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International symposium (D 6.3)**

(Month 43)

## **Introduction**

The NASCO symposium 'Salmon at Sea: Scientific Advances and their Implications for Management' was held in L' Aquarium in La Rochelle, France, 11 – 13 October 2011. The symposium is the first international symposium focusing Atlantic salmon at sea reflecting the large progress made in this area in later years, including SALSEA-Merge.

The symposium collected in total about 130 persons, a mix of scientists, public servants related to salmon management, representatives from NGO's and private companies and private persons. The SALSEA-Merge consortium presented a total of 15 contributions, 8 speeches and 7 posters. The program of the symposium is listed in the following pages with the contributions by SALSEA-Merge highlighted in red. Background information and most of the speeches presented in the symposium can be found on this NASCO web page.

<http://www.nasco.int/sas/salmonsummit.htm>

## **Annex**

Program for the NASCO symposium 'Salmon at Sea: Scientific Advances and their Implications for Management'. SALSEA-Merge contributions are highlighted in red.

The 'Salmon Summit'



# Salmon at Sea: Scientific advances and their implications for management

## PROGRAMME

Amphithéâtre René Coutant  
L' Aquarium, La Rochelle, France  
11 – 13 October, 2011

Organizers:

NASCO's International Atlantic Salmon Research Board  
International Council for the Exploration of the Sea



Sponsored by the TOTAL Foundation



***Salmon at Sea: Scientific Advances and their Implications for  
Management  
L'Aquarium, La Rochelle, France  
11 – 13 October 2011***

***Provisional Programme (Subject to change)***

***Tuesday 11 October 2011***

<b>0900 – 1300</b>	<b>Opening Session - Introductions and Scene Setting Overviews (Chair: Malcolm Windsor)</b>
0900 – 0930	Opening remarks
0930 – 1000	Global challenges in sustainable utilization of marine ecosystems. <i>D. Pauly</i>
1000 – 1030	Break
1030 – 1050	Overview of the status of Atlantic salmon ( <i>Salmo salar</i> ) in the North Atlantic and trends in marine mortality. <i>G. Chaput</i>
1050 – 1110	Both predation and feeding opportunities may explain changes in survival of Baltic salmon post-smolts. <i>S. Mäntyniemi, A. Romakkaniemi, J. Dannewitz, S. Palm, T. Pakarinen, H. Pulkkinen, A. Gårdmark, O. Karlsson</i>
1110 – 1130	Overview of the status of salmon in the North Pacific and trends in marine mortality. <i>L-L. Low</i>
1130 – 1150	The North Atlantic in the era of global change. <i>B. Hansen, H. Hátún</i>
1150 – 1210	A discussion of the processes behind the correlation between declining North Atlantic salmon and increasing Northern Hemisphere temperature. <i>P. C. Reid, G. Beaugrand, P. Helaouët</i>
<b>1210 – 1230</b>	<b>The SALSEA Programme - unravelling the life of the Atlantic salmon at sea.</b> <i>K. Whelan</i>
<b>1230 – 1300</b>	<b>Discussion</b>
1300 – 1430	Lunch

