REPORT OF THE TWENTY-SIXTH ANNUAL MEETINGS OF THE COMMISSIONS

Molde, Norway

2 – 5 JUNE 2009

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REPORT OF THE

TWENTY-SIXTH ANNUAL MEETING

OF THE

NORTH AMERICAN COMMISSION

2 – 5 JUNE 2009
Molde, Norway

Chairman:	Mr Guy Beaupré (Canada)
Vice-Chairman:	Mr Stephen Gephard (USA)
Rapporteur:	Ms Kimberly Blankenbeker (USA)
Secretary:	Dr Malcolm Windsor

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NAC(09)7

Report of the Twenty-Sixth Annual Meeting of the North American Commission of the North Atlantic Salmon Conservation Organization Rica Seilet Hotel, Molde, Norway 2-5 June, 2009

1. Opening of the Meeting

1.1 The Chairman, Mr. Guy Beaupré (Canada), opened the meeting and welcomed participants to the Twenty-Sixth Annual Meeting of the Commission.

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

1.3 A list of participants at the Twenty-Sixth Annual Meeting of the Council and Commissions is included on page 147 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda NAC(09)6 (Annex 2).

3. Nomination of a Rapporteur

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

4. Review of the 2008 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

4.1 The representative of ICES, Dr Jaakko Erkinaro, presented the report from ICES on the scientific advice on salmon stocks in the North American Commission (NAC) area, CNL(09)8. His presentation is available as NASCO document CNL(09)44. The ICES Advisory Committee (ACOM) report, which contains the scientific advice relevant to all Commissions, is included on page 91 of this document.

4.2 The observer from the EU asked why Canada had not provided an estimate of unreported catch to ICES since 2006. The representative of Canada noted that this could be due to the timing for providing data to ICES. She noted, however, that Canada had reported an estimate of unreported catch to NASCO in its annual report on its Implementation Plan, CNL(09)16. The United States noted that its unreported catch was also reported in its annual report on its Implementation Plan , CNL(09)24, and that the estimate is so low that it effectively represents zero catch for the purposes of ICES.

5. Review and Discussion of the 2009 Canadian and US Salmon Management Measures as they relate to the Mandate of the Commission and to the Findings of the ACOM Report from ICES

5.1 The United States presented a report on US Atlantic Salmon Management and Research Activities in 2008, NAC(09)3 (Annex 3). Canada summarized information on its 2009 fisheries management activities, NAC(09)4 (Annex 4).

6. The St. Pierre and Miquelon Salmon Fishery

6.1 The representative of France (in respect of St. Pierre and Miquelon) presented information on the St. Pierre and Miquelon fishery (CNL(09)18 and CNL(09)32). The NAC welcomed this participation and took note of the Council discussion on this matter. The NAC fully supported the recommendation of the Council to send a strong letter to France (in respect of St. Pierre and Miquelon) expressing disappointment that France (in respect of St. Pierre and Miquelon) does not intend to accede to the NASCO Convention and stressing the reasons why it is important for France (in respect of St. Pierre and Miquelon) to be at the NASCO table; highlighting concern about increased catch levels in 2008; welcoming biometric sampling by that country; underscoring the urgent need for additional sampling, including genetics work, particularly in light of the ongoing SALSEA research program; and requesting that information related to the fishery at St. Pierre and Miquelon be provided to ICES in time for incorporation into the ICES ACOM report. The Commission also welcomed any help NGOs could offer in encouraging France (in respect of St. Pierre and Miquelon) to improve cooperation with NASCO. The NGOs representative confirmed they will assist in this matter.

6.2 The NGO representative asked the representative from France (in respect of St. Pierre and Miquelon) if there was an estimate of unreported catch. The representative from France (in respect of St. Pierre and Miquelon) stated that unreported catch estimates were not available.

7. Salmonid Introductions and Transfers

7.1 The Chairman recalled NAC(08)4, which identified the need to re-examine aspects of the NAC Protocols on Introductions and Transfers of Salmonids. Specifically, a review of the relevance of the Database on Introductions and Transfers and Scientific Working Group was needed given the significant improvements that have occurred both within and between Canada and the United States on monitoring and management of introductions and transfers for enhancement and aquaculture purposes. To carry out this review, the United States and Canada established a Working Group which met in the spring 2009.

7.2 The representative of Canada recognized the significant effort by the Working Group and noted the added complexity in finalizing this work in Canada since two levels of government are involved in managing introductions and transfers of salmonids for aquaculture purposes. Moreover, the responsibility for fish health issues in Canada is in the process of being transferred from the Department of Fisheries and Oceans (DFO) to another Department in Canada's government. In light of this, the representative of Canada noted the need for additional domestic consultations before

they could respond officially concerning this matter.

8. Sampling in the Labrador Fishery

8.1 The representative of Canada provided an update on the sampling activity in the Labrador fishery in 2008. Information on this activity was reported to ICES and is included in the 2009 WGNAS report. Canada confirmed that it intends to continue to support this important sampling activity in 2009.

8.2 The NGO representative questioned if the sampling will include genetic sampling and analysis to determine river of origin. The representative of Canada stated genetic material is being collected but that such analysis is not planned due to both resource constraints as well as a lack of existing data to discriminate salmon to the river level. The data that exist only allow differentiation between US and Canadian origin salmon.

9. Announcement of the Tag Return Incentive Scheme Prize

9.1 The Chairman announced that the draw for the North American Commission prize in the NASCO Tag Return Incentive Scheme was made by the Auditor on 5 May 2009. The winning tag was of Canadian origin. The tag was applied to a 56cm long wild salmon on 28 May 2007 at the DFO Index trapnet at Millerton on the Southwest Miramichi as part of a mark recapture assessment program. It was recaptured on 6 May 2008 as a kelt in the same river. The winner of the $1,500 prize is Mr Trevor Hunter of Clark's Corner, New Brunswick.

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

10.1 The Commission agreed to the request for scientific advice from ICES prepared by the Standing Scientific Committee in relation to the North American Commission area. The request to ICES, as agreed by the Council, is contained in document CNL(09)10 (Annex 5).

11. Other Business

11.1 The representative of the United States suggested that agenda item 5 could be deleted from future agendas given that comprehensive information on research, stock status, and management activities for the United States and Canada is available in each country's Implementation Plans, annual reports on those plans, focus area reports and in the ICES Working Group on North Atlantic Salmon (WGNAS) report. The NAC agreed to proceed in this manner in the future.

11.2 Canada reported on two catch and release studies for the information of the Commission. First, salmon returning to spawn in the upper North Shore of Quebec (des Escoumins River) will be captured in a fish ladder and genetic samples will be taken before the salmon are released. Subsequent capture of adults in the fishery and juveniles, after their emergence, will be captured the next year and genetic samples taken from these fish will be compared to the parents to evaluate spawning success. This program will begin in 2009 and continue for a three year period. This is a joint project between DFO, Laval University, and MRNF. The second catch and release study will occur in the Conne River in Newfoundland and begin in 2009. Salmon will

12. Date and Place of the Next Meeting

12.1 The Commission agreed to hold its next meeting at the same time and place as the Twenty-Seventh Annual Meeting of the Council in 2010.

13. Report of the Meeting

13.1 The Commission agreed a report of the meeting.

Note: The annexes mentioned above begin on page 13, following the French translation of the report of the meeting. A list of North American Commission papers is included in Annex 6.

NAC(09)7

Compte rendu de la Vingt-sixième réunion annuelle de la Commission Nord-Américaine de l'Organisation pour la Conservation du Saumon de l'Atlantique Nord, Hôtel Rica Seilet, Molde, Norvège 2-5 juin, 2009

1. Séance d'ouverture

1.1 Le Président, M. Guy Beaupré (Canada) a ouvert la réunion et a souhaité la bienvenue aux représentants à la Vingt-sixième réunion annuelle de la Commission.

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

1.3 Une liste des participants à la Vingt-sixième réunion annuelle du Conseil et des Commissions de l'OCSAN figure à la page 147 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour NAC(09)6 (annexe 2).

3. Nomination d'un Rapporteur

3.1 La Commission a nommé, Rapporteur, Ms. Kimberly Blankenbeker (États-Unis).

4. Examen de la pêcherie de 2008 et rapport de l'ACOM du CIEM sur les stocks de saumons dans la zone de la Commission

4.1 Le représentant du CIEM, le Dr Jaakko Erkinaro, a présenté le rapport du CIEM contenant les recommandations scientifiques particulières aux stocks de saumons de la Commission Nord-Américaine (CNA), CNL(09)8. Sa présentation a été reproduite dans le document CNL(09)44 de l'OCSAN. Le rapport de l'ACOM, qui énonce les recommandations scientifiques intéressant l'ensemble des Commissions, figure à la page 91 de ce document.

4.2 Le représentant de l'UE, présent en tant qu'observateur, a demandé pourquoi, depuis 2006, le Canada n'avait pas fourni d'estimation de captures non déclarées au CIEM. La représentante du Canada a répondu que ceci résultait sans doute de la date choisie pour la remise des données au CIEM. Elle a toutefois fait remarquer que le Canada avait soumis une estimation des captures non déclarées à l'OCSAN dans son rapport annuel concernant son Programme de mise en application, CNL(09)16. Les États-Unis ont indiqué que leur nombre de captures non déclarées était également compris dans leur rapport annuel concernant leur propre Programme de mise en application, CNL(09)24. En outre, l'estimation était si basse que, dans l'optique du CIEM, elle ne représentait en fait qu'un niveau de captures nul.

5. Examen et discussion des mesures de gestion du saumon, proposées pour l'année 2009 par le Canada et les États-Unis, dans le cadre du mandat de la Commission et des conclusions offertes par le rapport de l'ACOM du CIEM

5.1 Le représentant des États-Unis a présenté un rapport sur la gestion du saumon atlantique ainsi que sur les activités de recherche menées par les États-Unis en 2008, NAC(09)3 (annexe 3). La représentante du Canada a offert une synthèse des informations concernant les activités de gestion des pêcheries de 2009 entreprises par son pays, NAC(09)4 (annexe 4).

6. Pêcherie de saumons à Saint Pierre et Miquelon

6.1 La représentante de la France (pour Saint Pierre et Miquelon) a soumis des informations sur la pêcherie de saumons à Saint Pierre et Miquelon (CNL(09)18 et CNL(09)32). La Commission Nord-Américaine a accueilli favorablement la participation de la France et a pris note du débat qui avait eu lieu lors de la réunion du Conseil à propos de cette question. La CNA appuyait pleinement la recommandation du Conseil, à savoir l'envoi d'une lettre ferme à la France (pour Saint Pierre et Miquelon), qui ferait part de la déception de l'Organisation quant à la décision de la France (pour Saint Pierre et Miquelon) de ne pas accéder à la Convention de l'OCSAN. Cette lettre devrait également souligner les raisons pour lesquelles il importait que la France (pour Saint Pierre et Miquelon) soit à la table de l'OCSAN; souligner également l'inquiétude suscitée par des niveaux de captures plus élevés en 2008; elle devrait par ailleurs accueillir favorablement les échantillonnages biométriques entrepris par ce pays; signaler le besoin urgent d'échantillonnages supplémentaires dont une étude génétique, étant donné surtout le programme de recherche SALSEA en cours. Ce courrier devrait également prier que les informations concernant la pêcherie à Saint Pierre et Miquelon soient envoyées au CIEM à temps pour être incorporées dans le rapport de l'ACOM du CIEM. La Commission se réjouissait également du soutien que les ONG pourraient offrir pour encourager la France (pour Saint Pierre et Miquelon) à améliorer leur coopération avec l'OCSAN. Le représentant des ONG a confirmé qu'ils apporteraient leur assistance.

6.2 Le représentant des ONG a demandé à la représentante de la France (pour Saint Pierre et Miquelon) si une estimation des captures non déclarées était disponible. La représentante de la France (pour Saint Pierre et Miquelon) a répondu que celle-ci n'était pas disponible.

7. Introductions et transferts de salmonidés

7.1 Le Président a rappelé le document NAC(08)4 à l'attention de la Commission. Ce document identifiait la nécessité d'examiner à nouveau les aspects des Protocoles de la CNA qui concernaient les Introductions et Transferts de Salmonidés. Il était en particulier nécessaire de revoir la pertinence de la base des données portant sur les introductions et transferts et de celle du Groupe de Travail Scientifique. Vu l'importance des améliorations effectuées au et entre le Canada et les États-Unis à propos du contrôle et de la gestion des introductions et transferts à des fins aquacoles et de mise en valeur, ceci était en effet devenu essentiel. Pour mener à bien cette étude, les États-Unis et le Canada avaient établi un Groupe de Travail qui s'était réuni au printemps 2009.

7.2 La représentante du Canada a reconnu l'étendue de l'effort déployé par le Groupe de travail et a noté la complexité qui s'ajoutait pour terminer ce travail au Canada puisque deux niveaux d'autorités gouvernementales étaient impliqués dans la gestion des introductions et transferts de salmonidés pour l'aquaculture. De plus, la responsabilité des questions se rapportant à la santé des poissons était en cours de transfert du Ministère des Pêches et des Océans (*Department of Fisheries and Oceans* [DFO]) à un autre ministère du gouvernement du Canada. À la lumière de ces faits, la représentante du Canada a noté la nécessité d'organiser des consultations supplémentaires au niveau du pays pour que le Groupe de travail puisse se prononcer officiellement sur la question.

8. Échantillonnage dans la pêcherie du Labrador

8.1 La représentante du Canada a présenté une mise à jour de l'activité d'échantillonnage qui avait eu lieu en 2008 dans la pêcherie du Labrador. Les informations concernant cette activité avaient été envoyées au CIEM et incorporées au rapport de 2009 du Groupe de Travail chargé de la question du Saumon de l'Atlantique Nord (GTSAN). La représentante du Canada a confirmé que son pays avait l'intention de continuer à soutenir cette importante activité d'échantillonnage en 2009.

8.2 Le représentant des ONG a demandé si l'échantillonnage inclurait un échantillonnage et une analyse génétique visant à déterminer la rivière d'origine des poissons. La représentante du Canada a répondu que l'on prélèverait des matériaux génétiques mais qu'une analyse n'était pas prévue à cause de ressources limitées ainsi que d'un manque de données permettant de différencier les saumons jusqu'au niveau de la rivière d'origine. Les données qui existent ne permettent qu'une différenciation entre les saumons d'origine américaine et les saumons d'origine canadienne.

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

9.1 Le Président a annoncé que le tirage au sort du prix de la Commission Nord-Américaine du Programme d'encouragement au renvoi des marques de l'OCSAN a été effectué par le Commissaire aux comptes le 5 mai. La marque gagnante était d'origine canadienne. Elle avait été posée, le 28 mai 2007, sur un saumon de 56 cm au filet trappe Index du Ministère des Pêches et des Océans à Millerton, dans la rivière Miramichi Sud-Ouest, pour en marquer la participation à un programme d'évaluation des retours de marques. Ce poisson avait été recapturé dans la même rivière, le 6 mai 2008, en tant que ravalé. M. Trevor Hunter, de Clark's Corner, au Nouveau Brunswick, a remporté le prix de 1 500 dollars de la Commission.

10. Recommandations au Conseil dans le cadre de l'avis scientifique émanant du CIEM

10.1 La Commission a convenu de recommander, dans le cadre de la demande annuelle de recommandations scientifiques adressée au CIEM, la section propre à la zone de la Commission Nord-Américaine telle qu'elle avait été préparée par le Comité scientifique permanent. La demande de recommandations scientifiques adressée au CIEM et approuvée par le Conseil figure dans le document CNL(09)10 (annexe 5).

11. Divers

11.1 Le représentant des États-Unis a suggéré de supprimer dorénavant le point 5 de l'ordre du jour étant donné que des renseignements complets sur la recherche, l'état des stocks et les activités de gestion des États-Unis et du Canada étaient déjà fournis dans les documents suivants: programmes de mise en application de chacun des pays, comptes rendus annuels concernant ces programmes, rapports concernant les volets spécifiques (FAR) et rapport du GTSAN. La CNA a convenu de procéder de cette façon à l'avenir.

11.2 La représentante du Canada a rendu compte de deux études sur des captures avec remise à l'eau des prises. Elles seront entreprises à titre d'information pour la Commission. Tout d'abord, les saumons remontant pour aller frayer dans la rivière des Escoumins, sur la rive tout à fait au nord du Québec, seront capturés au niveau d'une échelle à poissons. On prélèvera ensuite des échantillons génétiques avant de les relâcher. Les captures suivantes des adultes dans la pêcherie et des juvéniles après leur émergence, auront lieu l'année d'après. Des prélèvements génétiques sur ces derniers seront comparés à ceux des parents pour établir le succès de la fraie. Ce programme débutera en 2009 pour une durée de trois ans. Il s'agit ici d'un projet collectif entre le Ministère des Pêches et des Océans (MPO), l'université Laval, et le Ministère des Ressources Naturelles et de la Faune (MRNF). La seconde étude de captures avec remise à l'eau des prises aura lieu à la rivière Conne de Terre Neuve. Cette étude commencera en 2009. Des pêcheurs à la ligne fourniront des saumons sur lesquels on apposera une marque radio avant de les relâcher. Ces poissons marqués seront suivis tout au long de leur parcours et les succès de fraie notés. Cette recherche sera entreprise en collaboration par les Micmac de la rivière Conne, le MPO, et la Fondation pour la Conservation du Saumon Atlantique.

12. Date et lieu de la prochaine réunion

12.1 La Commission a convenu de tenir sa prochaine réunion en même temps et au même endroit que la Vingt-septième réunion annuelle du Conseil en 2010.

13. Compte rendu de la réunion

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

Note: Une liste des documents de la Commission Nord-Américaine figure à l'annexe 6.

Annex 1

Joint NGO Opening Statement to the North American Commission

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

The NGOs thank both Canada and the US for their full participation in the process of preparing and reviewing Focus Area Plans for Fisheries Management and the Protection, Restoration and Enhancement of Salmon Habitat.

We recognize that the US government has proposed to expand the geographic range and number of salmon rivers of Maine, listed under the Endangered Species Act, from eight small mid-coast and downeast rivers to the state's three largest rivers. Given the expanded listing, it is critical to ensure that these salmon are not harvested at West Greenland, St. Pierre et Miquelon or in the mixed-population fishery at Labrador.

The reported catch at St. Pierre et Miquelon rose to 3.5 tonnes, the second highest level in 19 years and it consists entirely of salmon originating in Canada and the USA. The accession by France (in respect to St. Pierre et Miquelon) to the NASCO Convention would facilitate a much-needed exchange of information and resolution of management challenges. We are disappointed that so far France has declined NASCO's invitation. But we are encouraged by the discussion at Council this morning indicating that the Parties will aggressively pursue this issue.

The NGOs note the ICES advice that Labrador is reaching only 50% of the conservation limit for 2SW salmon. In 2008, Canada allowed a mixed-population fishery at Labrador that killed 3,900 large salmon, the largest harvest in ten years. These salmon were primarily destined to spawn in various rivers in Labrador. Canada collects assessment data on only four of more than 100 rivers in Labrador. We encourage Canada to practice precautionary management in the absence of reliable assessment data, and to decrease the kill of large salmon in Labrador. We also encourage genetic studies to ascertain the percentage of salmon taken off the coast of Labrador that are destined for rivers in the rest of Canada and the United States.

Annex 2

NAC(09)6

Agenda

1. Opening of the Meeting

2. Adoption of the Agenda

3. Nomination of a Rapporteur

4. Review of the 2008 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5. Review and Discussion of the 2009 Canadian and US Salmon Management Measures as they relate to the Mandate of the Commission and to the Findings of the ACOM Report from ICES

6. The St Pierre and Miquelon Salmon Fishery

7. Salmonid Introductions and Transfers

8. Sampling in the Labrador Fishery

9. Announcement of the Tag Return Incentive Scheme Prize

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

11. Other Business

12. Date and Place of the Next Meeting

13. Report of the Meeting

Annex 3

NAC(09)3

Report on US Atlantic Salmon Management and Research Activities in 2008

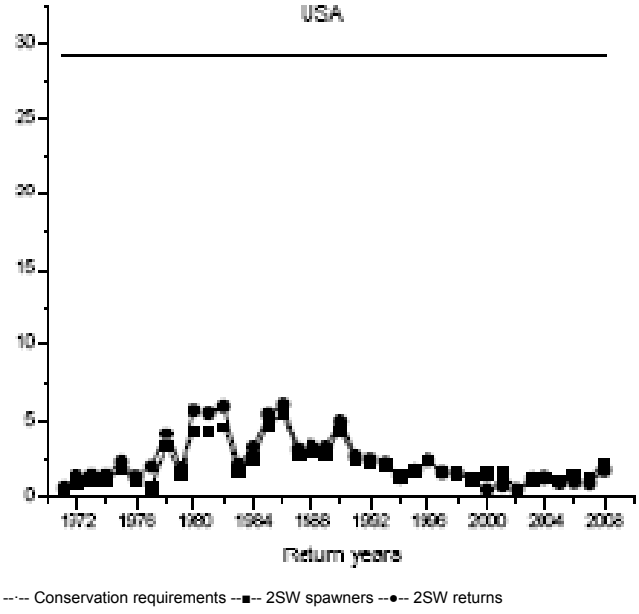
Adult Returns

Total return to USA rivers in 2008 was 2,613 (Table 1), a 108% increase from 2007 returns (Table 2). Changes from 2007 by river were: Connecticut (0%), Merrimack (+59%), Penobscot (+129%), Saco (+158%), and Narraguagus (+109%). In addition to catches at traps and weirs (2,506), returns were estimated for the eight core populations that comprise the federally endangered Gulf of Maine Distinct Population Segment (GOM DPS). Data on adult returns and redd counts collected from the Narraguagus, Pleasant, and Dennys rivers have been used to estimate returns to core populations within the GOM DPS using a linear regression [ln (returns) = 0.5699 ln(redd count) + 1.3945]. One hundred and thirty eight (90% CI = 106 - 178) fish were estimated to return to the rivers with Endangered populations. The ratio of sea ages from trap and weir catches within the GOM DPS was used to estimate the number of 2SW spawners for the estimated returns.

Most returns occurred in Maine, with the Penobscot River accounting for 81% of the total return. Overall, 31% of the adult returns to the USA were 1SW salmon and 69% were MSW salmon. Most (84%) returns were of hatchery smolt origin and the balance (16%) originated from either natural reproduction or hatchery fry. The adult return rate (1SW plus 2SW) of hatchery smolts released in the Penobscot River in 2006 was 0.28%, with the 2SW fish return rate 0.24%. Smolt survival on the Penobscot River correlates well with other large restoration programs in the Connecticut and Merrimack rivers. The estimated return rate for 2SW adults from the 2006 cohort of wild smolts on the Narraguagus was 0.71%, mirroring trends on the Penobscot.

As reported by the ICES Working Group on North Atlantic salmon, pre‑spawning adults were stocked into USA rivers, however, even with these, all age classes of spawners (1SW, 2SW, 3SW, and repeat) in 2008 (3045 salmon) represented only 10% of the 2SW spawner requirements for all USA rivers combined (Figure1).

Figure 1: US 2SW returns, 2SW spawners, and 2SW conservation requirements



Stock Enhancement Programs

During 2008 about 12,534,000 juvenile salmon (92% fry) were released into 15 River systems. The number of juveniles released was more than that in 2007 (12,372,000). Fry were stocked in the Connecticut, Merrimack, Saco, Penobscot, and six rivers within the geographic range of the GOM DPS in Maine. The 275,000 parr released in 2008 were primarily the by-products of smolt production programs and included ages 0 and 1 fish. Smolts were stocked in the Penobscot (513,000), Merrimack (89,000), Connecticut (50,000), Narraguagus (54,000), and Pawcatuck (6,000) rivers. In addition to juveniles, 5,848 adult salmon were released into USA rivers. Most were spent broodstock or broodstock excess to hatchery capacity. However, mature pre-spawn salmon released in the Sheepscot, East Machias, and Machias rivers and Hobart Stream produced redds. In the Merrimack River excess broodstock were released to support a recreational fishery and to enhance spawning in the watershed.

Mature adults stocked into Sheepscot, East Machias, and Machias rivers and Hobart Stream in the fall were added to USA 2SW returns to calculate spawners. Thus, spawners exceeded returns in 2008 with USA spawners totaling 3,045. Escapement to natural spawning areas was 1,252 (returns released to rivers + stocked pre-spawn adults).

Tagging and Marking Programs

Tagging and marking programs facilitated research and assessment programs including: identifying the life stage and location of stocking, evaluating juvenile growth and survival, instream adult and juvenile movement, and estuarine smolt movement. A total of 468,246 salmon released into USA waters in 2008 was marked or tagged. Tags and marks for parr, smolts and adults included: Floy, Carlin, PIT, radio, acoustical, fin clips, and visual implant elastomer. About 11% of the marked fish were released into the Connecticut River watershed and 60% into the Penobscot River.

Description of Fisheries

Commercial fisheries for sea-run Atlantic salmon are closed in US waters, including freshwater systems, coastal/ estuarine systems, and marine waters within the US Exclusive Economic Zone (EEZ). Except for a one-month spring recreational fishery on the Penobscot River, Maine commercial and recreational fisheries for sea-run Atlantic salmon are closed in USA waters (including coastal waters). Estimated catch and unreported catch are zero (metric tonne). A total of 177 licenses were sold, with about one third of the anglers complying with reporting requirements. The fishery had an estimated 790 angler trips of effort. The 61 Atlantic salmon captured and released exceeded the quota of 50 salmon set for the fishery. Anglers had the opportunity to fish over at least 600 Atlantic salmon based on the catch of salmon at the Veazie trap. A fishery in the main stem of the Merrimack River and small reach of the Pemigewasset River was supported by the release of 2,372 broodstock in 2008.

Commercial Aquaculture Production

During 2006, several US aquaculture companies merged into one large producer of salmon for Maine, Cooke Aquaculture. In 2006, 3 million smolts were stocked in order to increase harvest totals for 2007/2008. Production of farmed salmon in Maine was reported to be 9,014 metric tonnes in 2008, about three times the 2,715 metric tonnes produced in 2007. Production in three of the last five years has been less than half of the 13,202 t produced in 2001.

Management Status of the Endangered Gulf of Maine (GOM) Distinct Population Segment (DPS)

The federally endangered GOM DPS of Atlantic salmon, as listed in 2000, includes Cove Brook (a tributary to the lower Penobscot River) the Dennys, Machias, East Machias, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers. One hundred and thirty eight (90% CI = 106 - 178) fish were estimated to return to the GOM DPS. Data on adult returns and redd counts collected from the Narraguagus, Pleasant, and Dennys rivers have been used to estimate returns to core populations within the GOM DPS using a linear regression.

The U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) collectively referred to as the Services, have joint responsibility for recovery of the endangered GOM DPS of Atlantic salmon. The Services work closely with the Maine Department of Marine Resources Bureau of Sea Run Fish and Habitat (MDMR BSRFH) on salmon management and conservation.

ESA Listing Status

In 2003 the Services assembled an Atlantic Salmon Biological Review Team (BRT) to review and evaluate all relevant scientific information necessary to evaluate whether the population in the Penobscot River and other rivers should be included in the GOM DPS. The populations in the Penobscot and a few other rivers were not included in the GOM DPS at the time it was listed under the ESA in November of 2000 because there was not enough scientific information at that time to demonstrate that those populations were part of the same DPS or constituted a different DPS. Since the listing in 2000, new information has come to light which indicates that the GOM DPS should be re-evaluated to determine if any other populations should be included because they are closely related. The Draft Status Review was completed in January 2006 and underwent peer review. The Center for Independent

Experts (CIE) completed the review and the BRT made revisions to the document based upon this critique. The Status Review was made available to the public during the fall of 2006.

On September 3, 2008, the Services jointly proposed that the GOM DPS of Atlantic salmon be listed as an endangered species under the ESA. This proposal essentially adds the 3 largest river systems in Maine to the GOM DPS as it was previously defined and listed in 2000. The Penobscot River is perhaps the most notable of the large rivers proposed for listing given that it has had higher returns in recent years than all of the other rivers in the DPS combined. Public comments were solicited on this proposal and the proposal was peer reviewed. The Services are in the process of making any necessary changes to the listing rule in preparation for finalization. A final rule is expected to publish sometime in June of 2009.

The ESA also requires that the Services designate Critical Habitat for all species listed as endangered or threatened. NMFS proposed to designate critical habitat which includes describing the habitat features essential to the conservation of the species, identifying those activities that likely affect the identified habitat features, and conducting an economic analysis. Finalization of the critical habitat designation for the expanded GOM DPS is expected sometime in June 2009.

Recovery

In 2006 the MDMR, USFWS, and NMFS contracted Sustainable Ecosystems Institute (SEI) (http://www.sei.org/) to conduct an independent program review to determine if current hatchery operations, protocols, and practices are scientifically sound, have potential to further recovery, and are integrated with population assessment and evaluation programs. One of the main questions posed during this review was: Is there integrated adaptive management of Atlantic salmon in Maine? A team of six scientists was convened to review the Maine program. The visit included a tour of Craigbrook National Fish Hatchery (CBNFH) and two days of presentations by and discussions with agency staff and interested scientists (i.e. researchers, managers from other programs, and retirees). The report was provided to the Services and the MDMR BSRFH in May 2007. In response to this review, the three agencies are developing a new governance structure for the Maine Atlantic salmon program. The new governance structure addresses needs highlighted by SEI such as (1) the hatchery program should be more fully integrated with the recovery program; (2) the agencies should develop a conceptual framework for recovery; and (3) this framework should guide all recovery efforts. The new governance structure is replacing the Maine Atlantic Salmon Technical Advisory Committee and the Recovery Team. It is based on an agreed recovery framework with the intent that: 1) recovery and restoration are done in accordance with the framework; 2) the framework and the program are based on best available science; 3) resources are made available to implement those actions or measures agreed to in any given cycle; 4) there is dispute resolution and continuity throughout the year; and 5) horizontal and vertical communication among and within agencies will improve. Action Teams related to estuarine, marine, and freshwater survival and production, conservation hatcheries, managing genetic diversity, population assessment, and outreach are the key component of the new Atlantic salmon program. Action Teams are identifying the highest priority research and management actions to recover the GOM DPS of Atlantic salmon. The finalization and implementation of a new Atlantic salmon recovery framework is not yet complete.

U.S. Conservation and Research Activities

Habitat Conservation, Enhancement, and Restoration

- Project SHARE (Salmon Habitat and River Enhancement) is a non-governmental organization that was established in 1994. Their mission is to conserve and enhance Atlantic salmon habitat and populations in the Downeast (primarily Washington County) region of Maine. In 2008, Project SHARE focused on-the ground restoration efforts primarily within tributary systems draining the Machias River, an important and well-protected salmon migration corridor. Projects completed included: installing 7 open-bottom arched culverts, assisting the Cove Brook Watershed Council with installation of 1 open-bottom arched culvert in Winterport, decommissioning 9 road/stream crossings, native vegetation plantings at over a dozen restoration sites, and partial removal of six remnant log drive dams
- Maine streams have large wood loads far below predicted levels, and notably low compared to other parts of the United States. Although extensive research has been done on the relationship between Pacific salmonids and wood, relatively little is known about the role wood plays in influencing juvenile Atlantic salmon populations. Two hypotheses were tested in Old Stream, Maine, via snorkel survey in sites with naturally occurring high and low wood densities: 1) the density of juvenile Atlantic salmon was higher in sites that contained high as opposed to low loading of wood, and 2) where wood was available, juvenile salmon tended to be associated with it within a site. In 2006 LWD was added to Creamer Brook and East Machias Drainage each with a paired control site. Finding from these additions suggest that wood is an important habitat feature for juvenile Atlantic salmon, but cannot be viewed in isolation of other habitat factors. In 2008 the Maine Department of Marine Resources Bureau of Searun Fisheries and Habitat (MDMR BSRFH) continued LWD work through the treatment of two paired control/treatment sites on Baker Brook, a tributary of the Narraguagus River. Both wood addition sites we treated similar to previous work by felling streamside trees at a rate of approximately one tree every 12 meters of stream length. One paired control/treatment site on Holmes Brook, Machias drainage was treated in November, 2008. Pre-treatment assessment of each site included fish surveys and geomorphologic surveys in cooperation with a geology research team from Boston College.

Fish Passage

- The Services are involved in hydroelectric project relicensing and other fish passage issues. Fisheries agencies in Maine continue to work to establish and improve upstream and downstream fish passage, and to remove dams and other blockages to habitat connectivity. The majority of fish passage work in the range of the GOM DPS focuses on FERC licensed dams on the Penobscot, Kennebec, and Androscoggin watersheds and on opportunities to enhance passage throughout historical Atlantic salmon habitat. This includes participating in the Penobscot River Restoration Project, negotiating improved passage on a number of dams on the Kennebec River pursuant in part to the 1998 Lower Kennebec River Comprehensive Hydropower Settlement Accord, replacing culverts on highways and logging roads, and removing dams. The Services, in coordination with other state and Federal agencies, are also making efforts to improve fish passage on the Sheepscot Rivers. Information regarding some of the most notable efforts made to improve passage for Atlantic salmon in the GOM DPS is summarized below.

