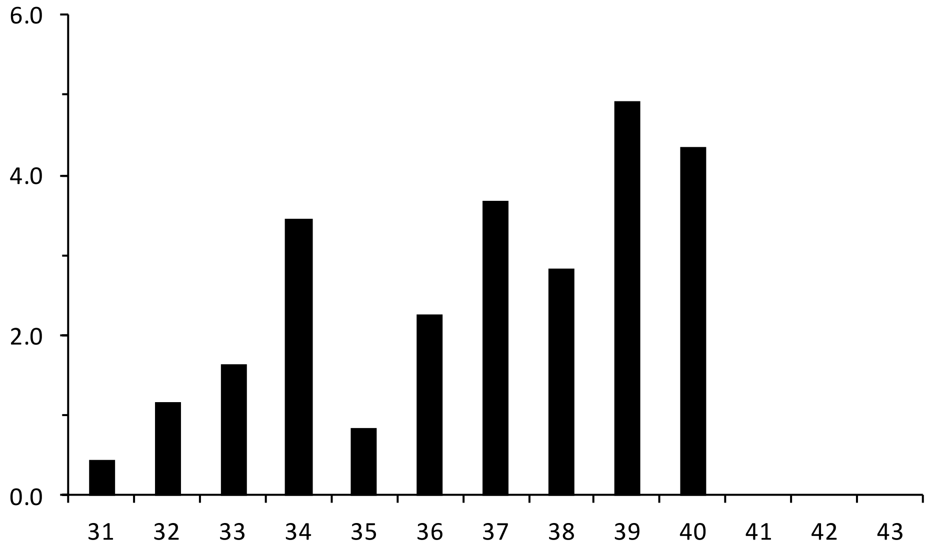


Figure 2.2: Reported factory landings (t) by NAFO standard week for 2012 (top) and 2013 (bottom). Week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov.

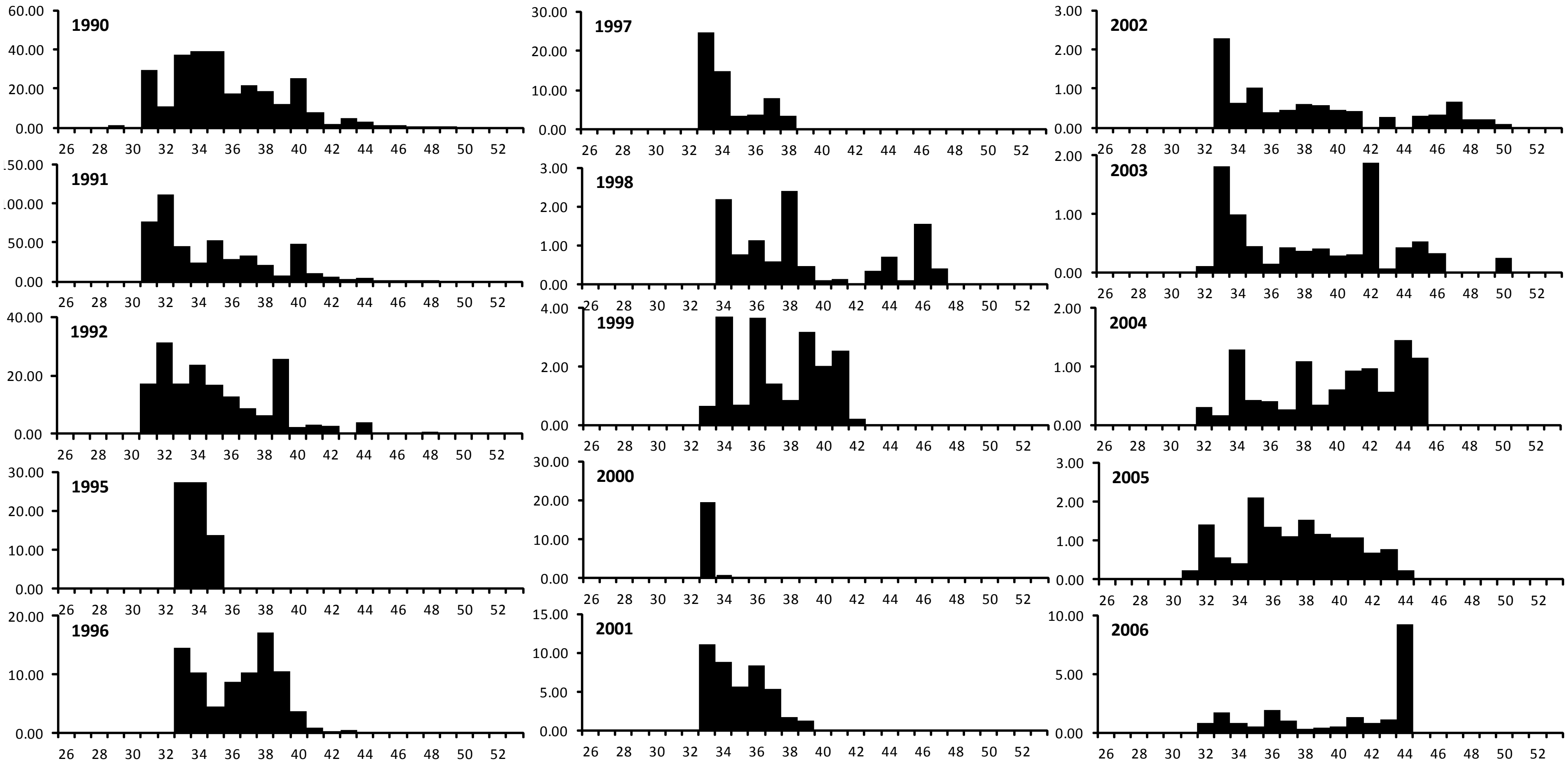


Figure 2.3: Reported landings (t) by NAFO standard week for the fishery at West Greenland, 1990-2006. Data provided by P. Kanneworff (retired, Greenland Institute of Natural Resources) in April 2004. Spatial segregation of landings data is assumed to be accurate during the time period presented, but is believe to be unreliable post-2006 due to changing fishery dynamics. Minor differences in reported landings are noted between Table 2.3 and Table 1.1, but are still assumed to be reflective of the spatial dynamics of the fishery during the 1990-2006. Standard week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov.

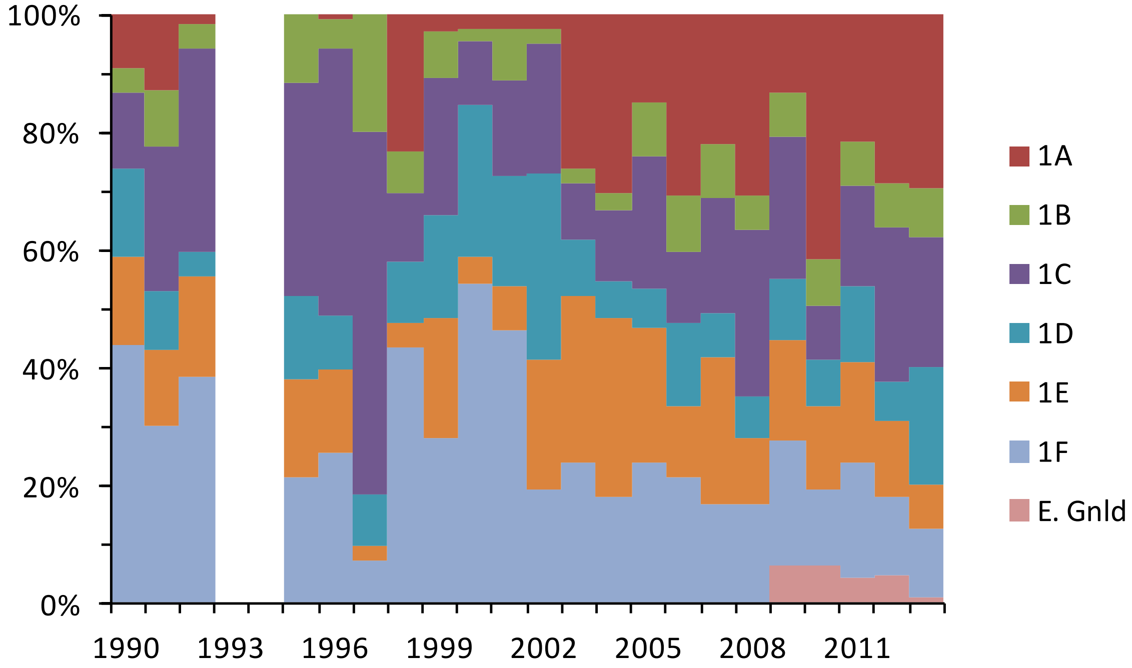


Figure 2.4: Spatial distribution (NAFO Divisions) of commercial fishing licenses issued for Atlantic salmon in Greenland, 1990-2013.

SECTION 2: SPATIAL AND TEMPORAL BREAKDOWN OF THE CATCHES

SUMMARY:

The spatial and temporal distribution of the Greenland Atlantic salmon fishery has varied over time although broad patterns are detected. In the early part of the 1990-2013 time series, catches were concentrated in NAFO Divisions 1C-1F although all Divisions reported landings. In recent years landings have been concentrated in NAFO Divisions 1C-1D, partially due to the presence of factory landings in these divisions in 2012 and 2013. Relative to the early part of the time series, landings in Division 1A have increased, however all NAFO Divisions still report landings. There has be a wider distribution of fishing licenses issued across all NAFO Divisions since the early 2000's.

Reported landings are temporally variable. The timing of the landings post-2006 isn't reported as the data have become unreliable. However, factory landings data from 2012 and 2013 increased as the fishing seasons progressed.

The International Sampling Program has collected a large number of biological samples (~30K) across a wide array of NAFO standard weeks and NAFO Divisions since 1990. Generally, samples in the earlier part of the time series came from fewer NAFO Division earlier in the fishing season and samples from later in the time series came from a wider range of NAFO Divisions and standard weeks.

SECTION 3: THE ORIGIN OF THE CATCHES BY CONTINENT AND AT FINER SCALES WHERE POSSIBLE (E.G. COUNTRY OR REGION OF ORIGIN)

Table 3.1: Estimated overall continent of origin (weighted by catch weight) and division-specific North American origin (not weighted by catch weight) contributions to the Greenland Atlantic salmon fishery, 1990-2013. Light grey filled cells represent low sample sizes. Dark grey filled cells identify cases where the overall estimates were modified due to a re-analysis of the continent of origins, but the division-specific estimates were not adjusted. Care should be taken when interpreting these specific data points.

	Wt'd overall proportions		Un-wt'd division-specific proportion						
Year	**NA**	**E**	**1A**	**1B**	**1C**	**1D**	**1E**	**1F**	**Overall**
1990	74%	26%			69%	69%	56%		75%
1991	63%	37%			64%	66%	55%		65%
1992	45%	55%			70%		40%	43%	54%
1993									
1994									
1995	67%	33%			65%	72%	59%		65%
1996	70%	30%			42%	49%	42%		42%
1997	85%	15%			59%	57%			60%
1998	79%	21%				71%	29%		79%
1999	91%	9%		79%	99%	93%		83%	90%
2000	65%	35%				89%		50%	70%
2001	67%	33%			98%	91%		55%	68%
2002	69%	31%			70%	89%		37%	68%
2003	64%	36%			80%	82%		50%	68%
2004	72%	28%			79%	75%		53%	73%
2005	74%	26%	100%		81%	78%		67%	76%
2006	69%	31%	56%		64%	74%	61%	77%	72%
2007	76%	24%	50%		71%	88%	66%	88%	81%
2008	86%	14%		85%		87%		85%	86%
2009	89%	11%		93%	85%	95%		81%	91%
2010	80%	20%		85%		82%		70%	80%
2011	93%	7%	96%	95%		95%		86%	93%
2012	79%	21%		95%	74%			77%	82%
2013	82%	18%		83%	82%			74%	82%

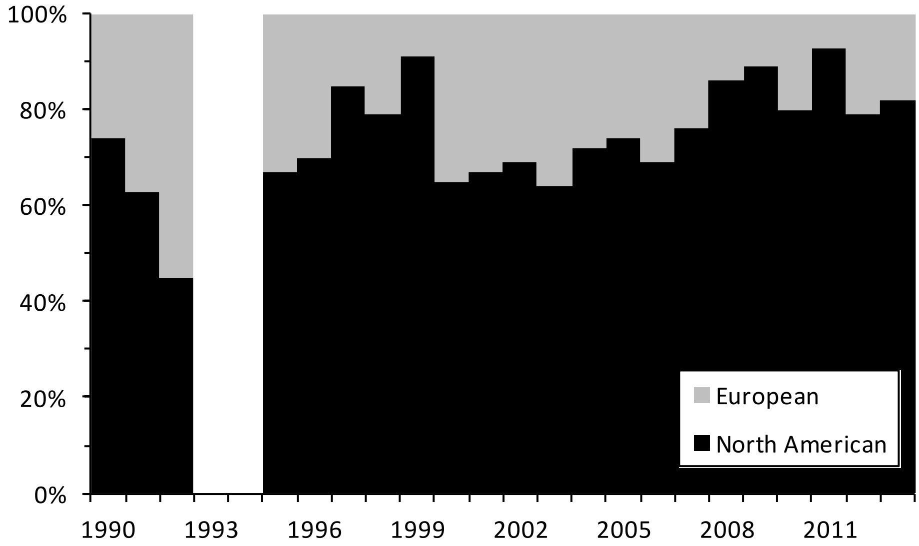


Figure 3.1a: Overall continent of origin proportion (weighted by catch weight) for the Greenland Atlantic salmon fishery, 1990-2013.

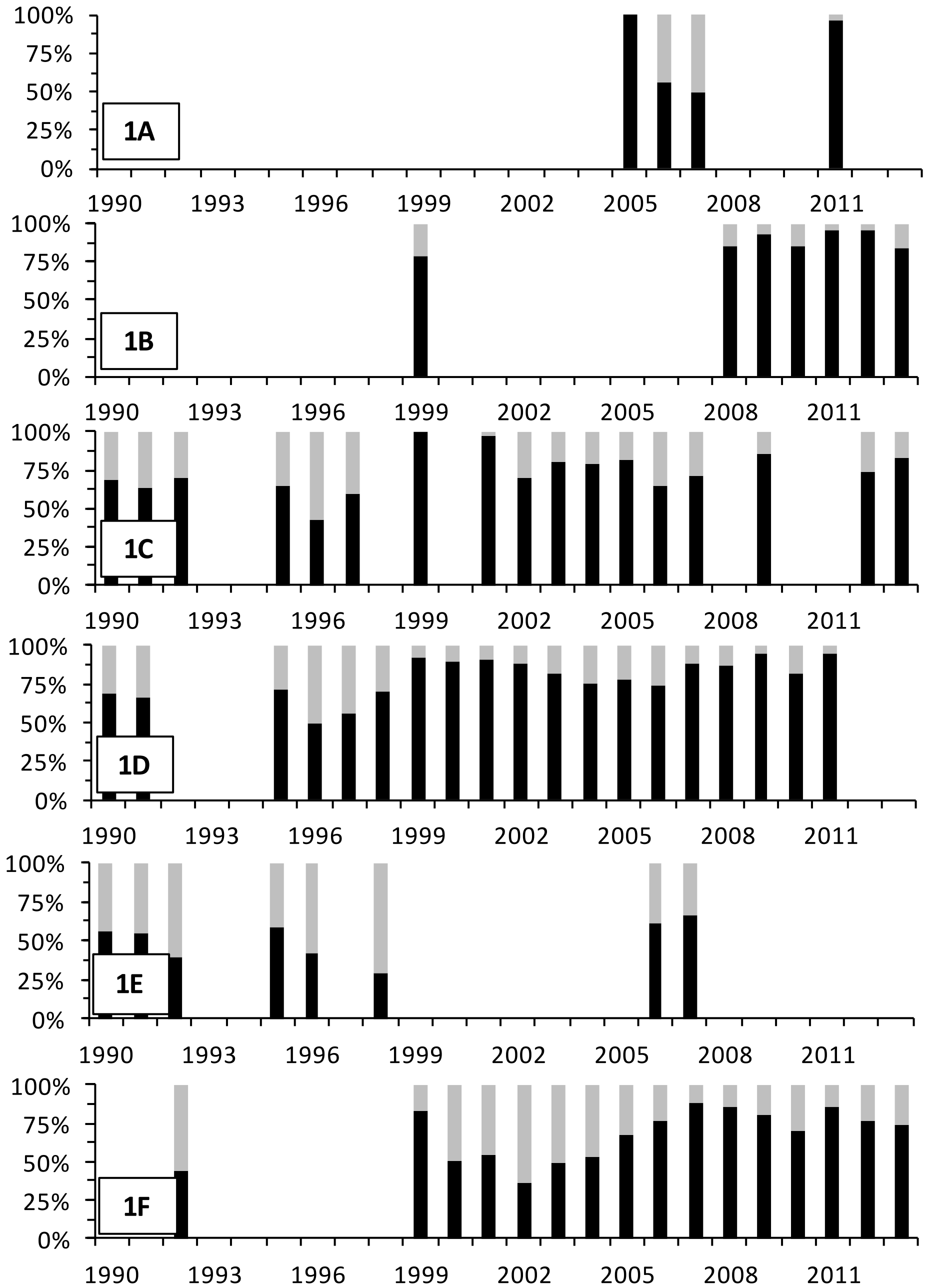


Figure 3.1b: Division-specific North American (black) and European (grey) proportions (not weighted by catch weight) for the Greenland Atlantic salmon fishery, 1990-2013.

Peer reviewed articles

Reddin, D. G, Hansen, L. P., Bakkestuen, V., Russell, I., White, J., Potter, E.C.E. , Sheehan, T. F., Ó Maoiléidigh, N., Dempson, J. B., Smith, G. W., Isaksson, A., Fowler, M., Jacobsen, J. A., Mork, K. A., and Amiro, P. 2012. Distribution of Atlantic salmon (Salmo salar L.) at Greenland, 1960s to present. ICES Journal of Marine Science. 69(9), 1589–1597.

Abstract (copied from Reddin *et al*. 2012)

In this study, we examined 5481 records of tag recoveries at Greenland from a new tagging database held by ICES that contains information on salmon tagged in Canada, France, Faroes, Greenland, Iceland, Ireland, Norway, Spain, the UK (Northern Ireland, Scotland, England, and Wales), and the United States from the early 1960s to the present. For 4806 of the tag recoveries, latitude and longitude information were available, describing, to varying degrees of accuracy, the location of recovery of tagged fish. Release and recovery dates were variable, but no significant differences over time were noted. The information derived from tag recoveries was used to describe the distribution and growth of salmon of different origins. The proportion of recoveries from East Greenland suggested that potential multi-sea-winter salmon from northern Europe have a more easterly distribution than those from southern Europe. The location of recovery of salmon of North American origin differed from that of European salmon along the west coast of Greenland. Tag recoveries by country were not uniformly distributed across the respective NAFO Divisions. Tags from salmon originating in Canada and the United States were more commonly recovered in northern locations than tags from European-origin salmon. Analysis of rates of tag recovery suggested similar rates before and after the introduction of the NASCO Tag Return Incentive Scheme. The straight-line migration speed of both North American and European salmon changed very little over the time-series, but was ~40% greater for North American salmon (0.43 m s^{-1}) than for European salmon (0.29–0.32 m s^{-1}).

Table 3.2: Numbers of tags recovered at Greenland for which location (NAFO Division) was specified, by country of origin, and the percentage of all recoveries for each country reported from East Greenland (Table 2 copied from Reddin *et al*. 2012).

Country	**W. Greenland**	**E. Greenland**	**Total**	**% East Greenland**
USA	2128	30	2158	1.4
Canada	1814	2	1816	0.1
Iceland	16	1	17	5.9
Norway	115	15	130	11.5
Ireland	139	2	141	1.4
UK (Scotland)	273	6	279	2.2
UK (E&W)	195	3	198	1.5
UK (NI)	2	0	2	0
Total	**4682**	**59**	**4741**	**1.2**

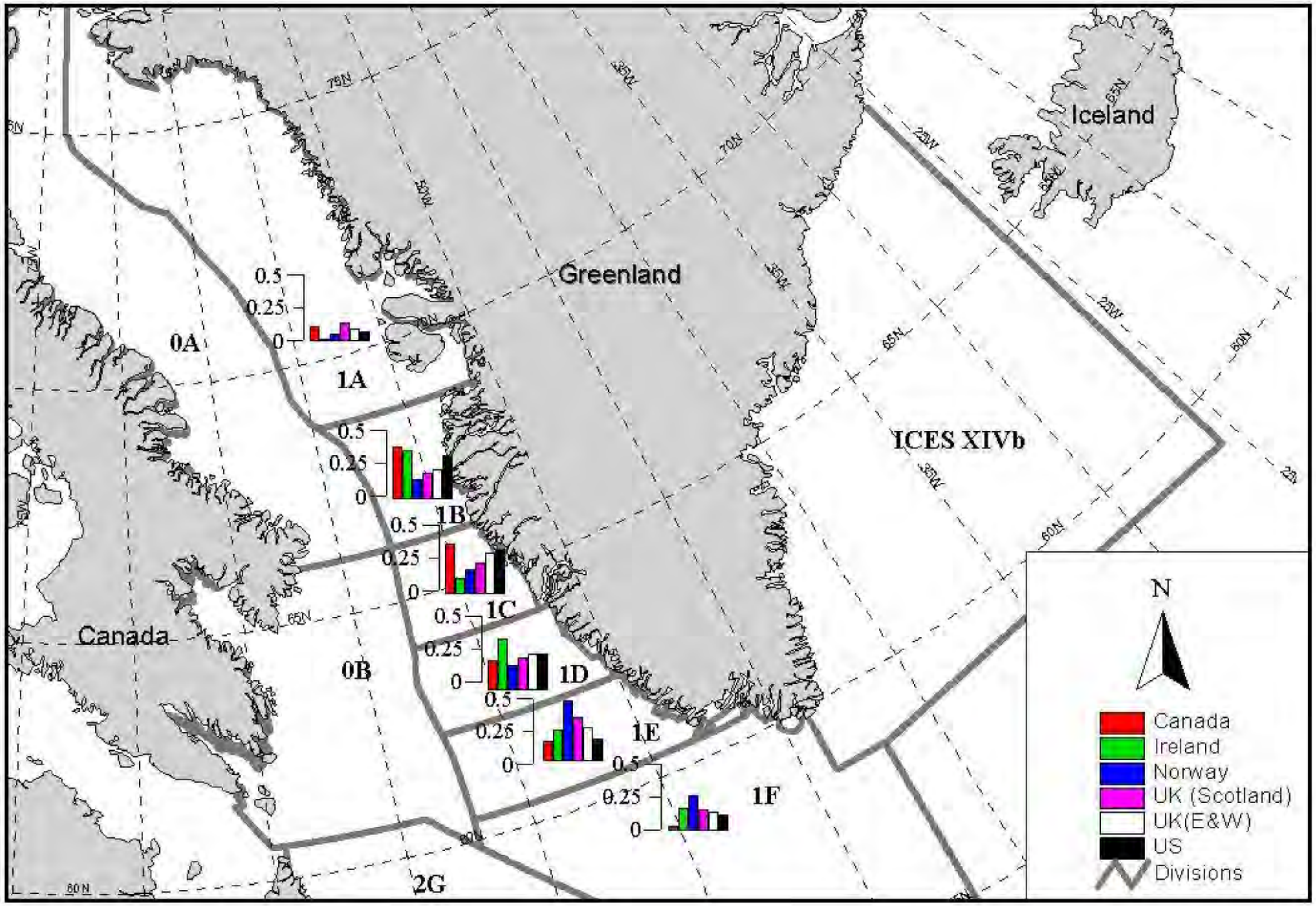

Iceland
Greenland
Canada
ICES XIVb
0A
1A
1B
1C
1D
1E
1F
0B
2G
0.5
0.25
0
N
Canada
Ireland
Norway
UK (Scotland)
UK(E&W)
US
Divisions

Figure 3.2. Map showing NAFO Divisions at West Greenland, ICES Statistical Area XIVb on the east coast of Greenland, and the relative contributions of tag recoveries by country of origin (Figure 1 copied from Reddin *et al*. 2012).

Gauthier-Ouellet, M., Dionne, M., Caron, F., King, T.L., and Bernatchez, L. 2009. Spatiotemporal dynamics of the Atlantic salmon (*Salmo salar*) Greenland fishery inferred from mixed-stock analysis. Can. J. Fish. Aquat. Sci. 66(12): 2040-2051.

Abstract (copied from Gauthier-Ouellet *et al*. 2009)

Mixed-stock fisheries refer to the exploitation of admixed fish stocks coming from different origins. We identified the North American origin of 2835 Atlantic salmon (*Salmo salar*) in the Greenland mixed-stock fishery during 11 years (1995–2006) at three localities using 13 microsatellites. The study included 52 baseline populations representing nine genetically distinct regional groups. The contribution of each group ranged from <1% (Maine) to 40% (Southern Québec). Decreasing temporal contributions were observed for Southern Québec (–22.0%) and New Brunswick (–17.4%), whereas an increasing contribution for Labrador (+14.9%) was observed during the time course of the study. The estimated regional contribution to the Greenland fishery was significantly correlated to the number of multi-sea-winter salmon regionally produced in 2002 ($r = 0.79$) and 2004 ($r = 0.92$). No difference in contribution was found between the three Greenland sampling localities. Ungava and Southern Québec regions showed the highest mortality estimates caused by the fishery, ranging from 12.10% to 18.08%, for both years tested. No regional group was overrepresented in landings compared with their respective productivity. Yet, management precautions should still be taken as the fishery strongly selects large females, which could have evolutionary impacts on populations over the long term.

Table 3.3: Number of adult Atlantic salmon sampled per year and per location in the West Greenland fishery (Table 1 copied from Gauthier-Ouellet *et al*. 2009).

Year	Qaqortoq	Nuuk	Maniitsoq	Total
1995	—	92	—	92
1996	—	106	—	106
2002	48	136	90	274
2003	180	182	166	528
2004	106	270	177	553
2005	92	324	119	535
2006	91	582	74	747

Table 3.4: Regional statistics and the Greenland fishery mortality of Atlantic salmon for the nine North American regional group in 2002 and 2004 (Table 3 copied from Gauthier-Ouellet *et al*. 2009).

							Mortality (%)			
	% MSW*		Returns* (grilse + MSW)		No. of catches†		2002		2004	
Region	2002	2004	2002	2004	2002	2004	MSW	Grilse + MSW	MSW	Grilse + MSW
Maine	53	80	961	1 602	0	47	0.07	0.04	3.54	2.85
New Brunswick	12	24	56 406	63 999	1 138	1 234	14.52	1.98	7.51	1.89
Southern Québec	48	40	22 293	49 651	2 387	2 717	18.08	9.67	12.10	5.19
Québec City	44	62	2 726	2 996	38	171	3.07	1.38	8.47	5.40
Anticosti	21	44	2 428	2 290	36	77	6.68	1.47	7.12	3.25
Higher North Shore	47	72	11 967	14 787	192	362	3.31	1.58	3.30	2.39
Lower North Shore	30	20	5 691	6 603	8	44	0.47	0.14	3.18	0.66
Labrador	12	11	120 688	116 103	831	1 283	5.52	0.68	9.01	1.09
Ungava	33	30	2 313	5 011	152	262	16.56	6.17	14.96	4.97
Mean							7.59±6.98	2.57±3.22	7.69±4.06	3.08±1.77

Note: MSW, multi-sea-winter.
*Caron and Fontaine 2003; ICES 2005; Caron et al. 2006.
†Absolute number of salmon caught per region.

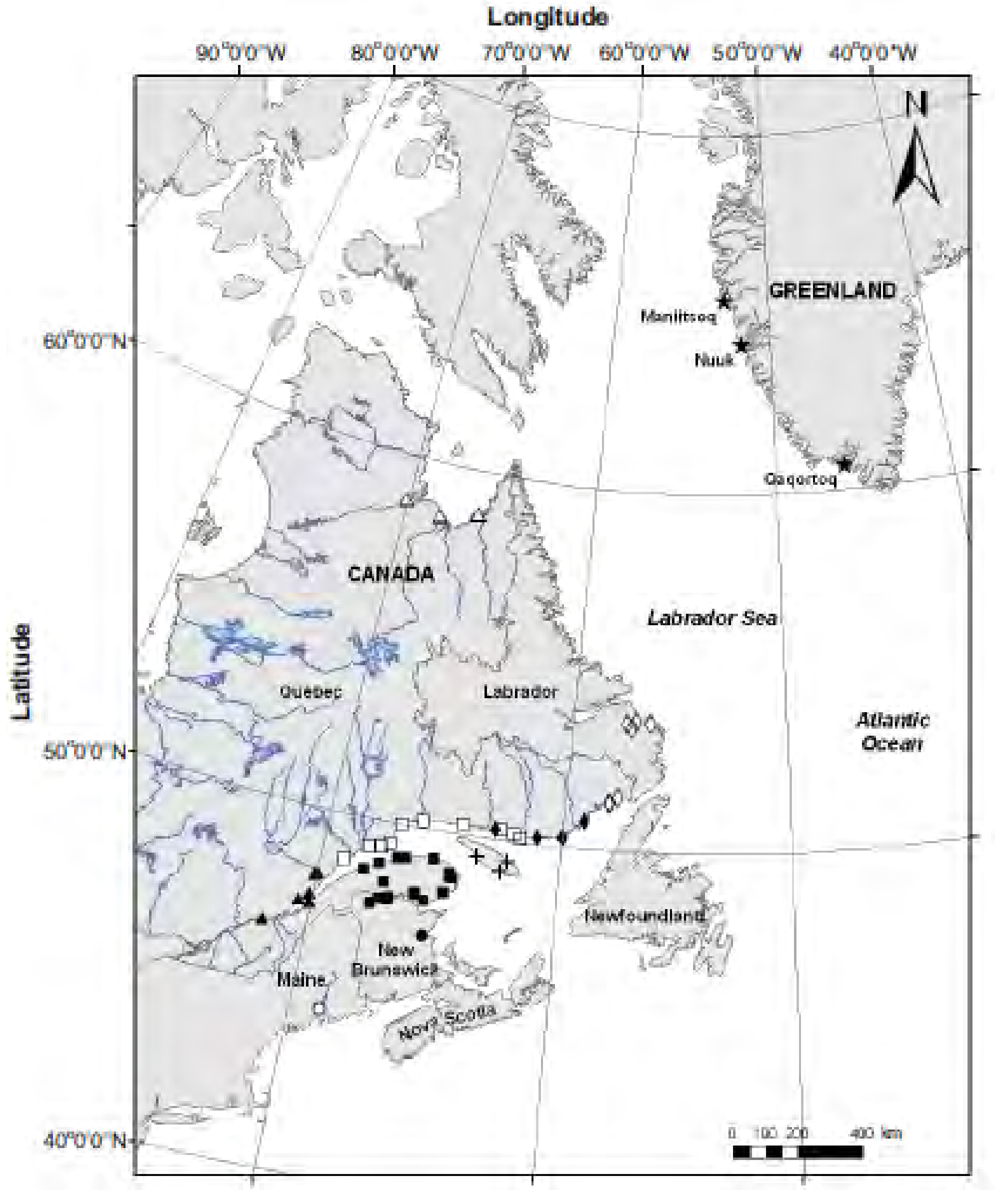


Figure 3.3: Rivers sampled in the regions of Québec, New Brunswick, Labrador (Canada) and Maine (USA) represented in the baseline. Rivers identified by different symbols belong to different regional groups and are indicated as follows: (Maine (open circle), New Brunswick (solid circle), Southern Québec (solid squares), Anticosti (plus sign), Higher North Shore (open square), Lower North Shore (solid diamond), Labrador (open diamond) and Ungava (open triangles, Figure 1 copied from Gauthier-Ouellet *et al*. 2009).

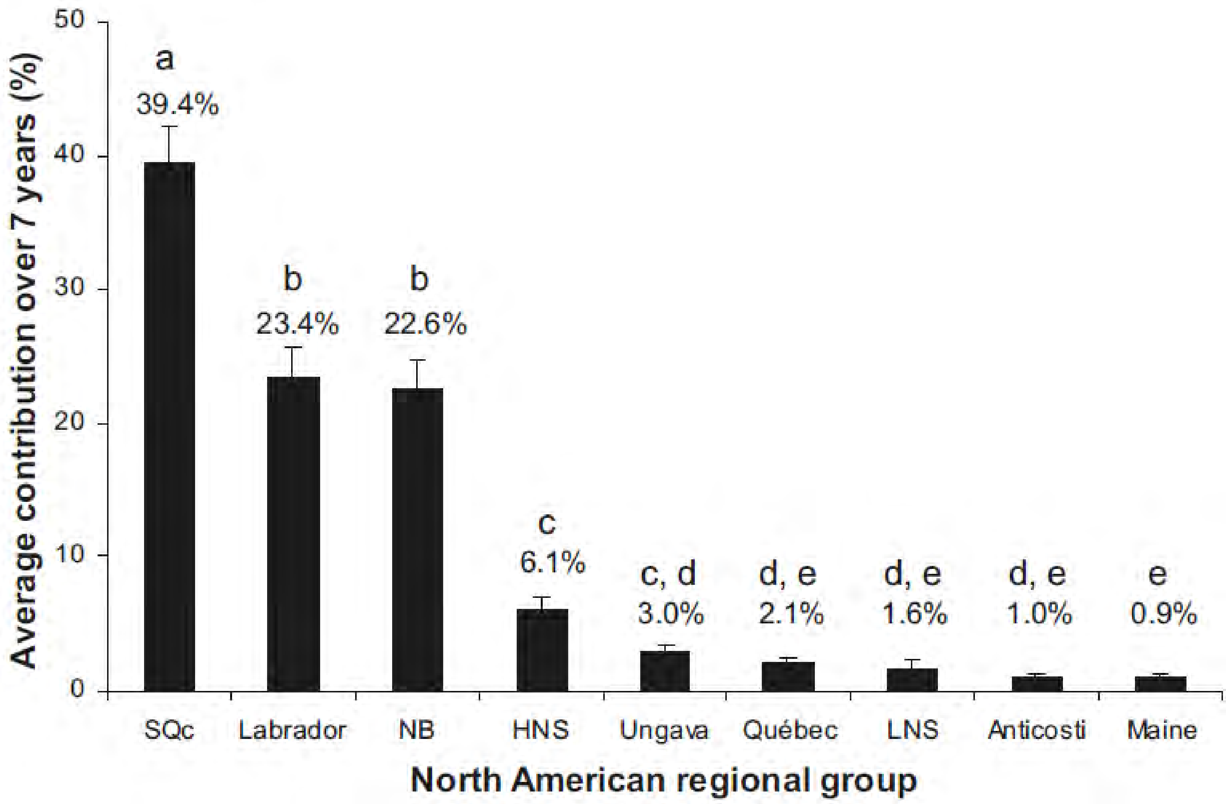


Figure 3.4: Average contributions of the nine Atlantic salmon North American regions to the Greenland fishery for seven years (1995-1996 and 2002-2006), spanning an 11-year period. Mean relative contribution of each region to the fishery and the variation among years are indicated on the top of the bars. Letters indicate significant different contributions as identified by the least-squares means, after a sequential Bonferroni correction. Abbreviations are as follows: SQc (Southern Quebec), NB (New Brunswick), HNS Higher (North Shore) and LNS (Lower North Shore, Figure 2 copied from Gauthier-Ouellet *et al*. 2009).

Sheehan, T.F., Legault, C.M., King, T.L., and Spidle, A.P. 2010. Probabilistic-based genetic assignment model: assignments to subcontinent of origin of the West Greenland Atlantic salmon harvest. ICES J. Mar. Sci. 67: 537-550.

Abstract (copied from Sheehan *et al*. 2010)

A multistock Atlantic salmon (Salmo salar) fishery operates off the coast of West Greenland and harvests fish of North American and European origin. Annual landings peaked in 1971 at 2700 t, but declined to 22 t in 2003. Biological data are collected to characterize the catch and its stock composition. Multilocus genotypes, generated via microsatellite DNA analysis, are used to derive statistics on continent of origin and less accurate finer scale assignments. We developed a Probabilistic-based Genetic Assignment model (PGA) to estimate the contribution of salmon from individual North American rivers in the 2000–2003 West Greenland catch. Uncertainty associated with finer scale assignments is addressed by incorporating estimated misclassification rates and by reporting results as distributions generated via Monte Carlo resampling. US-origin fish represented ~1% (by number) of the salmon harvested at West Greenland during the years 2000–2003. The resulting loss of spawners to this stock complex was approximately half the estimated adult returns in 2001, but was below 4% in the other three years. This is the first attempt to partition the US component of the West Greenland mixed-stock fishery to its finer parts. The approach can be used to identify the effects of fishing on individual stocks within any multi-stock complex where genetic samples of known origin are available.

Table 3.5: PGA results of the 2000–2003 West Greenland Atlantic salmon fisheries. Total catches were partitioned by continent of origin. All fish of North American origin were also partitioned by country (subcontinent) of origin. Previously reported percentages by continent of origin are also presented for comparative purposes (Table 5.9.3.2 of ICES, 2005, Table 4 copied from Sheehan *et al*. 2010).

Year, and continent/country of origin	**Estimate**	**Percentage**	**90% confidence interval**		**Previously reported**
			Lower	**Upper**	
2000					
North Atlantic total	7 731	66.0%	7 657	7 808	70.0%
European total	3 983	34.0%	3 906	4 057	30.0%
Canadian total	7 685	99.4%	7 527	7 793	
US total	46	0.6%	0	192	
2001					
North Atlantic total	10 766	64.6%	10 673	10 859	69.0%
European total	5 893	35.4%	5 798	5 985	31.0%
Canadian total	10 402	96.6%	10 046	10 691	
US total	364	3.4%	89	710	
2002					
North Atlantic total	4 782	70.0%	4 728	4 837	68.0%
European total	2 054	30.0%	1 999	2 107	32.0%
Canadian total	4 737	99.1%	4 631	4 817	
US total	45	0.9%	0	141	
2003					
North Atlantic total	4 714	64.2%	4 657	4 771	68.0%
European total	2 634	35.8%	2 577	2 691	32.0%
Canadian total	4 652	98.7%	4 561	4 732	
US total	62	1.3%	5	132	

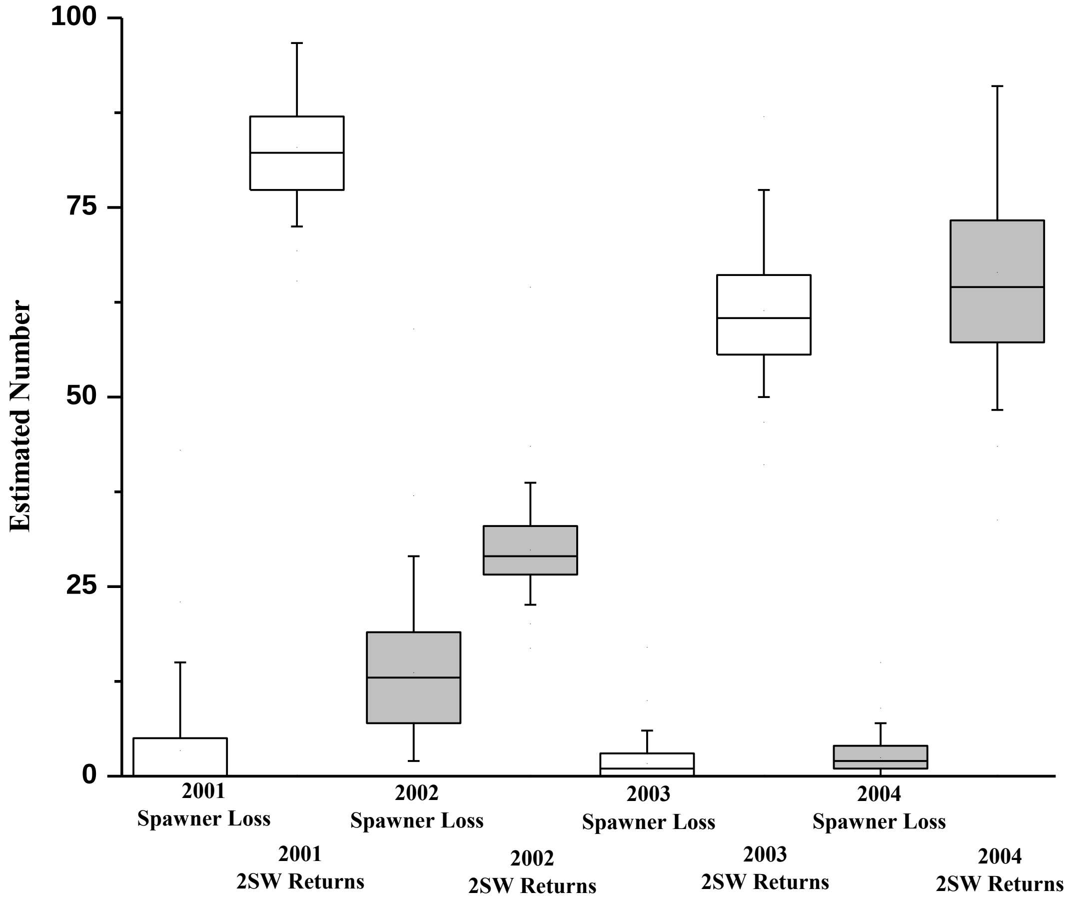


Figure 3.5: Estimated Gulf of Maine Distinct Population Segment (GOM DPS; a group of eight rivers currently protected by the federal government) spawner loss resulting from the 2000–2003 West Greenland Atlantic salmon fisheries contrasted with their subsequent cohort returns the year following the fishery. The box defines the 25th, 50th, and 75th percentiles, and the whiskers represent the 5th and 95th percentiles (Table 5 copied from Sheehan *et al* 2010).

