



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

SAG(10)3

*Possible Changes to the Presentation of the
Inventory of Marine Research relating to Mortality at Sea*

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1. Last year the SAG received a report, SAG(09)10, from an Inventory Review Group which had been established to identify areas where there may be merit in encouraging improved coordination of research and to highlight gaps in the research programme where more work might significantly benefit the SALSEA Programme and which might be considered for funding by the Board. The Sub-Group had also made some suggestions for improvements to the presentation of the inventory of marine research that could facilitate future reviews. While the SAG had agreed to conduct a further review of the inventory in 2011, when the marine survey component of the SALSEA Programme would be completed, no decisions were taken concerning possible improvements to the presentation of the inventory.
2. The report of the Sub-Group indicates that the structure of the inventory should be reviewed to make it easier to access information on ongoing and completed projects relating to salmon mortality in the sea. Following consultations with the Chairman of the Sub-Group, Mr Ted Potter, clarification was obtained concerning the Sub-Group's views on how the structure might be improved. He noted two particular problems with the current structure. First, it was difficult to track projects over time because the projects listed in the inventory are renumbered each year, with completed projects having no numbers; and second, only limited information was provided on completed projects, making it difficult to take account of this work in on-going research planning. He suggested two possible changes in the first instance. These are that projects should retain the number first allocated to them when they are initially included in the inventory, and that the same, or similar, information should be presented for completed and ongoing projects.
3. In presenting this year's inventory, SAG(10)2, we have used the same format as in previous years. However, to illustrate to the SAG how these two suggested changes might appear in the summary tables in the future we have taken, as an example, the Canadian projects and presented the information for ongoing and completed projects in one table. If this format is acceptable to the SAG then the inventory could be re-structured before it is made available on the website in July. At present, the inventory is maintained as a word document and is made available on the website as a series of pdf documents. The information is largely textual in nature and does not lend itself to querying. However, if the SAG felt it would be useful, the inventory could be converted to a database and made available in that format on the website. Updating might then be carried out directly via the website by the jurisdictions. We are advised that there would be a cost of around £5,000 in developing a web-based database and the benefits, in terms of aiding reviews of the information, may be limited.

4. The views of the SAG on the presentation of the inventory would be welcome. The Secretariat will make any changes agreed by the SAG to ensure that the valuable information is presented in the most useful format to the Group.

Secretary
Edinburgh
3 May 2010

ONGOING & COMPLETED PROJECTS – CANADA

Project No., Title and Status	Summary of Objectives	Topic Area	Dates of Research / Date of Completion	Area of Research/ Collaborating Countries	Coordinating Scientist(s)	Annual Expenditure (Pounds Sterling – approx)	Main Research Methods
C1: Marine migration and survival of post-smolt Atlantic salmon from Bay of Fundy rivers Completed	Provide knowledge about marine habitat (migration routes and feeding grounds) used by salmon post-smolts from Bay of Fundy rivers. Determine the location, timing and extent of salmon post-smolt mortality at sea. Investigate the causes and mechanisms of marine mortality of salmon post-smolts. Provide information to fuel the recovery programme for inner Bay of Fundy salmon stocks.	Distribution/migration in the sea.	Completed 2003	Bay of Fundy and Gulf of Maine <i>Collaborating countries:</i> USA	Gilles L Lacroix LacroixG@dfo-mpo.gc.ca	-	Acoustic tags and receivers. Smolt traps in rivers (various designs)
C2: Distribution, health and condition of Atlantic salmon from Bay of Fundy rivers while at sea Completed	Provide knowledge about marine habitat and health of salmon post-smolts from Bay of Fundy rivers. Investigate the causes and mechanisms of marine mortality of salmon post-smolts. Provide information to fuel the recovery programme for inner Bay of Fundy salmon stocks.	Distribution/migration in the sea.	Completed 2004	Bay of Fundy and Gulf of Maine <i>Collaborating countries:</i> USA and Norway	Gilles L Lacroix LacroixG@dfo-mpo.gc.ca	-	Pelagic trawls.
C3: Marine migration and survival of post-smolt Atlantic salmon from the Saint-Jean River (Gaspé) Completed	Provide knowledge of the marine habitat (migration routes and feeding grounds) used by salmon post-smolts from Bay of Gaspé rivers. Determine the location, timing and extent of salmon post-smolt mortality at sea. Investigate the causes and mechanisms of marine mortality of salmon post-smolts.	Distribution/migration in the sea	Completed 2006	Gaspé Peninsula, Quebec	Julian Dodson julian.dodson@bio.ulaval.ca Francois Caron francois.caron2@mrnf.go.uv.qc.ca	-	Ultrasonic transmitters.

