CNL(13)9

Report of the Twelfth Meeting of the International Atlantic Salmon Research Board

Westcourt Hotel, Drogheda, Ireland
Monday 3 June 2013

1. Opening of the Meeting

1.1 The Chairman, Mr Raoul Bierach (Norway), opened the meeting and welcomed members of the Board, their scientific advisers and representatives of the accredited NGOs to Drogheda.

1.2 A list of participants is contained in Annex 1.

2. Adoption of the Agenda

2.1 The Board adopted its Agenda, ICR(13)4 (Annex 2), after agreeing to consider item 7 'Finance and Administrative Issues' after item 3.

3. Election of Officers

3.1 The Board re-elected Mr Raoul Bierach (Norway) as Chairman for a period of two years.

4. Report of the Scientific Advisory Group

4.1 The Chairman of the Board's Scientific Advisory Group (SAG), Mr Tim Sheehan (US), summarised the report of the Group's meeting, SAG(13)5 (Annex 3). The SAG had reviewed the updated inventory of research, ICR(13)2, and had noted that in the past, the inventory had been made available to the ICES Working Group on North Atlantic Salmon to assist in identifying data deficiencies, monitoring needs and research requirements. This had not been possible in 2013. The SAG recognized that there was not enough time at either the SAG or IASRB meetings to review the inventory comprehensively, but that there was merit in doing so every 3 or 4 years as had been done by the SAG Sub-Group in 2012 (see 5.1).

4.2 There had been no applications for funding by the Board since last year, but the SAG had recognized that its Sub-Group's recommendations could involve the need for support from the Board. Last year, the Board had agreed to fund the following two projects (£6,000 each):

- a pilot project to undertake genetic stock of origin identification of European salmon captured at West Greenland; and
- a proposal for genetic stock identification of salmon caught in the Faroes fishery. A contribution had also been made to this project through the Board by Marine Scotland (£2,500).

The SAG had received updates on progress with these projects and on the analysis of stable isotopes from salmon sampled at West Greenland and acoustic tracking studies in Canada. These reports are presented in the report of the SAG (See Annex 3).

4.3 In 2011, the Board had recognized that recent international initiatives under the SALSEA Programme had generated some extremely valuable databases. Similarly, the Board had noted the existence of some historical marine survey samples and had recognised the need to ensure that these samples are being maintained and agreed procedures developed to allow access to them for further research. The Board had, therefore, decided to establish a metadatabase of existing datasets and sample collections. In 2012, the SAG accepted a format for this metadatabase and requested that jurisdictions provide relevant information. The SAG advised the Board that information had only been submitted by Greenland and the US for inclusion in the metadatabase since last year and that there had been some confusion concerning the scope of the information to be provided. It clarified that the metadatabase will not contain data, but simply details of where databases and sample collections are held together with details of the data or samples and conditions governing their accessibility. The SAG had recommended that the form for providing information be re-issued for completion by Parties/jurisdictions, along with a background explanatory note developed by the Secretariat in conjunction with the SAG Chairman, concerning the metadatabase. The SAG Chairman would then follow up with key individuals with a view to including information in the metadatabase. It had also been agreed that a new category concerning accessibility should be included to indicate that protocols concerning accessibility have not yet been developed. The Board agreed to these proposals and encouraged Parties/jurisdictions to contribute information to the metadatabase.

5. The Future Role of the IASRB and its SAG

5.1 At its 2012 Meeting, the Board had agreed to re-convene the Sub-Group of its Scientific Advisory Group that reported in 2009. The Board had agreed the following Terms of Reference for the Sub-Group on the Future Direction of Research on Marine Survival of Salmon:

- Review the outcome of recent scientific investigations and summarise the findings which have significant management implications;
- Review the Inventory of Marine Research and identify opportunities for collaboration within the suite of ongoing projects to facilitate progress with identifying the major causes of salmon mortality at sea;
- Based on the inventory and the results of recent scientific studies published in the literature, identify gaps in research efforts and knowledge which may be important for advising on salmon management actions;
- Review the larger SALSEA project and advise on a “road map” to complete other elements of the research previously identified;
- Arising from these reviews, advise on possible future role of the SAG.

