



SAG(16)6

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

Steigenberger Hotel, Bad Neuenahr-Ahrweiler, Germany

Monday 6 June 2016

1. Opening of the Meeting

- 1.1 The Chairman of the Scientific Advisory Group (SAG), Dr Niall Ó Maoiléidigh (European Union), opened the meeting and welcomed participants to Bad Neuenahr-Ahrweiler.
- 1.2 A list of participants is contained in Annex 1.

2. Adoption of the Agenda

- 2.1 The SAG adopted its Agenda, SAG(16)3 (Annex 2).

3. Election of Officers

- 3.1 The SAG re-elected Dr Niall Ó Maoiléidigh as its Chairman for a period of two years and thanked him for his excellent work to date.

4. Review of the Updated Inventory of Research and the Metadatabase of Salmon Survey Data and Sample Collections

Research Inventory

- 4.1 The Secretary presented an overview of the Updated Inventory of Research Relating to Salmon Mortality in the Sea, SAG(16)2. For 2016, the total annual expenditure on the 41 ongoing projects (2 of which are uncosted) is approximately £5.1million. More than half of the expenditure is associated with long-term monitoring programmes. He indicated that there are three new projects, two of which relate to telemetry projects in the Burrishoole River, Ireland and the third aims to acoustically tag up to 50 smolts in the Middle River, Cape Breton, Canada in 2016. These projects are as follows:

Canada

- Smolt monitoring on Middle River, Cape Breton, Nova Scotia, Canada.

European Union - Ireland

- Investigation of the early migration of salmon and brown trout from the Burrishoole National Index River using PIT tag telemetry technology in freshwater areas;
 - Investigation of the causes of early migration mortality in salmon and sea trout from the Burrishoole National Index River using acoustic telemetry in estuarine, marine and coastal areas.
- 4.2 The SAG was advised that at the time of preparation of SAG(16)2, no update had been received for EU - Denmark. This had since been submitted and will be incorporated before the inventory is updated and uploaded to the IASRB website.
- 4.3 The SAG recognised that as there is insufficient time available to thoroughly review the inventory at its meetings or at the meetings of the ICES Working Group on North Atlantic Salmon, the Board had agreed that review of the inventory should be conducted by a SAG Sub-Group every 3 or 4 years. The inventory was last reviewed in 2012 by the Sub-Group on the Future Direction of Research on Marine Survival of Salmon and, if this schedule was followed, then the next review of the inventory would be due in 2016 or 2017. However, the SAG noted that one of the purposes of the review was to identify research needs and recognised that the Board has agreed that its current priority is to partition mortality of salmon along their migration routes through telemetry studies (SALSEA - Track). The SAG therefore agreed to recommend to the Board that the need for a further review of the inventory should be reconsidered at its 2017 meeting. The SAG noted that it had previously encouraged Parties/jurisdictions to take steps to increase awareness of the inventory and asked that the Secretary highlight this when requesting updating of the inventory. It was noted that the proposed symposium to launch the International Year of the Salmon might also be a good opportunity to increase awareness of the inventory.
- 4.4 The SAG recommended to the Board that the Parties be asked to provide any comments on the inventory to the Secretariat by 1 July and, thereafter, that the revised inventory should be uploaded to the IASRB website.

Metadatabase

- 4.5 The Board had previously decided that it could play an important role with regard to marine salmon survey data and sample co-ordination by establishing a metadatabase of existing datasets and sample collections of relevance to mortality of salmon at sea. This metadatabase had been made available on the IASRB's website in 2014 and the Chairman indicated that it currently contains eleven entries as follows:
- Greenland tag recaptures (data);
 - SALSEA-Merge biological samples (biological samples);
 - External tag recoveries from tagging programmes in Canada, USA, EU, Norway and Russia and international adult salmon tagging at Faroes and Greenland (data);
 - Faroes CWT recoveries (data);
 - Greenland catch data (data);
 - North-East Atlantic run reconstruction data (data);

- SALSEA Greenland (biological samples);
- SALSEA North America biological samples (biological samples);
- North American Run Reconstruction Data (data);
- SALSEA-Merge marine feeding (data);
- SALSEA-Merge Genetics Database: Genetically-based Regional Assignment of Atlantic Salmon Protocol (GRAASP) (data).