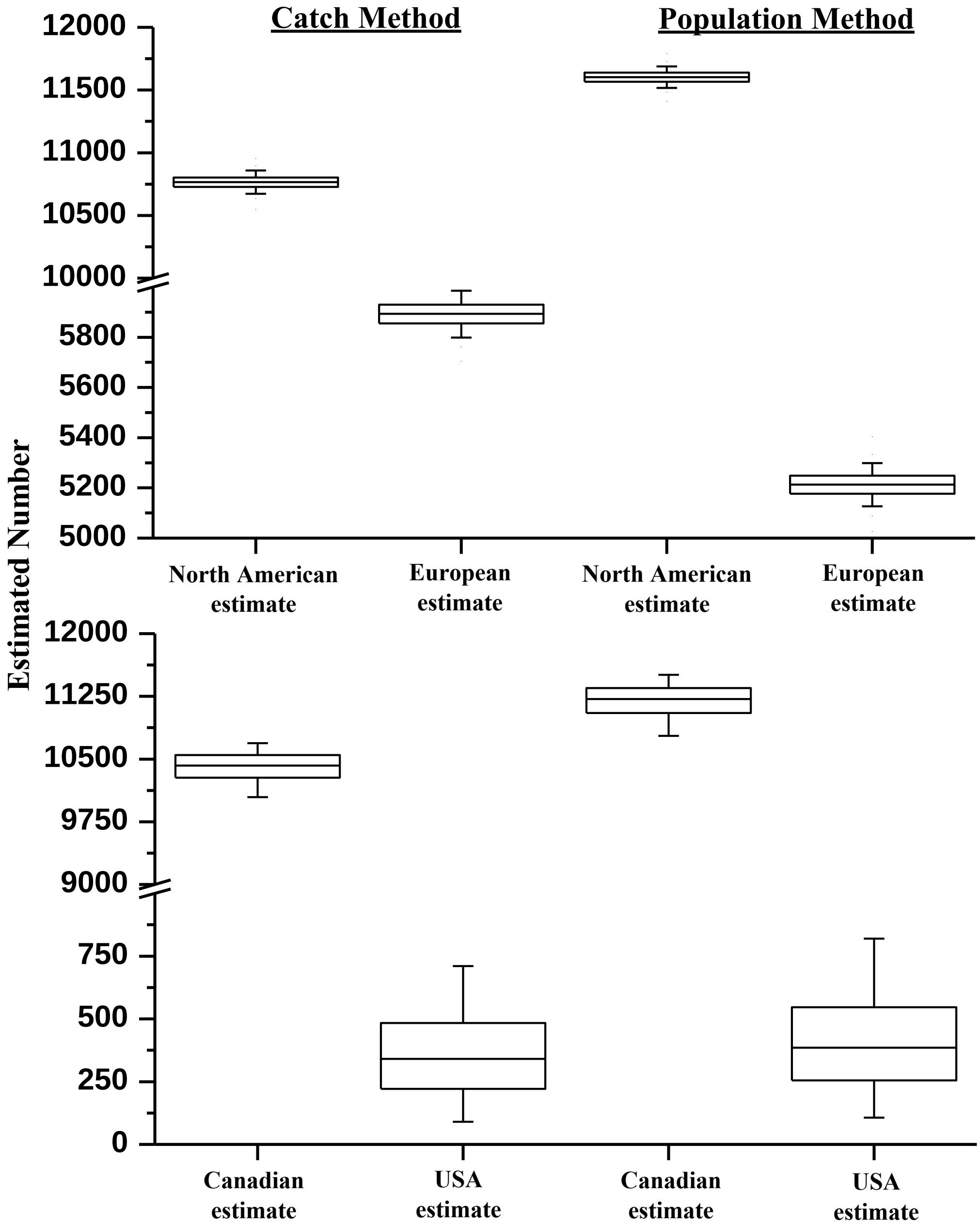


Figure 3.6: Estimated number of fish harvested from the 2001 West Greenland Atlantic fishery according to continent and subcontinent of origin. The catch method estimates assumed that the unreported catch was distributed across NAFO Divisions in the same proportion as the reported catch. The population method estimates assumed that the unreported catch was distributed across NAFO Divisions in the same proportion as the population distribution in Greenland. The box defines the 25th, 50th, and 75th percentiles, and the whiskers represent the 5th and 95th percentiles (Figure 6 copied from Sheehan *et al* 2010).

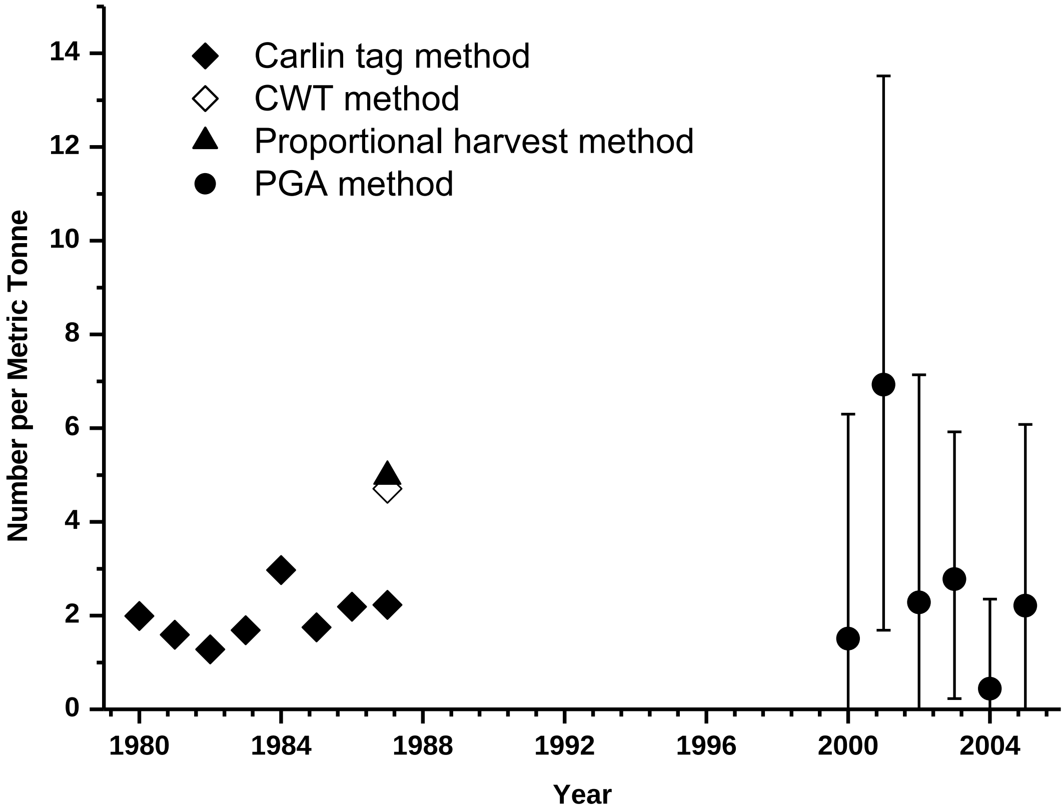


Figure 3.7: Estimated number of US-origin fish contributing to each tonne of Atlantic salmon harvested in the Greenland fishery. Earlier estimates were reported by Jensen (1990), and estimates from 2000 to 2003 were PGA-derived and displayed with their corresponding 90% confidence intervals. The Carlin tag method (external tag) estimated the Maine contribution only, whereas the CWT (internal tag), proportional harvest (smolt age), and PGA methods estimated the total US contribution (Figure 7 copied from Sheehan *et al* 2010).

Ongoing studies – preliminary results – NOT TO BE CITED

Preliminary results from "A Proposal for Pilot project to undertake genetic stock of origin identification of European salmon captured at West Greenland" (Principle Investigators: Dr. Philip McGinnity, University College Cork, Co. Cork Ireland and Paulo Prodöhl, Queen's University Belfast, Belfast, UK (Northern Ireland))

Overview

The SALSEA-Merge project has facilitated the development of a unique molecular assignment protocol – GRAASP: Genetically-based Regional Assignment of Atlantic Salmon Protocol – based on a suite of 14 microsatellites. The GRAASP database comprises 26,813 Atlantic salmon individuals from 467 locations, in 284 rivers representing ~ 85% of the non-Baltic European salmon production. The GRAASP tool is capable of delivering both broad and medium scale regional assignment. At the broad geographical scale, it currently recognises three regional assignment units (RAUs), namely, Iceland, Northern Europe and Southern Europe. Furthermore, at the finest supportable scale, it can distinguish 17 geographically cohesive regional subdivisions or RAUs. In addition, several high resolution microsatellite databases for genetic stock identification are now available in Ireland, UK (Scotland), UK (N. Ireland), UK (England & Wales), Norway and France that may allow in many instances river-specific assignments.

European origin salmon sampled at Greenland (2002-2012, ~2500 samples) were genotyped at 20 microsatellite genetic markers covering the SALSEA GRAASP and the Irish NGSI baseline panels. Regional assignments to SALSEA Level 1 to Level 4 groupings using the GENECLASS 2 individual assignment algorithm were performed. Assignments were also broken down by country of origin and their proportions compared against the 10 year average of Pre-Fishery Abundance (PFA) estimates for 2002-2012 provided by Working Group on North Atlantic Salmon report (ICES 2013).

The fishery at West Greenland fishery (2002-2012) is dominated by fish originating from British and Irish rivers and there is a high level of consistency in the proportions of North and South complex fish observed over this period. Approximately 90% of the European harvest comes from rivers in the UK and Ireland with approximately 40% of the total harvest originating from salmon populations in southern/eastern Scotland. Contribution of individual LEVEL 4 regional groups to the fishery has not varied substantially between 2002 and 2012. There is also considerable correspondence between the ICES WGNAS pre-fishery abundance estimates for Southern complex stocks over the last ten years. This work is ongoing with the intent of having final results available prior to the 2015 ICES WGNAS meeting

THIS WORK IS ONGOING AND THE RESULT BELOW SHOULD BE CONSIDERED PRELIMINARY.

Table 3.6: Number of fish per year and total (including percentage) from West Greenland fishery assigning to SALSEA Merge LEVEL 1 regional units. See Figure 3.9 for locations of regional groups. This work is ongoing and the result below should be considered preliminary.

LEVEL 1 Grouping	Iceland	North	South	Total
2002	-	4 (2.7%)	146 (97.3%)	150
2004	-	9 (2.2%)	399 (97.8%)	408
2005	-	7 (4.6%)	146 (95.4%)	153
2006	-	12 (3.6%)	318 (96.4%)	330
2007	1 (0.5%)	13 (6.3%)	191 (93.2%)	205
2008	-	6 (2.3%)	251 (97.7%)	257
2009	-	3 (2.4%)	124 (97.6%)	127
2010	-	11 (4.5%)	234 (95.5%)	245
2011	2 (3.6%)	3 (5.4%)	51 (91.1%)	56
2012	1 (0.4%)	13 (5.3%)	233 (94.3%)	247
Average ± SD	1.3 ± 0.6	8.1 ± 4	209.3 ± 100.8	217.8 ± 102.9
Total (2002-2012)	4 (0.2%)	81 (3.7%)	2093 (96.1%)	2178

Table 3.7: Number of fish per year and total (including percentage) from West Greenland fishery assigning to SALSEA Merge LEVEL 2 regional units. This work is ongoing and the result below should be considered preliminary.

LEVEL 2 Grouping	Iceland NW	Russia & N Norway	Mid & South Norway & Sweden	Denmark	Britain, Ireland France & Spain	Total
2002	-	1 (0.7%)	3 (2%)	-	146 (97.3%)	150
2004	-	1 (0.2%)	8 (2%)	-	399 (97.8%)	408
2005	-	-	7 (4.6%)	1 (0.7%)	145 (94.8%)	153
2006	-	1 (0.3%)	11 (3.3%)	1 (0.3%)	317 (96.1%)	330
2007	1 (0.5%)	1 (0.5%)	12 (5.9%)	-	191 (93.2%)	205
2008	-	4 (1.6%)	2 (0.8%)	3 (1.2%)	248 (96.5%)	257
2009	-	-	3 (2.4%)	-	124 (97.6%)	127
2010	-	3 (1.2%)	8 (3.3%)	-	234 (95.5%)	245
2011	2 (3.6%)	-	3 (5.4%)	-	51 (91.1%)	56
2012	1 (0.4%)	1 (0.4%)	12 (4.9%)	-	233 (94.3%)	247
Average ± SD	1.3 ± 0.6	1.7 ± 1.3	6.9 ± 4	1.7 ± 1.2	208.8 ± 100.6	217.8 ± 102.9
Total (2002-2012)	4 (0.2%)	12 (0.6%)	69 (3.2%)	5 (0.2%)	2088 (95.9%)	2178

Table 3.8: Number of fish per year and total (including percentage) from West Greenland fishery assigning to SALSEA-Merge LEVEL 3 regional units. This work is ongoing and the result below should be considered preliminary.

LEVEL 3 Grouping	Iceland NW	N Kola	Finmark	E Norway & Sweden	Mid Norway	S Norway	Denmark	Britain & Ireland	South England	N & W France	S France & Spain	Total
2002	-	1 (0.7%)	-	1 (0.7%)	2 (1.3%)	-	-	142 (94.7%)	-	4 (2.7%)	-	150
2004	-	-	1 (0.2%)	2 (0.5%)	3 (0.7%)	3 (0.7%)	-	392 (96.1%)	-	6 (1.5%)	1 (0.2%)	408
2005	-	-	-	2 (1.3%)	4 (2.6%)	1 (0.7%)	1 (0.7%)	141 (92.2%)	1 (0.7%)	3 (2%)	-	153
2006	-	1 (0.3%)	-	1 (0.3%)	8 (2.4%)	2 (0.6%)	1 (0.3%)	313 (94.8%)	-	4 (1.2%)	-	330
2007	1 (0.5%)	1 (0.5%)	-	2 (1%)	6 (2.9%)	4 (2%)	-	188 (91.7%)	1 (0.5%)	2 (1%)	-	205
2008	-	4 (1.6%)	-	-	2 (0.8%)	-	3 (1.2%)	240 (93.4%)	-	8 (3.1%)	-	257
2009	-	-	-	1 (0.8%)	1 (0.8%)	1 (0.8%)	-	117 (92.1%)	-	7 (5.5%)	-	127
2010	-	3 (1.2%)	-	4 (1.6%)	1 (0.4%)	3 (1.2%)	-	230 (93.9%)	-	2 (0.8%)	2 (0.8%)	245
2011	2 (3.6%)	-	-	1 (1.8%)	2 (3.6%)	-	-	50 (89.3%)	-	1 (1.8%)	-	56
2012	1 (0.4%)	1 (0.4%)	-	3 (1.2%)	4 (1.6%)	5 (2%)	-	230 (93.1%)	-	3 (1.2%)	-	247
Average ± SD	1.3 ± 0.6	1.8 ± 1.3	-	1.9 ± 1.1	3.3 ± 2.3	2.7 ± 1.5	1.7 ± 1.2	204.3 ± 99.6	1 ± 0	4 ± 2.3	1.5 ± 0.7	217.8 ± 102.9
Total (2002-2012)	4 (0.2%)	11 (0.5%)	1 (0%)	17 (0.8%)	33 (1.5%)	19 (0.9%)	5 (0.2%)	2043 (93.8%)	2 (0.1%)	40 (1.8%)	3 (0.1%)	2178

Table 3.9: Number of fish per year and total (including percentage) from West Greenland fishery assigning to SALSEA-Merge LEVEL 4 regional units. See Figure 3.10 for locations of regional groups. This work is ongoing and the result below should be considered preliminary.

LEVEL 4 Grouping	Iceland NW	N Kola	Finmark	E Norway & Sweden	Mid Norway	S Norway	Denmark	N Scotland N&W Ireland	BannLev	Irish Sea	S&E Scotland	South England	N&W France	S France & Spain	Total
2002	-	1 (0.7%)	-	1 (0.7%)	2 (1.3%)	-	-	40 (26.7%)	2 (1.3%)	43 (28.7%)	57 (38%)	-	4 (2.7%)	-	150
2004	-	-	1 (0.2%)	2 (0.5%)	3 (0.7%)	3 (0.7%)	-	96 (23.5%)	12 (2.9%)	123 (30.1%)	161 (39.5%)	-	6 (1.5%)	1 (0.2%)	408
2005	-	-	-	2 (1.3%)	4 (2.6%)	1 (0.7%)	1 (0.7%)	34 (22.2%)	3 (2%)	49 (32%)	55 (35.9%)	1 (0.7%)	3 (2%)		153
2006	-	1 (0.3%)	-	1 (0.3%)	8 (2.4%)	2 (0.6%)	1 (0.3%)	95 (28.8%)	9 (2.7%)	80 (24.2%)	129 (39.1%)	-	4 (1.2%)	-	330
2007	1 (0.5%)	1 (0.5%)	-	2 (1%)	6 (2.9%)	4 (2%)	-	49 (23.9%)	8 (3.9%)	56 (27.3%)	75 (36.6%)	1 (0.5%)	2 (1%)	-	205
2008	-	4 (1.6%)	-	-	2 (0.8%)	-	3 (1.2%)	63 (24.5%)	2 (0.8%)	62 (24.1%)	113 (44%)	-	8 (3.1%)	-	257
2009	-	-	-	1 (0.8%)	1 (0.8%)	1 (0.8%)	-	42 (33.1%)	1 (0.8%)	31 (24.4%)	43 (33.9%)	-	7 (5.5%)	-	127
2010	-	3 (1.2%)	-	4 (1.6%)	1 (0.4%)	3 (1.2%)	-	43 (17.6%)	3 (1.2%)	68 (27.8%)	116 (47.3%)	-	2 (0.8%)	2 (0.8%)	245
2011	2 (3.6%)	-	-	1 (1.8%)	2 (3.6%)	-	-	11 (19.6%)	1 (1.8%)	13 (23.2%)	25 (44.6%)	-	1 (1.8%)	-	56
2012	1 (0.4%)	1 (0.4%)	-	3 (1.2%)	4 (1.6%)	5 (2%)	-	76 (30.8%)	6 (2.4%)	54 (21.9%)	94 (38.1%)	-	3 (1.2%)	-	247
Average ± SD	1.3 ± 0.6	1.8 ± 1.3	-	1.9 ± 1.1	3.3 ± 2.3	2.7 ± 1.5	1.7 ± 1.2	54.9 ± 27.4	4.7 ± 3.8	57.9 ± 29.6	86.8 ± 43	1 ± 0	4 ± 2.3	1.5 ± 0.7	217.8 ± 102.9
Total (2002-2012)	4 (0.2%)	11 (0.5%)	1 (0%)	17 (0.8%)	33 (1.5%)	19 (0.9%)	5 (0.2%)	549 (25.2%)	47 (2.2%)	579 (26.6%)	868 (39.9%)	2 (0.1%)	40 (1.8%)	3 (0.1%)	2178

Table 3.10: The proportions (%) of fish assigned to country and the expected proportions of fish based on the 10 year average ICES estimate of non-maturing 1SW salmon (potential MSW returns) PFA 2002 -2011 (ICES 2013). Note: only Southern Complex countries included. This work is ongoing and the result below should be considered preliminary.

Country	Proportion by based on genetic assignment data to country (political)	Proportion expected based 10 year average ICES non maturing 1SW PFA 2002 -2011 (ICES WGNAS (2013)
France/Spain	2.07	2.05
Iceland (SW)	0.2	1.56
Ireland	13.84	8.8
UK (England/Wales)	12.37	16.48
UK (N. Ireland)	1.82	1.84
UK (Scotland)	69.78	69.27

Figure 3.8: GRAASP baseline database. A total of approximately 27K fish from 466 sites across 284 rivers comprise the database.

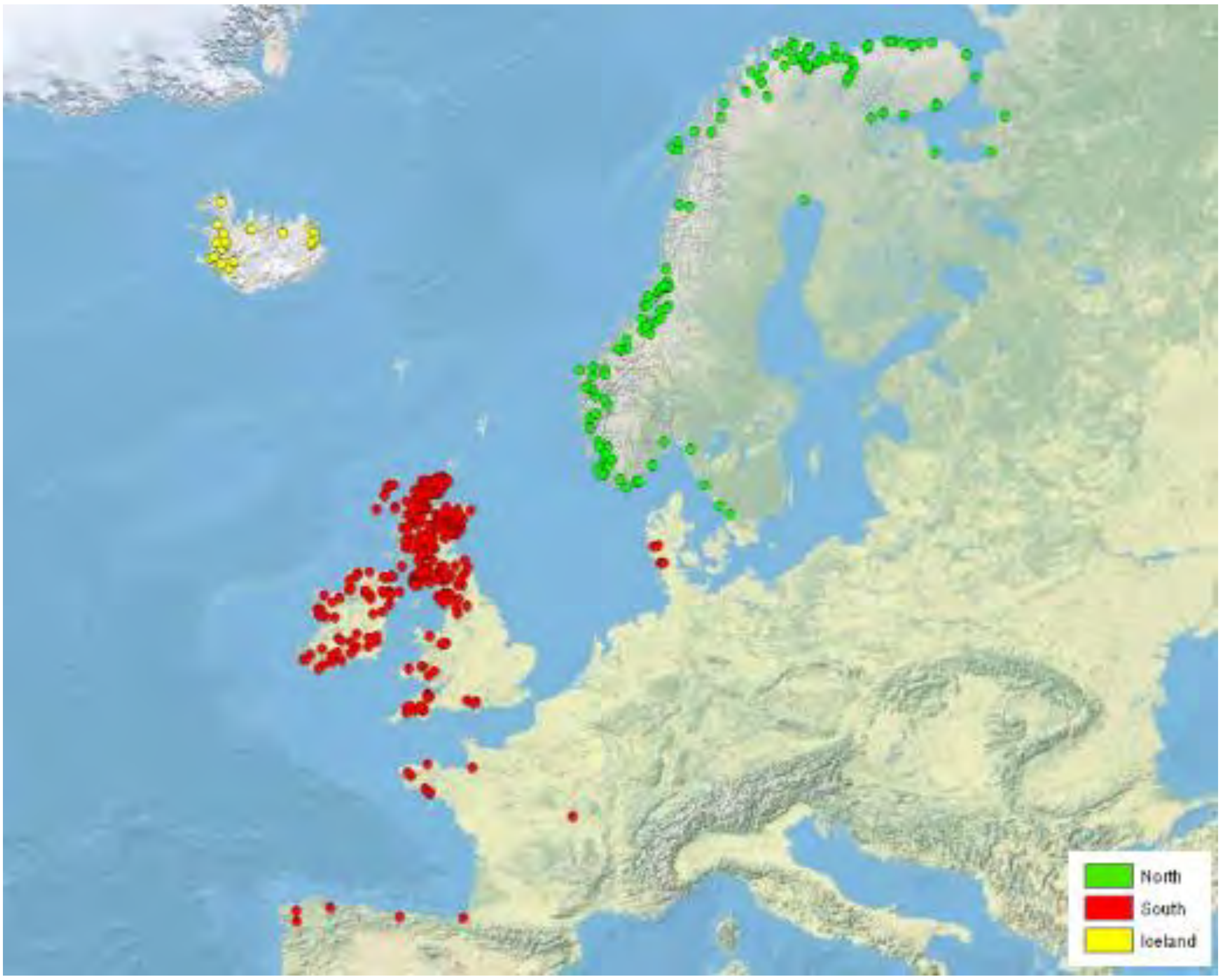


Figure 3.9: LEVEL 1 summation of the GRAASP baseline database.

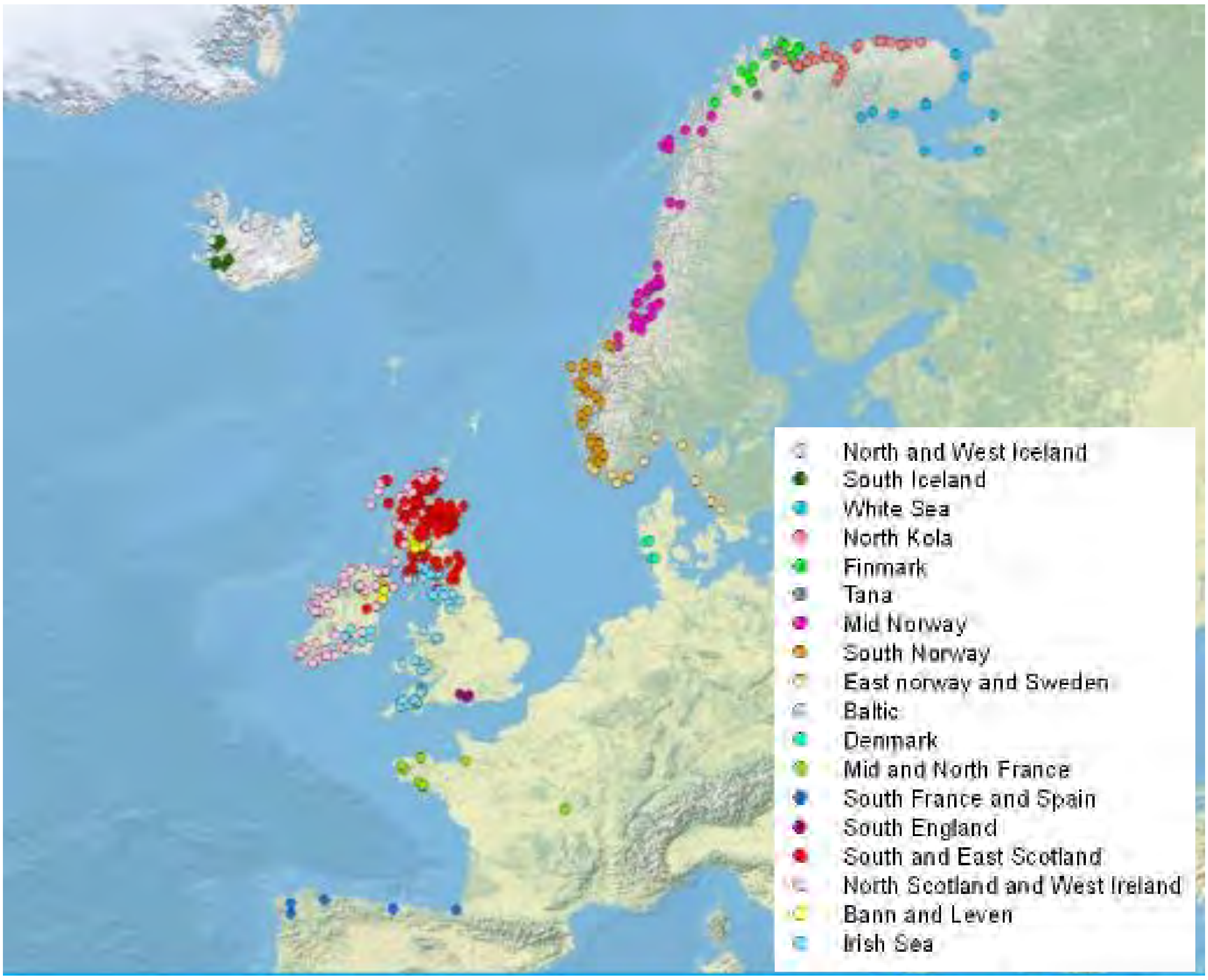


Figure 3.10: LEVEL 4 summation of the GRAASP baseline database.

Preliminary results from "Genetic determination of catch composition and stock exploitation of Atlantic salmon harvested in mixed stock fisheries at West Greenland" (Principle Investigator: Dr. Ian Bradbury, Science Branch, DFO Canada, St. John's NL Canada)

Overview

A Natural Sciences and Engineering Research Council of Canada (NSERC) strategic grant to researchers in Canada (Laval University, Quebec government, DFO Maritimes), USA (USGS) and Norway (CIGENE)) facilitated the development of a genetic North American database using standardized markers across Canada and USA (9042 individuals from 152 sampling locations genotyped at 15 microsatellite loci standardized across three different laboratories). The database was used to define regional groupings of Atlantic salmon rivers and can be used to estimate the contributions of these groupings to mixed-stock fisheries for North American origin fish

A total of 650 North American origin tissues samples obtained from the 2011 Greenland fishery were genotyped at 15 microsatellite loci and assigned to regional groupings. Preliminary results suggest that approximately 60% of the fish were from the Gaspe Peninsula and Maritimes regions. Lower levels of contribution were estimated for all other regional grouping, except for the Inner Bay of Fundy group. These results should be considered preliminary, but if funding is available, further analysis of the 2011 samples and analysis of the 2012-2014 Greenland samples will be pursued with the intent of having final results available prior to the 2015 ICES WGNAS meeting.

THIS WORK IS ONGOING AND THE RESULT BELOW SHOULD BE CONSIDERED PRELIMINARY.

Table 3.11: Sample size of genotyped North American origin Atlantic salmon harvested at Greenland in 2011. Samples were processed and Bayesian and maximum likelihood mixture analyses were performed against the North American baseline.

Community (NAFO Div.)	Sample size
Ilulissat (1A)	53
Sisimiut (1B)	115
Nuuk (1D)	266
Qaqortoq (1F)	215
Total	649

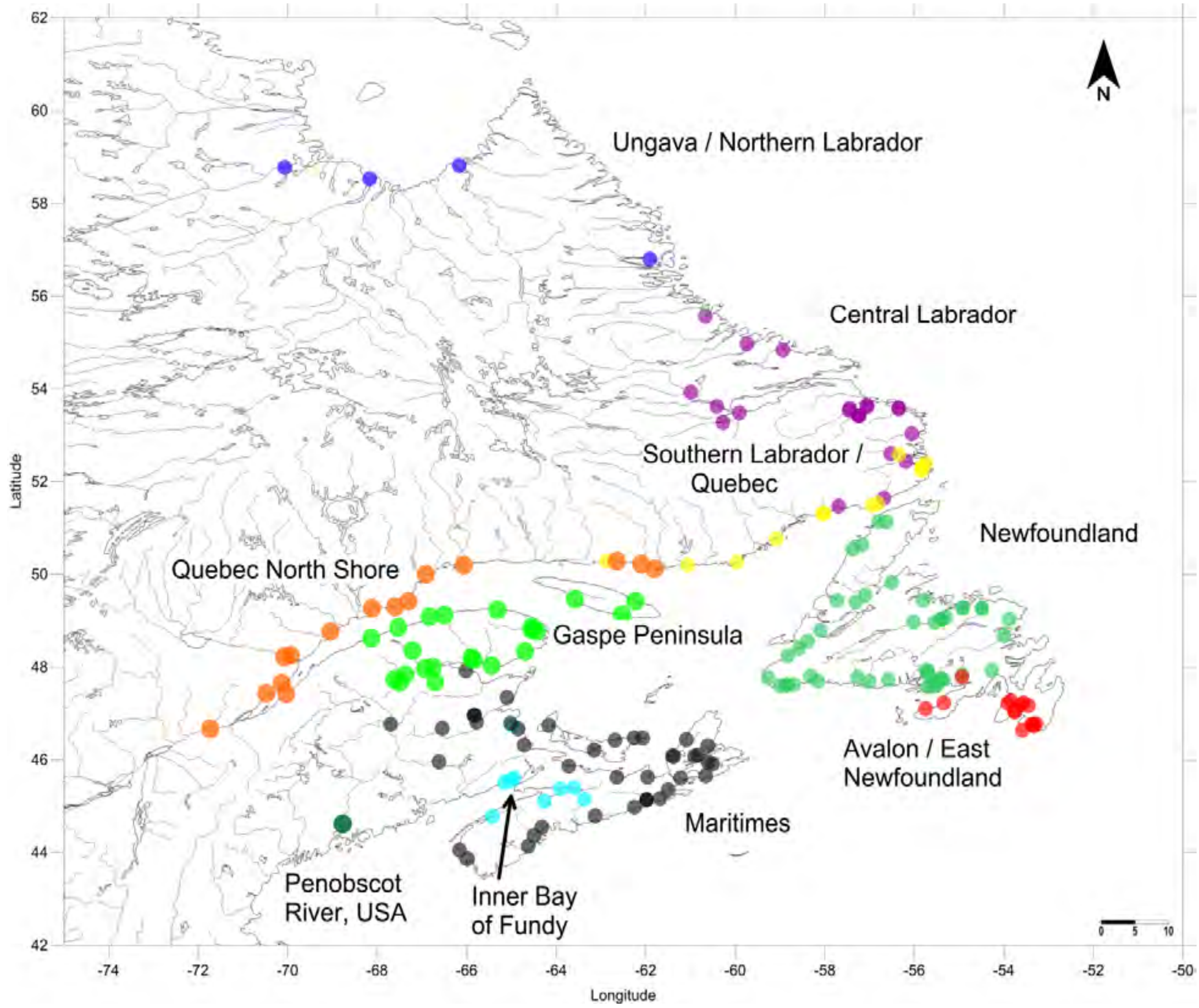


Figure 3.11: North American baseline sample locations and reporting groups used in mixture and assignment analysis. Eleven regional groupings were defined.

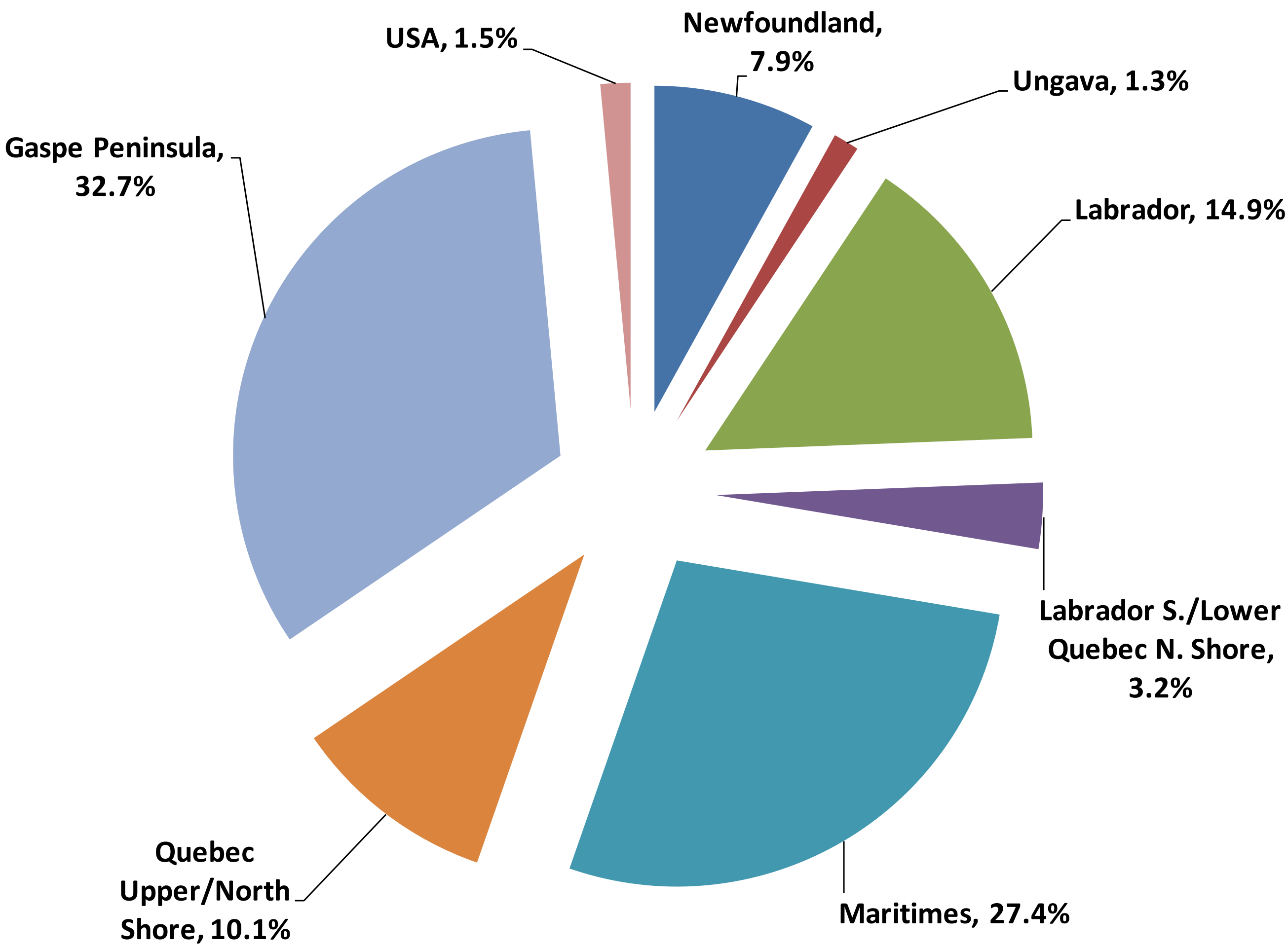


Figure 3.12: Preliminary Bayesian and maximum likelihood mixture analyses results from the 2011 Greenland fishery. Mean contributions, across all four sampling locations, of 11 regional groupings are based on the analysis of approximately 650 American origin fish. Results are very preliminary and will be updated in 2014. See Figure 3.11 for locations of regional groups although some regional group have been combined within this figure. This work is ongoing and the result should be considered preliminary.

SECTION 3: THE ORIGIN OF THE CATCHES BY CONTINENT AND AT FINER SCALES WHERE POSSIBLE (E.G. COUNTRY OR REGION OF ORIGIN)

SUMMARY

The proportion of North American origin salmon sampled from the fishery at West Greenland has increased since the early 2000's. The proportion of North American origin sampled also increases with increasing latitude, although this pattern is variable.

Analysis of historic tag recaptures from the early 1960's to the present documented that most salmon producing countries from across the North Atlantic contribute to the WG stock complex at varying levels. It appears that multi-sea-winter salmon from northern Europe have a more easterly distribution than those from southern Europe given their higher proportion of recaptures at East Greenland. Along the West Greenlandic coast the location of recovery of North American origin salmon differed from that of European salmon. Tag recoveries by country were not uniformly distributed across the NAFO Divisions as salmon originating in Canada and the United States were more commonly recovered in northern locations than tags from European-origin salmon. This conclusion is supported with the contemporary genetic analysis summarized above. The interpretation of tag recapture data is very dependent on the number of tags released; unfortunately these data were not generally available for the tag recaptures at Greenland.