5.2 Last year, the Board had agreed that it would consider its future working methods at its 2013 meeting in the light of the findings of the Sub-Group, the External Performance

Review Panel's recommendations and the outcome of the Working Group established to take these recommendations forward.

5.3 The report of the Sub-Group (SAG(13)2) was presented by its Chairman, Mr Ted Potter (European Union). The Sub-Group had considered that a priority should be to analyze the remaining samples and data arising from the SALSEA Programme and it had encouraged the Board to explore opportunities to support these analyses. It had proposed that a particular focus for the Board should be studies to partition mortality of salmon among the phases of the marine migration and recommended that the Board should consider whether it wishes to facilitate a meeting of scientists and external partners to further develop a collaborative international programme of research. A preliminary outline proposal was provided and the aim would be to identify where there may be particular need for international collaboration and coordination and support with fund raising. ICES had recommended that that the IASRB support the further development of this project.

5.4 With regard to the SALSEA samples, the Board was advised of on-going initiatives to analyse these and recognised that for the remaining samples, it would be important to first clarify what samples are available, how their analysis could benefit management and how much the analyses would cost. The SAG Chairman indicated that he would be willing to collate the request for information and report back to the Scientific Advisory Group.

5.5 In order to take forward the collaborative international programme of research, the Board asked that, as a first step a SAG Telemetry Sub-Group under the Chairmanship of Ted Potter (EU) be established. This Sub-Group will work by correspondence (or hold a workshop, possibly partially supported by funding from IASRB) to develop and document a roadmap outlining a large scale international collaborative telemetry project to ultimately provide information on migration paths and quantitative estimates of mortality during phases of the marine life-cycle of salmon. This document will:

- identify how this project will support the conservation and management of Atlantic salmon stocks (i.e. what outputs will be produced and how these will improve Atlantic salmon management);
- provide an overview of the resources required with provisional costings;
- identify key strategic partners for this project;
- identify current and proposed telemetry programmes that could be linked with and enhanced by the proposed project.

5.6 The Sub-Group will aim to develop the roadmap by the autumn and submit it to the IASRB so it may consider possibilities for future developments in this field.

5.7 The Sub-Group had noted that as the SAG is the only body within NASCO that identifies research needs and addresses scientific coordination, it concluded that the SAG is the most appropriate and effective forum in which to perform this important role. The Board decided that the SAG should continue to fulfill this important role in supporting the continuing work of the Board.

6. Progress reports on projects funded by the Board

6.1 Reports on projects funded by the Board were presented in the report of the Scientific Advisory Group (see Section 4 above).

7. Finance and administrative issues

7.1 The Interim Secretary introduced document ICR(13)3 presenting the Board's accounts for 2012. The decision had been taken not to have the 2012 accounts audited because of the limited funds held and the small number of transactions in the year. At the end of 2012, the balance of the International Atlantic Salmon Research Fund was £9,368.82. However, the Board had made a loan to the Council of £25,000 to be repaid in 2014 (£11,719) and 2015 (£13,281). The Board was advised that a balance of approximately £18,300 remained of the funds contributed by the US for the enhanced sampling programme at West Greenland. The Board agreed that once the loan to NASCO had been repaid to the Board, this sum should be either returned to the US or the US should be consulted on appropriate uses for the funds. The Board decided that, of the £9,000 currently available to it, it would make available up to £6,000 to support the initiative referred to in paragraph 5.5, but that it would retain a reserve of about £3,000.

8. Other business

8.1 There was no other business.

9. Report of the meeting

9.1 The Board agreed a report of its meeting.

10. Date and Place of next meeting

10.1 The Board agreed to hold its next meeting in conjunction with the Thirty-First Annual Meeting of NASCO.

10.2 The Chairman thanked participants for their contributions and closed the meeting.

Annex 1

List of Participants

Canada
Tony Blanchard
Gérald Chaput
Richard Nadeau
Doug Twining

Denmark (in respect of the Faroe Islands and Greenland)
Kristina Guldbaek

European Union
Marco D'Ambrosio
Dennis Ensing
Cathal Gallagher
John McCartney
Niall Ó Maoiléidigh
Ted Potter