- Penobscot River Restoration Project (PRRP) is perhaps the most significant of the agreements. The PRRP is the result of many years of negotiations between multiple parties. If implemented, the PRRP would lead to the removal of the two lowermost mainstem dams on the Penobscot River (Veazie and Great Works) and would decommission the Howland Dam and construct a nature-like fishway around it. This initiative would improve habitat accessibility for all diadromous species. In June 2004, the Parties to the negotiations signed the Penobscot Multiparty Settlement Agreement (MPA). The MPA includes a 5-year option period during which time the "Penobscot River Restoration Trust" (the Trust) raised the necessary funds to purchase the dams. In June of 2008, the Trust notified PPL Corporation of its intent to purchase the Veazie, Great Works, and Howland dams for $25 million. This was an important milestone on the road to restoring the largest river within Maine, the Penobscot. In early November 2008 the Penobscot River Restoration Trust and PPL Maine filed permit applications with FERC, Maine Department of Environmental Protection, and Army Corps of Engineers to transfer the operating licenses of the Veazie, Great Works, and Howland Dams from PPL to the Trust, and to surrender those licenses and decommission the dams. FERC is currently reviewing of these permits.
- Lower Kennebec River Comprehensive Hydropower Settlement Accord (KHDG Accord, May 26, 1998): The KHDG Accord addresses fish passage issues at eight hydroelectric projects on the Kennebec River and Sebasticook River. The 1998 Accord was signed by various state and Federal fishery agencies and approved by the FERC. In addition, the Anson and Abenaki Offer of Settlement (January 30, 2002), also signed by various state and Federal fishery agencies and approved by FERC, addresses fish passage provisions on two hydroelectric projects within the middle reaches of the Kennebec River (Anson and Abenaki Projects). On the Kennebec River, fish passage agreements were reached at the lower four hydroelectric projects including the Lockwood, Hydro-Kennebec, Shawmut, and Weston as part of the KHDG Accord. The lowermost hydroelectric project, Edwards Dam, was removed as part of the KHDG Accord. On the Sebasticook River, fish passage agreements were reached on the Benton and Burnham Projects, and in 2008, the Fort Halifax dam was breached pursuant to the passage agreement.
- In March of 2008, the Maine Legislature's Marine Resources Committee heard testimony on LD 1957, an act to overturn the 1995 state law closing fishways at the Woodland and Grand Falls Dam to anadromous alewives. While the original bill would have provided access to 52% of the spawning habitat available in the 1980s, an amended bill was passed, opening fish passage at the Woodland Dam only and restoring alewives to just over 2% of that habitat. The MDMR, the Maine Department of Inland Fisheries and Wildlife (MIFW), and the Passamaquoddy Tribal Government will be working collaboratively over the next year to resolve the issues that resulted in the changed legislation.
- In 2008, the multi-agency New Hampshire River Restoration Task Force continued to work on identifying dams and fish passage impediments for removal in state waters, as well as pursuing strategic alterations and/or modifications of dams. Merrimack Village Dam, Souhegan River, Merrimack, NH was successfully removed. Work has begun on the Black Brook Dam, Black Brook, and Manchester, NH.

Diadromous Fish Restoration

- In anticipation of the restoration potential of the Penobscot River Restoration Project, the State of Maine has completed a draft strategic management plan for diadromous fish in the Penobscot River. This plan includes four strategic goals: (1) coordinating management activities, (2) providing safe and effective upstream and downstream passage for diadromous fishes, (3) maintaining or improving abiotic (physical) and biotic habitat for diadromous fishes using ecosystem-based management, and (4) rebuilding diadromous fish populations.

Telemetry

- NOAA's National Marine Fisheries Service Northeast Fishery Science Center (NEFSC) has used ultrasonic telemetry to assess Atlantic salmon smolt migration since 1997. In 2008, NEFSC tagged and released 156 emigrating smolts of 3 rearing histories, naturally reared (n = 46), fall parr (n=31) and hatchery smolts (n = 80), into the lower Penobscot River. Fish movement was passively monitored via the NEC Pen Bay Array a network of ultrasonic receivers deployed throughout the estuarine and near-shore marine environment to observe migration dynamics of the emigrating smolts. The NEFSC Penobscot Bay Array is connected to 11 buoys in the Gulf of Maine Ocean Observing System (GoMOOS - www.gomoos.org) through cooperative efforts of NEFSC and University of Maine. One of the GoMOOS buoys was located in Penobscot Bay and the remaining 10 were located throughout the Gulf of Maine. These sites are monitored continuously, throughout the year. Further offshore, NEFSC collaborates with the Ocean Tracking Network (OTN – www.oceantrackingnetwork.org) headquartered out of Dalhousie University (Halifax, NS) to gain a comprehensive understanding of Marine life and conditions with hopes that the worldwide network of telemetry receivers and research equipment will assist in better managing the oceans.

Outreach and Education

- The use of salmon egg incubators in school as a tool to teach about salmon, watersheds and conservation continued to expand throughout the basin. The Connecticut River Salmon Association (CRSA), in cooperation with CT Department of Environmental Protection conducted their **Fish Friends program** at schools in Connecticut. Trout Unlimited in cooperation with MADFW carried a similar message to schools in Massachusetts. Several cooperators including CRSA, New Hampshire Fish and Game (NHFG), US Forest Service, USFWS, Vermont Fish and Wildlife and the Southern Vermont Natural History Museum cooperatively conducted the program in Vermont and New Hampshire. For the 2008-2009 school years 165 schools participated in this type of salmon education in the four states.
- The 2008 school year marked the sixteenth year in which the **Adopt-A-Salmon Family Program** has been providing outreach and education to school groups in ME, NH, and MA in support of Atlantic salmon recovery and restoration efforts. The program is administered by the Central New England Fisheries Regional Office with support from the Nashua National Fish Hatchery (NNFH), the Amoskeag Fishways, and a corps of very dedicated volunteers and Student Conservation Association interns. Most participating schools implement the program throughout the school year with highlights including a visit to NNFH for a ninety minute educational program in November, and incubating salmon eggs in the classroom beginning in January/February for release as fry into the watershed in the late spring. In February 2008, 36 schools received 13,470 eggs to be reared in classroom incubators.

Throughout the winter and spring, eggs were monitored by students until they hatched. In late spring, fry were released into the Merrimack River watershed. In November 2008, 1,007 students and 67 teachers and parents from 13 schools throughout central New England participated in the educational program at NNFH. During the visit, participants learned about the effects of human impacts on migratory fish and other aquatic species and observed Atlantic salmon spawning demonstrations.

- The Merrimack River Anadromous Fish Restoration Program continued to be represented in **The Amoskeag Fishways Partnership** [Partnership (www.amoskeagfishways.org)]. Partners that include PSNH, Audubon Society of New Hampshire, NHFG, and the USFWS continue to create and implement award winning environmental education programs based at the Amoskeag Fishways Learning and Visitors Center (Fishways) in Manchester, NH. With the Merrimack River watershed as a general focus, the partnership is offering educational outreach programming to school groups, teachers, the general public, and other targeted audiences. Fishways visitation in 2008 was 23,326, including 13,573 students and 9,753 adults. Since its inception Fishways has documented greater than one half-million visitors, and about 7,000 school programs have been delivered to date. School programs taught in 2008 totaled 224 with 99 programs taught offsite.

Annex 4

NAC(09)4

Review of Atlantic Salmon Management Measures for 2009

Canada

Introduction

As we have heard, the outlook for Atlantic salmon stocks continues to be generally poor and Atlantic Canada is no exception. There are few areas where returns and spawners are consistently above conservation requirements, other areas where returns are adequate (or close to being so) for conservation, and many areas where there are serious concerns for conservation of the stocks. The lack of understanding of the factors affecting salmon at sea is a serious concern and remains a significant problem that could potentially be an obstacle to rational management of the resource.

Management measures for Atlantic salmon are tailored to the needs of specific areas (rivers and watersheds) while striving for an overall precautionary approach.

Aboriginal Food Fisheries

Aboriginal food fisheries for Atlantic salmon take place throughout Atlantic Canada and Quebec. These Aboriginal rights for food, social and ceremonial purposes are permitted after conservation requirements have been addressed, and the Supreme Court of Canada has affirmed that these fisheries take precedence over all other fishing.

The Federal Government, through the Department of Fisheries and Oceans, seeks to develop food fishery licences with Aboriginal groups that identify allocations, monitoring system requirements (guardians/logbooks, etc.) and scientific projects such as tagging or gear trials (such as the use of trapnets instead of gillnets), where practical.

Commercial Fishery

There are no longer any commercial fisheries for Atlantic salmon on Canada's east coast. The last commercial fishery, a small fishery on Quebec's Lower North Shore, concluded in 1999.

Recreational Fishery

Newfoundland and Labrador

There are 305 salmon rivers in Newfoundland and more than 90 in Labrador. 2009 is the third year of the multi-year (2007-2011) Atlantic salmon integrated fisheries management plan for Newfoundland and Labrador. Following discussions with the Salmonid Advisory Committee, a number of minor adjustments are being made to the IFMP this year. In particular:

- a permanent closure of a section of the Shoal Harbour River from the existing dam to 23 metres upstream to alleviate concerns of foul hooking of salmon resting in the pool;
- a reclassification of the Grey River from Class II (4-fish retention) to Class III (2-fish retention);
- a standard daily, seasonal and possession limit for all Bay St George Rivers will be instituted;
- the opening of all Rocky River to catch and release angling (previously only the portion of the river from the mouth of Back River downstream to a point 25 metres above the falls was open); and
- a retention fishery for the main stem of the mid-Exploits River will be allowed, subject to a mid-season review to assess the returns.

Maritimes Region

The Maritimes Region consists of five Salmon Fishing Areas (19, 20, 21, 22 and 23). Rivers in the Inner Bay of Fundy portion of Areas 22 and 23 remain closed to salmon fishing (since 1990) and salmon stocks in this area were assessed as "endangered" by the Committee on the Status of Endangered Wildlife in Canada in 2001. They are now listed as "endangered" under Canada's *Species at Risk Act* which means that no fishing or other harmful activity can be directed at these salmon. A live-gene bank program for Inner Bay of Fundy salmon stocks was initiated in 1998 and recovery actions continue for these stocks.

- For Salmon Fishing Areas 19, 20 and 21, management measures implemented in 2008 will be continued for 2009: i.e., mandatory barbless hooks when salmon fishing (all rivers in these Areas are hook and release only)

Gulf Region

The Gulf Region consists of four Salmon Fishing Areas (15, 16, 17 and 18). A number of management measures, implemented in 2008 will be continued for 2009:

- Daily live release limit during spring salmon (kelt) season (April 15 - May 15) is 10 on Miramichi;
- Portions of Main Southwest Miramichi and Northwest Miramichi Rivers are restricted to single barbless hooks for all angling;
- Dunk River (PEI) opened with restrictions from April 15 - Sept 15; catch and release only, barbless hooks with artificial lure and fly only; and

- Closing of Tryon River's east branch to angling.
- For Salmon Fishing Area 18 (NS) reduced from 8 to 4 the number of salmon tags available to anglers and implemented mandatory barbless hooks from October 1 to October 31 when salmon fishing.

In addition, two new management measures are being implemented for 2009:

- Barbless hooks with flies must now be used for angling all species (including salmon) during the period of April 15 to May 15 in most "fly fishing waters" in the Miramichi drainage (12 rivers); and
- In Prince Edward Island, there will be no retention of Atlantic salmon in 2009. No tags will be issued and fishing is by single barbless fly only.

Quebec

Salmon populations occur in 109 rivers and 5 tributaries in Quebec.and are grouped into 11 fishing zones. A number of new elements have been introduced for the 2009 fishing season and are contained in the 2009 Quebec salmon sportfishing regulations (available on line):

- New rules concerning fishing tackle that may be used in a salmon river: prohibitions on using a hook with more than two points in a salmon river during a salmon fishing period, and on using more than two artificial flies in a salmon river;
- New fishing rules have been introduced for a number of rivers;
- Rivière Mont-Louis has been closed to salmon fishing;
- Certain tributaries of the Escoumins, Godbout, and Trinité rivers henceforth have a salmon river status;
- Anglers have an obligation to avoid injuring as much as possible a fish that is released under all circumstances, and a ban on fishing using hooks intentionally manipulated to hook or pierce any part of the fish has been instituted.
- In addition, the obligation to register a salmon by telephone with an office of the Department if no registration process is specifically indicated in the 2009 Quebec salmon sportfishing regulations.

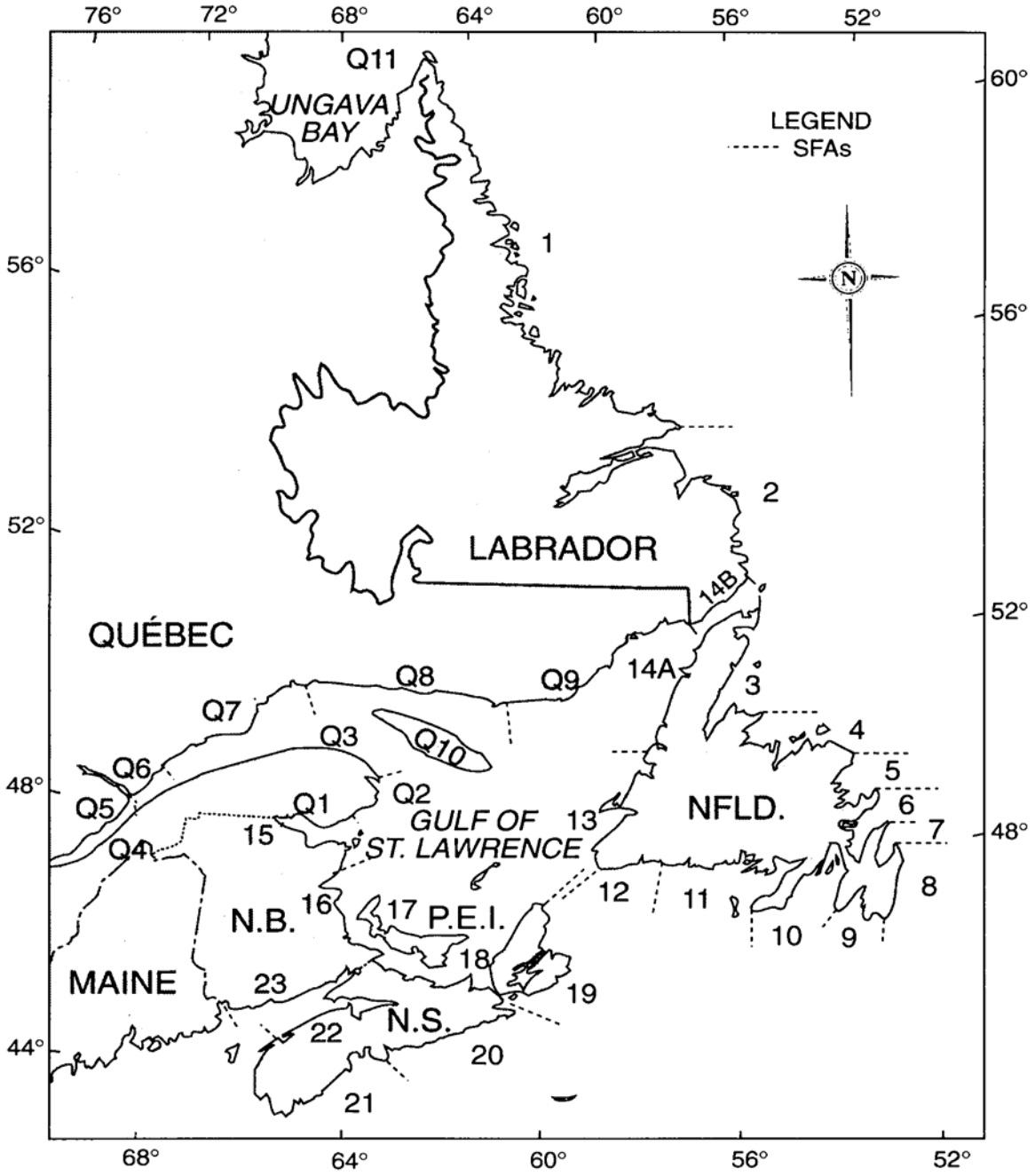
Atlantic-wide measures

Over the years, increasingly more restrictive management measures have been introduced in an attempt to compensate for declining marine survival and salmon abundance, including reduced daily and season bag limits, mandatory catch and release of large and in some cases all sizes of salmon, and in large portions of the Maritimes the total closure of the recreational fisheries. Several Aboriginal community fisheries have been reduced and, in some cases, voluntarily suspended. The failure of most stocks to rebuild to anticipated levels following increasingly more restrictive management measures of 1984 resulted in further reductions and eventually moratoria on commercial salmon fisheries in 1992 for insular Newfoundland, 1998 for Labrador and 2000 for all commercial fisheries in eastern Canada.

Nor surprisingly, there have been many calls for a new management approach. There have been calls for the federal government to take urgent action to help arrest the dramatic overall decline and to rebuild wild Atlantic salmon populations. There has been an increasing awareness that the importance of genetic diversity had not been adequately addressed in past management of salmon fisheries and its habitat. A new approach to managing salmon production and diversity is needed to conserve salmon and protect and restore the full array of benefits they provide to Canadians.

Work has been underway for the last few years on development of a "*Wild Atlantic Salmon Conservation Policy*" which will shortly be released. The policy will guide future decisions to conserve wild Atlantic salmon and their habitat and will facilitate an adaptive approach to salmon conservation. It neither amends nor overrides existing legislation or regulations but will govern how these statutory authorities will be implemented. The policy defines objectives and describes conservation outcomes, but it does not prescribe decision rules that would restrict its application.

This "*Wild Atlantic Salmon Conservation Policy*" represents Canada's commitment and planned course of action for the conservation of wild Atlantic salmon. As such, the policy will provide guidance for the development of a strategic and integrated implementation plan to address current challenges. The policy is in keeping with a mandate to develop a common vision for the future management of wild Atlantic salmon, a governance model for fisheries management with modernized policy frameworks.



SALMON MANAGEMENT AREAS IN ATLANTIC CANADA AND QUEBEC

Annex 5

CNL(09)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, including unreported catches by country and catch and release, and production of farmed and ranched Atlantic salmon in 2009[1];

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

1.3 continue the work already initiated to investigate associations between changes in biological characteristics of all life stages of Atlantic salmon, environmental changes and variations in marine survival with a view to identifying predictors of abundance [3];

1.4 describe how catch and release mortality and unreported catch are incorporated in national and international stock assessments and indicate how they can best be incorporated in future advice to NASCO;

1.5 further develop approaches to forecast pre-fishery abundance for North American and European stocks with measures of uncertainty;

1.6 provide a compilation of tag releases by country in 2009 and advise on progress with analysing historical tag recovery data from oceanic areas;

1.7 identify relevant data deficiencies, monitoring needs and research requirements[4].

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

2.1 describe the key events of the 2009 fisheries[5];

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

2.3 describe the status of the stocks and provide annual catch options or alternative management advice for 2011-2013, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[6];

2.4 further investigate opportunities to develop a framework of indicators or alternative methods that could be used to identify any significant change in previously provided multi-annual management advice.

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

3.1 describe the key events of the 2009 fisheries (including the fishery at St Pierre and Miquelon) [5];

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

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

3.3 describe the status of the stocks and provide annual catch options or alternative management advice for 2010-2013 with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding [6].

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

4.1 describe the key events of the 2009 fisheries[5];

4.2 provide clarification of the levels of reported and unreported catch in the subsistence fishery since 2002,

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

4.3 describe the status of stocks and provide annual catch options or alternative management advice for 2010-2012 with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[6,7];

Notes:

1. *With regard to question 1.1, ICES is asked to ensure that the terminology used in presenting the data on ranching is clearly defined. 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.*
2. *With regard to question 1.2, ICES is requested to include information on any new research into the migration and distribution of salmon at sea.*
3. *With regard to question 1.3, there is interest in determining if declines in marine survival coincide with changes in the biological characteristics of juveniles in fresh water or are modifying characteristics of adult fish (size at age, age at maturity, condition, sex ratio, growth rates, etc.) and with environmental changes.*
4. *NASCO's International Atlantic Salmon Research Board's inventory of on-going research relating to salmon mortality in the sea will be provided to ICES to assist it in this task.*
5. *In the responses to questions 2.1, 3.1 and 4.1 ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality, of the salmon gear used, and on the by-catch of other species in salmon gear, and on the by-catch of salmon in any existing and new fisheries for other species is also requested.*
6. *In response to questions 2.3, 3.3 and 4.3 provide a detailed explanation and critical examination of any changes to the models used to provide catch advice.*
7. *In response to question 4.3, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

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

Annex 6

List of North American Commission Papers

NAC(09)01	Provisional Agenda
NAC(09)02	Draft Agenda
NAC(09)3	Report on US Atlantic Salmon Management and Research Activities in 2008
NAC(09)4	Review Of Atlantic Salmon Management Measures for 2009 - Canada
NAC(09)5	Draft Report
NAC(09)6	Agenda
NAC(09)7	Report of the Twenty-Sixth Annual Meeting of the North American Commission

REPORT OF THE

TWENTY-SIXTH ANNUAL MEETING

OF THE

NORTH-EAST ATLANTIC COMMISSION

2 – 5 JUNE 2009
Molde, Norway

Chairman:	Mr Richard Cowan (European Union)
Vice-Chairman:	Mr Andras Kristiansen (Denmark (in respect of the Faroe Islands and Greenland))
Rapporteur:	Ms Heidi Hansen (Norway)
Secretary:	Dr Malcolm Windsor

NEA(09)11

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NEA(09)11

Report of the Twenty-Sixth Annual Meeting of the North-East Atlantic Commission of the North Atlantic Salmon Conservation Organization Rica Seilet Hotel, Molde, Norway 2-5 June, 2009

1. Opening of the Meeting

1.1 The Chairman, Mr Richard Cowan (European Union), opened the meeting, welcomed the delegates to Molde and thanked the Norwegian Government for hosting the meeting and for the excellent arrangements made.

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

1.3 A list of participants at the Twenty-Sixth Annual Meeting of the Council and Commissions is included on page 147 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its agenda, NEA(09)10 (Annex 2).

3. Nomination of a Rapporteur

3.1 Ms Heidi Hansen (Norway) was appointed as Rapporteur for the meeting.

4. Review of the 2008 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

4.1 The Chairman noted that no regulatory measure for the Faroe Islands fishery had been adopted last year and requested that the representative of Denmark (in respect of the Faroe Islands and Greenland) report if any fishery had taken place in 2008. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that no salmon fishery had taken place in Faroese waters in 2008.

4.2 The representative of ICES, Dr Jaakko Erkinaro, presented the scientific advice on salmon stocks relevant to the North-East Atlantic Commission, CNL(09)8. The ACOM report from ICES, which contains the scientific advice relevant to all Commissions, is included on page 91 of this document. The presentation by ICES is included in document CNL(09)44.

4.3 The Chairman thanked Dr Erkinaro for his very clear and concise presentation and opened the meeting for questions on the scientific advice from ICES.

4.4 The representative of the European Union noted that information derived from Norwegian tagging studies appeared to end in the 1970s and asked for clarification

that this was the case. The representative of Norway confirmed that this was the case and that new projects were about to commence using genetic markers to identify the origin of harvested fish.

4.5 The Chairman noted that the presentation from ICES had indicated that ICES had been unable to make progress in developing quantitative catch advice because there are no explicit management objectives for provision of advice for the Faroese fishery and no pre-agreed sharing arrangement among NASCO Parties. He suggested that there is a need to address this issue before there is a harvestable surplus. The Commission agreed that there should be further discussions on this issue among Heads of Delegations following the Annual Meeting with a view to developing arrangements to commence work in developing management objectives in advance the Twenty-Seventh Annual Meeting.

5. Regulatory Measures

5.1 The Chairman noted that last year a Decision was adopted regarding the salmon fishery in Faroese waters in 2009, NEA(08)6. Under this Decision the Commission decided not to set a quota but noted that the Faroe Islands would manage any fishery on the basis of the ICES advice and in a precautionary manner. He asked if Denmark (in respect of the Faroes Islands and Greenland) was in a position to continue with the present arrangement. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that they could accept a continuation of the present agreement. The representative of the European Union indicated that while his delegation would have preferred a more rigid measure rather than the present wording which indicates that the Commission 'decided not to set a quota', he recognized the commitments made by the Faroe Islands in refraining from fishing for salmon. He asked the representative of Denmark (in respect of the Faroe Islands and Greenland) to confirm that if a similar decision was adopted for 2010 there would be a similar commitment to adhere to the ICES advice. The representative of Denmark (in respect of the Faroe Islands and Greenland) confirmed that management decisions will be made with due consideration to the ICES advice.

5.2 The Chairman circulated a Draft Decision regarding the salmon fishery in Faroese waters in 2010, (NEA(09)6). The Commission adopted this decision, NEA(09)7 (Annex 3).

5.3 The representative of Norway referred to documents NEA(09)3 and NEA(09)4 concerning interceptory salmon fishing on the Norwegian coast. In these documents, Norway has stated that it recognizes the legitimate interests of the Russian Federation and possibly other countries in respect to interceptory salmon fishing on the Norwegian coast. Norway believes that it is important to maintain open and positive dialogue with the Russian Federation and potentially affected EU countries with regard to its fishing regulations for 2010 and beyond. He indicated that the Russian Federation and Norway had engaged in fruitful and constructive talks on this issue during the Annual Meeting and have agreed on a further process of cooperation. The main elements of this process are as follows:

- In early September, the Russian Federation will be given the opportunity to comment on a proposal for general guidelines for the upcoming regulations;

- A proposal for new regulations will be subject to a public hearing in November, and the proposal will also be sent to the authorities in the Russian Federation for information;

- The final proposal from the Directorate for Nature Management to the Ministry of Environment will be sent to the Russian Federation before the final regulations are finalised, and feedback from the Russian Federation will be carefully considered in the decision process;

- The same approach will be taken towards the European Union.

5.4 The representative of the Russian Federation confirmed that excellent dialogue had been held since last year and a process for consultations on the regulations for 2010 had been established. In addition, a scientific project for Russian and Norwegian rivers in the northern area will be conducted. She indicated that the Russian Federation hoped for good results from the cooperation with Norway over the coming year. The representative of the European Union indicated that his delegation would be keen to participate in trilateral consultations in the coming year. The representative of the NGOs welcomed the statement from Norway and the timetable for consultation in relation to the 2010 regulations.

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

6.1 At its last Annual Meeting, the Commission had considered a report from its Working Group on *G.salaris* in the North-East Atlantic Commission area, NEA(08)3. The Commission had agreed to retain an agenda item on this issue so as to monitor developments.

6.2 The European Union tabled document, NEA(09)5 (Annex 4), detailing measures concerning the contingency planning for the parasite *G.salaris* in Finland. Existing measures are in place concerning restrictions on movements of live fish and eggs and baitfish and in Autumn 2009 a project will commence to develop the information required to support contingency planning.

6.3 In response to the question in the NGO Opening Statement concerning the continuation of Additional Guarantees, the representative of the European Union referred to Declarations from the European Commission and made the following statement: "The Commission intends to contribute to the future protection of susceptible stocks of Atlantic salmon in freshwater, as laid down in the Habitat Directive 92/43/EEC, against the threat of *Gyrodactylus salaris.* This is possible pursuant to Article 43 of the proposed Directive, which can be used as a legal base to carry over the current measures laid down in Commission Decision 2004/453/EC under the new Directive. The Commission intends to present to the Standing Committee of the Food Chain and Animal Health, a proposal to maintain the current *G.salaris* guarantees laid down in Decision 2004/453/EC, in line with Article 63(3)." The representative of the NGOs thanked the representative of the European Union for this clarification but noted that the statement had referred only to the intention to continue Additional Guarantees concerning *G.salaris* and he hoped that this would be carried out.

6.4 The representative of the NGOs referred to a concern expressed by the Norwegian NGOs that there needed to be improved monitoring and communication regarding the *G.salaris* situation in Swedish west coast rivers. He asked if the representative of the European Union could provide any information on this issue. The representative of the European Union tabled document, NEA(09)9 (Annex 5), which provides information on the monitoring programmes in Sweden and on cooperation with Norway and Finland in relation to this parasite.

7. Announcement of the Tag Return Incentive Scheme Prize

7.1 The draw for the North-East Atlantic Commission prize in the NASCO Tag Return Incentive Scheme was made by the Auditor on 5 May 2009. The winning tag was of Norwegian origin. The tagged fish was released from a bag net fishery at the outlet of the Trondheimfjord on 22 May 2007 and was recaptured in the river Orkla on 17 June 2007 and the tag was returned to the authorities in March 2008. The winner of the Commission's prize was Mr Oddvar Egelandsdal, Hundvåg, Norway. The Commission offered its congratulations to the winner.

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

8.1 The Commission agreed the request for scientific advice from ICES prepared by the Standing Scientific Committee in relation to the North-East Atlantic Commission area. The request to ICES, as agreed by the Council, is contained in document CNL(09)10 (Annex 6).

9. Other Business

9.1 There was no other business.

10. Date and Place of the Next Meeting

10.1 The Commission agreed to hold its next meeting at the same time and place as the Twenty-Seventh Annual Meeting of the Council in 2010.

11. Report of the Meeting

11.1 The Commission agreed a report of its meeting.

Note: The annexes mentioned above begin on page 49, following the French translation of the report of the meeting. A list of North-East Atlantic Commission papers is included in Annex 7.

NEA(09)11

Compte rendu de la Vingt-sixième réunion annuelle de la Commission de l'Atlantique du Nord-Est de l'Organisation pour la Conservation du Saumon de l'Atlantique Nord Hôtel Rica Seilet, Molde, Norvège 2-5 juin, 2009

1. Ouverture de la réunion

1.1 Le Président, M. Richard Cowan (Union européenne) a ouvert la réunion et a souhaité la bienvenue à Molde aux délégués. Il a par ailleurs remercié les autorités norvégiennes pour leur accueil et pour leur parfaite planification.

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

1.3 Une liste des participants à la Vingt-sixième réunion annuelle du Conseil et des Commissions de l'OCSAN figure à la page 147 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour, NEA (09)10 (annexe 2).

3. Nomination d'un Rapporteur

3.1 La Commission a nommé Ms Heidi Hansen (Norvège), Rapporteur de la réunion.

4. Examen de la pêcherie de 2008 et du rapport de l'ACOM du CIEM sur les stocks de saumons dans la zone de la Commission

4.1 Concernant la zone de la Commission de l'Atlantique du Nord-Est, le Président a rappelé que, l'année dernière, aucune mesure de réglementation n'avait été adoptée. Il a, de ce fait, demandé à la représentante du Danemark (pour les Îles Féroé et le Groenland) d'indiquer si des activités de pêche avaient eu lieu aux Îles Féroé en 2008. La représentante du Danemark (pour les Îles Féroé et le Groenland) a confirmé par la négative.

4.2 Le représentant du CIEM, le Dr. Jaakko Erkinaro, a présenté les recommandations scientifiques à propos des stocks de saumons qui intéressent la Commission de l'Atlantique du Nord-Est, CNL(09)8. Le rapport de l'ACOM du CIEM, qui renferme les recommandations scientifiques pour l'ensemble des Commissions, figure à la page 91 de ce document. La présentation du CIEM est reproduite dans le document CNL(09)44.

4.3 Le Président a remercié le Dr Erkinaro pour sa présentation à la fois très claire et concise. Il a ensuite ouvert la réunion et invité les participants à commenter les

recommandations scientifiques du CIEM.

4.4 Le représentant de l'Union européenne a attiré l'attention sur le fait que l'information tirée des études de marquage norvégiennes semblait ne pas dépasser les années 1970. Il a cherché à savoir si ceci était bien le cas. Le représentant de la Norvège a confirmé cet état de chose, mais a annoncé de nouveaux projets sur le point de débuter. Ceux-ci utiliseraient des marqueurs génétiques pour identifier l'origine des poissons récoltés.

4.5 Le Président a mentionné que la présentation du CIEM avait indiqué que des progrès concernant la mise au point de conseils à propos du nombre de captures avaient été impossibles à réaliser. En effet, il n'existait aucun objectif de gestion permettant une formulation de conseils pour la pêche féringienne et aucun accord de partage décidé d'avance entre les Parties de l'OCSAN. Le Président a suggéré la nécessité d'adresser cette question avant qu'il n'y ait un surplus récoltable. La Commission a convenu que les Chefs de délégations devraient s'entretenir à ce sujet après la réunion annuelle, l'objectif étant de mettre en place les dispositifs nécessaires qui permettraient de commencer à définir des objectifs de gestion avant la Vingt-septième réunion annuelle.

5. Mesures de réglementation

5.1 Le Président a rappelé que l'année dernière une décision avait été prise concernant la pêcherie de saumons dans les eaux féringiennes en 2009, NEA(08)6. Conformément à cette Décision, la Commission avait décidé de ne pas fixer de quota mais avait pris note que les Îles Féroé gèreraient toute pêcherie selon les conseils du CIEM et d'une manière préventive. Il a demandé à la représentante du Danemark (pour les Îles Féroé et le Groenland) si elle était en mesure de continuer avec cet arrangement. La représentante du Danemark (pour les Îles Féroé et le Groenland) a déclaré qu'elle était en mesure d'accepter la continuation de l'accord tel qu'il était. Le représentant de l'Union européenne a indiqué que, quand bien même sa délégation aurait préféré une mesure plus stricte que le texte actuel (indiquant uniquement que la Commission « a décidé de ne pas fixer de quota »), il reconnaissait les engagements pris par les Îles Féroé à s'abstenir de pêcher le saumon. Il a demandé à la représentante du Danemark (pour les Îles Féroé et le Groenland) de confirmer si, une décision semblable était adoptée en 2010, l'engagement à respecter les recommandations du CIEM demeurerait ferme. La représentante du Danemark (pour les Îles Féroé et le Groenland) a confirmé que les décisions de gestion seraient prises en accord avec les recommandations du CIEM.

5.2 Le Président a fait circuler un avant projet de prise de décision concernant la pêcherie de saumons dans les eaux féringiennes en 2010 (NEA(09)6). La Commission a adopté cette décision, NEA(09)7 (annexe 3).

