



SAG(15)7

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

Hotel North 2, Happy Valley – Goose Bay, Canada

Monday 1 June 2015

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 Happy Valley – Goose Bay.
- 1.2 A list of participants is contained in Annex 1.

2. Adoption of the agenda

- 2.1 The SAG adopted its agenda, SAG(15)5 (Annex 2).

3. Report of the IASRB Telemetry Workshop

- 3.1 In 2014, the Board endorsed the need for an international acoustic tracking programme and adopted a Resolution, (ICR(14)10) (Annex 3), 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 recognised that following the Workshop there may be a role for the Board in coordinating efforts and supporting fund raising initiatives. In order to take this initiative forward, the Board supported the convening of a Telemetry Workshop which was held in December 2014 and was co-convened by Tim Sheehan (USA) and Ted Potter (EU).

- 3.2 Mr Ted Potter presented the report of the Telemetry Workshop (ICR(15)3). He reported that studies involving acoustic tracking of post-smolts have been ongoing in the North American Commission area for many years and have successfully tracked fish from rivers draining into the Gulf of St Lawrence (through the Strait of Belle Isle and the Cabot Strait) and from rivers draining into the Gulf of Maine up past Halifax, Nova Scotia, Canada. In comparison, many studies in the North-East Atlantic (NEAC) area have been confined to estuary or fjord limits. The Workshop had divided into three groups on the basis of NASCO Commission areas, to consider ideas for new collaborative telemetry studies. It was noted that it would be important to develop links with groups working on acoustic telemetry with other species but the salmon projects should be steered by researchers working on salmon. The Workshop developed outline project plans (including testable hypotheses, equipment and support needs, timelines for field work and duration, ball park budget costs and funding options) for future telemetry-based studies to estimate and partition marine mortality of salmon and improve understanding of migration and distribution patterns.
- 3.3 The Workshop recognised that the IASRB could play an important role by serving as a forum for information exchange and collaboration among research groups, by facilitating coordination (e.g. on the use of equipment, the tagging activities and the operation of detector arrays over large geographic areas), by supporting fund-raising initiatives and by providing funds as resources permit. It was noted that it would be important to build on the success and identity of the SALSEA Programme and it was agreed that the new phase should be referred to as SALSEA-TRACK. While Steering Committees were not established for each project during the Workshop, potential project leaders were identified in the project plans and it is hoped that they will liaise with the IASRB through the NASCO Secretariat to provide updates on progress and in the event that they feel the Board can assist in taking the projects forward. The Workshop had clearly outlined several key projects which could be progressed, although it was noted that the existing infrastructure is more advanced in the North American Commission.
- 3.4 The SAG discussed the mechanism to take these projects forward suggesting that it should be done in a progressive way, starting with freshwater/estuarine studies while developing coastal and oceanic approaches in specific areas where salmon post-smolts were known to migrate. It was noted that there were already a number of initiatives in place for establishing telemetry arrays in existing monitored rivers and their estuaries where information on smolt to adult survival would be available from existing tagging studies. These had been funded or were planned to be funded either by individual Parties and jurisdictions or through various funding opportunities, including from the EU and other funding sources. The next phase would be to establish arrays in adjacent coastal waters to provide information on tagged fish further out to sea. Finally, various approaches would be taken to estimating mortality rates in the open ocean using telemetric arrays or by use of drifters, bioprobes, and automated underwater vehicles (AUVs or gliders). The latter two phases would probably require a single large coordinated project submission by a technically suitable consortium for funding or possibly three smaller coordinated project submissions and would require multi-year support and commitments to longer term funding of 10 years or more. It has been pointed out that the possibility of liaising/cooperating with telemetry projects focused on other species could be a more cost/effort efficient approach that should be considered and further explored.

- 3.5 The representative of the North Pacific Anadromous Fish Commission (NPAFC) outlined the similarities and overlap with initiatives for an International Year of the Salmon which could be developed with NASCO and include both Pacific and Atlantic salmon initiatives in an eight year project for research investment aimed at identifying causes of marine mortality in the Northern hemisphere and the impacts on economies, and food security.
- 3.6 The need for an information leaflet or ‘vision’ was proposed, which would outline to potential funders the critical need to move research out from rivers and estuaries and into the high seas and the way NASCO proposed to do this. The SAG recommended that the Secretariat develop a draft ‘vision’ document for consideration by the SAG.
- 3.7 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; 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. ‘Seed corn’ funding had been made available to support fund-raising under the SALSEA Programme.

