

Agenda Item 6.2
For decision

Council

CNL(11)14

***Report of the Meeting of the NASCO/North Atlantic Salmon
Farming Industry Liaison Group***

CNL(11)14

Report of the NASCO/North Atlantic Salmon Farming Industry Liaison Group

1. The Liaison Group held its 2011 meeting on 18 and 19 March in Boston, USA and its report is attached. At this meeting, the Liaison Group, *inter alia*, reviewed the final report from the Aquaculture, Introductions and Transfers and Transgenics FAR Review Group, considered reporting arrangements on the BMP Guidance, agreed on possible actions to improve communication of the Liaison Group's work, and discussed the evolution of the Liaison Group.
2. With regard to the FAR Review Group's report, the Liaison Group agreed the following response:
 - The Liaison Group thanks the Review Group for its report, complete with its 8 annexes, and encourages NASCO's Parties to make full use of the wealth of information provided;
 - Going forward, NASCO Parties should carefully consider the following in its 'Next Steps' process:
 - the extent of NASCO's role with respect to aquaculture, introductions and transfers and transgenics;
 - the roles and responsibilities of the Parties, industry and NGOs with respect to NASCO's role;
 - activities and studies that would best serve NASCO's role going forward.
3. With regard to reporting on the BMP Guidance, the Liaison Group noted that the 'Next Steps' for NASCO review would be considering future reporting in relation to all of NASCO's agreements, and agreed to reconsider the reporting requirements under the BMP Guidance in the light of this review. On the matter of improving communications, the Liaison Group recommends that the ISFA and NASCO Secretariats should liaise on the information to be presented on the ISFA and NASCO websites concerning the work of the Liaison Group (the NASCO website contains a considerable amount of information already) and the presentation of the BMP Guidance as a booklet and on the website. A proposal from Canada on the reconstitution of the Liaison Group was discussed. A number of options were considered and ISFA indicated after the meeting (see Attachment 1) that it would prefer to engage directly with the Parties through a seat at the NASCO Annual Meeting, consistent with that afforded to the NGOs. The views of the 'Next Steps' Review Group on this matter are contained in document CNL(11)12. The Liaison Group elected Mr Steinar Hermansen (Norway) to be its next Chairman and recommends changing its constitution to allow for appointment of a Vice-Chairman.
4. The Council is asked to consider the report of the meeting of the Liaison Group and agree on any actions needed in the light of the recommendations made.

Secretary
Edinburgh
7 April 2011

SLG(11)7

Report of the Meeting of the NASCO/North Atlantic Salmon Farming Industry Liaison Group

***Marriott Courtyard Hotel, Boston, USA
18 - 19 March 2011***

1. Opening of the Meeting

- 1.1 The Chairman of the Liaison Group, Mr Sebastian Belle, opened the meeting and welcomed participants to Boston. Dr Malcolm Windsor, Secretary of NASCO, thanked ISFA for the arrangements made and for hosting the meeting.
- 1.2 A list of participants is contained in Annex 1.

2. Appointment of a Rapporteur

- 2.1 Under the Liaison Group's Constitution, the posts of Chairman and Rapporteur are held alternately by representatives of NASCO and ISFA. Dr Peter Hutchinson (NASCO) was appointed Rapporteur for the meeting.

3. Adoption of the Agenda

- 3.1 The Liaison Group adopted its agenda, SLG(11)5 (Annex 2). The NGO representative proposed that there might be a standing agenda item for future meetings dealing with 'Closed Containment'. The Liaison Group recognised that one of the factors identified as facilitating implementation of the BMP guidance was technology development, so this aspect should be covered under future reporting on the Guidance.

4. Reporting arrangements on the BMP Guidance

- 4.1 At its 2010 meeting, the Liaison Group had recognised the importance of being able to track progress towards achievement of the international goals in the BMP Guidance and noted that there is already reporting under the Implementation Plans in terms of both annual reports and triennial focus area reports (FARs). There is a need to carefully consider the scope of any additional reporting, so as to avoid duplication of reporting effort while ensuring that progress towards the international goals can be tracked. The Liaison Group had decided to set up a Sub-Group to advise on reporting needs, and NASCO had subsequently agreed that the reporting requirements under the BMP Guidance should be considered by the Task Force that had developed this guidance.
- 4.2 The Liaison Group reviewed document SLG(11)3 which provided a draft format for reporting that had been developed by Mary Colligan, Co-Chair of the Task Force. The Group noted that the format was based closely on the BMP Guidance but did not include elements for reporting on factors facilitating implementation. The view was

expressed that the industry is developing rapidly in terms of deployment of new technology and practices to meet new challenges, so it is important that any reporting process can accommodate such change. It was suggested that there is a need to consider the purpose of the reporting, for it to cover all three elements of the BMP Guidance and to be focused more on outcomes. The BMP Guidance provides useful guidance on the information that would support tracking of progress towards the international goals while providing a menu of management practices that might be implemented. With regard to avoiding duplication of reporting effort, while allowing monitoring of progress towards the international goals, the Group noted that the 'Next Steps' for NASCO review would be considering future reporting in relation to all of NASCO's agreements and the Liaison Group agreed to reconsider the reporting requirements under the BMP Guidance in the light of this review.

5. Final Report of the Aquaculture and Related Activities Focus Area Review Group

- 5.1 At the Liaison Group's 2010 meeting, the draft report of the aquaculture, introduction and transfers and transgenics FAR Review Group was presented. The Review Group had been asked to: review and analyse the FARs, identifying common challenges and management and scientific approaches to these challenges; compile recommended best practice; and develop recommendations and/or feedback on each FAR where additional actions may be helpful to ensure implementation of the commitments within the Williamsburg Resolution. The Liaison Group had discussed the review process and a number of views were expressed. ISFA had agreed to provide comments on the Review Group's report and these comments, CNL(10)33, were tabled at NASCO's Twenty-Seventh Annual Meeting. NASCO's NGO's had tabled a response to these comments, CNL(10)37. The Council had agreed that the Review Group should complete its Terms of Reference so that its final report could be considered by the Liaison Group at its 2011 meeting and by the Council at its Twenty-Eighth Annual Meeting. In finalising its report, the Group had been asked to complete its terms of reference and to take into account the comments on its draft report from the Parties, ISFA and the NGOs.
- 5.2 The Review Group's final report, IP(10)39, was introduced by the Coordinator, Dr Malcolm Windsor, who described the background and the Group's working methods. He noted that the process of liaison between NASCO and ISFA has been ongoing for many years; sometimes it had worked well and at other times not so well and the process had needed to be reinvigorated. A good example of its success was the development of the BMP Guidance. However, he believed that the Liaison Group may be reaching a crucial point given the response from ISFA to the Review Group's draft report and the statement that the recently agreed BMP goals were 'inherently unachievable and unrealistic'. Two of the reviewers, Mr Tim Sheehan and Ms Boyce Thorne Miller, then summarised the Group's main findings. The presentation is contained in Annex 3. Since its first meeting the Group had reviewed the comments from ISFA, the NGOs and the Parties and the discussions at the Special Session. In the light of the information provided by the jurisdictions the Group had, where appropriate, revised its assessments. However, it had not taken into account the additional information provided by ISFA relating to the measures in place because it was the jurisdictions that were responsible for submitting the FARs. The Review Group had also reviewed a FAR

from EU-Ireland and commented on a document from EU-Spain. It had completed its TORs by developing an overview of common challenges and approaches to addressing these challenges. The Liaison Group welcomed the presentation and expressed its appreciation to the Review Group for its work.