5.3 Le représentant de la Norvège s'est reporté aux documents NEA(09)3 et NEA(09)4. Ces documents concernaient la pêche d'interception de saumons le long de la côte norvégienne. Dans ces documents, la Norvège déclarait qu'elle reconnaissait les intérêts légitimes de la Fédération de Russie et aussi peut-être d'autres pays à propos des pêches d'interception de saumons le long de la côte norvégienne. Elle était d'avis qu'il importait de maintenir un dialogue ouvert et positif avec la Fédération de Russie et les autres pays de l'UE potentiellement concernés par ce sujet, en ce qui concernait

ses propres règlements de pêche pour 2010 et au-delà. Le représentant de la Norvège a indiqué que la Fédération de Russie et la Norvège avaient amorcé des débats constructifs et fructueux lors de la réunion annuelle et avaient convenu d'étendre le processus de coopération. Les éléments principaux de ce processus sont les suivants :

- Au début du mois de septembre, la Fédération de Russie aura l'occasion d'émettre des commentaires sur une proposition de directives générales sur les prochains règlements ;

- En novembre, une proposition de nouvelle réglementation fera l'objet d'une audience publique. Cette proposition sera également envoyée, à titre d'information, aux autorités de la Fédération de Russie ;

- La proposition finale émise par la Direction de la Gestion de la Nature et soumise au Ministère de l'Environnement sera envoyée aux autorités de la Fédération de Russie avant que la réglementation définitive ne soit finalisée et le *feedback* de la Fédération de Russie étudié avec soin lors du processus de décision ;

- On adoptera la même approche envers l'Union européenne.

5.4 La représentante de la Fédération de Russie a confirmé que, depuis l'année dernière, le dialogue avec la Norvège avait été excellent et qu'ils avaient établi un processus de consultations à propos de la réglementation de 2010. De plus, un projet scientifique aura lieu concernant les rivières de la Russie et de la Norvège dans la région du nord. Elle a indiqué que la Fédération de Russie espérait obtenir de bons résultats de la coopération avec la Norvège au cours de l'année à venir. Le représentant de l'Union européenne a déclaré que sa délégation tenait à participer aux consultations trilatérales au cours de la prochaine année. Le représentant des ONG a accueilli favorablement la déclaration et le calendrier de consultations de la Norvège concernant la réglementation de 2010.

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

6.1 Lors de sa dernière réunion annuelle, la Commission avait étudié un rapport rédigé par son Groupe de Travail chargé de la question du *G.salaris* dans la zone de la Commission de l'Atlantique du Nord-Est, NEA(08)3. La Commission avait convenu de garder cette question à l'ordre du jour afin d'en contrôler les évolutions.

6.2 Le représentant de l'Union européenne a soumis le document NEA(09)5 (annexe 4), qui décrivait les mesures prises concernant l'établissement de plans d'urgence quant au parasite *G.salaris* en Finlande. Les mesures en place concernent les restrictions de mouvements de poissons et d'œufs vivants ainsi que les restrictions de mouvements de poissons appâts. En automne 2009, un projet sera lancé en vue d'élaborer l'information requise pour soutenir l'établissement de plans d'urgence.

6.3 En réponse à la question posée par les ONG dans leur allocution d'ouverture et qui concerne la continuation des Garanties Supplémentaires, le représentant de l'Union européenne s'est reporté aux Déclarations de la Commission Européenne et a fait la déclaration suivante : « Conformément à la directive sur l'Habitat 92/43/EEC, la

Commission a l'intention de contribuer à la protection future des stocks vulnérables de saumons atlantiques contre la menace du *Gyrodactylus salaris* dans les eaux douces. Selon l'article 43 de la proposition de Directive, ceci s'avère envisageable. Cet article peut en effet servir de fondement juridique au transfert à la nouvelle Directive des mesures actuelles, telles qu'elles sont décrites dans la Décision de la Commission 2004/453/EC. Il est dans l'intention de la Commission de présenter la proposition de maintenir les garanties contre le *G.salaris* au Comité permanent de la chaîne alimentaire et de la santé animale, et tel qu'il est stipulé dans la Décision 2004/453/EC, en accord avec l'Article 63(3). » Le représentant des ONG a remercié le représentant de l'Union européenne pour cette clarification, mais a fait remarquer que la déclaration n'avait fait référence qu'à l'intention de continuer ces Garanties Supplémentaires à propos du *G.salaris.* Il espérait cependant que celles-ci seraient effectivement appliquées.

6.4 Le représentant des ONG a fait mention d'une inquiétude exprimée par les ONG norvégiennes quant à la nécessité d'améliorer la surveillance de la situation du *G.salaris* dans les rivières de la côte ouest de la Suède ainsi que les communications qui s'y rapportent. Il a demandé si le représentant de l'Union européenne pouvait fournir des renseignements à ce sujet. Le représentant de l'Union européenne a présenté le document NEA(09)9 (annexe 5), qui fournissait des informations sur les programmes de contrôle en Suède et sur la coopération entre la Norvège et la Finlande en relation à ce parasite.

7. Annonce du Prix du Programme d'encouragement au renvoi des marques

7.1 Le tirage au sort du prix de la Commission de l'Atlantique du Nord-Est du Programme d'encouragement au renvoi des marques de l'OCSAN a été effectué par le Commissaire aux comptes le 5 mai 2009. La marque gagnante était d'origine norvégienne. Le poisson marqué avait été relâché d'une pêcherie au filet trappe à l'embouchure du Trondheimfjord le 22 Mai 2007 et avait été recapturé dans la rivière Orkla le 17 juin 2007. La marque avait été renvoyée aux autorités en mars 2008. M. Oddvar Egelandsdal, de Hundvåg, en Norvège a remporté le prix de la Commission. La Commission a félicité le gagnant.

8. Recommandations au Conseil dans le cadre de l'avis scientifique émanant du CIEM

8.1 La Commission a approuvé la demande de recommandations scientifiques concernant la zone de la Commission de l'Atlantique du Nord-Est, telle qu'elle avait été préparée par le Comité scientifique permanent et adressée au CIEM. La demande de recommandations scientifiques au CIEM, approuvée par le Conseil, figure dans le document CNL(09)10 (annexe 6).

9. Divers

9.1 Aucune autre question n'a été traitée.

10. Date et lieu de la prochaine réunion

10.1 La Commission a convenu de tenir sa prochaine réunion en même temps et au même endroit que la Vingt-septième réunion du Conseil en 2010.

11. Compte rendu de la réunion

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

Note: Une liste des documents de la Commission de l'Atlantique du Nord-Est figure à l'annexe 7.

Annex 1

Joint NGO Opening Statement to the North-East Atlantic Commission

Mr Chairman, I am pleased to present this statement on behalf of the NGO group. The issues of principal concern to NGOs in this Commission Area are:

- Mixed-stock fisheries
- *Gyrodactylus salaris*
- Impacts of aquaculture

A continuing theme for NGOs is the balance and fairness between distant and home-water exploitation, and we are concerned that despite years of ICES advice, most jurisdictions have been, and continue to be, very slow in addressing the mixed-stock fisheries issue. The Norwegian coastal fishery in Finnmark is probably the largest mixed-stock fishery remaining in the North Atlantic, impacting on Norwegian, Finnish and Russian rivers. We acknowledge the initial meetings held recently and hope that the jurisdictions concerned can inject some urgency into the process, particularly in solving some of the difficult subsistence fishery issues involved with the Sami people. The cross-border issues concerning the management of the Tana (Teno) also need to be urgently addressed - this river has failed to meet its conservation level for the past 13 years yet exploitation in-river continues under an antiquated and outmoded management system.

We look forward to the outcome of the Scottish review of mixed-stock fisheries - while Scotland led the way 45 years ago in banning drift netting, despite major reduction, the mixed-stock fishery off their east coast is still probably the second largest in Europe.

At the risk of repeating myself, we draw your attention to recent action by the Irish Republic to close mixed-stock fisheries which demonstrates that difficult decisions can be taken if the political will exists to do so.

Parties will also be aware that we have asked for clearer reporting of catches from mixed-stock fisheries by jurisdiction, as a means of more easily measuring future progress.

Gyrodactylus salaris continues to cause us all concern, and while applauding the efforts of the Norwegian government, the re-appearance of the parasite in 9 river systems after treatment emphasizes that there are no easy solutions and we must all remain on our guard. In this connection we hope that the EU is able to re-assure us on continuing guarantees in respect of the listed status of *Gs*. These are of utmost importance to the UK and Irish Republic. The Norwegian NGOs have also asked me to raise the need for better monitoring and communication in respect of *Gs* in the west coast rivers of Sweden.

The impacts of aquaculture on wild stocks remain one of the most serious challenges in this Commission, and nowhere is that more evident than here in Norway, with production of farmed salmon now touching 750,000 tonnes. Despite some of the best legislation on sea lice control and the best standards for cage design and construction, sea lice continue to impact severely on wild salmon and sea trout, and the numbers of salmon farm escapees continues to cause concern, making a mockery of the admirable “zero escape” policy. The Norwegian

NGOs are calling for a number of actions to strengthen legislation, monitoring programmes and enforcement action which I will not list here, but we will make available separately to delegates and we will be taking forward to the Aquaculture Task Force. Similar action is being taken in Ireland and Scotland.

Norwegian NGOs are calling for the extension of the policy on creation of national salmon fjords, (which exclude salmon farms). A common thread does seem to be emerging that, despite the good intentions of the industry, it is now in some areas so large that there are extreme difficulties controlling sea lice within satisfactory limits, and eliminating the human error which so often allows fish to escape. It may be that relocation of farms in sensitive areas and creation of more exclusion zones is the only way forward if jurisdictions are serious about the conservation and restoration of wild Atlantic salmon.

NASCO has a clear role in this process as it can set international standards, based on the best scientific advice, for the industry to aspire to. As part of that process, we look forward to the Aquaculture Focus Area Review taking place later this year, and to continue working with the industry in the NASCO/ISFA Task Force.

Annex 2

NEA(09)10

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Nomination of a Rapporteur
4. Review of the 2008 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area
5. Regulatory Measures
6. Risk of Transmission of *Gyrodactylus salaris* in the Commission Area
7. Announcement of the Tag Return Incentive Scheme Prize
8. Recommendations to the Council on the Request to ICES for Scientific Advice
9. Other Business
10. Date and Place of the Next Meeting
11. Report of the Meeting

Annex 3

NEA(09)7

Decision regarding the salmon fishery in Faroese waters 2010

The North East Atlantic Commission:

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

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

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

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

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

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

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

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

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

RECOGNISING that a Framework of Indicators has not been provided by ICES;

HEREBY DECIDES:

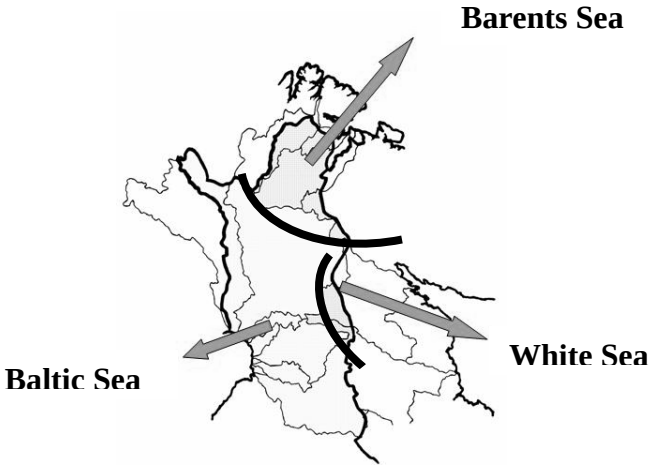
Not to set a quota for the salmon fishery in the Faroese Fisheries Zone for 2010.

Annex 4

NEA(09)5

Measures Concerning The Contingency Planning For The Parasite Gyrodactylus Salaris *In Finland*

Gyrodactylus salaris, the infamous salmon parasite which has decimated tens of Norwegian and one White Sea salmon rivers, is a Baltic native. Presumably, most Baltic salmon populations are rather resistant, due to their origin in the same freshwater refugia, and the parasite was not drawing much attention prior to the Norwegian epidemic. The most resistant salmon populations are apparently found in the Russian Lakes Onega and Ladoga. The northernmost Baltic salmon populations are in the border river between Finland and Sweden, the River Tornio. The highest prevalence and intensity of *G.salaris* has been found in the uppermost tributaries of this water system. It is probable that there is no remarkable mortality caused by the parasite among the salmon parr in the River Tornio. *G.salaris* appears to also be fairly common at the freshwater rainbow trout farms of Finland south of the water catchment areas running into the Barents Sea.



The watersheds between the water catchment areas of the Barents Sea, White Sea and Baltic Sea are partly situated in the territory of Finland (see figure). Measures in the territory of Finland are thus of key importance in the prevention of the spread of *G.salaris* to the Atlantic salmon rivers Teno (Tana) and Näätämö (Neiden). On the basis of the Act on Animal Diseases, prevention measures were begun already in the mid-1980s. Additional restrictions have also been given on the basis of the Fishing Act. The main prevention measures applied in Finland are:

Restrictions on movement of live fish and eggs

Transfer of live farmed and wild fish as well as undisinfected eggs from other parts of Finland to the Rivers Teno, Näätämö, Paats, Transfer of live farmed and wild fish as well as undisinfected eggs from the River Paats, Uutuan and Tuuloma watercourses to the Rivers Teno and Näätämö is forbidden. The agreement concerning the River Teno between Finland and Norway applies as well.

Baitfish, etc.

It is forbidden to transfer baitfish from other parts of Finland to the River Teno, Näätämö, Paats, Uutuan and Tuuloma watercourses, as well as to transfer them between these watercourses. The use of baitfish is forbidden in angling, ice-fishing and lure fishing.
Gutting of fish originating from other watercourses is forbidden, as well as to introduce gutting waste to natural waters of the River Teno, Näätämö, Paats, Uutuan and Tuuloma watercourses.

Fishing equipment, boats, etc.

Boats, canoes, fishing equipment like reel, rod, lure, net, boots, paddling trousers transferred from other parts of Finland must be dry or disinfected before their use in these watercourses.

Contingency planning in the River Teno and Näätämö water catchment areas

The River Teno is currently the most productive of all the spawning rivers of Atlantic salmon in the world. The importance for the natural fishing industry along the Rivers Teno and Näätämö is irreplaceable for the local people, both economically and culturally. *G.salaris* parasite is the greatest single threat for the fishing in these rivers. Although Finland intends to keep *G.salaris* outside its Atlantic salmon rivers, the Ministry of Agriculture and Forestry has allocated funding for a pilot study on the contingency planning. The project will start in the autumn 2009 with an up-to-date review of the literature concerning the prevention of the parasite. The focus will be on the information needed in the contingency planning. The work done in Finland so far for the prevention of spread of *G.salaris* will also be documented. The goal is to help the Finnish authorities in the international cooperation in the European Union and North Atlantic Salmon Conservation Organisation NASCO and with Norway, which shares these two salmon rivers with Finland. The project will also give a better basis for the distribution of information, which is needed in the prevention of the parasite in Finland. The Finnish Food Safety Authority Evira is responsible for the project. The main stakeholder groups are widely represented in the steering group.

Annex 5

NEA(09)9

Information regarding Gyrodactylus salaris *in the salmon rivers on the Swedish west coast.*

Infestation of *Gyrodactylus salaris* on salmon was for the first time investigated in some of the rivers on the Swedish West Coast in 1989. *Gyrodactylus salaris* was 1989 documented in a fish farm in river Lagan and in Säveån, a tributary to River Göta älv.

A monitoring programme started in the early 1990. An increase in infected rivers was noticed especially on the southern part of the Swedish West Coast probably partly as a result of the expanding monitoring programme and also partly due to infection in new rivers.

In order to prevent infestation in new rivers was restricted regulation introduced in fish farming, fish transports and stocking in two steps, 1999 and 2003.

The last infected river was river Himleån in 2005. This infection and the impact on the salmon stock is followed up in a special project started very soon after the parasite was noticed at the first time in the river

.
All rivers emptying north of river Göta älv are free from the parasite whereas only two (river Kungsbackaån and Rolfsån) south of river Göta älv are declared free.

The monitoring of occurrence and infestation of *Gyrodactylus salaris* continues. Field experiments comparing growth and survival of infected and un-infected salmon parr have been carried out. The preliminary results indicate a significant effect on growth and condition factor of *Gyrodactylus salaris* on parr.

Sweden is cooperating with Norway and is taking advantage of the knowledge in Norway. Some examples:

- The Norwegian Veterinary institute (Veterinärinstitutet, Tor-Atle Mo, Haakon Hansen) is identifying species of *Gyrodactylus sp* in the Swedish monitoring programme.

- The Norwegian Veterinary institute (Veterinärinstitutet, Haakon Hansen) is doing genetic studies on *Gyrodactylus salaris* on samples from the rivers in the monitoring programme. Sweden has also sent the historical sampling from the monitoring programme to Norway.

Norway, Sweden and Finland has also a cooperation in the north of the Scandinavian since *Gyrodactylus salaris* is present in Baltic rivers. The project is on information to prevent introduction by fishing equipment etc from Baltic rivers to rivers in the region emptying in the North Atlantic.

Annex 6

CNL(09)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, including unreported catches by country and catch and release, and production of farmed and ranched Atlantic salmon in 2009[1];

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

1.3 continue the work already initiated to investigate associations between changes in biological characteristics of all life stages of Atlantic salmon, environmental changes and variations in marine survival with a view to identifying predictors of abundance [3];

1.4 describe how catch and release mortality and unreported catch are incorporated in national and international stock assessments and indicate how they can best be incorporated in future advice to NASCO;

1.5 further develop approaches to forecast pre-fishery abundance for North American and European stocks with measures of uncertainty;

1.6 provide a compilation of tag releases by country in 2009 and advise on progress with analysing historical tag recovery data from oceanic areas;

1.7 identify relevant data deficiencies, monitoring needs and research requirements[4].

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

2.1 describe the key events of the 2009 fisheries[5];

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

2.3 describe the status of the stocks and provide annual catch options or alternative management advice for 2011-2013, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[6];

2.4 further investigate opportunities to develop a framework of indicators or alternative methods that could be used to identify any significant change in previously provided multi-annual management advice.

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

3.1 describe the key events of the 2009 fisheries (including the fishery at St Pierre and Miquelon) [5];

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

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

3.3 describe the status of the stocks and provide annual catch options or alternative management advice for 2010-2013 with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding [6].

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

4.1 describe the key events of the 2009 fisheries[5];

4.2 provide clarification of the levels of reported and unreported catch in the subsistence fishery since 2002,

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

4.3 describe the status of stocks and provide annual catch options or alternative management advice for 2010-2012 with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[6,7];

Notes:

1. *With regard to question 1.1, ICES is asked to ensure that the terminology used in presenting the data on ranching is clearly defined. 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.*
2. *With regard to question 1.2, ICES is requested to include information on any new research into the migration and distribution of salmon at sea.*
3. *With regard to question 1.3, there is interest in determining if declines in marine survival coincide with changes in the biological characteristics of juveniles in fresh water or are modifying characteristics of adult fish (size at age, age at maturity, condition, sex ratio, growth rates, etc.) and with environmental changes.*
4. *NASCO's International Atlantic Salmon Research Board's inventory of on-going research relating to salmon mortality in the sea will be provided to ICES to assist it in this task.*
5. *In the responses to questions 2.1, 3.1 and 4.1 ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality, of the salmon gear used, and on the by-catch of other species in salmon gear, and on the by-catch of salmon in any existing and new fisheries for other species is also requested.*
6. *In response to questions 2.3, 3.3 and 4.3 provide a detailed explanation and critical examination of any changes to the models used to provide catch advice.*
7. *In response to question 4.3, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

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

Annex 7

List of North-East Atlantic Commission Papers

NEA(09)1	Provisional Agenda
NEA(09)2	Draft Agenda
NEA(09)3	Informal Consultation Meeting on Norwegian Coastal Salmon Fisheries
NEA(09)4	Inceptory salmon fishing on the Norwegian Coast (Tabled by Norway)
NEA(09)5	Information Paper (Tabled by EU – Finland) – Measures Concerning the Contingency Planning for the Parasite *Gyrodactylus Salaris* in Finland
NEA(09)6	Draft decision regarding the salmon fishery in Faroese waters 2010
NEA(09)7	Decision regarding the salmon fishery in Faroese waters 2010
NEA(09)8	Draft Report of the Twenty-Sixth Annual Meeting of the North-East Atlantic Commission
NEA(09)9	Information note on *Gyrodactylus salaris* from EU-Sweden
NEA(09)10	Agenda
NEA(09)11	Report of the Twenty-Sixth Annual Meeting of the North East Atlantic Commission

REPORT OF THE

TWENTY-SIXTH ANNUAL MEETING

OF THE

WEST GREENLAND COMMISSION

2 – 5 JUNE 2009
Molde, Norway

Chairman:	Mr Guy Beaupré (Canada)
Vice-Chairman:	Mr Alan Gray (European Union)
Rapporteur:	Mr Hakan Carlstrand (European Union)
Secretary:	Dr Malcolm Windsor

WGC(09)8

CONTENTS

WGC(09)8

Report of the Twenty-Sixth Annual Meeting of the West Greenland Commission of the North Atlantic Salmon Conservation Organization Rica Seilet Hotel, Molde, Norway 2-5 June, 2009

1. Opening of the Meeting

1.1 The Chairman, Mr Guy Beaupré (Canada), opened the meeting and welcomed participants to the Twenty-Sixth Annual Meeting of the Commission.

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

1.3 A list of participants at the Twenty-Sixth Annual Meeting of the Council and Commissions is included on page 147 of this document.

2. Adoption of the Agenda

2.1 The Commission adopted its Agenda, WGC(09)9 (Annex 2).

3. Nomination of a Rapporteur

3.1 Mr Hakan Carlstand (European Union) was appointed as Rapporteur.

4. Review of the 2008 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

4.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) reported on events in the 2008 salmon fishery at West Greenland. The catch in 2008 was 26 tonnes of which about half was used for direct consumption and half was sold at open air markets or to institutions. Of the 260 licenses issued only 55 were used and this low level of utilization is because fishermen continue to apply for a license in the expectation that a commercial fishery may be reopened in the future. She indicated that the agency responsible for controlling the fishery does its utmost to improve reporting of catches and in this regard revisions to the legislation are being considered. One problem is that there are some difficulties in determining where a salmon originates and double counting can occur when salmon are caught in one place and sold elsewhere. With regard to the quota for the commercial fishery this was set to zero in 2008 and that will be the case again in 2009. It is expected that the 2009 fishery will open on 1 August and remain open for 3 months. TV broadcasts have been used to increase awareness of the need to report catches and this will be repeated again in 2009. A report on the fishery in 2008 was tabled, WGC(09)6 (Annex 3).

4.2 The representative of the European Union referred to statements in the ICES advice that indicate that there is no quantitative approach to estimate unreported catches. He asked if there had been any advances in this regard rather than just relying on an

estimate of 10 tonnes. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that new measures are being considered to reduce the level of unreported catch.

4.3 The representative of the US referred to a statement in the Annual Return for Greenland that indicated that it is no longer permitted to sell salmon to hotels, restaurants, institutions etc. Only sale at open markets is allowed. She asked for clarification of the expected impact of this measure on future catches. The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that this restriction was a private agreement between KNAPK and NASF. However, the Greenland Home Rule Executive Order still permits sales to hotels, restaurants and institutions. She indicated that there may be a need to clarify the situation since there is a meeting of KNAPK scheduled for the week beginning 8 June and it is expected that there will be changes to the agreement. KNAPK cannot enter into any agreement on behalf of Greenland Home Rule.

4.4 The representative of ICES, Dr Jaakko Erkinaro, presented the report from ICES on the scientific advice from ICES on salmon stocks in the West Greenland Commission area, CNL(09)8. His presentation is available as NASCO document CNL(09)44. The ACOM report, which contains the scientific advice relevant to all Commissions, is included on page 91 of this document.

4.5 The representative of Canada asked for clarification from ICES that the status of stocks remains the same as when the multi-annual measure was agreed in 2006. The representative of ICES confirmed that this was the case.

5. Regulatory Measures

5.1 The representative of the US indicated that given the scientific advice from ICES on the status of the stocks, she would propose that the Commission adopt a multi-annual measure for the West Greenland fishery for the period 2009 – 2011. The Framework of Indicators would be used in 2010 and 2011 to assess if there was any significant change that would necessitate revisiting the measure.

5.2 The representative of Canada indicated that he supported a multi-annual measure and believed that given the status of the stocks this would be consistent with the Precautionary Approach.

5.3 The representative of the European Union also expressed support for a multi-annual measure and urged Greenland to try to restrict the harvest to around 20t.

5.4 The representative of Denmark (in respect of the Faroe Islands and Greenland) indicated that Greenland intends to allow a subsistence fishery in 2009, the catch in which has in the past been around 20 tonnes. She referred to earlier concerns about the Framework of Indicators but, as this had now been refined, in the spirit of cooperation her delegation would support a three year measure.

5.5 The Commission considered a proposal for a multi-annual regulatory measure for the West Greenland salmon fishery, WGC(09)3. This measure was adopted for the calendar years 2009 - 2011, WGC(09)7, (Annex 4).

5.6 The Commission agreed that the same procedure used in 2008 for applying the Framework of Indicators would apply to the new regulatory measure. Under this arrangement a small group comprising one representative from each member of the Commission would work by correspondence to coordinate the data collection and application of the Framework of Indicators. The Secretariat would contact the Parties to seek their nominations for the Group. The Secretariat would liaise with the Chairman and would present the findings to the Parties and to ICES in January in the years when the FWI is used.

6. Sampling in the West Greenland Fishery

6.1 The representative of Denmark (in respect of the Faroe Islands and Greenland) asked for clarification as to why there was a need for 900 salmon to be sampled in the extended sampling programme at West Greenland as this represented about 10% of the catch which seemed higher than other sampling programmes. Mr Tim Sheehan explained that the situation at West Greenland was different. In the case of the marine surveys the aim was to catch as many post-smolts as possible. At West Greenland the aim is to get a large sample so that an adequate number of European fish is obtained (as they comprise only around 15% of the catch) but there is a limit to the number of fish that can be processed by samplers and there are also budgeting issues.

6.2 The representative of the NGOs asked what measures are taken to ensure that the samples obtained are from within the internal-use fishery and are not an additional harvest. Mr Sheehan indicated that while there are no guarantees that this could not happen, checks and balances have been introduced. Samplers can only handle a certain number of fish and they cannot accept more fish than they can sample in the day. The programme will be coordinated with KNAPK and targets and limits will be set. A sub-sample of the fisherman's catch would be purchased and the fisherman would sell the remainder at the market as normal. Once the fish have been sampled they will be donated to institutions not sold, so these institutions will not need to purchase these fish at the market.

6.3 The Commission adopted a West Greenland Fishery Sampling Agreement for 2009, WGC(09)5 (Annex 5).

7 Announcement of the Tag Return Incentive Scheme Prize

7.1 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 5 May. The winning tag was of Canadian origin. The tag was applied to a smolt in the Restigouche River, Canada on 28 May 2007 as part of a study to estimate wild smolt production in that river. It was recaptured at West Greenland. The winner of the $1,500 prize is Mr Massinguaq Molgaard, Sisimiut, Greenland.

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

8.1 The Commission agreed to the request for scientific advice from ICES prepared by the Standing Scientific Committee in relation to the West Greenland Commission area.

The request to ICES, as agreed by the Council, is contained in document CNL(09)10 (Annex 6).

9. Other Business

9.1 There was no other business.

10. Date and Place of Next Meeting

10.1 The Commission agreed to hold its next meeting at the same time and place as the Twenty-Seventh Annual Meeting of the Council in 2010.

11. Report of the Meeting

11.1 The Commission agreed a report of the meeting.

Note: The annexes mentioned above begin on page 75, following the French translation of the report of the meeting. A list of West Greenland Commission papers is included in Annex 7.

WGC(09)8

Rapport de la Vingt-sixième réunion annuelle de la Commission du Groenland Occidental de l'Organisation pour la Conservation du Saumon de l'Atlantique Nord Hôtel Rica Seilet, Molde, Norvège 2-5 juin, 2009

1. Séance d'ouverture

1.1 Le Président, M. Guy Beaupré (Canada), a ouvert la réunion et a souhaité la bienvenue aux participants à la Vingt-sixième réunion annuelle de la Commission.

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

1.3 Une liste des participants à la Vingt-sixième réunion annuelle du Conseil et des Commissions figure à la page 147 de ce document.

2. Adoption de l'ordre du jour

2.1 La Commission a adopté l'ordre du jour, WGC(09)9 (annexe 2).

3. Nomination d'un Rapporteur

3.1 La Commission a nommé M. Hakan Carlstand (Union européenne) Rapporteur de la réunion.

4. Examen de la pêcherie de 2008 et du rapport de l'ACOM du CIEM sur les stocks de saumons dans la zone de la Commission

4.1 La représentante du Danemark (pour les Îles Féroé et le Groenland) a rendu compte des évènements qui avaient eu lieu dans la pêcherie de 2008 au Groenland Occidental. En 2008, les prises s'élevaient à 26 tonnes; la consommation directe représentait la moitié de cette quantité et la vente sur des marchés en plein air ou à des institutions l'autre moitié. Sur les 260 permis octroyés, 55 uniquement avaient été utilisés. La raison pour laquelle ce niveau d'utilisation était si bas s'expliquait par le fait que les pêcheurs continuaient à faire des demandes de permis dans l'espoir d'une future réouverture de la pêcherie commerciale. La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué que l'organisme responsable du contrôle de la pêcherie s'efforçait d'améliorer au mieux les comptes rendus de captures. À ce propos, on envisageait également de revoir la législation en cours. Un des problèmes auquel ils devaient faire face était qu'il était difficile de déterminer d'où les saumons provenaient et un double comptage pouvait ainsi s'ensuivre lorsque les saumons étaient capturés dans un endroit, mais vendus ailleurs. En ce qui concernait le quota de la pêcherie commerciale, ceci avait été fixé à zéro en 2008 et continuera d'être nul

en 2009. Il était prévu que la pêcherie de 2009 soit ouverte le 1er août pour une durée de 3 mois. Des émissions télévisées avaient permis d'accroître la prise de conscience du public quant à la nécessité des déclarations de captures. Cet exercice sera répété en 2009. Un compte rendu sur la pêcherie de 2008 a été présenté, WGC(09)6 (annexe 3).

4.2 Le représentant de l'Union européenne s'est reporté aux recommandations du CIEM et plus précisément aux déclarations qui indiquaient que le nombre de captures non déclarées n'avait été estimé par aucune méthode quantitative. Il a demandé si, au lieu de se contenter d'une estimation de 10 tonnes, des progrès avaient été effectués dans ce domaine. La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué que de nouvelles mesures, visant à réduire le nombre de captures non déclarées, étaient en ce moment à l'étude.

4.3 La représentante des États-Unis a repris une déclaration faite dans le Renvoi annuel d'informations du Groenland à savoir qu'il n'était plus autorisé de vendre des saumons aux hôtels, restaurants, institutions etc. Seules les ventes sur les marchés en plein air étaient désormais permises. Elle a demandé des clarifications à propos de l'effet escompté de cette mesure sur le nombre des captures à l'avenir. La représentante du Danemark (pour les Îles Féroé et le Groenland) a répondu que cette restriction résultait d'un accord privé entre l' Organisation des Chasseurs et Pêcheurs du Groenland (KNAPK) et le FSAN. Toutefois, le décret ministériel du Gouvernement autonome du Groenland permettait toujours la vente aux hôtels, restaurants et institutions. La représentante du Danemark (pour les Îles Féroé et le Groenland) a ajouté qu'il serait peut être nécessaire de clarifier cette situation, d'autant plus qu'une réunion du KNAPK était planifiée pour la semaine débutant le 8 juin. On prévoyait en plus des modifications à l'accord. Or, il n'entre pas dans les compétences du KNAPK de passer des accords au nom des autorités autonomes du Groenland.

4.4 Le Dr Jaakko Erkinaro, représentant du CIEM, a présenté le rapport du CIEM sur les recommandations scientifiques concernant les stocks de saumons de la zone de la Commission du Groenland Occidental, CNL(09)8. Le document CNL(09)44 de l'OCSAN reproduit sa présentation. Le rapport de l'ACOM du CIEM, contenant les recommandations scientifiques pour l'ensemble des Commissions, figure à la page 91 de ce document.

4.5 Le représentant du Canada a demandé au CIEM de confirmer que l'état des stocks demeurait le même qu'à l'adoption de la mesure pluriannuelle en 2006. Le représentant du CIEM a confirmé que ceci était correct.

5. Mesures de réglementation

5.1 La représentante des États-Unis a déclaré, qu'étant donné les recommandations scientifiques du CIEM concernant l'état des stocks, elle proposait à la Commission d'adopter une mesure pluriannuelle pour la pêcherie du Groenland Occidental valide de 2009 à 2011. Le cadre des indicateurs servirait à mesurer, en 2010 et 2011, toute évolution de la situation qui nécessiterait alors une révision de la mesure.

5.2 Le représentant du Canada a indiqué qu'il appuyait la fixation d'une mesure pluriannuelle, qui, vu l'état des stocks, serait à son avis cohérente avec l'approche préventive.

5.3 Le représentant de l'Union européenne a également donné son accord à une mesure pluriannuelle. Il a par ailleurs vivement conseillé le Groenland d'essayer de limiter la récolte à environ 20 tonnes.

5.4 La représentante du Danemark (pour les Îles Féroé et le Groenland) a indiqué que le Groenland avait l'intention d'autoriser une pêcherie de subsistance en 2009. Ces captures s'élevaient autrefois à environ 20 tonnes. Elle a rappelé les soucis causés préalablement par le cadre des indicateurs mais, pour démontrer sa coopération, et étant donné que ce cadre avait été amélioré depuis, sa délégation était prête à appuyer une mesure de trois ans.

5.5 La Commission a étudié une proposition de mesure pluriannuelle pour la pêcherie de saumons du Groenland occidental, WGC(09)3. Cette mesure a été adoptée pour les années 2009 à 2011, WGC(09)7, (annexe 4).