4. Review of the updated inventory of research

- 4.1 An overview of the updated inventory of research relating to salmon mortality in the sea, ICR(15)2, was presented. For 2015, the total annual expenditure on the 40 ongoing projects (2 are uncosted) is approximately £5.6 million. Approximately half of the expenditure is associated with long-term monitoring programmes. There are nine new projects, several of which involve acoustic telemetry.
- 4.2 At the 2014 meeting of the SAG, two European Commission funded projects (AquaTrace and EcoKnows) and a number of Genetic Stock Identification (GSI) projects (GSI of Labrador, Saint Pierre and Miquelon and West Greenland mixed-stock fisheries) had been identified as potential candidates for inclusion into the inventory. The Secretariat had been asked to coordinate with the appropriate Parties to request inventory submissions. This year, a new Canadian project was included in the inventory entitled ‘Genomic stock identification techniques provide distribution information of regional groups of Atlantic salmon from eastern North America and estimates of exploitation in mixed stock marine fisheries’. The objective of this project is to identify, to regional groups, the origin of salmon from mixed-stock fisheries at Labrador (Canada), Saint-Pierre and Miquelon, and West Greenland; estimate the total catch by regional group and examine region specific variations in distribution at sea and availability of Atlantic salmon in marine fisheries. The SAG was advised that the Chairman had compiled information on the ECOKNOWS project for inclusion in the inventory and that this would be provided to the Secretariat so that it can be included in the inventory prior to its uploading to the website. The SAG was advised that the Atlantos project included elements relating to telemetry and might therefore be appropriately included in the inventory.
- 4.3 The SAG had previously noted that because 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 continue to be conducted by a SAG Sub-Group every 3 or 4 years. It was last

reviewed in 2012 by the Sub-Group on the Future Direction of Research on Marine Survival of Salmon and if this schedule continues to be followed then the next review of the inventory would be due in 2016 or 2017 and the SAG would develop a recommendation to the Board on the timing of the next review at its 2016 or 2017 meeting.

- 4.4 Last year, the SAG had suggested that the Parties could be requested to provide an indication as to whether entries in the inventory had direct relevance to management and whether they could further indicate whether they were assessment related, ecologically related etc. While this had not been done, given the existing reporting burden, it was noted that one of the TORs for the Sub-Group on the Future Direction of Research on Marine Survival of Salmon that reported in 2013 was to review the outcome of recent scientific investigations in the inventory and summarise the findings which have significant management implications. The SAG noted that the next review might usefully also include a summary of the findings which have significant management implications.
- 4.5 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 (including details of the ECOKNOWS project) be uploaded to the IASRB website. The SAG encouraged the continued updating of the inventory which in the past had proven to be attractive to potential funders as it indicated the importance placed on marine research by Parties to NASCO and that the research projects had been reviewed to identify gaps in the programme.

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

- 5.1 Mr Tony Andrews, Atlantic Salmon Trust, presented document SAG(15)3, containing an application to the Board for funding (£6,000) for a study to investigate the application of eDNA technology in the assessment of pelagic by-catch of Atlantic salmon.
- 5.2 The SAG noted that the Board's current priority is research to partition mortality of salmon at sea through an international telemetry programme. The SAG is also aware that there are a number of ongoing initiatives related to bycatch of salmon in pelagic fisheries including a new tagging initiative and a wide-scale tag screening programme in the Northeast Atlantic directed at pelagic species (herring and mackerel) using PIT /RFID tags with reader systems at ports of landing. By the end of 2015, there may be detector systems screening herring and mackerel catches at as many as 22 landing sites around Europe and this may allow detection of tagged salmon (currently ~30,000 are tagged annually). Furthermore, the International Ecosystem Survey of the Nordic Seas (IESSNS) is a collaborative programme involving research vessels from Iceland, the Faroes, and Norway; surveys are carried out annually in July-August and present an opportunity not only to obtain more information on salmon at sea but also on bycatch. 2.45 million km² were surveyed in 2014 and the area overlaps in time and space with the known distribution of post-smolts in the North Atlantic. The NASCO Secretariat is also liaising with NAFO and NEAFC on bycatch.

- 5.3 The SAG noted with interest the proposed application of eDNA to the assessment of bycatch and would be interested in the project findings, if it proceeds particularly if these clarify the scale of the bycatch rather than just confirm the presence of salmon post-smolts in catches of pelagic fisheries.

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.

- 6.1 The Secretary provided an up-date on the metadatabase of salmon survey data and sample collections of relevance to mortality of salmon at sea. The Board had previously decided that it could play an important role with regard to marine salmon survey data and sample coordination by establishing a metadatabase of existing datasets and sample collections. In order to take this initiative forward, a list of candidate datasets was developed for inclusion in the metadatabase and specific points of contact were identified. In 2014, it was reported that information has been provided for the candidate datasets and this had been included in the metadatabase. The SAG had agreed that the Chairman, Mr Tim Sheehan, should review the candidate dataset entries for entry inconsistencies and provide suggested changes and clarifying text for the guidance document, and work with the points of contact to incorporate webpage links for published reports relevant to each entry as available and as appropriate. This work was completed during 2014 and the metadatabase had been made available on the IASRB's website.