- 5.3 During the discussion of the Review Group's report it was agreed that any future feedback from the industry should be included in the responses from the jurisdictions to the Review Group so that this could be taken into account in finalising the assessments. ISFA representatives indicated that they sought to cooperate with the wild fish interests in the FAR reviews and raised the issue of openness of the process. In particular, the Liaison Group felt that there was a need for both the NGOs and the industry to be fully involved in the development of FARs within jurisdictions, should this be required in the future. It was noted that the industry is rapidly changing and industry involvement in developing the FARs would ensure that the most recent information was included. The Liaison Group agreed with the Review Group's recommendation that for future reporting the process would be more transparent if the FARs were made available on the NASCO website when they are issued to the Review Group.
- 5.4 The view was expressed that the Review Group's statements about the lack of focus on outcomes in the FARs was not consistent with the Group's TORs. However, it was noted that an element of the reporting format for each of the three focus areas related to the effectiveness of management measures but that each Review Group had highlighted the lack of reporting on this element in most FARs. The Liaison Group noted that the 'Next Steps' review would consider if future FARs should be focused more on outcomes of the measures taken. Some concerns were expressed about the nature of the reporting template developed by the Council of NASCO which was heavily focused on salmon farming. While it was recognised that this reflected the existence of both those sections of the Williamsburg Resolution dealing with salmon farming and the BMP Guidance, this aspect would need to be considered carefully for future reporting and the Liaison Group believed that there should be additional focus on stocking and other forms of aquaculture activities. ISFA representatives also felt that the tone of the review was rather negative and that in future there should be greater focus on positive aspects. In this regard, the Overview in Annex 8 of the report contained some useful information and provided a helpful summary of the approaches being used to address impacts of aquaculture on the wild stocks. It was also stressed that the assessments had been structured in such a way as to highlight positive aspects from each FAR before detailing where additional actions would be needed to ensure consistency with NASCO's agreements. It was noted that NASCO was not just focusing on salmon farming but had conducted similar reviews in relation to management of salmon fisheries and habitat protection and restoration. In the past, reports on NASCO's work had been made to the Liaison Group but the Council of NASCO had agreed that the Chairman or Rapporteur of the Liaison Group, when these posts are held by ISFA, could attend NASCO's meeting so as to contribute to the agenda item dealing with that Group's report. This provided an opportunity to hear about other aspects of NASCO's work. The Liaison Group felt that it might be helpful, however, if future agendas for its meetings included an item for reporting on NASCO's work. This feedback on the Review Group's report would be presented to the Council of NASCO and would be considered in the 'Next Steps' review.
- 5.5 The ISFA representatives confirmed that they were fully committed to the international goals in the BMP Guidance but had been concerned that if the assessment was undertaken

in relation to full achievement of these goals then the outcome would be that all jurisdictions would be seen to fail, despite any progress made. It is important, therefore, that the review process assesses progress towards the international goals.

5.6 The Liaison Group agreed the following response to the Review Group report:

- The Liaison Group thanks the Review Group for its report, complete with its 8 annexes, and encourages NASCO's Parties to make full use of the wealth of information provided;
- Going forward, NASCO Parties should carefully consider the following in its 'Next Steps' process:
 - the extent of NASCO's role with respect to aquaculture, introductions and transfers and transgenics;
 - the roles and responsibilities of the Parties, industry and NGOs with respect to NASCO's role;
 - activities and studies that would best serve NASCO's role going forward.

6. Matters Arising since the last Liaison Group Meeting

(a) Update on the *Salmotrip* project

6.1 The Williamsburg Resolution identifies, as an area for research and pilot testing, the production of sterile fish. It recognises that the methodology and techniques for sterilisation are now well developed and that research should focus on developing strains of sterile fish which could perform at a level similar to current strains of fish used in farm production. The use of sterile fish could contribute to addressing concerns about genetic and other interactions between wild and farmed salmon but previous studies highlighted production performance and welfare issues and there are industry concerns about consumer perceptions of sterile salmon.

6.2 A progress report on the *Salmotrip* project was presented, SLG(11)2 (Annex 4). *Salmotrip* is a full-scale feasibility study of the potential for the production of triploid salmon that will provide information to support decision-making regarding future aquaculture policies and the use of triploidy within the salmon farming industry. The project, which will conclude in June 2011, is focusing on the various concerns about the use of triploid salmon that were highlighted by the industry at the Liaison Group's Trondheim Workshop concerning performance, incidence of deformities and marketing issues. Findings to date indicate that the performance of triploids in fresh water is equal to or better than diploids of the same families, and in some families the growth of triploids was markedly (~30%) better than that of diploids. There are also indications that this improved performance can be maintained in the sea, but an increased incidence of deformities and cataracts in triploids, albeit generally not severe, was again detected and will be a concern for the industry. However, the scientists involved in the *Salmotrip* project suggest that through selection of optimal strains and development of triploid specific diets these issues can be addressed, as has been the case for diploid stocks. They conclude that the potential for using triploid salmon looks promising. Further studies will focus on adapting rearing practices to the needs of triploid stocks. It is intended that one of the outputs from the project will

be detailed protocols on the rearing of triploid salmon. The Liaison Group welcomed the findings to date and agreed that it would be useful to have a further progress report once the data analysis is complete. The Group recognised the importance of further studies in relation to optimal rearing practices before triploid salmon could be considered for use in commercial production. The industry representatives questioned the finding from the consumer survey that perceptions of the salmon farming industry were generally negative; this is contrary to much other consumer research that has been undertaken.

(b) New research on the consequences of interbreeding between farmed and wild salmon

- 6.3 At its 2010 meeting, the Liaison Group had recognised the risks involved to the wild stocks from interbreeding with escaped farmed salmon and had agreed that it wished to be informed of the results of any new studies on this topic. The Group noted that summary information on ongoing research had been presented in the Comparative Overview contained in Annex 8 of the Review Group's report, (IP(10)39). This indicated that work was ongoing to develop genetic markers to distinguish farmed and wild salmon and that modelling studies were being undertaken to assess changes in the genetic composition of wild stocks as a consequence of interbreeding with escaped farmed salmon. It was also noted that under the SALSEA-Merge project considerable advances have been made in establishing genetic baseline data on wild Atlantic salmon.