5.6 La Commission a convenu que l'on emploierait la même procédure qu'en 2008 pour appliquer le cadre des indicateurs à la nouvelle mesure de réglementation. Conformément à cet arrangement, un petit groupe, qui comprendrait un représentant de chaque membre de la Commission, œuvrerait par correspondance à la coordination de la collection des données et à l'application du cadre des indicateurs. Il incomberait au Secrétariat de contacter les Parties afin d'obtenir leurs nominations pour ce groupe. Le Secrétariat sera en rapport avec le Président de ce petit groupe et présentera les conclusions aux Parties et au CIEM au mois de janvier, les années où le cadre des indicateurs aura été utilisé.

6. Échantillonnage de la pêche du Groenland Occidental

6.1 La représentante du Danemark (pour les Îles Féroé et le Groenland) a demandé que l'on explique pourquoi le programme étendu d'échantillonnage au Groenland Occidental nécessitait 900 saumons. Ceux-ci représentaient environ 10% de la totalité des captures, une proportion qui semblait en effet plus importante que celle des autres programmes d'échantillonnage. M. Tim Sheehan a expliqué que la situation du Groenland Occidental était différente. Dans le cas des études marines, l'objectif était de capturer autant de post-smolts que possible. Au Groenland Occidental toutefois, l'objectif était de prélever un échantillon suffisamment important pour obtenir un nombre adéquat de poissons européens (qui ne représentent généralement que 15% environ des captures). Il est vrai cependant que les échantillonneurs ne peuvent traiter qu'un certain nombre de poissons et que la question du budget est à prendre en considération.

6.2 Le représentant des ONG a demandé quelles mesures avaient été prises pour garantir que les échantillons seraient prélevés sur la pêche normalement consacrée à la consommation interne et qu'ils ne constitueraient ainsi pas une récolte supplémentaire. M. Sheehan a répondu que, quand bien même on ne pouvait pas offrir de garantie que ceci ne se passerait pas, des contrôles avaient été mis en place. Les échantillonneurs ne peuvent examiner qu'un certain nombre de poisons et n'ont pas le droit d'accepter plus de poissons qu'ils ne peuvent étudier par jour. Le programme sera coordonné avec l'aide du KNAPK. Des cibles et limites seront fixées. Une portion des captures du pêcheur sera achetée et le pêcheur pourra vendre le restant de sa pêche sur le marché, comme d'habitude. Après avoir soumis le poisson au processus

d'échantillonnage, il sera donné gratuitement aux institutions. Le poisson ne sera pas vendu. Aussi les institutions n'auront-elles pas à acheter de poissons sur le marché.

6.3 La Commission a adopté un accord d'échantillonnage de la pêche au Groenland Occidental pour 2009, WGC(09)5 (annexe 5).

7 Annonce du Prix du Programme d'encouragement au renvoi des marques

7.1 Le Président a annoncé que le tirage au sort du prix de la Commission du Groenland Occidental du Programme d'encouragement au renvoi des marques de l'OCSAN avait été effectué par le Commissaire aux comptes le 5 mai. La marque gagnante était d'origine canadienne. Elle avait été posée sur un smolt dans la rivière Restigouche au Canada le 28 Mai 2007, lors d'une étude visant à estimer la production de smolts sauvages dans cette rivière. Le poisson avait été capturé à nouveau au Groenland Occidental. M. Massinguaq Molgaard de Sisimiut au Groenland a remporté le prix de 1 500 dollars (US).

8. Recommandations au Conseil dans le cadre de l'avis scientifique émanant du CIEM

8.1 La Commission a accepté la demande au CIEM de recommandations scientifiques, telle qu'elle avait été préparée par le Comité Scientifique Permanent pour la zone de la Commission du Groenland Occidental. La demande au CIEM de recommandations scientifiques, approuvée par le Conseil, figure dans le document CNL(09)10 (annexe 6).

9. Divers

9.1 Aucune autre question n'a été traitée.

10. Date et lieu de la prochaine réunion

10.1 La Commission a convenu de tenir sa prochaine réunion en même temps et au même endroit que la Vingt-septième réunion annuelle du Conseil, en 2010.

11. Compte rendu de la réunion

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

Note: Une liste des documents de la Commission du Groenland Occidental figure à l'annexe 7.

Annex 1

Joint NGO Opening Statement to West Greenland Commission

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

The NGOs commend NASCO and Greenland for reaching a multi-year agreement three years ago that suspended the commercial fishery of wild Atlantic salmon. In view of the advice from ICES that 2SW salmon originating in North America and southern Europe will remain below spawning escapement reserves from 2009 to 2011, we strongly support the successful conclusion of another multi-year agreement that restricts the commercial fishery quota to zero.

The internal use fishery at West Greenland is not restricted by NASCO quota and has steadily increased from 9 tonnes in 2003 to 26.1 tonnes in 2008. Genetic studies indicate that 86% (8,000) of the salmon caught are North American, some of which are from endangered populations in the US and Canada. We recognize that Greenland is making efforts to improve catch reporting in this fishery. However, the NGOS are concerned that Greenland does not have powers to control the subsistence harvest and we urge measures to restrict this fishery to the lowest level possible.

This is especially important from the perspective of the US government proposal to greatly expand the geographic range and number of salmon rivers listed under the Endangered Species Act. The present expansion from the listing of eight small mid-coast and downeast rivers to listing Maine's three largest rivers reinforces the need to continue the suspension of the West Greenland commercial fishery and increase efforts to reduce the subsistence catch.

NGOs are supportive of the expanded sampling program by SALSEA at Greenland. However, we encourage the Greenland fishermen and the SALSEA research team to develop an expanded sampling program that does not kill salmon surplus to the current subsistence fishery. NASCO's goal should be to reduce, not expand, the internal use fishery.

Annex 2

WGC(09)9

Agenda

1. Opening of the Meeting

2. Adoption of the Agenda

3. Nomination of a Rapporteur

4. Review of the 2008 Fishery and ACOM Report from ICES on Salmon Stocks in the Commission Area

5. Regulatory Measures

6. Sampling in the West Greenland Fishery

7 Announcement of the Tag Return Incentive Scheme Prize

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

9. Other Business

10. Date and Place of Next Meeting

11. Report of the Meeting

Annex 3

WGC(09)6

The 2008 Fishery at West Greenland (tabled by Denmark in respect of the Faroe Islands and Greenland))

At the Annual Meeting of NASCO in June 2008, the West Greenland Commission agreed to restrict the catch of Atlantic salmon at West Greenland to that amount used for internal subsistence consumption in Greenland. Furthermore, no commercial export of salmon was allowed.

In accordance with the Regulatory Measure adopted by the West Greenland Commission, the Greenland Home Rule Government decided to set the national quota for commercial landings of Atlantic Salmon to fishing plants to zero tonnes, and prohibited any export of salmon from Greenland in 2008. Only a subsistence fishery was allowed, i.e. fishery for private consumption, and fishery with the aim of supplying local open air markets. And this is only allowed for professional fishermen with licences.

In 2008, the fishery was opened at the beginning of August and closed at the end of October. During this period a total catch of 25.2 tonnes of salmon was reported to the Greenland Fishery Licence Control (GFLK). Of this, 11.03 tonnes were reported by licensed fishermen as sold at open air markets etc, and 11.38 tonnes were reported as used for private consumption.

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

All fishermen who wish to sell Atlantic Salmon must hold a licence issued by GFLK. In 2008, 260 licences were issued, but only 55 of these were utilized for selling according to the reports to GFLK.

All catches of Atlantic salmon must be reported to GFLK. The catches were either sold at local open air markets or to local institutions, hotels etc, or kept for private consumption.

The wildlife and fisheries officers of GFLK make random checks at local markets in towns and settlements along the west coast of Greenland, and in hotels, restaurants, shops etc. in order to compare purchase of salmon with reported catches. In 2008, the wildlife and fisheries officers once again have put a lot of effort into handing out reporting forms to all fishermen whom they have observed fishing for salmon, and informing them that all catches must be reported to GFLK.

The Greenland Home Rule is considering ways of improving the catch reports and also considers changing the report to make it more useful according to collecting biological data. The Department of Fisheries, Hunting and Agriculture will continue the work reminding fishermen to report salmon catches. This will be done transmitting TV spots during the salmon season to remind the fishermen about the gear allowed and to report catches.

Annex 4

WGC(09)7

Regulatory Measure for Fishing for Salmon at West Greenland for 2009, 2010, and 2011

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

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

RECALLING that NASCO has requested that ICES advice for 2009 include annual catch options or alternative management advice for 2009-2011 and an update of the Framework of Indicators for the West Greenland Commission area;

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

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

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

FURTHER COMMITTING to cooperate to implement the ICES recommendation for application of the Enhanced Sampling Program in 2009 and 2010;

RECOGNIZING that the fish used in the enhanced sampling program are included in the fish taken in the internal use fishery;

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

CONSIDERING FURTHER that ICES has advised that none of the stated management objectives which would allow a fishery at West Greenland will be met in 2009, 2010 or 2011;

RECOGNIZING that an updated Framework of Indicators has been provided by ICES and will be applied in 2010 and 2011 to evaluate if a significant change is signaled by the indicators and therefore a reassessment is warranted;

The Parties agree that:

(1) In 2009 the catch at West Greenland will be restricted to that amount used for internal consumption in Greenland, which in the past has been estimated at 20 tons annually. There will be no commercial export of salmon.
(2) This regulatory measure applies in 2010 and 2011 unless application of the Framework of Indicators indicates that there had been a significant change in the indicators and therefore a reassessment is warranted.
(3) Denmark (in respect of the Faroe Islands and Greenland) will inform NASCO of the outcome of the 2009, 2010 and 2011 fisheries.

Annex 5

WGC(09)5

West Greenland Fishery Sampling Agreement, 2009

The West Greenland Commission recognizes the important contribution of sound biological data to science-based management decisions for fisheries prosecuted in the West Greenland Commission area. The Parties in the West Greenland Commission have worked cooperatively over the past three 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.

ICES, the International Atlantic Salmon Research Board and its Scientific Advisory Group, and NASCO all endorse taking additional samples from fish captured in the internal use only fishery in Greenland. This Enhanced Sampling Program, SALSEA West Greenland, requires whole fresh fish and is recognized as complementary to SALSEA Merge and SALSEA North America, which collectively hold promise in providing insights into the critical marine portion of the salmon's life cycle. The whole fresh fish required for scientific analysis (e.g. stomach content, isotope analysis) would be fish that are part of the existing internal use fishery. Strong coordination and cooperation with the Greenland Home Rule Government and Kalallit Nunaanni Aalisartut Piniartullu Kattuffiat (KNAPK) in carrying out this scientific research program is required to fully integrate the sampling program into the internal use fishery.

The objectives of the sampling programme in 2009 are to:

- Continue the time series of data (1969-2008) on continent of origin and biological characteristics of the salmon in the West Greenland Fishery

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

- Collect information on the recovery of internal and external tags

- Collect additional biological samples from fresh whole fish in support of SALSEA West Greenland or other special samples as requested

To this end, the sampling programme in 2009 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
- Various other biological samples (e.g. stomach content, isotope analysis) in support of SALSEA West Greenland
- 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 programmes. The NASCO Parties agree to provide the following inputs to the cooperative sampling programme at West Greenland during the 2009 fishing season:

- The European Union[1] agrees to provide a minimum of 6 person weeks[2] to sample Atlantic salmon at West Greenland during the 2009 fishing season
- Canada agrees to provide a minimum of 2 person weeks[2] to sample Atlantic salmon at West Greenland during the 2009 fishing season
- The United States agrees to provide a minimum of 4 person weeks[2] to sample Atlantic salmon at West Greenland during the 2009 fishing season
- The United States agrees to co-ordinate the sampling programme for 2009
- The United States agrees to provide funding for Greenland Institute of Natural Resources staff to provide in-country support of the sampling program
- The Home Rule Government of Greenland, in cooperation with the Greenland Institute of Natural Resources, agrees to provide support for the sampling program by facilitating the sampling of Atlantic salmon by the samplers identified above.

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

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

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

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

- The United States agrees to report the sampling program results to all SALSEA partners

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

- Canada agrees to maintain the historical West Greenland sampling database

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

Greenland Home Rule Government Coordination Efforts:

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

The Home Rule 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 Home Rule 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 Home Rule Government of Greenland agrees to provide necessary waivers to the regulation that Atlantic salmon must be landed in a gutted condition to allow for the collection of biological samples in support of SALSEA West Greenland. To facilitate land-based collection of these biological samples, the Home Rule Government of Greenland agrees to provide the necessary permits to allow for landing whole fresh salmon.

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

Annex 6

CNL(09)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, including unreported catches by country and catch and release, and production of farmed and ranched Atlantic salmon in 2009[1];

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

1.3 continue the work already initiated to investigate associations between changes in biological characteristics of all life stages of Atlantic salmon, environmental changes and variations in marine survival with a view to identifying predictors of abundance [3];

1.4 describe how catch and release mortality and unreported catch are incorporated in national and international stock assessments and indicate how they can best be incorporated in future advice to NASCO;

1.5 further develop approaches to forecast pre-fishery abundance for North American and European stocks with measures of uncertainty;

1.6 provide a compilation of tag releases by country in 2009 and advise on progress with analysing historical tag recovery data from oceanic areas;

1.7 identify relevant data deficiencies, monitoring needs and research requirements[4].

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

2.1 describe the key events of the 2009 fisheries[5];

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

2.3 describe the status of the stocks and provide annual catch options or alternative management advice for 2011-2013, with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[6];

2.4 further investigate opportunities to develop a framework of indicators or alternative methods that could be used to identify any significant change in previously provided multi-annual management advice.

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

3.1 describe the key events of the 2009 fisheries (including the fishery at St Pierre and Miquelon) [5];

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

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

3.3 describe the status of the stocks and provide annual catch options or alternative management advice for 2010-2013 with an assessment of risks relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding [6].

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

4.1 describe the key events of the 2009 fisheries[5];

4.2 provide clarification of the levels of reported and unreported catch in the subsistence fishery since 2002,

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

4.3 describe the status of stocks and provide annual catch options or alternative management advice for 2010-2012 with an assessment of risk relative to the objective of exceeding stock conservation limits and advise on the implications of these options for stock rebuilding[6,7];

Notes:

1. *With regard to question 1.1, ICES is asked to ensure that the terminology used in presenting the data on ranching is clearly defined. 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.*
2. *With regard to question 1.2, ICES is requested to include information on any new research into the migration and distribution of salmon at sea.*
3. *With regard to question 1.3, there is interest in determining if declines in marine survival coincide with changes in the biological characteristics of juveniles in fresh water or are modifying characteristics of adult fish (size at age, age at maturity, condition, sex ratio, growth rates, etc.) and with environmental changes.*
4. *NASCO's International Atlantic Salmon Research Board's inventory of on-going research relating to salmon mortality in the sea will be provided to ICES to assist it in this task.*
5. *In the responses to questions 2.1, 3.1 and 4.1 ICES is asked to provide details of catch, gear, effort, composition and origin of the catch and rates of exploitation. For homewater fisheries, the information provided should indicate the location of the catch in the following categories: in-river; estuarine; and coastal. Any new information on non-catch fishing mortality, of the salmon gear used, and on the by-catch of other species in salmon gear, and on the by-catch of salmon in any existing and new fisheries for other species is also requested.*
6. *In response to questions 2.3, 3.3 and 4.3 provide a detailed explanation and critical examination of any changes to the models used to provide catch advice.*
7. *In response to question 4.3, ICES is requested to provide a brief summary of the status of North American and North-East Atlantic salmon stocks. The detailed information on the status of these stocks should be provided in response to questions 2.3 and 3.3.*

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

Annex 7

List of West Greenland Commission Papers

WGC(09)01	Provisional Agenda
WGC(09)02	Draft Agenda
WGC(09)03	Regulatory Measure for Fishing for Salmon at West Greenland for 2009, 2010 and 2011 – Proposal from the Chair
WGC(09)04	Draft Report
WGC(09)05	West Greenland Fishery Sampling Agreement 2009
WGC(09)06	2008 Fishery at West Greenland (tabled by Denmark in respect of the Faroe Islands and Greenland))
WGC(09)7	Regulatory measure for fishing for salmon at West Greenland for 2009, 2010 and 2011
WGC(09)8	Report of the Twenty-Sixth Annual Meeting of the West Greenland Commission
WGC(09)9	Agenda

Report of the ICES Advisory Committee (Sections 3 to 6 only)

3. North East Atlantic Commission

Conservation limits (CLs) have been defined by ICES as the level of stock that will achieve long-term average maximum sustainable yield (MSY). NASCO has adopted this definition of CLs (NASCO, 1998). The CL is a limit reference point; having populations fall below these limits should be avoided with high probability. However, management targets have not yet been defined for all Atlantic salmon stocks.

Therefore:

- ICES considers homewater stocks in the NEAC Commission to be at full reproductive capacity only if the lower boundary of the confidence interval of the most recent spawner estimate is above the CL. In a similar manner, the status of stocks prior to the commencement of distant water fisheries has been interpreted to be at full reproductive capacity only if the lower boundary of the confidence interval of the most recent PFA estimate is above the Spawner Escapement Reserve (SER).
- ICES considers a stock to be at risk of suffering reduced reproductive capacity when the lower boundary of the confidence limit is below the CL/ SER, but the midpoint is above.
- ICES considers a stock to be suffering reduced reproductive capacity when the midpoint is below the CL/SER.

For catch advice on fish exploited at West Greenland (non-maturing 1SW fish from North America and non-maturing 1SW fish from Southern NEAC), ICES has used the risk level of 75% that is part of the agreed management plan (ICES, 2003).

For stock assessment purposes, ICES groups NEAC stocks into two stock groupings: Northern and Southern NEAC stocks. The composition of these groups is shown below:

SOUTHERN EUROPEAN COUNTRIES:	NORTHERN EUROPEAN COUNTRIES:
Ireland	Finland
France	Norway
UK (England and Wales)	Russia
UK (Northern Ireland)	Sweden
UK (Scotland)	Iceland (north/east regions) [3]
Iceland (south/west regions)[1]	

3.1 Status of stocks/exploitation

The status of stocks is shown in Figure 3.1.1.

ICES classifies the status of stock complexes prior to the commencement of distant water fisheries with respect to the SER requirements as follows:

Northern European 1SW stock complex is considered to be at full reproductive capacity.

- Northern European MSW stock complex is considered to be at full reproductive capacity.
- Southern European 1SW stock complex is considered to be at risk of suffering reduced reproductive capacity.
- Southern European MSW stock complex is considered to be at risk of suffering reduced reproductive capacity.

[3] The Iceland stock complex was split into two separate complexes for stock assessment purposes in 2005. Prior to 2005, all regions of Iceland were considered to contribute to the Northern European stock complex.

Estimated exploitation rates have generally been decreasing over the period for both 1SW and MSW stocks in Northern and Southern NEAC areas (Figures 3.1.2 and 3.1.3). Exploitation on Northern 1SW stocks is higher than on Southern 1SW and considerably higher for MSW stocks. The current estimates for both stock complexes are among the lowest in the time-series.

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 as a consequence of continuing poor survival in the marine environment attributed to climate effects. Efforts continue to improve our understanding of causal relationships contributing to marine mortality.

3.2 Management objectives

This Commission area is subject to the general NASCO management objectives as outlined in Section 1.3.

3.3 Reference points

Section 1.4 describes the derivation of reference points for these stocks and stock complexes.

3.3.1 National conservation limits

The national model has been run for all countries that do not have river-specific CLs (i.e. all countries except France, Ireland, and UK (England and Wales)).

Iceland, Russia, Norway, UK (N. Ireland), and UK (Scotland) have provided regional input data for the PFA analysis (1971–2007). For these countries the lagged spawner analysis has been conducted by region. The regional results were combined to estimate CLs based on a pseudo stock–recruitment relationship for the country. Outputs from the national model are only designed to provide a provisional guide to the status of stocks in the NEAC area.

To provide catch options to NASCO, CLs are required for stock complexes. These have been derived either by summing of individual river CLs to national level, or by taking overall national CLs, as provided by the national model then summing to the level of the 4 NEAC stock complexes. For the NEAC area, the CLs have been calculated by ICES as:

Northern NEAC 1SW spawners-210 958

Northern NEAC MSW spawners-183 198

Southern NEAC 1SW spawners-608 246

Southern NEAC MSW spawners-261 635

3.3.2 Progress with setting river-specific conservation limits

Specific progress in individual countries is summarized below:

Most NEAC countries have not developed river-specific CLs. In 2008, progress with setting, and developing, river-specific CLs and associated compliance assessment was reported for UK (Northern Ireland), UK (Scotland), Iceland and Norway.

In UK (Northern Ireland), conservation limits have previously been determined in the Fisheries Commission Board (FCB) area for a number of important (index) salmon rivers. CLs were established through the transport of optimal productivity metrics determined from the River Bush stock recruitment study to measured habitat parameters from each index river. Adult returns are monitored on the index catchments primarily by resistivity fish counters, although rod catch has been used to estimate spawning escapement on the Shimna River. Technical problems were encountered in 2008 on some fish counters and alternative stock assessment methods will be applied retrospectively to maintain the integrity of these time-series. Thus, the efficacy of rod catch and redd count data as auxiliary stock assessment tools on the other index rivers is currently being investigated to provide insurance against potential future counter failures.

In the Foyle area of UK (N. Ireland) and Ireland, a spawning target based management system has been operating in the Foyle fishery area for many years (Elson and Tuomi, 1975), and was revised in 1998. It is now based on juvenile salmonid habitat assessments. The Loughs Agency has established conservation limits and compliance monitoring for a number of rivers within the catchment. Fish counts were compromised on the Rivers Finn, Mourne and Faughan in 2008, preventing assessment of compliance against CL. A comprehensive independent review of the counter programme has thus been initiated by the Agency and is due to report early in 2009.

In UK (Scotland), work has continued to develop procedures for setting catchment specific CLs. GIS applications, in conjunction with field based observation and a literature review of salmon distribution, have been used to develop a map based useable wetted area model for salmon which can be used to transport CLs among catchments. A CL has been previously derived for the North Esk and this has been transported, using the useable wetted area model, to each of the 109 defined salmon fishery districts in Scotland to provide provisional CLs. Refinements to the useable wetted area transport model have been undertaken in 2008: preliminary estimates of spawning escapement in 63 of these districts have been derived and compliance with CL assessed.

In Iceland, work is progressing on several rivers to derive river-specific CLs. Several datasets and techniques (catch data, counter data, habitat mapping, wetted area and juvenile surveys) are being used to estimate salmon production, run size and spawning escapement. To date work has indicated that rivers present a wide range in salmon production, from 2.1 to 57.7 adult fish per ha wetted area, which suggests that there will also be large differences in the spawning requirements. There are relatively few rivers for which wetted area has been established, but an effort will be made to increase this number in the coming years. Juvenile surveys will be used to calculate the relationship between spawning and recruitment and rod catch statistics to transfer CL between rivers of a given type. In the salmon act of 2006, the responsibility of fishing rights requires owners to harvest their fish stocks based on sustainable principles. The fishery associations are required to make harvest plans, which subsequently need to be approved by the Competent Management Authority (Fiskistofa). This system will facilitate the setting of river-specific CLs but may take 5–10 years before being fully adopted.

In Norway, CLs have been set for 180 rivers since 2007. The CLs are based on stock recruitment relationships in nine rivers, and work is in progress to estimate conservation limits for a further 200 rivers, based on similarities in productivity and stock age structure. In 2008, stock recruitment relationships have been established for the River Imsa. The spawning target in the River Imsa is between 6 and 10 eggs per m^2, which represents between 20 and 30 females. The long-term average smolt production in the river is 15 per 100 m^2 per year. In addition, provisional stock/recruitment data from the small River Halselva, (Northern Norway), have been made available. At the mouth of the

river, a trap was established in 1987 to catch all downstream migrating smolts and upstream migrating adults. The smolt age of salmon in the river is usually 4–5 years (range 3–6 years). The relationship between number of eggs laid and number of smolts descending is not linear, indicating that egg deposition, in all years except one, has been below the conservation limit. Because the relationship is heavily dependent on one single point, the conservation limit is still not considered valid.

Productivity is mostly based on catch statistics, and scale samples are used to assess the river age and sea age structure in a sub set of the populations. To derive the CLs, wetted areas have been computed from digital maps and analysis of river length accessible to adult fish. CLs for salmon populations are grouped into four categories of egg densities, approximately 1, 2, 4 and 6 eggs/m^2 wetted area. Most of the rivers fall into the 2 and 4 eggs/m^2 wetted area categories.

So far only France, Ireland, and UK (England and Wales) have implemented river-specific CLs.

3.4 Management advice

ICES has been asked to provide catch options or alternative management advice, if possible based on a forecast of PFA, with an assessment of risks relative to the objective of exceeding stock CLs in the NEAC area. However, there are no explicit management objectives for provision of advice for the Faroes fishery.

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

Given the current (from the NEAC run reconstruction model) and forecasted (from the Bayesian forecast models) PFA, ICES provides the following advice on management:

- **Northern European 1SW stocks:** ICES considers that in the absence of specific management objectives for this stock complex the precautionary approach is to fish only on maturing 1SW salmon from rivers where stocks have been demonstrated to be at full reproductive capacity. Furthermore, as a consequence of the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats to stock status. The newly developed Bayesian forecast model demonstrates that the lower bounds of the forecasted PFA for 2009 to 2012 are below SER indicating that the stock may be at risk of suffering reduced reproductive capacity prior to the commencement of distant water fisheries.
- **Northern European MSW stocks:** ICES considers that in the absence of specific management objectives for this stock complex the precautionary approach is, to fish only on non-maturing 1SW salmon from rivers where stocks have been demonstrated to be at full reproductive capacity. Furthermore, as a result of the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats to stock status. The newly developed Bayesian forecast model demonstrates that the lower bounds of the forecasted PFA for 2009 to 2012 are below SER indicating that the stock may be at risk of suffering reduced reproductive capacity prior to the commencement of distant water fisheries.
- **Southern European 1SW stocks:** ICES considers that in the absence of specific management objectives for this stock complex the precautionary approach is to fish only on maturing 1SW salmon from rivers where stocks have been demonstrated to be at full reproductive capacity. Furthermore, as a consequence of the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats to stock status. The

newly developed Bayesian forecast model demonstrates that the lower bounds of the forecasted PFA for 2009 to 2012 are below SER indicating that the stock may be at risk of suffering reduced reproductive capacity prior to the commencement of distant water fisheries.

- **Southern European MSW stocks:** ICES considers that in the absence of specific management objectives for this stock complex, with the exception of the West Greenland fishery, the precautionary approach is to fish only on non-maturing 1SW salmon from rivers where stocks have been demonstrated to be at full reproductive capacity. Furthermore, as a result of the different status of individual stocks within the stock complex, mixed-stock fisheries present particular threats to stock status. There are no catch options at West Greenland that would allow the management objectives to be met for this stock complex. The newly developed Bayesian forecast model demonstrates that the lower bounds of the forecasted PFA for 2009 to 2012 are below SER indicating that the stock may be at risk of suffering reduced reproductive capacity prior to the commencement of distant water fisheries.

3.5 Relevant factors to be considered in management

The management for all fisheries should be based upon assessments of the status of individual stocks. Fisheries on mixed-stocks, particularly in coastal waters or on the high seas, pose particular difficulties for management, as they cannot target only stocks that are at full reproductive capacity if there are stocks below CL within the mixed-stock being fished. Conservation would be best achieved if fisheries target stocks that have been demonstrated to be at full reproductive capacity. Fisheries in estuaries and especially rivers are more likely to meet this requirement. It should also be noted that the inclusion of farmed fish in the Norwegian data would result in the stock status being overestimated.

NEAC PFAs from the national models are combined to provide NASCO with catch advice or alternative management advice for the distant water fisheries at West Greenland and Faroes. These groups were deemed appropriate by ICES as they fulfilled an agreed set of criteria established to define stock groups for the provision of management advice, criteria that were considered in detail at the 2002 meeting (ICES, 2002) and re-evaluated at the 2005 meeting (ICES, 2005).

Consideration of the level of exploitation of national stocks in the Faroes and the West Greenland fisheries resulted in the proposal that advice for the Faroes fishery (both 1SW and MSW) should be based on all NEAC area stocks, but that advice for the West Greenland fishery should be based on Southern European MSW salmon stocks only (comprising UK, Ireland, France, and Iceland (south/west regions)).

3.6 Pre-fishery abundance forecasts

Pre-Fishery Abundance forecasts for the Southern NEAC stock complex using the existing regression model

ICES has previously used a regression model to forecast the PFA of non-maturing (potential MSW) salmon from the Southern European stock group (ICES, 2002, 2003). The model has been used to provide such forecasts (ICES, 2006) which are used as one of the inputs to the risk analysis of the catch options for the Greenland fishery (ICES, 2008). The full model takes the form:

$$PFA = Spawners^{\lambda} \times e^{\beta_0 + \beta_1 Habitat + \beta_2 \log(PFAm) + \beta_3 Year + noise}$$

where *Spawners* are expressed as lagged egg numbers, *PFAm* refers to pre-fishery abundance of maturing 1SW salmon (derived from NEAC PFA model) and the habitat term is the same as that previously used in the North American model (ICES, 2003). The *Habitat* parameter has not been included in the model since 2003 as a result of lack of available data and difficulties in incorporating it into the forecast.

The midpoint forecasts and 95% confidence limits of the projections are shown below:

YEAR	PFA	LOWER	UPPER	SER
2008	453 682	306 257	672 074	501 188
2009	431 220	290 303	640 539	501 188
2010	419 733	281 870	625 024	501 188
2011	392 235	262 520	586 044	501 188
2012	380 952	254 458	570 328	501 188

All PFA midpoint estimates are less than the SER and therefore there is no surplus available for exploitation.

3.6.2 New forecast models

Prior to 2009, forecast models have not been used for the maturing 1SW stock complex from southern NEAC or for sea age group in the northern NEAC stock complex. ICES reviewed an alternate Bayesian forecast model for the southern NEAC 1SW non-maturing complex and new Bayesian models for the other three complexes. The proposed models have the same structure and are run independently. Detailed descriptions are provided in Section 2.3.

For both southern and northern NEAC complexes, forecasts for maturing stocks were derived for 4 years of lagged eggs starting from 2009 to 2012 and for non-maturing stocks for 5 years, from 2008 to 2012. Risks were defined each year as the posterior probability that the PFA would be below the age and stock complex specific SER levels. For illustrative purposes, risk analyses were derived based on the probability that the PFA abundance would be greater than or equal to the SER under the scenario of no exploitation.

3.6.3 Results of the NEAC Bayesian forecast models

For the southern NEAC stock complex, the productivity parameters for the maturing and non-maturing components peaked in 1985 and 1986, and reached the lowest values in 1997 (Figure 3.6.3.1). There was a sharp drop in the productivity parameter during 1989 to 1991, the median values post-1991 are all lower than during the previous period (Figure 3.6.3.1). Over the entire time-series, the maturing proportions averaged about 0.6 with the smallest proportion in 1980 and the largest proportion in 1998. There is an increasing trend in the proportion maturing (8 of 13 values below the average during 1978 to 1990 compared with 3 of 16 values between 1991 and 2006; Figure 3.6.3.2).

The proportion maturing in Northern NEAC has varied around 0.5 over the time-series but in 2007 there was an abrupt drop in the proportion maturing (Figure 3.6.3.2). The productivity parameter is higher for maturing 1SW salmon than for the non-maturing component, as was the case for the southern NEAC stock complex (Figure 3.6.3.1). The productivity parameters are higher for the northern NEAC compared with the southern NEAC complex, particularly for the non-maturing 1SW component.

The trends in the posterior estimates of PFA for both the southern NEAC and northern NEAC complexes closely match the descriptions of PFA trends previously developed by ICES (Section 3.8.13). The total PFA (maturing and non-maturing 1SW salmon at January 1 of the first winter at sea) for the southern NEAC complex ranged from 3 to 4 million fish between 1978 and 1989, declined rapidly to just over 2 million fish in 1990, and fell to its lowest level of just over one million fish in 2006 (Figure 3.6.3.3). For the northern NEAC complex, peak PFA abundance was estimated at about 2 million fish in year 2000 with the lowest value of the series in 2004 at over 1 million fish (Figure 3.6.3.4).

Forecasts from these models into 2008 to 2012 for the non-maturing age group and for 2009 to 2012 for the maturing age group were developed within the Bayesian model framework. Variations in the

median abundance over the forecasts are related to variations in lagged eggs (Figures 3.6.3.3 and 3.6.3.4) as the productivity parameters are set at the level of the last year with available data (Figures 3.6.3.1). The variability of the productivity parameters increase sequentially over the forecasts.

For the southern NEAC stock complex, the 25th percentiles of the posterior distributions of the forecasts are below the SER for both the maturing and non-maturing age components (Figure 3.6.3.3). The abundances of the northern NEAC age components have declined over the 1983 to 2008 period. The lower bound of the 95% Bayesian credible interval has fallen below the age-specific SERs for 2009 to 2012 but the expectation is for the 2008 abundance of non-maturing salmon to remain above the SER (Figure 3.6.3.4).

3.6.4 Comparison with the regression forecast model

The regression forecast model used by ICES provides PFA forecasts for only one (Southern NEAC non-maturing 1SW stock) of the four stock complexes currently used to assess the status of stocks in the NEAC commission area. These forecasts were compared with those available from the Bayesian model (Figure 3.6.3.5).

As previously noted, the structure of the ICES regression model generally leads to a forecast of declining PFA with time. This trend is not apparent in forecasts from the Bayesian model where the most credible estimates remain stable for the period from 2008 to 2012 and are consistently higher than those given by the regression model. This difference in the forecasts results from differences in the model structures: in the regression model, the negative value of the year coefficient leads to reduced PFA in the forecast, whereas in the Bayesian model the median productivity parameter estimate remains constant and the forecast tracks changes in lagged spawner abundance. The uncertainty in the forecasts from the Bayesian models is greater than for the log-linear model used by ICES; part of the reason is that the input data used by ICES are the midpoints of the lagged eggs and run-reconstructed PFA compared with the Bayesian model that incorporates uncertainty in the lagged eggs variable.