The genetic identification of the North American contributions to the West Greenland fishery from over 7 years (1995-1996 and 2002-2006) reported that the average contributions to the fishery by regional groupings (see Figure 3.3) was as follows: Southern Québec (39.4%), Labrador (23.4%), New Brunswick (22.6%), North Shore (6.1%), Ungava (3.0%), Québec (2.1%), Lower North Shore (1.6%), Anticosti (1.0% and USA (0.9%). In two of the seven years, the contribution to the fishery was significantly correlated to the regional estimates of multi-sea-winter salmon returns. No evidence of differential contribution by sampled community was evident. Sampled communities were Maniitsoq (NAFO Division 1C), Nuuk (1D) and Qaqortoq (1F).

A second genetic based effort, focused on the US contribution to the fishery, also estimated a mean contribution for the period of 2000-2003 of approximately 1% (0.4-2.2%). The resulting estimated loss of spawners was approximately 50% in one year, but less than 4% in the other three years. The estimated contribution of US salmon to the West Greenland fishery is 3.37 fish per metric ton of harvest, which is approximate to historical estimates. Estimates of continent and country (North American only) contributions to the fishery were also shown to be sensitive to assumptions related to the spatial distribution of unreported landings.

Preliminary results from two ongoing genetic studies were also presented. The two studies utilize recently developed genetic baselines for North American and European salmon stocks. These baselines are the most comprehensive range-wide baselines developed to date. These studies are ongoing and the results should be considered preliminary and not cited or used outside of this document.

Preliminary results from both studies generally align with previously reported trends. The European contribution the fishery at West Greenland is primarily from southern European salmon populations with a small proportion from northern European and Icelandic population. Approximately 90% of the European harvest comes from rivers in the UK and Ireland with approximately 40% of the total harvest originating from salmon populations in

southern/eastern Scotland. The estimated contribution of the southern European salmon to the Greenland harvest generally line up with expected contribution based on 1SW non-maturing PFA estimates.

North American contributions were dominated by salmon populations in the following regions: Gaspe (33%), Maritimes (27%), Labrador 15%, Newfoundland (8%), Québec Upper/North Shore (10%). Smaller contributions of <4% for Labrador South/ Québec North Shore, USA and Ungava regions were estimated. No Inner Bay of Fundy fish were identified.

Despite large reductions in fishing effort, the fishery is still harvesting salmon from all regions and from stocks of varying productivity levels. It should also be noted that these preliminary results do not strictly align with the ICES WGNAS regional groupings and therefore do not allow for exploitation rates estimation. Final results of both ongoing projects are expected prior to the 2015 ICES WGNAS and will be incorporated into stock assessment efforts as appropriate.

SECTION 4: RATES OF EXPLOITATION ON CONTRIBUTING STOCKS OR STOCK COMPLEXES

Table 4.1: Exploitation rate (%) for North American 1SW non-maturing and southern NEAC non-maturing Atlantic salmon harvested at West Greenland, 1990-2012. Exploitation rate estimates are only available to 2012, as 2013 exploitation rates are dependent on 2014 2SW NAC or MSW NEAC returns. Average values are provided for the time periods 2002-2012, 1990-2001 and overall.

year	NAC	NEAC
1990	25.4%	3.9%
1991	34.8%	7.7%
1992	20.1%	5.6%
1993	1.8%	0.2%
1994	1.5%	0.2%
1995	15.1%	2.1%
1996	17.9%	2.3%
1997	17.7%	1.1%
1998	6.3%	0.4%
1999	9.0%	0.2%
2000	7.2%	0.8%
2001	15.2%	1.3%
2002	4.2%	0.4%
2003	4.6%	0.4%
2004	5.5%	0.5%
2005	5.6%	0.4%
2006	6.9%	0.7%
2007	8.3%	0.5%
2008	8.0%	0.4%
2009	9.1%	0.2%
2010	6.1%	0.5%
2011	7.9%	0.2%
2012	6.2%	0.5%
2002-2012 ave.	**6.6%**	**0.4%**
1990-2001 ave.	**14.3%**	**2.2%**
Overall ave.	**10.6%**	**1.3%**

Table 4.2: Exploitation rate (%) estimates for NEAC countries assumed to contribute to the Greenland fishery. Estimates were obtained by dividing the country-specific pre-fishery abundance estimates of non-maturing 1SW fish by the country-specific harvest at Greenland. Data are based on outputs from the NEAC run-reconstruction model, not from direct measures of exploitation at Greenland. Average values are provided for the time periods 2002-2012, 1990-2001 and overall. Within the NEAC run-reconstruction model, UK (Northern Ireland) and Russia are assumed to not contribute to the West Greenland fishery based on historic tag data.

	Finland	**Iceland**	**Norway**	**Sweden**	**Scotland**	**Eng. & Wales**	**Ireland**	**France**
1990	0.04%	0.10%	0.21%	0.66%	3.17%	5.07%	4.33%	7.07%
1991	0.13%	0.22%	0.52%	1.34%	6.35%	15.98%	13.83%	14.26%
1992	0.07%	0.17%	0.33%	0.73%	4.77%	9.49%	9.04%	17.45%
1993	0.00%	0.01%	0.02%	0.05%	0.23%	0.42%	0.35%	0.57%
1994	0.01%	0.01%	0.02%	0.09%	0.23%	0.37%	0.33%	1.04%
1995	0.04%	0.06%	0.10%	0.36%	1.79%	2.24%	2.93%	3.63%
1996	0.03%	0.06%	0.13%	0.43%	2.17%	2.94%	1.92%	5.72%
1997	0.01%	0.03%	0.05%	0.40%	1.07%	2.32%	1.70%	3.54%
1998	0.00%	0.01%	0.02%	0.18%	0.45%	0.38%	0.35%	0.54%
1999	0.00%	0.01%	0.01%	0.02%	0.17%	0.18%	0.14%	0.38%
2000	0.01%	0.10%	0.08%	0.33%	2.74%	2.57%	2.38%	4.91%
2001	0.01%	0.04%	0.04%	0.22%	1.56%	1.32%	0.96%	2.50%
2002	0.01%	0.04%	0.06%	1.13%	1.55%	1.28%	1.13%	2.14%
2003	0.01%	0.02%	0.02%	0.12%	0.41%	0.51%	0.70%	0.39%
2004	0.01%	0.01%	0.02%	0.18%	0.51%	0.46%	0.53%	0.63%
2005	0.01%	0.01%	0.01%	0.14%	0.41%	0.42%	0.60%	0.52%
2006	0.01%	0.03%	0.03%	0.23%	0.62%	0.65%	1.95%	0.80%
2007	0.00%	0.02%	0.02%	0.12%	0.41%	0.43%	0.97%	0.53%
2008	0.01%	0.01%	0.02%	0.11%	0.41%	0.47%	0.73%	0.87%
2009	0.00%	0.00%	0.01%	0.05%	0.15%	0.15%	0.54%	0.49%
2010	0.01%	0.02%	0.02%	0.09%	0.48%	0.38%	1.71%	0.69%
2011	0.00%	0.01%	0.01%	0.01%	0.14%	0.10%	0.36%	0.20%
2012	0.01%	0.01%	0.02%	0.12%	0.51%	0.40%	1.23%	0.68%
2002-2012 ave.	0.01%	0.02%	0.02%	0.21%	0.51%	0.48%	0.95%	0.72%
1990-2001 ave.	0.03%	0.07%	0.13%	0.40%	2.06%	3.61%	3.19%	5.13%
Overall ave.	0.02%	0.04%	0.08%	0.31%	1.32%	2.11%	2.12%	3.02%

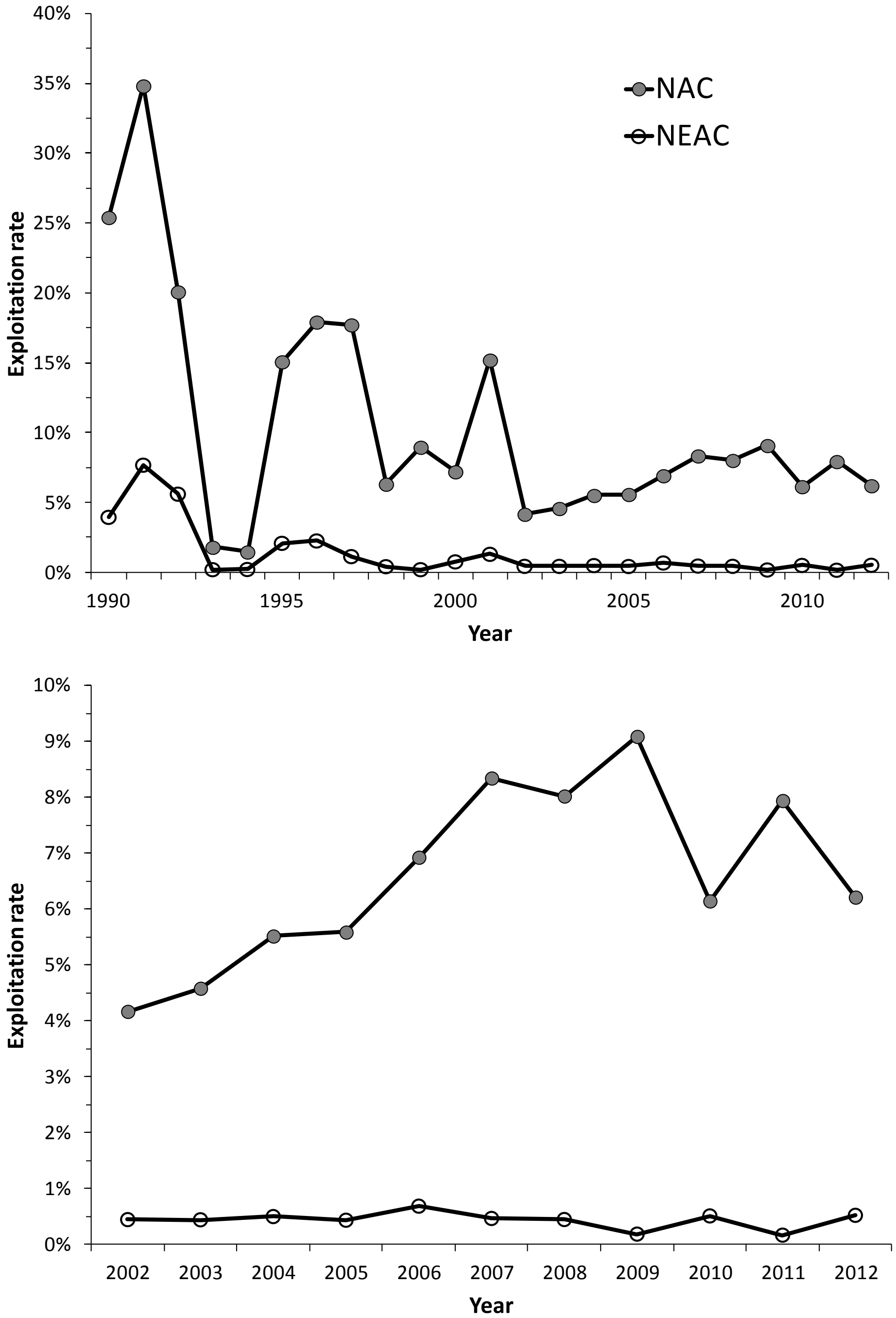


Figure 4.1: Exploitation rate (%) for North American 1SW non-maturing and southern NEAC non-maturing Atlantic salmon harvested at West Greenland, 1990-2012. Exploitation rate estimates are only available to 2012, as 2013 exploitation rates are dependent on 2014 2SW NAC or MSW NEAC returns.

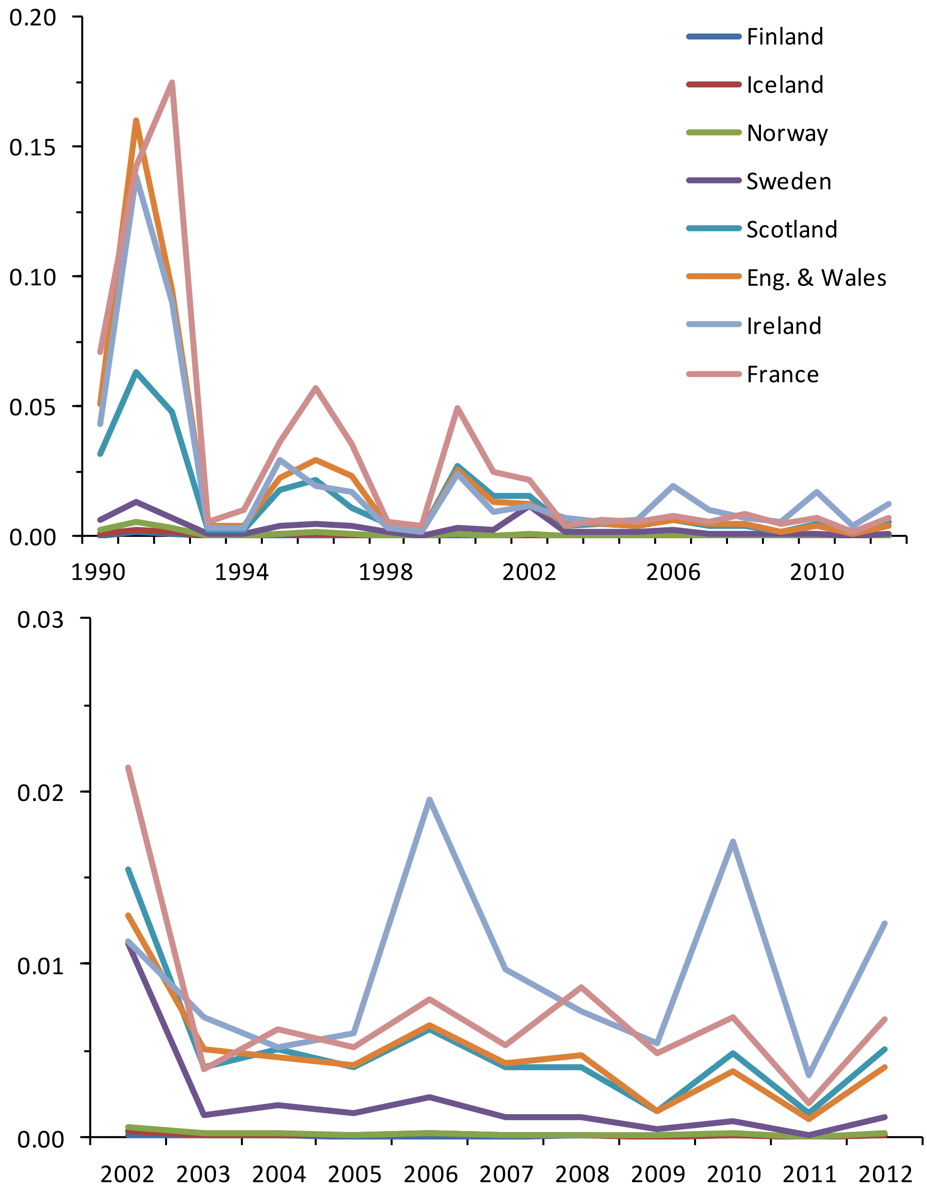


Figure 4.2: Exploitation rate (%) estimates for NEAC countries assumed to contribute to the Greenland fishery. Estimates were obtained by dividing the country-specific pre-fishery abundance estimates of non-maturing 1SW fish by the country-specific harvest at Greenland. Data are based on outputs from the NEAC run-reconstruction model, not from direct measures of exploitation at Greenland. Average values are provided for the time periods 2002-2012, 1990-2001 and overall. Within the NEAC run-reconstruction model, UK (Northern Ireland) and Russia are assumed to not contribute to the West Greenland fishery based on historic tag data.

SECTION 4: RATES OF EXPLOITATION ON CONTRIBUTING STOCKS OR STOCK COMPLEXES

SUMMARY

Exploitation rates for 1SW non-maturing North American and Southern European stock complexes At Greenland have been decreasing through the time period, but are consistently higher for the North American stock complex. Exploitation peaked in 1991 at 34.8% and 7.7%, but has average 6.6% and 0.4% over the past ten years for the North American and Southern European stock complexes respectively. Exploitation of North American stock complex has increased in recent years.

Exploitation for the 1SW non-maturing Southern European stock complex can also be estimated obtained from the NEAC run-reconstruction model. However, the estimates are based on model outputs, not from direct measures of exploitation at Greenland. Estimated exploitation is highest for the UK (Scotland and Eng. & Wales), Ireland and France.

Estimates of exploitation for North American stocks are also presented by Gauthier-Ouellet *et al*. (2009) and Sheehan *et al* (2010) in Section 3. These results and the ongoing genetic projects outlined in Section 3 and provide accurate contemporary estimates for exploitation for the various stock complexes contributing to the fishery.

SECTION 5: ANY ADDITIONAL SCIENTIFIC DATA RELATED TO THE FISHERY

Table 5.1a: River age distribution (%) for North American origin salmon harvested at Greenland, 1990-2013. The 2004-2013 and overall mean values are also presented.

North American	age 1	age 2	age 3	age 4	age 5	age 6	age 7	age 8
1990	8.8	45.3	30.7	12.1	2.4	0.5	0.1	0
1991	5.2	33.6	43.5	12.8	3.9	0.8	0.3	0
1992	6.7	36.7	34.1	19.1	3.2	0.3	0	0
1993								
1994								
1995	2.4	19.0	45.4	22.6	8.8	1.8	0.1	0
1996	1.7	18.7	46.0	23.8	8.8	0.8	0.1	0
1997	1.3	16.4	48.4	17.6	15.1	1.3	0	0
1998	4.0	35.1	37.0	16.5	6.1	1.1	0.1	0
1999	2.7	23.5	50.6	20.3	2.9	0.0	0	0
2000	3.2	26.6	38.6	23.4	7.6	0.6	0	0
2001	1.9	15.2	39.4	32.0	10.8	0.7	0	0
2002	1.5	27.4	46.5	14.2	9.5	0.9	0	0
2003	2.6	28.8	38.9	21.0	7.6	1.1	0	0
2004	1.9	19.1	51.9	22.9	3.7	0.5	0	0
2005	2.7	21.4	36.3	30.5	8.5	0.5	0	0
2006	0.6	13.9	44.6	27.6	12.3	1.0	0	0
2007	1.6	27.7	34.5	26.2	9.2	0.9	0	0
2008	0.9	25.1	51.9	16.8	4.7	0.6	0	0
2009	2.6	30.7	47.3	15.4	3.7	0.4	0	0
2010	1.6	21.7	47.9	21.7	6.3	0.8	0	0
2011	1.0	35.9	45.9	14.4	2.8	0.0	0	0
2012	0.3	29.8	39.4	23.3	6.5	0.7	0	0
2013	0.1	32.6	37.3	20.8	8.6	0.6	0	0
2004-2013 ave.	**1.3**	**25.8**	**43.7**	**22.0**	**6.6**	**0.6**	**0.0**	**0.0**
overall mean	**2.5**	**26.6**	**42.5**	**20.7**	**7.0**	**0.7**	**0.0**	**0.0**

Table 5.1b: River age distribution (%) for European origin salmon harvested at Greenland, 1990-2013. The 2004-2013 and overall mean values are also presented.

European	age 1	age 2	age 3	age 4	age 5	age 6	age 7	age 8
1990	15.9	56.3	23.0	4.4	0.2	0.2	0	0
1991	20.9	47.4	26.3	4.2	1.2	0	0	0
1992	11.8	38.2	42.8	6.5	0.6	0	0	0
1993								
1994								
1995	14.8	67.3	17.2	0.6	0	0	0	0
1996	15.8	71.1	12.2	0.9	0	0	0	0
1997	4.1	58.1	37.8	0.0	0	0	0	0
1998	28.6	60.0	7.6	2.9	0	1.0	0	0
1999	27.7	65.1	7.2	0.0	0	0	0	0
2000	36.5	46.7	13.1	2.9	0.7	0	0	0
2001	16.0	51.2	27.3	4.9	0.7	0	0	0
2002	9.4	62.9	20.1	7.6	0	0	0	0
2003	16.2	58.0	22.1	3.0	0.8	0	0	0
2004	18.3	57.7	20.5	3.2	0.2	0	0	0
2005	19.2	60.5	15.0	5.4	0.0	0	0	0
2006	17.7	54.0	23.6	3.7	0.9	0	0	0
2007	7.0	48.5	33.0	10.5	1.0	0	0	0
2008	7.0	72.8	19.3	0.8	0.0	0	0	0
2009	14.3	59.5	23.8	2.4	0.0	0	0	0
2010	11.3	57.1	27.3	3.4	0.8	0	0	0
2011	19.0	51.7	27.6	1.7	0.0	0	0	0
2012	9.3	63.0	24.0	3.7	0.0	0	0	0
2013	4.5	68.2	24.4	2.5	0.5	0	0	0
2004-2013 ave.	**12.8**	**59.3**	**23.8**	**3.7**	**0.3**	**0.0**	**0.0**	**0.0**
overall mean	**15.7**	**58.0**	**22.5**	**3.4**	**0.3**	**0.1**	**0.0**	**0.0**

Table 5.2: Sea age distribution (%) for North American and European origin salmon harvested at Greenland, 1990-2013. The 2004-2013 and overall mean values are also presented.

	North American			European		
Year	1SW	2SW	Previous Spawners	1SW	2SW	Previous Spawners
1990	95.7	3.4	0.9	96.3	3.0	0.7
1991	95.6	4.1	0.4	93.4	6.5	0.2
1992	91.9	8.0	0.1	97.5	2.1	0.4
1993						
1994						
1995	96.8	1.5	1.7	97.3	2.2	0.5
1996	94.1	3.8	2.1	96.1	2.7	1.2
1997	98.2	0.6	1.2	99.3	0.4	0.4
1998	96.8	0.5	2.7	99.4	0	0.6
1999	96.8	1.2	2.0	100.0	0	0
2000	97.4	0	2.6	100.0	0	0
2001	98.2	2.6	0.5	97.8	2.0	0.3
2002	97.3	0.9	1.8	100.0	0	0
2003	96.7	1.0	2.3	98.9	1.1	0
2004	97.0	0.5	2.5	97.0	2.8	0.2
2005	92.4	1.2	6.4	96.7	1.1	2.2
2006	93.0	0.8	5.6	98.8	0	1.2
2007	96.5	1.0	2.5	95.6	2.5	1.5
2008	97.4	0.5	2.2	98.8	0.8	0.4
2009	93.4	2.8	3.8	89.4	7.6	3.0
2010	98.2	0.4	1.4	97.5	1.7	0.8
2011	93.8	1.5	4.7	82.8	12.1	5.2
2012	93.2	0.7	6.0	98.0	1.6	0.4
2013	94.9	1.4	3.7	96.6	2.4	1
2004-2013 ave.	95.0	1.1	3.9	95.1	3.3	1.6
overall mean	95.7	1.7	2.6	96.7	2.4	0.9

Table 5.3: Mean lengths (cm), uncorrected for sampling date or NAFO Division, of Atlantic salmon harvested at Greenland by continent of origin and sea age, 1990-2013. The 2004-2013 and overall mean values are also presented.

	North American			European		
	1SW	2SW	Previous Spawners	1SW	2SW	Previous Spawners
1990	62.3	83.4	72.6	62.7	81.1	78.6
1991	61.6	80.6	81.7	62.7	82.2	80.0
1992	62.3	83.4	77.4	63.2	81.1	82.7
1993						
1994						
1995	61.0	81.3	70.9	63.2	81.0	81.3
1996	62.8	81.4	77.1	64.0	81.1	79.4
1997	62.3	85.7	79.4	63.6	84.0	87.0
1998	62.0	84.0	66.3	62.7		76.0
1999	63.8	86.6	70.9	63.5		
2000	60.7		64.7	63.2		
2001	63.1	81.7	75.3	63.7	79.1	72.1
2002	62.6	83.0	75.8	62.1		
2003	63	86.1	71.4	64.4	78.3	
2004	64.7	86.2	77.6	65.0	76.4	88.0
2005	65.9	83.3	73.7	66.4	75.5	62.3
2006	65.3	90.0	76.8	65.3		69.5
2007	63.5	80.9	76.7	63.3	80.6	71.3
2008	64.6	80.1	71.1	63.9	85.5	73.0
2009	64.9	84.6	75.9	65.5	81.7	73.5
2010	66.7	80.0	72.4	65.2	75.0	70.0
2011	65.8	78.6	73.7	64.7	75.0	76.3
2012	65.4	75.9	72.8	64.9	70.4	68.9
2013	66.2	81.0	69.9	64.6	72.8	73.6
2004-2013 ave.	**65.3**	**82.1**	**74.1**	**64.9**	**77.0**	**72.6**
Overall ave.	63.7	82.8	73.8	64.0	78.9	75.8

Table 5.4: Mean whole weights (kg), uncorrected for sampling date or NAFO Division, of Atlantic salmon harvested at Greenland by continent of origin and sea age, 1990-2013. The 2004-2013 and overall mean values are also presented.

	North American			European			Overall		
	1SW	2SW	PS	1SW	2SW	PS	NA	EUR	ALL
1990	2.53	6.47	3.90	2.61	5.78	5.09	2.67	2.72	2.69
1991	2.42	5.82	5.15	2.54	6.23	5.09	2.57	2.79	2.65
1992	2.54	6.49	4.09	2.66	6.01	5.28	2.86	2.74	2.81
1993									
1994									
1995	2.37	6.09	3.71	2.67	5.88	4.98	2.45	2.75	2.56
1996	2.63	6.50	4.98	2.86	6.30	5.44	2.83	2.90	2.88
1997	2.57	7.95	4.82	2.82	6.11	6.9	2.63	2.84	2.71
1998	2.72	6.44	3.28	2.83		4.77	2.76	2.84	2.78
1999	3.02	7.59	4.20	3.03			3.09	3.03	3.08
2000	2.47		2.58	2.81			2.47	2.81	2.57
2001	2.89	6.76	4.41	3.03	5.96	4.06	2.95	3.09	3.00
2002	2.84	7.12	5.00	2.92			2.89	2.92	2.90
2003	2.94	8.82	4.04	3.08	5.58		3.02	3.10	3.04
2004	3.11	7.33	4.71	2.95	5.22	6.48	3.17	3.22	3.18
2005	3.19	7.05	4.31	3.33	4.19	2.89	3.31	3.33	3.31
2006	3.10	9.72	5.05	3.25		3.67	3.25	3.26	3.24
2007	2.89	6.19	4.94	2.87	6.47	3.57	2.98	2.99	2.98
2008	3.04	6.35	3.82	3.03	7.47	3.39	3.08	3.07	3.08
2009	3.28	7.59	5.25	3.40	6.54	4.28	3.48	3.67	3.50
2010	3.44	6.40	4.17	3.24	5.45	3.92	3.47	3.28	3.42
2011	3.30	5.69	4.46	3.18	4.94	5.11	3.39	3.49	3.40
2012	3.34	6.00	4.65	3.38	4.51	3.65	3.44	3.40	3.44
2013	3.33	6.43	3.64	3.16	4.51	5.38	3.39	3.20	3.35
2004-2013 ave.	**3.2**	**6.9**	**4.5**	**3.2**	**5.5**	**4.2**	**3.3**	**3.3**	**3.3**
Overall ave.	**2.9**	**6.9**	**4.3**	**3.0**	**5.7**	**4.7**	**3.0**	**3.1**	**3.0**

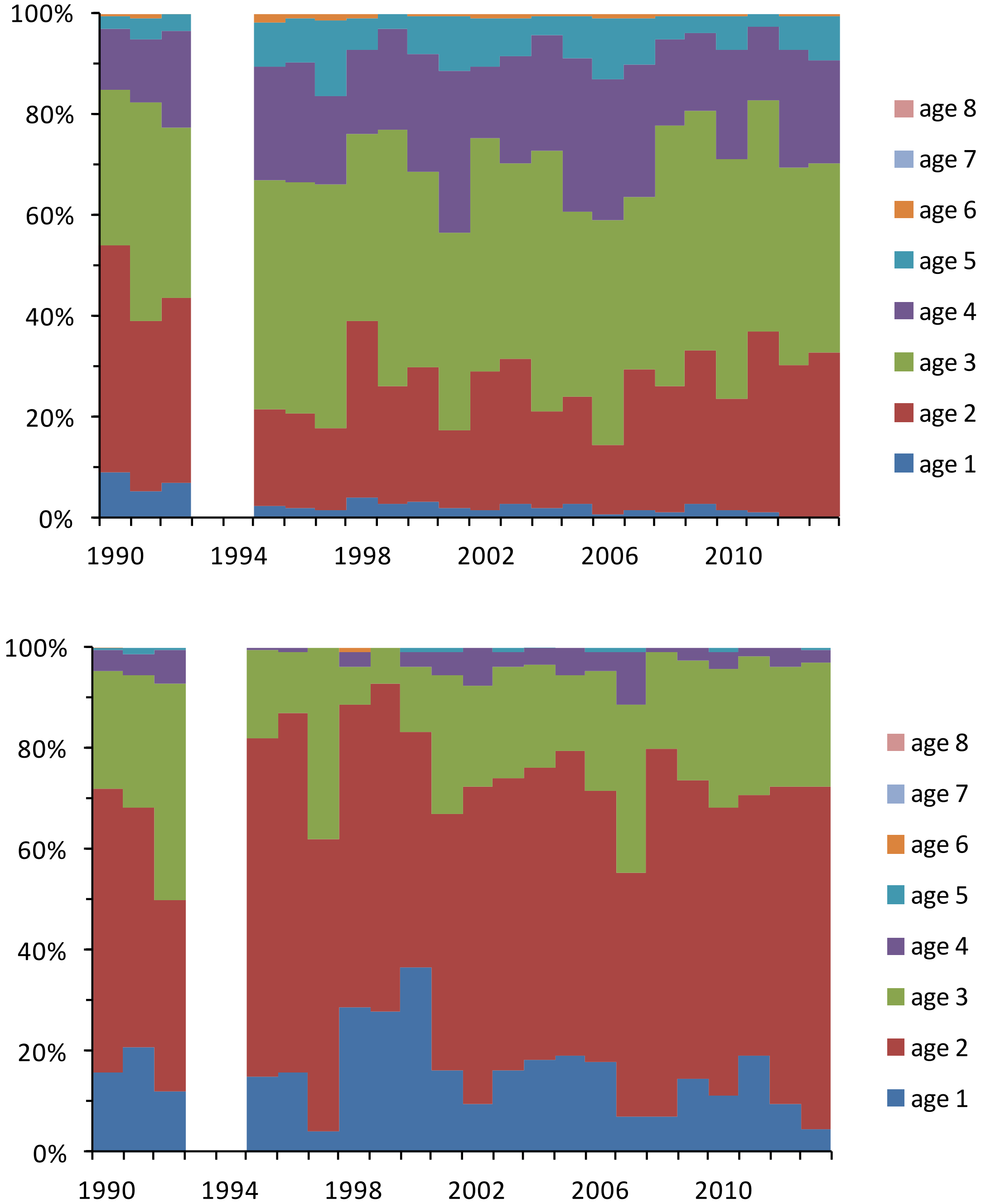


Figure 5.1: River age distribution (%) for North American (top) and European (bottom) origin salmon harvested at Greenland, 1990-2013.

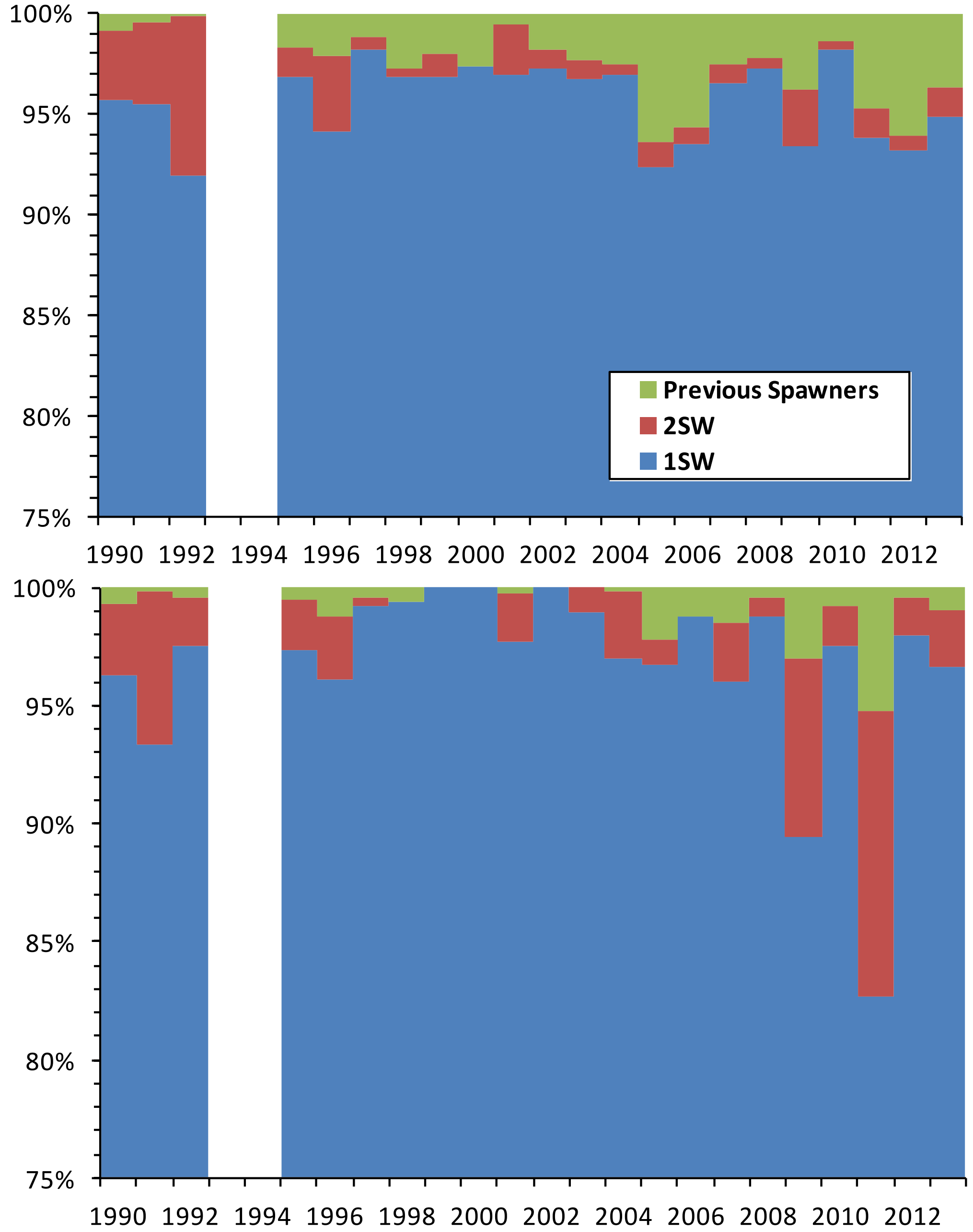


Figure 5.2: Sea age distribution (%) for North American (top) and European (bottom) origin salmon harvested at Greenland, 1990-2013. Note the y-axis scale ranges from 75-100%.

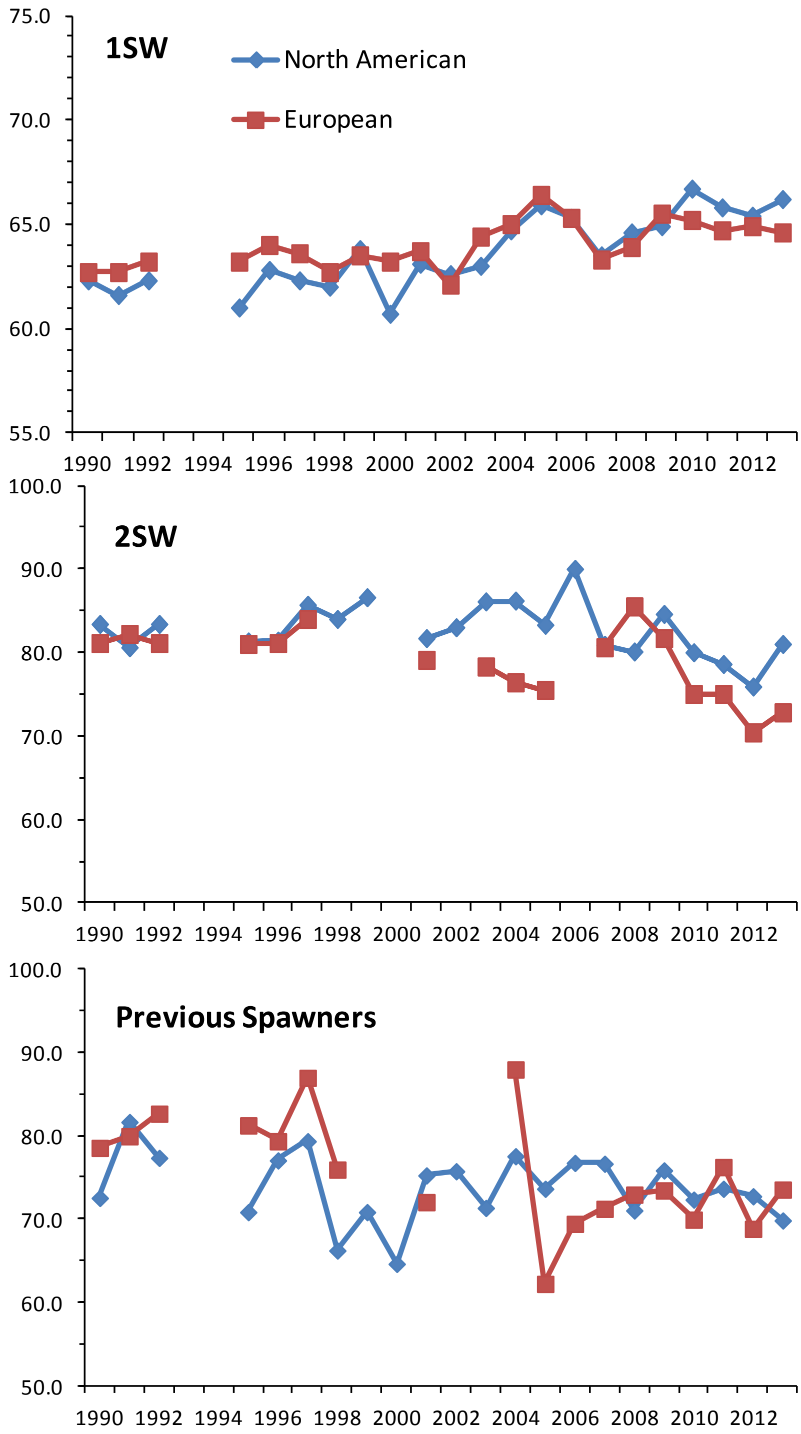


Figure 5.3: Mean lengths (cm) of Atlantic salmon, uncorrected for sampling date or NAFO Division, harvested at Greenland by continent of origin and sea age, 1990-2013.