(c) Development of standardised categories of escape events

- 6.4 In 2001, the Liaison Group had developed Guidelines on Containment of Farm Salmon which were incorporated into NASCO's Williamsburg Resolution. These Guidelines apply to both freshwater and marine environments. In accordance with the guidelines, each jurisdiction is requested to draw up a national action plan on containment (or regional plans) based on the guidelines. To assist the jurisdictions in reporting on progress with the implementation of its action plan on containment, a reporting format had been agreed and has been used by jurisdictions, since 2002, to report information to the Liaison Group including information on the level and causes of escapes. The Liaison Group's Task Force had recommended that standardised categories of causes of escape events might be developed. At its last meeting the Liaison Group had been advised that the Escapes Commission in Norway would be reporting shortly and that its report would include a categorisation of escape events. Similarly, some other jurisdictions have developed or are developing such categorisation. The Liaison Group had, therefore, agreed that it would be helpful if each jurisdiction provided details of the categories of escape events currently being used with a view to further considering the need for standardised categories for use in reporting internationally.
- 6.5 Norway reported that categories of escapes had been developed by its Escapes Commission and the Directorate of Fisheries based on the analysis of 325 escape events over a five year period. A three level categorisation system has been established. The first level details the type of operation (e.g. cage facility, landbased operation, slaughtering facility and transportation). The second level then describes the component involved in the event (e.g. cages, net pens, boats, other equipment) and the third level describes the reason for the escape event (e.g. icing, failure of the mooring system). This

information is used to conduct a risk assessment to inform development of regulations and management of the industry. It was noted that in Norway there are technical standards for equipment in the sea and technical standards are also being developed for facilities on land. There is now considerable focus on salmon farm operations since escapes related to technical failure are declining and in this regard courses for fish farm workers are held throughout Norway. Similarly, in Scotland and the US there is increasing focus on operational issues that lead to escapes and provision of training for farm staff. In Scotland, reporting has become more specific focusing on the cause of the escape event. In Canada, it was noted that many companies are seeking third party certification, conducting proactive maintenance and maintaining more detailed records of escapes.

- 6.6 The Liaison Group recognised that in considering the risks to the wild stocks from escaped farmed salmon it is important to consider not only the number of fish escaping but also information on the life stage and time of year of the escape, which influence survival, and the number of escaped fish in rivers. The BMP Guidance refers to reporting and tracking to allow progress towards the international goals for containment to be assessed. However, the Liaison Group agreed that it would need to revisit the issue of reporting in relation to the BMP Guidance in the light of NASCO's review of its 'Next Steps' process.

(d) Site selection and relocation criteria

- 6.7 The Secretary of NASCO noted that the Liaison Group had asked that a collation of information on the site selection and approval process in each jurisdiction with salmon farming be collated based on information contained in the FARs. He indicated that the Liaison Group recognised that this matter is specific to each jurisdiction and it would, therefore, reconsider its role in relation to this issue in the light of the review. While a collation of information had not been prepared for each jurisdiction, summary of information had been included in Annex 8 of the Review Group's report (see item 5 above).
- 6.8 The Group was advised that in Norway an expert group has recently reported on approaches to securing the salmon farming industry access to productive coastal areas with guidance on management focusing on health and welfare, acceptable environmental impacts and prevention of escapes. The groups report contains 25 recommendations with three main elements. First, the coastal zone should be divided into 20 -25 large production areas, each of which would be divided into four or five smaller management areas with coordinated stocking and fallowing of sites in a two year cycle. Secondly, a set of indicators would be used to improve sustainability in the industry. These would include the number of escaped farmed salmon in rivers and sea lice levels in farms and would be used to identify the need for remedial action such as a reduction in the total permitted biomass in an area and systematic removal of escaped farmed salmon from rivers. Thirdly, the industry should be given greater responsibility for designing and implementing more effective contingency plans. The report also identifies improvements to laws and regulations, particularly with regard to the planning process, and research needs.

- 6.9 The Group recognised that each jurisdiction would have site selection and relocation criteria that reflect local conditions and that information on this issue is available in the FARs which are available on the NASCO website.

(e) Possible development of a Decision Tree to assist in applying the BMP Guidance

- 6.10 The Task Force had discussed if the development of a Decision Tree might assist jurisdictions in implementing the BMP Guidance. It had not proceeded with this because it felt that information on how the BMP Guidance was being applied by each jurisdiction in terms of both voluntary and regulatory measures and their effectiveness would be provided in the FARs, although not necessarily in a Decision Tree format. The Task Force had recommended, therefore, that the Liaison Group review the need for a high level Decision Tree(s) following presentation of the FARs. Three documents tabled at the Task Force meeting, ATF(09)14 (Draft decision Trees on Measures for Containment of Farmed Salmon and Treatment of Sea Lice), ATF(09)17 (Recommendations on a New Role for Single Bay Management for Sea Lice Control in Ireland) and ATF(09)18 (Decision Tree for Applications for Salmon Farming Licences in Norway), had been distributed to the Liaison Group for information. It was noted that there had been a change to the Decision Tree for Norway as applications are now considered by the County Municipalities although the process shown is unchanged.
- 6.11 The Liaison Group recognised that each jurisdiction with salmon aquaculture would have a Decision Tree(s) or a decision-making process and agreed that there was no need to develop Decision Trees to assist in the implementation of the BMP Guidance. Where jurisdictions had developed Decision Trees, however, they may wish to make them available to Liaison Group for information. The Group agreed that it is more important for NASCO to focus on outcomes rather than the approach used in each jurisdiction towards achievement of the international goals and this theme would be considered further in the review of the NASCO 'Next Steps' process.

(f) Research requirements relating to the management of the impacts of aquaculture on wild salmon stocks

- 6.12 The Liaison Group noted that information on on-going research relating to the management of impacts of aquaculture on the wild salmon stocks was presented in the FARs and summarised in Annex 8 of the Review Group's report (see section 5 above). The Liaison Group agreed to consider this issue further at its next meeting.

(g) Communications

- 6.13 The Task Force had recommended that the BMP Guidance and the Explanation of Terms used in the BMP Guidance be printed in booklet form in the same format as the Williamsburg Resolution and widely circulated by ISFA and NASCO. NASCO's other guidelines relating to management of salmon fisheries and habitat protection and restoration had also been published in booklet format and widely circulated. It was noted that the BMP Guidance and the Explanation of Terms Used in the Guidance are available as documents on the NASCO website and consideration should be given to making these available in a well-designed booklet. It was noted that ISFA has developed a new website

that would be available shortly and that links should be made between the NASCO and ISFA sites. It was agreed that the NASCO and ISFA Secretariats should liaise on the issue of communications including the information to be made available on the websites concerning the work of the Liaison Group and the presentation of the BMP Guidance. Final recommendations relating to communications would be circulated to the Group before being implemented. There might also be consideration of the establishment of a 'SharePoint' site.