The probability that the PFA of the southern NEAC 1SW non-maturing component will be above the SER in 2009 to 2012 ranges from 0.36 to 0.59 for the regression model. In contrast, the Bayesian model provides a probability range of 0.61 to 0.68.

PROBABILITY THAT THE PFA WILL BE GREATER THAN OR EQUAL TO THE COMPLEX AND AGE SPECIFIC SERS

		Maturing	Non-Maturing	
Southern complex	SER	834 586	501 086	
	Model	Bayesian	Bayesian	Regression model
	2008		0.71	0.70
	2009	0.68	0.68	0.59
	2010	0.59	0.61	0.55
	2011	0.64	0.66	0.41
	2012	0.60	0.62	0.36

		Maturing	Non-Maturing
Northern complex	SER	291 212	216 904
	Model	Bayesian	Bayesian
	2008		0.99
	2009	0.88	0.95
	2010	0.74	0.87
	2011	0.74	0.86
	2012	0.72	0.85

3.6.5 Use of the NEAC Bayesian forecast models in catch advice

In the absence of specific management objectives for the Faroes fishery, ICES requires that the lower bound of the 95% confidence interval of the PFA estimate be above the SER for the stock to be considered at full reproductive capacity. ICES noted that, although the levels of uncertainty are greater in the Bayesian model, both models predict similar values for this lower bound in each of the 5 forecast years. In addition, for the southern NEAC complex, the 25th percentile of the PFA abundances are below the respective SER values. For the West Greenland Commission area, the probability of achieving management objectives has been set to 0.75 (see Section 5.2).

NASCO has not yet defined management objectives for the NEAC stock complexes. A risk framework for the Faroes fishery could be developed in a similar way to that for West Greenland. The risk framework would present the probabilities that the number of fish escaping the high seas fisheries would be sufficient to meet the management objective for each stock complex. In the case of the Southern NEAC non-maturing 1SW complex, this probability will also be conditional on the harvest at West Greenland. Thus, for any harvest scenario at Faroes there would be a probability of meeting the management objective in each of the stock complexes. In order for this approach to be implemented, the following will be required:

management objectives for the Northern NEAC maturing stock complex;

management objectives for the Northern NEAC non-maturing stock complex;

management objectives for the Southern NEAC maturing stock complex;

management objectives for the Southern NEAC non-maturing stock complex;

pre-agreed levels of risk for each management objective;

pre-agreed sharing arrangements among all parties to NASCO.

3.7 Comparison with previous assessment

3.7.1 National PFA model and national conservation limit model

Provisional catch data for 2007 were updated where appropriate. The equation for estimating the proportion of maturing salmon in the 1SW catches at Faroes was corrected. The impact of the correction on 1SW maturing catches at Faroes was small because the catch of 1SW maturing fish was also small. In addition, catches at Greenland were treated as point estimates for the 2008 assessment to allow updated data from the NAC assessment to be incorporated into the NEAC assessment.

3.7.2 PFA regression forecast model

The midpoints of updated forecasts of the Southern NEAC MSW PFA for the years 2008 to 2011 were all within 3% of the forecasts provided last year (ICES, 2008).

3.8 NASCO has requested ICES to describe the key events of the 2008 fisheries and the status of the stocks

3.8.1 Fishing at Faroes in 2007/2008

No fishery for salmon has been prosecuted since 2000. A compensation payment had been made to "Felagið Laksaskip" during the years 1991–1999 and 2001–2008 (i.e. not in 2000).

3.8.2 Significant events in NEAC homewater fisheries in 2008

In several countries, measures aimed at reducing exploitation were implemented or extended in 2008. These include a reduction of net fisheries in UK (England and Wales), a reduction in the extent of mixed-stock fisheries in Norway and the continued closure of the driftnet fishery in Ireland.

3.8.3 Gear and effort

No significant changes in the types of gear used for salmon fishing were reported in the NEAC area in 2008. The number of licensed gear units has, in most cases, continued to fall, and for Ireland, where the driftnet fishery was closed, effort was completely removed for this fishery. There are no such consistent trends for the rod fishing effort in NEAC countries over this period.

3.8.4 Catches

The NEAC area has seen a general reduction in catches since the 1980s (Section 2.1.1). 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 reported catch in the NEAC area in 2008 was 1519 tonnes, 8% higher than the 2007 value (1410 t) but 21% lower than the previous 5-year mean. The catch in the Southern area has declined over the period from about 4500 t in 1972–1975 to below 1500 t since 1986, and is now below 400 t. The catch declined particularly sharply in 1976, 1989–1991 and again in 2007. The catch in the Northern area also demonstrates an overall decline over the time-series, but this decline is less pronounced than for the Southern area. The catch in the Northern area varied between 2000 t and 2800 t from 1971 to 1988, fell to a low of 962 t in 1997, then increased to over 1600 t in 2001 although it has exhibited a downward trend since this time. The catch in the Southern area, which in the early 1970s comprised around two-thirds of the NEAC total, has thus, since 1999, been lower than the catch in the Northern area.

3.8.5 Catch per unit effort (cpue)

Cpue can be influenced by various factors, and it is assumed that the cpue of net fisheries is a more stable indicator of the general status of salmon stocks than rod cpue because the latter may be more affected by varying local factors.

An overview of the cpue data for the NEAC area was undertaken. In the Southern NEAC area, cpue demonstrate a general decrease in UK (Scotland) and UK (England and Wales) net fisheries. Cpue for the net fishery revealed mostly lower values compared with 2007 and the previous 5-year averages. In the Northern NEAC area, there has been an increasing trend in the cpue values for Norwegian net fisheries and Russian rod fisheries in Barents Sea rivers. A decreasing trend was noted for rod fisheries in Finland (River Teno).

3.8.6 Age composition of catches

1SW salmon comprised 54% of the total catch in the Northern area in 2007 which was below the 5- and 10-year means (61% and 64%, respectively). In general, there has been greater variability of the proportion of 1SW fish between countries in recent years (since 1994) than prior to this time. For the Southern European countries, the overall percentage of 1SW fish in the catch (53%) is below the 5- and 10-year mean (59% and 60%, respectively).

3.8.7 Farmed and ranched salmon in catches

The contribution of farmed and ranched salmon to national catches in the NEAC area in 2008 was again generally low (<2% in most countries) and is similar to the values that have been reported in previous years (e.g. ICES, 2008). Thus, the occurrence of such fish is usually ignored in assessments of the status of national stocks. However, in Norway farmed salmon continue to form a large proportion of the catch in coastal (23% in 2008), fjordic (30% in 2008) and rod fisheries (9% in 2008). The level of escaped farmed salmon in Norwegian catches has been lower in recent years than during the period 1989–2002. An assessment of the likely effect of these fish on the output data from the PFA model has been reported previously (ICES, 2001).

3.8.8 National origin of catches

There is direct evidence of Russian origin salmon being caught in coastal mixed-stock fisheries in northernmost Norway. This is on the basis of tagging experiments conducted prior to 1974. The data strongly indicates that during the period of tagging the bycatch of Russian origin salmon was relatively high in northernmost Norway.

The bycatch of Swedish salmon was high on the west and southwest coast of Norway in the 1970s. However given the subsequent ban on the driftnet fishery along the Norwegian coast, a significant reduction of the coastal bagnets in the west and southwest area and the general ban on bendlnets in Norway (with the exception of the fishery in Finnmark County) present bycatch of Swedish salmon in Norway is probably small.

ICES summarized the results from 14 508 adult recaptures of smolts tagged and released in different rivers in Norway during 1990–1996 (ICES 1998). The great majority were recaptured in Norway (98.77%), 0.59% in Sweden, 0.30% in Denmark and 0.21% in Ireland. Examination of the NINA tag database of about 60 000 adult recoveries from smolt tagging in Norway indicated that most of the foreign recaptures were made in Sweden and Denmark, although these accounted for a very small overall proportion. Very few recaptures were reported from other countries.

In summary, the provisional analysis of the available information suggests that exploitation of foreign origin salmon in Norway is low with the exception of salmon originating in Russia. Exploitation of Norwegian origin salmon in neighboring countries appears to be limited. There may be local issues which are difficult to detect and assess, for example the interception of fish in border rivers which are captured in one jurisdiction and originate in another.

3.8.9 Trends in the PFA for NEAC stocks

In the evaluation of the status of stocks in Figure 3.1.1, estimated recruitment (PFA) values should be assessed against the SER values, whereas the estimated spawning escapement values should be compared with the CL.

Northern European 1SW and MSW stocks: Recruitment patterns of maturing 1SW salmon and of non-maturing 1SW recruits for Northern Europe (Figure 3.1.1) demonstrate broadly similar patterns. The general decline over the period is interrupted by a short period of increased recruitment from 1998 to 2003. Both stock complexes have been at full reproductive capacity prior to the commencement of distant water fisheries throughout the time-series. Trends in spawner number for the Northern stock complexes for both 1SW and MSW are similar. Throughout most of the time-series, both 1SW and MSW spawners have been either at full reproductive capacity or at risk of reduced reproductive capacity. However, in both 2007 and 2008, the 1SW spawner estimate indicated that the stock complex was suffering reduced reproductive capacity. These patterns are broadly consistent with the general pattern of decline in marine survival of 1SW and 2SW returns in most monitored stocks in the area (Section 3.8.10).

Southern European 1SW and MSW stocks: Recruitment patterns of maturing 1SW salmon and of non-maturing 1SW recruits for Southern Europe (Figure 3.1.1) demonstrate broadly similar declining trends over the period. The maturing 1SW stock complex has been at full reproductive capacity over most of the period with the exception of 2006 and 2008 when it was at risk of suffering reduced reproductive capacity prior to the commencement of distant water fisheries. The non-maturing 1SW stock has been at full reproductive capacity over most of the period but has been at risk of suffering reduced reproductive capacity before homewater fisheries took place in nine of the twelve years between 1996 and 2007 and was suffering reduced reproductive capacity for the first time in 2006.

Declining trends in spawner number are evident in the Southern stock complexes for both 1SW and MSW. However the 1SW stock has been at risk of reduced reproductive capacity or suffering reduced reproductive capacity for most of the time-series. In contrast, the MSW stock has been at full reproductive capacity for most of the time-series until 1997 when the stock was either at risk of

reduced reproductive capacity or suffering reduced reproductive capacity. This is broadly consistent with the general pattern of decline in marine survival of 1SW and 2SW returns in most monitored stocks in the area (Section 3.8.10).

3.8.10 Survival indices for NEAC stocks

An overview of the trends of marine survival for wild and hatchery-reared smolts returning to homewaters (i.e. before homewater exploitation) for the 2007 and 2006 smolt year classes (returning 1SW and 2SW salmon, respectively) is presented in Figure 3.8.14.1. The survival indices presented are the annual rates of change in marine survival. The original survival indices for different rivers and experimental facilities are presented in Tables 3.8.10.1 and 3.8.10.2.

The overall trend in for Northern and Southern NEAC areas, in both wild and hatchery smolts, is indicative of a decline in marine survival. The decline across the time-series varies between 1% and 20% (Figure 3.8.14.1). Most of the survival indices for wild and reared smolts were below the previous 5- and 10-year averages. Some increases in survival were detected in Iceland for 1SW fish on the Vesturdalsa River and for hatchery reared grilse on the Ranga River (Tables 3.8.10.1 and 3.8.10.2).

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.

3.9 NASCO has requested ICES to provide any new information on the extent to which the objectives of any significant management measures introduced in recent years have been achieved

Most management measures introduced in recent years in relation to international, national and local objectives have aimed to reduce levels of exploitation on NEAC stocks, to increase freshwater escapement and in some countries specifically to meet river-specific CLs. Many of the inputs relate specifically to national plans or strategies or to commitments under National or EU directives. Although some local measures have had notable success (Table 3.9.1) ICES notes that three of the four NEAC stock complexes are currently suffering reduced reproductive capacity after homewater fisheries have taken place (Section 3.4).

3.10 NASCO has requested ICES to further investigate opportunities to develop a framework of indicators that could be used to identify any significant change in previously provided multi-annual management advice

In 2006, ICES developed a generalized Framework of Indicators (FWI) which would indicate if any significant change in the status of stocks used to inform the previously provided multi-annual management advice had occurred (ICES, 2007a). This was adopted for the Greenland fishery based on the seven contributing regions/stock complex with direct links to the three management objectives established by NASCO for that fishery. However, ICES was unable to develop a FWI for the Faroese fishery for a number of different reasons. Among these were the lack of quantitative catch advice, the absence of specific management objectives and a sharing agreement for this fishery and the fact that none of the available indicator datasets met the criteria for inclusion in the FWI. In the absence of a FWI for the Faroese fishery, ICES recommended that annual assessments be conducted to verify the multiyear catch advice.

ICES updated the NEAC datasets previously examined in the FWI. However, these still did not satisfy the criteria for inclusion in the FWI as being informative of a significant change, because over the time-series the PFA estimates have predominately remained above the SER. ICES considered that these datasets would need to be re-evaluated for use in future, should PFA estimates decline to levels consistently below the limit reference points for each stock complex. In the absence of a FWI, the only indication of a change would be provided by a full assessment of the NEAC stock complexes. ICES considers that this is the preferred option, given that the PFA of these complexes remain close to SERs.

Table 3.9.1. Summary of national objectives, recent management measures and attainment of management objectives.

Country	Objective	Introduced	Assessment period	Measure Taken	Assessment	Outcome/extent achieved	Further consideration
Russia	Reduce commercial fishing effort and enhance recreational fisheries based mostly on catch-and-release principles	1994	Annually	Various management measures including closure of some important commercial in-river fisheries and reductions in quotas for coastal mixed-stock fisheries	Examination of catch statistics	Mean total commercial catch reduced by 50% and mean in-river commercial catch reduced by 83%, while recreational catches increased by 56% (2004-2008 compared to 1999-2003). The percentage of the total recreational catch that was released has ranged from 74% to 90% in the last ten years.	Further restrictions will be considered for fisheries which take mixed stocks and stocks below their Conservation Limits.
Norway	Reduce mixed stock fisheries, and reduce exploitation on MSW salmon.	2008	2008	Along the coast in all counties except Finnmark: Fishing season for bag-nets reduced at the beginning of the season or fisheries closed. In fjords in all counties except Finnmark: Fishing season reduced by at least 14 days at the beginning of the season. Finnmark: Smaller reductions in fishing season and number of fishing-days per week for both bend-nets and bag-nets.	Examination of catch statistics	Mean proportion of the total catch taken in the sea reduced from a mean of 49 % in the period 2003-2007 to 42 % in 2008 based on the number salmon caught, and from 56 % to 47 % based on the weight of the catch.	A new licence scheme for netsmen is under developement, which may reduce the future netting effort.
	Reduce exploitation in rivers to increase the number of spawners.	2008		Fisheries regulations for individual rivers set in accordance with their assumed stock status. Introduction of daily bag-limits in many rivers, and closure of fisheries in rivers with low population levels.			Compliance of CL's in individual rivers will be assessed.
Iceland	Formally record restrictions on the numbers of rods and nets allowed in individual rivers in an effort regulation plan aimed at providing a fundamental basis for a sustainable salmon fishery.	2008-2009 (based on Fishing Act of 2006)	Every 8 years	Fishery associations or the owners of fishing rights on rivers or lakes are responsible for introducing effort plans. These specify the maximum number of rods and nets allowed on individual rivers or lakes, as well as the annual and daily fishing periods allowed, restrictions on bait, bag limits, catch and release, minimum or maximum landing sizes of fish, etc. Effort plans need to be approved by the Competent Management Authority (CMA) after review by the Institute of Freshwater Fisheries (IFF)	Examination of available information from catch statistics, stock size estimates, exploitation rates, parr densities, historic catch or effort information, etc.	Introduction of effort plans is intended to further underline the responsibilities of owners of fishing rights for sustainable management. The effort plan needs to be taken in to account when fishing rights are leased to anglers or syndicates.	The Competent Management Authority (CMA) can introduce further restrictions at any time as necessary.
Ireland	To conserve the inland fisheries resource in its own right and its viability and economic and social contribution at national, local and community level.	2006	post 2006	Closure of mixed stock fishery in marine and coastal waters. Fisheries only allowed on single stocks which are shown to have a harvestable surplus over the Conservation Limit. These are operated in rivers and estuaries only	Harvest rule based on a catch option which provides at least a 75% chance that the CL will be met.	Commercial catch reduced from over 70% of total catch. Rod catch now 68% of total catch. Catch and release 54% of total rod catch and 35% of the total catch. Increase in river returns and spawners in virtually all rivers assessed with counters or traps in 2007 and 2008.	57 of 80 stocks where a direct assessment can be made are meeting CL. There are also about 60 small rivers (annual rod catch < 10) with uncertain status. Information is being acquired for these
	Maintain salmon stocks in SAC rivers at favourable conservation status	2002	2002 to present	Closure of mixed stock fishery as above.	Examination of counter (14 rivers) or rod catch (16 rivers) data to assess CL compliance for 30 SAC	Following re-appraisal in 2008 and with the closure of the Irish coastal and marine mixed stock fishery, 23 of the 30 SAC rivers are estimated to be meeting CLs	Under the EU Water Framework Directive water quality and fish passage are expected to improve
	To reduce the exploitation of stocks from other countries in Irish fisheries	1979	Annually	Closure of mixed stock fishery as above.	Coded wire tagging returns to Irish and non-Irish rivers pre and post imposition of TACs.	Only 1 tag originating from a country other than Ireland was recaptured in the Irish fishery in 2007. No foreign tags were recaptured from the 2008 fishery.	Catch scanning for Coded Wire Tags in the commercial fisheries should be maintained
Ireland/UK N.Ireland	Development of fisheries and aquaculture, conservation and protection of inland fisheries and sustainable development of marine tourism.	2006	Post 2006	Lough Foyle area which is under the jurisdiction of a joint cross boarder Ireland/UK agency. Commercial fishing resricted to insde the Lough to target single stocks only. Number of drift net and draft net licences reduced.	Fisheries in the Foyle area managed in-season based on counter. Carcass tagging and logbook scheme in place.	Inceased escapement to River Foyle epected	Further development and improvements to in fisheries assessments being undertaken

Table 3.9.1 Cont'd. Summary of national objectives, recent management measures and attainment of management objectives.

Country	Objective	Introduced	Assessment period	Measure Taken	Assessment	Outcome/extent achieved	Further consideration
UK (England & Wales)	Meet objectives of National Salmon Management Strategy (launched in 1996) and ensure stocks meet or exceed CLs in at least 4 years out of 5.	1996	Annually	Programme of Salmon Action Plans (SAPs) for each of the 64 principal salmon rivers to provide prioritised list of actions for each river.	Examination of catch statistics, monitoring data and completion of annual compliance assessment	Programme of SAPs was finalised in 2004 and these are now subject to annual review to ensure they match current circumstances and provide a realistic programme to address issues facing each river.	Continue with targeted actions identified in SAPs and review annually. Process to be progressively linked to Water Framework Directive requirements.
	Safeguard MSW stock component	1999	2008	National spring salmon measures introduced in 1999 (restricted net fishing before June and required compulsory catch & release by anglers up to June 16)	Estimated 800 salmon saved from net fisheries and 1,600 saved from rod fisheries in 2007 due to these measures	Spawning escapement of spring salmon may have increased by up to one third on some rivers due to measures	Approval to renew these measures for a further 10 years was given in December 2008.
	Phase out mixed stock fisheries	1993	Annually	Mixed stock fishery measures imposed since 1993, including phase outs, closures, buy outs and reductions in fisheries.	Examination of catch statistics, monitoring data and completion of annual compliance asessment	Coastal fishery catch reduced from average of 41,000 (88-92) to under 32,000 (98-02) and to about 8,600 (03-08) Declared rod catch in 5 north east rivers 58% higher on average in the 6 years since net buy out in 2003, relative to average of 5 years before buy out. Recorded runs (salmon & sea trout) into the River Tyne 79% higher since NE net buy out in 2003 compared with mean of previous 5 years.	Continuing to phase out remaining mixed stock fisheries and focus on other limiting factors. Annual application of decision structure to assess need for effort controls.
	Reduce exploitation rates and increase freshwater returns leading to compliance with CLs.	1993	Annually	Promote catch and release (mainly voluntary), including 100% catch and release in some catchments.	Examination of catch statistics, release rates and annual compliance	Catch and release increased to over 50% of rod caught fish in recent years & 100% C&R on some catchments. Estimated to have contributed an extra 38 million eggs in 2008.	Continuing promotion of C&R at national and local levels.
	Maintain salmon stocks in SAC rivers at favourable conservation status	1996	annually	Fishing controls, catch and release and addressing issues identified in Salmon Action Plans as appropriate.	Examination of counter/rod data to assess CL compliance for 18 rivers designated as SACs	2 rivers are currently considered to be complying with the management objective of passing the CL 4 years out of 5.	Continue with targeted actions as identified in Salmon Action Plans in order to meet management objectives.
UK (Northern Ireland)	To conserve, enhance, restore and manage salmon stocks in catchments throughout UK (NI) through two salmon management plans (FCB and Loughs Agency areas).	2001	annually	Commercial and recreational fishing restrictions in both areas. Voluntary buyout of coastal netting licences in FCB area 2002.	Examination of recreational and commercial exploitation data collated through carcass tagging schemes in FCB and LA areas	Increased escapement of salmon following commercial and recreational fishing restrictions. Efficacy of FCB measure reported to ICES in 2008.	Continue monitoring and management protocols under the salmon management plans.
	To ensure that in most rivers in most years sufficient adult salmon are spawning to maximise output of smolts from freshwater.	2001	annually	Range of measures to enhance escapement including angling restrictions (daily & seasonal catch limits and seasonal restrictions) Ban on sale of rod caught salmon in LA area in 2008.	Examination of fish counter & rod catch datasets to assess escapement on index rivers with defined CLs.	Increased compliance against CL in many catchments in N. Ireland in 2008.	Further develop monitoring mechanisms and define/refine CLs.
	To monitor escapement and where CLs are not attained to identify and address limitations.	2005-07	2008-2010	Habitat enhancement measure funded by European Economic Area on several selected catchments in Loughs Agency and FCB areas.	Fully quantative electro-fishing	Ongoing	Monitor effect of habitat enhancement schemes.
Ireland/UK N.Ireland	Development of fisheries and aquaculture, conservation and protection of inland fisheries and	2006	Post 2006	Lough Foyle area which is under the jurisdiction of a joint cross boarder Ireland/UK agency. Commercial fishing resricted to insde the Lough to target single	Fisheries in the Foyle area managed in-season based on counter. Carcass tagging	Inceased escapement to River Foyle epected	Further development and improvements to in fisheries assessments being undertaken

Table 3.9.1 Cont'd. Summary of national objectives, recent management measures and attainment of management objectives.

Country	Objective	Introduced	Assessment period	Measure Taken	Assessment	Outcome/extent achieved	Further consideration
UK (Scotland)	Improve status of early running MSW salmon	2000	2007	Agreement by Salmon Net Fishing Association (most, but not all, net fishing operations are members) to delay fishing until the beginning of April. Introduced in 2000	Examination of catch statistics	Annual assessment. Reduction in MSW net fishery catch in February to March relative to period prior to 2000.	Further reduction in exploitation
		2005	Not yet evaluated	Bervie, N.and S. Esk salmon district net fishery delayed until 1st May with catch and release only in the rod fishery until 1st June	Examination of catch statistics	Exploitation removed for both nets and rods for respective periods.	Measure in place for 5 years. Re-evaluation after this period
France	Reduce exploitation on MSW salmon and increase escapement in the Loire basin	1994	2007	Catching salmon has been forbidden in the Loire-Allier catchment since 1994; fishing for other species continues	Salmon counter operating in Vichy (River Allier) since 1996	This did not seem to enhance salmon numbers to the expected level	Illegal exploitation, physical obstructions (e.g. Poutès-Monistrol Hydropower Dam) & other environmental factors, including higher temperatures and fish disease are also concerns and under investigation
	For Brittany and Lower Normandy stocks to comply with river-specific CLs. Reduce exploitation of MSW salmon and target fishing more on 1SW fish	1996, 2000	2000 to 2003	TACs introduced in 1996 in Brittany and Lower Normandy and MSW TACs introduced in 2000. These have lead to temporary closures on some rivers and in some years	Examination of catch statistics	Reduced catches have probably increased spawning numbers. Reduced catch of MSW fish in Brittany since 2000 and Lower Normandy since 2003, but MSW TACS are frequently exceeded on some rivers.	Monitored river (Scorff) has failed to meet CL consistently since 1994. However, the Scorff is not typical of the exploitation pattern in the area (small fishery)
	Reduce exploitation of MSW salmon in the Adour basin	1999	2007	Closure of net and rod fisheries for two days each week with days varying since 1999	Examination of catch statistics	Some reduction in rod catch but current regulations have been unable to reduce the exploitation rate on MSW stocks as expected	Specific limitations on MSW catches should be considered and a CL set for this basin
Germany	Reintroduction of Atlantic salmon. Salmon stocks extinct since the middle of 20th century but improvements in conditions and water quality were thought to be sufficient to support salmon	1988	Annually	Restocking of rivers running into North Sea (Rhine, Ems, Weser and Elbe). Two million juveniles (mainly fry) released annually	Trap and counter data (Sieg, upper Rhine)	300-700 adults recorded annually. Return rates of less than 1%. Records of natural production in some tributaries show an Increase.	Low return rates thought to reflect obstructions to upstream and downstream migration in the Rhine and its Delta as well as spawning tributaries and probably due to by-catch in non-target fisheries
	Establish free migration routes for salmon and other migratory fishes, protection of downstream migrants at power plants and rehabilitation of habitat in rivers basins	1988	Annually	Collaborative programme has started e.g. Rheinprogramm 2020 (ICPR) International Commission for the Protection of the River Rhine	Assessment in progress	Assessment in progress	Improvements expected with measures required under Water Framework Directive.

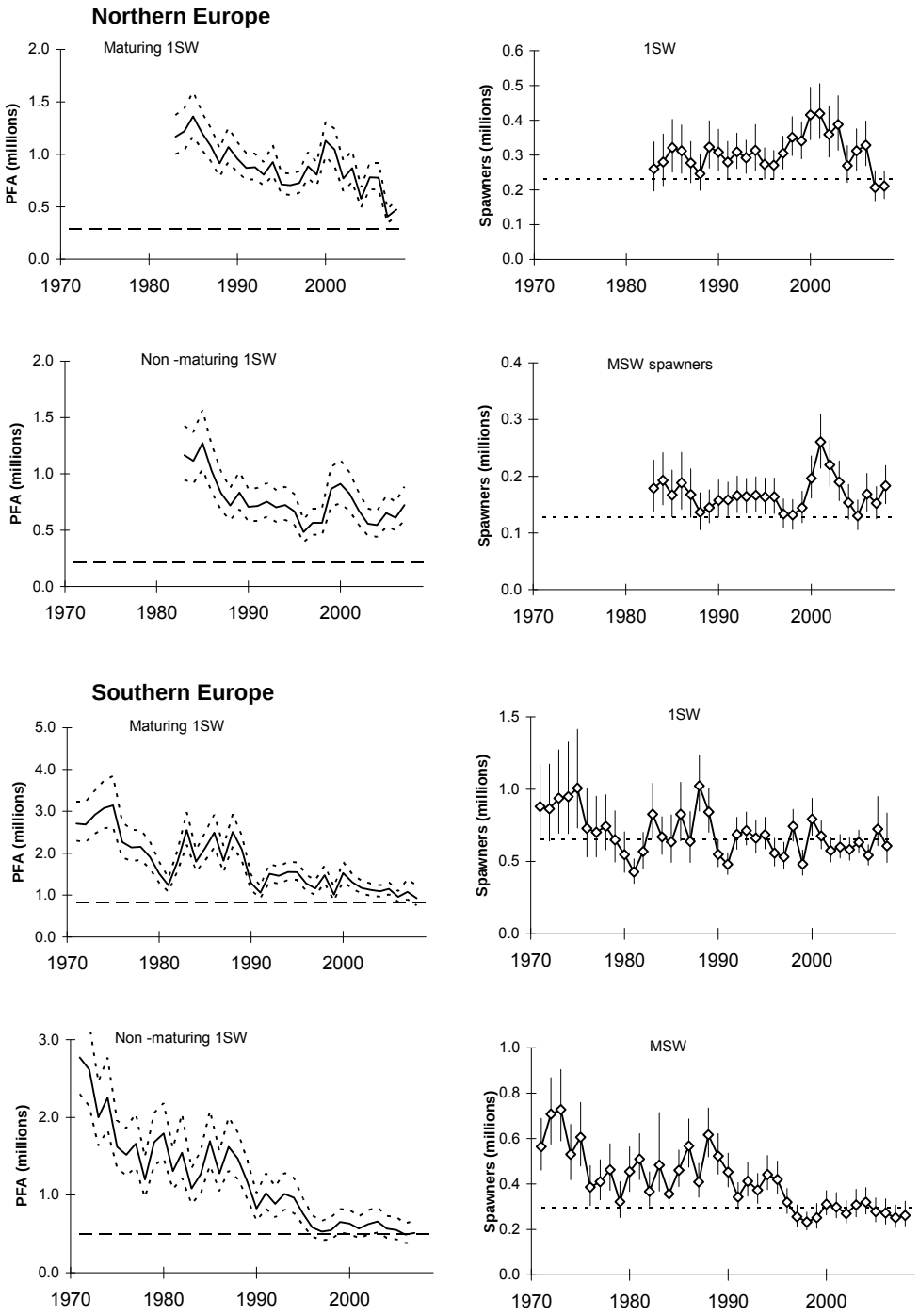


Figure 3.1.1. Estimated PFA (recruits) (left panels) and spawning escapement (right panels), with 95% confidence limits, for maturing 1SW and non-maturing 1SW salmon in Northern and Southern Europe.

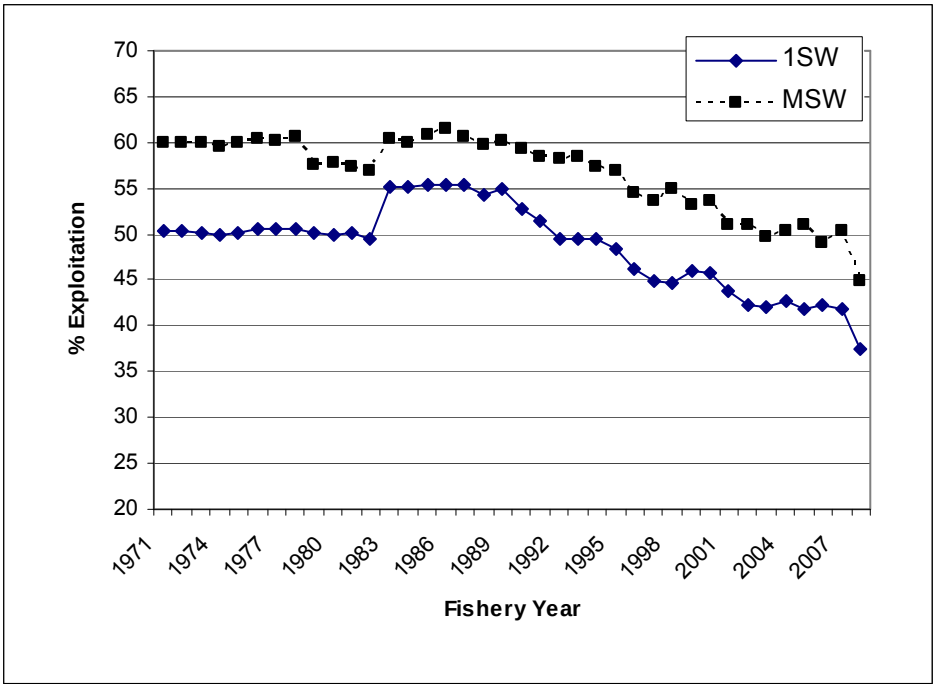


Figure 3.1.2. Exploitation rates of wild 1SW and MSW salmon by commercial and recreational fisheries in the Northern NEAC area from 1971–2008.

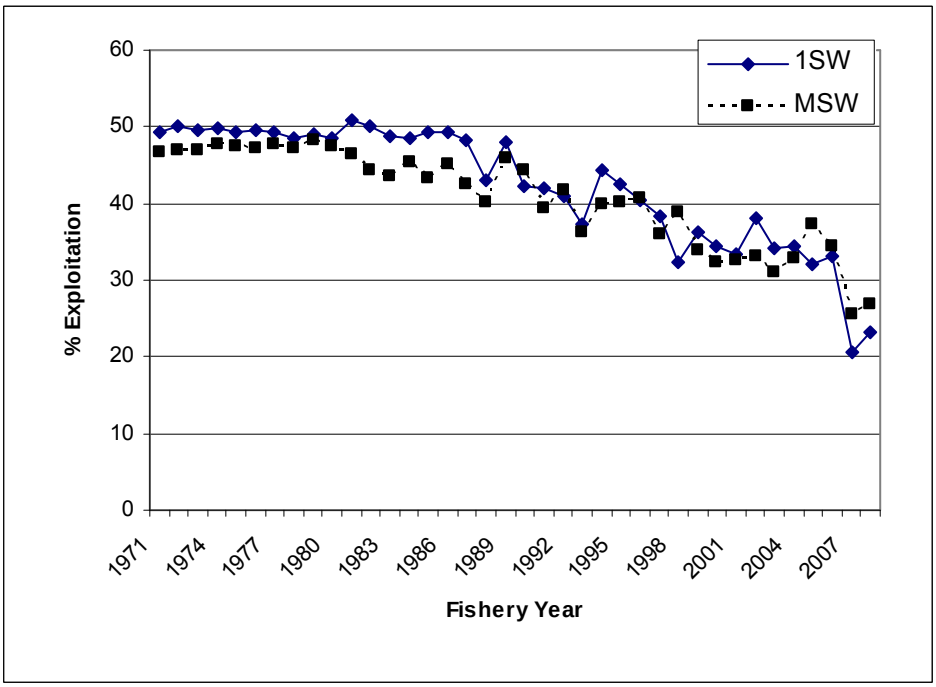


Figure 3.1.3. Exploitation rates of wild 1SW and MSW salmon by commercial and recreational fisheries in the Southern NEAC area from 1971–2008.