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C4: Marine migration and survival of kelt Atlantic salmon from the Saint-Jean River (Gaspé) Completed	Provide knowledge of the marine habitat (migration routes and feeding grounds) used by salmon kelts from Bay of Gaspé rivers. Determine the location, timing and extent of kelt mortality at sea. Investigate the causes and mechanisms of marine mortality of salmon kelts.	Distribution/migration in the sea	Completed 2007	Gaspé Peninsula, Quebec	Francois Caron francois.caron2@mrf.go uv.qc.ca	-	Ultrasonic transmitters.
C5: Tracking experimentally 'escaped' farmed salmon Completed	Determine the course tracks and fates of sonically tagged farmed salmon released in winter and spring.	Distribution/migration in the sea.	Completed 2006	Cobscook Bay, Maine, USA; Quoddy region, NB, Canada	Fred Whoriskey asfres@nb.aibn.com	-	Acoustic tags and receivers, smolt wheels.
C6: Atlantic salmon distribution and abundance at sea Completed	Determine salmon distribution and abundance at sea, particularly post-smolts in the Labrador Sea and Northern Grand Banks; collect biological and other data; investigate the relationship between salmon and their prey; investigate the relationship between oceanographic parameters and salmon abundance; tag and release salmon.	Distribution/migration in the sea.	Completed 2006	Labrador Sea and Northern Grand Banks	David Reddin reddind@dfo-mpo.gc.ca	-	Drift gill nets, surface trawls.

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C7: Integrated field and laboratory assessment of the effects of endocrine – disrupting substances on Atlantic salmon smolts. Completed	Laboratory tests of the effects of endocrine-active substances in municipal, and industrial effluents; field tests of the effects of endocrine-active substances in municipal and industrial effluents; field tests on caged smolts near sites with potential for significant agriculture runoff; ocean field tests of link between exposure of smolts to endocrine - disrupting substances and subsequent lower adult returns.	Specific natural and anthropogenic factors	Completed 2008	Atlantic Canada and Co. Mayo, Ireland <i>Collaborating countries:</i> Ireland	Wayne Fairchild Fairchildw@mar.dfo.mpo.gc.ca	-	Trap nets and holding cages in rivers.
C8: Use of stable isotopes to assess long-term changes in marine trophic ecology of Atlantic salmon (<i>Salmo salar</i>) Completed	Assess trophic and dietary information through analysis of stable isotope signatures of carbon and nitrogen from previously compiled scale samples from various salmon stocks; compare isotopic signatures within and among stocks to various differences in feeding ecology in time and space; examine evidence of environmental influences on trends in isotopic signatures; examine linkings of stable isotope signatures with trends in abundance.	Life history/ biological processes	Completed 2008	Desk study examining archived material and samples from Newfoundland, the Maritime Provinces, the Quebec North Shore, and the Barents Sea (Tana River, Finland) <i>Collaborating countries:</i> Finland	J Brian Dempson dempsonb@dfo-mpo.gc.ca	-	Stable isotope analysis from scales.
C9: Effective population size, gene flow and population structure of Atlantic salmon in Newfoundland and Labrador Completed	Document population structure and connectivity (gene flow) among Newfoundland and Southern Labrador rivers. Test for temporal stability of the structure over the past 50 years.	Distribution/ migration in the sea.	Completed 2008	Newfoundland and Labrador	Daniel Ruzzante daniel.ruzzante@dal.ca	-	Genetic analysis.