7. Evolution of the Liaison Group

- 7.1 The Group discussed a proposal from Canada for the reconstitution of the Liaison Group to become the collaborative Working Group on Aquaculture –Wild Salmon Interactions, SLG(11)4 (Annex 5). In presenting the document, Canada made reference to the fact that this might be taken into account in the review of the 'Next Steps' process. The document recommended that the Parties build on the momentum from the success of the Task Force and the resulting BMP Guidance to clearly focus collaboration to address interactions between aquaculture and wild salmon stocks. It proposed that the Liaison Group be reconstituted into a group with similar membership to the Task Force. The proposal suggested that the mandate of this group would be to support implementation of the BMP Guidance by the NASCO jurisdictions through a process of information exchange and coordination of monitoring, research and development.
- 7.2 The Liaison Group thanked Canada for preparing this document which raised some interesting ideas although as it had been circulated just prior to the meeting there had been limited time to consider it and consult. Clarification was sought as to whether this proposal meant that the Liaison Group would cease to exist. A number of possible options were discussed relating to the future of the Liaison Group. The need to maintain a forum for dialogue on questions related to wild salmon and aquaculture was recognised but it was noted that there had been significant changes since the Liaison Group was established that allowed for information exchange. These include the development of the FARs by NASCO's jurisdictions and a number of other fora for discussions between the industry and wild fish interests. The options considered for the evolution of the Liaison Group included maintaining the present Group, which might meet annually or biennially, and which could refer specific tasks to its Task Force. Another suggestion was that the Liaison Group meetings might be held in conjunction with NASCO's Annual Meetings, possibly immediately preceding those meetings. Alternatively, two or three representatives of ISFA could be invited to attend the NASCO Annual Meeting to contribute to the agenda item concerning aquaculture (including any Special Sessions). If any specific issues arose these could be agreed at the Annual Meeting and referred to a Task Force, if required. This would reduce the resources required for the Liaison process but would greatly reduce the time available for discussions. The Secretary indicated that it was important that ISFA advise which was its preferred option. ISFA agreed to consider the options for the evolution of the Liaison Group in the context of the 'Next Steps' process and provide initial feedback for consideration at the meeting of the 'Next Steps' Review Group. The NASCO Parties agreed to consider these options. The NGOs indicated

that while it was for NASCO and ISFA to lead this initiative, the NGOs would wish to be involved in the process.

8. Election of Officers

- 8.1 Under its Constitution, the Liaison Group's Chairman may serve for a period of two years and is held alternately by representatives of NASCO and ISFA. The current Chairman, Mr Sebastian Belle, was appointed in 2009. The Group elected Mr Steinar Hermansen as its new Chairman. The Liaison Group recommends that its Constitution should be amended to allow for the election of a Vice-Chairman. On the assumption that this proposal is acceptable to NASCO and ISFA, the Group elected Professor Phil Thomas as its Vice-Chairman.

9. Any Other Business

- 9.1 The Liaison Group agreed that in future the origin of documents issued for its meetings should be indicated on the document.
- 9.2 There was no other business.

10. Report of the Meeting

- 10.1 The Liaison Group agreed the report of its meeting.

11. Close of the Meeting

- 11.1 The Liaison Group thanked Mr Belle for his excellent work in Chairing the Group since 2009. The Chairman thanked the participants for their contributions and closed the meeting.

List of Participants

Sebastian Belle (Chairman)	Maine Aquaculture Association, Hallowell, Maine, US
Mary Colligan	NOAA, NMFS, Gloucester, Massachusetts, US
Willie Cowan	Marine Scotland, Edinburgh, UK
Marco D'Ambrosio	European Commission, Brussels, Belgium
Brian Dornan	Scottish Government, Edinburgh, UK
Arne Eggereide	Directorate for Nature Management, Trondheim, Norway
Alan Gray	European Commission, Brussels, Belgium
Nell Halse	President of ISFA, Saint John, New Brunswick, Canada
Steinar Hermansen	Ministry of Environment, Oslo, Norway
Knut A. Hjelt	Norwegian Seafood Federation, Trondheim, Norway
Jens Christian Holm	Directorate of Fisheries, Bergen, Norway
Peter Hutchinson	NASCO, Edinburgh, UK
Scott Landsburgh	Scottish Salmon Producers Organisation, Perth, UK
Brian Meaney	Newfoundland & Labrador Department of Fisheries & Aquaculture, St John's, Canada
Pamela Parker	Atlantic Canada Fish Farmer's Association, Letang, New Brunswick, Canada
Ted Potter	CEFAS, Lowestoft, UK
Chris Poupard	Chairman of NASCO's NGOs, Truro, Cornwall, UK
Ruth Salmon	Canadian Aquaculture Industry Alliance, Ottawa, Ontario, Canada
Rory Saunders	NOAA, NMFS, Orono, Maine, US
Tim Sheehan	NOAA, NMFS, Woods Hole, Massachusetts, US
Jamey Smith	Fisheries and Oceans Canada, Ottawa, Ontario, Canada
Kevin Stringer	Fisheries and Oceans Canada, Ottawa, Ontario, Canada
Phil Thomas	Scottish Salmon Producers Organisation, Perth, UK
Boyce Thorne-Miller	Northwest Atlantic Marine Alliance, Maryland, US
Amy Williams	Fisheries and Oceans Canada, Ottawa, Ontario, Canada
Malcolm Windsor	NASCO, Edinburgh, UK

SLG(11)5

Meeting of the NASCO/North Atlantic Salmon Farming Industry Liaison Group

18 - 19 March 2011

**Charles Shubert Room
Marriott Courtyard Boston Downtown, Tremont Street, Boston, USA**

Agenda

1. Opening of the Meeting
2. Appointment of a Rapporteur
3. Adoption of the Agenda
4. Reporting arrangements on the BMP Guidance
5. Final Report of the Aquaculture and Related Activities Focus Area Review Group
6. Matters Arising since the last Liaison Group Meeting
 - (a) update on the Salmotrip project
 - (b) new research on the consequences of interbreeding between farmed and wild salmon
 - (c) development of standardised categories of escape events
 - (d) site selection and relocation criteria
 - (e) possible development of a Decision Tree to assist in applying the BMP Guidance
 - (f) research requirements relating to the management of the impacts of aquaculture on wild salmon stocks
 - (g) communications
7. Evolution of the Liaison Group
8. Election of Officers
9. Any Other Business
10. Report of the Meeting
11. Close of the Meeting

***Presentation of the Report of the Meeting of the Ad Hoc Review
Group on Aquaculture, Introductions and Transfers and
Transgenics***

Report of the Meeting of the
Ad Hoc Review Group
on Aquaculture, Introductions and Transfers
and Transgenics