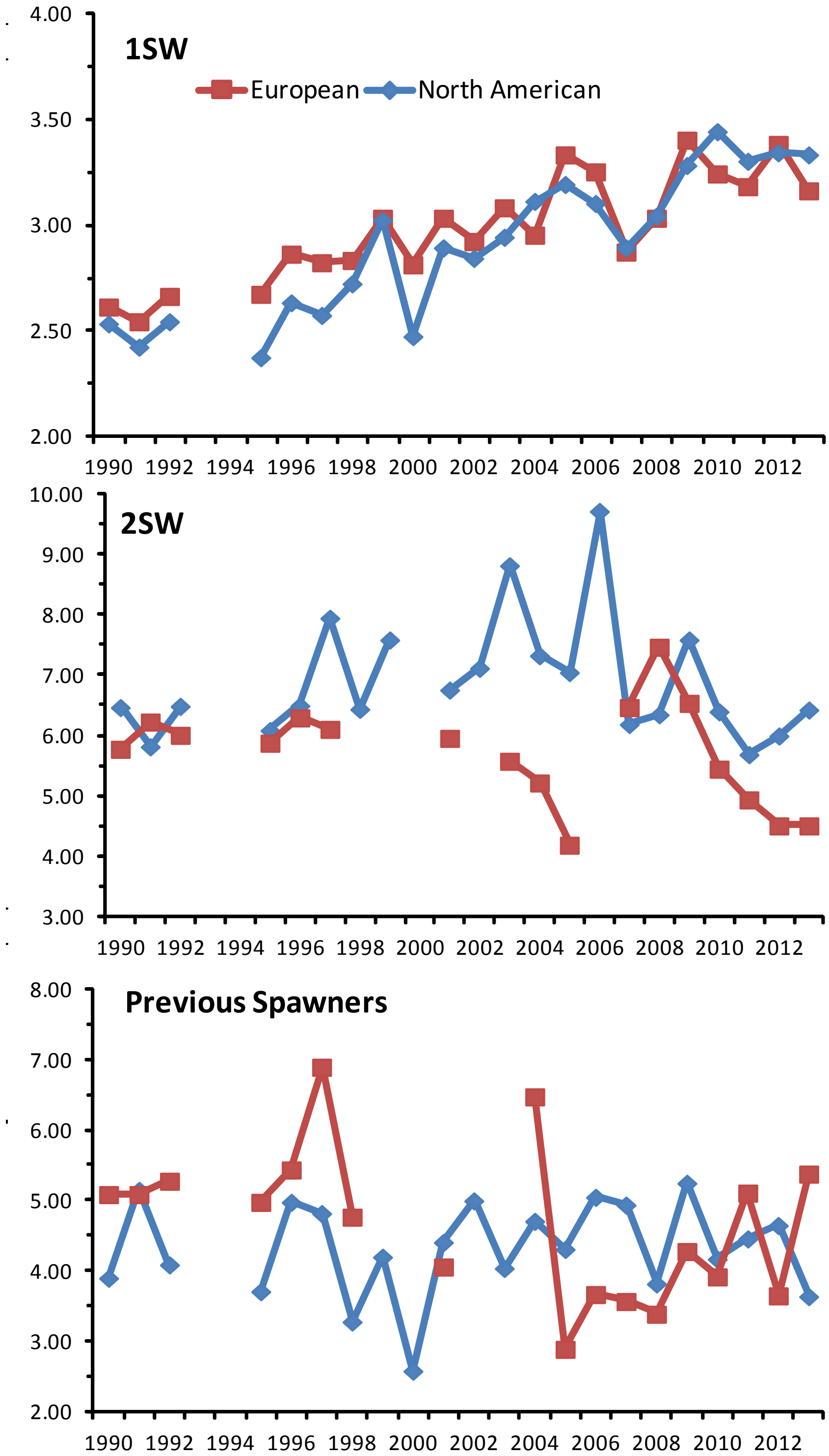


Figure 5.4: Mean gutted weights (kg) of Atlantic salmon, uncorrected for sampling date or NAFO Division, harvested at Greenland by continent of origin and sea age, 1990-2013.

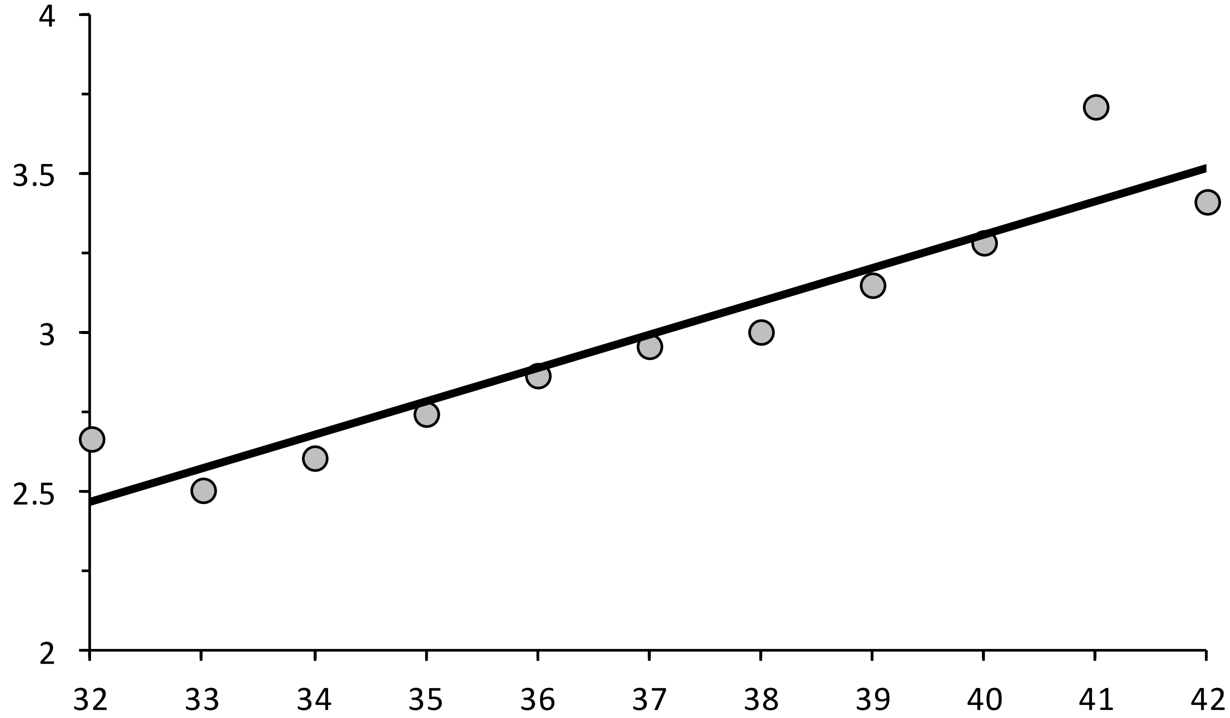


Figure 5.6: Mean gutted weights (kg) of Atlantic salmon, uncorrected for NAFO Division, harvested at Greenland by NAFO standard week, 1990-2013. Data for NAFO standard weeks 31, 43 and 44 were omitted due to low sample sizes. Week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov. A linear trend line is presented to aid visualization.

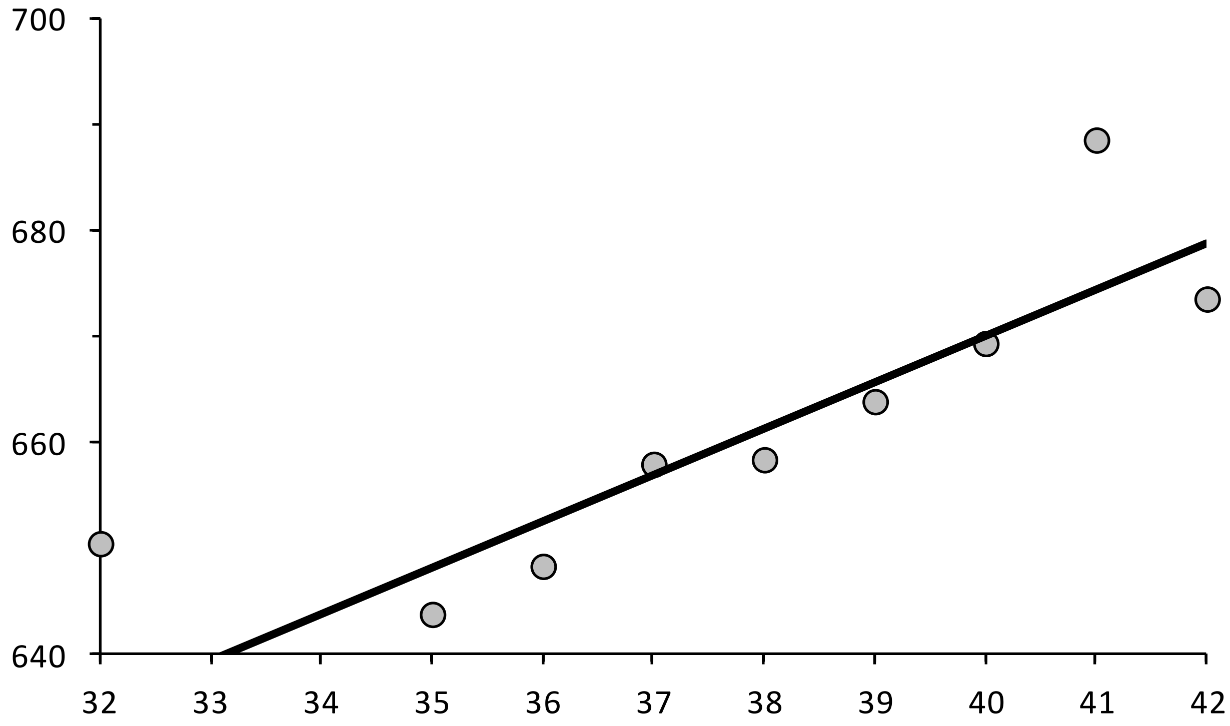


Figure 5.7: Mean fork lengths (cm) of Atlantic salmon, uncorrected for NAFO Division, harvested at Greenland by NAFO standard week, 1990-2013. Data for NAFO standard weeks 31, 43 and 44 were omitted due to low sample sizes. Week 31 corresponds to 30-Jul through 5-Aug and week 44 to 29-Oct through 4-Nov. A linear trend line is presented to aid visualization.

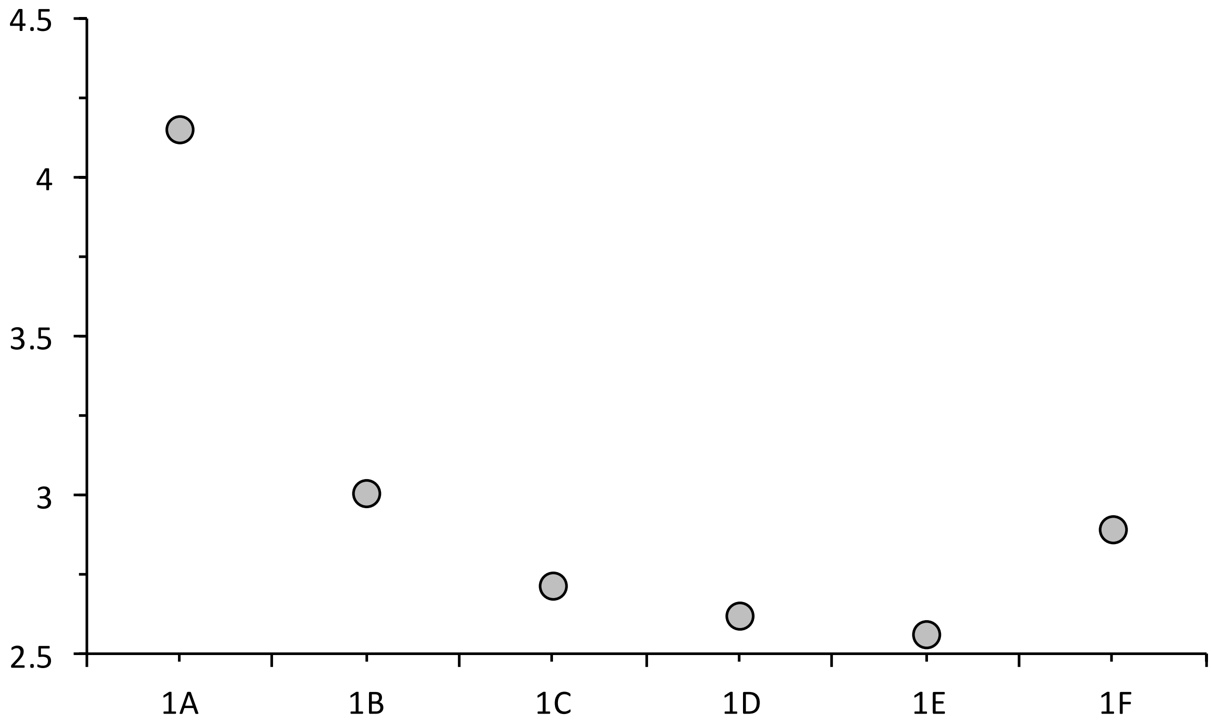


Figure 5.8: Mean gutted weights (kg) of Atlantic salmon, uncorrected for sample date, harvested at Greenland by NAFO Division, 1990-2013.

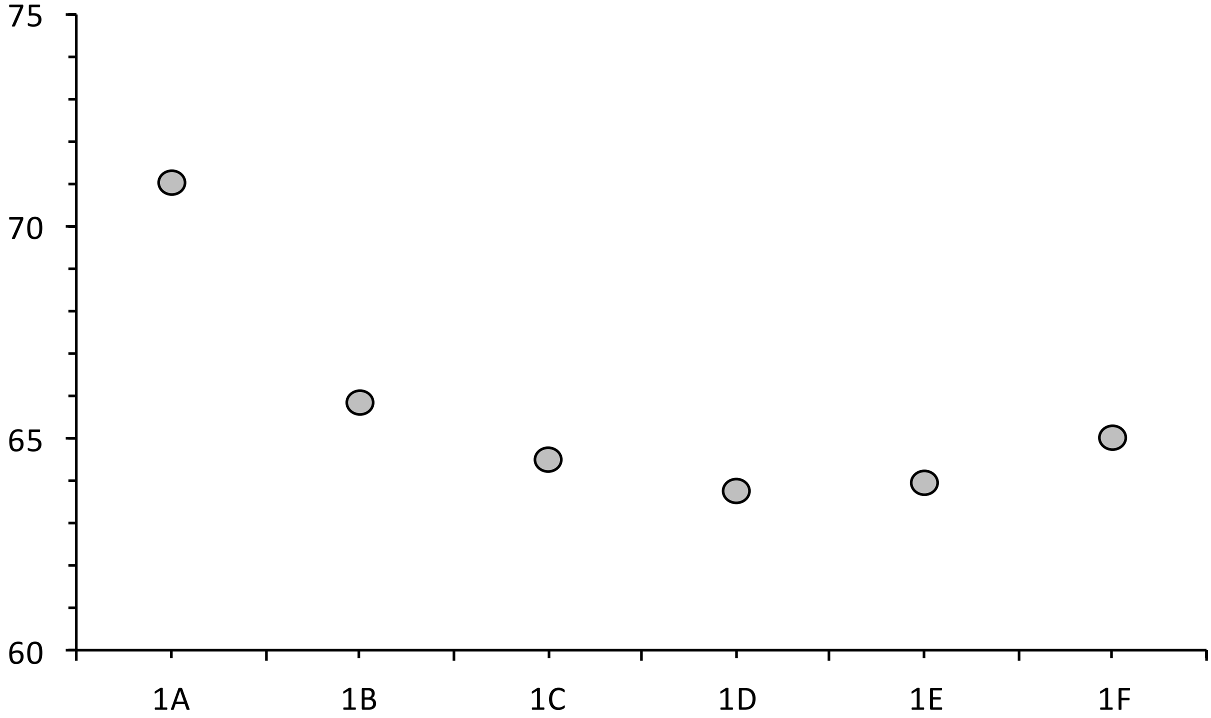


Figure 5.9: Mean fork lengths (cm) of Atlantic salmon, uncorrected for sample date, harvested at Greenland by NAFO Division, 1990-2013.

SECTION 5: ANY ADDITIONAL SCIENTIFIC DATA RELATED TO THE FISHERY

SUMMARY

North American origin fish harvested at Greenland range in river ages from 1-7 but are predominately ages 2-4 (~90%). River ages for European origin salmon harvested at Greenland range from 1-6 but are predominately ages 2-3 (~80%). Both North American and European harvested salmon are primarily 1SW fish destined to return as 2SW or 3SW spawners.

North American and European origin salmon mean lengths and weights, uncorrected for sampling date or locations have remained similar since 1990. Mean lengths and weights of 2SW and previous spawners are variable given the low sample size. Based on the sample data, there has been a significant increase in mean weight (~1.3 kg) and length (~5.5 cm) per individual over the course of the fishing season (August 1 through October 31). There are also large differences in mean length and weight by NAFO Division, although these differences could be related to the timing of the sampling within each division.

Appendix 1

WGCIS(14)3

Terms of Reference for an Ad Hoc West Greenland Committee Scientific Working Group

Recognising that the 2014 advice from ICES relevant to the West Greenland Commission (WGC), developed in response to the request contained in document CNL(13)10, will not be available to inform discussions at the inter-sessional meeting of the WGC on 14 and 15 April 2014, the Commission agrees as follows:

To convene a group of scientific representatives, nominated by the Members of the WGC, to work by correspondence prior to the meeting of ICES WGNAS in March 2014. This group will develop a working paper to be presented at both the WGNAS and the WGC inter-sessional meetings. This working paper will not provide catch options or alternative management advice but will compile available data on catches in the West Greenland salmon fishery from 1990 to 2013, including:

- a. *Reported and unreported catches;*
- b. *The spatial and temporal breakdown of the catches;*
- c. *The origin of the catches by continent and at finer scales where possible (e.g. country or region of origin);*
- d. *Rates of exploitation on contributing stocks or stock complexes; and*
- e. *Any additional scientific data related to the fishery.*

The group should submit its report to the Secretary of NASCO by the end of March 2014.

In accordance with the MoU between ICES and NASCO the formal, peer reviewed advice from ICES will be available in early May 2014 and will be considered by the WGC at its Annual Meeting in June.

WGCIS(14)5

Overview of the regulatory measures applying to the West Greenland fishery

Background

1. Prior to NASCO's establishment in 1984, the Greenland fishery operated under a quota of 1,190t established through the International Commission for the Northwest Atlantic Fisheries. Under Article 8 of the NASCO Convention, one of the functions of the West Greenland Commission (WGC) is to propose regulatory measures for fishing in the area of fisheries jurisdiction of a member of salmon originating in the rivers of other Parties. Article 9 of the Convention details the factors that the Commissions should take into account in carrying out their functions. These include:
   - the best available information, including advice from ICES and other appropriate scientific organizations;
   - the efforts of States of origin to implement and enforce measures for the conservation, restoration, enhancement and rational management of salmon stocks;
   - the contribution of Parties other than States of origin to the conservation of salmon stocks which migrate into their areas of fisheries jurisdiction by limiting their catches or other measures;
   - the extent to which the salmon stocks concerned feed in the areas of fisheries jurisdiction of the respective Parties; and
   - the interests of communities which are particularly dependent on salmon fisheries.

2. At the outset, quantitative, predictive scientific advice on which to base regulatory measures was lacking and this led to several years of negotiations about the relative importance of the various factors detailed in Article 9 of the Convention. Nonetheless, since NASCO's establishment in 1984, regulatory measures have been agreed for the fishery at West Greenland in all but four years (1985, 1991, 1992 and 1996) and in those years Greenland unilaterally established quotas for the fishery. A major change occurred in 1993 when the WGC adopted an agreement, 'the 1993 Agreement', detailing a mechanism for establishing quotas in the five-year period from 1993 to 1997 based on ICES' estimates of pre-fishery abundance for North American non-maturing 1SW salmon. Since 1998 (with the exception of 2001 and 2002) regulatory measures have been agreed that allow for an internal consumption fishery only at West Greenland. These measures demonstrate the strong commitment of the WGC Parties to base decisions on the scientific advice from ICES.

3. This paper describes the regulatory and other measures adopted by the WGC, briefly outlines the actions taken to implement these measures based on the reports made to by Denmark (in respect of the Faroe Islands and Greenland) in accordance with Article 14 of the Convention and considers the various terminology used in the measures. A listing of all the measures since 1984 is contained in Annex 1 and they are also available at www.nasco.int/wgc_measures.html.

Chronology of Regulatory Measures

1984 -1992 Regulatory Measures, WGC(84)12, WGC(86)21, WGC(88)6

4. The first measure adopted by the WGC was in 1984 when Greenland was still part of the European Economic Community and it established a Total Allowable Catch of 870t. Greenland subsequently withdrew from the EEC and in 1985 Denmark (in respect of Greenland) acceded to the Convention with the effect that Denmark (in respect of the Faroe Islands and Greenland) became a Party to NASCO. No NASCO measure was agreed in 1985 but Greenland unilaterally set a quota of 852t. Under NASCO regulatory measures, the catch was limited to 850t (adjusted if the season commenced after 1 August) in both 1986 and 1987 and to 2,520t (adjusted if the season commenced after 1 August) for the three years 1988 – 1990 combined (with the catch in any year not to exceed the annual average (840t) by more than 10%). These measures did not refer to different components of the fishery (e.g. commercial, subsistence etc.) only to an overall catch limit. No measures were agreed by the WGC in 1991 or 1992. In 1991, Greenland set a quota of 840t and in 1992 no quota was set by Greenland but if the catch in the first fortnight of the fishery had been higher than in the previous year a TAC would have been established.

The 1993 Agreement, WGC(93)9

5. In 1993, in response to the decline in abundance of wild salmon and the need to provide adequate spawning stocks of 2SW salmon to support sustainable populations, a five-year agreement was adopted covering the years 1993 -1997. This Agreement recognised that any quota should adjust up or down relative to the best scientific advice and that there should be a transition period to implement the significant adjustment needed to accommodate that advice. It also recognised the need to take into account the interest of communities which are particularly dependent on salmon fisheries. The agreement set out a mechanism on which the quota in each of the year would be established (without prejudice to new advice from ICES) that included the following four main elements:

a) The ICES advice on the pre-fishery abundance of potential 2SW salmon of North American origin (and European origin if available);
b) The ICES advice on the target spawning escapement reserve of potential 2SW salmon necessary to achieve the target spawning escapement, or a different proportion of this reserve as agreed by the Parties;
c) Any surplus above the target spawning escapement reserve, or the proportion agreed to, may be available for harvest by the Parties;
d) Allocation of the surplus would be based on the average harvest share of potential 2SW salmon of North American origin salmon caught at West Greenland (40%) in the period 1986 – 1990 or a different share if agreed upon by the Parties.

6. In recognition of the difficulties in establishing a new catch quota at the levels recommended by ICES, the Parties agreed to quotas expected to achieve 72% and 85% of the target spawning escapement reserve in 1993 and 1994 respectively, and thereafter 100% of the target spawning escapement reserve. This led to quotas of 213t, 159t and 77t in 1993, 1994 and 1995, respectively. The 1993 Agreement did not

refer to different components of the fishery (e.g. commercial, subsistence etc.) only to an overall catch limit. No agreement was reached on a quota in 1996 but Greenland unilaterally set a quota of 174t. Following the 1996 Annual Meeting, there were informal meetings of the Commission that led to the development of an addendum to the 1993 Agreement.

The 1997 Addendum to the1993 Agreement, WGC(97)10

7. The addendum to the 1993 Agreement applied to the fishery at West Greenland in 1997 only and provided a new mechanism for setting the quota based on the higher of either the 'calculated quota' (i.e. that calculated according to the 1993 Agreement using the PFA forecast at the 50% probability level) or the 'reserve quota' (an allocation to Greenland of 6% of the forecast PFA). If the PFA of potential 2SW salmon of North American origin fell below 100,000 salmon there would be no harvest of North American origin MSW salmon except in subsistence fisheries or in individual North American river fisheries where the target spawning escapement of MSW salmon is exceeded in that river.

8. The rationale for this quota arrangement was that it facilitated collection of biological information at low stock levels, it provided greater equitability for Greenland until such time as quota measures on stocks occurring in the WGC area 'were coordinated' and it offered greater predictability for the commercial fishery at Greenland. For 1997, a Reserve Quota of 57 tonnes was established. The 1997 Addendum defined a subsistence fishery as 'a fishery which harvests salmon only for community food, social or ceremonial purposes'. It did not define a commercial fishery. The 'reserve quota' would 'include all catches inclusive of the subsistence catch, home sales, and all heretofore unreported catch'. It went on to indicate that the unreported or subsistence catch was estimated to be 20 tonnes in 1996. The WGC agreed that strenuous efforts should be made by all Parties to account for all elements of the salmon catches for inclusion in quota monitoring. The addendum also allowed for review and revision of the quota setting arrangements in the event that biological parameters for European origin salmon became available.

1998 - 2000 Regulatory Measures, WGC(98)9 and WGC(99)8

9. The measures applying to the fishery in the period from 1998 to 2000 noted that the ICES advice highlighted the decline in PFA of non-maturing 1SW salmon of both Southern European and North American origin. The regulatory measures agreed in 1998 (applying to the fishery in 1998) and 1999 (applying to the fishery in 1999 and 2000) restricted the catch at West Greenland to that amount used for internal consumption in Greenland and indicated that in the past this had been estimated at 20 tonnes. Under the 1999 measure, it was stated that there will be no 'commercial export' of salmon. Both measures also noted and commended Greenland for the 'improvement in its monitoring and reporting procedures'. The measures applying in the three years from 1998 – 2000 introduced a new term i.e. a fishery for 'internal consumption' but this was not defined.

10. At the WGC's Annual Meeting in 2000, a Resolution, WGC(00)12, was adopted. This measure recalled that the Parties had worked cooperatively to utilize the scientific advice from ICES in establishing regulatory measures, recognised the status

of the stock and the advice from ICES that there should be no exploitation of non-maturing 1SW salmon at Greenland in 2000 or of mature 2SW salmon in North America in 2001 and took into account NASCO's commitment to implement the Precautionary Approach. The Parties resolved to maintain the spirit embodied in previous agreements and agreed that unless there had been a significant improvement in the condition of the salmon stocks available to the fishery at West Greenland, the catch in 2001 would be restricted to 'the lowest possible level'. The Parties also complimented Greenland for the continued improvement in monitoring and reporting procedures and agreed to provide a comprehensive sampling of the fishery.

2001 and 2002 Regulatory Measures, WGC(01)16 and WGC(02)13

11. In both 2001 and 2002 '*Ad hoc* management programmes' were agreed for the West Greenland salmon fishery. These were rather more complicated measures, not least with regard to their implementation, than previously adopted by the WGC in that they used the relationship between CPUE, measured by the average daily landings in kilograms per licensed fishermen, and the PFA of North American salmon stocks in order to corroborate, in a timely manner, the ICES forecasts. Both agreements recalled that previous regulatory measures had been based on the scientific advice from ICES, they noted the WGC's commitment to implement the Precautionary Approach, and recognised that southern European MSW stocks had been consistently below their conservation limit, that North American stocks were outside safe biological limits and that the PFA of North American salmon was highly uncertain. Furthermore, the agreements resolved to maintain the spirit embodied in previous agreements and to enhance biological sampling of the fishery and sought to take account of the status of stocks of both North American and Southern European origin. The Greenland Home Rule Government agreed to monitor the fishery closely and ensure that licensees' fishing practices were consistent with those in previous years and make the data available during and after the fishery. There would be increased biological sampling. Both measures referred only to the commercial fishery, and no reference was made to a subsistence or internal consumption fishery.

12. In 2001, three harvest periods were established separated by two day closures. The start of the first harvest period was to be no sooner than 13 August as determined by the Greenland Home Rule Government and remained open for seven days or until 28t of salmon were taken in the commercial fishery, whichever came first. The CPUE from this period would determine if a second harvest period would be opened and the additional quota that would be available and similarly for the third period. The maximum quota allocated depended on CPUE and could range between 28t (low CPUE), 92t (medium CPUE) and 200t (high CPUE). If CPUE was low in the first or second periods the fishery would be closed.

13. For the 2002 fishery, two harvest periods were established separated by a two-day closure. The start of the season was to be no sooner than 12 August as determined by the Greenland Home Rule Government and remained open for two weeks or until 20t of salmon was taken, whichever came first. The maximum quota allocated again depended on CPUE and could range between 20t (low CPUE), 38t (medium CPUE) and 55t (high CPUE). If CPUE was low in the first period the fishery would be closed.

2003 – 2005 Regulatory Measures, WGC(03)9, WGC(04)6 and WGC(05)7

14. In each of the three years, 2003, 2004 and 2005 regulatory measures were adopted that noted that the stock complex was outside safe biological limits (2003 and 2004) or outside precautionary limits (2005) and that the Parties had previously worked cooperatively to agree measures utilizing the ICES scientific advice. These measures restricted the catch at West Greenland to that amount used for internal subsistence consumption (2003 and 2004) or internal consumption (2005) that in the past had been estimated at 20t. The measures also indicated that there would be no commercial export of salmon. They also contained other common elements including acknowledgement of the good work by Greenland to improve estimates of catches of salmon taken for private sales and local consumption in Greenland, and encouraged this work to continue, and a commitment to cooperate in a sampling programme for the fishery.

2006 - 2012 Multi-annual regulatory measures, WGC(06)6, WGC(09)7 and WGC(12)12

15. The 'Next Steps' review had recommended that the possibility of establishing multi-annual measures should be explored. Three-year regulatory measures were adopted by the WGC in 2006, 2009 and 2012, based on multi-annual advice from ICES provided in those years, and that would be used in conjunction with a Framework of Indicators (first adopted in 2007) that would be used to identify any significant change in the previously provided advice. These measures all noted that the status of the stock complex at West Greenland was below the conservation limit and thus suffering reduced reproductive capacity and the previous agreement of the Parties to base regulatory measures on the scientific advice from ICES. They also contained a commitment to continue to cooperate on a sampling programme for the fishery and acknowledged the good work by Greenland to improve estimates of catches taken for private sales and local consumption. These measures restricted the fishery to that amount used for internal consumption in Greenland and noted that in the past this had been estimated to be 20t annually. There would be no commercial export of salmon. The 2009 and 2012 measures encouraged Greenland to obtain the additional information from fishers including catch site, catch date, number of nets, net dimensions and numbers of hours the nets were fished.

Reports on actions taken to implement WGC regulatory measures

16. Consistent with Article 14 of the Convention, Denmark (in respect of the Faroe Islands and Greenland) has reported at the Annual Meetings of the WGC on the measures taken to implement the regulatory measures outlined above. Since 2000, written reports have been tabled annually and these are contained in documents WGC(00)7, WGC(01)5, WGC(02)8, WGC(03)5, WGC(04)5, WGC(05)5, WGC(06)4, WGC(07)4, WGC(08)5, WGC(09)6, WGC(10)9, WGC(11)7, WGC(12)3 and WGC(13)4. A description of the fishery has also been provided in Greenland's Implementation Plans (2007 - 2012 and 2013 -2018) and 2008 Fisheries Focus Area Report (see and IP(07)Final, CNL(13)40Final and IP(08)7rev) and Agenda item 6 allows for a review of the internal consumption fishery at West Greenland. It is anticipated that Greenland will make a presentation on the management of the internal consumption fishery including the fishery in 2013 (which is not described below).

17. The reports indicate that the regulatory measures were implemented through a series of Executive Orders as follows:
    - Greenland Home Rule Executive Order No 13 of 12 August 1999 (applying to the fishery in 1999 and 2000);
    - Greenland Home Rule Executive Order No 29 of 8 August 2001 (applying to the fishery in 2001);
    - Greenland Home Rule Executive Order No. 21 of 10 August 2002 (applying to the fishery in the period 2002 – 2011);
    - Government of Greenland Executive Order No 12 of 1 August 2012.

18. The reports indicate that the Greenland Home Rule Executive Order No 21 of 10 August 2002 applied to the fishery in 2002 (under the *Ad Hoc* Management Programme) and in the period 2003 – 2011 (internal consumption only fishery). This Order distinguished between the commercial fishery with landings to fish plants, the subsistence fishery by residents of Greenland, and the rod fishery by tourists/non-residents. In each year, the Greenland Home Rule Government set the national quota for commercial landings of salmon to fishing plants to zero tonnes (except that for the 2011 fishery it was set to zero tonnes for commercial landings of salmon to fishing plants *for export*) and prohibited any export of salmon. Only a subsistence fishery was allowed described variously in the reports during this period as the fishery for private consumption and the fishery for licensed, professional fishermen supplying:
    - local open air markets, hotels, hospitals and restaurants (2003 – 2007 fisheries);
    - local open air markets (2008 fishery);
    - local open air markets, hotels and institutions (2009 fishery); and
    - local open air markets, hotels and institutions etc. (2010 and 2011).

19. The fishery in 2012 was regulated under the Government of Greenland Executive Order No 12 of 1 August 2012. This Order distinguished between the commercial fishery to be landed at fish plants for export, the subsistence fishery by residents of Greenland, and the rod fishery by tourists/non-residents. No export of salmon was allowed in 2012 but the Government of Greenland set a national quota of 35t for landings at fish plants but only a subsistence fishery was allowed described as a fishery for private consumption and a fishery with the aim of supplying supermarkets, local open air markets, hotels and institutions etc. The latter fishery was only permitted for professional fishermen with licences. Greenland's Implementation Plan (2013 – 2018) indicates that the fishery consists of four components: subsistence fisheries for sale in open air markets or to hotels, institutions etc.; quota-based subsistence fisheries for landings at fish factories; subsistence fisheries for personal consumption; and sport and leisure fisheries. The Implementation Plan also indicates that under the 2012 Executive Order catch reporting has been improved in order to provide scientists with more detailed information.

Terminology

20. A variety of terms are used in the NASCO regulatory measures and other WGC documents relating to the fishery at West Greenland but in the main these are not defined. The one exception is that under the 1997 Addendum to the 1993 Agreement, a subsistence fishery is defined as 'a fishery which harvests salmon only for community food, social or ceremonial purposes'. Since 1998, with the exception of two years (2001 and 2002), NASCO regulatory measures have restricted the fishery to the amount used for internal consumption or internal subsistence consumption in Greenland. Neither of these terms, nor any differences between them, have been defined in the regulatory measures and it is not clear if, and how, they differ from a subsistence fishery as defined in the 1997 Addendum. All measures relating to these fisheries (other than in 1998) specify that there will be no commercial export of salmon and that the amount used for internal consumption or internal subsistence consumption has, in the past, been estimated to be 20t annually.

21. The reports made by Greenland on actions taken to implement these regulatory measures describe the various components of the fishery as indicated in its Executive Orders and other documents. These reports indicate that the Executive Orders distinguish between the commercial fishery for salmon landed at fish plants or landed at fish plants for export (2011 and 2012 only), a subsistence fishery by residents of Greenland and a rod fishery by tourists/non-residents. The subsistence fishery is described as being the 'fishery for private consumption and the fishery with the aim of supplying various markets, shops, institutions etc. The commercial fishery is referred to as the fishery with landings to fish plants or the fishery for landings to fish plants for export.

22. Clarification of, and agreement on, the terms relating to the fishery might assist in future. The terms that might usefully be defined as they relate to these regulatory measures might include: subsistence; internal consumption; internal subsistence consumption; commercial; recreational; and private sales.

Ted Potter (WGC Chair) and Peter Hutchinson (Secretary)
11 April 2014

Annex 1 of WGCIS(14)5

Summary of Regulatory Measures agreed by NASCO for the West Greenland Salmon Fishery

Year	Allowable catch (tonnes)	Comments/other details in the measures
1984	870	
1985	–	Greenlandic authorities unilaterally established quota of 852t.
1986	850	Catch limit adjusted for season commencing after 1 August.
1987	850	Catch limit adjusted for season commencing after 1 August.
1988 - 1990	2520	Annual catch in any year not to exceed annual average (840t) by more than 10%. Catch limit adjusted for season commencing after 1 August.
1991	–	Greenlandic authorities unilaterally established quota of 840t.
1992	–	No TAC imposed by Greenlandic authorities but if the catch in first 14 days of the season had been higher compared to the previous year a TAC would have been imposed.
1993	213	An agreement detailing a mechanism for establishing annual quota in each of the years 1993 to 1997 was adopted by the Commission.
1994	159	
1995	77	
1996	–	Greenlandic authorities unilaterally established a quota of 174t.
1997	57	An addendum to the 1993 Agreement was agreed by the Commission.
1998	Internal consumption fishery only	Amount for internal consumption in Greenland has been estimated in the past to be 20t.
1999 - 2000	Internal consumption fishery only	Amount for internal consumption in Greenland has been estimated in the past to be 20t. A Resolution regarding the Fishing of Salmon at West Greenland was agreed by the Commission at its 2000 meeting.
2001	28 - 200	Under an *ad hoc* management programme the allowable catch will be determined on the basis of CPUE data obtained during the fishery.
2002	20 - 55	Under an *ad hoc* management programme the allowable catch will be determined on the basis of CPUE data obtained during the fishery.
2003 - 2008	Internal consumption fishery only	Amount for internal consumption in Greenland has been estimated in the past to be 20t.
2009 - 2011	Internal consumption fishery only	Amount for internal consumption in Greenland has been estimated in the past to be 20t.
2012 - 2014	Internal consumption fishery only	Amount for internal consumption in Greenland has been estimated in the past to be 20t.

Annex 10 of WGC(14)4

WGCIS(14)15

Paper on the internal-use fishery at West Greenland

Management measures and monitoring and surveillance

Photo: Kim Schmidt – Salmon caught with fishing-rod in Qaqortoq.

NAALAKKERSUISUT
GOVERNMENT OF GREENLAND

Government of Greenland

Ministry of Fisheries, Hunting and Agriculture

1. Introduction

Despite its size (2,166,086 km^2), approximately from Bergen in Norway to Malaga in Spain - Greenland only have a population of 56,968 (31 Mar 2014) with a population density of $0.026/km^2$ due to the Ice Cap that only make approximately 10% of the landmass habitable. Fisheries are the most important industry in Greenland not only economically but also emotionally. Fishery and hunting play an enormous role in the Greenlandic culture and identity. Many small and isolated villages are dependent on fisheries. The only means of transportation in Greenland between villages and cities are boats, planes and in the wintertime dog sledges. Therefore, people cannot just drive to another city to work, if e.g. the factory in the village closes. Even though, some fisheries such as the shrimp and prawn fishery operate offshore with large trawlers, the main fishery in Greenland is the inshore fishery with dinghies with approximately 2,800 licensed fishermen. The salmon fishery in Greenland is an inshore fishery. Greenland has no salmon fishery beyond 12 nautical miles.

2. Management Measures

Because Greenland only has one salmon river, and the stocks exploited in Greenland therefore mainly originate in other countries, an essential part of the Greenlandic management measures for the salmon fishery are agreed to internationally within NASCO. The following gives an overview of the management measures that Greenland has taken internally.

2.1. Inshore Salmon Fishery

The fishery for Atlantic salmon fishery in Greenland waters started around 1960 and peaked in the early seventies at a catches of more than 2000 tons a year. The fishery was quota regulated from 1972, but due to declining stocks, NASCO in June 1998 agreed that no commercial fishery for salmon should be allowed, but that the catch at West Greenland should be restricted to *'that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tonnes'*. Since then export of salmon from Greenland has been banned by law. After 1997 it has also been mandatory to report private catches of salmon. From 2002 to 2011, licensed fishermen were only allowed to sell salmon to Institutions, local markets and restaurants. Unlicensed fishery for private consumption has been always allowed[1].

The salmon fishery season in West Greenland is August 1 to October 31. The different components in the fishery are the unlicensed fishermen, private people that want to catch salmon for private consumption and licensed fishermen that are professional fishermen, who often have a license for other species as well. These fishermen are mostly small scale fishermen that fish from a dinghy but there are also a few vessels over 6 meters. In 2013, there were 323 licenses for dinghies and 11 licenses for vessels over 6 meters in West Greenland.

[1] Nygaard, Rasmus; *The Salmon Fishery in Greenland 2012 – Working paper 2013/XX.* International Council for The Exploration of the Sea – North Atlantic Salmon Working Group.

The minimum mesh size in gillnets are 70 mm and applies for both components in the fishery. The unlicensed fishermen can use 1 salmon net and licensed fishermen can use up to 20 salmon nets. Furthermore, the licensed fishermen are allowed to use driftnets.

All catches must be reported to Greenland Fisheries License Control Authority (GFLK), this entails that both licensed and unlicensed fishermen must report their catches to GFLK.

In 2012, the Government of Greenland allowed factory landings in order to ensure that all citizens get the opportunity to consume salmon and at the same time ensure the fishermen sales chances. The opportunity to land salmon entails employment for both small scale fishermen and employees at the factories. This opportunity can be the difference between closing the factories for longer periods of the time and ensuring the livelihood of fishermen and factory workers. Furthermore, the reporting has become more accurate as the reporting from the factories is regarded as accurate.

The opening of factory landings in 2012 entailed that the factories also have to report the amounts of salmon that is being landed. In 2012 and 2013, a quota for factory landings was set at 35 tons. However the factory quota ceiling was not met in either 2012 or 2013.

Uncertainty with regard to unreported catch is related to private use and catch sold at markets and institutions.