4.6 The Chairman indicated that he had made enquiries about including an entry for the West Greenland Sampling Programme Biological Characteristics database, which is maintained by Fisheries and Oceans Canada, Newfoundland, and is updated annually. It contains information for more than 60,000 salmon (including age, length and weight and in some instances origin of the fish). Mr Tim Sheehan (USA) undertook to provide the entry for the metadatabase. It was noted that the IASRB metadatabase provides a useful tool to increase awareness of the availability and location of valuable datasets and sample collections, but it does not include actual data, only details of where it can be accessed.

4.7 In 2015, the SAG had discussed the high value of archival scale collections that, as a result of advances in analytical methods, can now be used for genetic, stable isotope and further growth studies. Additional information may be obtained in the future in response to further advances in analytical methods. The SAG had noted that these collections may be lost when individual scientists retire unless appropriate arrangements are in place to archive them and ensure their safe storage so that they may be available for analysis. The SAG recognised that even if the scales themselves are not lost, the information accompanying them could be or they could be damaged while in storage. There were three main issues regarding scale collections outlined to the SAG. Firstly the need to have the scale archive described (metadatabase); secondly to ensure the security and safe storage of such archives; and thirdly to determine the best use of these scales for analyses including the potential requirement for destructive sampling for chemical analyses. The SAG considered that the Board could play a role in identifying such scale collections, raising their profile with a view to safeguarding them for future use. The SAG was advised that the Atlantic Salmon Trust had identified three scale collections from sea trout and that arrangements had been made for their safe storage by the Freshwater Biological Association. It was also noted that there were scale sample collections in Ireland dating back to the 1920s and that these had been stored in a secure facility. The SAG agreed that information on these scale collections should, as a first step, be included in the IASRB metadatabase and asked that the Secretary contact Parties/jurisdictions in order to seek the relevant information.

5. Update on the Proposed International Year of the Salmon

5.1 In 2015, the Board had recognised that there were some potential synergies between NPAFC's proposed IYS and SALSEA - Track. The SAG received an update on the International Year of the Salmon (IYS) from Mr Dan Morris, Head of the US Delegation to NASCO. He reported that the IYS had initially been conceived by the North Pacific Anadromous Fish Commission as an intensive burst of research on Pacific salmon in response to a changing environment and the need for scientific endeavours to understand the factors driving abundance and carrying capacity. While the situation facing salmon in the Atlantic is different, there are some common

interests. He indicated that following inter-sessional consultations with NASCO Parties, it was confirmed that there was unanimous support for an IYS. NASCO Parties favour a clearly defined, one year initiative (consistent with the NPAFC ‘call to action’) to raise awareness of the challenges and opportunities facing salmon and in support of fund-raising for new research to better understand the factors driving salmon abundance throughout the ‘salmosphere’. NASCO had been invited to join the IYS initiative and, together with the NASCO Secretary, Mr Morris had attended an IYS Scoping Meeting and Workshop held in Vancouver, Canada, in March 2016 (see document CNL(16)7), at which an Outline Proposal had been developed that articulated a rationale, vision, themes and governance model for the IYS together with an initial budget. The proposed aims of the IYS include improving scientific understanding of the factors driving salmon abundance and public and political awareness of the environmental and anthropogenic challenges facing salmon and the measures being taken to mitigate these. Scientists and the SAG in particular had a lot to bring to the table in consultations and communications with their counterparts in NPAFC. A full report will be presented to the Council. It was noted that there is interest in including representation from the Baltic and Arctic regions. The Council document CNL(16)7 had proposed that the Secretary should liaise with the EU and the Russian Federation with regard to involvement from the Baltic. Dr Jaakko Erkinaro indicated that there was considerable interest among salmon scientists and managers in the Baltic in the IYS.

5.2 Mr Mark Saunders (NPAFC) indicated that NPAFC had very much appreciated the contribution made by NASCO at the Scoping and Working Group meetings, and particularly in developing the Outline Proposal. He advised the SAG that the Outline Proposal had been accepted by NPAFC without change and budgetary provision had been made. While acknowledging that some stocks in the Pacific, particularly pink and chum salmon, are very abundant there are concerns about other species, especially in southern parts of the range which have shown a 20 year decline and some populations are threatened with loss. He referred to a common interest in tracking salmon to better understand where mortality is occurring and to identify the actions that can be taken to counteract it and other synergies related to studies utilising scale reading and otolith microchemistry. He indicated that NPAFC had already been approached by representatives of Genome Canada as there is interest in studies across the northern hemisphere.