Timothy Sheehan
&
Boyce Thorne Miller





Timeline Overview

- NASCO Annual Meeting – June 2009
 - Review Group formed and ToRs developed
- Review Group 1st Meeting – February 2010
 - Draft Report produced
- Liaison Group Meeting – April 2010
 - Draft Report presented
- NASCO Annual Meeting Special Session – June 2010
 - Draft Report presented
- Review Group 2nd Meeting – November 2010
 - Final Report produced
 - Incorporated comments from the Parties, ISFA and NGOs
- Liaison Group Meeting – March 2011
 - Present Final Report
- NASCO Annual Meeting Special Session – June 2011
 - Present Final Report



Review Group Terms of Reference

- Focus Area Reports (FARs)
 - Provide in-depth assessment of measures, as reflected in Implementation Plans, to implement NASCO Agreements (i.e. The Williamsburg Resolution)
 - Prepared by each Party/Jurisdiction
- Review and analyze the FARs on Aquaculture, Introductions and Transfers, and Transgenics
 - Do the steps in the FARs fully comply with NASCO's agreements to protect the wild stocks from genetic, disease, parasite and other impacts?
- Prepare a report which includes the following:
 - Identification of common challenges;
 - Identification of common management and scientific approaches to challenges;
 - Compilation of recommended best practice; and
 - Recommendations and/or feedback to help ensure implementation of the Williamsburg Resolution.



Review Group Members

- Torfinn Evensen
 - Heidi Hansen
 - Tim Sheehan
 - Bob Steinbock
 - Boyce Thorne Miller
 - Marita Rasmussen
-
- Brief biographies in **Annex 1**.



Best Management Practice (BMP)

- Adopted by both ISFA and NASCO (2009)
- Basic Principle
 - Salmon stocks in areas with farms should be as healthy as stocks in areas without farms
- Sea Lice
 - 100% of farms to have effective management so that there is no increase in lice loads or lice induced mortality of wild salmonids
- Containment
 - 100% of farmed fish to be retained in all production facilities
- BMP Guidance was intended to:
 - Assist NASCO Parties in framing the management of salmon aquaculture, in cooperation with their industries, and in developing future NASCO Implementation Plans and FARs in 2010
 - BMP Guidance was incorporated into FAR preparation guidance
- Review Group welcomed the BMP guidance and suggested it fulfilled their ToR of compiling best practice

Review and analysis of FARs

- Jurisdictions that didn't submitted a FAR (3)
 - Denmark in respect of Greenland, EU-Portugal, and **EU-Spain**
- Jurisdictions that did submitted a FAR (14)
 - Canada
 - Denmark in respect of the Faroe Islands
 - EU – Denmark
 - EU – Finland;
 - EU – France
 - EU – Germany
 - **EU – Ireland**
 - EU – Sweden
 - EU – UK (England and Wales)
 - EU – UK (Northern Ireland)
 - EU – UK (Scotland)
 - Norway
 - Russian Federation
 - USA



General Comments on the FARs

- *Structure and content*
 - Future FARs should focus on outcomes of measures taken to implement the Williamsburg Resolution as to demonstrate progress towards achieving the international goals
- *Action Plans on Containment*
 - Most FARs did not clearly identify the existence of an Action Plan(s) through which internationally agreed guidelines on containment would be implemented via existing or new voluntary codes of practice or regulations
- *International cooperation to minimize adverse impacts on wild stocks*
 - Better reporting of ongoing efforts encouraged



General Comments on the FARs cont'd

- *Salmon ranching*
 - No ranching presented being undertaken, but “*ranching to the rod*” needs to be categorised
- *Risk Assessments*
 - In general, impacts on the marine environment (particularly benthic impacts) or exposure of the site are considered, there appears to be little consideration of the health, genetic diversity and status of wild salmonid stocks
- *Transgenic salmonids*
 - Few FARs clearly described if controls exist to ensure future use is consistent with the NASCO Guideline
 - Given the possibility of commercial production of transgenic salmon, the Council should ensure thorough discussions on all the related issues and the guidance in The Williamsburg Resolution should be applied through out North America.



General Comments on the FARs cont'd

- *River Classification*
 - Few FARs referred to how river classification was used for developing management measures
- *Corrective measures*
 - Most FARs did not clearly report on the nature of the measures to be taken to protect wild stocks when unforeseen impacts are detected
- *Socio-economic information*
 - Most FARs did not provide a clear indication of how socio-economic factors are incorporated into management decisions



General Comments on the FARs cont'd

- *Evaluation of the effectiveness of measures taken*
 - Many of the FARs reported that measures taken are consistent with NASCO's agreements, but they did not describe if the measures are effective in safeguarding the wild stocks and achieving the international goals contained in the BMP Guidance
- *Research, Development and Data Collection*
 - A lack of scientific information should not be used as a reason for failing to take conservation measures and therefore further research and development on a number of topics is desired



General Comments Relating to the Assessments

- *Introduction*
 - Many FARs failed to provide information to demonstrate progress towards achieving the international goals for sea lice and containment
- *Scale of Activities*
 - Size matters, but low levels of salmon farming and poorly planned introductions/transfers have the potential for adversely affects
- *Responsibility for setting standards*
 - Suggest that government should set technical and environmental standards and oversee monitoring requirements and schedules



General Comments Relating to the Assessments cont'd

- *Containment*
 - Provided comments supporting the recommendations in the BMP Guidance and suggestions to help with future FAR reporting and assessment
- *Sea lice*
 - Provided comments supporting the recommendations in the BMP Guidance and suggestions to help with future FAR reporting and assessment
- *NGO Statements*
 - Report was unanimously agreed by the Review Group. NGO provided statements (**Annex 4**), that were not unanimously agreed upon by the Review Group



Feedback on Draft Report

- 5 Parties/Jurisdictions – **Annex 5**
- ISFA – **Annex 6**
 - NGOs response to ISFA – **Annex 7**
- 2010 Special Session
- All taken into account in finalizing report
 - Where appropriate, final assessment (**Annex 3**) were updated



Additional responses to Feedback

- *Template concerns*
 - Template was developed by the Council, not the Review Group, and combined the elements in the Williamsburg Resolution with those in the BMP Guidance
- *NGO circulation of FARs*
 - NGOs had circulated the FARs prior to the industry or jurisdictions seeing them
 - Review Group recommends consideration be given to making all FARs available online prior to review. To be considered by the 'Next Steps' Review Group



Response to feedback from the Jurisdictions

- Feedback carefully reviewed
- Feedback on new initiatives introduced subsequent to the submission of the FARs (i.e. during 2010), was not taken into account
- In some cases, assessments from the Draft Report were modified