*Tuesday 11 October 2011*

- 1430 – 1730**      **Distribution & Migration of Salmon at Sea**  
*(Co-Chairs: Lars Petter Hansen & Peter Hutchinson)*
- 1430 – 1450      Analysis of historical tagging data from the salmon fisheries at West Greenland and the Faroe Islands.  
*J. A. Jacobsen, D. G. Reddin, L. P. Hansen, V. Bakkestuen, I. Russell, J. White, E. C. E. Potter, T. F. Sheehan, N. Ó Maoiléidigh, J. B. Dempson, G. W. Smith, A. Ísaksson, M. Fowler, L. Karlsson, S. Oskarsson, K. A. Mork, P. Amiro, S. Pedersen*
- 1450 – 1510      **GRAASP: a genetic tool for advancing understanding of the marine ecology of Atlantic salmon in the Eastern Atlantic Ocean.**  
*E. Verspoor, P. McGinnity, the SALSEA-MERGE Consortium*
- 1510 – 1530      **Extending understanding of marine migration, ecology and mortality of Atlantic salmon post-smolts using oceanographic modeling, recaptured tagged salmon and SALSEA-GRAASP.**  
*K. A. Mork, J. Gilbey, L. P. Hansen, A. J. Jensen, N. O' Maoileidigh, the SALSEA-MERGE Consortium*
- 1530 – 1600      Break
- 1600 – 1615      **Marine distribution of regional Atlantic salmon post-smolt stocks in the NE Atlantic ascertained by microsatellite DNA based assignment.**  
*J. Gilbey, J. Coughlan, the SALSEA-MERGE Consortium*
- 1615 – 1630      SALSEA North America: A pelagic ecosystem survey targeting Atlantic salmon in the Northwest Atlantic.  
*T. F. Sheehan, D. G. Reddin, G. Chaput, M. D. Renkawitz*
- 1630 - 1650      Sonic tracking of Atlantic salmon smolts to sea: correlates of survival and lessons on the migration pathway.  
*F. Whoriskey*
- 1650 – 1705      Tracking Atlantic salmon migration at sea by use of pop-up satellite tags – surprises, world records and mysteries..!  
*A. H. Rikardsen, C. M. Chittenden, D. Righton, F. Økland, T. F. Næsje, P. Gargan, M. D. Renkawitz, T. F. Sheehan, B. Adlandsvik, O-P. Pedersen, E. B. Thorstad, J. G. Davidsen, E. Halttunen, R. S. McKinley, B. Finstad, K. Aarestrup*
- 1705 – 1730**      **Discussion**
- 1815**              **Reception hosted by the Mayor of La Rochelle at the Hotel de Ville**
- 2000**              **Conference Dinner at Restaurant André**

*Wednesday 12 October 2011*

- 0900 – 1130**      **Distribution & Migration of Salmon at Sea**  
**(Co-Chairs: Lars Petter Hansen & Peter Hutchinson)**
- 0900 - 0915      Locating adult salmon at sea using stable isotopes.  
*K. M. MacKenzie, C. N. Trueman, M. R. Palmer, A. Moore, A. T. Ibbotson, W. R. C. Beaumont*
- 0915 – 0935      **The spatial and temporal distribution of salmon and the pelagic fisheries in the North-East Atlantic: A potential for by-catch?**  
*M. Holm, A. Ísaksson, J. A. Jacobsen, L. P. Hansen, S. Guðjónsson, N. O' Maoileidigh, S. Óskarsson*
- 0935 – 0950      Identifying freshwater and oceanic environmental signals from centennial Atlantic salmon catches off the North-East Atlantic.  
*J. Otero, T. Rouyer, A. J. Jensen, J. H. L'Abée-Lund, J. D. Armstrong, J. C. MacLean, A. F. Youngson, S. Guðjónsson, G. Gudbergsson, N. C. Stenseth, G. O. Storvik, L. A. Vøllestad*
- 0950 – 1005      Are post-smolts running on empty? - Migration and survival in the Atlantic.  
*C. Byron, J. Stockwell, A. Pershing, H. Xue*
- 1005 – 1030      Break
- 1030 – 1045      Environmental conditions affecting North American and Penobscot River populations of Atlantic salmon (*Salmo salar*).  
*K. Mills, A. Pershing, D. Mountain, T. F. Sheehan*
- 1045 – 1100      The decline and fall of Fraser River sockeye salmon and their immaculate resurrection from an intervention of oceanic origin.  
*S. McKinnell*
- 1100 – 1130**      **Discussion**
- 1130 – 1700**      **Food Production, Growth, Trophic & Other Ecological Interactions**  
**(Co-Chairs: Dave Reddin & Jens Christian Holst)**
- 1130 – 1150      How climate and post-smolt growth control marine mortality in Atlantic salmon; the potential effects of a changing climate on the marine survival of Atlantic salmon.  
*K. D. Friedland*