The possibility to land salmon to factories have only existed since 2012, thus, the market is relatively new and have not evolved yet. The Greenlandic retail chains in Greenland both import salmon from Europe, mainly Norway and buy Greenlandic salmon from the factories. However, the percentage of the Greenlandic salmon is very small compared to the entire sale of salmon in Greenland. In 2013, the detail chains bought approximately 37 tons of salmon, whereof approximately 13 tons was Greenlandic salmon, thus, the Greenlandic salmon only comprise 4,8 per cent of the sale.

Export of salmon caught in Greenland is illegal.

2.2. River Fishery

Greenland only has one known spawning population Atlantic salmon, *Salmo salar*, located in the Kapisillit river in the inner part of the Nuuk fjord, in West Greenland. Potentially, other rivers could hold a salmon population, but in general the rivers in Greenland are short, steep and cold. Although, the contribution of the small Kapisillit population to the salmon fishery around Greenland is persistent, it must be regarded as insignificant[2].

Some rod and reel fishery exists in the Kapisillit river, but the extent, size and catches is currently unknown. Electrofishing in the river in 2012, however revealed several yearclasses of smolts and the stock is persistent (unpublished).

The Ministry of Environment and Nature is currently working on a strategy for the protection of biodiversity in Greenland. The Kapisillit salmon will in connection with this strategy stand

[2] Nygaard, Rasmus; *The Salmon Fishery in Greenland 2012 – Working paper 2013/XX.* International Council for The Exploration of the Sea – North Atlantic Salmon Working Group.

out as especially conservation demanding and thus, it will be one of the highest priorities in the future conservation work. The main goal is to increase the protection of the river itself and endemic salmon stock from anthropogenic effects. The river is still almost undisturbed. The only known permanent disturbance to the river is that it, functions as water supply to the local settlement housing around 50 all year citizens. The disturbance involves a wooden structure and a 2.5 km long pipe from one of the lakes to the Kapisillit settlement. As part of the process, the local inhabitants have been heard about their opinion concerning the future of the river, the stock and the surrounding area. The protection plan includes the river, the river mouth, all areas supplying water to the river, the inner part of the fjord from the settlement to the river and surrounding areas. The process for an increased protection plan was started a few years ago and the expectation is a full protection of the area and a new set of rules for the use of the stock and area by 2015.

3. Monitoring and Surveillance

All control, monitoring and surveillance is carried out by the Greenland Fisheries License Control Authority. The GFLK employs 11 wild life officers and fisheries observers, the fisheries observers control the offshore fishery and the wild life officers control the inshore fishery as well as hunting areas.

3.1. Control and Enforcement

The fishermen, licensed or unlicensed must report their catches either when the fishery ceases or closes. The reporting must be in the hands of GFLK at the latest by the fishery's end date i.e. 31 October. The factories report to GFLK every week in line with the reporting of other species and are regarded accurate.

Further to the reporting of the fishermen and reports from the factories, GFLK's wild life officers, who covers the entire coast of West Greenland checks up on the fishery and the fishermen regularly during the fishing season. The wild life officers report any irregularities or infringements to the GFLK. GFLK and the Ministry report to the police and if necessary the Ministry of Fishery, Hunting and Agriculture takes legal action.

After the fishing season has ended the GFLK and the Ministry runs a series of targeted campaigns in order to ensure that the fishermen remove their nets and other equipment. Furthermore, the wild life officers patrol the normal salmon fishing grounds and occasionally identify and remove nets that are not correctly marked with name and contact information or equipment left by the owner by the end of the season.

3.2. Licensing and Reporting Arrangements

In order to receive a license for the salmon fishery in Greenland, the fishermen have to apply through an application schedule to the Ministry of Fisheries, Hunting and Agriculture. The license office in the Ministry handles all inshore licenses. In order to be eligible for a license, applicants must be professional fishermen involved in other fisheries. Applicants must have permanent association to Greenland[3], own salmon nets and operate a vessel smaller than 42 feet. Furthermore, it is not allowed to use a vessel used in the inshore shrimp fishery to fish salmon. It is illegal to sell salmon without a license.

As mentioned above, both licensed and unlicensed fishermen are obligated to report their catches to GFLK. In order to ease and improve the reporting system and reduce unreported catch, the regulations for the salmon fishery were updated in 2012. The update mainly involved that licensed fishermen were required to keep a journal or log of their catches instead of reporting every day during the season. Rules and regulations about salmon fisheries in Greenland EEZ can be found in: ”*Selvstyrets bekendtgørelse nr. 12 af 1. august 2012 om fiskeri efter laks*”.http://dk.nanoq.gl/.

The fishermen have to report the following information to GFLK:

- Name, address, and social security number
- License number, vessel name, vessel number and size of the vessel
- Date, fishing area/spot, net type, number of nets, number of hours (effort)
- Number of salmon caught, weight of catch in kilograms
- Sales place or private consumption and further remarks on the catch

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Dato	Fiske sted	Garn type	Antal laks fanget	Vægt af fangst i kg (MHUI)	Antal Garn	Antal timer	Bemærkninger / Salgs sted	Bemærkninger / Privat forbrug

[3] Executive Order on Fisheries: *Landstingslov nr. 18 af 31. oktober 1996 om fiskeri, §3, stk. 4*: ” ’permanent association to Greenland’ is understood in this law as persons that by purchase of a household, by renting or buying a home or by other arrangements indicates intension to have Greenland as a place of residence.

Oqaaseqaatit / Bemærkninger:

The schedule has to be filled out by both licensed and unlicensed fishermen.

WGCIS(14)21

Canada's Management Measures for Wild Atlantic Salmon

The purpose of this paper is to provide a broad overview of Canada's Legislative obligations, Regulations, and Polices for fisheries on wild Atlantic salmon. Of which, these components include:

- A broad picture on the status of Canadian stocks throughout its extensive range,
- The designation of sustainable harvest limits on river-systems with healthy stocks, while prohibiting and heavily enforcing harvests on river-systems with less than healthy abundance,
- Canada's Constitutional obligations to Aboriginal peoples, and
- Sustainable harvests where science permits.

International Cooperation - NASCO's Role

Rational management of wild Atlantic salmon throughout its travels across the North Atlantic can only be achieved in large part through international cooperation.

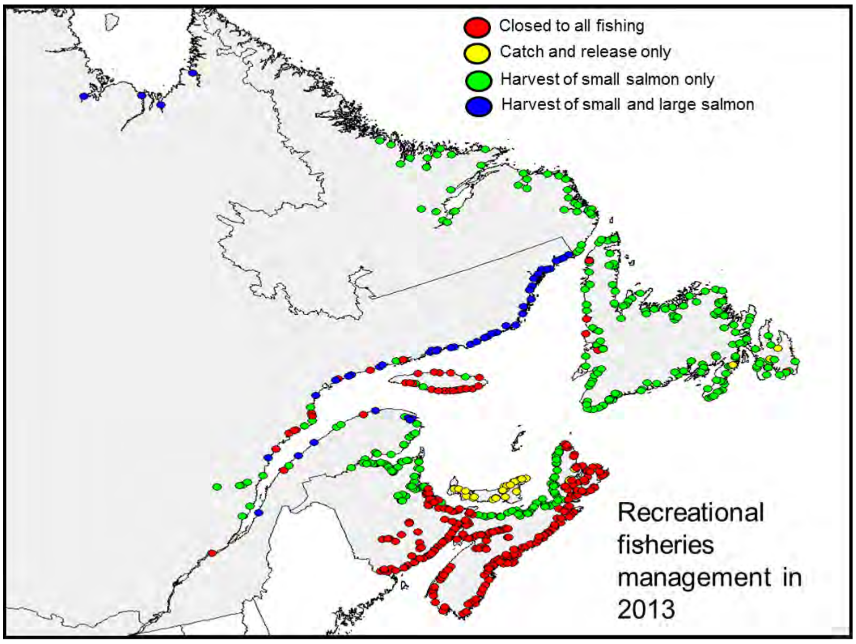
NASCO's web-site states that "The marine migrations of the Atlantic salmon take it from its river of birth to distant-water feeding grounds in the sub-Arctic and into the fisheries zones of other countries where it may be exploited. NASCO Parties have traditionally made management decisions which reflect science for the long-term benefit of the stock, and for the Coastal people who depend on the stocks." Canada is pleased to participate within NASCO towards these shared goals and is proud to say that our management of removals, coupled with measures established in NASCO by Parties, have contributed to reductions of harvests of salmon across the North Atlantic region.

Canadian Stocks – an overview

As displayed below in the below image, there are over 1000 rivers in Eastern Canada, with over 470 of these rivers reporting wild Atlantic salmon populations. Canada carefully and scientifically manages this resource, often region by region and river system by river system.

Harvest levels are based on a mix between scientific analysis and advice (counting fences in some cases, as well as sampling), and traditional knowledge of those fisheries. Canadian conservation requirements for rivers holding Atlantic salmon are considered to be threshold reference points. Canada's conservation requirements have been established for individual rivers based on science.

The stock status is assessed based on the proportion of the conservation egg requirement (from all groups of salmon) achieved in a given year and the trends in abundance of various life stages.



In Labrador and western Newfoundland, there are important large salmon components that contain a mixture of maiden fish that have spent two (2SW) or more years (MSW) at sea before spawning, and repeat spawners which are returning for a second or subsequent spawning. In other Newfoundland rivers, the large salmon component consists mainly of repeat spawners.

Canadian Management - Based on Science and Experience

In Canada, there are three forms of harvests for wild Atlantic salmon:

- Recreational Fisheries,
- Aboriginal Fisheries, and
- Bycatch in Labrador Resident Subsistence Fishery.

Recreational Fisheries

All Canadian Recreational Fisheries are closely monitored, enforced, and reported. Some of the management measures include:

- All recreational fishing must take place with artificial flies,
- In most of eastern Canada, only small salmon (one-sea-winter or grilse) can be retained,
- Where large salmon are permitted for retention, it is only in the province of Quebec (40 rivers) and only allowed in rivers which are assessed for attainment of conservation objectives or which are relatively isolated and fishing pressure is low,
- Daily and seasonal harvest limits are established and there is a daily maximum catch and release limit,
- All harvested fish must be immediately tagged with a carcass tag, and
- Prohibition on selling or bartering salmon.

In the province of Quebec, there are reporting systems in place requiring mandatory reporting within 48 hours of any retained salmon, to mandatory reporting on licence stubs (one page log sheet) to voluntary reporting of fishing activities.

Canada conducts region by region, and often river by river analysis, to make management decisions reflecting these diverse and changing conditions. As an on-going review of Canadian management approaches, we are taking action to conserve the resource.

The following measures, new in 2014, are expected to contribute to reductions in overall mortality of wild Atlantic salmon, and align stock exploitation with stock abundance;

- In New Brunswick, an overall reduction in tags for retention of grilse from 8 to 4,
- In New Brunswick, Salmon Fishing Area 15, the daily grilse retention quota is reduced from 2 to 1,
- In Nova Scotia, a reduction in tags for retention of grilse from 4 to 2, and
- Expanded catch and release measures on the Northwest Miramichi River system.

Canadian Aboriginal Fisheries

Aboriginal access to fisheries for subsistence is written directly into Canada's Constitution Act. These harvests take place in most areas of eastern Canada, though only in areas designated as open (by Fisheries and Oceans Canada) for salmon fishing. No fishing is permitted in closed rivers. This is strictly enforced.

These fisheries are closely monitored, and managed through negotiated agreements with individual communities, under the food, social, and ceremonial fisheries rights of aboriginal peoples.

The agreements are science and traditional knowledge-based, and strictly stipulate the exact location of fishing, the gear to be used, the season and weekly open times, and an allocation in terms of number or weight of fish to be taken.

The catch is regulated (and strongly enforced) by the number of tags issued. Carcass tags are issued and must be used for all harvested fish. These harvests are reported to authorities (Government of Canada/Province of Quebec). For harvests off Labrador, logbooks are utilized. There are also designated harvest seasons as well as a prohibition on selling salmon.

Bycatch in the Residents of Labrador Food Fishery

The Resident Food Fishery occurs in Lake Melville and southern Labrador coastal communities from Cartwright to Cape St. Charles. It is for residents of Labrador and targets sea-run trout and arctic char.

There is no directed harvest of salmon for this fishery. Salmon are a by-catch. There is a maximum season retention of three salmon of any size. All fishing (for trout and char) must end when the three salmon are retained. Fisheries and Oceans Canada monitors these harvests by issuing carcass tags (3 per resident licence).

For reporting, logbooks are used and submitted at the conclusion of the season.

There is a prohibition on selling or bartering salmon.

WGCIS(14)23

Overview of the main EU legislation relevant to the protection and conservation of Atlantic salmon

Introduction

1. This paper provides a brief overview of three EU Directives (Habitats Directive, Marine Strategy Framework Directive, Water Framework Directive) and the Common Fisheries Policy to provide the relevant EU context for the conservation and management of Atlantic salmon by European Union Member States. Details of the management measures taken by Ireland, UK (England and Wales), UK (Northern Ireland) and UK (Scotland) are contained WGCIS(14)14, WGCIS(14)9, WGCIS(14)10 and WGCIS(14)11, respectively.

The Habitats Directive (1992/43/EEC)

2. The Habitats Directive seeks to protect, value and restore biodiversity in EU Member States through the establishment of the Natura 2000 network of protected sites. The Atlantic salmon is listed (only in freshwater) among species of Community interest and also receive protection indirectly as a result of the protection of habitats and other species that are covered by the Directive.

The Water Framework Directive (2000/60/EC)

3. The Water Framework Directive aims to achieve 'good ecological and chemical status' for all EU waters (inland, transitional and coastal waters up to 1 nautical mile from the baseline) by 2015. It addresses both water quality (pollution) and quantity (abstraction and hydromorphological changes) issues. Management plans and measures for the period 2009 - 2015 are required for each River Basin District; these are scheduled for revision in 2015 (and thereafter every 6 years).

The Marine Strategy Framework Directive (2008/56/EC)

4. The Marine Strategy Framework Directive aims to achieve 'good environmental status' in the marine environment (all marine waters under national jurisdiction according to UNCLOS) by 2020. It requires Member States to develop marine strategies that apply the ecosystem approach to the management of human activities. The Directive defines the general principles, leaving ample flexibility to Member States in implementation.

The Common Fisheries Policy (Regulation (EU) No 1380/2013)

5. The Common Fisheries Policy requires the establishment of a set of rules by the European Union for managing the EU fishing fleet and to conserve fish stocks through incorporation of the Precautionary and Ecosystem Approaches. Some key elements of the new policy are that fish stocks should reach MSY by 2020, there is a ban on discards (referred to as landing obligation in the Regulation) that will gradually enter into force as from 2015. In addition, the new Regulation contains provisions on the EU external policy, which should act as an integrated part of the Common Fisheries Policy. The Regulation brings also decisions closer to the fishing

grounds, clarifying the roles of each actor and creating a framework for the EU Member States to develop the actual implementing measures at regional level.

Background Information from European Union Member States on Management Measures for MSW Salmon in Home Fisheries

WGCIS(14)9

Management measures for MSW salmon in home water fisheries in EU- UK (England and Wales)

(Inter-sessional meeting agenda item 7)

Fishery management measures

There are 64 principle salmon rivers in England and Wales. Conservation Limits have been set for each of these stocks. We haven't set separate Conservation Limits for the Multi Sea Winter component of each stock, but we do seek to address stock diversity issues when making management decisions.

Those management decisions are guided by a national 'Decision Structure', which is applied to each river stock on an annual basis (in April) after undertaking the 'compliance assessment'. This indicates the probability that each stock will achieve its Management Objective (of exceeding the Conservation Limit in 4 years out of 5)[4]. Based on the results, the Decision Structure provides guidance on the extent to which restrictions on exploitation are required, informing the decisions fishery managers make about any changes in management. When doing this consideration is given to the age composition of the stock and the need to protect specific sea age classes.

The range of measures that may be imposed has been described in our Implementation Plan. Many of the measures in place cover the whole river stock, including:

- Restrictions on methods of fishing – only rod, net or trap fishing are allowed;
- The requirement to have the appropriate licence or authorisation to fish via any of these methods;
- Restrictions on fishing seasons, times, methods and areas and, in the case of net fisheries, number of people who may fish; and also
- Catch limits are also in place in some fisheries.

Specific measures are also taken where necessary to protect MSW salmon. These include:

- Delaying the opening of the season:
    - Many MSW salmon[5] return earlier than 1SW fish;
    - To protect these fish all netting for salmon before 1st June has been banned since 1998; and
    - Before 16th June all rod-caught fish must be released.
- Restrictions on fishing methods and baits early in the season:
    - Particular methods (flies, lures) and baits are restricted to reduce damage to released fish and reduce catches;

[4] Recovering rivers that do not yet have CLs set are deemed to be 'at risk'.

[5] Particularly 3+SW fish.

- Different restrictions apply in different areas and season times to protect different stocks and subcomponents - including MSW fish.

- Release of female fish:
  - A higher proportion of MSW than 1SW fish are female.
  - Measures in North West England prohibit the retention of female fish from 10 August to 31 October to help protect MSW fish;
- Size limits are in place in some areas:
  - For example on the rivers Taw and Torridge all fish over 70cm must be released after 1st Aug, in order offer enhanced protection to the MSW component of the stock.
- Measures have also been adopted on a voluntary basis by both netsmen and anglers to protect early running and large fish:
  - Anglers on the Tamar have voluntarily agreed to release all fish over 10lbs in weight throughout the season, contributing to protecting MSW stock[6]
  - We are working with netsmen to delay the start to the Tamar and Tavy netting season to June 16th as our data indicates a good run of MSW fish in the first two weeks of June.
  - A voluntary agreement with fisheries on the Avon to implement a voluntary angling temperature threshold. This means that when the water temperature exceeds 19 degrees at 9.00am, angling is suspended. This aids salmon recovery following catch and release.

Conservation measures (e.g. habitat restoration, measures on water abstraction, pollution etc.)

An array of projects and programmes are in place to improve the freshwater habitat for salmon in England and Wales. For the most part these form part of the delivery of River Basin Management Plans[7] to implement the European Water Framework Directive. The aim is to bring rivers to ‘good ecological status’ which indicates a healthy aquatic ecosystem and presence in suitable abundance of all native species of flora and fauna. This includes fish fauna and hence salmon.

Supporting these River Basin Management Plans are sea trout and salmon catchment summaries, which build on the existing individual river Salmon Action Plans for each of the 64 river stocks[8], but also extend to other catchments where salmon are recovering from historic degradation.

The main factors affecting salmon in English and Welsh rivers are problems with channel morphology (including barriers to fish migration), and sediment and hydrology (including

[6] Some MSW fish are smaller than this, especially early in the season.

[7] 11 for England and Wales including the cross-border Solway and Tweed RBD which is partly in Scotland.

[8] SAPs were developed for each salmon river stock between 1998 and 2004.

abstraction and flow modification). Relevant actions to address these issues are therefore incorporated into the River Basin Management Plans.

- Those actions are largely delivered through environmental programmes such as the £110m Catchment Restoration Fund which has funded action to address issues ranging from obstructions to migration to diffuse pollution. Some funding has also been provided through the EU 'European Fisheries Fund' to support the 'Salmon for tomorrow' programme in Wales.
- A number of different interests have collaborated to put these plans into action. These have included conservation organisations such as the various Rivers Trusts, local angling clubs and the Environment Agency. Private sector organisations have also contributed.
- Examples of actions taken in 2013 include:
  - Opening up or improving access to 900km of rivers at 37 barriers to salmon migration in England – either by removing those barriers or making them passable by installing fish passes or easements.
  - On the River Ehen in NW England a water abstraction has been damaging or reducing habitat for a number of years. The abstraction licence causing these problems was revoked in 2013 and the abstraction point and associated weir removed to help salmon migrate upstream.
  - Flood gates on the River Itchen in S England were modified and the operating regime changed for the benefit of migrating fish.
  - In Wales removal of concrete weirs on the River Sirhhowy has opened up 25km of previously inaccessible salmon habitat, and fish passes have been installed at a flow gauging station on the River Afan to help salmon and other species migrate with that river system.
  - On the river Derwent in NW England erosion and sedimentation worsened by floods and landslips had threatened trout and salmon spawning sites. In 2013 a number local angling clubs, conservation organisations and the Environment Agency worked together to repair the banks and make improvements to help prevent future erosion.
- In 2013, around £5 million in total was spent in England on water bodies that support (or should support) salmon to improve their ecological status[9].
- Another project is underway called 'Keeping Rivers Cool' which is focussed on using riparian shade to help protect rivers from the effects of climate change. This four-year project will benefit salmon by reducing river tempartures throughout England and Wales. It works by inspiring action through demonstration projects, guidance and mapping tools. £295k was spent on this programme over the 2013/14 financial year.

[9] This figure includes work on fish passes, fencing, water quality initiatives etc and was arrived at by comparing the WFD database for all water bodies that should support salmon with the expenditure by water body and by all of the following: Environment Agency, Catchment Restoration Fund, Natural England, Rivers Trusts and Wildlife Trusts. The exact figure is £5,015,192.

WGCIS(14)10

Management measures for MSW salmon in home water fisheries in EU- UK (Northern Ireland)

(Inter-sessional meeting agenda item 7)

Regulatory Measures

Commercial fishery buyout DCAL area 2000-1, Loughs Agency commercial cessation 2007. Remaining DCAL nets cessation 2012.

MSW - Catch & Release of salmon up to 1st June has been in place from 2003.

Grilse & MSW - from 1st of March 2014 catch and release for rivers in the DCAL area until MTs have been consistently attained. No exploitation of salmon on rivers unless MTs are attained.

Other Measures

Habitat Improvement Works - Aimed at both grilse & MSW stocks – approx. £100 – 200k p.a.

Enforcement – Regular patrols carried out by Fishery protection officers in NI.

Salmon stock monitoring by AFBI – including electrofishing surveys, fish counter and adult & smolt trap on the R Bush etc.

WGCIS(14)11

Management measures for MSW salmon in home water fisheries in EU- UK (Scotland) (Inter-sessional meeting agenda item 7)

Regulatory measures

1. Voluntary conservation measures.

Members of the Scottish Net Fishing Association for Scotland, the representative body for salmon net interests have, with few exceptions, ceased netting during the 1st 6 weeks of the season to protect spring salmon. Netting effort is at historically low levels (in 2012, fixed engine effort was 5% of the highest recorded and for net and coble this figure was 1% of the highest recorded).

The number of fish caught and subsequently released from rod fisheries has increased from 1994 when data were first collected. In 2012, 74% of all salmon caught, and 91% of all spring salmon caught were released.

2. Fishery management measures

- Salmon fisheries managed at local level by District Salmon Fishery Boards. These are proprietor-led organisations which can be created by statute (but there is no requirement for them to exist).

- Boards are independent of Ministers and Scottish Parliament. They are financed by a levy on salmon proprietors (approx. £4 million brought in annually by 50 Boards).

- Aquaculture and Fisheries (Scotland) Act 2013 introduced obligations on District Salmon Fishery Boards to be more open and accountable. Powers in the Act strengthen the framework for management of salmon fisheries: power to creating carcass tagging scheme; ability to vary annual close times; to carry out investigations and take samples; and require information from proprietors of fisheries.

- As detailed in the Implementation Plan, the independent review of the management of wild fisheries in Scotland has commenced. The review will focus on what is needed to ensure the management system is fit for purpose in the 21st century.

- The review is considering the challenges and opportunities facing wild fisheries management, and how these might be met and exploited respectively.

- The Review is expected to report by October 2014.

WGCIS(14)14

Status of MSW salmon stocks contributing to West Greenland fishery and Management measures for MSW salmon in home water fisheries in EU- Ireland

(Inter-sessional meeting agenda items 5 and 7)

1. Ireland's management measures to support the conservation of salmon stocks

In 2007, Ireland closed its mixed stock salmon fisheries and facilitated the closure of many commercial fisheries with a "Hardship Scheme"; the cost to the Irish government of this scheme was in the region of €25m. It is also at this time that Ireland moved to management of all salmon rivers on a catchment by catchment basis.

Ireland expends a significant amount of resources in researching and providing advice on the status of Ireland's salmon. Each of Ireland's 143 salmon rivers has an established Conservation Limit (CL) and is managed individually. Ireland Standing Scientific Committee on Salmon provides advice each year on the predicted salmon returns by catchment for the year ahead; this information is used to establish any potential surplus/deficit for each river. Based on this advice managers draft and implement legislation to ensure the conservation of salmon stocks.

		Number of Rivers 2014	Number of Rivers 2013
1SW	**Open**	57	57
1SW	**Catch & release**	30	15
1SW	**Closed**	56	71
	Total	143	143
MSW	**Open**	11	11
MSW	**Catch & release**	2	2
MSW	**Closed**	3	3
	Total	16	16

Table 1

Salmon Conservation Funds are generated from the sale of salmon angling and commercial fishing licences which represents a major contribution by licence holders to wild salmon conservation. The revenue generated from the Salmon Conservation Fund is reinvested to promote the recovery and conservation of our salmon stocks. Since 2007 over €3.7m has been generated by this fund with over 140 projects supported, across a diverse range of areas including:

- River Bank Protection
- Spawning Ground Rehabilitation
- In-stream Works
- Weirs and Pools Rehabilitated
- Fish Pass Improvements
- Assessment of Attainment CL
- Removal of Trees/Overgrowth
- Fish counter installation

- Salmonid Research

Projects are assessed based on the river's conservation limit status, its water quality (Q-value) and the maximum potential project benefits to the river with funding prioritised for those rivers in most need of rehabilitation. Inland Fisheries Ireland (IFI) manages this fund and also supports additional measures to salmon habitat restoration though the Environmental Riverine Enhancement Programme (EREP). The EREP programme is a collaborative programme between IFI and the Office of Public Works (OPW) which has spent approximately €2.5m/yr. for the past 6 years on formerly arterially drained channels to restore and preserve salmonid habitat; approximately 90% of these works directly support salmon production. It is also worth noting that expert IFI staff in each River Basin District support the restoration and development of their local salmon catchments.

Inland Fisheries Ireland is tasked with the protection and conservation of Ireland's salmon stocks. The protection element involves the protection of stocks and the enforcement of salmon conservation legislation. This includes patrolling out to 12 miles at sea using IFI's fleet of 22 Ribs and large patrol vessel; the Irish Air Corp and Navy also support this protection activity. It is estimated that Ireland spends in the region of 10 to 12 million euros annually on this activity.

Salmon as a species are protected under EU Habitats Directive (Council Directive 92/43/EEC) on the conservation of natural habitats of wild fauna and flora and under Ireland implementation (S.I. No. 94 of 1997 & S.I. 477 of 2011) of this directive. This legislation required Ireland to take measures to maintain or restore salmon habitat and to strive to maintain or restore salmon to favourable conservation status. Ireland is obliged to monitor and report on the status of salmon under this directive, and has just completed a six year reporting cycle. The implementation of the EU's Habitats and Water Framework Directives and the embedding of their principles have supported the conservation of salmon in Ireland, these achievements have only been garnered through the provision of extensive supports and resources from the state and its citizens.

2. MSW Stocks and management measures for MSW salmon in home water fisheries in Ireland

2.1. MSW Stocks

Each of Ireland's 143 salmon rivers has an established Conservation Limit (CL) and is managed individually. Ireland Standing Scientific Committee on Salmon provides advice each year on the predicted salmon returns by catchment for the year ahead; this information is used to establish any potential surplus/deficit for each river. Based on this advice managers draft and implement legislation to ensure the conservation of salmon stocks. Multi sea winter salmon enter the majority of Irelands 143 salmon rivers either as early running spring fish over the January to May period or as summer or autumn MSW salmon. There are sixteen rivers where there is a significant stock of early running multi sea winter salmon where specific scientific assessment and advice is given annually. For the 214 advice, 11 of these stocks are meeting Conservation Limits (CL) with an exploitable surplus, two stocks are below CL but open for catch and release angling and 3 stocks are significantly below CL and are closed to angling (see table 1).

2.2 Commercial fishery

No commercial fishing takes place until after 12th May as a conservation measure to protect early running multi sea winter salmon in Ireland.

2.3 Angling Regulations

Anglers are only permitted to kill one salmon per day prior to 12th May and may only kill 3 salmon in total from the season opening until 12th May as a conservation measure to protect early running multi sea winter salmon. For multi sea winter salmon entering rivers in the summer or autumn, these fish are present along with the large numbers of one sea winter fish and separate management is not possible for the two sea age groups. There is a season bag limit of 10 salmon per angler and a three salmon per day limit in place on all rivers. In September, anglers are restricted to taking only one salmon per day as a conservation measure.

WGCIS(14)13

Agenda item 7: Review of management measures for MSW salmon in homewater fisheries

A Summary of US Efforts to Conserve and Restore Atlantic Salmon

Over many years, the United States, along with state and tribal authorities, has taken progressively more stringent actions to conserve Atlantic salmon populations:

- The last commercial fishery for Atlantic salmon in the United States was closed in 1947.
- Sustenance fishing by the Penobscot Indian Nation was suspended in 1988.
- The last recreational fishery for sea-run salmon ceased in 2008.

As it became evident that fishery management actions alone would not prevent further decline of the species, even more aggressive management measures and restoration activities began. Following are several examples:

- Atlantic salmon were recognized as endangered under the Federal Endangered Species Act (ESA) in 2000; the initial ESA-listing was revised to include a wider geographic area (over half the state of Maine) in 2009. The ESA-listing:
    - o Prohibits activities which may result in the injury, mortality, harm, capture, collection, and harassment of the animals, including adverse modification or destruction of critical habitat;
    - o Requires that all federal activities (including issuance of permits or provision of funds) be analyzed for their potential effect on Atlantic salmon, and that the projects be adjusted to avoid or minimize impacts to fish and their habitat, including:
        - Hydroelectric dams
        - Road maintenance
        - Dredging
- The U.S. Government has taken important (and costly) management actions to improve habitat, reduce threats, and work toward the recovery of wild salmon including:
    - o Dam removals and fish passage improvements
    - o Modifications to hydroelectric dam operations (e.g., turbine shutdowns)
    - o Aquaculture regulations
        - Site-specific marks
        - Vaccination of farmed fish prior to stocking in sea cages
        - Mandatory fallowing of stocking sites
        - Single year-class stocking

        - Vessel disinfection protocols
        - Prohibition on the use of non-North American strain salmon in marine cages
        - Required reporting of losses and potential losses and mandatory audits
    - Funding, coordination and oversight of habitat protection and enhancements in collaboration with local conservation groups (see below)
- In cooperation with U.S. Government, the community of non-governmental organizations (NGOs) has taken important steps to support the conservation of Atlantic salmon in the United States, in particular, to improve and connect important habitats (some examples below):
    - Dam removals
        - Penobscot River Restoration Project removed two mainstem dams (Great Works Dam in 2012 and Veazie Dam in 2013; NOAA has invested over $21M; total public/private costs for implementation of this project are approximately $50M) from the Penobscot River (home to roughly 75% of returns to the United States).
        - Edwards Dam (main stem of Kennebec River; over $1M in public sector funds) removed in 1999
        - West Winterport Dam (Marsh Stream; over $100,000 in public sector investment) removed in 2010
        - Fort Halifax Dam (Sebasticook River) removed in 2008
    - Installation of fishways
        - Rock ramp at Fields Pond outlet (Penobscot tributary; over $100,00 in public sector funds) installed in 2009
    - Road-stream crossing improvements
        - Over $1.5M in fish passage improvements in the Machias River alone
    - Habitat protection
        - Machias River Corridor protects roughly 440,000 acres and nearly the entire main stem of the Machias River (over $7.8M in public and private sector funds to date)

- Furthermore, State Governments have:
    - Closed recreational fisheries for sea-run salmon, including catch and release fishing
    - Regulating other recreational fisheries to minimize the potential for incidental catch of Atlantic salmon
    - Implemented pollution control and monitoring measures
    - Implemented surveillance and enforcement activities to limit poaching

WGCIS(14)17

Proposal from the Chair regarding the management of the West Greenland fishery in 2014

Background

The exchange of information at the inter-sessional meeting held on 14 and 15 April 2014 provided an opportunity for all Members of the West Greenland Commission to gain a greater understanding of the critical status of many of the salmon stocks exploited by the West Greenland fishery and the measures that had been taken by all Members to protect and restore them. In particular it was noted that:

Greenland had made major sacrifices in restricting its fishery since 2003 to the amount used for internal consumption in Greenland and has made considerable efforts to improve the reporting of annual catches of salmon in Greenland and to collect effort data concerning the fishery. Nevertheless, Greenland acknowledges that there remain uncertainties about the current catch levels in the fishery.

Considerable sacrifices have also been made by States of origin to reduce or ban landings of the MSW salmon stocks exploited at West Greenland, including:

- In the United States, complete closure of all fisheries for Atlantic salmon;
- In Canada, complete closure of large portions of Scotia-Fundy and New Brunswick to all directed salmon fisheries and banning the recreational landing of large salmon in all other rivers, except in 42 rivers in Quebec which are managed on a river by river basis to protect stocks that are below their conservation limits;
- In the European Union, extensive restrictions including fishery closures targeted at fisheries exploiting depleted MSW stocks.

Very significant efforts and investment have been made by all States of origin to protect and restore habitats for Atlantic salmon including improvements in water quality and nursery habitats and increasing access by installation of fish passes or complete removal of dams and other obstructions. In addition, significant investment has been made on research to underpin the conservation imperative.

The reported catch in the West Greenland fishery has increased from an annual average of around 13 tonnes in 2003-2005 to 36 tonnes in 2011-2013. The Government of Greenland allowed landings to factories in 2012 and 2013 partly in order to improve fishing opportunities in small communities. The landings in these years were two of the three highest recorded since the fishery was limited to the amount used for internal consumption. However, factory landings coincided with a reduction in landings to the open air markets and were believed to be more accurately reported.

Over time, there has been significant variation in the proportion of the catches originating from North America and Europe which cannot be fully explained. In recent years, however, a very high proportion (~80%) of salmon in the catches has been of North American origin. The remainder of the catch has originated predominantly from UK and Ireland.

The overall level of exploitation of North American MSW salmon stocks in the West Greenland fishery has varied between about 6% and 9% in the past 5 years, but the internal consumption fishery is estimated to have taken about 50% of the US Federally protected MSW salmon stock in 2001. Exploitation rates of Southern European MSW salmon stocks in the fishery are estimated to have been less than 1% for the past 10 years.

In 2012, MSW salmon in all six North American management units contributing to the West Greenland fishery are below their conservation limits, and in US and Scotia-Fundy many river stocks are critically endangered. While the MSW salmon in the Southern European management unit are above their conservation limit in the past three years, a number of individual MSW river stocks are severely depleted.

The International Council for the Exploration of the Sea (ICES) advised in 2012 that in the absence of any fishing mortality there was only a 6% to 8% chance of simultaneously meeting or exceeding the management objectives for salmon stocks in the seven management units contributing to the West Greenland fishery in 2012 to 2014 and there are no mixed-stock fisheries catch options at West Greenland in 2014. The application of the Framework of Indicators in 2014 has not indicated the need for a re-assessment of the catch advice for the West Greenland fishery for 2014, and that the multi-annual measure agreed in 2012 restricting the fishery at West Greenland to the amount used for internal consumption will continue to apply in 2014.

Proposed Addendum to the 2012 Multi-Annual Regulatory Measure, WGC(12)12 for the West Greenland fishery in 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 ICES, and most recently the 2012 Regulatory Measure for Fishing for Salmon at West Greenland for 2012, 2013 and 2014;

NOTING that the application of the Framework of Indicators in 2014 has not indicated the need for a re-assessment of the catch advice for the West Greenland fishery for 2014 and that the multi-annual measure agreed in 2012 will continue to apply to the 2014 fishery at West Greenland;

TAKING INTO ACCOUNT the comprehensive new information presented to the inter-sessional meeting of the Commission concerning the status of the MSW salmon stocks contributing to the West Greenland fishery and the conservation initiatives taken by States of origin;

RECOGNISING the need to continue efforts to improve the monitoring and surveillance of the salmon fishery in West Greenland and the experience of States of origin in approaches that may be used;

RECALLING NASCO's agreement to adopt a Precautionary Approach to the conservation and management of Atlantic salmon;

RECOGNISING the commitment made in NASCO's 2013 Action Plan, CNL(13)38, to regularly review the management of salmon fisheries and in particular those exploiting mixed stocks and stocks below their conservation limits;

THE PARTIES agree that:

(1) States of origin will share experiences with Greenland on the development of approaches to improve the monitoring of landings at West Greenland (e.g. through the use of carcass tagging) with a view to ensuring full reporting;

(2) without prejudice to paragraph 3, Greenland will make best efforts to ensure that the total reported catch in 2014 does not exceed the average for 2004 to 2013 (28t);

(3) a new multi-annual regulatory measure may be developed for the West Greenland fishery to apply from 2015 contingent on development and implementation of management controls which include:

- full catch accountability
- timely in-season tracking of landings;
- means for closing the fishery within season based on landings.

Annex 4

WGC(14)8

West Greenland Commission Ad Hoc Working Group on Monitoring and Control

At the 2014 inter-sessional meeting of the West Greenland Commission, the Proposal from the Chair regarding the Management of the West Greenland Fishery in 2014 (Annex 15 of WGC(14)4) was considered. Operative paragraph 1 of that document specifies that *"States of origin will share experiences with Greenland on the development of approaches to improve the monitoring of landings at West Greenland (e.g. through the use of carcass tagging) with a view to ensuring full reporting."* The West Greenland Commission considered the Commission Chair's proposal at its 2014 Annual Meeting and proposed that an *Ad Hoc* Working Group on Monitoring and Control be established with the Terms of Reference specified below to evaluate the current management of the Atlantic salmon fishery off West Greenland, taking into consideration the NASCO Guidelines for the Management of Salmon Fisheries.

Terms of Reference

1. Review data on the 2009 - 2013 (2014 as available) fishery, including identifying the degree to which harvest related information is collected for each component of the Atlantic salmon fishery off West Greenland;
2. Review the management and management systems for each component of the fishery;
3. Review fisheries monitoring and management control methods in use in other countries with particular reference to fisheries with similar components as the Greenland fishery (e.g., Canada and Ireland) and consider novel methods; and
4. Recommend and compare options to enhance the monitoring and management of the Atlantic salmon fishery off West Greenland and ensure more complete implementation of the NASCO Guidelines for Management of Salmon Fisheries. Consideration should be given to legislative tools, feasibility and costs of implementation.

Work Schedule

The Working Group should complete its work and report to the Parties by the end of January 2015 to allow time for Greenland to consider the recommendations and develop a draft plan for discussion at a mid-March 2015 inter-sessional West Greenland Commission meeting, and with sufficient time to allow implementation for the 2015 fishery. Any meetings of the Working Group, as well as the inter-sessional West Greenland Commission meeting, should be held in Greenland to facilitate access to relevant information. The Working Group should present an overview of its findings at the next meeting of the Commission following submission of its report, whenever that meeting may occur.

Composition of the Working Group

The Working Group should be composed of a mix of managers and scientists with experience in developing and implementing monitoring and control programs, with particular emphasis in monitoring and control programs that have been implemented within small isolated communities. Prior participation in the International Sampling Program in West Greenland is desirable. For Greenland, the Greenland Fisheries License Control Authority should, at a minimum, be represented. The Working Group will be supported by the Secretariat.

Annex 5

WGC(14)13

West Greenland Fishery Sampling Agreement, 2014

The West Greenland Commission recognises 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 programme in 2014 are to:

- Continue the time series of data (1969 - 2013) on continent of origin and biological characteristics of the Atlantic salmon in the West Greenland fishery;
- Provide data on mean weight, length, age, and continent of origin for use in the North American and European Atlantic salmon run-reconstruction models; and
- Collect information on the recovery of internal and external tags.