Response to feedback from ISFA

- Feedback carefully reviewed
- Some new information presented that was not presented within the FARs submitted by the Parties/Jurisdictions
 - Assessments from Draft Report were not changed as the Review Group felt it was more appropriate for the Jurisdictions to consider the comments from the industry rather than the Review Group
- Heavy criticism of the process



Response to feedback from ISFA cont'd

- Review Group reiterated that the process used was developed by the Council and applied to all three previous FAR reviews
 - These were internal reviews intended to assess progress in implementing NASCO's agreements
- Council worked to keep ISFA informed and to allow for comments on both the Draft and Final Reports
- Suggestions for reformatting the report were incorporated



Response to feedback from ISFA cont'd

- Review Group reviewed any opinions expressed in the report to ensure they were justified
- Council's intention in conducting the review was to assess progress in implementing its agreements to conserve the wild salmon stocks and encourage sustainable salmon farming practices
 - Review Group's only concern was if NASCO Parties/Jurisdictions are implementing the NASCO agreements



Response to feedback from ISFA cont'd

- Review Group was confused by the statement that the international goals in the BMP Guidance are 'inherently unachievable and unrealistic'
 - BMP Guidance was adopted by NASCO and ISFA in 2009
- Review Group highlighted the progress made by the Liaison Group in recent years
 - Guidelines on Containment of Farmed Salmon
 - BMP Guidance
 - International goals for sea lice and containment.
- Review Group fully endorses the general principle outlined by the BMP Guidance
 - Salmon stocks in areas with farms should be as healthy as stocks in areas without farms



Identification of common challenges-approaches

- Intended to facilitate information exchange among Parties (**Annex 8**)
 - Point by point discussion of Williamsburg Resolution and the BMP Guidance, following the FAR reporting format, with overviews, assessments and examples taken from the FARs to highlight common challenges and approaches
- Includes recommendations on future reporting and approaches for improving information exchange



Next Steps

- Final Report presentation scheduled for
 - Liaison Group meeting (March 2011)
 - Council' Special Session (June 2011)

Annexes

- Annex 1
 - Biographies of the Members of the Review Group
- Annex 2
 - Terms of Reference and Working Methods
- Annex 3 (IP(10)33)
 - Assessments of the FARs
- Annex 4 (IP(10)32)
 - NGO Statements to the Review Group
- Annex 5 (IP(10)34)
 - Responses from Parties to the Review Group's Draft Report
- Annex 6 (CNL(10)33)
 - ISFA Comments on the Draft Report of Aquaculture, Introductions and Transfers and Transgenics Focus Area Review Group
- Annex 7 (CNL(10)37)
 - NGO Response to ISFA Comments on the NASCO Draft Aquaculture Focus Area Review Report
- Annex 8 (IP(10)36)
 - Comparative overview of approaches used to address challenges in minimizing the adverse impacts of salmon aquaculture, introductions and transfers and transgenics on wild salmon stocks

SLG(11)2

Progress Report on the Salmotrip Project

Background

1. The Williamsburg Resolution identifies the production of sterile fish as an area for research and pilot testing. It recognises that the methodology and techniques for sterilisation are now well developed and that research should focus on developing strains of sterile fish which could perform at a level similar to current strains of fish used in farm production. Furthermore, the Resolution recommends that trials should be encouraged to evaluate the performance of strains of sterile fish under production conditions. At the Liaison Group's Task Force meeting in 2009, a brief report was presented on the EU-funded Salmotrip project; an important project that seeks to examine many of the issues related to triploid salmon raised at the Liaison Group's 2005 Trondheim Workshop, 'Wild and Farmed Salmon – Working Together'. The project, which will be completed in June this year, focuses on five key areas at both experimental and commercial level: improvement in triploid yield and survival; provision of out-of-season smolts; the effects of family on performance; the causes and remediation of deformities; and the market perception of triploid salmon.
2. Information on the Salmotrip project was presented at the 2010 Liaison Group meeting (see document SLG(10)4 for details) and the NASCO Assistant Secretary was asked to continue to liaise with the project's coordinator so as to update the Liaison Group on progress. In this regard, it was noted that a session devoted to the Salmotrip project was to be held during the European Aquaculture Society (EAS) meeting in October 2010 when some preliminary results from the project would be presented. This paper provides a brief summary of the preliminary information presented at the EAS meeting, of publications arising from the project to date and of discussions with the coordinator and other scientists involved in the project. In other sessions at the EAS meeting, there were also presentations on the production of triploid cod, so there is increasing interest in this approach to reproductive containment of farmed fish.

Rationale for the Project

3. The use of triploid (sterile) salmon in aquaculture is not new and was originally tested in the early 1990s. In addition to addressing some of the concerns relating to the genetic and other impacts of farmed salmon on the wild salmon stocks, benefits to the farmer from the use of sterile salmon could include avoidance or reduction of sexual maturation and associated loss of condition and increased disease risk; increased grow-out period; wider harvest windows; reduced running costs as photoperiod regimes at sea would potentially not be needed; and protection for salmon breeding companies of their intellectual property rights on selected strains. It was noted at the Liaison Group's 2005 Trondheim Workshop, 'that there had been production issues associated with the use of triploid salmon which understandably were a concern to the

industry. However, the increased scientific knowledge on triploid physiology being obtained through the Salmotrip project suggests that these problems may be associated *inter alia* with inappropriate protocols for rearing triploids. For example, in previous studies triploids may have been derived from the tail end of the stripping season and poorer egg quality may have biased the assessment of triploid performance. Furthermore, triploids may smolt earlier than diploids and failure to treat triploids separately from diploids could result in poor seawater performance as reported from earlier studies.

4. The industry has also expressed concern that there may be consumer resistance to the use of triploid salmon and that there are welfare issues (such as increased incidence of deformities) that would need to be addressed. It was noted in the EAS presentation that more than 50% of oysters produced in France and a significant proportion of large (>1kg) farmed rainbow trout production is based on sterile triploids to alleviate pre-harvest maturation problems. Triploid carp are also being farmed. It was also noted that rearing of triploids could alleviate welfare issues associated with early maturation and decreased quality standards. As most salmon eggs used in farming now come from established breeding companies, it was suggested that it is important to assess triploidy with the other traits being improved and that the best possible families are identified. However, it was recognised that the use of triploid strains in the industry would be a radical change and would require a clear understanding of the environmental requirements of triploid fish, their performance on a commercial scale and consumer perception in order to determine if their use by the industry would be viable. The Salmotrip project is a full-scale feasibility study of the potential for the production of triploid salmon that will provide information to support decision-making regarding future aquaculture policies and the use of triploidy within the salmon industry.