Norway
Raoul Bierach (Chairman)
Arne Eggereide
Peder Fiske

Russian Federation
Konstantin Drevetnyak
Sergey Prusov
Elena Samoylova

US
Mary Colligan
Dan Morris
Michael O'Malley
Nicole Ricci
Rory Saunders
Tim Sheehan

NGOs
Dave Meerburg
Ken Whelan

Secretariat
Peter Hutchinson

Annex 2

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Election of Officers
4. Finance and administrative issues
5. Report of the Scientific Advisory Group
6. The Future Role of the IASRB and its SAG
7. Progress reports on projects funded by the Board
8. Other business
9. Report of the meeting
10. Date and Place of next meeting

Annex 3

SAG(13)5

Report of the Meeting of the Scientific Advisory Group of the International Atlantic Salmon Research Board

Westcourt Hotel, Drogheda, Ireland

Monday 3 June, 2013

1. Opening of the meeting

1.1 The Chairman of the SAG, Mr. Tim Sheehan (US), opened the meeting and welcomed participants to Drogheda.

1.2 A list of participants is contained in Annex 1.

2. Adoption of the agenda

2.1 The SAG adopted its agenda, SAG(13)3 (Annex 2).

3. Review of the updated inventory of research

3.1 An overview of the updated inventory of research relating to salmon mortality in the sea, ICR(13)3, was presented. For 2013, 41 on-going and 65 completed projects had been included in the inventory with an annual expenditure of approximately £5.6 million (1 project is uncosted). Seven new projects have been included since the last update.

3.2 A preliminary inventory of marine research is typically completed by the end of March so it can be delivered to the ICES Working Group on North Atlantic Salmon (WGNAS) during their annual meeting, The ICES WGNAS is requested to review the inventory and advise on any gaps, deficiencies or opportunities for increased coordination and collaboration. The SAG discussed this process and was advised that the WGNAS typically does not have the time to perform this task as their meeting is dominated by tasks to complete their terms of reference. Given this it was suggested that the task of reviewing the inventory of marine research would be better performed by a separate group every 3 or 4 years. This sub-group should consist of current SAG members familiar with the inventory, as was the case with the sub-groups in 2013 (SAG(13)02) and 2009 (SAG(09)10).

3.3 The SAG discussed next steps for the current inventory and agreed that the jurisdictions should be given the opportunity to provide any feedback on the inventory to the Secretariat by the end of June, with a view to the inventory being made available on the Board's website by the end of July. The Parties are encouraged to provide any feedback on the current version of the inventory to the Secretariat by June 28.

3.4 At last year's meeting, the SAG discussed the need to make the inventory more visible and attractive and to increase its accessibility to researchers and other interested parties. A number of website modifications have been made to improve the profile of the inventory. The SAG further discussed other options for achieving this goal and requested that interested Parties should provide suggestions to achieve to goal.

4. Review of project applications for potential funding by the Board

4.1 No proposals were received for consideration by the Board this year.

5. Developments in relation to the SALSEA Programme

(a) Report on Progress in establishing a metadatabase of salmon survey data and sample collections of relevance to mortality of salmon at sea.

5.1 In 2011, the Board had recognized that recent international initiatives under the SALSEA Programme had generated some extremely valuable databases. These include biological and genetic databases generated under the SALSEA Merge project, and time-series of data and historical tagging information compiled by ICES workshops supported by the Board. Similarly, the Board also noted the existence of some historical marine survey samples, such as those generated by the international sampling programme at West Greenland, that represent an invaluable resource dating back some 40 years or more. The Board had recognized that there is a need to ensure that these databases are securely held, maintained and agreed procedures developed to allow access to the data for future research. The need to ensure that these samples are being maintained and agreed procedures developed to allow access to them for further research was recognised.

5.2 The Board had, therefore, established a Working Group on Marine Salmon Survey Data and Sample Coordination which recommended that the most important role that the IASRB could play with regard to marine salmon survey data and sample coordination would be to establish a metadatabase of existing datasets and sample collections. In 2012, the SAG accepted a format for this metadatabase and requested that jurisdictions provide relevant information. In accordance with this request, an e-mail form, based on this format, was sent to each Party/jurisdiction on 29 October 2012. To date, returns have only been received from the US and Greenland.

