

## **SAG(18)07**

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

***Holiday Inn by the Bay, Portland, Maine, USA***

***11 June 2018***

#### **1. Opening of the Meeting**

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

#### **2. Adoption of the Agenda**

- 2.1 The SAG adopted its Agenda, SAG(18)05 (Annex 2).

#### **3. Election of Officers**

- 3.1 The Secretary gave an overview of the protocol concerning the election of Chair.
- 3.2 Tim Sheehan (USA) proposed Gérald Chaput (Canada) for the Chair of the SAG and Jaakko Erkinaro (EU) seconded the nomination. The SAG elected Gérald Chaput as its Chair, to serve for period of two years.

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

##### *Research Inventory*

- 4.1 The Chair presented an overview of the Inventory of Research Relating to Salmon Mortality in the Sea, SAG(18)02. For 2018, the total annual expenditure on the 63 ongoing projects (5 of which are uncosted) is approximately £8.5 million. Approximately 47% of the expenditure is associated with long-term monitoring programmes. He indicated that there are ten new projects, some of which have been ongoing for some time and one of which is completed. One new project involving tracking individual fish has been included since last year. The new projects are as follows:

##### **Canada**

- Atlantic Salmon Research Joint Venture – Life History Modelling Project for Wild Atlantic
- Atlantic Salmon Research Joint Venture – Atlantic Salmon Post-smolt Trawl and Troll Survey in the Strait of Belle Isle
- Atlantic Salmon Research Joint Venture – Current status of knowledge, data, and research efforts on Atlantic salmon at Greenland: what do we have, what do we need, and what should we do moving forward?
- Atlantic Salmon Research Joint Venture – Development of Acoustic Tracking Capabilities for Drifter Buoys

### **European Union – Denmark**

- Salmon Rehabilitation Plan: monitoring numbers of spawners, spawning and nursery areas in four Atlantic salmon rivers and the achievement of the objective of self-reproduction
- SMOLTRACK

### **European Union – UK (England and Wales)**

- Salmonid Management Round the Channel project (SAMARCH)

### **European Union - UK (Northern Ireland)**

- The marine survival of Atlantic salmon from the River Bush, Northern Ireland

### **European Union – Sweden**

- Monitoring of *Gyrodactylus salaris* in salmon rivers, with focus on the Swedish west coast

### **Norway**

- ATLANTIC SALMON AT SEA - factors affecting their growth and survival (SeaSalar)

4.2 The SAG has previously recognised that, as there is insufficient time available to review the inventory thoroughly 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 the agreed schedule is followed, the next review of the inventory would be due in 2017. However, the SAG noted that one of the purposes of the review is to identify research needs and it 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 also considered that it might be appropriate to wait until after the IYS to conduct the next review of the inventory. The SAG, therefore, recommends to the Board that the need for a further review of the inventory should be reconsidered at earliest in 2020 and that the Board may need to be consulted should it be later than this.

4.3 In the context of any review, the Chair stressed the need to only include projects relating to marine survival in the inventory. The SAG agreed that marine survival could be linked to the freshwater environment and projects addressing the characteristics of smolts heading out to sea, including laboratory-based studies, would be a valuable addition to the database. Long-term monitoring programmes should include smolt and adult counts to provide estimates of marine survival in order to be relevant to the inventory. The Chair suggested that the categories on the inventory return template could be clarified in this regard and proposed that the Secretariat could address this suggestion. Further clarifications to the template were also proposed by SAG i.e. to ensure the annual costs were detailed for each year of the project, rather than the estimated cost of the research project, to link each project to the relevant NASCO research themes and to link each project to the relevant SALSEA research heading.

### *Metadatabase*

4.4 In 2015, the SAG discussed the high value of archival scale collections which, 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. Even if the scales themselves are not lost, the information accompanying them could be or they could be damaged while in storage. It was recognised 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 IASRB agreed that information on these scale collections should, as a first step, be included in the IASRB metadatabase. Accordingly, Parties / jurisdictions were requested to provide details to the Secretariat of any archival scale collections. The Board had also agreed that information on the West Greenland Sampling Programme Biological Characteristics database should be included in the metadatabase. The following new datasets have been included in the metadatabase since 2016:

- Kolarctic Coastal samples;
- PINRO Atlantic salmon scales collection;
- USA origin juvenile and adult scale samples;
- West Greenland Sampling Database.