To this end, the sampling program in 2014 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; and
- 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 2014 fishing season:

- The European Union[10] agrees to provide a minimum of 8 person weeks[11] to sample Atlantic salmon at West Greenland during the 2014 fishing season;
- Canada agrees to provide a minimum of 2 person weeks[2] to sample Atlantic salmon at West Greenland during the 2014 fishing season;

[10] Ireland (2 samplers) and the United Kingdom (2 samplers).
[11] 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 provide a minimum of 2 person weeks[2] to sample Atlantic salmon at West Greenland during the 2014 fishing season;
- The United States agrees to co-ordinate the sampling program for 2014; and
- The Government of Greenland, in cooperation with the Greenland Institute of Natural Resources, agrees to provide support for the sampling programme 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 Government of Greenland, in cooperation with the Greenland Institute of Natural Resources and the Sampling Program Coordinator, will work with all factories receiving harvested salmon to collect biological characteristics data and samples from a proportion of the landed fish via factory staff;
- 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 this group;
- The United States agrees to coordinate the publishing of a report that details the preliminary results of the sampling programme. The report will be compiled in cooperation with institutes participating in the sampling programme 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; and
- 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 the Program Coordinator to provide spatial and temporal coverage to characterise 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(14)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 2014[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[3];
1.4 provide a compilation of tag releases by country in 2014; and
1.5 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 2014 fisheries[4];
2.2 review and report on the development of age-specific stock conservation limits;
2.3 describe the status of the stocks;
2.4 provide catch options or alternative management advice for 2015/16-2017/18 fishing seasons, with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, and advise on the implications of these options for stock rebuilding[5];
2.5 advise on options for taking into account the recent genetic analysis that suggests there was a significant contribution of North American origin stocks to historic mixed-stock fisheries in Faroese waters for the provision of catch advice[6];
2.6 update the Framework of Indicators used to identify any significant change in the previously provided multi-annual management advice; and
2.7 advise on what data would enhance the development of the catch options.

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

3.1 describe the key events of the 2014 fisheries (including the fishery at St Pierre and Miquelon)[4];
3.2 update age-specific stock conservation limits based on new information as available;
3.3 describe the status of the stocks;
3.4 provide catch options or alternative management advice for 2015-2018 with an assessment of risks relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, 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;
3.6 considering the available contemporary data on stock origin of salmon in the Labrador fisheries, estimate the catches by stock origin and describe their spatial and temporal distribution; and

3.7 considering the available contemporary data on stock origin of salmon in the Saint-Pierre et Miquelon fishery, estimate the catches by stock origin and describe their spatial and temporal distribution.

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

4.1 describe the key events of the 2014 fisheries[4];
4.2 describe the status of the stocks[7];
4.3 provide catch options or alternative management advice for 2015-2017 with an assessment of risk relative to the objective of exceeding stock conservation limits, or pre-defined NASCO Management Objectives, 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; and
4.5 considering the available contemporary data on stock origin of salmon in the West Greenland fishery, estimate the catches by stock origin and describe their spatial and temporal distribution.

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. With regards to question 1.3, NASCO is particularly interested in case studies highlighting successes and failures of various restoration efforts employed across the North Atlantic by all Parties/jurisdictions and the metrics used for evaluating success or failure.
4. 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. Information on any other sources of fishing mortality for salmon is also requested.
5. In response to questions 2.4, 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 2.5, this should include consideration of the implications of the new genetic results with regard to the factors previously identified by ICES as requiring management decisions for the finalization of the risk framework for the provision of catch advice for the Faroes fishery (i.e. annual or seasonal catch advice, sharing arrangement, choice of management units to consider and specified management objectives).
7. 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.

Attendees:
Elena Samoylova (NEAC, manager representative)
Peder Fiske (NEAC, scientist representative)

Tony Blanchard (NAC, manager representative)
Tim Sheehan, Chairman (NAC, scientist representative)

Katrine Kaergaard (WGC, manager representative)
Ted Potter (WGC, scientist representative)

Ian Russell (ICES representative, Observer)

New questions, originator:

- 2.5, NEAC
- 2.7, EU
- 3.6, USA
- 3.7, USA
- 4.5, USA

Annex 7

List of West Greenland Commission Papers

WGC(14)1	Provisional Agenda
WGC(14)2	Draft Agenda
WGC(14)3	Report on the Use of the Framework of Indicators in 2014
WGC(14)4	Report of the West Greenland Inter-sessional Meeting
WGC(14)5	Draft Proposal to Establish an WGC *Ad Hoc* Working Group on Monitoring and Control (Tabled by the US)
WGC(14)6	Revised Draft Proposal to Establish an WGC *Ad Hoc* Working Group on Monitoring and Control (Tabled by the US)
WGC(14)7	Draft West Greenland Sampling Agreement
WGC(14)8	West Greenland Commission *Ad Hoc* Working Group on Monitoring and Control
WGC(14)9	Draft Report of the Thirty-First Annual Meeting of the West Greenland Commission
WGC(14)10	Agenda
WGC(14)11	Report of the Thirty-First Annual Meeting of the West Greenland Commission
WGC(14)12	ICES Presentation to the West Greenland Commission
WGC(14)13	West Greenland Fishery Sampling Agreement, 2014

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

ECOREGION North Atlantic
STOCK Atlantic salmon from the Northeast Atlantic

Advice for 2014

The NASCO Framework of Indicators for North East Atlantic stocks for 2013 was run in January 2014, and did not indicate the need for a revised analysis of catch options. Thus, no new management advice is provided for 2014. The most recent multi-year advice for the North East Atlantic Commission was provided by ICES (2013a). In that assessment, there were no catch options for the Faroes fishery that would allow all stock complexes to achieve their conservation limits (CLs) with a greater than 95% probability in any of the seasons 2013/14 to 2015/16. In the absence of specific management objectives, ICES advised that there were no mixed-stock fishery options on the NEAC complexes at Faroes in 2013 to 2016. The results from the exploratory assessment conducted by ICES in 2013 based on smaller management units (countries) were in line with this advice.

While stocks remain in a depleted state and in the absence of a fishery at Faroes, particular care should be taken to ensure that fisheries in homewaters are managed to protect stocks that are below their CLs.

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 (northern NEAC) consists of: Russia, Finland, Norway, Sweden, and the northeast regions of Iceland. The southern group (southern NEAC) consists of: UK (Scotland), UK (England and Wales), UK (N. Ireland), Ireland, France, 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) (Figure 10.2.1). 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 a general decline over the time period (Figure 10.2.1), the decline being more marked in the maturing 1SW stock. Both stock complexes have, however, been at full reproductive capacity (i.e. >95% probability of achieving CLs) prior to the commencement of distant-water fisheries throughout the time-series. Recruitment of maturing 1SW and non-maturing 1SW salmon for southern NEAC also demonstrate broadly similar declining trends over the time period (Figure 10.2.1). Both stock complexes were at full reproductive capacity prior to the commencement of distant-water fisheries throughout the early part of the time-series. Since the mid-1990s, however, the non-maturing 1SW stock has been at risk of suffering reduced reproductive capacity in approximately 50% of the assessment years. The maturing 1SW stock, on the other hand, was first assessed as being at risk of suffering reduced reproductive capacity in 2009. This is broadly consistent with the general pattern of decline in marine survival in most monitored stocks in the area.

Based on the NEAC run–reconstruction model, three of the NEAC stock complexes (both northern NEAC stock complexes and the southern NEAC maturing 1SW stock) were considered to be at full reproductive capacity, prior to the commencement of distant-water fisheries, in the latest available PFA year. However, the southern NEAC non-maturing 1SW stock was considered to be at risk of suffering reduced reproductive capacity, prior to the commencement of distant-water fisheries, in the latest available PFA year.

For the northern NEAC stock complexes, 1SW spawners have been at full reproductive capacity throughout the time-series (Figure 10.2.1). In contrast, MSW spawners, while generally remaining at full reproductive capacity, have spent limited periods either at risk of suffering, or suffering, reduced reproductive capacity. Both the 1SW and MSW stock complexes were at full reproductive capacity in 2013. The 1SW spawning stock in the southern NEAC stock complex has been at risk of suffering, or suffering, reduced reproductive capacity for most of the time-series (Figure 10.2.1). In contrast, the MSW stock was at full reproductive capacity for most of the time-series until 1997. After this point, however, the stock has generally been at risk of suffering, or suffering, reduced reproductive capacity. Of the two southern NEAC stock complexes only the 1SW complex was at full reproductive capacity in 2013.

Estimated exploitation rates have generally been decreasing over the time period in the northern and southern NEAC areas (Figure 10.2.2). 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.

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 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, factors such as 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 important 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 2013. The NEAC area has seen a general reduction in catches since the 1980s (Figure 10.2.3; Table 10.2.1). 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 2013 was 778 t in northern NEAC and 329 t in southern NEAC; the total NEAC area catch (1107 t) is the lowest in the time-series. The catch in the southern area, which represented around two-thirds of the total NEAC catch in the early 1970s, has been consistently lower than that in the northern area since 1999 (Figure 10.2.3).

1SW salmon constituted 62% of the total catch in the northern NEAC area in 2013, compared with 54% for the southern area (Figure 10.2.4). There has been an overall decline in the percentage of 1SW fish in northern NEAC catches in recent years, when greater variability between countries has also been apparent. The percentage of 1SW fish in southern NEAC has remained reasonably consistent over the time-series, although with considerable variability among individual countries (Figure 10.2.4).

The contribution of escaped farmed salmon in catches in the NEAC area in 2013 was again generally low in most countries, with the exception of Norway, Iceland, and Sweden, and similar to the values that have been reported in previous years. The estimated proportion of farmed salmon in Norwegian angling catches was the lowest on record (3.5%), whereas the proportion in samples taken from Norwegian rivers in the autumn was higher than in most recent years (21%). The number of salmon provisionally reported to have escaped from Norwegian farms in 2013 was 198 000, up from the previous year (38 000).

ICES reviewed the information on bycatch of Atlantic salmon in pelagic fisheries, primarily for mackerel, and concluded that estimates of total salmon bycatch were highly uncertain. ICES identified a number of tasks that could be undertaken to provide more reliable estimates and recommended that further investigations would be informative (see Section 10.1.11).

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 limited knowledge on the magnitude of any such effects.

Quality considerations

Uncertainties in input variables to the stock status and stock forecast models are incorporated in the assessment. Provisional catch data for 2012 were updated, where appropriate, and the assessment extended to include data for 2013.

Recommendations in relation to data collection for assessment needs for Atlantic salmon were provided in the report of the ICES Workshop on Eel and Salmon Data Collection Framework WKESDCF (ICES, 2012c) and discussions have continued with the European Commission in relation to future monitoring requirements.

Scientific basis

Assessment type	Run–reconstruction models and Bayesian forecasts, taking into account uncertainties in data and process error. Results presented in a risk analysis framework.
Input data	Nominal catches (by sea-age class) for commercial and recreational fisheries. Estimates of unreported/illegal catches. Estimates of exploitation rates. Natural mortalities (from earlier assessments).
Discards and bycatch	Discards included in risk-based framework for Faroes fishery. Not relevant for other NEAC assessments.
Indicators	Framework of Indicators (FWI) is used to indicate if a significant change has occurred in the status of stocks in intermediate years where multi-annual management advice applies.
Other information	Advice subject to annual review. Stock annex developed in 2014.
Working group report	Working Group on North Atlantic Salmon WGNAS (ICES, 2014).

10.2.1 **Supporting information May 2014**

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

Reference points

National run–reconstruction models have been used to develop and update national CLs for all countries that do not have river-specific values (i.e. all countries except France, Ireland, UK (England and 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	155 581	196 550
	MSW	129 820	221 222
Southern NEAC	1SW	561 771	708 823
	MSW	275 348	462 347

Outlook for 2014

No outlook is provided because the Framework of Indicators of Northeast Atlantic stocks did not indicate the need for a reassessment this year.

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 $B_{escapement}$).

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. Furthermore, due to the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats to stock status.

Additional considerations

The national stock CLs are not appropriate for the management of homewater fisheries. 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 can be used to provide general management advice to the distant-water fisheries.

Fisheries on mixed stocks pose particular difficulties for management, when 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.

There has been an overall declining trend in marine survival rates of wild and hatchery-reared smolts in northern and southern NEAC areas, particularly for maturing 1SW salmon (Figure 10.2.5). Five-year average return rates for individual river stocks (not shown in the figure) are also mostly below the average of the previous five years for the majority of monitored hatchery-reared and wild populations in the NEAC area. 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.

Data and methods

Input data to estimate the historical PFAs are the catch in numbers of 1SW and MSW salmon in each country, unreported catch (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 10.2.2 and 10.2.3.

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 returns to each country.

Comparison with previous assessment and catch options

The NASCO Framework of Indicators of Northeast Atlantic stocks did not indicate the need for a revised analysis of catch options this year and, therefore, no new management advice for 2014 is provided. The assessment was updated to include data up to 2013 and the stock status was consistent with the previous year's assessment.

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 exploitation rates 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 (2012a) developed a risk framework for providing catch advice for the Faroes fishery at the age and country level for northern and southern NEAC, as well as at the stock complex level. This risk framework has not been formally adopted by NASCO.

ICES (2010, 2011, 2012b) previously emphasized the problem of basing a risk assessment and catch advice for the Faroes fishery on management units comprising large numbers of river stocks. In providing catch advice at the age and stock complex or country levels for northern and southern NEAC areas, 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 river-specific CLs are in the process of being developed.

Sources of information

ICES. 2005. Report of the Working Group on North Atlantic Salmon. Nuuk, Greenland, 4–14 April 2005. ICES CM 2005/ACFM:17. 290 pp.

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.

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ICES. 2012b. ICES Advice 2012, Book 10. 99 pp.

ICES. 2012c. Report of the Workshop on Eel and Salmon DCF Data (WKESDCF). ICES Headquarters, Copenhagen, 3–6 July 2012. ICES CM 2012/ACOM:62. 67 pp.

ICES. 2013a. Atlantic salmon from the Northeast Atlantic. *In* Report of the ICES Advisory Committee, 2013. ICES Advice 2013, Book 10, Section 10.2.

ICES. 2013b. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 3–12 April 2013. ICES CM 2013/ACOM:09.

ICES. 2014. Report of the Working Group on North Atlantic Salmon. ICES Headquarters, Copenhagen, 19–28 March 2014. ICES CM 2014/ACOM:09.

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.

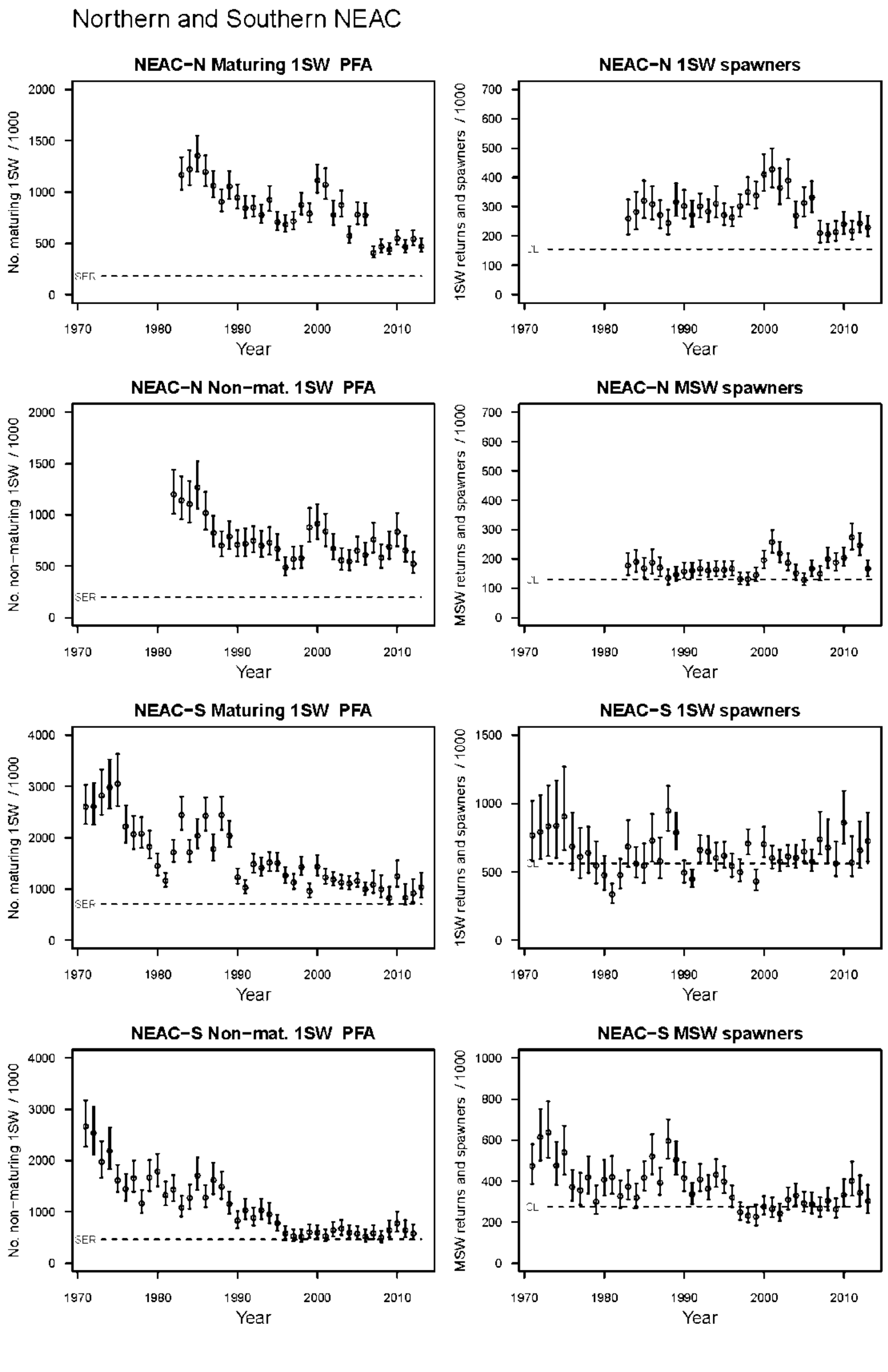


Figure 10.2.1 Estimated PFA (**recruits;** left panels) and spawner escapement (right panels) with 90% confidence limits, for maturing 1SW (1SW spawners) and non-maturing 1SW (MSW spawners) salmon in the northern (NEAC-N) and southern (NEAC-S) NEAC stock complexes. The dashed horizontal lines in the left panels are the age-specific SER values, and in the right panels the age-specific CL values.

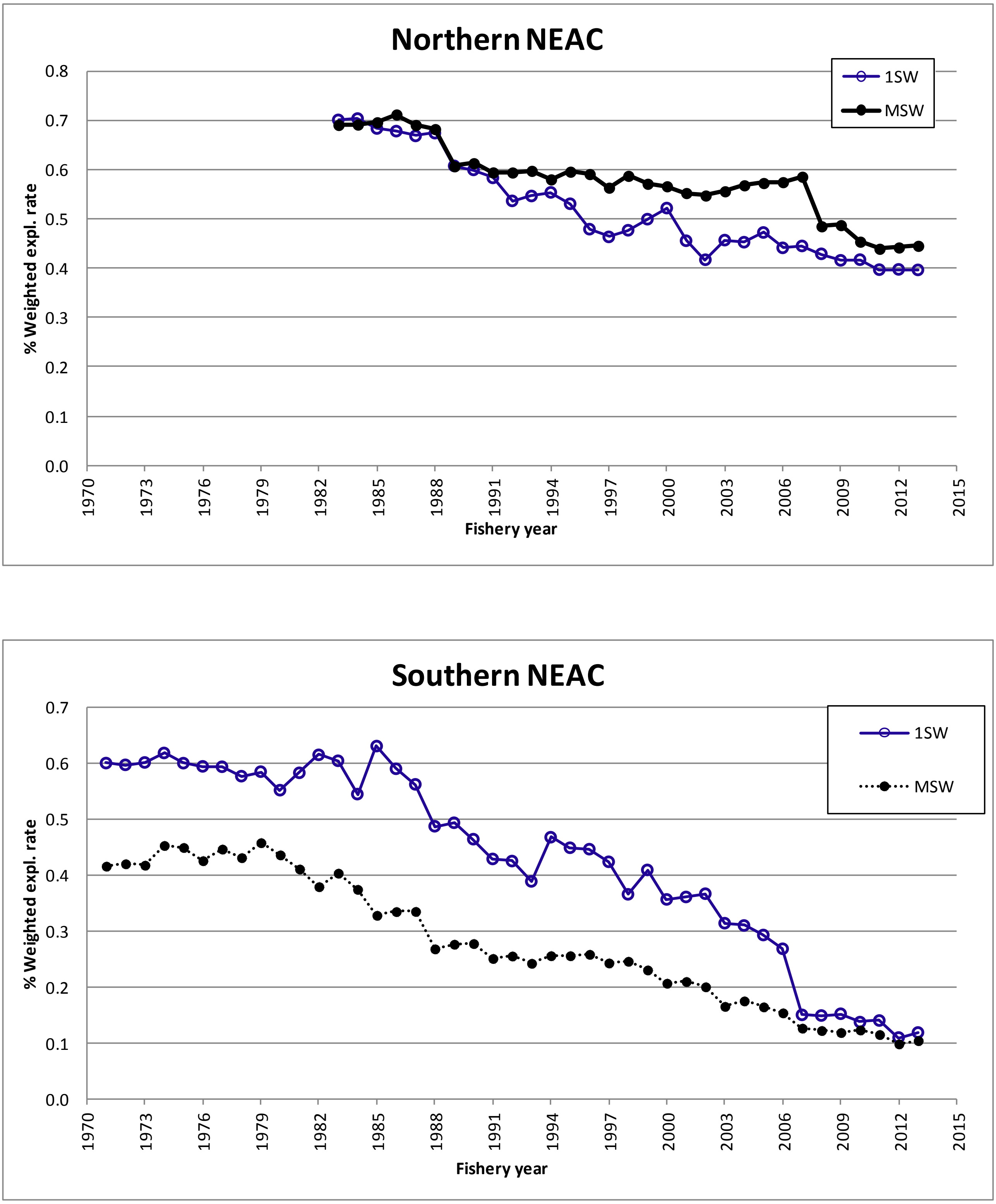


Figure 10.2.2 Mean annual exploitation rate of wild 1SW and MSW salmon by combined commercial and recreational fisheries in the northern NEAC area (upper panel), from 1983 to 2013, and the southern NEAC area (lower panel), from 1971 to 2013.

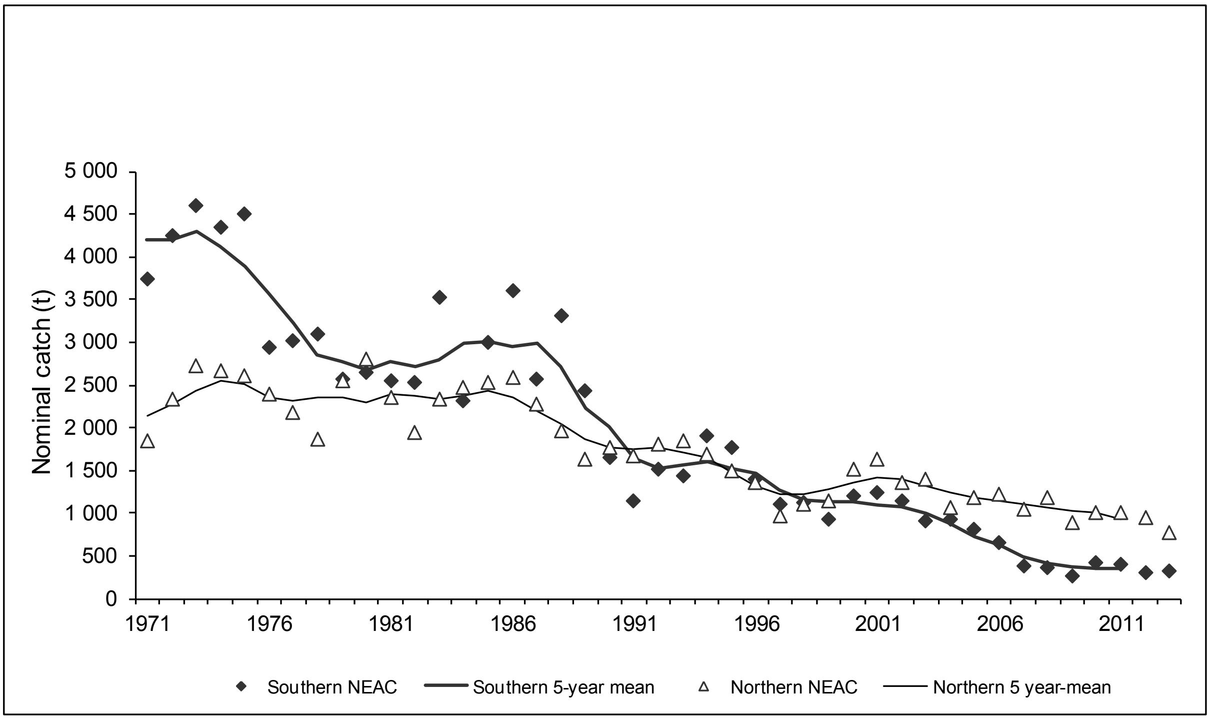
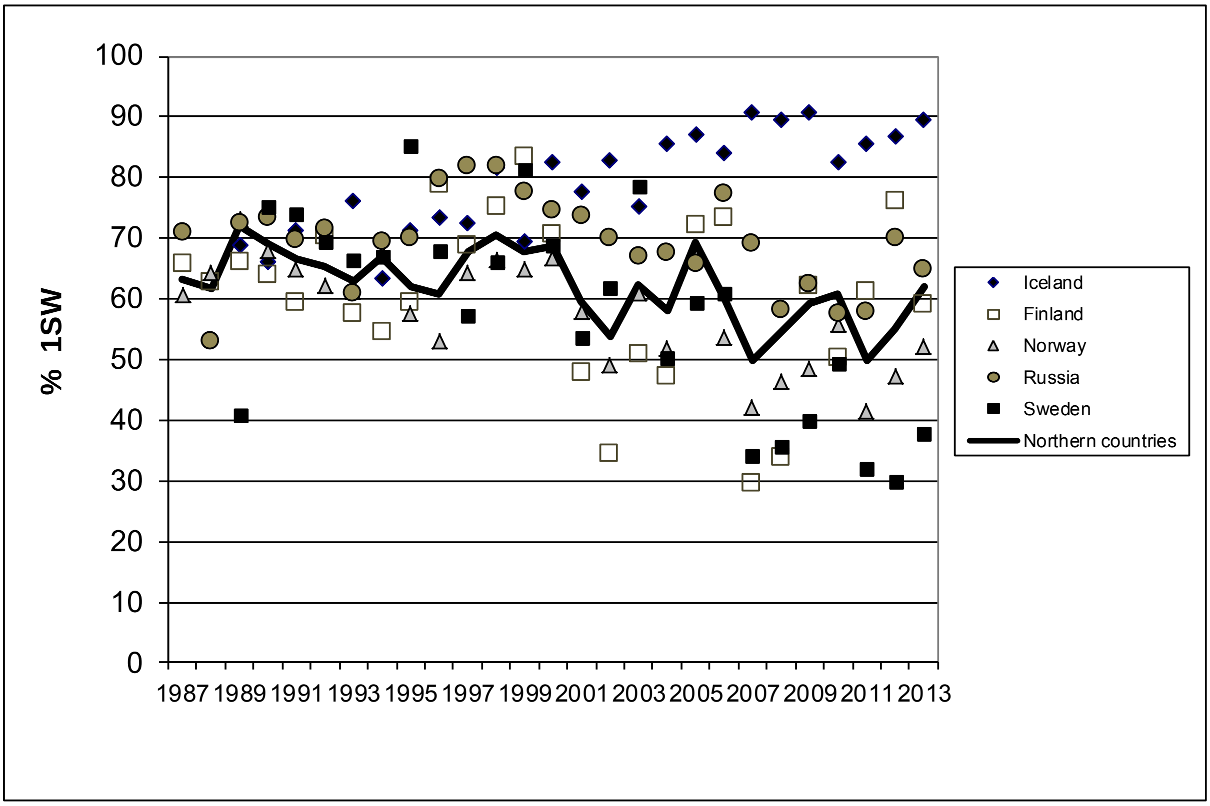


Figure 10.2.3 Nominal catch of salmon and 5-year running means in the southern NEAC and northern NEAC areas, from 1971 to 2013.



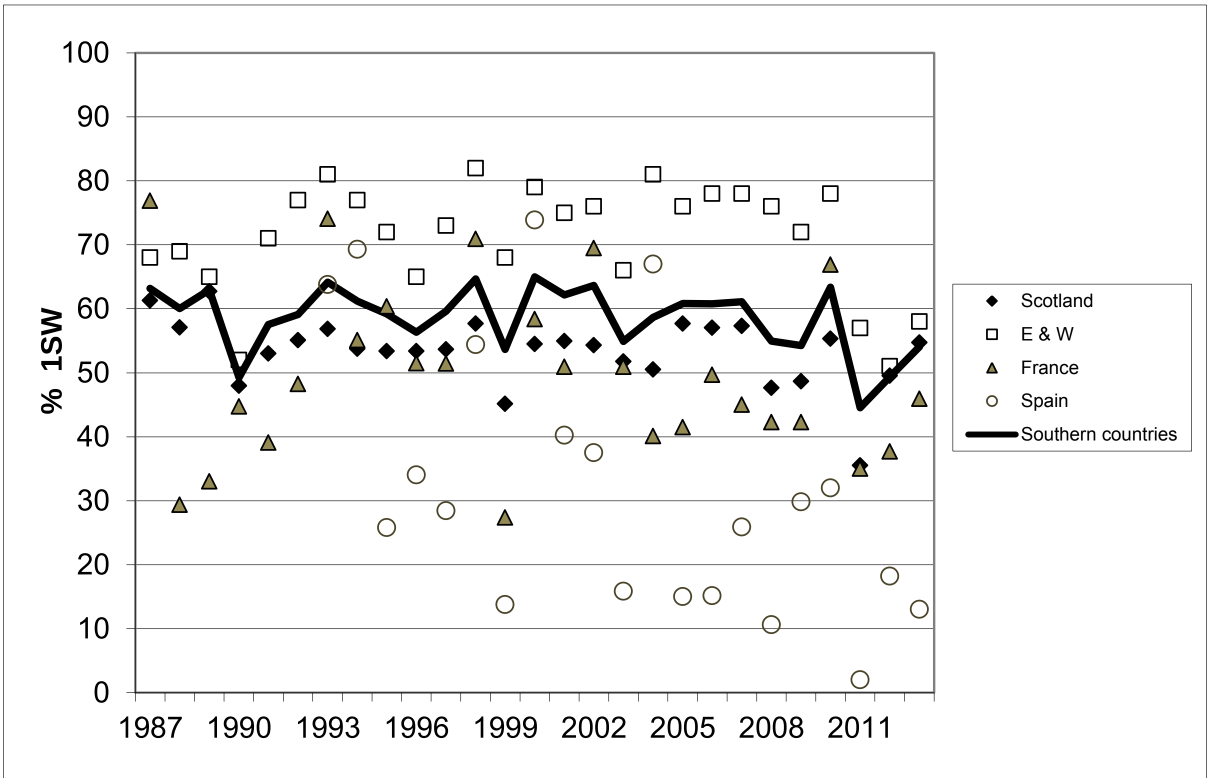


Figure 10.2.4 Percentage of 1SW salmon in the reported catch for northern NEAC countries (upper panel) and southern NEAC countries (lower panel), from 1987 to 2013. Solid line denotes mean value from catches in all countries within the complex.

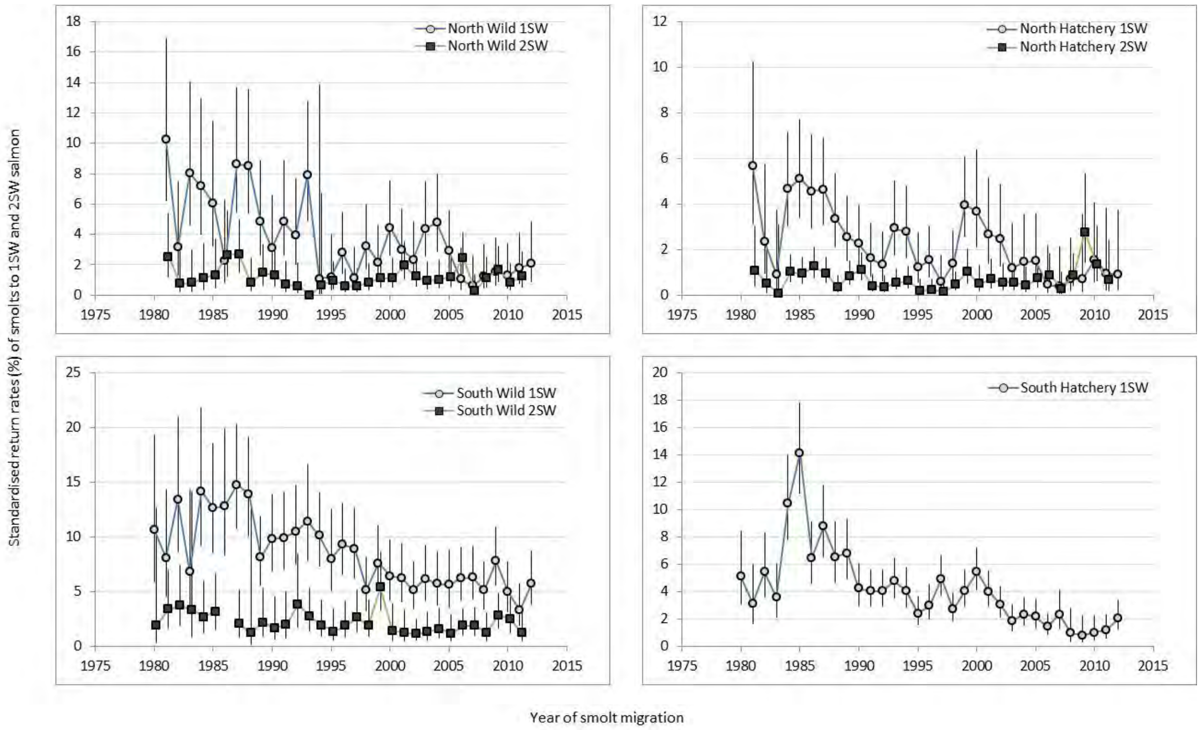


Figure 10.2.5 Standardized mean annual survival indices (%) of wild (left panels) and hatchery origin (right panels) smolts to 1SW and 2SW salmon to northern (top panels) and southern (bottom panels) NEAC areas. The standardized values are annual means derived from a general linear model analysis of rivers in a region. Error values are 95% confidence limits. Note that the scale of the vertical axis differs among panels.

Table 10.2.1 Nominal catch of salmon in the NEAC area (in tonnes, round fresh weight), from 1960 to 2013 (2013 figures are provisional).

Year	Southern countries	Northern countries (1)	Faroes (2)	Other catches in international waters	Total Reported Catch	Unreported catches	
						NEAC Area (3)	International waters (4)
1960	2 641	2 899	-	-	5 540	-	-
1961	2 276	2 477	-	-	4 753	-	-
1962	3 894	2 815	-	-	6 709	-	-
1963	3 842	2 434	-	-	6 276	-	-
1964	4 242	2 908	-	-	7 150	-	-
1965	3 693	2 763	-	-	6 456	-	-
1966	3 549	2 503	-	-	6 052	-	-
1967	4 492	3 034	-	-	7 526	-	-
1968	3 623	2 523	5	403	6 554	-	-
1969	4 383	1 898	7	893	7 181	-	-
1970	4 048	1 834	12	922	6 816	-	-
1971	3 736	1 846	-	471	6 053	-	-
1972	4 257	2 340	9	486	7 092	-	-
1973	4 604	2 727	28	533	7 892	-	-
1974	4 352	2 675	20	373	7 420	-	-
1975	4 500	2 616	28	475	7 619	-	-
1976	2 931	2 383	40	289	5 643	-	-
1977	3 025	2 184	40	192	5 441	-	-
1978	3 102	1 864	37	138	5 141	-	-
1979	2 572	2 549	119	193	5 433	-	-
1980	2 640	2 794	536	277	6 247	-	-
1981	2 557	2 352	1 025	313	6 247	-	-
1982	2 533	1 938	606	437	5 514	-	-
1983	3 532	2 341	678	466	7 017	-	-
1984	2 308	2 461	628	101	5 498	-	-
1985	3 002	2 531	566	-	6 099	-	-
1986	3 595	2 588	530	-	6 713	-	-
1987	2 564	2 266	576	-	5 406	2 554	-
1988	3 315	1 969	243	-	5 527	3 087	-
1989	2 433	1 627	364	-	4 424	2 103	-
1990	1 645	1 775	315	-	3 735	1 779	180-350
1991	1 145	1 677	95	-	2 917	1 555	25-100
1992	1 523	1 806	23	-	3 352	1 825	25-100
1993	1 443	1 853	23	-	3 319	1 471	25-100
1994	1 896	1 684	6	-	3 586	1 157	25-100
1995	1 775	1 503	5	-	3 283	942	-
1996	1 392	1 358	-	-	2 750	947	-
1997	1 112	962	-	-	2 074	732	-
1998	1 120	1 099	6	`	2 225	1 108	-
1999	934	1 139	0	-	2 073	887	-
2000	1 210	1 518	8	-	2 736	1 135	-
2001	1 242	1 634	0	-	2 876	1 089	-
2002	1 135	1 360	0	-	2 495	946	-
2003	908	1 394	0	-	2 302	719	-
2004	919	1 059	0	-	1 978	575	-
2005	809	1 189	0	-	1 998	605	-
2006	650	1 217	0	-	1 867	604	-
2007	373	1 036	0	-	1 409	465	-
2008	355	1 178	0	-	1 533	433	-
2009	265	898	0	-	1 163	317	-
2010	411	1 003	0	-	1 415	357	-
2011	410	1 009	0	-	1 419	382	-
2012	296	955	0	-	1 250	363	-
2013	329	778	0	-	1 107	272	-
Average							
2008-2012	347	1009	0	-	1356	370	-
2003-2012	540	1094	0	-	1633	482	-

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

Table 10.2.2 Estimated pre-fishery abundance (PFA) of maturing 1SW salmon (potential 1SW returns) by NEAC country or region and year.