5.3 The SAG recognized that there may have been some confusion regarding the purpose of the metadatabase. It was clarified that the metadatabase was not meant to be a vehicle to provide raw data to researchers and other interested parties, rather the metadatabase is meant to serve as an advertisement to researchers and other interested parties as to the availability of the valuable and unique datasets related to the marine phase of Atlantic salmon. The SAG recognised that various Parties/jurisdictions involved in the long-term datasets have certain ownership rights to the data and the respective Parties/agencies may have, or are currently developing, data use and data sharing protocols to guide the use of agency owned data with outside collaborators. It was decided that the SAG Chairman will work with the Secretariat to develop a one page informational sheet clearly explaining what the purpose of the metadatabase is and how it may contribute to increased collaboration and understanding of the marine phase of salmon in the North Atlantic. This informational sheet will accompany all

future requests to the Parties for information related to candidate metadatabase datasets and will be posted with the metadatabase on the IASRB's website.

5.4 The SAG also discussed the difficulty in identifying a single person to provide information related to a dataset that results from multi-Party/jurisdiction collaboration. It was identified that people may not have responded to the IASRB request for information if it was unclear who the proper point of contact should be for that project. To rectify this issue, a list of candidate datasets for inclusion into the metadatabase was developed and specific points of contact were identified from the attending SAG members. The IASRB will send out a second email request to the Parties/jurisdictions for information related to the metadatabase. The SAG Chair will subsequentially follow-up with the various points of contact individually, to assist them in providing the requested information to the IASRB for the metadatabase.

5.5 The candidate datasets and points of contact for the datasets not previously reported on are as follows:

- SALSEA-Merge (Niall Ó Maoiléidigh)
- SALSEA North America (Tim Sheehan)
- SALSEA Greenland (Tim Sheehan)
- Faroes fishery sampling (Ted Potter)
- Faroes CWT tag recaptures (Niall Ó Maoiléidigh)
- Greenland CWT tag recaptures (Ted Potter)
- WKSTAR databases (Niall Ó Maoiléidigh)
- North American run reconstruction data used in ICES WGNAS Assessments (Gérald Chaput)
- Northeast Atlantic run reconstruction data used in ICES WGNAS Assessments (Ted Potter)

5.6 The SAG Chairman will work with the individual points of contacts to make sure that there isn't significant overlap between the identified datasets which may cause additional confusion in the future. As an example, should the point of contact for the "Faroes fishery sampling" project report on tag recaptures if they are also reported by the point of contact for the "Tag recaptures for the Faroese fishery" project.

5.7 The SAG also discussed the need to make minor adjustments to a small numbers of fields in the current version of the metadatabase, specifically the data availability field. The SAG Chairman will work with the Secretariat to make the necessary modifications.

5.8 A preliminary metadatabase is expected to be available to the SAG for review prior to their 2014 meeting. At that time the SAG can advise on appropriate next steps for the development and proper use of the metadatabase.

(b) Progress reports on projects funded by the IASRB

5.9 Last year, the Board agreed to fund two projects (£6,000 each):

- A proposal to undertake genetic stock of origin identification of European salmon captured at West Greenland; and
- A proposal for genetic stock identification of salmon caught in the Faroes fishery.

5.10 The funding provided by the Board allowed the projects to proceed and also led to other funds being made available from a number of Parties for the Faroes genetic stock identification project.

5.11 Professor Ken Whelan gave a brief update as to the status of the Greenland genetics study. The study is primarily being conducted by the University College Cork and Queens University Belfast Fish Population Genetics, Beaufort Team with additional funding from the Atlantic Salmon Trust and the Department of Culture, Arts and Leisure's Agri-food and Biosciences Institute (UK (North Ireland) and collaboration from US scientists from NOAA Fisheries Service and the US Geological Survey. The study aims to assign region / river of origin of European salmon taken in the Greenland subsistence fishery.