Findings to date

Freshwater performance

5. As noted above, previous studies have indicated that triploid salmon show varying survival, growth performance and deformity prevalence compared to diploids. Lower triploid survival (up to 50%) during egg incubation has been reported but, as previously noted, this might be related to the use of lower quality eggs that may not withstand the triploid induction process. To examine this, Salmotrip scientists exposed eggs of varying quality to hydrostatic pressure using standardised protocols. Survival to hatching and first feed did not differ between diploids and triploids when recently ovulated eggs were used but for eggs that had entered the over-ripening period (7 – 10 days post-ovulation) there was a small reduction in diploid survival but 50% higher mortality in triploids compared to eggs of optimal quality. Survivors from over-ripe egg batches continued to show reduced performance during grow-out. These findings indicate that it is essential to use recently ovulated eggs when producing triploids.

6. In a series of nine experimental and field trials using different family lines reared in freshwater, the Salmotrip project, through collaboration with some of the industry's largest egg suppliers, has shown that triploids grew as well or significantly faster (more than 30% faster in some families) than diploids with minimal mortality and deformity to both S0 and S1 smolts. In one study, for which the findings have been published, while diploids were generally larger than triploids at hatching, this size difference was only maintained for six weeks post-first feeding with triploids generally out-growing their diploid siblings by the end of the hatchery phase. Furthermore, there was no difference in the incidence of deformities between diploids and triploids which was low (<2%). Triploids also reached the smolt stage up to four weeks earlier than diploids. Failure to recognise these differences in smolt timing in the commercial environment could be the reason for the previously reported poor performance of triploids following transfer to sea water. The Salmotrip research has also demonstrated that triploid salmon smolts can be produced out-of-season, which is essential for ensuring year-round supply, using conventional photoperiod regimes.

Sea water performance

7. Studies of performance following transfer of smolts to sea water have been conducted in Norway, Scotland and France using both S1 and out-of-season S0 smolts in both commercial and research facilities. Some of the fish still remain to be harvested and the data assessed, but the results to date indicate that triploids grew at comparable, or in some families enhanced, rates to diploids although the prevalence of deformities was higher, particularly in the fastest growing triploid strains. Vertebral deformities were most commonly encountered while lower jaw deformities only occurred in one batch. The prevalence of shortened gill covers (operculae) was equal to or lower in triploids than the prevalence in diploids. It is important to note that the prevalence of deformities was lower than had been observed in previous studies and appears to be within commercially acceptable limits. However, in all commercial production batches, the prevalence of spinal deformities and cataracts was higher in triploids than in diploid fish. These deformities were mainly low level and not considered to be severe but where severe deformities did occur they were equally prevalent in triploids and diploids. It is important to note that the spinal deformities were in some cases only detectable by palpation (touch) or by x-ray and were not detectable by eye.
8. One study that has been published on the comparative seawater performance and deformity prevalence found that growth and survival in seawater were not significantly different between diploids and triploids but the incidence of external deformities, jaw malformation, was higher in triploids (~12%) than in diploids (<5%). Vertebral deformities were more prevalent only in the fastest growing triploids. The most significant detrimental effect of triploidy was on the rate and severity of cataracts.
9. The studies have shown that certain families appear to be more prone to deformity as triploids than others, suggesting that selection may be used to reduce the prevalence of triploids although the relationship to growth requires further study. Furthermore, it is thought that improvements in diet may be used to reduce both the occurrence of

spinal deformities (high phosphorus diet) and cataracts (inclusion of histidine). This has been successfully achieved in diploid stocks within the last 6 – 7 years. However, to date all experimental and commercial trials using triploids have used conventional diploid diets. The project's coordinator considers that there is now compelling evidence to suggest that dietary deficiencies, particularly during the fast growth periods are a major cause of deformity occurrence in triploids and that triploid specific diets are required to address this problem.

Consumer perception of triploids

10. The objective of this part of the project is to consider consumer perception and valuation of triploid salmon, taking into account the risks and benefits as perceived by consumers. The attitudes of French, German and UK consumers to triploid salmon are being assessed through a large quantitative study focusing on perceived risks and benefits, information needs and information trust. The results to date indicate that little information is available and that knowledge levels are generally low. Attitudes towards genetic engineering are considered to be generally negative as are public perceptions of salmon farming in general, although triploid trout for sport fisheries are seen as quite positive. The results to date seem to favour a marketing strategy targeting consumers.

Summary

11. The Salmotrip project is a very important initiative focusing on the various concerns about the use of triploid salmon that were highlighted by the industry at the Trondheim Workshop. It appears from the findings to date, that the performance of triploids in freshwater is equal to or better than diploids of the same families, and in some cases markedly better. There is also evidence that this improved performance can be maintained in the sea, but an increased incidence of deformities (of the spine and cataracts) in triploids, albeit not severe, was again detected in these recent studies and will be a concern for the industry. However, the scientists involved in the Salmotrip project believe that through selection of optimal strains and attention to nutritional requirements these issues can be addressed, as has been the case with diploid stocks. They conclude that the potential for using triploid salmon looks promising. Further studies on performance, deformity and disease resistance will help to adapt rearing practices to the needs of triploid stocks to improve performance and welfare. It is hoped that one of the outputs from the project will be detailed protocols on rearing triploid salmon. If triploid Atlantic salmon are to be farmed commercially (as is the case, for example, for oysters and rainbow trout) they will need to be carefully marketed but the use of triploid salmon might be promoted as a measure to protect the wild stocks. As noted previously, the Salmotrip project has made enormous progress in addressing issues of relevance to the Liaison Group concerning the feasibility of using triploid salmon in aquaculture. The Group may wish to have a more comprehensive presentation when the data are published and it may wish to consider ways in which it could encourage and support further trials. Eventually the uptake of this technique may offer benefits to the salmon farmer and in the protection of the wild stocks.

Further reading

Fjelldal, P.G. and Hansen, T. (2010). Vertebral deformities in triploid Atlantic salmon (*Salmo salar* L.) under-yearling smolts. *Aquaculture*, 309: 131 – 136.

Leclercq, E., Taylor, J.F., Fison, D., Fjelldal, P.G., Diez-Padriza, M., Hansen, T., and Migaud, H. (2011). Comparative seawater performance and deformity prevalence in out-of-season diploid and triploid Atlantic salmon (*Salmo salar*) post-smolts. *Comparative Biochemistry and Physiology, Part A*. 158: 116 – 125

Taylor, J.F., Leclercq, E., Preston A.C., Guy D., and Migaud, H. (2011). Parr-smolt transformation in out-of-season triploid Atlantic salmon (*Salmo salar* L.). *Aquaculture. In Press*.

Taylor, J., Migaud, H., Fjelldal, P.G., and Hansen, T. (2011). Sterile salmon: a potential means of reproductive containment. *Fish Farmer. In Press*.