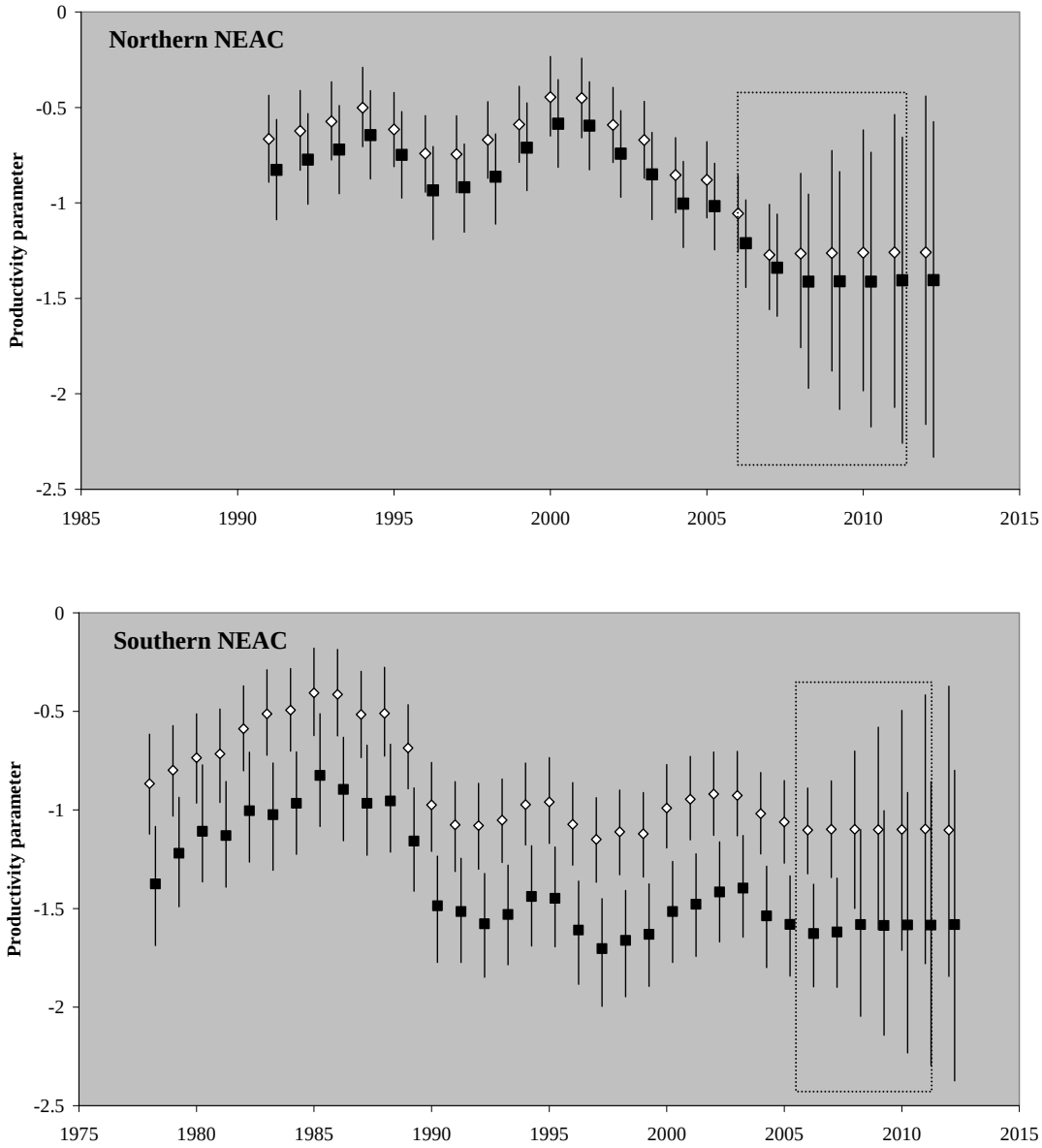


Figure 3.6.3.1. Productivity parameters by year for the maturing (◊) and non-maturing (▪) Northern and Southern NEAC forecast models. The extents of the whiskers represent the 2.5 and 97.5 BCI. Model forecasts are enclosed within the boxed areas.

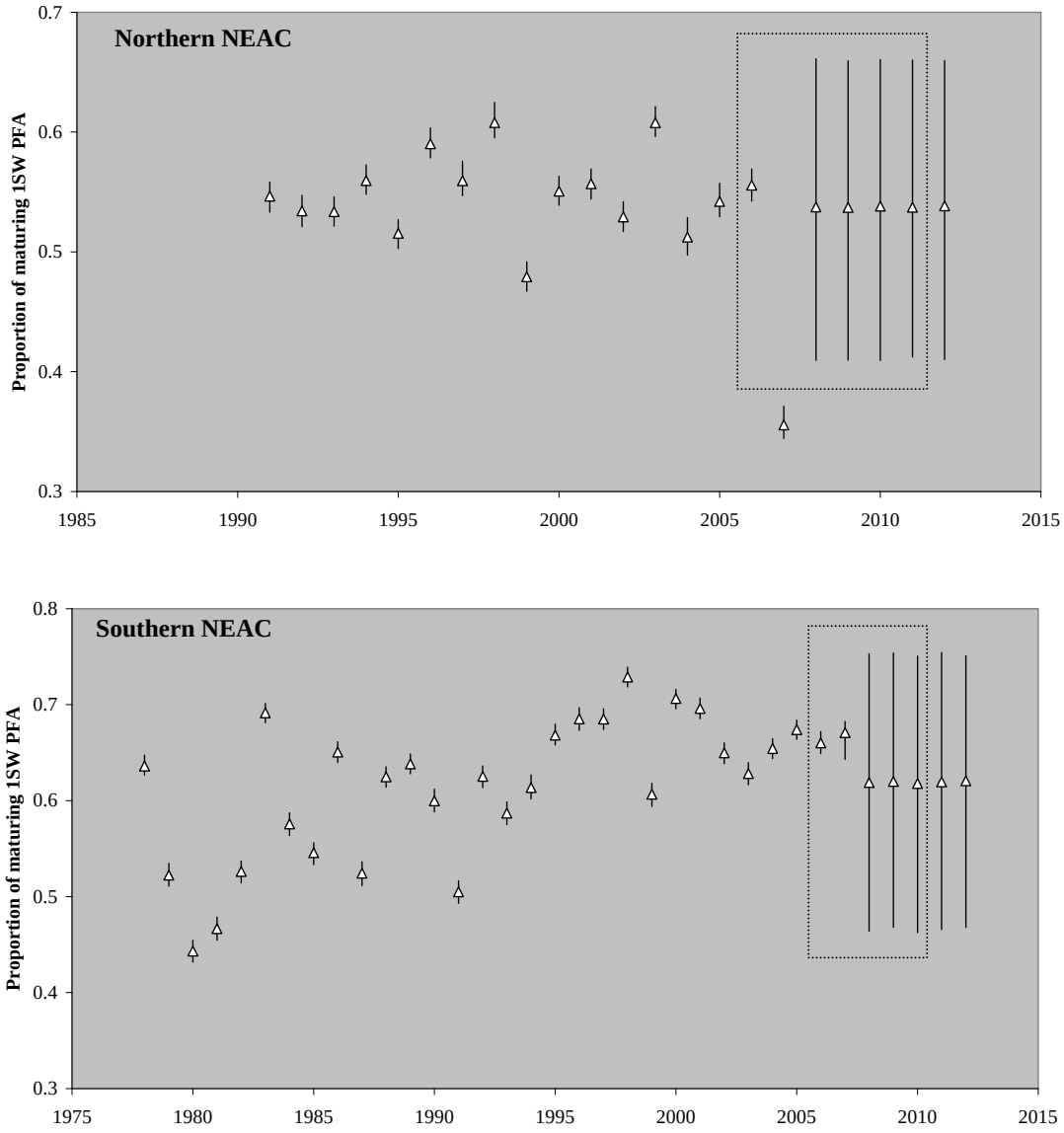


Figure 3.6.3.2. Proportion of maturing 1SW parameter by year for the Northern and Southern NEAC forecast models. The extents of the whiskers represent the 2.5 and 97.5 BCI. Model forecasts are enclosed within the boxed areas.

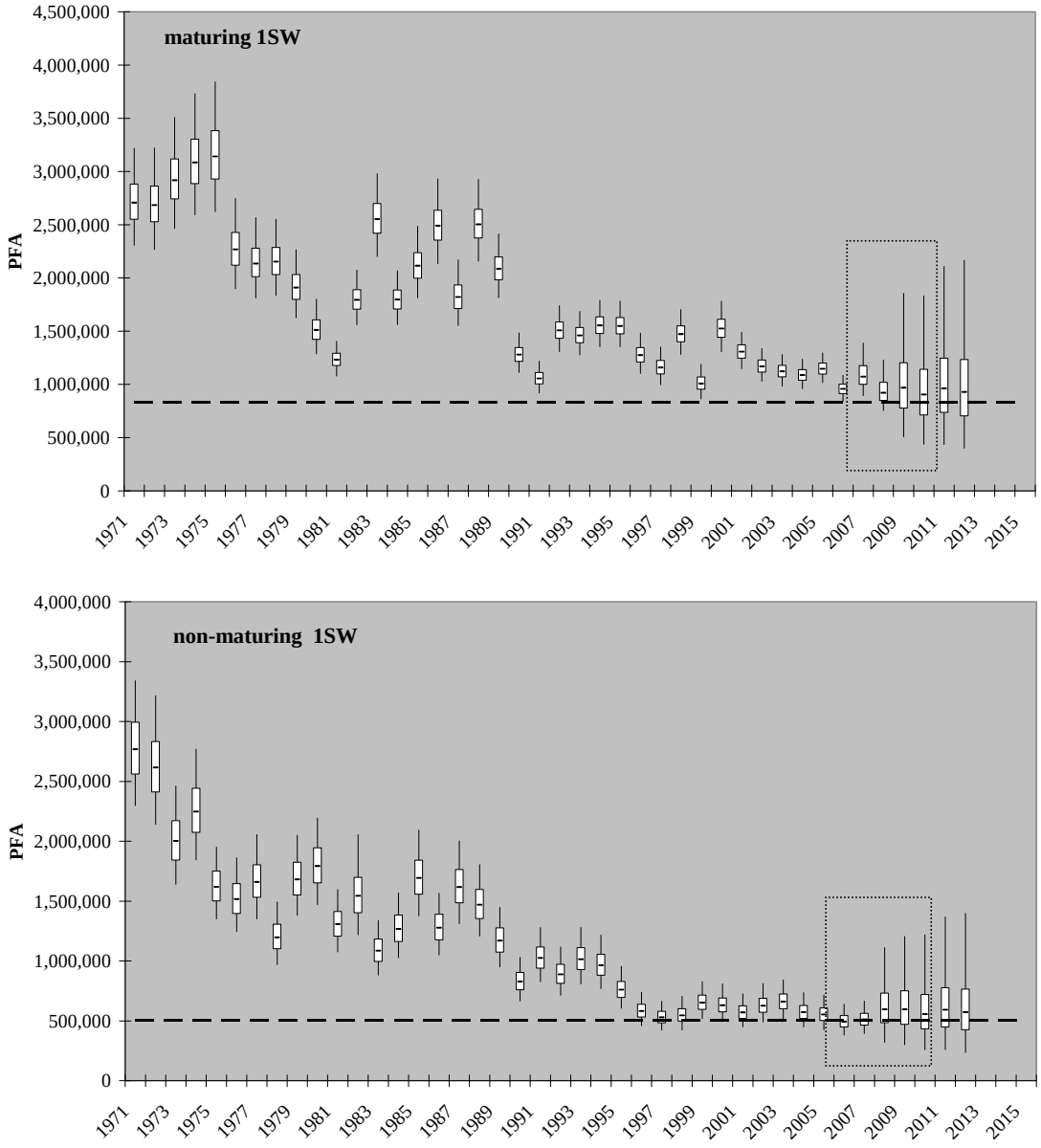


Figure 3.6.3.3. Southern NEAC PFA estimates by year. The extents of the whiskers represent the 2.5 and 97.5 BCI. The SER for the stock complex is represented by the dashed line. Model forecasts are enclosed within the boxed areas.

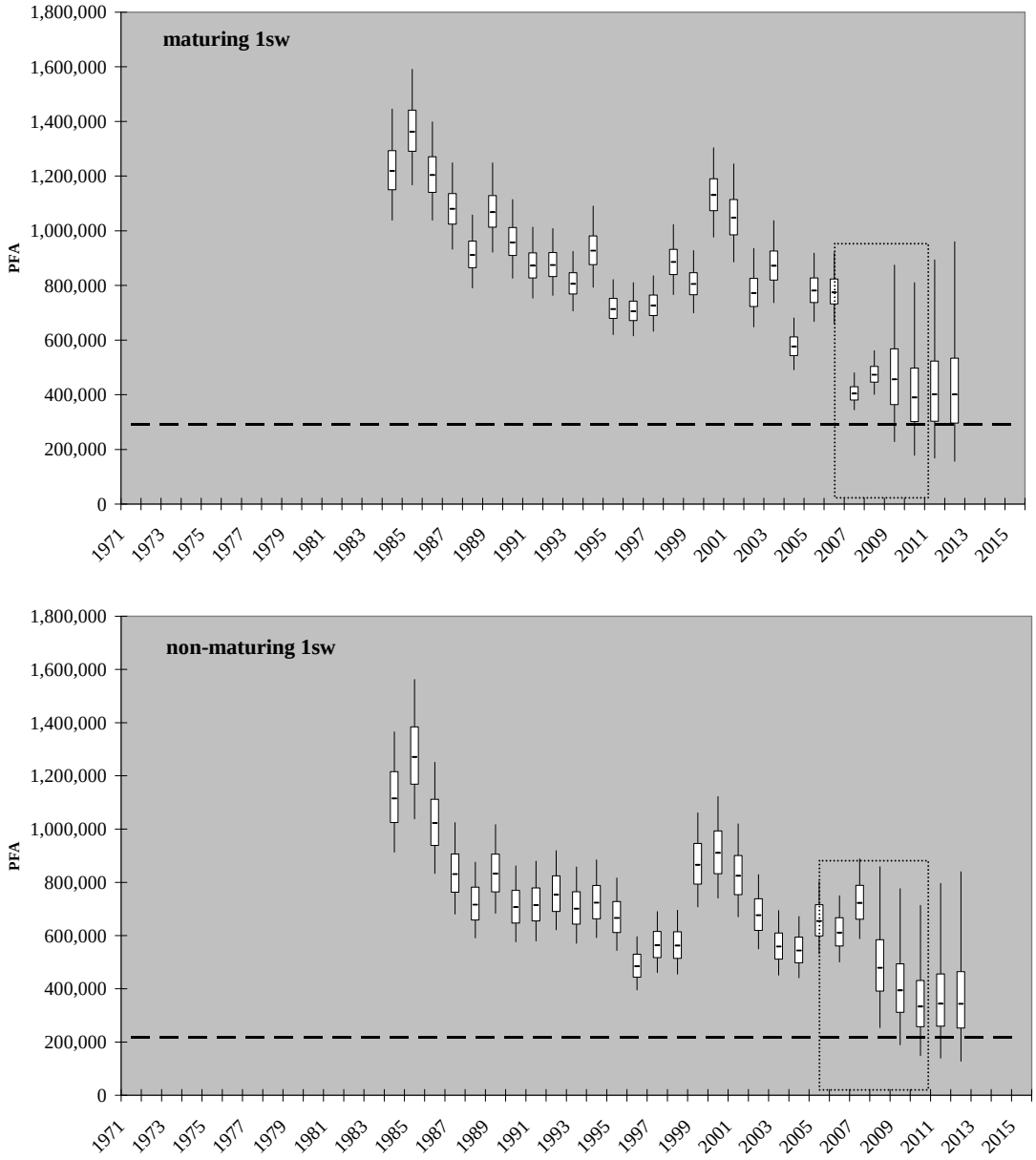


Figure 3.6.3.4. Northern NEAC PFA estimates by year. The extents of the whiskers represent the 2.5 and 97.5 BCI. The SER for the stock complex is represented by the dashed line. Model forecasts are enclosed within the boxed areas.

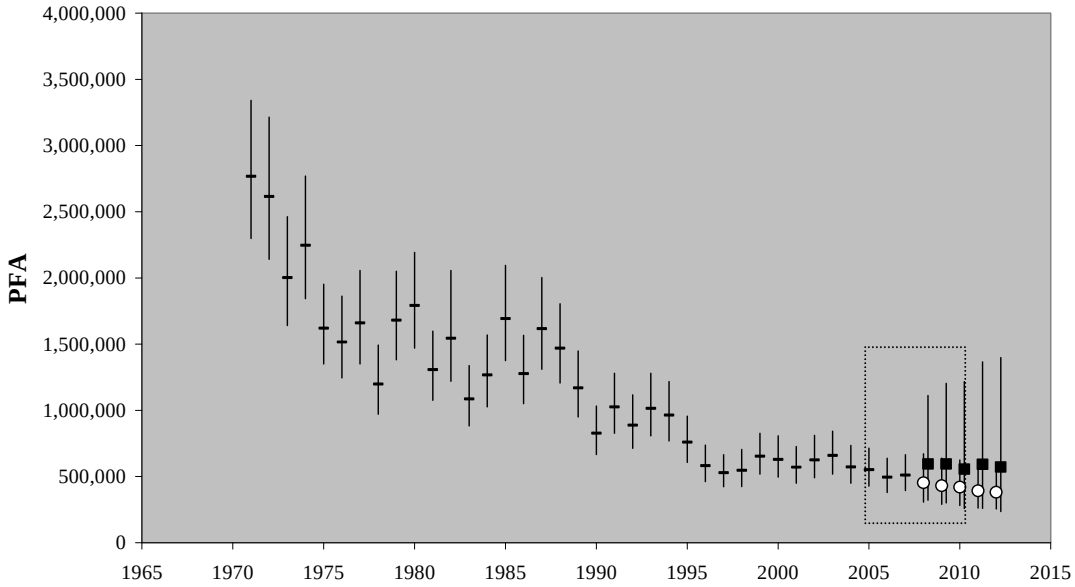


Figure 3.6.3.5. Comparison of model estimates of PFA for the Southern NEAC non-maturing 1SW stock complex. Run reconstruction median estimates (-) together with 95% confidence intervals are shown from 1971 to 2007. Forecasts from the regression model (o) together with 95% confidence intervals and from the Bayesian forecast model (▪) together with 2.5% to 97.5% BCI are shown from 2008 to 2012. Model forecasts are enclosed within the boxed areas.

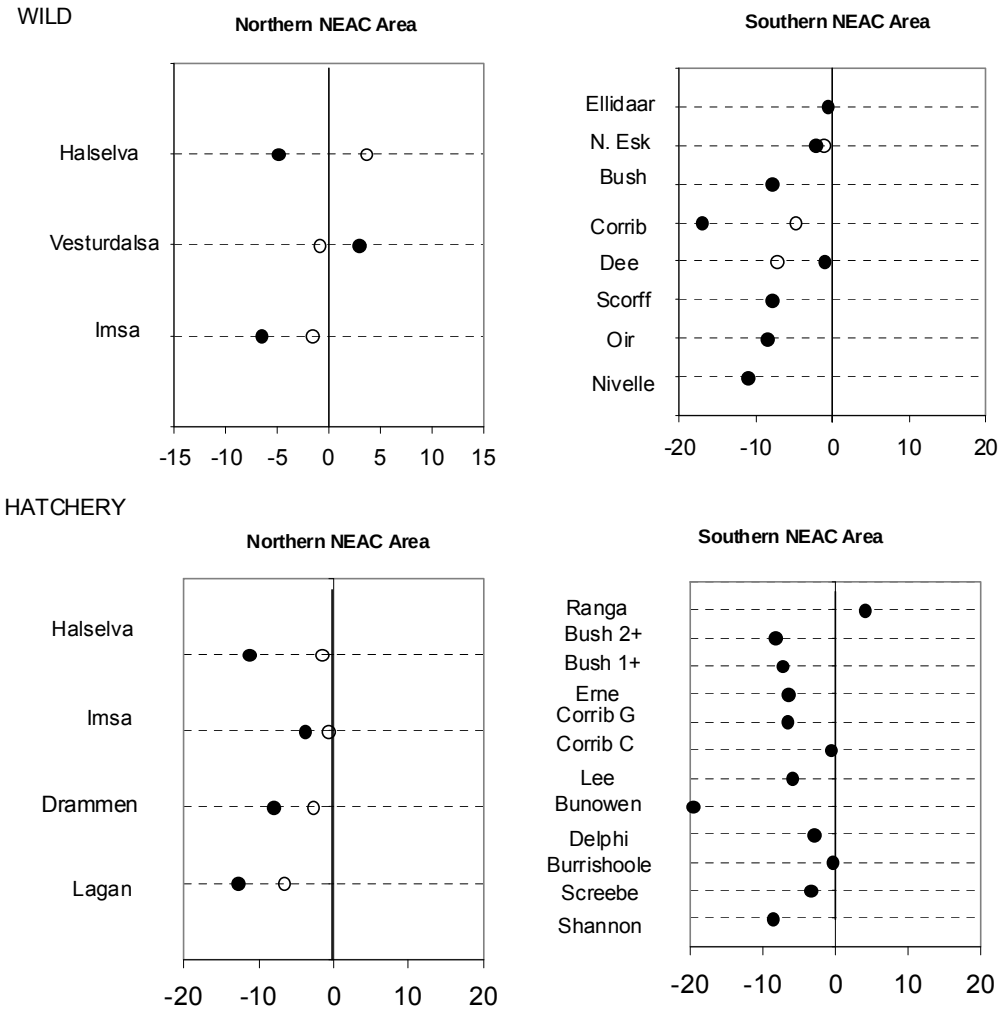


Figure 3.8.10.1. Annual rates of change (%) in marine survival indices of wild and hatchery smolts to adult returns to homewaters (prior to coastal fisheries) in different rivers in northern and Southern NEAC areas. Filled circle = 1SW salmon; open circle = 2SW salmon. NB. The annual rates of change presented come from datasets of variable durations. Therefore comparisons between rivers are not appropriate.

4. North American Commission

4.1 Status of stocks/exploitation

In 2008, 2SW spawner estimates for the six geographic areas indicated that all areas were below their conservation limit (Figure 4.1.1) and are suffering reduced reproductive capacity.

The estimated exploitation rate of North American origin salmon in North American fisheries has declined (Figure 4.1.2) from approximately 79% to 14% for 2SW salmon and from approximately 69% to 14% for 1SW salmon over the period 1971–2008. In 2008, exploitation rates on 1SW and 2SW salmon remained among the lowest in the time-series.

The stock status is elaborated in Section 4.9.

4.2 Management objectives

Management objectives are included in Section 1.3.

4.3 Reference points

There are no changes recommended in the 2SW salmon conservation limits (CLs) from those identified previously. CLs for 2SW salmon for Canada total 123 349 and for the USA, 29 199 for a combined total of 152 548.

4.4 Management advice

As the predicted number of 2SW salmon returning to North America in 2009 is substantially lower than the 2SW CL there are no catch options for the composite North American fisheries. Where spawning requirements are being achieved, there are no biological reasons to restrict the harvest.

Wild salmon populations are now critically low in extensive portions of North America and remnant populations require alternative conservation actions in addition to very restrictive fisheries regulation to maintain their genetic integrity and persistence and where necessary habitat restoration.

Advice regarding management of this stock complex in the fishery at West Greenland is provided in Section 5.

4.5 Relevant factors to be considered in management

The management for all fisheries should be based upon assessments of the status of individual stocks. Fisheries on mixed-stocks, particularly in coastal waters or on the high seas, pose particular difficulties for management as they cannot target only stocks that are at full reproductive capacity if there are stocks below conservation limit within the mixed-stock being fished. Conservation would be best achieved if fisheries target stocks that have been demonstrated to be at full reproductive capacity. Fisheries in estuaries and especially rivers are more likely to meet this requirement.

4.6 Updated forecast of 2SW maturing fish for 2009

The updated forecast for 2009 2SW maturing fish is based on an updated forecast of the 2008 pre-fishery abundance and accounting for fish which were already removed from the cohort by fisheries in Greenland and Labrador in 2008 as 1SW non-maturing fish.

The updated forecast of the 2008 pre-fishery abundance provides a PFA midpoint of 110 100, about 7% lower than the forecast provided in the 2007 assessment. The 2008 pre-fishery abundance of maturing 2SW salmon will be available in homewaters in 2009.

4.6.1 Catch options for 2009 fisheries on 2SW maturing salmon

As the predicted number of 2SW salmon returning to North America in 2009 is substantially lower than the 2SW CL, there are no catch options that would provide a high probability of achieving conservation limits. Catch options refer to the composite North American fisheries. As the biological objective is to have all rivers reaching their conservation requirements, river-by-river management is necessary. On individual rivers, where spawning requirements are being achieved, there are no biological reasons to further restrict the harvest.

4.7 Pre-fishery abundance of 2SW salmon for 2009–2011

Previously, ICES (2007) used a two-phase regression between pre-fishery abundance (PFA_{NA}) and lagged spawners (LS_{NA}) to model the dynamics of PFA abundance and to provide forecasts (Chaput et al. 2005). This relationship was examined again in this assessment. With this model, the lagged spawner variable was informative for PFA_{NA} and the proportional model with the intercept through the origin was selected most often (91% of all models). An alternative model that considered regionally disaggregated lagged spawners and returns of 2SW salmon for the six regions of North America was also examined by the Working Group (see Section 2.3).

	MEDIAN (95% CREDIBLE INTERVAL RANGE)	
Forecasts of PFA_{NA}	Spatially aggregated phase-shift model	Region-disaggregated random walk model
2008	110 100 (67 250–180 700)	137 500 (80 000–242 000)
2009	107 500 (59 600–193 500)	137 500 (66 000–294 000)
2010	107 300 (60 000–194 600)	140 000 (58 000–355 000)
2011	110 200 (61 300–199 500)	149 000 (55 000–430 000)

For the 2009 to 2011 forecasts of PFA_{NA}, the probability (runs/10 000) of being in lower productivity phase was over 99%. The phase-shift models forecast PFA abundances in the range of 110 000 fish over the next three years (Figure 4.7.1). Based on the Bayesian region-disaggregated model, the PFA_{NA} abundance during 2009 to 2011 is expected to be between 140 000 and 150 000 non-maturing 1SW salmon, a value within the range of PFA for the period 1996 to 2007. At the 25th percentile range, abundance is expected to be just above 110 000 fish.

4.7.1 Catch options for 2010–2012 fisheries on 2SW maturing salmon

As the number of 2SW salmon returning to North America in 2010 to 2012 predicted by both models is substantially lower than the 2SW CL, there are no catch options that would provide a high probability of achieving CLs. Catch options refer to the composite North American fisheries. As the biological objective is to have all rivers reaching their conservation requirements, river-by-river management is necessary. On individual rivers, where spawning requirements are being achieved, there are no biological reasons to further restrict the harvest.

4.8 Comparison with previous assessment and advice

Updated forecasts of the pre-fishery abundance for 2008 and forecasts for 2009–2011 were provided using the model used by ICES in previous years and an alternate model based on a regionally disaggregated productivity structure. There is no significant change in the interpretation of stock status or of expected abundance based on the updated data, and the models used. The catch advice remains unchanged from previous years.

4.9 NASCO has requested ICES to describe the key events of the 2008 fisheries and the status of the stocks

4.9.1 Fisheries in 2008

Canada

Three user groups exploited salmon in Canada in 2008: Aboriginal peoples, residents fishing for food in Labrador, and recreational fishers. There were no commercial fisheries in Canada in 2008. There was no harvest of sea-run Atlantic salmon in the USA in 2008.

The provisional harvest of salmon in 2008 by all users was 148 t (Table 2.1.1.1, Figure 4.9.1.1), about 32% higher lower than the 2007 harvest (112 t). The 2008 harvest was 52 362 small salmon and 11 737 large salmon, 41% more small salmon and 14% more large salmon, compared with 2007. The dramatic decline in harvested tonnage since 1988 is in large part because of major reductions in commercial fishery effort throughout Canada, introduced as a result of declining abundance of salmon.

The Aboriginal peoples' harvests in 2008 were 62.4 t (Table 4.9.1.1), approximately 30% higher than 2007 and 14% higher than the previous 5-year mean. The estimated harvest for residents fishing for food in Labrador was 2.2 t, about 2200 fish (75% small salmon by number). The recreational fisheries harvest totalled 43 301 small and large salmon, approximately 83 t (Figure 4.9.1.2). This is a 45% increase over the 2007 harvest and an 11% increase over the previous 5-year average. The small salmon harvest of 40 461 was 54% above the 2007 and 15% above the previous 5-year mean. The large salmon harvest of 2840 fish was 5% below the 2007 harvest and 29% below the previous five-year mean. The small salmon size group has contributed 88% on average of the total harvests because the imposition of catch-and-release recreational fisheries in the Maritimes and insular Newfoundland in 1984.

USA

There was no harvest of sea-run Atlantic salmon in the USA in 2008.

France (Islands of Saint-Pierre and Miquelon)

The total reported harvest in 2008 was 3.54 t (Table 4.9.1.2), approximately 82% higher than 2007 and the 2nd highest catch reported since 1983 (Table 2.1.1.1). There was no information reported as to the number of professional and recreational gillnet licenses issued or their respective harvests.

It is unknown if a biological sampling programme was conducted in 2008.

4.9.2 Status of stocks

In 2008, the midpoints of the spawner abundance estimates for six geographic areas indicated that all areas were below their 2SW CLs and are suffering reduced reproductive capacity (Figure 4.1.1).

Estimates of pre-fishery abundance suggest continued low abundance of North American adult salmon (Figure 4.9.2.1). The total population of 1SW and 2SW Atlantic salmon in the Northwest Atlantic has oscillated around a generally declining trend since the 1970s. During 1993 to 2008, the total population of 1SW and 2SW Atlantic salmon was about 600 000 fish, about half of the average abundance during 1972 to 1990. The maturing 1SW salmon in 2008 has increased to the highest level since 1989 although it has declined by 39% over the time-series. The non-maturing has declined by 93% and the total abundance of 1SW salmon has declined 72%.

The estimated returns of 1SW fish in 2008 increased in all 6 regions over the 2007 returns. Returns in Labrador were 5% higher than in 2007 and 26% higher than the recent 5-year average. Returns in Newfoundland were 36% higher than in 2007 and 16% higher than the recent 5-year average. Returns in Québec were 59% higher than in 2007 and 27% higher than the recent 5-year average. Returns in the Gulf of St Lawrence were 55% higher than in 2007 and 10% higher than the recent 5-year average. Returns in Scotia–Fundy were 99% higher than in 2007 and 94% higher than the recent 5-year

average. Returns in USA were 174% higher than in 2007 and 151% higher than the recent 5-year average.

The estimated returns of 2SW fish in 2008 increased over the 2007 returns in 4 regions and decreased in 2 regions. Returns in Labrador were 19% higher than in 2007 and 38% higher than the recent 5-year average. Returns in Newfoundland were 4% lower than in 2007 and 3% lower than the recent 5-year average. Returns in Québec were 22% higher than in 2007 and 3% higher than the recent 5-year average. Returns in the Gulf of St Lawrence were 19% lower than in 2007 and 22% lower than the recent 5-year average. Returns in Scotia–Fundy were 121% higher than in 2007 and 32% higher than the recent 5-year average. Returns in USA were 85% higher than in 2007 and 71% higher than the recent 5-year average.

Egg depositions by all sea ages combined in 2008 exceeded or equalled the river-specific conservation limits in 33 of the 77 assessed rivers (45%) and were less than 50% of CLs in 22 other rivers (30%, Figure 4.9.2.2).

Return rate data in 2008 were available from 11 wild and three hatchery populations from rivers distributed among Newfoundland, Québec, Scotia-Fundy and USA. In the 10 wild stocks with data in both 2007 and 2008, return rates to 1SW fish in 2008 increased greatly relative to 2007 (33% to 290%). A similar large increase was noted in two of the hatchery stocks (209% to 246%), whereas the return rates for the other stock declined by 25%.

In contrast, return rates in 2008 for 2SW salmon from the 2006 smolt class decreased relative to the 2005 smolt class for all five wild stocks (-3% to -59%) and one hatchery stock (-50%), but increased in the other two hatchery stocks (44% to 118%).

4.10 NASCO has requested ICES to evaluate the extent to which the objectives of any significant management measures introduced in recent years have been achieved

There have been no significant management measures introduced within the NAC in recent years.

Table 4.9.1.1. Harvests in 2008 (by weight) and the percent large by weight and number in the Aboriginal Peoples' Food Fisheries in Canada including the Resident Food Fishery in Labrador.

ABORIGINAL PEOPLES' FOOD FISHERIES			
Year	Harvest (t)	% large	
		by weight	by number
1990	31.9	78	
1991	29.1	87	
1992	34.2	83	
1993	42.6	83	
1994	41.7	83	58
1995	32.8	82	56
1996	47.9	87	65
1997	39.4	91	74
1998	47.9	83	63
1999	45.9	73	49
2000	45.7	68	41
2001	42.1	72	47
2002	46.3	68	43
2003	44.3	72	49
2004	60.8	66	44

2005	56.7	57	34
2006	61.4	60	39
2007	48.0	62	40
2008	62.4	66	44

Table 4.9.1.2. The number of professional and recreational gillnet licenses issued at St Pierre and Miquelon and landings, 1995–2008.