5.12 A total of 1,949 samples from 2002-2010 across a range of sampling locations were available for processing. Initial efforts were dedicated to test and optimise DNA extraction techniques. Genomic DNA extraction has been successfully carried for all samples. Samples are currently being screened for 25 micosatellite markers, but preliminary data are available from a subset of 204 (10%) samples. Preliminary assignment results are as follows: Scotland (40%), Ireland (35%), Norway (9%), England (6%), Wales (3%), Northern Ireland (2%), France (2%), Spain (2%), and Denmark (1%). This represents a mixture of samples, drawn from a number of years and a number of different sampling locations. There is an expectation that river of origin assignments may be possible, especially for the countries with robust baselines (i.e. Scotland and Ireland). A final report is expected by August 2013.

5.13 Mr. Ted Potter gave a brief update on the status of the Faroes study. The study involves scientists from UK (Cefas and Marine Scotland Science), Norway (NINA and IMR) and Faroes (MRI) and is funded by the NASCO IASRB, and UK, Norway and Ireland. The study aims to assess the stock composition of the Faroes Salmon Fishery through genetic stock techniques on scales collected in the Faroes in the 1980 and 1990s.

5.14 Approximately 750 scale samples collected from commercial and research catches in the fishery have been selected from each of two periods comprising the 1983/84 and 1984/85 seasons and the 1993/4 and 1994/5 seasons respectively. Initial results have shown significant degradation of the DNA in some of the monthly samples, with substantial loss of some long alleles. While these problems may limit the number of useable samples, analysis suggests that it will not bias the assignments. Use of a new PCR protocol, developed by Paulo Prodohl (Queens University Belfast), has greatly improved the extraction of useable DNA. Although no assignment analysis has been undertaken yet, a number of samples have been identified with alleles that are only expected to occur in North American salmon.

5.15 Mr Gérald Chaput gave a brief update on an ongoing project that was previously funded by the IASRB. The study has evolved into a PhD project at the University Waterloo and involves scientists from Department of Fisheries and Oceans Canada

and NOAA fisheries Service. The study aims to use stable isotopes ratios to infer trophic structure and condition of Atlantic salmon during their life at sea.

5.16 Stable isotope samples were collected from smolts sampled at 15 index rivers in eastern Canada, from 1SW fish returning to 13 of these rivers, from 2SW fish returning to 6 of these rivers and 1SW non-maturing fish from Greenland as part of the SALSEA Greenland sampling program. Processing and analysis of all collected data are ongoing, although a manuscript entitled "Characterizing the trophic position shift in Atlantic salmon (*Salmo salar*) from freshwater to marine life-cycle phases using stable isotopes" was published in the ICES Journal of Marine Science as part of the Salmon Summit symposium proceedings. Additional manuscripts detailing other aspects of the project are expected in 2013.

(c) Other activities

5.17 Mr Dave Meerburg reported that the Atlantic Salmon Federation (ASF) has continued to assess estuarine and marine survival of tagged Atlantic salmon released in rivers of the Gulf of St. Lawrence using acoustic tags and pop up satellite tags. There is now a detector array across the Cabot Strait (110 km northeast from Cape Breton Island) meaning that each exit from the Gulf of St. Lawrence is monitored. He also reported that work in 2013 continued use of the wave glider as an active platform for tracking migrating tagged fish in the Gulf of St Lawrence. A wave glider was deployed in 2013 and so far has detected a tagged migrating kelt.

5.18 In 2012 ASF discussed the potential to install a detector array at West Greenland. This was not pursued in 2013 as planned primarily due to the uncertainty with capturing high quality candidate fish for tagging and funding constraints. ASF will continue to investigate options for pursuing this work.

6. Report of the SAG Sub-Group on the Future Direction of Research on Marine Survival of Salmon

6.1 The Sub-Group met in London in December 2012. The Chairman, Mr Ted Potter, provided a brief overview of the groups final report (SAG(13)2.

6.2 The Sub-Group considered that a priority should be to analyze the remaining samples and data arising from the SALSEA Programme and encouraged the Board to explore opportunities to support these analyses. The Sub-Group proposed that a particular focus for the Board should now be studies to partition mortality of salmon among the phases of the marine migration and it recommended that the Board should consider whether it wishes to facilitate a meeting of scientists and external partners to further develop a collaborative international programme of research. A preliminary outline proposal was provided and the aim would be to identify where there may be particular need for international collaboration and coordination and support with fund raising.