- 1150 – 1210 Regional and temporal variation in marine growth of Atlantic salmon (*Salmo salar*, L.) from North-East Atlantic populations – links to marine survival and oceanographic conditions.  
*N. Ó Maoiléidigh, A. J. Jensen, K. Thomas, J. White, S. M. Einarsson, J. Erkinaro, P. Fiske, K. D. Friedland, J. C. Holst, A. Peyronnet, D Cotter, A. K. Gudmundsdottir, J. Haantie, J. G. Jensås, J. Kuusela, G. M. Østborg, C. Garcia de Leaniz*
- 1210 – 1230 Ocean climate impacts on growth condition of 1SW and 2SW salmon returning to Scotland.  
*C. D. Todd, J. C. MacLean, M. E. Lonergan, A. J. Howe, L. Boehme*
- 1230 – 1300 Discussion**
- 1300 – 1430 Lunch
- 1430 – 1450 Prey quality affects the production of wild Pacific salmon in the Northern California Current Ecosystem.  
*M. Trudel, D. Mackas, A. Mazumder*
- 1450 – 1505 Characterizing trophic status and shift in Atlantic salmon, *Salmo salar*, from freshwater to marine life-cycle phases  
*H. Dixon, M. Power, J. B. Dempson, T. F. Sheehan, G. Chaput*
- 1505 – 1520 Stable isotope evidence for the effect of climatic variations on salmon diet and marine mortality.  
*C. N. Trueman, K. M. MacKenzie, M. R. Palmer, A. Moore, A. T. Ibbotson, W. R. C. Beaumont*
- 1520 – 1535 The diet of Atlantic salmon post-smolts during their first feeding season in the North-East Atlantic.  
*W. Melle, K. Thomas, J. A. Jacobsen, C. Broms, N. O' Maoileidigh, M. Haugland, M. Holm, J. C. Holst*
- 1535 – 1600 Break
- 1600 – 1615 Atlantic salmon foraging ecology in the Northwest Atlantic.  
*M. D. Renkawitz, T. F. Sheehan, D. G. Reddin, G. Chaput*
- 1615 – 1700 Discussion**
- 1700 – 1830 Poster Session (in the Activities Room)**  
Posters can also be viewed throughout the 'Salmon Summit'

*Thursday 13 October 2011*

- 0900 – 1230**      **Implications for Salmon Management**  
(*Co-Chairs: Paul Knight & Malcolm Windsor*)
- 0900 – 0920      The influence of the freshwater environment and biological characteristics of Atlantic salmon smolts on their subsequent marine survival.  
*I. Russell, M. Aprahamian, J. Barry, I. Davidson, A. T. Ibbotson, R. Kennedy, J. C. Maclean, A. Moore, J. Otero, E. C. E. Potter, C. Todd*
- 0920 – 0940      **Minimising the impact of climate change on Atlantic salmon populations in freshwater.**  
*P. McGinnity*
- 0940 - 0955      Determining the continent-of-origin (COO) and region-of-origin (ROO) of Atlantic salmon collected at West Greenland 1995-2010: A review of the findings and a look at what the future holds for molecular genetics methods of mixed stock assignment.  
*T. L. King, T. F. Sheehan, B. Lubinski, D. G. Reddin*
- 0955 – 1010      What tools are left in the manager’s toolbox – challenges to conservation of Atlantic salmon in eastern Canada.  
*S. Rocque*
- 1010 – 1025      Ramifications of persistent low marine survival to Atlantic salmon management in the US.  
*R. Saunders, M. A. Colligan*
- 1025 – 1100      Break
- 1100 – 1115      Use of marine ecosystem productivity indicators along the US west coast to forecast annual returns of Pacific salmon and improve harvest management: a role for long term observations.  
*J. Ferguson, E. Casillas, W. Peterson*
- 1115 – 1130      Managing salmon stocks and fisheries in a changing environment.  
*E. C. E. Potter*
- 1130 – 1200**      **Discussion**
- 1200 – 1330      Lunch
- 1330 -1600**      **What Does it all Mean for Salmon Conservation & Management & Future Research? (Chair: Malcolm Windsor)**
- 1330 – 1445      Session Summaries by Chairmen & ‘Take Home’ Messages
- 1445 – 1600      General Discussion on outcomes from the symposium and actions by scientists and managers
- 1600**              **Close of symposium**



## Poster Presentations

### *Distribution & Migration of Salmon at Sea*

A preliminary evaluation of use of nuclear SNPs for the assignment to origin of marine post-smolt Atlantic salmon captures in the NE Atlantic.