	Number of licenses		Reported Landings (tonnes)		
Year	Professional	Recreational	Professional	Recreational	Total
1990			1.146	0.734	1.880
1991			0.632	0.530	1.162
1992			1.295	1.024	2.319
1993			1.902	1.041	2.943
1994			2.633	0.790	3.423
1995	12	42	0.392	0.445	0.837
1996	12	42	0.951	0.617	1.568
1997	6	36	0.762	0.729	1.491
1998	9	42	1.039	1.268	2.307
1999	7	40	1.182	1.140	2.322
2000	8	35	1.134	1.133	2.267
2001	10	42	1.544	0.611	2.155
2002	12	42	1.223	0.729	1.952
2003	12	42	1.620	1.272	2.892
2004	13	42	1.499	1.285	2.784
2005	14	52	2.243	1.044	3.287
2006	14	48	1.730	1.825	3.555
2007	13	53	0.970	0.977	1.947
2008	na	na	na	na	3.540

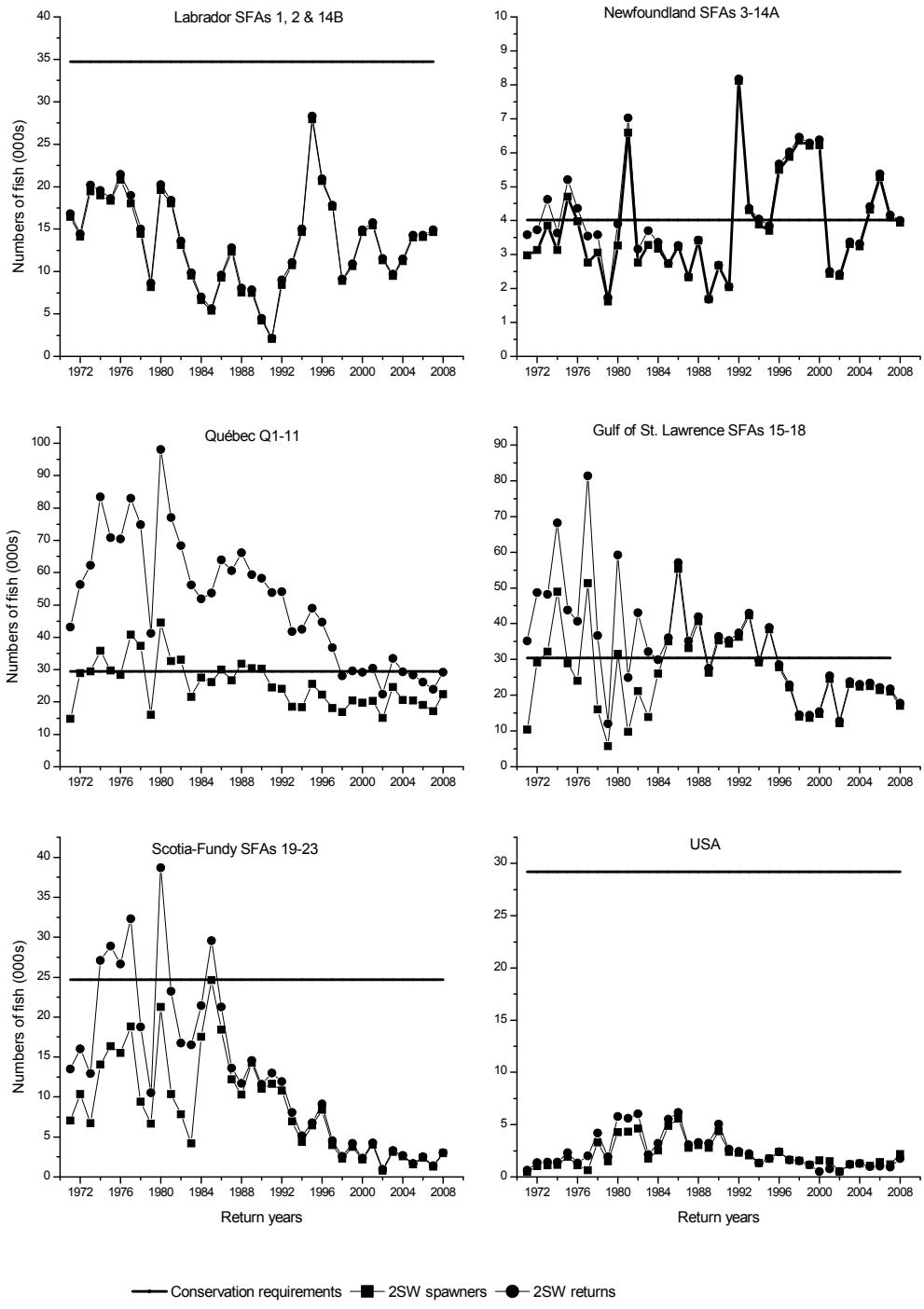


Figure 4.1.1. Comparison of estimated midpoints of 2SW returns to and 2SW spawners in six geographic areas of North America. Returns and spawners for Scotia-Fundy do not include those from SFA 22 and a portion of SFA 23. Note the difference in scale for USA.

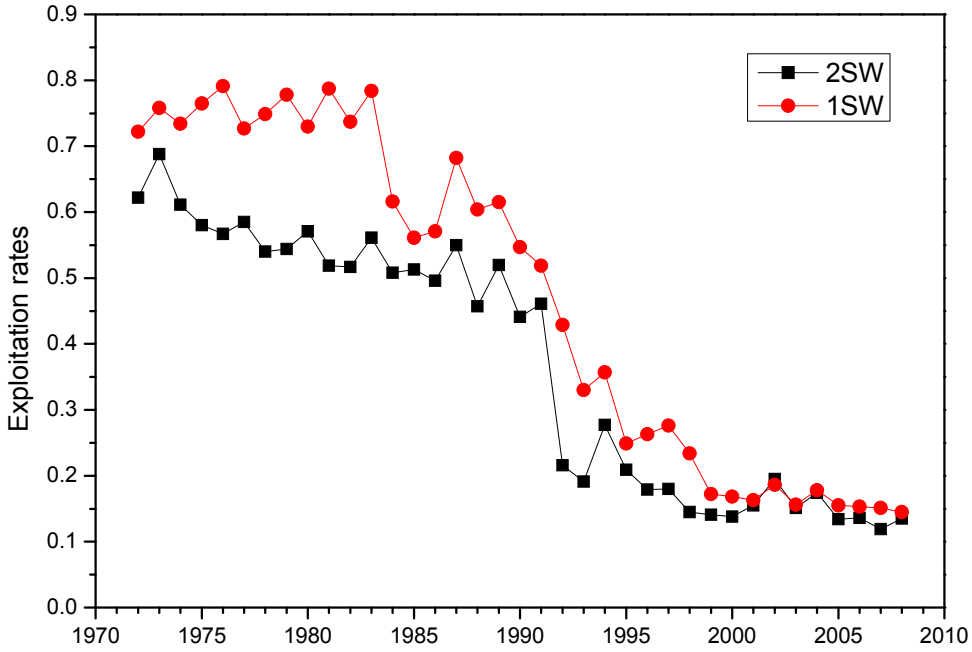


Figure 4.1.2. Exploitation rates in North America on the North American stock complex of 1SW and 2SW salmon.

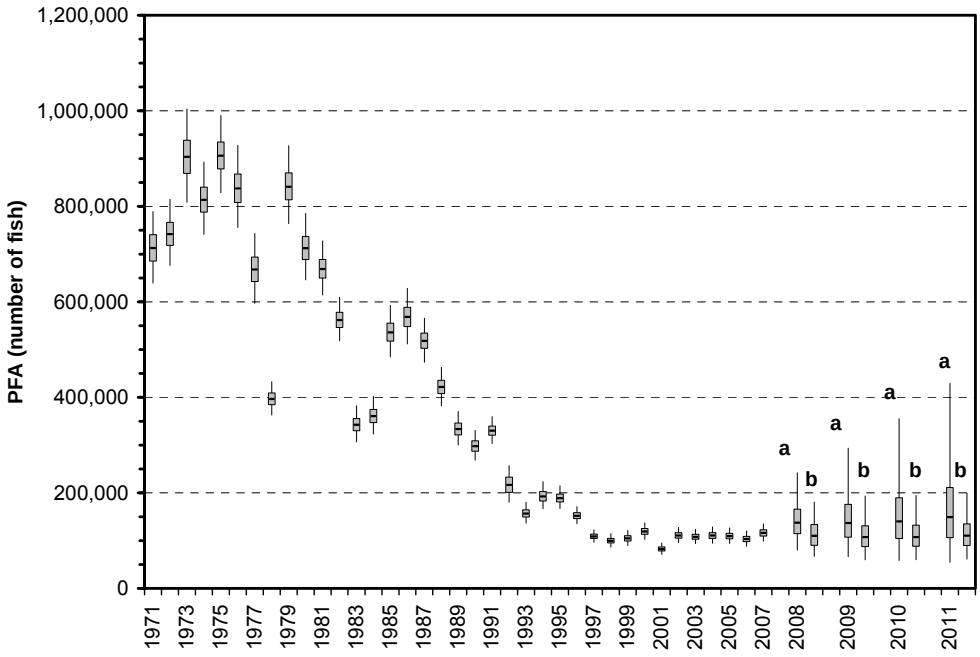


Figure 4.7.1. Run reconstructed PFA (1971 to 2007) and forecasts of PFA for 2008 to 2011 based on models of lagged 2SW spawners and 2SW returns to six regions of North America. The box plots labelled "a" are from the regionally disaggregated random walk model presented in 2009. The box plots labelled "b" are outputs from the phase shift model previously used by ICES for providing catch advice for West Greenland fisheries.

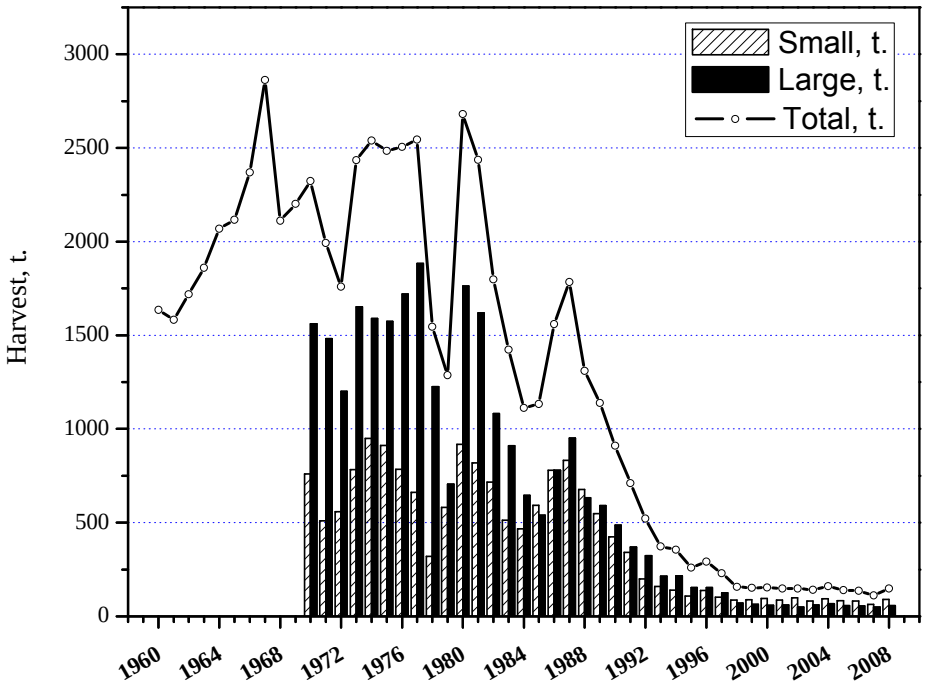


Figure 4.9.1.1. Harvest (t) of small salmon, large salmon and combined for Canada, 1960–2008 by all users.

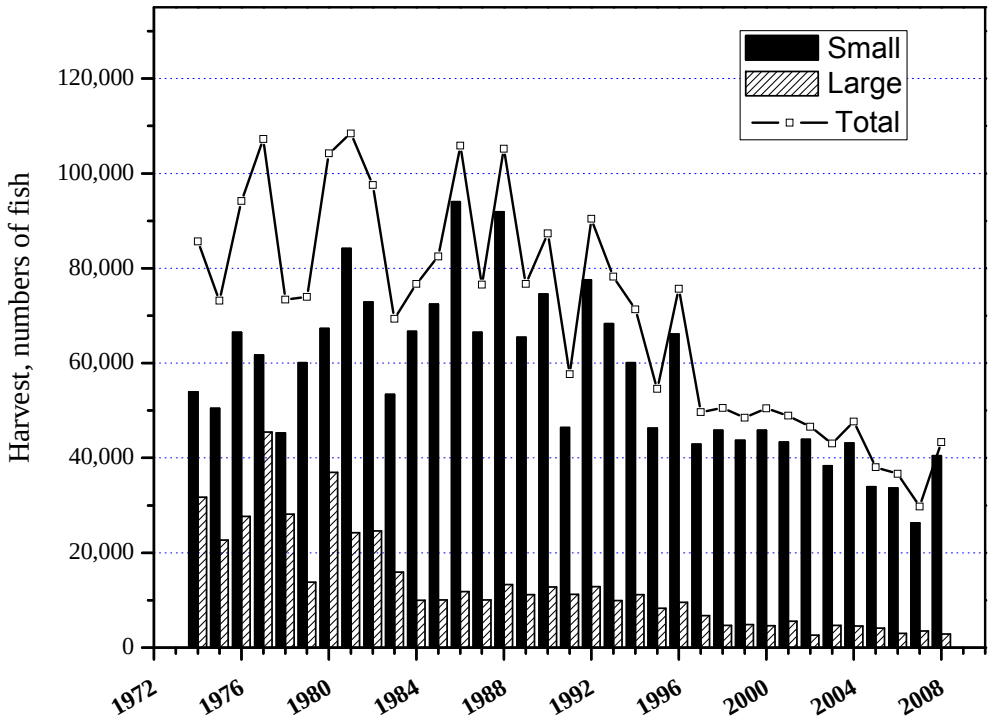


Figure 4.9.1.2. Harvest (number) of small salmon, large salmon and both sizes combined in the recreational fisheries of Canada, 1974–2008.

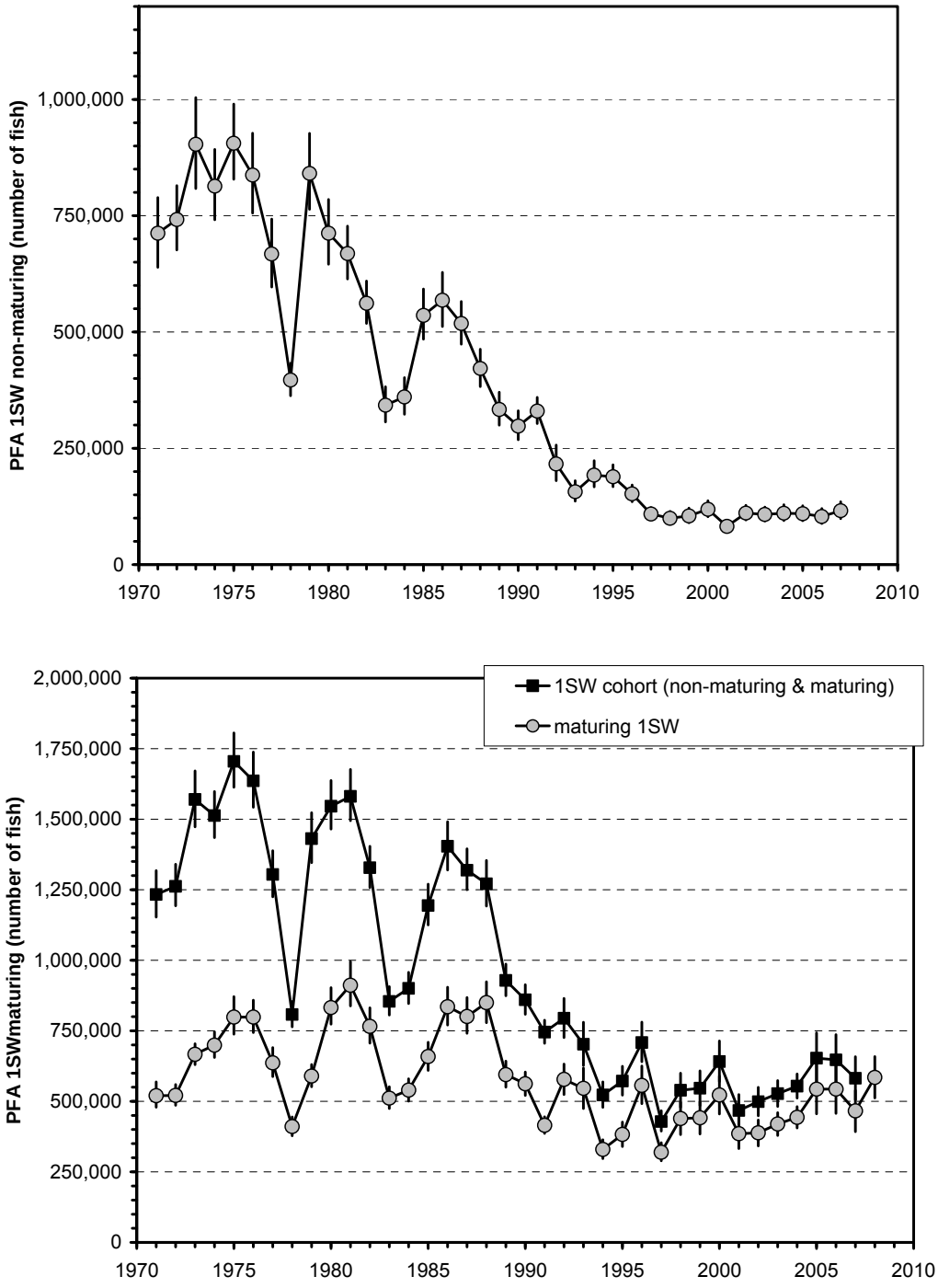


Figure 4.9.2.1.Estimates of PFA for 1SW non-maturing (upper panel) and 1SW maturing salmon and total cohort of 1SW salmon (lower panel) based on the Monte Carlo simulations of the run-reconstruction model for NAC. Median and 95% CI interval ranges derived from Monte Carlo simulations are shown.

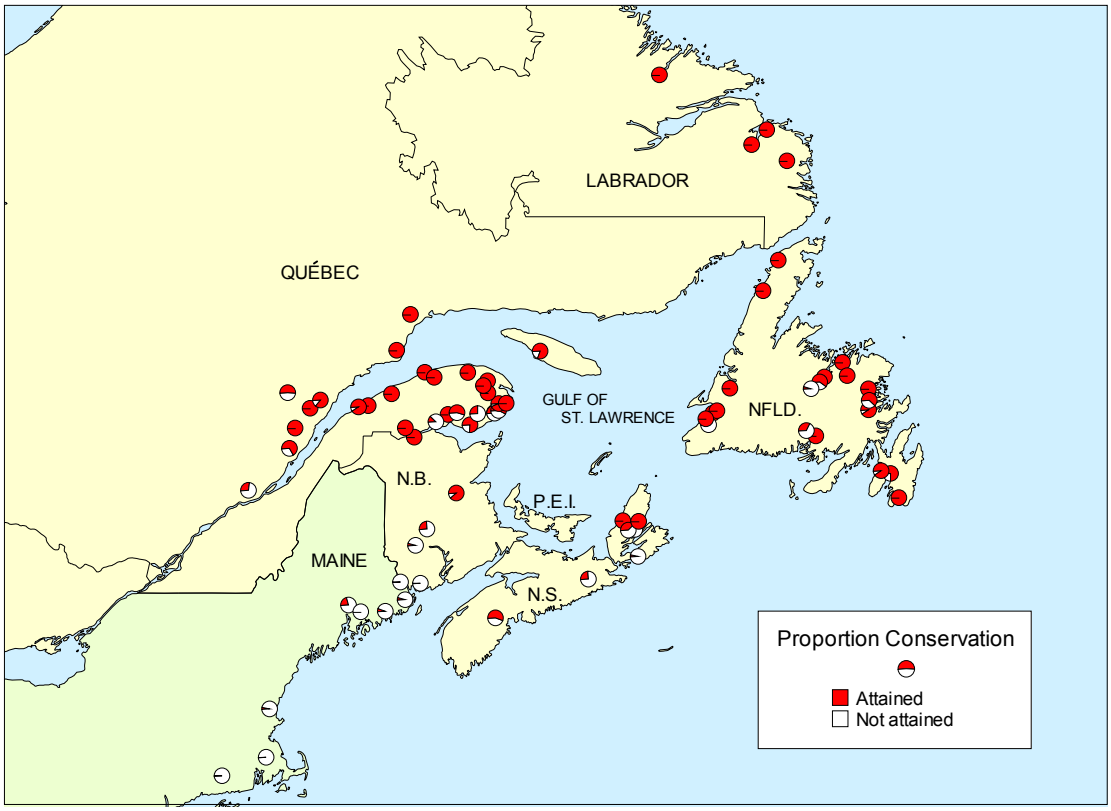


Figure 4.9.2.2. Proportion of the conservation requirement attained in assessed rivers of the North American Commission in 2008.

5. Atlantic salmon in the West Greenland Commission

5.1 Status of stocks/exploitation

ICES considers the stock complex at West Greenland to be below conservation limits and thus suffering reduced reproductive capacity**.**

North American stock

Estimates of pre-fishery abundance suggest a continuing decline of North American adult salmon over the last 10 years. The total population of 1SW and 2SW Atlantic salmon in the Northwest Atlantic has declined since the 1970s (Figure 4.9.10.1). During 1994–2007, the total population of 1SW and 2SW Atlantic salmon was about 600 000 fish, about half of the average abundance during 1972–1990. The decline from earlier higher levels of abundance has been more severe for the 2SW (i.e. the component of the stock that goes to Greenland) salmon component than for the small salmon (maturing 1SW salmon) age group.

In most regions, the returns of 2SW fish in 2008 increased from 2007, however, they are still less than the median of the recent 30-year time-series (1979–2008). In 2008, the estimated overall spawning escapement was below the conservation limit for the stock complex. Specifically 2SW spawners in the regions are:

- **Newfoundland:** suffering reduced reproductive capacity (98% of 2SW CL)
- **Labrador:** suffering reduced reproductive capacity (50% of 2SW CL)
- **Québec:** suffering reduced reproductive capacity (74% of 2SW CL)
- **Gulf of St Lawrence**: suffering reduced reproductive capacity (56% of 2SW CL)
- **Scotia-Fundy:** suffering reduced reproductive capacity (12% of 2SW CL)
- **United States:** suffering reduced reproductive capacity (7% of 2SW CL)

The exploitation rate for North American non-maturing 1SW fish at West Greenland has averaged around 3.7% in the last four years (Figure 5.1.1).

European stocks

Estimates of pre-fishery abundance suggest a downward trend in Southern European MSW adult salmon (i.e. the component of the stock that goes to Greenland) over the last 10 years. The midpoint of spawners has been close to or below conservation limits in recent years. Specifically:

- **Southern European stock complex:** at risk of suffering reduced reproductive capacity (102% of 2SW CL)

Status of stocks in the NEAC and NAC areas are presented in the relevant Commission sections (Sections 3 and 4).

5.2 Management objectives

For management advice for the West Greenland fishery, NASCO has adopted a precautionary management plan requiring at least a 75% probability of achieving three management objectives:

- Meeting the conservation limits simultaneously in the four northern regions of North America: Labrador, Newfoundland, Quebec, and Gulf.
- For the two southern regions in North America, Scotia-Fundy and USA, where there is a zero chance of meeting conservation limits: achieve increases in returns relative to previous years with the hope of rebuilding the stocks. In 2004, ICES established 1992–1996 as the range of years to define the baseline for the Scotia-Fundy and USA regions to assess PFA_{NA} abundance and fishery options. Improvements of greater than 10% and greater than 25% relative to returns during this base period are evaluated. The 25% increase is the limiting factor because if it is achieved, by definition the 10% increase is also achieved.

- Meeting the conservation limit for the Southern NEAC MSW complex.

Although not a formal management objective, ICES also provides the probability of returns to North America being equal or less than the previous five-year average.

5.3 Reference points

The reference points for West Greenland catch options are the conservation limits (CLs) for North American and southern European stock complexes. Region-specific conservation limits are derived in three ways:

- In many regions of North America, the CLs are calculated as the number of spawners required to fully seed the wetted area of the river;
- In some regions of Europe, pseudo stock–recruitment observations are used to calculate a hockey stick relationship, with the inflection point defining the CLs;
- In the remaining regions, the CLs are calculated as the number of spawners that will achieve long-term average maximum sustainable yield (MSY), as derived from the adult-to-adult stock and recruitment relationship (Ricker, 1975; ICES, 1993).

NASCO has adopted region-specific CLs (NASCO, 1998). These regional CLs are limit reference points; having populations fall below these limits should be avoided with high probability.

CLs for the West Greenland fishery for North America are limited to 2SW salmon and for southern European stocks are limited to MSW fish, because fish at West Greenland are primarily (> 90%) 1SW non-maturing salmon destined to mature as either 2SW or 3SW salmon.

The North America 2SW CL is 152 548 fish, with 123 349 required in Canadian rivers and 29 199 in USA rivers (see Section 4.3). The CL for the southern European MSW stocks is 296 000 fish (Section 3.3). There is still considerable uncertainty in the CLs for European stocks and estimates may change from year to year because of new data in the pseudo stock–recruitment relationship.

5.4 Management advice

None of the stated management objectives which would allow a fishery at West Greenland would be met in 2009, 2010, or 2011.

In the absence of any marine fishing mortality, there is a very low probability (<2% to 3 %) that the returns of 2SW salmon to North America in 2010, 2011, and 2012 will be sufficient to meet the conservation requirements of the four northern regions (Labrador, Newfoundland, Quebec, and Gulf; Table 5.4.1). There is essentially no chance (near zero) that the returns in the southern regions (Scotia-Fundy and USA) will be greater than the returns observed in the 1992–1996 base period in any of the three years. Lastly, in the absence of a fishery, the probability that returns in all regions of North America will decline further from the average of the period 2004 to 2008 is 45% for 2009, 45% for 2010, and 42% for 2011 (Table 5.4.2).

In the absence of any fisheries, there is only a 54% chance that the MSW conservation limit for southern Europe will be met in 2009 (Table 5.4.1). For 2010 and 2011, the probability that the MSW returns for southern Europe will meet or exceed the conservation limit in the absence of fisheries declines to 49% and 36%, respectively (Tables 5.4.1).

5.5 Relevant factors to be considered in management

The management for all fisheries should be based upon assessments of the status of individual stocks. Fisheries on mixed-stocks, particularly in coastal waters or on the high seas, pose particular difficulties for management as they cannot target only stocks that are at full reproductive capacity if there are stocks below conservation limit within the mixed-stock being fished. Conservation would be best achieved if fisheries target stocks that have been demonstrated to be at full reproductive capacity. Fisheries in estuaries and especially rivers are more likely to meet this requirement.

The salmon caught in the West Greenland fishery are mostly (>90%) non-maturing 1SW salmon, most of which are destined to return to home waters in Europe or North America as 2SW fish. The primary MSW European stocks contributing to the fishery in West Greenland are thought to originate in the southern stock complex, although small numbers may originate in other stock complexes. Most MSW stocks in North America are thought to contribute to the fishery at West Greenland. Previous spawners, including salmon that spawned first as 1SW and 2SW salmon also contribute to the fishery.

5.6 Pre-fishery abundance forecasts 2009, 2010, and 2011

Two forecasts for each area (NEAC Section 3.6 and NAC Section 4.9) are presented; one based on the previous models used by the Working Group (the regression forecast model for NEAC and the phase shift model for NAC) and one on the newly developed Bayesian forecast models (Section 2.3). Further details on the models used and their application are in Section 5.9. The PFA forecasts for the West Greenland stock complex are among the lowest in the time-series (Figures 4.7.1 and 3.6.3.3).

5.6.1 North American stock complex

The PFA_{NA} forecast for 2009 from the phase shift model has a median value of 107 500. For 2010 and 2011, the PFA_{NA} forecasts remain among the lowest in the time-series. For 2010, the median value is 107 300 fish and is highly unlikely to meet the 2SW spawner reserve of 212 189 salmon to North America. For 2011, the median forecast value is 110 200, also highly unlikely to meet the 2SW spawner reserve to North America. These values are all below the spawning escapement reserve for North America.

5.6.2 Southern European MSW stock complex

The southern European PFA forecast for 2009 has a median value of 431 220 (Table 3.6.1.2). The spawning escapement to southern Europe MSW stocks has not exceeded conservation limits throughout most of the period (Figure 3.1.1). The PFA for the NEAC MSW southern stock complex is expected to decline in 2010 and 2011 (Figure 3.6.3.3.). For 2010, the median value is 419 733 fish and for 2011, the median forecast value is 392 235 fish. It is unlikely that spawner escapement reserves (501 086) will be met in either year.

5.7 Comparison with previous assessment and advice

The management advice for the West Greenland fishery for 2009 is based on the models previously used by the Working Group. For 2009, the median value of the updated analysis from the phase shift model for NAC has decreased to 107 500 fish from the 114 200 predicted in the 2007 assessment analysis. The variability of the two predictions was similar. The revised forecast from the regression model of the southern NEAC MSW PFA for 2009 provides a PFA midpoint of 483 700. This is close to the value forecast last year at this time of 489 000.

The forecasts for 2009 to 2011 for NAC based on the regionally disaggregated Bayesian model (Section 2.3; Section 4.7) are more optimistic about the median expectations (Figure 3.6.3.3; Figure 4.7.1) but the 25th percentile of the Bayesian credible intervals from this model remain below 110 000 fish. The 25th percentile of the distribution in the posterior forecast predictions represents the 75% threshold for evaluating stock status relative to conservation limits.

For the southern NEAC area, the 25th percentile of the posterior distributions of the forecasts of an alternate Bayesian model are below the SER for 2009 to 2011 (Figure 3.6.3.3). The Working Group noted that, although the levels of uncertainty are greater in the Bayesian model, both the regression forecast model and the Bayesian forecast model provide similar predictions of the lower bound of the forecast values in the three years of interest.

5.8 NASCO has requested ICES to describe the events of the 2008 fishery and status of the stocks

The international sampling programme for landings at West Greenland initiated by NASCO in 2001 was continued in 2008. In addition to the Baseline Sampling Programme described above, an

'Enhanced Sampling Programme' (SALSEA West Greenland) was developed to conduct broader and more detailed sampling on a fixed number of fish harvested from the waters off West Greenland. It was designed to be integrated within the baseline sampling programme. Concerns were raised by the North Atlantic Salmon Fund, the Atlantic Salmon Federation and the Organization of Fishermen and Hunters in Greenland that the Enhanced Sampling Programme could result in an increased harvest for the internal use only fishery and counteract their efforts to reduce the annual harvest of salmon in Greenland under the North Atlantic Salmon Conservation Agreement. Efforts are underway to develop a workable solution to ensure that the Enhanced Sampling Programme can be implemented in 2009 with the full cooperation of all participating parties.

At its annual meeting in June 2006 NASCO agreed to restrict the fishery at West Greenland *to that amount used for internal subsistence consumption in Greenland*. Consequently, the Greenlandic authorities set the commercial quota to nil, i.e. landings to fish plants, resale in grocery shops/markets, and commercial export of salmon from Greenland was forbidden. Licensed fishers were allowed to sell salmon at the open markets, to hotels, restaurants, and institutions. A private fishery for personal consumption without a license was allowed. All catches, licensed and private were to be reported to the License Office on a daily basis. In agreement with the Organization for Fishermen and Hunters in Greenland the fishery for salmon was allowed from August 1 to October 31.

5.8.1 Catch and effort in 2008

In all 26 t of salmon were reported during the 2008 fishery (Table 5.8.1.1). Catches were distributed among the six NAFO divisions on the west coast of Greenland (Figure 5.8.1.1), with approximately 60% of the catches coming from divisions 1B–1E (Table 5.8.1.2). There is currently no quantitative approach for estimating the unreported catch but the 2008 value is likely to have been at the same level proposed in recent years (10 t).

In total, 259 reports were received by the Fisheries license office in 2008. Reports were provided by 143 people with 4 of these reporting 0 catch. The number of fishers reporting catches has steadily increased from a low of 41 in 2002 to its current level. These levels remain well below the 400–600 people reporting landings in the commercial fishery from 1987 to 1991. Since October 2006, the Greenland Home Rule License Office has broadcast TV requests that catch reports be submitted for the season. Thus, it is possible that the increase in the number of people reporting catches, and hence the increased reported landings, reflect changes in reporting practices *vs*. increased harvest.

5.8.2 Biological characteristics of the catches

Tissue and biological samples were collected from three landing sites: Sisimiut (NAFO Div. 1B), Nuuk (NAFO Div. 1D), and Qaqortoq (NAFO Div. 1F, Figure 5.8.1.1). In total 2086 salmon were inspected for the presence of tags, representing 29% by weight of the reported landings. Of these, 1866 were measured for fork length and weight (Table 5.8.2.1). Scales samples were taken from 1866 salmon for age and origin determination and tissue was removed from 1865 for DNA analysis, 1853 samples of which were subsequently used for assignment to continent of origin. The broad geographic distribution of the subsistence fishery caused practical problems for the sampling teams. However, temporal coverage was adequate to assess the fishery. As in previous years, the Working Group needed to adjust the total landings by replacing the reported catch with the weight of fish sampled for use in assessment calculations (Table 5.8.2.2). In 2008 this adjustment was necessary in two NAFO divisions (1D and 1F) and represented an increase of 2.5 t.