4.5 There are no further updates on the metadatabase for this year and the Chair encouraged Parties / jurisdictions to contribute details of scale collections for inclusion in the metadatabase. The Chair highlighted that an Irish metadatabase was in preparation as part of the Nationally funded ‘Unlocking the Archive Project’ 2017 to 2020.

## **5. Update on the International Year of the Salmon with respect to Research Links with the NPAFC**

5.1 At its Thirty-Third (2016) Annual Meeting, the Council had recognised that an International Year of the Salmon (IYS) could provide a very good opportunity to raise awareness of the factors driving salmon abundance, the environmental and anthropogenic challenges they face and the measures being taken to address these. An Outline Proposal for an IYS, entitled ‘Salmon and People in a Changing World’, which included a proposed rationale, vision, themes and timings for the IYS, together with details of its scope, a governance model and initial budgetary considerations, was broadly accepted by the Council subject to some provisional points of clarification. The focal year of the IYS is 2019 with the intention that research will continue through to 2022.

5.2 The Terms of Reference for the North Atlantic Steering Committee (NASC) state ‘through the International Atlantic Salmon Research Board, identify research priorities, review research proposals and coordinate any research programmes implemented’ concerning activities relating to Atlantic salmon. While outreach is the agreed focus of the IYS in the North Atlantic, it has also been previously agreed that there could be benefits from improved exchanges between scientists working around the salmosphere.

5.3 In the Pacific, the focus for the IYS is on developing a programme of research and gaining funding to complete it by 2022. The NPAFC IYS Secretariat has produced a Draft Research Prospectus proposing various projects and activities against each of the IYS themes. In developing this document, the NPAFC IYS Secretariat reviewed the 2017 IASRB inventory of research and included projects of interest in the draft prospectus. Both the Chair of the IASRB and of the SAG were involved in correspondence with the NPAFC IYS Secretariat in relation to this document.

- 5.4 The Chairman invited Mr Mark Saunders (NPAFC) to present document SAG(18)03, containing the NPAFC Draft Research Prospectus. Mr Saunders highlighted that there are numerous research opportunities in the context of the IYS research themes / outcomes that, over the course of the IYS, will lead to a situation where salmon and people are resilient in a changing world. Using climate as a driver of change as a key example of a hemispheric challenge that requires research, Mr Saunders detailed possible signature projects of interest to both the Pacific and Atlantic which could be progressed through potential collaborations. The NPAFC IYS Draft Research Prospectus and these potential and planned projects highlighted common research requirements with the North Atlantic. He suggested that a Research Study Group comprising scientific representatives from the Pacific and Atlantic would progress the proposed signature projects further.
- 5.5 The Chair thanked Mr Saunders for his presentation and asked Members of the SAG to consider how the SAG and the Board should engage with hemispheric research projects and what mechanism should be used to manage this engagement. Mr Saunders outlined the role of the Study Group which would be to: facilitate collaboration of researchers at a hemispheric scale; develop an inventory of relevant researchers and projects and report results relative to IYS objectives; and co-ordinate symposia and workshops to ensure communication of results and to facilitate collaboration. He further suggested that other expected outcomes would be in identifying overlapping initiatives and providing appropriate fora to allow scientists from each hemisphere to spend more time with each other and learn from science being carried out in area. He reiterated that there is a high degree of overlap in research interests in the two basins and that he was looking for endorsement from the SAG that there should be a joint way forward for hemispheric research. The Chair noted the prospectus was a good document which clearly highlighted the areas where collaborations would be advantageous. However, he suggested that the key issue was to consider how projects are progressed and undertaken at the hemispheric scale and asked the SAG to consider whether a Research Study Group as proposed was the best approach.
- 5.6 Professor Whelan (NGOs) cited the ‘Likely Suspects Framework’ as an example of what was required, although at a smaller scale, as there were common issues to overcome such as the commitment, resources and finances individuals have to dedicate to the co-ordination work and development of projects. Focusing on one or two key signature projects was suggested as a possible way forward. The Chair proposed that he would report to the Board that the SAG acknowledge the great benefits that engaging at the hemispheric level for IYS research would bring, but that consideration needs to be given to how this could be progressed given the need for extra commitments, resources and finance requirements for some individuals and Parties.

## **6. Developments in relation to SALSEA – Track**

- 6.1 In 2014, the IASRB had endorsed the need for an international telemetry 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 organized 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. 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. In 2016, the Board had confirmed that it endorsed the twelve projects but noted that, if they changed substantially, they should be referred to the SAG. It was recognised that there might be scope to combine some of these projects into larger projects within the North American and North-East Atlantic Commission areas.