*J. Coughlan, P. A. Prodohl, S. Lien, P. Berg, J. Carlsson, P. McGinnity, T. F. Cross, the SALSEA-MERGE Consortium*

Geographical differentiation and structuring of European Atlantic salmon stocks at microsatellite DNA loci in relation to the regional assignment of marine fish.

*J. Gilbey, J. Coughlan, the SALSEA-MERGE Genetics team*

Geographical structuring in Atlantic salmon as revealed by nuclear SNPs: potential for application in the assignment of origin of marine fish.

*J. Coughlan, J-P. Vähä, S. Lien, P. Berg, J. Carlsson, P. McGinnity, T. F. Cross, the SALSEA-MERGE Consortium*

Microsatellite standardization and genotyping error in a large multi-partner research programme for conservation of Atlantic salmon (*Salmo salar* L.).

*J. S. Ellis, J. Gilbey, A. Armstrong, T. Balstad, E. Cauwelier, C. Cherbonnel, S. Consuegra, J. Coughlan, T. F. Cross, W. Crozier, E. Dillane, D. Ensing, C. Garcia de Leaniz, E. García-Vázquez, A. M. Griffiths, K. Hindar, S. Hjørleifsdóttir, D. Knox, G. Machado-Schiaffino, P. McGinnity, D. Meldrup, E. E. Nielsen, K. Olafsson, C. R. Primmer, P. A. Prodöhl, L. Stradmeyer, J-P. Vähä, E. Verspoor, V. Wennevik, J. R. Stevens*

Regional mtDNA differentiation in Atlantic salmon (*Salmo salar*) in Europe: potential for use in assigning marine fish to region of origin.

*E. Verspoor, S. Consuegra, O. Fridjonsson, S. Hjørleifsdóttir, D. Knox, K. Olafsson, S. Tompsett, C. Garcia de Leaniz*

Revisiting the marine migration of US Atlantic salmon with historic Carlin tag data.

*A. S. Miller, T. F. Sheehan, R. C. Spencer, M. D. Renkawitz, A. L. Meister*

The migration and survival of Atlantic salmon kelts in estuarine and coastal regions of Canada.

*J. Carr*

The effects of dispersal at sea, local adaptation and stocking on the hierarchical genetic structure of Atlantic salmon populations.

*C. Perrier, J-L. Baglinière, G. Evanno*

Evidence of positive selection acting on the Atlantic salmon mitochondrial DNA: implications for assessing the impacts of climate change.

*E. John, C. Garcia de Leaniz, E. Verspoor, S. Consuegra*

### *Food Production, Growth, Trophic & Other Ecological Interactions*

Use of storage tags to study the behavioural ecology at sea of Newfoundland Atlantic salmon smolts and kelts.

*I. A. Fleming, D. G. Reddin, P. Downton, M. Robertson, L. P. Hansen, A. Mahon*

Evidence for bottom-up trophic effects on return rates to a second spawning for Atlantic Salmon (*Salmo salar*) from the Miramichi River, Canada

*G. Chaput, H. P. Benoît*

Spawning history influence on fecundity, egg size and egg survival of Atlantic salmon (*Salmo salar*) from the Miramichi River, New Brunswick, Canada.

*J. Reid, G. Chaput*

Smolt age and fine scale marine growth of Atlantic salmon post-smolts in the North-East Atlantic.

*A. J. Jensen, N. O' Maoileidigh, K. Thomas, S. M. Einarsson, M. Haugland, J. Erkinaro, P. Fiske, K. D. Friedland, A. K. Gudmundsdottir, J. Haantie, M. Holm, J. C. Holst, J. A. Jacobsen, J. G. Jensås, J. Kuusela, W. Melle, K. A. Mork, V. Wennevik, G. M. Østborg*

### ***Implications for Salmon Management***

The large landings of Atlantic salmon along the coast of Finnmark, northern Norway; origin from Norwegian or Russian rivers?

*M. A. Svenning, J-P. Vähä, S. Prusov, E. Niemelä, V. Wennevik*

DNA parentage assignment to improve restoration programmes for Atlantic salmon in the Garonne and Dordogne French rivers.

*D. Clavé, S. Bosc, P. Haffray, R. Guyomard, L. Genestout, M. Chanseau*