	Northern Europe								Southern Europe									NEAC Area		
Year	Finland	Iceland	Norway	Russia	Sweden	Total			France	Iceland	Ireland	UK(EW)	UK(NI)	UK(Scot)	Total			Total		
		N&E				5.0%	50.0%	95.0%		S&W					5.0%	50.0%	95.0%	5.0%	50.0%	95.0%
1971	32,074	11,735		NA	22,321				63,331	76,233	1,345,148	105,231	221,904	782,559	2,263,292	**2,610,195**	3,032,226			
1972	123,528	10,720		151,281	17,727				127,354	61,978	1,428,796	101,014	194,318	683,714	2,255,414	**2,616,311**	3,064,007			
1973	57,652	12,866		222,746	21,886				77,568	66,128	1,562,053	119,345	169,888	818,907	2,442,628	**2,831,594**	3,330,607			
1974	79,736	12,856		222,520	31,746				35,986	47,278	1,775,894	149,416	185,863	780,467	2,567,779	**2,989,715**	3,528,552			
1975	95,040	15,686		341,098	34,377				72,191	73,188	1,956,894	153,131	152,812	636,840	2,616,451	**3,059,188**	3,631,857			
1976	86,950	15,741		237,309	19,460				66,277	57,875	1,329,232	102,549	106,177	549,019	1,906,685	**2,224,559**	2,629,032			
1977	48,979	21,735		151,187	8,824				51,178	59,224	1,154,550	116,348	104,554	570,889	1,781,030	**2,066,454**	2,419,114			
1978	46,611	22,145		152,731	10,456				52,274	77,910	1,006,582	132,930	136,153	654,808	1,807,117	**2,073,587**	2,406,392			
1979	42,156	21,268		211,832	10,810				59,401	71,761	924,438	127,316	95,573	539,870	1,593,431	**1,829,694**	2,136,277			
1980	33,637	3,413		151,690	13,897				124,424	32,852	706,378	119,541	121,066	338,416	1,269,988	**1,457,752**	1,691,296			
1981	30,997	16,906		127,411	25,516				99,707	42,766	374,799	125,760	95,715	418,810	1,042,885	**1,168,340**	1,313,254			
1982	18,692	7,951		111,257	22,407				61,258	43,602	770,477	106,729	137,390	598,236	1,535,138	**1,728,485**	1,955,221			
1983	44,194	11,548	896,493	184,824	29,678	1,022,387	**1,169,737**	1,341,314	66,263	54,839	1,357,134	156,160	192,545	610,534	2,153,231	**2,450,179**	2,806,028	3,244,186	**3,625,483**	4,058,432
1984	47,330	4,207	930,150	196,552	41,409	1,067,404	**1,223,646**	1,407,435	106,923	33,717	713,003	136,400	75,576	643,726	1,526,826	**1,723,967**	1,953,993	2,655,244	**2,949,234**	3,282,662
1985	62,112	28,161	944,112	269,277	49,426	1,198,252	**1,358,234**	1,549,133	40,138	54,223	1,178,557	136,982	97,948	530,719	1,792,928	**2,048,372**	2,365,207	3,060,340	**3,413,537**	3,820,069
1986	50,025	35,134	825,671	231,964	51,545	1,057,858	**1,200,472**	1,356,827	62,185	89,701	1,321,020	157,698	110,586	661,153	2,120,986	**2,424,991**	2,784,572	3,246,287	**3,628,740**	4,064,033
1987	59,510	20,700	693,619	246,589	40,974	946,398	**1,065,725**	1,205,507	108,425	55,659	851,369	163,673	60,474	508,562	1,543,135	**1,778,834**	2,071,768	2,549,416	**2,846,731**	3,208,446
1988	35,351	29,879	637,443	170,243	34,406	809,412	**909,951**	1,028,295	37,520	99,563	1,153,687	224,742	141,798	770,115	2,153,188	**2,449,040**	2,805,836	3,014,290	**3,363,834**	3,770,403
1989	76,262	16,169	699,839	252,420	10,203	936,303	**1,058,060**	1,204,688	20,701	55,716	828,573	151,812	136,123	846,297	1,820,552	**2,052,974**	2,326,406	2,811,115	**3,117,562**	3,458,891
1990	76,143	12,025	628,244	208,522	23,341	841,507	**950,255**	1,072,818	34,339	50,970	518,753	108,172	112,665	404,950	1,103,905	**1,243,700**	1,409,112	1,987,214	**2,197,350**	2,429,927
1991	74,711	17,420	546,214	178,127	29,395	750,052	**849,451**	963,677	24,714	56,372	370,913	107,228	62,900	401,883	922,518	**1,034,694**	1,167,185	1,710,420	**1,886,798**	2,084,748
1992	105,298	32,812	459,820	219,173	32,281	761,254	**853,173**	960,271	45,514	64,685	534,215	111,977	127,002	585,575	1,321,912	**1,488,470**	1,684,229	2,120,919	**2,343,346**	2,598,039
1993	70,791	26,933	462,197	188,263	32,227	699,304	**783,880**	879,478	64,661	63,426	436,514	154,821	148,910	525,591	1,260,399	**1,416,509**	1,604,682	1,995,643	**2,201,902**	2,439,315
1994	39,415	8,631	625,625	223,124	24,959	814,332	**926,548**	1,060,820	51,119	52,098	558,215	172,710	102,288	560,470	1,346,558	**1,518,527**	1,717,843	2,213,188	**2,446,242**	2,712,895
1995	39,432	24,793	407,879	200,626	36,569	637,721	**712,734**	801,404	16,998	70,644	624,899	131,469	95,159	551,717	1,333,637	**1,502,092**	1,703,019	2,003,445	**2,217,560**	2,460,703
1996	66,696	13,214	311,183	271,994	21,729	613,502	**687,806**	774,566	21,111	60,818	581,365	97,987	98,274	395,047	1,116,684	**1,264,365**	1,438,168	1,765,443	**1,954,188**	2,171,214
1997	60,336	18,057	358,619	266,999	9,846	637,740	**718,084**	810,622	10,767	44,568	578,929	87,990	116,295	283,783	991,817	**1,130,185**	1,297,438	1,665,879	**1,850,610**	2,066,146
1998	75,965	30,786	467,769	293,457	7,931	781,834	**881,160**	993,318	21,060	61,095	609,056	96,121	253,544	386,518	1,277,568	**1,440,283**	1,628,251	2,101,193	**2,322,617**	2,572,721
1999	101,649	15,628	434,052	225,467	12,553	706,807	**793,078**	892,539	7,039	49,592	567,754	76,014	66,093	191,683	840,915	**963,730**	1,113,582	1,585,993	**1,761,092**	1,961,852
2000	110,045	16,462	716,695	247,130	22,986	993,246	**1,118,635**	1,265,894	18,215	43,870	785,774	116,084	95,819	374,027	1,266,505	**1,446,338**	1,664,964	2,310,388	**2,566,948**	2,865,555
2001	79,866	14,942	618,988	333,072	14,301	933,373	**1,071,085**	1,233,636	15,816	39,212	626,800	101,205	75,849	366,948	1,102,633	**1,236,769**	1,393,005	2,084,172	**2,310,421**	2,563,442
2002	54,190	25,923	378,142	304,312	13,707	679,451	**781,752**	915,723	35,639	49,050	548,027	95,350	149,939	295,526	1,061,668	**1,187,449**	1,334,651	1,782,749	**1,973,877**	2,195,497
2003	53,800	13,744	523,212	269,995	7,485	761,325	**875,556**	1,014,634	23,356	58,553	536,323	73,865	97,879	335,296	1,016,119	**1,139,555**	1,282,982	1,819,161	**2,017,792**	2,244,049
2004	22,698	37,184	317,531	189,241	6,265	505,430	**577,515**	666,293	28,317	58,827	395,624	133,598	87,546	398,064	996,787	**1,120,604**	1,264,599	1,533,897	**1,700,274**	1,887,282
2005	49,959	32,943	470,778	216,437	6,131	688,705	**782,552**	898,129	18,505	86,637	393,164	109,373	111,076	432,607	1,042,957	**1,166,547**	1,308,460	1,769,192	**1,951,798**	2,164,306
2006	87,511	34,784	381,524	260,839	6,828	680,484	**777,662**	895,792	25,952	61,375	301,642	106,792	71,092	419,113	890,925	**1,001,657**	1,137,679	1,608,262	**1,785,278**	1,985,209
2007	25,539	25,757	213,532	140,828	2,118	359,057	**410,177**	473,241	20,160	70,121	343,073	101,703	115,356	411,495	928,986	**1,091,785**	1,358,502	1,317,924	**1,507,604**	1,782,981
2008	27,537	23,556	267,363	146,077	3,303	412,146	**471,500**	541,299	19,923	84,843	340,529	100,218	68,920	354,379	841,458	**1,001,687**	1,267,654	1,290,553	**1,480,203**	1,758,283
2009	48,645	37,971	213,824	137,107	3,498	391,162	**444,185**	506,281	7,088	95,833	282,951	63,073	52,543	302,986	695,557	**829,844**	1,042,210	1,118,674	**1,278,051**	1,504,308
2010	39,362	30,422	316,608	156,670	5,976	486,662	**552,705**	628,763	24,387	98,503	357,527	124,767	48,109	552,776	1,042,633	**1,255,400**	1,561,340	1,569,278	**1,811,077**	2,133,934
2011	44,508	24,986	223,470	167,141	5,106	410,279	**467,781**	535,390	17,020	69,493	314,270	72,871	41,801	295,993	695,753	**838,483**	1,092,132	1,140,705	**1,312,810**	1,577,845
2012	76,941	13,089	248,568	195,257	7,216	479,637	**546,612**	626,843	14,631	39,402	320,185	44,871	63,232	394,460	742,840	**924,002**	1,197,017	1,263,841	**1,475,242**	1,766,643
2013	44,493	36,170	233,981	151,858	4,144	416,672	**475,480**	549,277	20,673	91,775	298,881	56,245	46,858	471,255	836,320	**1,040,599**	1,313,309	1,291,359	**1,519,800**	1,810,767
10yr Av.	46,719	29,686	288,718	176,145	5,059	483,023	**550,617**	632,131	19,666	75,681	334,785	91,351	70,653	403,313	871,422	**1,027,061**	1,254,290	1,390,369	**1,582,214**	1,837,156

	Northern Europe								Southern Europe									NEAC Area		
Year	**Finland**	**Iceland**	**Norway**	**Russia**	**Sweden**	**Total**			**France**	**Iceland**	**Ireland**	**UK(EW)**	**UK(NI)**	**UK(Scot)**	**Total**			**Total**		
		N&E				5.0%	50.0%	95.0%		**S&W**					5.0%	50.0%	95.0%	5.0%	50.0%	95.0%
1971	52,462	28,471		268,996	5,689				56,319	66,084	394,140	368,775	34,351	1,743,860	2,273,240	**2,672,992**	3,170,521			
1972	79,456	26,908		431,948	8,436				36,821	59,602	387,869	278,078	30,707	1,737,269	2,128,562	**2,541,517**	3,049,789			
1973	125,860	24,989		399,600	5,754				21,488	51,386	409,247	207,150	32,458	1,251,038	1,664,744	**1,982,272**	2,375,330			
1974	160,608	27,852		433,313	4,584				31,562	54,599	448,220	259,231	27,572	1,356,569	1,836,071	**2,190,324**	2,645,600			
1975	125,094	22,679		369,349	5,308				28,547	47,097	342,119	178,828	19,007	1,000,092	1,386,435	**1,621,047**	1,914,244			
1976	86,392	30,586		254,230	2,945				18,964	45,605	274,946	171,818	18,284	912,503	1,217,414	**1,451,483**	1,736,908			
1977	45,458	38,924		219,382	3,086				21,372	58,746	253,761	163,404	23,261	1,134,320	1,393,914	**1,659,812**	1,999,738			
1978	47,158	26,460		200,637	5,034				18,579	37,996	210,155	82,286	17,196	804,618	977,500	**1,175,425**	1,430,168			
1979	55,453	38,144		351,297	10,715				36,725	54,282	249,357	225,420	23,772	1,075,048	1,407,923	**1,676,175**	2,008,349			
1980	71,209	17,284		246,836	9,085				28,252	38,161	202,556	301,473	21,858	1,182,416	1,499,643	**1,783,588**	2,132,425			
1981	85,524	18,747		221,125	13,240				19,601	27,581	133,568	140,961	28,337	978,862	1,124,675	**1,333,147**	1,588,600			
1982	88,288	14,357	812,705	274,489	9,580	1,010,339	**1,203,436**	1,439,918	19,261	43,514	215,636	147,167	36,201	980,605	1,219,169	**1,448,005**	1,730,907	2,260,693	**2,652,248**	3,129,621
1983	70,572	16,126	793,213	253,815	8,984	958,278	**1,145,101**	1,376,093	24,223	36,382	147,264	107,342	15,312	752,742	910,535	**1,090,063**	1,309,640	1,893,875	**2,237,738**	2,644,758
1984	68,807	11,364	740,653	279,853	5,749	927,010	**1,109,217**	1,329,815	18,683	26,864	157,211	146,983	19,220	890,029	1,051,940	**1,267,116**	1,528,900	2,011,988	**2,376,639**	2,820,457
1985	61,210	27,292	890,168	284,308	5,834	1,063,155	**1,270,907**	1,522,972	22,960	23,017	198,632	217,503	21,873	1,219,740	1,425,745	**1,711,353**	2,062,595	2,530,224	**2,987,338**	3,538,070
1986	75,327	27,958	687,158	219,256	9,078	855,673	**1,022,289**	1,223,320	13,863	20,543	227,444	172,960	12,726	831,224	1,078,623	**1,284,407**	1,540,025	1,962,676	**2,307,951**	2,727,311
1987	50,512	17,681	550,709	199,439	7,437	693,243	**829,106**	990,653	28,442	22,283	168,811	212,320	27,874	1,153,677	1,346,457	**1,623,852**	1,956,772	2,069,902	**2,453,552**	2,910,615
1988	51,003	15,543	415,761	199,823	20,520	593,986	**705,468**	840,713	17,452	20,219	167,842	186,971	22,974	1,072,638	1,259,531	**1,493,674**	1,791,961	1,870,243	**2,199,948**	2,608,613
1989	53,532	15,862	469,797	243,145	11,240	666,016	**795,457**	952,467	13,484	19,752	76,756	196,750	20,525	821,857	957,879	**1,155,922**	1,396,486	1,647,804	**1,952,895**	2,322,202
1990	67,498	10,838	386,836	231,015	13,567	595,575	**712,309**	852,056	11,363	19,349	100,484	87,272	10,691	603,537	689,561	**836,390**	1,015,820	1,302,775	**1,550,415**	1,844,582
1991	64,061	15,442	410,713	214,358	17,921	603,852	**724,529**	869,922	15,125	21,518	84,846	74,490	22,682	809,734	856,259	**1,031,608**	1,257,221	1,484,085	**1,756,844**	2,099,135
1992	66,649	17,362	392,217	252,688	20,051	630,587	**750,547**	900,335	7,507	10,660	79,098	76,469	52,788	656,358	732,190	**889,031**	1,080,139	1,382,457	**1,640,663**	1,954,080
1993	62,970	14,730	383,270	226,162	15,389	588,708	**704,736**	845,700	13,017	17,134	114,357	98,052	18,884	758,284	842,296	**1,024,119**	1,258,065	1,450,371	**1,730,738**	2,075,127
1994	42,217	10,442	412,548	257,421	8,011	612,941	**732,198**	879,733	6,405	19,317	110,804	98,411	16,208	703,344	787,352	**960,389**	1,181,157	1,420,704	**1,694,290**	2,031,675
1995	43,048	13,480	410,925	194,442	12,561	566,713	**677,298**	812,792	11,363	12,467	76,253	101,637	17,656	547,898	634,815	**771,889**	945,857	1,222,187	**1,452,077**	1,734,737
1996	49,927	7,402	265,517	154,751	8,708	407,145	**488,220**	588,545	5,928	13,797	96,062	63,587	21,379	370,927	472,688	**580,164**	716,861	894,927	**1,068,905**	1,283,575
1997	47,929	10,807	318,729	191,727	4,854	480,069	**575,405**	692,103	4,925	8,536	55,617	41,355	29,341	388,756	435,789	**532,675**	654,836	931,748	**1,110,559**	1,327,110
1998	50,860	12,351	339,793	168,424	3,441	478,514	**576,689**	695,996	10,320	16,645	85,505	80,205	13,368	297,719	414,110	**519,036**	656,279	912,547	**1,098,022**	1,324,045
1999	96,989	7,267	470,781	294,620	12,227	737,533	**882,026**	1,065,749	7,187	4,536	107,092	83,380	17,852	380,459	495,666	**608,282**	754,079	1,256,789	**1,491,425**	1,791,965
2000	129,108	8,314	555,704	207,203	14,539	763,589	**916,778**	1,101,738	8,712	7,941	97,771	92,332	13,101	372,602	487,074	**601,110**	744,400	1,275,585	**1,518,523**	1,819,458
2001	113,394	7,879	481,499	225,356	9,945	699,734	**839,495**	1,011,031	7,847	8,621	110,787	82,094	15,502	299,890	434,185	**535,015**	659,828	1,154,808	**1,376,807**	1,642,221
2002	81,553	8,258	426,059	158,132	2,390	564,352	**678,181**	815,297	11,292	13,751	116,503	104,631	10,132	372,993	517,614	**641,592**	795,898	1,103,258	**1,321,140**	1,582,890
2003	36,944	8,143	385,369	121,470	7,316	465,470	**560,371**	678,446	20,834	11,137	63,908	88,000	9,065	476,803	549,373	**679,480**	845,541	1,036,427	**1,242,164**	1,497,028
2004	30,716	10,081	354,923	145,203	4,907	455,002	**547,646**	658,891	12,788	9,813	82,700	96,780	11,480	376,109	486,712	**599,585**	743,964	959,220	**1,147,191**	1,378,821
2005	48,546	9,677	449,819	139,379	5,129	545,357	**653,899**	787,595	12,932	8,131	60,310	87,773	7,354	389,837	463,180	**579,288**	722,664	1,030,918	**1,234,578**	1,482,118
2006	69,928	9,294	382,642	145,516	4,815	513,110	**614,359**	737,372	12,249	5,004	27,389	84,018	10,114	375,747	418,284	**523,832**	658,256	951,789	**1,137,844**	1,369,187
2007	70,900	11,979	441,733	229,520	6,794	632,212	**762,463**	923,669	13,518	5,739	40,608	92,517	6,126	421,929	471,352	**590,560**	742,293	1,129,652	**1,356,388**	1,631,164
2008	30,309	9,648	345,457	194,053	5,934	485,379	**587,219**	711,838	7,084	8,873	45,766	71,471	7,995	356,911	403,778	**505,667**	636,350	910,456	**1,094,136**	1,319,153
2009	48,708	13,718	380,737	239,970	6,891	572,488	**692,428**	840,421	5,982	18,366	29,457	103,948	7,365	471,676	512,819	**648,560**	832,118	1,115,928	**1,342,939**	1,634,115
2010	37,585	15,238	531,287	239,642	12,982	692,465	**838,509**	1,018,899	15,544	9,323	34,234	154,179	19,161	534,564	612,884	**782,689**	1,002,388	1,342,607	**1,625,956**	1,971,524
2011	45,218	8,606	464,146	117,101	18,514	541,114	**656,797**	794,919	12,070	5,313	35,928	126,547	28,432	418,192	504,107	**646,865**	838,921	1,076,305	**1,306,347**	1,592,173
2012	43,521	10,328	328,574	134,338	7,855	434,998	**526,728**	638,533	12,068	11,314	36,422	113,370	13,346	382,009	454,236	**583,605**	759,457	913,835	**1,113,217**	1,364,639
10yr Av.	46,238	10,671	406,469	170,619	8,114	533,760	**644,042**	779,058	12,507	9,301	45,672	101,860	12,044	420,378	487,672	**614,013**	778,195	1,046,714	**1,260,076**	1,523,992

Table 10.2.3 Estimated pre-fishery abundance (PFA) of non-maturing 1SW salmon (potential MSW returns) by NEAC country or region and year.

ECOREGION **North Atlantic**
STOCK **Atlantic salmon from North America**

Advice for 2014

Because the NASCO Framework of Indicators of North American stocks for 2013 (run in January 2014) did not indicate the need for a revised analysis of catch options, no new management advice for 2014 is provided. The most recent multi-year advice for the North American Commission was provided by ICES (2012). In that assessment, no mixed-stock fishery catch options for 2012 to 2015 on 1SW non-maturing and 2SW salmon in North America were consistent with the management objectives defined for this stock complex. Management advice in the form of catch options is only provided by ICES for the non-maturing 1SW and maturing 2SW components, as the maturing 1SW component is not fished outside of homewaters.

While stocks remain in a depleted state particular care should be taken to ensure that fisheries in homewaters are managed to protect stocks that are below their CLs.

Stock status

The regional groupings of stock units used for management in North America is indicated in Figure 10.3.1. Estimates of pre-fishery abundance (PFA, defined as the number of maturing and non-maturing 1SW salmon on 1 August of the second summer at sea) suggest continued low abundance of North American adult salmon (Figure 10.3.2). The estimated PFA of 1SW maturing salmon in 2013 ranks 30th in the 43-year time-series, and the estimated PFA of 1SW non-maturing salmon in 2012 (the latest available PFA year) ranks 26th in the 42-year time-series. Egg depositions by all sea ages combined in 2013 exceeded or equalled the river-specific CLs in 44 of the 73 assessed rivers (60%) and were less than 50% of CLs in 16 rivers (22%) (Figure 10.3.3). In 2013, 2SW spawner estimates for five of the six geographic areas were below their CLs and are suffering reduced reproductive capacity (Figure 10.3.4). In 2013, the median estimate of 2SW spawners in Labrador exceeded the CL for the first time in the assessment time-series beginning in 1971. Despite this improvement, the stock is assessed to be at risk of suffering reduced reproductive capacity (Figure 10.3.4). Particularly large deficits are noted in Scotia–Fundy and USA. Exploitation rates on the North American complexes of small salmon (mostly 1SW maturing) and large salmon (all other sea age groups) have declined and in the last few years have been at the lowest in the time-series, averaging 10% for large salmon and 15% for small salmon over the past ten years (Figure 10.3.6).

Despite major changes in fisheries management around 20 to 30 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, 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% for simultaneous attainment of management objectives in all regional groupings (Figure 10.3.1) 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 current management objectives are attaining the 2SW CLs in the four northern areas (Labrador, Newfoundland, Québec, and Gulf), and achieving a 25% increase in regional returns relative to a baseline period (average returns in 1992–1996) for the two southern regions (Scotia–Fundy and USA). A revised management objective has been proposed this year in respect of the USA, which is more in line with recovery criteria under the US Endangered Species Act. This would increase the management objective for the USA from 2548 to 4549 fish. The implications of this change for the provision of catch advice at West Greenland are evaluated in Section 10.1.12.

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 (Québec, 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 take place, with adult salmon from both North American and Northeast Atlantic stocks migrating to West Greenland to feed in their second summer and autumn 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, factors such as 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 important contributory factors to lower productivity, which is expressed almost entirely in terms of lower marine survival.

The fisheries

Three groups exploit salmon in Canada: Aboriginal peoples, residents fishing for food in Labrador, and recreational fishers. The provisional reported harvest of salmon by all users in Canada in 2013 was 136 t (Table 10.3.1). The dramatic decline in harvested tonnage since 1988 (Figure 10.3.5) is in large part the result of the reductions in effort in commercial fisheries, with closure of the insular Newfoundland commercial fishery in 1992, closure of the Labrador commercial fishery in 1998, and closure of the Québec commercial fishery in 2000. All commercial fisheries for Atlantic salmon remained closed in Canada in 2013 and the catch therefore was zero. The total reported harvests were 58.6 t for the Aboriginal peoples' food fisheries, 2.1 t for residents fishing for food in Labrador, and 75.4 t (about 38 600 small and large salmon) in the recreational fisheries. In 2013, approximately 59 200 salmon (about 33 500 small and 25 700 large) were caught and released by recreational fishers, representing about 61% of the total number caught (including retained fish). France (Islands of Saint-Pierre and Miquelon) reported a total harvest of 5.3 t in the professional and recreational fisheries in 2013 (Table 10.3.1); this was the highest in the time series starting in 1983. There are no commercial or recreational fisheries for Atlantic salmon in USA (Table 10.3.1).

	Canada				St Pierre & Miquelon	USA
	Commercial	Aboriginal	Labrador resident	Recreational		
2013 catch (t)	0	58.6	2.1	75.4	5.3	0
% of NAC total	-	41	1.5	53	4	-

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 limited knowledge on the magnitude of any such effects.

Quality considerations

Uncertainties in input variables to the stock status and stock forecast models are incorporated in the assessment. Because of the 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

Assessment type	Run–reconstruction models and Bayesian forecasts, taking into account uncertainties in the data.
Input data	Nominal catches (by sea-age class) for commercial and recreational fisheries. Estimates of unreported/illegal catches. Estimates of exploitation rates. Natural mortalities (from earlier assessments).
Discards and bycatch	There are no salmon discarded in the fisheries.
Indicators	Framework of Indicators used to indicate if a significant change has occurred in the status of stocks in intermediate years where multi-annual management advice applies.
Other information	Advice subject to annual review. A stock annex was developed in 2014.
Working group report	WGNAS (ICES, 2014).

ECOREGION **North Atlantic**
STOCK **Atlantic salmon from North America**

Reference points

Conservation limits for 2SW salmon to North America currently total 152 548 fish. At present, the management objectives for Scotia–Fundy and USA are based on achieving an increase of 25% in returns of 2SW salmon from the mean return in the 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	4 022	4 022
	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	

A revised management objective has been proposed this year in respect of the USA which is more in line with recovery criteria under the US Endangered Species Act. This would increase the management objective for the USA from 2548 to 4549 fish. The implications of this change for the provision of catch advice at West Greenland are evaluated in Section 10.1.12. If accepted by NASCO, the revised management objective would be stated as: “achieve 2SW adult returns of 4549 or greater for the USA region”.

Outlook for 2014

No outlook is provided because the Framework of Indicators of North American stocks did not indicate the need for a reassessment this year.

MSY approach

Atlantic salmon has characteristics of short-lived fish stocks; mature abundance is sensitive to annual recruitment because there are only 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 to stock status.

Additional considerations

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 (over 90%) 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 various stocks in North America; there are no salmon producing rivers in SPM.

In recent years, progress has been made in determining the stock origin of the salmon caught in the estuarine and coastal fisheries at Labrador and in SPM using genetic analysis techniques and based on a North American genetic database of standardized markers. This is needed to provide the information necessary to evaluate the effect that these mixed-stock fisheries have on the contributing populations. Data on the biological characteristics and origin of the fish are important parameters in the run–reconstruction model for North America and in the development of catch advice. Genetic analysis of samples from the Labrador subsistence fisheries from 2006 to 2011 showed that 85–98% were of Labrador origin, with small percentages from most other regional groups in North America, including the USA. More recent samples are currently being processed. Sampling at SPM also provided new information on the origin of fish taken in that fishery, with stocks from various regions in Canada being exploited. Further information is provided in Section 10.1.6.8. ICES has recommended that these sampling programmes should be continued and expanded.

The returns of 2SW fish in 2013 increased from 2012 in five of the six geographic areas of North America, while 2SW returns in the USA in 2013 were 40% lower than 2012 and close to the lowest in the time-series (Figure 10.3.4). In general, the increases in 2SW returns in 2013 in the regions of Canada were modest, with values remaining close to the recent five-year mean in most areas. However, there was a particularly large increase in 2SW returns to Labrador, which were more than double the average of the previous five years and the highest in the time-series back to 1971. The uncertainty in the estimates of returns and spawners in Labrador is high. Returns of 1SW salmon in 2013 relative to 2012 increased in four areas, and decreased in two (Newfoundland and Québec). However, returns of 1SW salmon in many areas (Québec, Gulf, Scotia–Fundy, and USA) remain among the lowest in the time-series.

The rank of the estimated 1SW and 2SW returns in the 1971 to 2013 and 2004 to 2013 time-series, and the proportions of the 2SW CL achieved in 2013, for six regions in North America are shown below:

Region	Rank of 2013 returns in 1971 to 2013, (43 = Lowest)		Rank of 2013 returns in 2004 to 2013 (10 = Lowest)		Median estimate of 2SW spawners as percentage of conservation limit
	1SW	2SW	1SW	2SW	(%)
Labrador	6	1	6	1	127
Newfoundland	14	28	7	8	85
Québec	38	31	8	3	76
Gulf	42	31	9	5	80
Scotia–Fundy	42	33	9	3	12
USA	37	42	9	10	2

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 Newfoundland and Labrador regions, where returns do not include landings in commercial and food fisheries. This avoided double counting of fish because commercial catches in Newfoundland and Labrador and food fisheries in Labrador were added to the sum of regional returns to create the PFA of North American salmon. Total returns of salmon to USA rivers are the sum of trap catches and redd-based estimates.

Uncertainties in assessments and forecasts

To date, 1082 Atlantic salmon rivers have been recorded 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 73 North American rivers in 2013, 66 in Canada and 7 in USA.

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 catches, except in Québec. The reliability of recreational catch statistics could be improved in all areas of Canada.

The unreported catch for Canada is estimated at 23.9 t in 2013, mostly from illegal retention in fisheries directed at salmon. No unreported catch estimate has been provided for St Pierre and Miquelon.

Comparison with previous assessment and catch options

The NASCO Framework of Indicators of North American stocks did not indicate the need for a revised analysis of catch options this year and, therefore, no new management advice for 2014 is provided. The assessment was updated to include data up to 2013 and the stock status was consistent with the previous year's assessment.

Assessment and management area

The advice for the North America Commission is based upon the objectives agreed by NASCO for the 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.

ICES. 2012. Atlantic salmon from North America. *In* Report of the ICES Advisory Committee, 2012. ICES Advice 2012, Book 10: 58–75.

ICES. 2013a. Atlantic salmon from North America. *In* Report of the ICES Advisory Committee, 2013. ICES Advice 2013, Book 10, Section 10.3.

ICES. 2013b. Report of the Working Group on North Atlantic Salmon (WGNAS). ICES Headquarters, Copenhagen, 3–12 April 2013. ICES CM 2013/ACOM:09. 380 pp.

ICES. 2014. Report of the Working Group on North Atlantic Salmon (WGNAS), 19–28 March 2014, Copenhagen, Denmark. ICES CM 2014/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.

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.

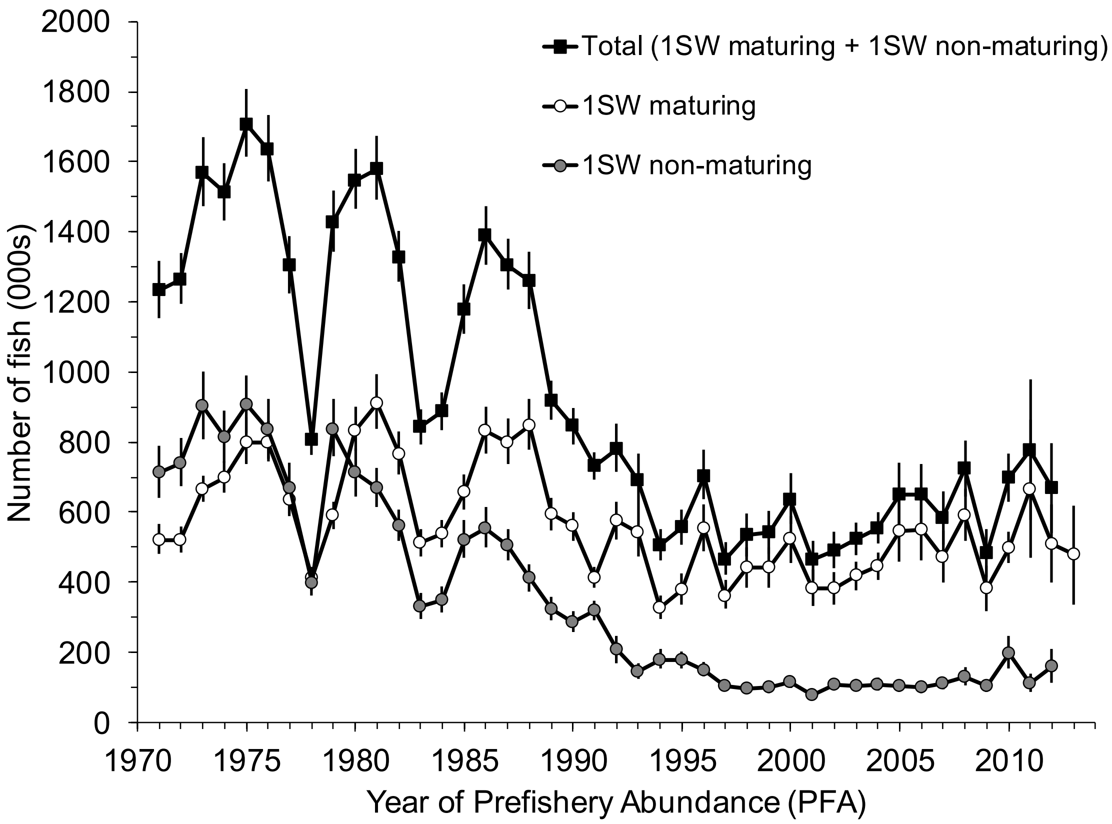


Figure 10.3.2 Estimates of PFA for 1SW maturing salmon, 1SW non-maturing salmon, and the total cohort of 1SW salmon based on the Monte Carlo simulations of the run–reconstruction model for NAC. Median and 95% CI interval ranges derived from Monte Carlo simulations are shown.

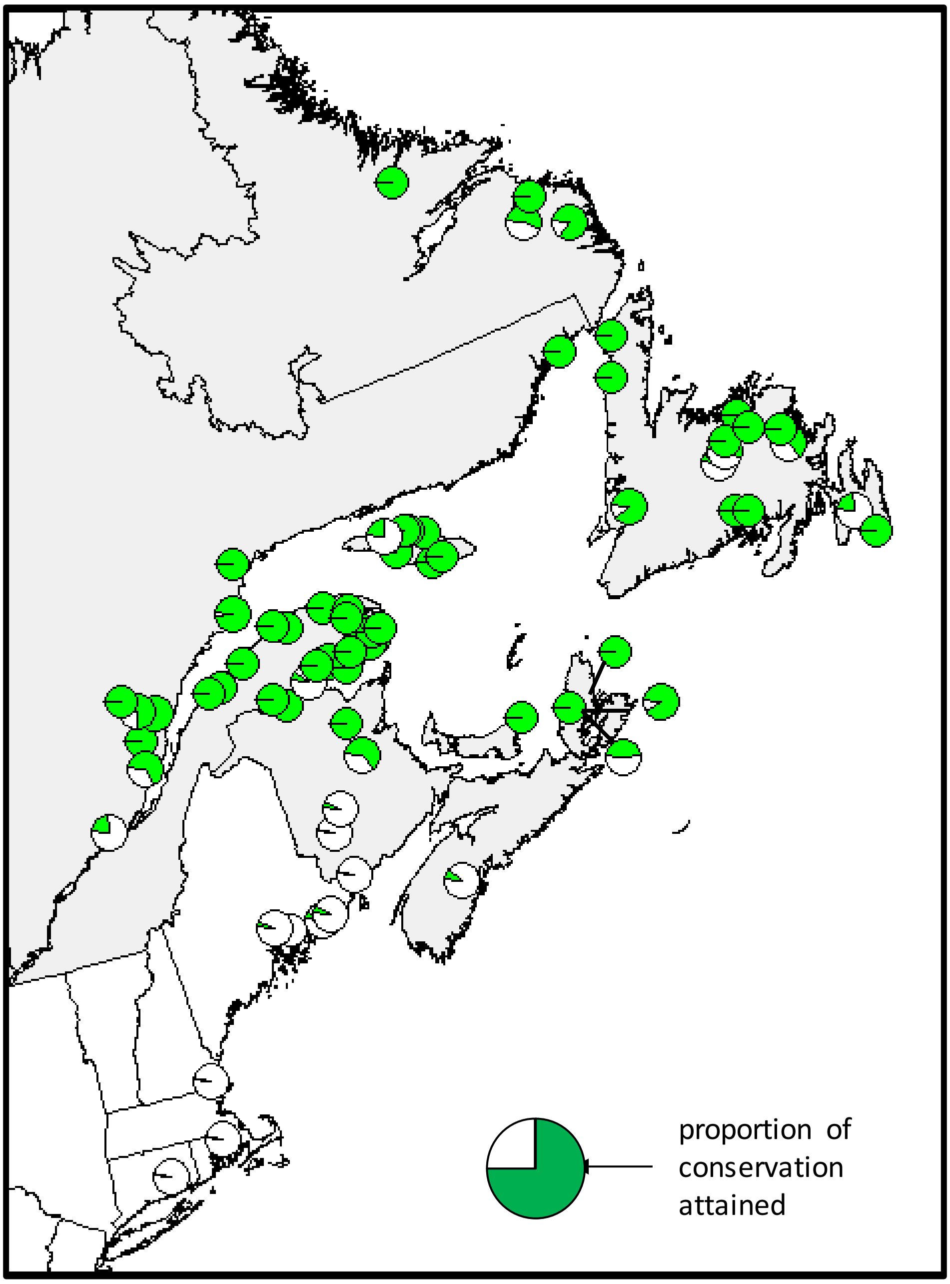


Figure 10.3.3 Proportion of the conservation egg requirement attained in assessed rivers of the North American Commission area in 2013.

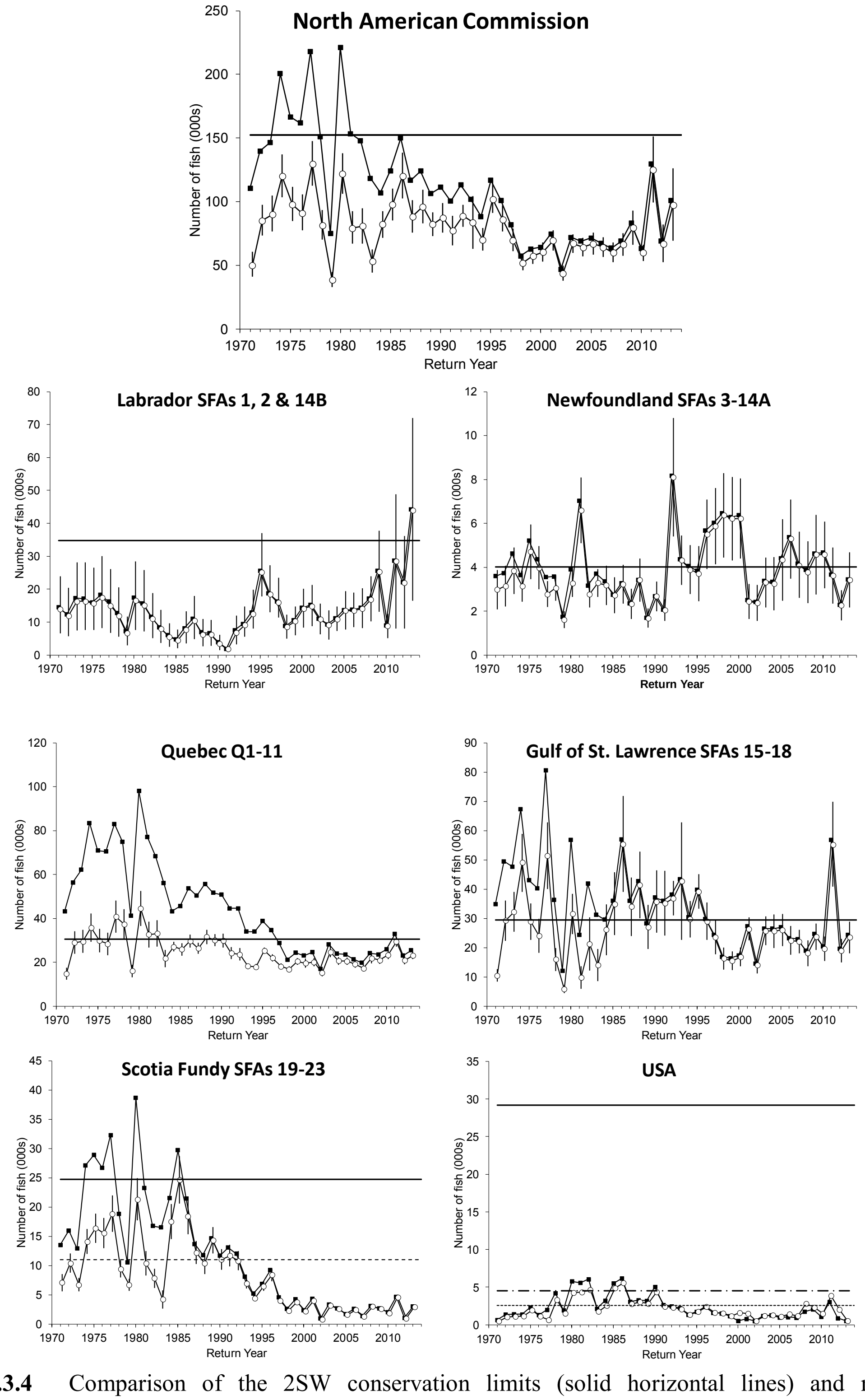
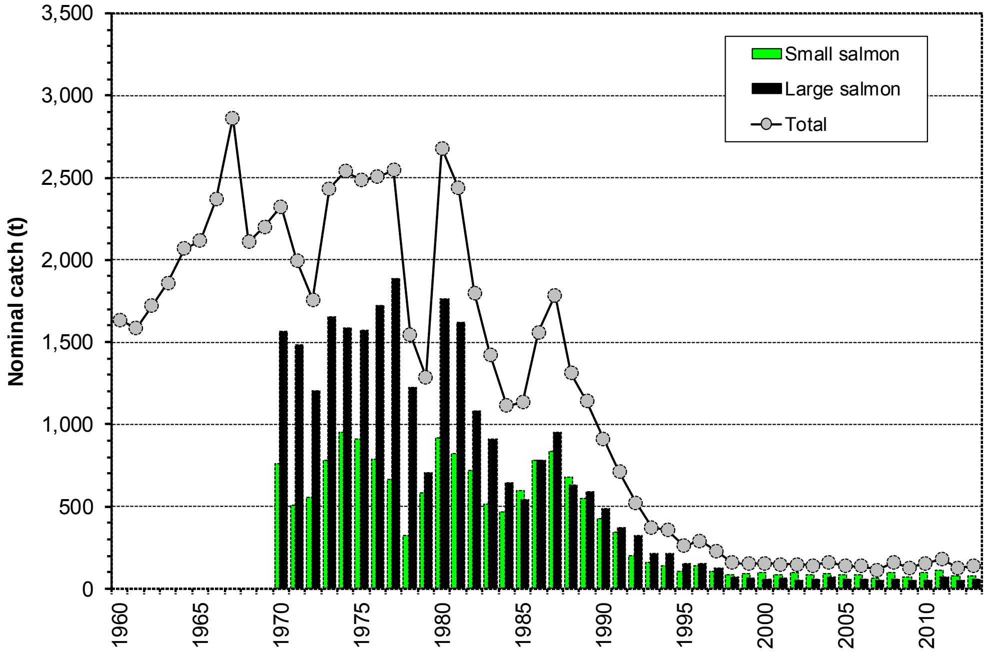


Figure 10.3.4 Comparison of the 2SW conservation limits (solid horizontal lines) and management objectives (dashed lines) to the estimated medians of 2SW returns (squares) and 2SW spawners (circles) in six geographic areas of North America. Returns and spawners for Scotia–Fundy do not include those from SFA 22 and a portion of SFA 23. For USA, estimated spawners may exceed the estimated returns due to adult stocking restoration efforts. For Scotia–Fundy, the dashed line is the current management objective of 10 976 2SW salmon spawners. For USA, the dash-dotted line is the proposed revised management objective of 4459 2SW salmon spawners.