- 6.2 In 2017, the SAG was advised that funding had been provided to the IASRB for two projects through an EU ‘grant for action’ award. These projects were ‘Understanding and comparing early migration of European salmon populations at sea’ and ‘Sea lice model for the sustainable development of Atlantic salmon and fisheries’.
- 6.3 The Chair referred participants to paper ICR(18)03. There are three parts to the paper updating on the SALSEA – Track initiative; the SAG participants were reminded that this will be talked about at the Board meeting and asked if they had any questions but none were forthcoming.
- 6.4 In 2017, the SAG received a report on a new approach to tracking, ‘ROAM’, based on a technique for sub-surface oceanographic monitoring. This technique may offer potential for fine scale positioning of salmon at sea obtained with satellite tags and related archival tag technologies. The Council had recognised that it would be important for the Board to be kept informed of developments in relation to this technology.
- 6.5 Mr Tim Sheehan provided an update on a workshop entitled ‘Introduction and overview of the ROAM (RAFOS Ocean Acoustic Monitoring) approach to marine tracking’ which was held at the Woods Hole Oceanographic Institute in Woods Hole, Massachusetts, USA. A total of 27 scientists and managers from both the North Atlantic and Pacific basins attended. Representatives from different tag manufacture companies also attended. The workshop had a number of different objectives which focused on sharing the technical details of the approach and providing a forum for discussion on the appropriateness of the ROAM approach to tracking Atlantic and Pacific salmonids during their entire marine phase.
- 6.6 ROAM technology is still in the development phase. The workshop provided a lot of details describing the sound sources, the fish tags, and how the system worked. There was also some information presented describing preliminary field trials conducted in 2017 and descriptions of field trials planned for 2018. It was noted numerous times during the workshop that this approach to marine tracking would be applicable to a wide array of different species.
- 6.7 Mr Sheehan also provided a brief summary of planned future efforts related to the further development of the ROAM approach. In addition to the field trials, preparations will continue for the implementation of the SALSEA – Track outlined Labrador Sea tracking project utilising Atlantic salmon caught and released at Greenland. Tagging is set to begin in 2018 and will use traditional Pop-off Satellite Archival Tags (PSAT) with an expectation to transition to ROAM PSAT tags in 2019. Preliminary discussions between researchers from the United States, Canada, the EU and Norway about a

potential new collaborative telemetry effort were initiated. The project would focus on evaluating and testing the ROAM system in the Northeastern Atlantic, working to develop floating ROAM archive tags, and tracking of marine-phase Atlantic salmon with ROAM. Workshop attendees from the Pacific Ocean committed to engage in further discussion with their Pacific colleagues about the applicability of the ROAM approach for Pacific-based research.

- 6.8 Mr Dave Meerburg (ASF Canada) briefly updated the SAG on its smolt and kelt tracking studies in the Gulf of St Lawrence, stating that the programmes are continuing and expanding.

## **7. Progress Reports on Projects Funded by the IASRB**

- 7.1 Mr Tim Sheehan indicated that the United States had previously made a contribution of £16,900 (US\$26,000) to the IASRB to support an extension of a study undertaken in 2014 / 15 (SAG(15)4). The extension study was led by Dr Ian Bradbury, Fisheries and Oceans Canada, and was entitled 'Enhancement of a North American Atlantic Salmon genetic baseline for individual and stock identification'. The funds were used to support the genetic processing and analysis of approximately 670 individual scale samples collected from the West Greenland fishery to obtain region of origin assignments for North American origin fish. The target years were 1970, 1971, 1972, 1976, 1980, 1981 and 1982. These years were selected to increase the sample size of North American region of origin assignments prior to 1990. Previous work supported by the Board (SAG(15)4) presented a time-series of North American region of origin contributions to the West Greenland fishery (1968 - 2014); however, sample size prior to 1990 was low. Mr Sheehan advised the SAG that the study had now finished, however, edits are still needed to the report and once complete it will be emailed to the Board.