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C10: River and extended estuary acoustic tracking of Atlantic salmon Completed	1) To track and document migratory behaviour of Atlantic salmon kelts as they leave the river for the open ocean and bright salmon at they return to rivers; 2) To identify possible critical habitat sites utilized by kelts and bright salmon during their migration; 3) To examine the mortality rates of kelts and bright salmon during migration.	Distribution/migration in the sea.	Completed 2009	LaHave River and estuary, Nova Scotia	Peter G. Amiro AmiroP@mar.dfo-mpo.gc.ca A Jamie F. Gibson GibsonAJF@mar.dfo-mpo.gc.ca	-	Acoustic tags and receivers.
C11: Integrated modelling of juvenile Atlantic salmon movement and physical habitat in fluvial and estuarine environments Completed	1) to develop an innovative geomatic approach capable of relating the behaviour of smolts during their migration to the characteristics of the physical habitat in rivers and estuaries, 2) to apply this approach to the analysis of the migration of smolts through the estuaries of the St. Jean, Dartmouth and York rivers and down the Baie de Gaspé.	Distribution/migration in the sea.	Completed 2009	York River and Baie de Gaspé, Quebec <i>Collaborating countries:</i> UK	Julian Dodson julian.dodson@bio.ulaval.ca	-	Acoustic tags and receivers, smolt wheels.
C12: Estuary acoustic tracking of Atlantic salmon (<i>Salmo salar</i>) smolts and kelts – Conne River, Little River, and Bay d’Espoir, Newfoundland Completed	1) To tag and track migratory behaviour of Atlantic salmon smolts and kelts as they leave the Conne River, Newfoundland; 2) To determine the movements and migration patterns throughout the Bay d’Espoir fjord; 3) To provide insight into the initial survival and residency of smolts and kelts migrating through the fjord.	Distribution/migration in the sea.	Completed 2009	Conne River and Bay d’Espoir fjord, Newfoundland	J. Brian Dempson brian.dempson@dfo-mpo.gc.ca Keith Clarke keith.clarkek@dfo-mpo.gc.ca	-	Acoustic tags and receivers.

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C13: Spatio-temporal distribution of Atlantic salmon stocks and the impact of the West Greenland fishery. Completed	Provide knowledge about the river origin of the salmon catch in the commercial fishery at West Greenland.	Distribution/migration in the sea.	Completed 2009	Samples from West Greenland	Louis Bernatchez (Supervisor; Université Laval); Tim King (Co-supervisor; US Geological Survey) louis.bernatchez@bio.ulaval.ca	-	Genetic analysis.
C14: Genetic population structure of Atlantic salmon in Eastern Canada and its implication for conservation. Completed	This project aims at elucidating the genetic population structure of Atlantic salmon from a small (river) to a large (Eastern Atlantic coast) spatial scale and at helping in proposing conservation units for the Canadian distribution range. Samples from 51 rivers in Quebec, New-Brunswick and Labrador have been obtained and their characteristics evaluated at 13 microsatellite loci. Further work is ongoing on the variability in major histo-compatibility complex genes and its association with exposure to pathogens. The project began in 2004 and was completed in 2008 as part of the PhD project of Mélanie Dionne (Université Laval, Québec).	Distribution/migration in the sea.	Completed 2009	Rivers in Quebec, Gulf of St Lawrence and Labrador	Gilles L Lacroix LacroixG@dfo-mpo.gc.ca	-	Genetic analysis.
C15: Pelagic ecosystem survey of the Northwest Atlantic Ongoing	Sample the upper pelagic ecosystem during the period corresponding to the early post-smolt phase. Determine distribution and relative abundance of post-smolts at selected locations and times along hypothesised ocean migration route. Obtain data on relative abundance of other species including macroplankton aggregations to provide information on the role of salmon in the pelagic ecosystem. Obtain oceanographic information.	Distribution/migration in the sea.	2008-2010 Sample analysis only in 2010	North West Atlantic (stations north of 52°N in 2009) <i>Collaborating countries:</i> USA	Gerald Chaput ChaputG@dfo-mpo.gc.ca Dave Reddin reddind@dfo-mpo.gc.ca Tim Sheehan Tim.Sheehan@noaa.gov	-	Surface pelagic trawl, oceanographic and plankton samplers.