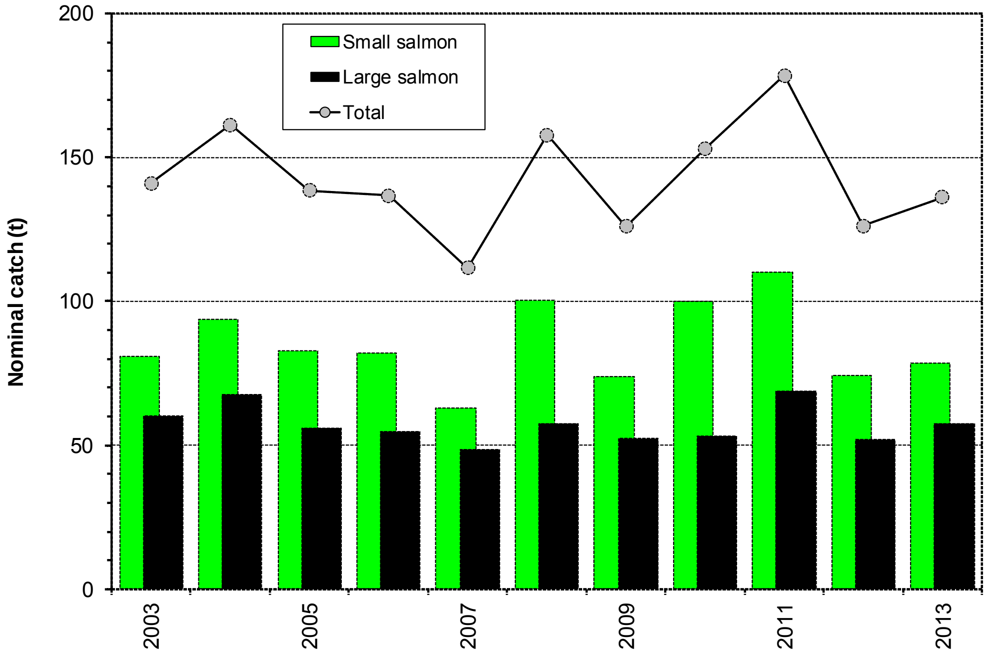


Figure 10.3.5 Harvest (t) of small salmon, large salmon, and combined for Canada, 1960 to 2013 (top panel) and 2003 to 2013 (bottom panel) by all users.

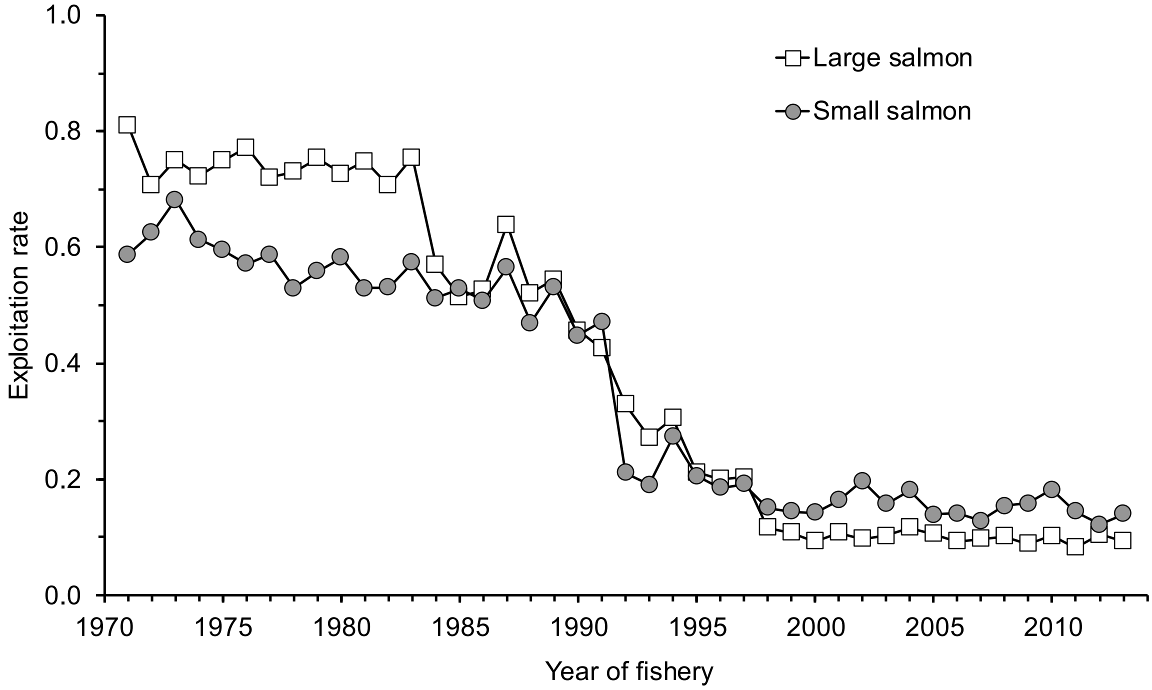


Figure 10.3.6 Exploitation rates in North America on the North American stock complex of small salmon (mostly 1SW) and large salmon (2SW, 3SW, and repeat spawners).

Table 10.3.1 Total reported nominal catch of salmon in homewaters by country (in tonnes, round fresh weight), 1980–2013 (2013 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	157	57	100	0	4
2009	126	52	74	0	3
2010	153	53	100	0	3
2011	179	69	110	0	4
2012	126	52	74	0	1
2013	136	58	79	0	5

ECOREGION North Atlantic
STOCK Atlantic salmon at West Greenland

Advice for 2014

The previous advice provided by ICES (2012) indicated that there were no mixed-stock fishery catch options at West Greenland in the years 2012–2014. The NASCO Framework of Indicators for the West Greenland fishery did not indicate the need for a revised analysis of catch options this year and, therefore, no new management advice for 2014 is provided. This year’s assessment of the stock complexes contributing to the West Greenland fishery confirms that advice.

Stock status

For West Greenland, the stock status of 1SW non-maturing salmon (destined to mature as either 2SW or 3SW salmon) from North America and the Southern NEAC area are relevant.

In 2013, 2SW spawner estimates in all regions of North America with the exception of Labrador were below conservation limits (CLs) and therefore suffering reduced reproductive capacity. For Labrador, the median estimate of the 2SW spawners was above the CL for the first time in the assessment time-series beginning in 1971, although stocks were considered to be at risk of suffering reduced reproductive capacity. Estimates of pre-fishery abundance (PFA) suggest continued low abundance of North American adult salmon. Recruitment patterns of non-maturing 1SW recruits (PFA) for Southern NEAC show a declining trend over time, since the early 1970s. This stock was at full reproductive capacity, prior to the commencement of distant water fisheries, until 1997. Thereafter, the stock has been close to the spawner escapement reserve and at risk of suffering reduced reproductive capacity in about half of the assessment years, including the latest year. Overall, in North American and European areas, the status of stocks contributing to the West Greenland fishery is among the lowest recorded and, as a result, the abundance of salmon within the West Greenland area is thought to be very low compared to historical levels. This is broadly consistent with the general pattern of decline in marine survival in most monitored stocks in the area.

Despite increasingly more restrictive fishery management in recent decades, returns in these 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 thus 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 (NASCO, 1999) 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 simultaneous risk level of 75% (i.e. a 75% probability of all regions simultaneously achieving the management objective) has been agreed for the provision of catch advice on the stock complexes exploited at West Greenland (non-maturing 1SW fish from North America and Southern NEAC). The management objectives are to meet the 2SW CLs for the four northern areas of NAC (Labrador, Newfoundland, Québec, and 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. A revised management objective has been proposed this year in respect of the USA, which is more in line with recovery criteria under the US Endangered Species Act. This would increase the management objective for the USA from 2548 to 4549 fish. The implications of this change for the provision of catch advice at West Greenland are evaluated in Section 10.1.12.

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. In the Northwest Atlantic they range from the Connecticut River in USA to the Leaf River in Québec, Canada. Juveniles emigrate to the ocean at ages one to eight years (dependent on latitude) and generally return after one or two years at sea. Long-distance migrations to ocean feeding grounds take place with adult salmon from both the North American and the Northeast Atlantic stocks migrating to West Greenland (Figure 10.4.1) to feed on abundant prey during their second summer and autumn 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, factors such as 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 are considered to be important 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 increased through the 1960s, reaching a peak reported harvest rate of approximately 2700 t in 1971, and then decreased until the closure of the commercial fishery for export in 1998. However, the subsistence fishery has been increasing in recent years (Table 10.4.1). From 2002 to 2011, licensed fishers were allowed to sell salmon to local markets only. From 2012, under a new internal quota, licensed fishers were also allowed to land to factories, although the export ban persisted and the landed salmon could only be sold within Greenland. This internal quota was set unilaterally by the Government of Greenland at 35 t, for the factory landings only. A total catch of 47 t of salmon was reported for the 2013 fishery compared to 33 t for the 2012 fishery, an increase of 42%. As in 2012, the highest reported landings (18 t) occurred in NAFO Division 1C; the total catch reported in this division was the highest reported since 1996 (Table 10.4.2). Of the total catch, 7.9 t was reported as commercial, 13.4 t for private consumption, and 25.6 t as factory landings (Table 10.4.3). In total, 97% of the landings (45.6 t) came from licensed fishers.

In total, 82% of the salmon sampled at West Greenland in 2013 were of North American origin and 18% were determined to be of European origin (Figure 10.4.2); the proportion of North American origin fish in the fishery has remained high since the mid-1990s. The 1SW age group dominated the catch at >95% (Table 10.4.4). Approximately 11 500 (~38.9 t) North American origin fish and approximately 2700 (~8.8 t) European origin fish were harvested in 2013. These totals remain among the lowest in the time-series from the early 1970s, although they are the highest in the last decade (Figure 10.4.3).

Effects of the fisheries on the ecosystem

The current salmon fishery employs near-shore surface gillnets. There is no information on bycatch of other species with this gear. The fisheries probably have no, or only minor, influence on the marine ecosystem.

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

Assessment type	Run–reconstruction models and Bayesian forecasts, taking into account uncertainties in the data.
Input data	Nominal catches (by sea-age class) for commercial and recreational fisheries. Estimates of unreported/illegal catches. Estimates of exploitation rates. Natural mortalities (from earlier assessments).
Discards and bycatch	No salmon discards in this fishery.
Indicators	Framework of Indicators used to indicate if a significant change has occurred in the status of stocks in intermediate years where multi-annual management advice applies.
Other information	Advice subject to annual review. Stock annex completed in 2014.
Working group report	Working Group on North Atlantic Salmon WGNAS (ICES, 2014).

10.4.1 **Supporting information May 2014**

ECOREGION **North Atlantic**
STOCK **Atlantic salmon at West Greenland**

Reference points

For the Southern NEAC non-maturing stock complex, the conservation limit (CL) is 275 348 salmon. For NAC, the CL expressed in 2SW salmon spawners totals 152 548 fish.

Outlook for 2014

No outlook is provided because the Framework of Indicators for the West Greenland fishery did not indicate the need for an updated forecast this year.

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 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 stems from recruitment (not growth), MSY, $B_{escapement}$, and B_{pa} might be expected to be similar. 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 the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats to stock status. Harvest at West Greenland cannot be targeted towards individual stocks, so weaker performing stocks are at risk.

Additional considerations

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.

Data and methods

The international sampling programme for the fishery at West Greenland, agreed by the parties at NASCO, continued in 2013. The sampling was undertaken in three different communities, representing three different NAFO divisions. As in previous years, no sampling occurred in the fishery in East Greenland. The decentralized landings and broad geographic distribution of the fishery causes practical problems for the sampling programme. In total, 1156 individual salmon were inspected in 2013, representing approximately 9% by weight of the reported landings.

Uncertainties in assessments and forecasts

The fluctuations in the numbers of people reporting catches and the catches themselves in each of the NAFO divisions at West Greenland suggest that there are inconsistencies in the catch data and highlight the need for better data. In most years since 2002, in at least one of the divisions where international samplers were present, the sampling team observed more fish than were reported as being landed. When there is this type of discrepancy, the reported landings are adjusted according to the total weight of the fish identified as being landed at that location during the sampling period and these adjusted landings are carried forward for all future assessments (Table 10.4.5). In 2013, this occurred in two of the three sampled communities. The total discrepancy was approximately 0.7 t and the catch for assessment purposes was 47.7 t.

There is presently no quantitative approach for estimating the unreported catch, but the 2013 value is likely to have been at the same level as that proposed in recent years (10 t).

There have been some recent problems in the international sampling programme at West Greenland, with regards to access to fish in one of the NAFO divisions. This continued in 2013.

Comparison with previous assessment and catch options

The NASCO Framework of Indicators for the West Greenland fishery applied in January 2014 did not indicate the need for a revised analysis of catch options and no new management advice for 2014 is provided. The assessment was updated to include data up to 2013 and the status of stocks contributing to the West Greenland fishery was consistent with the previous year's assessment.

Assessment and management area

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

Sources of information

ICES. 2012. Report of the Working Group on North Atlantic Salmon (WGNAS), 26 March–4 April 2012, Copenhagen, Denmark. ICES CM 2012/ACOM:09. 322 pp.

ICES. 2013a. Report of the Working Group on North Atlantic Salmon (WGNAS), 3–12 April 2013, Copenhagen, Denmark. ICES CM 2013/ACOM:09. 378 pp.

ICES. 2013b. North Atlantic salmon stocks. *In* Report of the ICES Advisory Committee, 2013. ICES Advice 2013, Book 10. 97 pp.

ICES. 2014. Report of the Working Group on North Atlantic Salmon (WGNAS), 19–28 March 2014, Copenhagen, Denmark. ICES CM 2014/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.

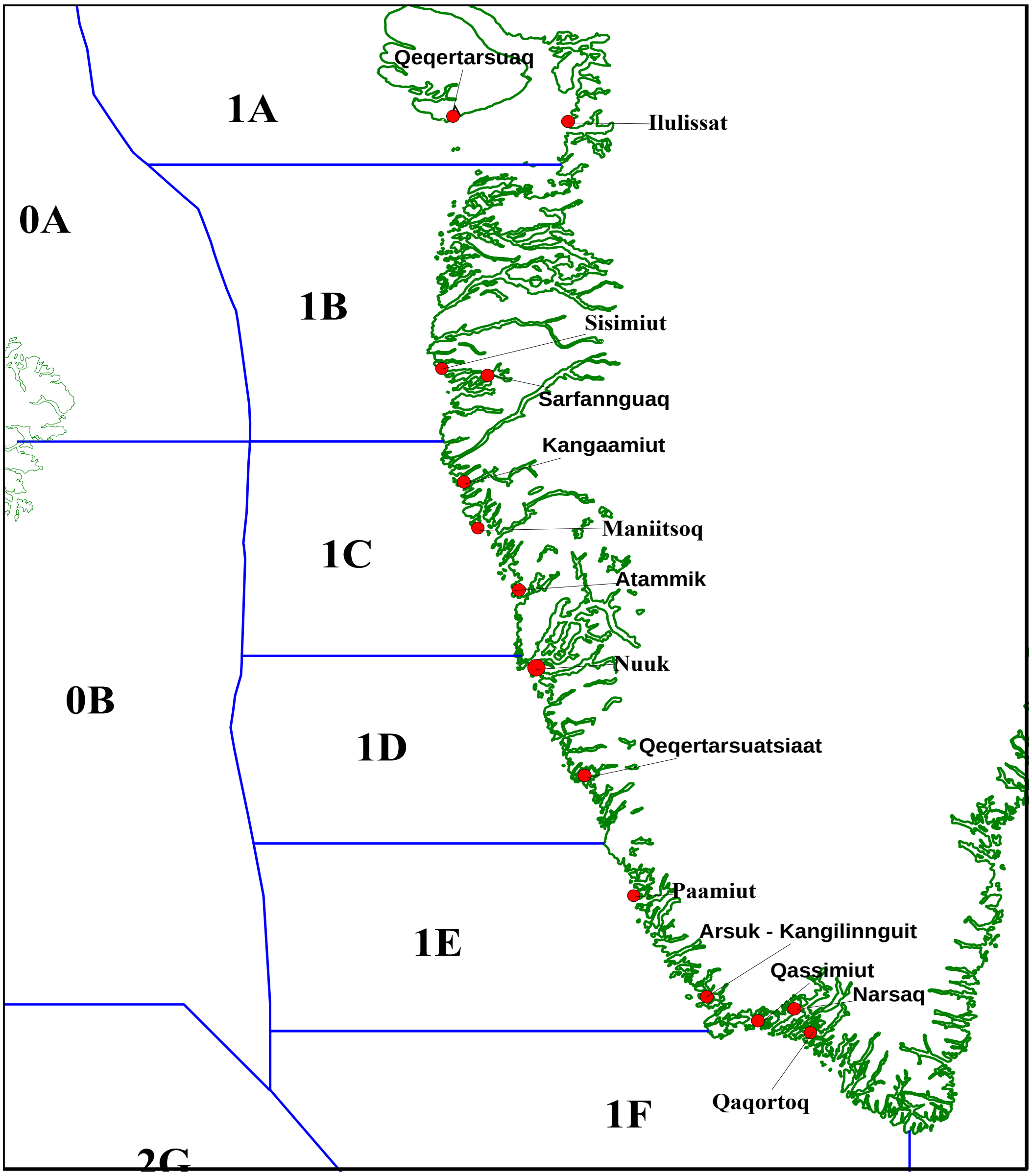


Figure 10.4.1 Location of NAFO divisions along the coast of West Greenland. Stars identify the communities where biological sampling occurred (Sisimiut, Maniitsoq, and Qaqortoq).

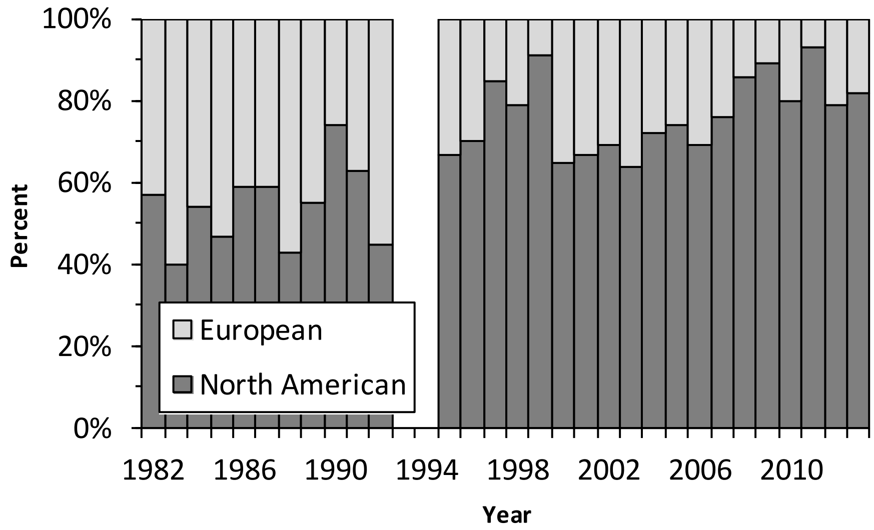


Figure 10.4.2 Percent of the sampled catch by continent of origin for the 1982 to 2013 Atlantic salmon West Greenland fishery

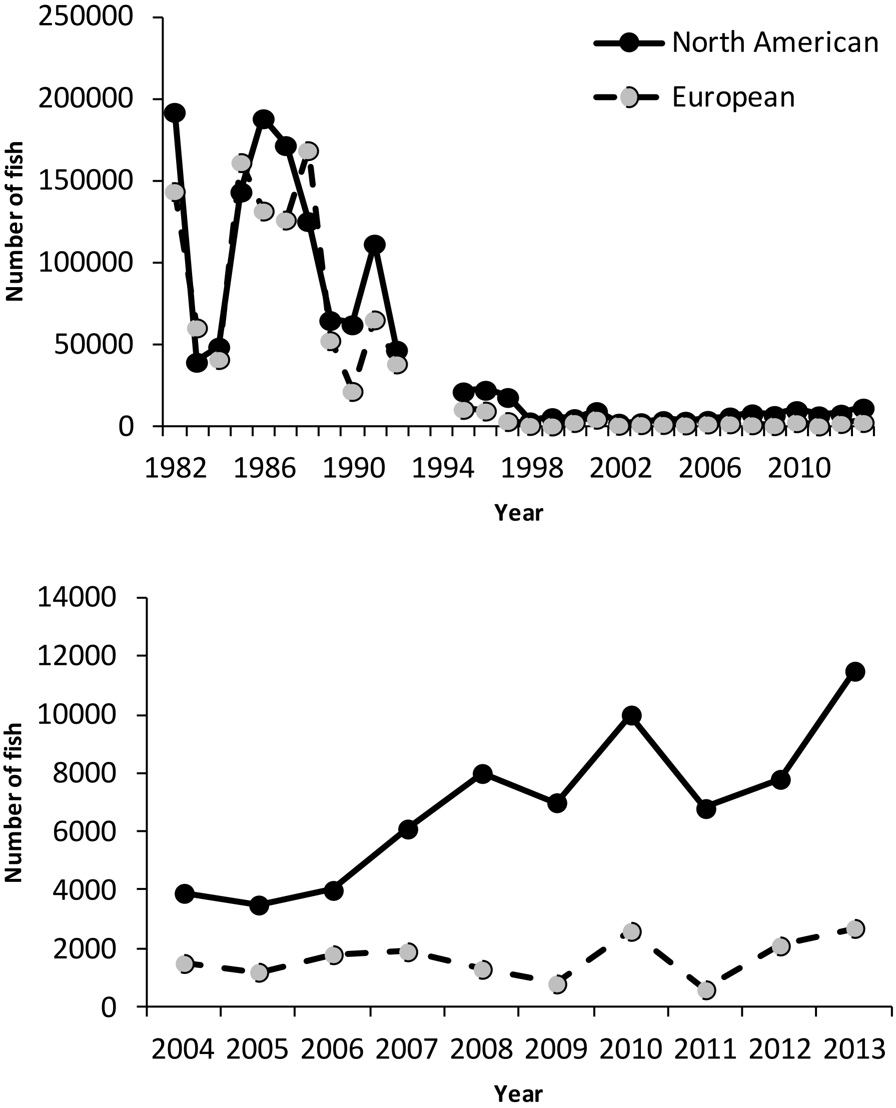


Figure 10.4.3 Number of North American and European Atlantic salmon caught at West Greenland from 1982 to 2013 (upper panel) and 2004 to 2013 (lower panel) based on NAFO division continent of origin weighted by catch (weight) in each division. Numbers are rounded to the nearest hundred fish. Unreported catch is not included in this assessment.

Table 10.4.1 Nominal catches of salmon at West Greenland since 1960 (metric tonnes round fresh weight) by participating nations. For Greenlandic vessels specifically, all catches up to 1968 were taken with set gillnets only and catches after 1968 were taken with set gillnets and drift nets. All non-Greenlandic vessel catches from 1969 to 1975 were taken with drift nets. The quota figures applied to Greenlandic vessels only.

YEAR	NORWAY	FAROES	SWEDEN	DENMARK	GREENLAND	TOTAL	QUOTA	COMMENTS
1960	-	-	-	-	60	60		
1961	-	-	-	-	127	127		
1962	-	-	-	-	244	244		
1963	-	-	-	-	466	466		
1964	-	-	-	-	1539	1539		
1965	-	36	-	-	825	858		Norwegian harvest figures were not available, but are known to be less than the Faroese catch.
1966	32	87	-	-	1251	1370		
1967	78	155	-	85	1283	1601		
1968	138	134	4	272	579	1127		
1969	250	215	30	355	1360	2210		
1970	270	259	8	358	1244	2139		Greenlandic total includes 7 t caught by longlines in the Labrador Sea.
1971	340	255	-	645	1449	2689	-	
1972	158	144	-	401	1410	2113	1100	
1973	200	171	-	385	1585	2341	1100	
1974	140	110	-	505	1162	1917	1191	
1975	217	260	-	382	1171	2030	1191	
1976	-	-	-	-	1175	1175	1191	
1977	-	-	-	-	1420	1420	1191	
1978	-	-	-	-	984	984	1191	
1979	-	-	-	-	1395	1395	1191	
1980	-	-	-	-	1194	1194	1191	
1981	-	-	-	-	1264	1264	1265	Quota set to a specific opening date for the fishery.
1982	-	-	-	-	1077	1077	1253	Quota set to a specific opening date for the fishery.
1983	-	-	-	-	310	310	1191	
1984	-	-	-	-	297	297	870	
1985	-	-	-	-	864	864	852	
1986	-	-	-	-	960	960	909	
1987	-	-	-	-	966	966	935	
1988	-	-	-	-	893	893	840	The quota for 1988–1990 was 2520 t with an opening date of August 1. Annual catches were not to exceed an annual average (840 t) by more than 10%. The quota was adjusted to 900 t in 1989 and 924 t in 1990 for later opening dates.
1989	-	-	-	-	337	337	900	
1990	-	-	-	-	274	274	924	
1991	-	-	-	-	472	472	840	

YEAR	NORWAY	FAROES	SWEDEN	DENMARK	GREENLAND	TOTAL	QUOTA	COMMENTS
1992	-	-	-	-	237	237	258	Quota set by Greenland authorities.
1993	-	-	-	-			89	The fishery was suspended. NASCO adopted a new quota allocation model.
1994	-	-	-	-			137	The fishery was suspended and the quotas were bought out.
1995	-	-	-	-	83	83	77	Quota advised by NASCO.
1996	-	-	-	-	92	92	174	Quota set by Greenland authorities.
1997	-	-	-	-	58	58	57	Private (non-commercial) catches to be reported after 1997.
1998	-	-	-	-	11	11	20	Fishery restricted to catches used for internal consumption in Greenland.
1999	-	-	-	-	19	19	20	
2000	-	-	-	-	21	21	20	
2001	-	-	-	-	43	43	114	Final quota calculated according to the *ad hoc* management system.
2002	-	-	-	-	9	9	55	Quota bought out, quota represented the maximum allowable catch (no factory landing allowed), and higher catch figures based on sampling programme information are used for the assessments.
2003	-	-	-	-	9	9		Quota set to nil (no factory landing allowed), fishery restricted to catches used for internal consumption in Greenland, and higher catch figures based on sampling programme information are used for the assessments.
2004	-	-	-	-	15	15		Same as previous year.
2005	-	-	-	-	15	15		Same as previous year.
2006	-	-	-	-	22	22		Quota set to nil (no factory landing allowed) and fishery restricted to catches used for internal consumption in Greenland.
2007	-	-	-	-	25	25		Quota set to nil (no factory landing allowed), fishery restricted to catches used for internal consumption in Greenland, and higher catch figures based on sampling programme information are used for the assessments.
2008	-	-	-	-	26	26		Same as previous year.
2009	-	-	-	-	26	26		Same as previous year.
2010		-	-	-	40	40		Same as previous year.
2011	-	-	-	-	28	28		Quota set to nil (no factory landing allowed) and fishery restricted to catches used for internal consumption in Greenland.
2012	-	-	-	-	33	33		Quota set to nil (unilateral decision made by Greenland to allow factory landing with a 35 t

Year	Norway	Faroes	Sweden	Denmark	Greenland	Total	Quota	Comments
								quota), fishery restricted to catches used for internal consumption in Greenland, and higher catch figures based on sampling programme information are used for the assessments.
2013	-	-	-	-	47	47		Same as previous year.

Table 10.4.2 Distribution of nominal catches (metric tonnes) by Greenland vessels since 1960. NAFO divisions are indicated by 1A–1F. Since 2005, gutted weights have been reported and converted to total weight by a factor of 1.11.

YEAR	1A	1B	1C	1D	1E	1F	UNK.	WEST GREENLAND	EAST GREENLAND	TOTAL
1960							60	60		60
1961							127	127		127
1962							244	244		244
1963	1	172	180	68	45			466		466
1964	21	326	564	182	339	107		1 539		1 539
1965	19	234	274	86	202	10	36	861		861
1966	17	223	321	207	353	130	87	1 338		1 338
1967	2	205	382	228	336	125	236	1 514		1 514
1968	1	90	241	125	70	34	272	833		833
1969	41	396	245	234	370		867	2 153		2 153
1970	58	239	122	123	496	207	862	2 107		2 107
1971	144	355	724	302	410	159	560	2 654		2 654
1972	117	136	190	374	385	118	703	2 023		2 023
1973	220	271	262	440	619	329	200	2 341		2 341
1974	44	175	272	298	395	88	645	1 917		1 917
1975	147	468	212	224	352	185	442	2 030		2 030
1976	166	302	262	225	182	38		1 175		1 175
1977	201	393	336	207	237	46	-	1 420	6	1 426
1978	81	349	245	186	113	10	-	984	8	992
1979	120	343	524	213	164	31	-	1 395	+	1 395
1980	52	275	404	231	158	74	-	1 194	+	1 194
1981	105	403	348	203	153	32	20	1 264	+	1 264
1982	111	330	239	136	167	76	18	1 077	+	1 077
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	4.9	2.2	10.0	1.6	2.5	5.0	0	26.2	0	26.2
2009	0.2	6.2	7.1	3.0	4.3	4.8	0	25.6	0.8	26.3
2010	17.3	4.6	2.4	2.7	6.8	4.3	0	38.1	1.7	39.6
2011	1.8	3.7	5.3	8.0	4.0	4.6	0	27.4	0.1	27.5
2012	5.4	0.8	15.0	4.6	4.0	3.0	0	32.6	0.5	33.1
2013	3.1	2.4	17.9	13.4	6.4	3.8	0	47.0	0.0	47.0

[1] The fishery was suspended.

+ Small catches < 5 t.

- No catch.

Table 10.4.3 Reported landings (t) by landing category, the number of fishers reporting, and the total number of landing reports received for licensed and unlicensed fishers in 2010–2013.

NAFO /ICES	Licensed	No. of Fishers	No. of Reports	Comm	Private	Factory	Total	Licensed	No. of Fishers	No. of Reports	Comm	Private	Factory	Total
<u>2013</u>								<u>2012</u>						
1A	NO	10	32	0.3	0.0		0.3	NO	8	25		0.6		0.6
1A	YES	18	94	1.2	1.6		2.8	YES	27	142	1.3	3.5		4.8
1A	**TOTAL**	**28**	**126**	**1.5**	**1.6**		**3.1**	**TOTAL**	**35**	**167**	**1.3**	**4.1**		**5.4**
1B	NO	2	5	0.2			0.2	NO	3	3		0.2		0.2
1B	YES	6	14	1.3	0.9		2.2	YES	6	19	0.1	0.5		0.5
1B	**TOTAL**	**8**	**19**	**1.4**	**0.9**		**2.4**	**TOTAL**	**9**	**22**	**0.1**	**0.7**		**0.8**
1C	NO							NO	2	6		0.3		0.3
1C	YES	21	205	2.2	3.5	12.3	18.0	YES	30	172	1.8	0.8	12.1	14.7
1C	**TOTAL**	**21**	**205**	**2.2**	**3.5**	**12.3**	**18.0**	**TOTAL**	**32**	**178**	**1.8**	**1.2**	**12.1**	**15.0**
1D	NO	10	23	0.4	0.0		0.5	NO	5	15	0.0	0.4		0.4
1D	YES	9	112	0.1	4.8	8.0	12.9	YES	3	23	1.4	1.2	1.6	4.2
1D	**TOTAL**	**19**	**135**	**0.5**	**4.9**	**8.0**	**13.4**	**TOTAL**	**8**	**38**	**1.4**	**1.6**	**1.6**	**4.6**
1E	NO	1	1	0.1			0.1	NO	13	22		1.3		1.3
1E	YES	6	41	0.8	0.2	5.3	6.4	YES	3	45	0.8	1.9		2.7
1E	**TOTAL**	**7**	**42**	**0.9**	**0.2**	**5.3**	**6.4**	**TOTAL**	**16**	**67**	**0.8**	**3.2**		**4.0**
1F	NO	5	10	0.3			0.3	NO	6	17		0.7		0.7
1F	YES	6	15	1.0	2.4		3.4	YES	10	40	0.1	2.2		2.3
1F	**TOTAL**	**11**	**25**	**1.4**	**2.4**		**3.8**	**TOTAL**	**16**	**57**	**0.1**	**2.8**		**3.0**
XIV	NO	1	1	0.0			0.0	NO	6	24		0.5		0.5
XIV	YES							YES	0	0				
XIV	**TOTAL**	**1**	**1**	**0.0**			**0.0**	**TOTAL**	**6**	**24**		**0.5**		**0.5**
ALL	NO	29	72	1.3	0.1		1.4	NO	43	112	0.0	4.1		4.1
ALL	YES	66	481	6.6	13.4	25.6	45.6	YES	79	441	5.5	9.9	13.7	29.1
ALL	**TOTAL**	**95**	**553**	**7.9**	**13.4**	**25.6**	**47.0**	**TOTAL**	**122**	**553**	**5.5**	**14.1**	**13.7**	**33.2**

NAFO /ICES	Licensed	No. of Fishers	No. of Reports	Comm	Private	Factory	Total	Licensed	No. of Fishers	No. of Reports	Comm	Private	Factory	Total
2011								2010						
1A	NO	4	4		0.2		0.2	YES	54	93	4.6	8.2		12.7
1A	YES	21	54	0.9	0.8		1.7	NO	32	39		4.5		4.5
1A	**TOTAL**	**25**	**58**	**0.9**	**1.0**		**1.9**	**TOTAL**	**86**	**132**	**4.6**	**12.7**		**17.3**
1B	NO	3	3		0.2		0.2	YES	14	28	1.5	2.8		4.4
1B	YES	6	27	2.8	0.6		3.5	NO	3	3	0.0	0.2		0.2
1B	**TOTAL**	**9**	**30**	**2.8**	**0.8**		**3.7**	**TOTAL**	**17**	**31**	**1.6**	**3.0**		**4.6**
1C	NO	6	6		0.7		0.7	YES	9	13	1.1	0.5		1.6
1C	YES	14	50	3.2	1.4		4.6	NO	10	15		0.7		0.7
1C	**TOTAL**	**20**	**56**	**3.2**	**2.1**		**5.3**	**TOTAL**	**19**	**28**	**1.1**	**1.3**		**2.4**
1D	NO	9	9		0.7		0.7	YES	7	16	1.5	0.6		2.2
1D	YES	6	86	7.1	0.2		7.3	NO	9	16	0.1	0.5		0.6
1D	**TOTAL**	**15**	**95**	**7.1**	**0.9**		**8.0**	**TOTAL**	**16**	**32**	**1.6**	**1.1**		**2.7**
1E	NO	16	29		1.8		1.8	YES	10	46	1.7	1.4		3.1
1E	YES	4	65	1.1	1.1		2.2	NO	20	32		3.7		3.7
1E	**TOTAL**	**20**	**94**	**1.1**	**2.9**		**4.0**	**TOTAL**	**30**	**78**	**1.7**	**5.1**		**6.8**
1F	NO	13	19		2.5		2.5	YES	16	29	1.9	1.5		3.4
1F	YES	10	31	1.5	0.7		2.1	NO	11	19		0.9		0.9
1F	**TOTAL**	**23**	**50**	**1.5**	**3.1**		**4.6**	**TOTAL**	**27**	**48**	**1.9**	**2.3**		**4.3**
XIV	NO	5	11		0.1		0.1	YES	0	0				
XIV	YES	0	0					NO	13	40		1.7		1.7
XIV	**TOTAL**	**5**	**11**		**0.1**		**0.1**	**TOTAL**	**13**	**40**		**1.7**		**1.7**
ALL	NO	56	81		6.1		6.1	YES	110	225	12.3	15.0		27.3
ALL	YES	61	313	16.5	4.9		21.4	NO	98	164	0.1	12.3		12.4
ALL	**TOTAL**	**117**	**394**	**16.5**	**11.0**		**27.5**	**TOTAL**	**208**	**389**	**12.4**	**27.3**		**39.7**

Table 10.4.4 Summary of biological characteristics of catches at West Greenland in 2013.

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

	1	2	3	4	5	6	7	8
NA	0.1	32.6	37.3	20.8	8.6	0.6	0	0
E	4.5	68.2	24.4	2.5	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	3.33	81.0	6.43	69.9	3.64	na	3.39
E	64.6	3.16	72.8	4.51	73.6	5.38	na	3.20

Continent of origin (%)

North America	Europe
81.6	18.4

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

	1SW	2SW	Previous Spawners
NA	94.9	1.4	3.7
E	96.6	2.4	1.0

Table 10.4.5 Reported landings (kg) for the West Greenland Atlantic salmon fishery from 2002 by NAFO division and the division-specific adjusted landings where the sampling teams observed more fish landed than were reported. Adjusted landings were not calculated for 2006 and 2011 as the sampling teams did not observe more fish than were reported in those years.

YEAR		1A	1B	1C	1D	1E	1F	TOTAL
2002	Reported	14	78	2 100	3 752	1 417	1 661	9 022
	Adjusted						2 408	9 769
2003	Reported	619	17	1 621	648	1 274	4 516	8 694
	Adjusted			1 782	2 709		5 912	12 312
2004	Reported	3 476	611	3 516	2 433	2 609	2 068	14 712
	Adjusted				4 929			17 209
2005	Reported	1 294	3 120	2 240	756	2 937	4 956	15 303
	Adjusted				2 730			17 276
2006	Reported	5 427	2 611	3 424	4 731	2 636	4 192	23 021
	Adjusted							
2007	Reported	2 019	5 089	6 148	4 470	4 828	2 093	24 647
	Adjusted						2 252	24 806
2008	Reported	4 882	2 210	10 024	1 595	2 457	4 979	26 147
	Adjusted				3 577		5 478	28 627
2009	Reported	195	6 151	7 090	2 988	4 296	4 777	25 496
	Adjusted				5 466			27 975
2010	Reported	17 263	4 558	2 363	2 747	6 766	4 252	37 949
	Adjusted		4 824		6 566		5 274	43 056
2011	Reported	1 858	3 662	5 274	7 977	4 021	4 613	27 407
	Adjusted							
2012	Reported	5 353	784	14 991	4 564	3 993	2 951	32 636
	Adjusted		2 001				3 694	34 596
2013	Reported	3 052	2 358	17 950	13 356	6 442	3 774	46 933
	Adjusted		2 461				4 408	47 669

List of Participants

List of Participants

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