- 6.2 The metadatabase currently includes nine entries:

- 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)

- 6.3 The Secretariat had been asked to request that Parties/jurisdictions provide details of any new datasets that should be considered for inclusion in the metadatabase. A few candidate datasets were identified (West Greenland Sampling Programme biological characteristics and SALSEA-Merge PGNAPES, genetic and feeding databases). The Chairman reported that he had prepared the information for the SALSEA-Merge PGNAPES genetic and feeding databases separately as these were not combined into one database and would include this information in the metadatabase and send it to the Secretariat after the Annual Meeting. He would follow up on the West Greenland Sampling Programme Biological Characteristics dataset.

6.4 The SAG 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 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. It was recognized that some initiatives, such as that of the Atlantic Salmon Trust in the UK, which will include storage of grey literature and some historic scale samples by the Freshwater Biological Association, are underway to safeguard these collections and there may be opportunities to share best practice. Given the importance of these collections, the SAG agreed that it would be useful to consider this matter further at its next Annual Meeting.

(b) Progress reports on projects funded by the IASRB

6.5 In 2013, the Board had been advised that a surplus of approximately £18,300 remained of the funds provided by the US to purchase salmon under SALSEA Greenland. The Board had agreed that the US should be consulted on the use of these funds and in 2014 the US had indicated that the funds would be used to support further development of the North American genetic baseline and to undertake finer scale assignments of salmon caught at West Greenland. Subsequently, an application for research funding was received from Dr Ian Bradbury (Canada) and this had been circulated to Members of the Board on 13 August 2014. The application was granted and the funding was provided in December last year. A report on this project was made available to the Board, SAG(15)4, and was presented by Mr Tim Sheehan (US).

(c) Other activities

6.6 In 2013, the SAG Sub-Group on the Future Direction of Research on Marine Survival of Salmon considered that a priority should be to analyse the remaining samples and data arising from the SALSEA Programme and encouraged the Board to explore opportunities to support these analyses. The Board was advised of on-going initiatives on such analyses 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. In 2014, it was noted that no further action was required from the Board with regard to analysing the remaining SALSEA samples given the significant cost which would be involved in analysing these and limited extra benefit to management. However, the Board encouraged Parties and jurisdictions to highlight the availability of these remaining samples.

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 agreed to hold its next meeting in conjunction with the Thirty-Third Annual Meeting of NASCO in Germany during 7 – 10 June 2016.
- 9.2 In closing the meeting, the Chairman thanked the participants for their contributions to the meeting.

List of Participants

Canada

Tony Blanchard
Gérald Chaput
Murray Hill

European Union

Cathal Gallagher
John McCartney
Michael Millane
Niall Ó Maoiléidigh (Chairman)
Ted Potter
Stamatis Varsamos

Norway

Peder Fiske

US

Jeff Murphy
Tim Sheehan

North Pacific Anadromous Fish Commission

Mark Saunders

NGOs

Tony Andrews
Niall Greene
John Gregory
Denis Maher
Dave Meerburg

Secretariat

Peter Hutchinson

SAG(15)5

Agenda

1. Opening of the meeting
2. Adoption of the agenda
3. Report of the IASRB Telemetry Workshop
4. Review of the updated inventory of research
5. Review of project applications for potential funding by the Board
6. Developments in relation to the SALSEA Programme
 - (a) Report on Progress in establishing a metadata base 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
7. Other business
8. Report of the meeting
9. Date and place of the next meeting

ICR(14)10

***Resolution of the International Atlantic Salmon Research Board (IASRB) on
Research on Salmon at Sea***

NOTING that there has been a substantial decline in salmon stocks throughout much of their migratory range over the last two to three decades despite substantial reductions in exploitation;

NOTING the advice from the International Council for the Exploration of the Sea (ICES) that there has been a substantial reduction in survival of salmon at sea possibly resulting from natural factors and/or anthropogenic pressures;

WELCOMING the major advances in understanding of the distribution and migration of salmon at sea that have been made under the SALSEA Programme;

TAKING INTO ACCOUNT the role of the IASRB to promote collaboration and co-operation on research into the causes of marine mortality of Atlantic salmon and the opportunities to counteract it;

DESIRING to encourage studies to partition marine mortality of migrating Atlantic salmon in order to support the conservation and management of Atlantic salmon stocks across the North Atlantic;

RECOGNISING the potential that a large international collaborative telemetry project has to provide valuable new information on migration paths and quantitative estimates of mortality during phases of the marine life-cycle of salmon;

RESOLVES as follows:

- *to encourage NASCO Parties to continue the development of local collaborative telemetry projects;*
- *to encourage the development of large international collaborative telemetry projects that together build upon and expand local efforts;*
- *to request Parties to make efforts to identify funding sources to support telemetry projects;*
- *to support the development of the SALSEA Programme by facilitating international collaboration in these areas.*