5.3 The Outline Proposal contained five broad scientific themes as follows:

- Status of Salmon: to understand the present status of salmon and their environment;
- Salmon in a changing salmosphere: to understand and quantify the effects of natural environmental variability and anthropogenic factors affecting salmon distribution and abundance and to make projections of their future changes;
- New Frontiers: to develop new technologies and analytical methods to advance salmon science and to explore the uncharted regions of the salmosphere;
- Human Dimension: to investigate the cultural, social and economic elements that depend upon sustainable salmon populations;
- Information Systems: to develop an integrated archive of accessible electronic data collected during the IYS and tools to support future research.

5.4 The SAG noted that the SALSEA - Track Programme fitted well within the first three of these research themes. Common problems with regard to persistent stock declines for Atlantic, Baltic and some Pacific salmon stocks were noted and efforts to understand where mortality was occurring in the marine environment were almost identical in both areas including efforts to co-ordinate studies involving large scale telemetry initiatives, scale growth, otoliths and microchemistry to understand mortality during migration. There was also support for the proposed international symposium as a means to improve exchanges between scientists working in the Pacific and Atlantic. Similarly, ICES had committed to supporting the IYS and would play an active role. It was recognised that the SAG could play an important role in reviewing research programmes to understand marine mortality of Atlantic salmon and identifying research needs and priorities. Professor Ken Whelan (Atlantic Salmon Trust) made reference to a possible joint AST/ASF symposium being planned to mark the AST's 50th anniversary. He agreed to coordinate with the Secretariat as the planning proceeds, but if the IYS proceeds there might be interest in seeking endorsement for the symposium.

6. Developments in relation to SALSEA - Track

6.1 In 2014, the IASRB had endorsed the need for an international acoustic tracking programme and adopted a Resolution (ICR(14)10) encouraging Parties to continue the development of local collaborative telemetry projects, encouraging the development of large international collaborative projects building on local efforts and encouraging Parties to make efforts to identify funding sources. The Board had noted that the telemetry programme should build on the success and identity of the SALSEA Programme and had recognised that there may be a role for the Board in co-ordinating efforts and supporting fund raising initiatives. In 2014, a Telemetry Workshop organised by the Board had developed 12 outline project proposals utilising telemetry. The Board had recognised that if the international telemetry programme is to proceed, it would be important to liaise with the project leaders with a view to following progress and, where appropriate, to provide support to assist with their implementation.

6.2 In 2015, the Board had recognised the high value of the SALSEA brand and the strong impact of NASCO as the international forum for consultation and co-operation on wild Atlantic salmon. The Board reaffirmed its commitment to an international telemetry project under the SALSEA brand, namely SALSEA - Track. Specifically, the Board agreed to support SALSEA - Track as a continuing commitment to understanding the factors affecting the mortality of salmon at sea, to make funds available to prepare a vision statement for SALSEA - Track and to advance existing initiatives towards an integrated collaborative telemetry programme. The Board had also agreed that it would be important to raise funds for the SALSEA - Track programme and that members of the Board should be consulted to see if funds could be made available.

6.3 The Chairman of the Board, Mr Rory Saunders (USA), indicated that, as requested, a brochure on SALSEA - Track had been printed and would be distributed at the meeting of the Board. The Secretariat had requested progress reports on the outline projects and these are contained in document ICR(16)3. Seven reports had been received. Additionally, a further, more recent update on one of the projects 'SeaMonitor' had been received, SAG(16)4. While it was clear there has been some progress on a number of the projects, some are awaiting confirmation of funding and a number of the responses indicated that a lack of resources, including financial, are hindering progress with the outline projects. The Secretary sought clarification as to whether the 12

outline project proposals could be considered to have been endorsed by the Board. The SAG agreed with this interpretation but indicated that if outline project proposals included additional or different research, they should be referred to the SAG. It was noted that the Resolution should support those seeking funding for telemetry projects. The SAG noted that three new projects had been included in the inventory since last year involving telemetry and were closely linked with the aims and objectives of SALSEA - Track.

- 6.4 The Chairman of the Board indicated that additional funding had been generously provided by the United States (see item 7 below) and Norway (approximately £6,000). The Chairman of the Board subsequently wrote to all Parties/jurisdictions to see if they would be willing to make a contribution to support the work of the Board over the coming few years, noting that such contributions can be made direct to the Board independently of the contributions to NASCO. The representative of the European Union indicated that it intended to make a voluntary contribution to NASCO to support two research projects i.e. a sea-lice model for the sustainable development of Atlantic salmon fisheries and aquaculture and Atlantic salmon mortality at sea.
- 6.5 Professor Whelan indicated that there were a number of small telemetry projects being planned including on the east coast of Scotland and that the AST was seeking funding to employ a coordinator. These were outside of Government funding and largely associated with private funding. Marine Scotland were involved to ensure that projects were realistic and practical. He looked forward to working with SALSEA - Track initiatives and offered to keep the SAG informed of progress.
- 6.6 Mr Dave Meerburg (ASF Canada) updated the SAG on its smolt and kelt tracking studies in the Gulf of St Lawrence, CNL(16)63.