- 7.2 Following its 2017 Annual Meeting, the Board had agreed to make £5,000 available to support a 'likely suspects' model being developed by the Atlantic Salmon Trust (AST). Professor Ken Whelan presented document SAG(18)04, which contained a progress report on the development of the model. Professor Whelan began by thanking the Board for the seed funding it had provided, noting that this money leveraged further financial support for the project. In addition to the recommendations from the workshop, actions as a consequence of these recommendations were suggested. Thanks were given to Mr Mark Saunders for enabling Pacific input to the workshop. Pacific attendees were open to sharing their expertise and experience making an excellent addition to the meeting. A PDF of the Likely Suspects Framework will be sent out with the papers of the Annual Meeting and Professor Whelan welcomed any comments.

- 7.2 The Chair commented that it was impressive to note how far the initiative had come in one year. He also noted how endorsement and seed funding from the Board had benefitted the project and was an example of how the Board could facilitate linking great ideas to funding and resources.

## **8. Review of Project Applications for Potential Funding by the IASRB**

- 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. There had been no applications for funding or support since the 2017 Annual Meeting.

- 8.2 The Board had previously agreed that it would be important to have reserves available to it so that it could continue to support initiatives such as the Greenland and Faroes GSI projects, where the Board's support had assisted in securing additional funding from other sources. These projects had resulted in new information of value to management with limited financial support from the Board. The Sub-Group on the Future Direction of Research on Marine Survival of Salmon had noted in 2012 that the Board had very limited resources and recognised that if it is to continue to play a role in supporting research on salmon at sea, it should consider how it can address this situation.
- 8.3 It was pointed out in relation to the lack of projects being submitted that this was not due to the availability of projects seeking funding, but due to the lack of money available from the Board to contribute to them.
- 8.4 The SAG agreed that a workshop to identify and obtain data to define specific salmon domains which was proposed by the Likely Suspects Workshop would be brought to the attention of the Board. This would require communication with ICES to provide support for the workshop.

## **9. Other Business**

- 9.1 The Chair took the opportunity to provide some reflections given that the meeting was his last as Chair of the Group. Concerning the future of the group he raised the current structure and time limitations, suggesting that this may be addressed as the part of the Board review and any recommendations that may result from it. He also discussed the possibility of an extra working group meeting.
- 9.2 The SAG noted several suggestions which could alleviate some of the current limitations with the current meeting arrangements including: the IASRB meeting could be scheduled for the day following the SAG meeting to allow more time to be allocated and enabling more opportunity for discussion; noting that as many of the SAG participants are on the ICES Working Group on North Atlantic Salmon, an additional SAG meeting before or after the Working Group meeting could be possible; an additional virtual meeting could be organised easily before the NASCO Annual Meeting; scheduling an additional meeting could be kept open and scheduled if required.

## **10. Report of the Meeting**

- 10.1 The SAG agreed the report of the meeting.

## **11. Date and Place of the Next Meeting**

- 11.1 The SAG agreed to hold its next meeting in conjunction with the Thirty-Sixth Annual Meeting of NASCO (5 - 7 June 2019) and in advance of the IYS Symposium. The date of the next meeting of the SAG will therefore be Saturday 1 June.

## **12. Close of the Meeting**

- 12.1 The Chair of the SAG thanked the participants for their contributions. He wished the incoming Chair best wishes for his appointment and closed the meeting.

*List of Participants*

**Canada**

Tony Blanchard  
Doug Bliss  
\*\*Gérald Chaput  
Patricia Edwards

**European Union**

Bernard Blazkiewicz  
\*\*Jaako Erkinaro  
Cathal Gallagher  
Denis Maher  
John McCartney  
Michael Millane  
\*\*Niall Ó Maoiléidigh (Chair)  
Lawrence Talks

**Norway**

\*\*Peder Fiske

**Russian Federation**

Alina Nikolaeva  
\*\*Sergey Prusov

**United States**

Rory Saunders  
\*\*Tim Sheehan

**ICES**

Martha Robertson

**IGOs**

Suam Kim (NPAFC)  
Mark Saunders (NPAFC)

**NGOs**

David Meerburg (NGO Member)  
Nigel Milner  
Robert Otto  
Andy Walker  
Ken Whelan

**Secretariat**

Emma Hatfield  
Sarah Robinson

\*\* Nominated SAG Member



**SAG(18)05**

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**Agenda**

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4. Review of the Updated Inventory of Research and the Metadatabase of Salmon Survey Data and Sample Collections
5. Update on the International Year of the Salmon with respect to Research Links with the NPAFC
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 IASRB
9. Other Business
10. Report of the Meeting
11. Date and Place of the Next Meeting
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