The average weight of fish from the 2008 catch was 3.08 kg across all ages, with North American 1SW fish averaging 64.6 cm and 3.04 kg whole weight and European 1SW salmon averaging 63.9 cm and 3.03 kg (Table 5.8.2.3). The mean lengths and mean weights for the 2008 samples are an increase over the 2007 values, but remain close to the previous 10 year mean. It should be noted that the size data are not adjusted for standard week and may not represent a true increase.

North American salmon up to river age 6 were caught at West Greenland in 2008 (Table 5.8.2.4), with 25.1%, 51.9% and 16.8% being river ages 2, 3 and 4 respectively. The river ages of European salmon

ranged from 1 to 4 (Table 5.8.2.3). Almost three-quarters (72.8%) of the European fish in the catch were river-age 2 and 19.3% were river age 3. The percentage of the European origin river age 1 salmon was 7.0%, the same as in 2007 and the second lowest in the time-series (Table 5.8.2.3).

In 2008, the North American samples were 97.4 % 1SW salmon, 0.5% 2SW and 2.2% previous spawners (Table 5.8.2.3). The European samples were 98.8% 1SW salmon, 0.5% 2SW and 1.9% previous spawners (Table 5.8.2.3).

Of the 1865 samples collected for genetic characterization, most (1853) were genotyped at between seven and ten microsatellites and assigned to a continent of origin. In total, 86% of the salmon sampled from the 2008 fishery were of North American origin and 14% fish were of European origin.

The division-specific and overall continent of origin assignments for the samples collected in 2008 are listed below. The Working Group recommends a broad geographic sampling programme (multiple NAFO divisions) to more accurately estimate continent of origin in the mixed-stock fishery.

	North America		Europe	
NAFO division	Number	%	Number	%
1B	483	85%	84	15%
1D	660	87%	97	13%
1F	450	85%	79	15%
Total	1593	86%	260	14%

Applying the continental percentages for the NAFO division catches resulted in estimates of 24.6 t of North American origin and 4.0 t of European origin fish (8000 and 1300 rounded to the nearest 100 fish, respectively) landed in West Greenland in 2008.

5.9 NASCO has requested ICES to provide a detailed explanation and critical examination of any changes to the models used to provide catch options

5.9.1 Run-reconstruction models

The run-reconstruction models to estimate pre-fishery abundance of 1SW non-maturing and maturing 2SW fish adjusted by natural mortality to the time prior to the West Greenland fishery follow the same structure as used since 2003 (ICES, 2003, 2004, 2005, 2006) but incorporated the recommendations from ICES (2008) to improve the models.

5.9.2 Forecast models for pre-fishery abundance of 2SW salmon

The forecast models to estimate pre-fishery abundance of non-maturing 1SW salmon from the southern NEAC complex and for the NAC area used by ICES since 2002 were used again in this assessment. The overall approach for the southern NEAC model is to select the best model by adding variables (e.g. spawners, habitat, PFA of maturing 1SW salmon and year) until addition of any other parameter was not significant. The forecast models used to estimate pre-fishery abundance of non-maturing 1SW salmon (potential MSW) for North America were the same as those used since 2004. The overall approach of modelling the natural log transformed PFA_{NA} and LS_{NA} using linear regression and the Monte Carlo method used to derive the probability density for the PFA_{NA} forecast was also retained from previous years.

In addition, the Working Group reviewed alternate models for both the NAC and southern NEAC areas. For NAC, a regionally disaggregated random walk model for 2SW salmon was developed whereas a combined 1SW cohort model was developed and used for the southern NEAC complex. Details of the model structures and the differences between these new models and those previously used by the Working Group are provided in Section 2.3. The forecasts from these alternate models provided higher median estimates of PFA but the conclusions on the probabilities of meeting the management objectives for both the NAC and southern NEAC 1SW non-maturing complex are

similar to those from the ICES models; there are no catch options which provide a 75% chance of attaining the management objectives.

5.9.3 Development and risk assessment of catch options

The 2009–2011 PFA estimates were used to develop the risk analysis and catch options presented in Section 5.4. The risk assessment for the two stock complexes in the West Greenland fishery is developed in parallel then combined at the end of the process into a single summary plot or catch options table. The primary inputs to the risk analysis for the complex at West Greenland are:

- PFA forecast for the year of the fishery; PFA_{NA} and PFA_{NEAC};
- Harvest level being considered (t of salmon);
- Conservation spawning limits.

The final step in the risk analysis of the catch options involves combining the conservation requirement with the probability distribution of the returns to North America for different catch options. The returns to North America are partitioned into regional returns based on the regional proportions of 2SW returns of the last five years, 2004 to 2008. Estimated returns to each region are compared with the conservation objectives of Labrador, Newfoundland, Quebec, and Gulf. Estimated returns for Scotia–Fundy and USA are compared with the objective of achieving an increase of 10% and 25% relative to average returns of the base period, 1992–1996.

There were no changes to the risk assessment of catch options model.

5.10 NASCO has requested ICES to provide any new information on the extent to which the objectives of any significant management measures introduced in recent years have been achieved

NASCO management is directed at reducing exploitation to allow river-specific conservation limits to be achieved. The first measurable outcome of management at West Greenland is that the exploitation in the fishery has declined (Figure 5.1.1). The other measures relate to increasing spawning escapement in homewaters. Although influenced by measures taken in homewaters, it is possible to directly evaluate the extent to which management at West Greenland successfully achieved the objectives (Table 5.10.1).

To date the objective of simultaneous attainment of conservation limits in Labrador, Newfoundland, Quebec and Gulf of St Lawrence has not been achieved. Nor has there been a 10% or 25% increase in spawners to either Scotia-Fundy or the USA. The objective of consistently meeting the conservation limits for the Southern NEAC MSW complex has not as yet been achieved.

NASCO has asked ICES to update the framework of indicators used to identify any significant change in the previously provided multi-annual management advice

In 2007, ICES developed and presented to NASCO a framework of indicators (FWI) which could be used in interim years to determine if there is an expectation that the previously provided management advice for the Greenland fishery is likely to change in subsequent years (Figure 5.11.1).

As the 2009 assessment begins the cycle of forecasting and catch advice for the 2009 to 2011 fishing years, ICES has been asked to update the FWI in support of the multiyear catch advice and the potential approval of multiyear regulatory measures. Under the current management agreement, if the output from the FWI is accepted at the 2009 NASCO meeting it will be applied for January 2010 for the 2010 fishery and January 2011 for the 2011 fishery.

The Working Group updated the FWI in support of the West Greenland fishery management. The update consisted of:

- Adding the values of the indicator variables for the most recent years.
- Running the objective function spreadsheet for each indicator variable and the variable of interest relative to the management objectives.

- Quantifying the threshold value for the indicator variables and the probabilities of a true high state and a true low state for those indicator variables retained for the framework.
- Revising/adding the indicator variables and the functions for evaluating the indicator score to the framework spreadsheet.
- Providing the spreadsheet for doing the framework of indicators assessment.

Table 5.4.1. Catch options (t) for West Greenland harvest in 2009, 2010, and 2011 with the probability of meeting management objectives: meeting the 2SW conservation limits simultaneously in the four northern areas of North America; achieving increases in returns from base year average (1992–1996) in the two southern areas; and meeting the MSW conservation limit of the southern European stock complex relative to quota options.

2009				
West Greenland	Simultaneous	Improvement (SF, USA)		Conservation
Harvest	Conservation	of Returns		MSW Salmon
(t)	(Lab, NF, Queb, Gulf)	> 10%	> 25%	Southern NEAC
0	0.021	0.000	0.000	0.539
5	0.019	0.000	0.000	0.534
10	0.016	0.000	0.000	0.530
15	0.015	0.000	0.000	0.525
20	0.013	0.000	0.000	0.520
25	0.011	0.000	0.000	0.514
30	0.010	0.000	0.000	0.509
35	0.008	0.000	0.000	0.505
40	0.007	0.000	0.000	0.499
45	0.006	0.000	0.000	0.495
50	0.006	0.000	0.000	0.488
100	0.003	0.000	0.000	0.438
2010				
West Greenland	Simultaneous	Improvement (SF, USA)		Conservation
Harvest	Conservation	of Returns		MSW Salmon
(t)	(Lab, NF, Queb, Gulf)	> 10%	> 25%	Southern NEAC
0	0.023	0.000	0.000	0.490
5	0.021	0.000	0.000	0.486
10	0.018	0.000	0.000	0.480
15	0.015	0.000	0.000	0.475
20	0.013	0.000	0.000	0.472
25	0.012	0.000	0.000	0.466
30	0.010	0.000	0.000	0.460
35	0.010	0.000	0.000	0.455
40	0.008	0.000	0.000	0.450
45	0.007	0.000	0.000	0.444
50	0.007	0.000	0.000	0.440
100	0.003	0.000	0.000	0.395

Cont.

Table 5.4.1. Continued. Catch options (t) for West Greenland harvest in 2009, 2010, and 2011 with the probability of meeting management objectives: meeting the 2SW conservation limits simultaneously in the four northern areas of North America; achieving increases in returns from base year average (1992–1996) in the two southern areas; and meeting the MSW conservation limit of the southern European stock complex relative to quota options.

2011				
West Greenland	Simultaneous	Improvement (SF, USA)		Conservation
Harvest	Conservation	of Returns		MSW Salmon
(t)	(Lab, NF, Queb, Gulf)	> 10%	> 25%	Southern NEAC
0	0.027	0.000	0.000	0.356
5	0.024	0.000	0.000	0.353
10	0.022	0.000	0.000	0.349
15	0.019	0.000	0.000	0.345
20	0.018	0.000	0.000	0.342
25	0.016	0.000	0.000	0.336
30	0.014	0.000	0.000	0.333
35	0.012	0.000	0.000	0.329
40	0.011	0.000	0.000	0.324
45	0.010	0.000	0.000	0.320
50	0.009	0.000	0.000	0.315
100	0.003	0.000	0.000	0.274

(Lab, NF, Queb, Gulf) = Labrador, Newfoundland, Quebec, Gulf

(SF, USA) = Scotia-Fundy and USA

A sharing arrangement of 40:60 (Fna) was assumed.

Table 5.4.2. Probability of 2SW returns in 2009, 2010, and 2011 being less than the previous five-year average (2004–2008) returns to regions of North America, relative to catch options at West Greenland.

WEST GREENLAND HARVEST	2009	2010	2011
Tons	Probability	Probability	Probability
0	0.453	0.451	0.418
5	0.490	0.488	0.452
10	0.526	0.528	0.491
15	0.558	0.562	0.528
20	0.593	0.596	0.563
25	0.626	0.630	0.595
30	0.659	0.657	0.626
35	0.689	0.686	0.655
40	0.717	0.712	0.683
45	0.743	0.737	0.708
50	0.766	0.760	0.734
100	0.918	0.915	0.905

Table 5.8.1.1 Nominal catches of salmon, West Greenland 1971–2008 (metric tons round fresh weight).

YEAR	TOTAL	QUOTA	COMMENTS
1971	2689	-	
1972	2113	1100	
1973	2341	1100	
1974	1917	1191	
1975	2030	1191	
1976	1175	1191	
1977	1420	1191	
1978	984	1191	
1979	1395	1191	
1980	1194	1191	
1981	1264	1265	Quota set to a specific opening date for the fishery
1982	1077	1253	Quota set to a specific opening date for the fishery
1983	310	1191	
1984	297	870	
1985	864	852	
1986	960	909	
1987	966	935	
1988	893	840	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%. Quota adjusted to 900 t in 1989 and 924 t in 1990 for later opening dates.
1989	337	900	
1990	274	924	
1991	472	840	
1992	237	258	Quota set by Greenland authorities
1993		895	The fishery was suspended
1994		137	The fishery was suspended and the quotas were bought out
1995	83	77	
1996	92	174	Quota set by Greenland authorities
1997	58	57	
1998	11	206	
1999	19	206	
2000	21	206	
2001	43	114	Final quota calculated according to the ad hoc management system
2002	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		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		same as previous year

Table 5.8.1.1 cont'd Nominal catches of salmon, West Greenland 1971–2008 (metric tons round fresh weight).

2005	15	same as previous year
2006	22	Quota set to nil (no factory landing allowed) and fishery restricted to catches used for internal consumption in Greenland
2007	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	same as previous year

Table 5.8.1.2 Distribution of nominal catches (rounded to nearest metric tonne) by Greenland vessels (1977-2008).

	NAFO Division							West	East	Total
Year	1A	1B	1C	1D	1E	1F	NK	Greenland	Greenland	Greenland
1977	201	393	336	207	237	46	-	1420	6	1426
1978	81	349	245	186	113	10	-	984	8	992
1979	120	343	524	213	164	31	-	1395	+	1395
1980	52	275	404	231	158	74	-	1194	+	1194
1981	105	403	348	203	153	32	20	1264	+	1264
1982	111	330	239	136	167	76	18	1077	+	1077
1983	14	77	93	41	55	30	-	310	+	310
1984	33	116	64	4	43	32	5	297	+	297
1985	85	124	198	207	147	103	-	864	7	871
1986	46	73	128	203	233	277	-	960	19	979
1987	48	114	229	205	261	109	-	966	+	966
1988	24	100	213	191	198	167	-	893	4	897
1989	9	28	81	73	75	71	-	337	-	337
1990	4	20	132	54	16	48	-	274	-	274
1991	12	36	120	38	108	158	-	472	4	476
1992	-	4	23	5	75	130	-	237	5	242
1993 [1]	-	-	-	-	-	-	-	-	-	-
1994 [1]	-	-	-	-	-	-	-	-	-	-
1995	+	10	28	17	22	5	-	83	2	85
1996	+	+	50	8	23	10	-	92	+	92
1997	1	5	15	4	16	17	-	58	1	59
1998	1	2	2	4	1	2	-	11	-	11
1999	+	2	3	9	2	2	-	19	+	19
2000	+	+	1	7	+	13	-	21	-	21
2001	+	1	4	5	3	28	-	43	-	43
2002	+	+	2	4	1	2	-	9	-	9
2003	1	+	2	1	1	5	-	9	-	9
2004	3	1	4	2	3	2	-	15	-	15
2005	1	3	2	1	3	5	-	15	-	15
2006	6	2	3	4	2	4	-	22	-	22
2007	2	5	6	4	5	2	-	25	-	25
2008	5	2	10	2	2	5	-	26	-	26

[1] **The fishery was suspended**

+ Small catches <0.5 t

- No catch

Table 5.8.2.1. Size of biological samples and percentage (by number) of North American and European salmon in research vessel catches at West Greenland (1969–1982) from commercial samples (1978–1992, 1995–1997 and 2001) and from local consumption samples (1998–2000 and 2002–2008).

		Sample Size			Continent of origin (%)			
Source		Length	Scales	Genetics	NA	(95%CI)[1]	E	(95%CI)[1]
Research	1969	212	212		51	(57,44)	49	(56,43)
	1970	127	127		35	(43,26)	65	(75,57)
	1971	247	247		34	(40,28)	66	(72,50)
	1972	3488	3488		36	(37,34)	64	(66,63)
	1973	102	102		49	(59,39)	51	(61,41)
	1974	834	834		43	(46,39)	57	(61,54)
	1975	528	528		44	(48,40)	56	(60,52)
	1976	420	420		43	(48,38)	57	(62,52)
	1978[2]	606	606		38	(41,34)	62	(66,59)
	1978[3]	49	49		55	(69,41)	45	(59,31)
	1979	328	328		47	(52,41)	53	(59,48)
	1980	617	617		58	(62,54)	42	(46,38)
	1982	443	443		47	(52,43)	53	(58,48)
Commercial	1978	392	392		52	(57,47)	48	(53,43)
	1979	1653	1653		50	(52,48)	50	(52,48)
	1980	978	978		48	(51,45)	52	(55,49)
	1981	4570	1930		59	(61,58)	41	(42,39)
	1982	1949	414		62	(64,60)	38	(40,36)
	1983	4896	1815		40	(41,38)	60	(62,59)
	1984	7282	2720		50	(53,47)	50	(53,47)
	1985	13272	2917		50	(53,46)	50	(54,47)
	1986	20394	3509		57	(66,48)	43	(52,34)
	1987	13425	2960		59	(63,54)	41	(46,37)
	1988	11047	2562		43	(49,38)	57	(62,51)
	1989	9366	2227		56	(60,52)	44	(48,40)
	1990	4897	1208		75	(79,70)	25	(30,21)
	1991	5005	1347		65	(69,61)	35	(39,31)
	1992	6348	1648		54	(57,50)	46	(50,43)
	1995	2045	2045		68	(72,65)	32	(35,28)
	1996	3341	1297		73	(76,71)	27	(29,24)
	1997	794	282		80	(84,75)	20	(25,16)
Local consumption	1998	540	406		79	(84,73)	21	(27,16)
	1999	532	532		90	(97,84)	10	(16,3)
	2000	491	491		70		30	
Commercial	2001	4721	2655		69	(71,67)	31	(33,29)
Local consumption	2002	501	501	501	68		32	
	2003	1743	1743	1779	68		32	
	2004	1639	1639	1688	73		27	
	2005	767	767	767	76		24	
	2006	1209	1209	1193	72		28	
	2007	1116	1110	1123	82		18	
	2008	1854	1866	1853	86		14	

[1] CI - confidence interval calculated by method of Pella and Robertson (1979) for 1984 -86 and binomial distribution for the others.

[2] During 1978 Fishery

[3] Research samples after 1978 fishery closed

Table 5.8.2.2. Reported landings provided by the Home Rule Government at West Greenland Atlantic salmon fisheries (kg) by NAFO Division for the 2002–2008 and adjusted landings for divisions where the sampling teams observed more fish landed than were reported.

		NAFO DIVISION						
YEAR		1A	1B	1C	1D	1E	1F	Total
2002	Reported	14	78	2100	3752	1417	1661	9022
	Adjusted						2408	9769
2003	Reported	619	17	1621	648	1274	4516	8694
	Adjusted			1782	2709		5912	12 312
2004	Reported	3476	611	3516	2433	2609	2068	14 712
	Adjusted				4929			17 209
2005	Reported	1294	3120	2240	756	2937	4956	15 303
	Adjusted				2730			17 276
2006	Reported	5427	2611	3424	4731	2636	4192	23 021
	Adjusted							
2007	Reported	2019	5089	6148	4470	4828	2093	24 647
	Adjusted						2252	24 806
2008	Reported				1595		4979	26 147
	Adjusted				3577		5478	28 627

Table 5.8.2.3 Biological characteristics of Atlantic salmon sampled during the 2007 West Greenland Atlantic salmon fishery.

Distribution of 2008 nominal catch (metric tons) among NAFO Divisions.

Total	NAFO Division					
	1A	1B	1C	1D	1E	1F
26	5	2	10	2	2	5

River age distribution (%) by origin

	1	2	3	4	5	6	7	8
NA	0.9	25.1	51.9	16.8	4.7	0.6	0	0
E	7.0	72.8	19.3	0.8	0.0	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	Fork length (cm)	Whole weight (kg)	Fork length (cm)	Whole weight (kg)	Fork length (cm)	Whole weight (kg)
NA	64.6	3.04	80.1	6.35	71.1	3.82	64.7	3.08
E	63.9	3.03	85.5	7.47	73.0	3.39	64.1	3.07

Biological Characteristics of Atlantic salmon sampled from the 2008 West Greenland food fishery.

Continent of Origin (%)	
North America	Europe
86.0	14.0

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

	Sea-age composition (%)		
	1SW	2SW	Previous Spawners
NA	97.4	0.5	2.2
E	98.8	0.8	0.4

Table 5.10.1. Assessing the objectives of management of the West Greenland Fishery.

Country	Objective	Introduced	Assessment period	Measure Taken	Assessment	Outcome/extent achieved	Further consideration
West Greenland	Reduce harvest and exploitation.	1972	Annually	Quota for the commercial fishery is negotiated, and since 2002 has been zero. Consequently, the fishery at West Greenland has been restricted to that amount used for internal subsistence consumption in Greenland. Licensed fishermen were allowed to sell salmon at the open markets, to hotels, restaurants, and institutions. A private fishery for personal consumption without a license was allowed.	Assessment, reported and unreported landings compared to negotiated catch quotas for the fishery.	There in no Commercial Fishery (quota set at nil). The internal consumption fishery has no quota.	Reporting rate for the internal consumption fishery and reported catch increased in 2008. Estimates of unreported catch are unchanged.
	75% chance of meeting the conservation limits simultaneously in the four northern regions of North America:Labrador, Newfoundland, Quebec, and Gulf.	2001	Annually	As above	Assessment of returns to North America. Run reconstruction to estimate overall returns (Sec. 4.9) related to estimated spawning escapement reserve at West Greenland.	This objective has not been achieved.	Fisheries should be further restricted where they take salmon from stocks which are below Conservation Limits. Examine other limiting factors such as causes of increased marine mortality, habitat quality, predators etc.
	75% chance of achieving increases in returns relative to 1992-1996 with the hope that this leads to the rebuilding Scotia-Fundy and USA stocks.	2004	Annually	As above	Assessment of returns to North America. Run reconstruction to estimate overall returns (Sec. 4.9). Improvements of greater than 10% and greater than 25% relative to returns are evaluated (Sec 4.9)	This objective has not been achieved.	Fisheries should be further restricted where they take salmon from stocks which are below Conservation Limits. Examine other limiting factors such as causes of increased marine mortality, habitat quality, predators etc. Recovery plans developed for the stocks listed as endangered/ at risk.
	75% chance of meeting spawner escapement requirement for the Southern NEAC MSW complex.	2005	Annually	As above	Assessment of returns to Southern NEAC. Run reconsruction to estimate overall returns (Sec. 3.3) related to estimated spawning escapement reserve at West Greenland.	This objective has not been achieved.	Fisheries should be further restricted where they take salmon from stocks which are below Conservation Limits. Examine other biologically limiting factors such as causes of increased or high marine mortality, habitat quality, by-catch, predators etc.

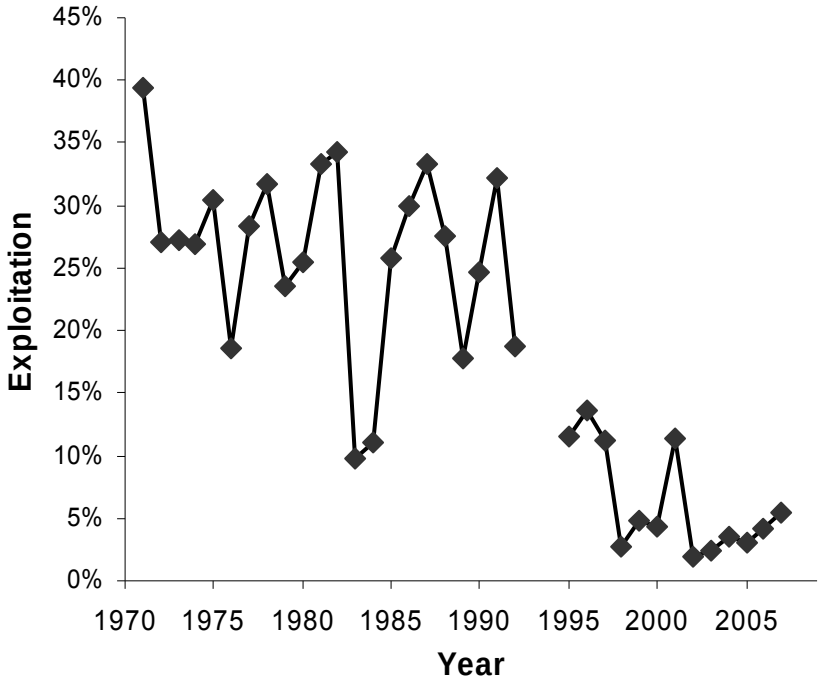


Figure 5.1.1. Exploitation rate for non-maturing 1SW Atlantic salmon at West Greenland, estimated from harvest and PFA of North American non-maturing 1SW salmon.

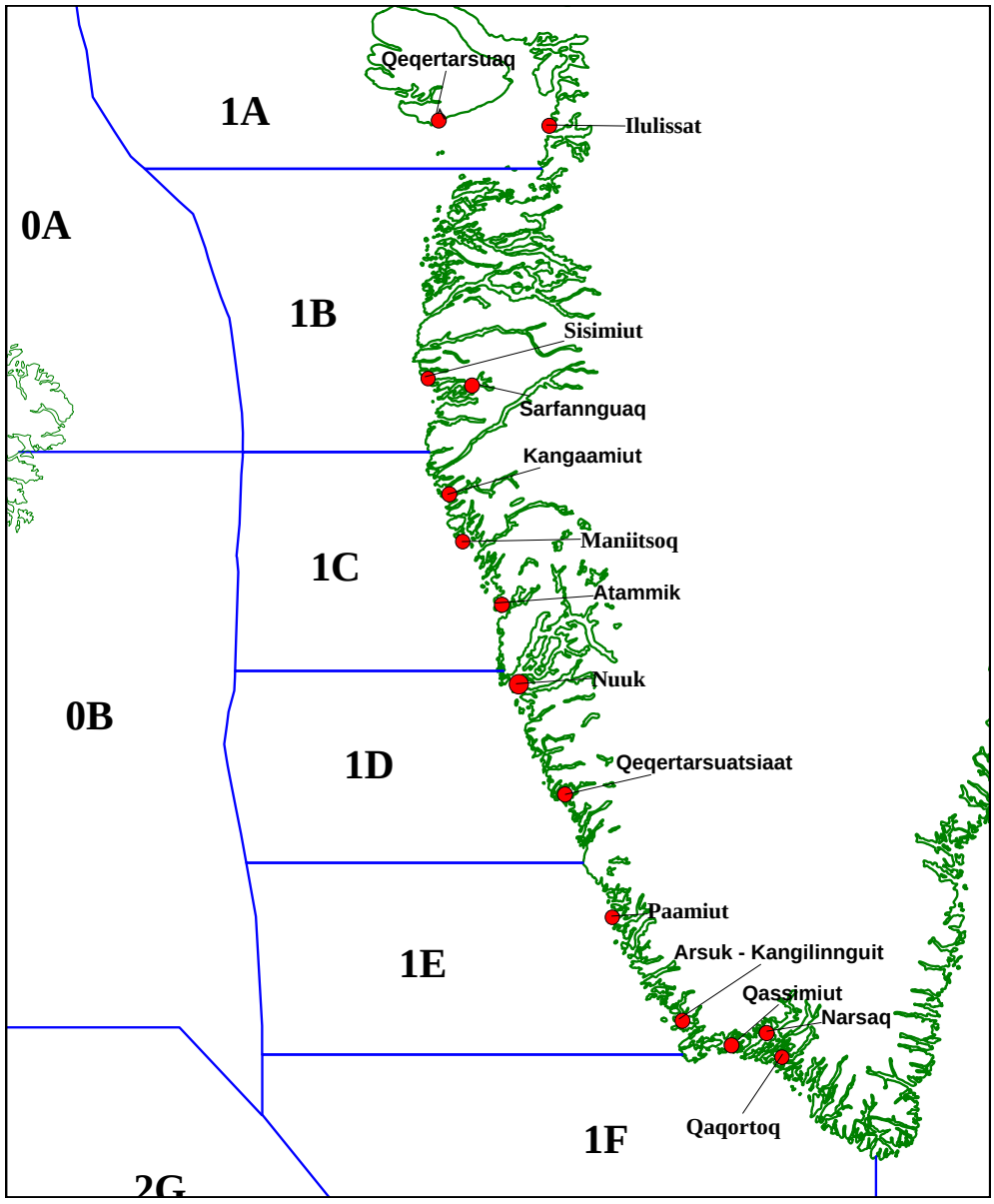


Figure 5.8.1.1. Location of NAFO divisions along the coast of West Greenland.

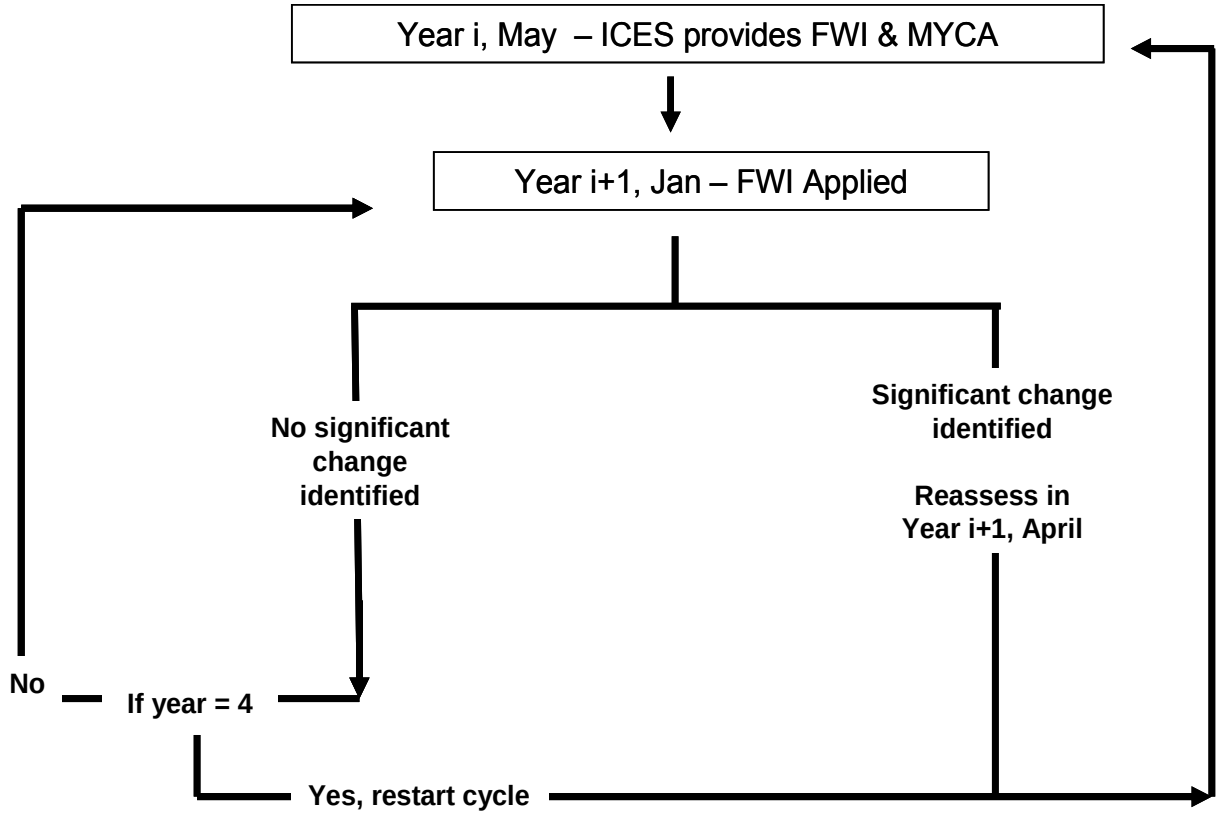


Figure 5.11.1. Suggested timeline for employment of the Framework of Indicators (FWI). In Year i, ICES provides multiyear catch advice (MYCA) and an updated FWI which re-evaluates the updated datasets and is summarized in an Excel worksheet. In January of Year i+1 the FWI is applied and two options are available depending on the results. If no significant change is detected, no re-assessment is necessary and the cycle continues to Year i+2. If no significant change is detected in Year i+2, the cycle continues to Year i+3. If a significant change is detected in any year, then reassessment is recommended. In that case, ICES would provide an updated FWI the following May. ICES would also provide an updated FWI if year equals 4.

6. NASCO has requested ICES to identify relevant data deficiencies, monitoring needs and research requirements

ICES recommends that The Working Group on North Atlantic salmon should meet in 2010 to address questions posed by ICES, including those posed by NASCO. ICES intends for the Working Group to convene in the headquarters of the ICES in Copenhagen, Denmark from 7th April to 16th April 2010.

List of recommendations

1) ICES acknowledges progress on the development of pre-fishery abundance (PFA) modelling approaches inclusive of both NAC and NEAC areas. ICES recommends that the Study Group on Salmon Stock Assessment and Forecasting (SGSSAFE) meet to continue the efforts to:

- develop the models formulated for the NAC and NEAC areas, particularly with regard to combining sea age classes and in the spatial disaggregation below the stock complex level.
- incorporate physical and biological variables into the models that will allow prediction of salmon survival and thus provide a more realistic simulation of the recruitment process and

The Study Group will report back to the WGNAS in April 2010.

2) ICES recognized the work undertaken by the Study Group on the Identification of Biological Characteristics for use as Predictors of Salmon Abundance (SGBICEPS). ICES recommends that a further study group is held to collate additional data from stocks throughout the biogeographical range of Atlantic salmon and to continue with development of hypothesis and subsequent data analysis. Further investigations into the potential associations between biological characteristics of all life stages of salmon, environmental data, marine survival, and measures of abundance should be developed. The Study Group will report back to the WGNAS in April 2010.

3) ICES advises that additional information be requested from fishers in West Greenland. These data will help characterize the nature and extent of the current fishery and should include reference to catch site, catch date, numbers of nets, net dimensions, and numbers of hours the nets were fished.

4) ICES recommends the continuation of the broad geographic sampling programme (multiple NAFO divisions) to more accurately estimate continent of origin in the mixed-stock fishery at West Greenland. The Enhanced Sampling Programme designed for the 2008 fishery should be applied in 2009.

5) ICES noted that the sampling programme conducted in the Labrador subsistence fishery during 2008 provided biological characteristics of the harvest and that the information may be useful for updating parameters used in the Run Reconstruction Model for North America. As well it provides material to assess the origin of salmon in this fishery. ICES recommends that sampling be continued and expanded in 2009 and future years.

6) ICES recognizes that river-specific, regional and international management requires extensive monitoring and recommends expanded monitoring programmes across all stock complexes.

7) ICES recommends that specific management objectives for NEAC be developed in accordance with Section 3.6 to allow ICES to develop quantitative catch advice.

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List of Participants

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***Only 2 representatives of a Non-Government Organization can attend meetings at any one time.*

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