7. Progress Reports on Projects funded by the IASRB

- 7.1 Following last year's Annual Meeting, the United States made a contribution of £16,900 (\$26,000) to the IASRB to support an extension of the study undertaken in 2014/15 entitled 'Enhancement of a North American Atlantic salmon genetic baseline for individual and stock identification and application of the baseline to historical scales collected at West Greenland' (see SAG(15)4). This support is very much appreciated by the SAG. The project leader is Dr Ian Bradbury, Fisheries and Oceans Canada, Newfoundland and the research will proceed later in the year following completion of the necessary documentation and a progress report will be presented at the next meeting of the SAG.

8. Review of Project Applications for potential funding by the Board

- 8.1 Under the Board's Guidelines for Submitting Proposals for Research, Workshops, Symposia and Other Activities for Support by the IASRB, ICR(09)10, applications seeking either only endorsement by the Board or funding support from the Board may be considered. Applications are reviewed by the SAG which makes its recommendations to the Board.
- 8.2 The Chairman referred to an application to the Board by Professor Christopher Todd, Scottish Oceans Institute, St Andrews, Scotland, for partial funding for a study entitled 'Effects of recent ocean warming on growth and migration of Southern NEAC 1SW

salmon', ICR(16)4. A sum of £10,000 was sought from the Board with an in-kind contribution of approximately £17,100 from the University of St Andrews. The funding would support an experienced post-doctoral assistant for three months (August - October 2016) to complete analyses of growth throughout the marine phase, with a focus on the post-winter growth period as the key time at which final adult condition is determined, and to prepare and submit the results for publication.

- 8.3 The SAG endorsed the proposed research project but, given the limited funds available to it and the Board's current research priority, it would not recommend that funds sought should be approved by the Board. The SAG was advised that endorsement of a study to investigate the application of eDNA technology in the assessment of pelagic by-catch of Atlantic salmon had been very helpful to the Atlantic Salmon Trust in securing funding for the project. Members of the SAG were asked to advise the AST if they were aware of any similar ongoing studies utilising eDNA.
- 8.4 The SAG noted that previous financial support from the Board had assisted in securing funding from other sources for projects such as the Greenland and Faroes GSI projects. These projects had generated valuable new information of relevance to management with limited financial support from the Board. The SAG highlighted the importance of the Board having resources available to support similar studies in future.

9. Other Business

- 9.1 There was no other business.

10. Report of the Meeting

- 10.1 The SAG agreed a report of its meeting.

11. Date and Place of the Next Meeting

- 11.1 The SAG agreed to hold its next meeting in conjunction with the Thirty-Fourth Annual Meeting of NASCO during 6 - 9 June 2017.
- 11.2 In closing the meeting, the Chairman thanked the participants for their contributions to the meeting.

List of Participants

Canada

Bud Bird
Tony Blanchard
Doug Bliss
Gérald Chaput

European Union

Jaakko Erkinaro
Cathal Gallagher
Michael Millane
Niall Ó Maoiléidigh (Chairman)
Julius Piercy
Ted Potter
Stamatis Varsamos

Norway

Peder Fiske

Russian Federation

Alina Nikolaeva
Sergey Prusov

United States

Dan Morris
Rory Saunders
Tim Sheehan

International Council for the Exploration of the Sea

Jonathan White

North Pacific Anadromous Fish Commission

Mark Saunders

Non-Government Organisations

Ken Whelan
Dave Meerburg

Secretariat

Peter Hutchinson

SAG(16)3

Agenda

1. Opening of the Meeting
2. Adoption of the Agenda
3. Election of Officers
4. Review of the Updated Inventory of Research and the Metadatabase of Salmon Survey Data and Sample Collections
5. Update on the Proposed International Year of the Salmon
6. Developments in relation to SALSEA - Track
7. Progress Reports on Projects funded by the IASRB
8. Review of Project Applications for potential funding by the Board
9. Other Business
10. Report of the Meeting
11. Date and Place of Next Meeting