6.3 It was noted that ICES has recommended that the IASRB support the further development of the project outlined by the NASCO sub-Group. The WGNAS report endorsed the view of the subgroup that analysis of outstanding samples obtained during the marine surveys under the SALSEA programme should be a priority and that a mechanism should be sought to obtain funding to support this. The WGNAS

report also recommends that the IASRB support the further development of the project outlined. The WGNAS stated that 'a large international coordinated project monitoring the marine migration of many salmon stocks across the North Atlantic may provide stage-specific estimates of marine survival that would increase knowledge of marine ecology and better inform management. Stage-specific marine mortality estimates would help improve essential inputs in stock assessment models and would provide additional information for testing hypotheses on the causal mechanisms for the increase in marine mortality documented for most stocks across the North Atlantic in recent decades. These results would also be of benefits for managers trying to identify areas where action might be taken to mitigate current impacts. Detailed information on migration dynamics of salmon in nearshore waters will also aid managers involved in marine spatial planning to evaluate the impacts of alternative/renewable energy projects (e.g. wind energy, tidal energy, etc.) in marine waters'. The WGNAS also encouraged the IASRB to consider expanding the focus of this research project beyond the scope of salmon. Integrating the research needs across different species 'would increase the benefit of an effort like this and increase the likelihood of successfully competing for funding support'. The report further encourages the IASRB to consider the wide variety of resources and experiences available for an endeavor such as this as 'large-scale multinational tracking programmes are already underway in NAC. Experience gained from these efforts would increase the likelihood of success for any effort initiated in NEAC'.

6.4 The SAG Sub-Group also considered the future role of the SAG and concluded that as the SAG is the only body within NASCO that identifies research needs and addresses scientific coordination it is the most appropriate and effective forum in which to perform this important role. The Sub-Group did not consider that the SSC, as presently constituted, is an appropriate forum in which to address the scientific work required by the Board.

6.5 It was noted that the WGNAS report endorsed this view, noting that the SAG provided an essential mechanism for scientists to collaboratively work with managers to develop scientific programmes to support the conservation, protection and enhancement of salmon stocks.

6.6 The SAG endorsed the Sub-Group's findings and encouraged the IASRB to fully consider its recommendations. The SAG recommended that the Board consider forming a new SAG sub-group to develop a document outlining a roadmap for a large international collaborative telemetry project to ultimately provide information on migration paths and quantitative estimates of mortality during phases of the marine life-cycle of salmon.

7. Other business

7.1 There was no other business.

8. Report of the meeting

8.1 The SAG agreed a report of its meeting.

9. Date and place of the next meeting

9.1 The SAG decided to agree hold its next meeting in conjunction with the Thirty-first Annual Meeting of NASCO.

9.2 In closing the meeting the Chairman thanked the participants for their contributions to the meeting.

Annex 1 of SAG(13)5

Meeting of the Scientific Advisory Group of the
International Atlantic Salmon Research Board
4 June, 20121

List of Participants

Gérald Chaput
Konstantin Drevetnyak
Dennis Ensing
Peder Fiske
Cathal Gallagher
Peter Hutchinson
Dave Meerburg
Michael O'Malley
Niall Ó Maoiléidigh
Ted Potter
Sergey Prusov
Elena Samoylova
Tim Sheehan Chairman
Ken Whelan

Annex 2 of SAG(13)5

SAG(13)3

Agenda

1. Opening of the meeting
2. Adoption of the agenda
3. Review of the updated inventory of research
4. Review of project applications for potential funding by the Board
5. Developments in relation to the SALSEA Programme
   a. Report on Progress in. establishing a metadatabase of salmon survey data and sample collections of relevance to mortality of salmon at sea.
   b. Progress reports on projects funded by the IASRB
   c. Other activities
6. Report of the SAG Sub-Group on the Future Direction of Research on Marine Survival of Salmon
7. Other business
8. Report of the meeting
9. Date and place of the next meeting