Taylor, J.F., Preston A.C., Guy D., and Migaud, H. (2011). Ploidy effects on hatchery survival, deformities and performance in Atlantic salmon (*Salmo salar*). *Aquaculture. In Press*

SLG(11)4

FOR DISCUSSION PURPOSES ONLY

***Proposal For Reconstitution Of The ISFA-NASCO Liaison Group To
Become The Collaborative Working Group On Aquaculture-Wild Salmon
Interactions***

The **ISFA-NASCO Task Force on Best Practice in Aquaculture to Address Impacts on Wild Salmon Stocks** has recently developed *Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks*. This work represents a successful collaboration of NASCO government party representatives, the aquaculture industry, scientists, and salmon conservation groups to achieve a specific terms of reference. It was completed through two face-to-face meetings and e-mail correspondence over a period of about one year. This clearly demonstrates how these groups can work constructively together given commonly understood goals and objectives.

The **ISFA-NASCO Liaison Group** officially comprises representatives of NASCO government parties and the aquaculture industry, and in the case of the above-noted work is serving to ratify the work of the Task Force. This ratification will be a significant accomplishment of the Liaison Group in recent years. Previous work includes development of Guidelines for Containment of Farmed Salmon (2001) and a one-day workshop entitled "Wild and Farmed Salmon - Working Together" (2005).

We propose that parties build on the momentum from the success of the Task Force and the resulting Guidance on Best Management Practices to clearly focus collaboration to address interactions between aquaculture and wild salmon stocks. We propose that the Liaison Group be reconstituted into a group with similar membership to the Task Force. The mandate of this group would be to support implementation of the Guidance on Best Management Practices by the NASCO parties through a process of information exchange and coordination of monitoring, research and development.

Should parties be agreeable to this proposal, Canada would be pleased to lead development of the Terms of Reference for this group. The composition of this group will be a key aspect of its success. The collaborative nature of the group requires that the group be comprised of an equal number (4 or 5) of party representatives, aquaculture industry, and conservation groups. Individuals on the group would have an expertise in aquaculture and farmed-wild interactions, and would work together to fulfill the mandate. The Chair of the group would rotate annually. Canada offers to provide the first Chair.

This Collaborative Working Group on Aquaculture-Wild Salmon Interactions would be established based on the following:

- NASCO is an international body established in 1984 with the objective to contribute through consultation and co-operation to the conservation, restoration, enhancement and rational management of Atlantic salmon stocks in the North Atlantic Ocean, taking into

account the best scientific evidence available to it. Due to the migratory nature of Atlantic salmon, rational management of this resource can only be achieved through international cooperation. There are many pressures on the resource where international cooperation has proven to be valuable.

- In 2000, an advisory group was established to provide an international forum for liaison between the salmon farming industry in the North Atlantic and the relevant authorities responsible for wild Atlantic salmon and aquaculture on issues of mutual interest and to make recommendations for action. The Liaison Group has developed Guiding Principles for its work as well as Guidelines on Containment of Farm Salmon. In 2001 the Liaison Group established a Salmon Co-operation Group which undertook a project (the SALCOOP project) to review existing cooperative ventures between wild and farmed salmon interests, to identify further areas for cooperation, and to examine options for securing funding for cooperative projects. In 2005, the Liaison Group held a one-day Workshop entitled "Wild and Farmed Salmon - Working Together".
- A significant milestone of NASCO was, in 2003 with subsequent amendments, the *Resolution by the Parties to the Convention for the Conservation of Salmon in the North Atlantic Ocean to Minimise Impacts from Aquaculture, Introductions and Transfers, and Transgenics on the Wild Salmon Stocks* (the Williamsburg Resolution). This resolution has provided a solid basis for NASCO, its members, and the Liaison Group to address interactions between wild and farmed salmon.
- In 2009 the Liaison Group established a Task Force to provide advice on best practices in aquaculture to address impacts on wild salmon stocks. Having noted the existing Codes of Practice and legislation regarding management of impacts of salmon farming on the wild salmon stocks, it was the view of the Task Force that the Williamsburg Resolution remains valid but it needs to be strengthened in its interpretation and application, particularly in terms of defined goals and assessment of outcomes. The Task Force subsequently developed *Guidance on Best Management Practices to address impacts of sea lice and escaped farmed salmon on wild salmon stocks*. This work represents a successful collaboration of NASCO government party representatives, the aquaculture industry, scientists, and salmon conservation groups to achieve a specific terms of reference.
- The Task Force discussed many aspects related to implementation of the BMP Guidance. It was recognized that assessment of progress towards achievement of the international goals through reporting and tracking is a key element of the BMP Guidance but that there is a need to avoid an excessive reporting burden. It was also recognized that implementation of the BMP Guidance would be facilitated by collaborative information exchange regarding monitoring and research and development. More specifically, the Task Force recognized that implementation of the BMP Guidance would be supported by further efforts that would:
 - Provide a broad base for discussion of the various aspects of implementation;
 - Facilitate sharing of information between members; and,

- Assist the Parties of NASCO in the development and implementation of appropriate monitoring, regulatory, and management programs applicable to sea lice and containment.
- As highlighted by the Task Force in the development of the BMP Guidance, there are specific areas of focus that must be considered to facilitate implementation. These include:
 - Research and development;
 - Monitoring programs;
 - Management and regulatory programs, including government approvals of farm practices and procedures;
 - Reporting within Parties and to NASCO.
- In its Draft Report, the Aquaculture, Introductions and Transfers and Transgenics Focus Area Review Group, the Review Group welcomed the BMP Guidance.

Attachment 1



INTERNATIONAL **SALMON** FARMERS ASSOCIATION

March 21, 2011

Malcolm Windsor, Secretary
NASCO
11 Rutland Square
Edinburgh
EH1 2AS UK

Dear Malcolm:

On behalf of the International Salmon Farmers Association (ISFA) and its member organizations, we welcome the opportunity to provide the following comments on the proposals that were considered and discussed during the March 18-19, 2011 Liaison meeting regarding the evolution of the NASCO / ISFA group and regarding NASCO's Next Steps process.

- The International Salmon Farmers Association (ISFA) values the liaison that the Salmon Farming industry has maintained with the Parties of NASCO since 1999.
- ISFA remains committed to the Guiding Principles for Cooperation between NASCO and its Contracting Parties and the North Atlantic Salmon Farming Industry SLG(01)11.
- ISFA looks forward to the outcome of the NASCO 'Next Steps' process and welcomes recommendations from and direct discussions with the Parties regarding the future scope and structure of the Liaison Group.
- ISFA members share a vested interest in and contribute to the conservation of wild salmon.
- ISFA expects the Parties to engage their respective ISFA members in the development of their Delegation policies and positions regarding salmon.
- ISFA welcomes the offer to engage directly with the Parties through a seat at the NASCO Annual Meeting consistent with that afforded to the NGOs.

I trust these comments will be useful as you enter the second day of your deliberations and look forward to further discussions.

Yours truly,
Nell Halse, President
(via email)

cc: Liaison representatives from the North Atlantic Parties present at the 2011 Liaison meeting (UK, EU, Canada, US, Norway) and ISFA members