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C16: Miramichi River kelt movements and survival Ongoing	Document the spring movements and survival of kelts from the Miramichi River as they return to the sea. Use pressure sensitive tags to record the depths used by kelts.	Distribution/migration in the sea	April 2008 – March 2010	Miramichi River estuary and Gulf of St Lawrence	Dr. F. Whoriskey fwhoriskey@asf.ca	£12,500 (excluding receiver deployment and other costs recovered under other projects)	Acoustic tags and receiver arrays
C17: Marine survival of Canadian Atlantic salmon stocks: long-term monitoring Ongoing	Long-term monitoring of smolt production and adult return estimates from a number of rivers in Newfoundland region, Maritimes region, Gulf region and Quebec.	Long-term monitoring	April – November, annually	Canadian rivers in Newfoundland region, Maritimes region, Gulf region and Quebec	Gerald Chaput Chaputg@dfo-mpo.gc.ca	£639,500	Smolt and adult traps, fences, trap nets, rotary screw smolt traps.
C18: Atlantic salmon smolt migration and survival within Canadian rivers, estuaries and during the marine life stage Ongoing	Provide a time-series of stage specific estimates of mortality rates for smolts and post-smolts at various points of their at-sea migration, including for their transitions through fresh water, the estuary and to various points in the ocean; examine the relation between biological characteristics of the fish and survival rates to attempt to isolate mortality causes; document the migration pathways and speeds of smolts from different rivers.	Distribution/migration in the sea	2003-2010 (spring/summer)	Miramichi River and estuary; Restigouche River and Baie des Chaleurs; Cascapedia River and estuary; St-Jean (Côte-Nord) River and estuary; Western Arm Brook; Strait of Belle Isle, Cabot Strait, Labrador; West River, Sheet Harbour. <i>Collaborating countries:</i> USA	Dr. F. Whoriskey fwhoriskey@asf.ca	£300,000	Acoustic tags and receivers, smolt wheels, small boats and chartered fishing vessel.

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<p>C19: Stable isotope ratios to infer trophic structure and condition of Atlantic salmon during their life at sea.</p> <p>Ongoing</p>	<p>Improve understanding of marine ecology of salmon through status of trophic state and condition. Questions to be addressed include:</p> <ul style="list-style-type: none"> - are trophic states of 1SW non-maturing fish similar between NAC and NEAC origin salmon?; - are trophic states of 1SW non-maturing fish different from those of maturing 1SW fish of the same cohort? Can this tell us anything about when these different maturity groups separate in the North Atlantic?; - has there been a trophic state change between West Greenland and return to home rivers as 2SW salmon? 	Life history/ biological process	2007-2010	<p>West Greenland and from salmon returning to the index rivers of Eastern Canada.</p> <p><i>Collaborating countries:</i> Greenland</p>	<p>Gerald Chaput Chaputg@dfo-mpo.gc.ca Tim Sheehan Tim.Sheehan@noaa.gov</p>	£18,000 (excludes cost of purchase of samples)	Stable isotope analyses.
<p>C20: Identification of essential habitat for repeat spawning Atlantic salmon of Inner Bay of Fundy origin</p> <p>Ongoing</p>	To identify the freshwater and marine habitats used by post-spawning Atlantic salmon of inner Bay of Fundy (iBoF) origin for reconditioning until their return as repeat spawners, and identify the sites and times of mortality for those that fail to return.	Distribution/ migration at sea	2008-2010	Primarily the Big Salmon River but possibly other inner Bay of Fundy rivers (i.e. Stewiacke) as well as the Saint John River and Bay of Fundy.	<p>Dr. Gilles Lacroix Gilles.Lacroix@dfo-mpo.gc.ca Ross Jones Ross.A.Jones@dfo-mpo.gc.ca</p>	£15,000 In-kind contributions from Fort Folly First Nation.	Acoustic tags and receivers satellite tags.

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<p>C21: Genomic basis of adaptive divergence and marine survival among Atlantic salmon populations</p> <p>Ongoing</p>	<p>Elucidate the genetic basis of adaptive divergence and marine survival in Atlantic salmon populations from eastern Canada. Contribute to the identification of management units.</p>	<p>Distribution/migration in the sea</p>	<p>2010-2013</p>	<p>Eastern Canada: Québec, Maritimes, Newfoundland and Labrador</p> <p><i>Collaborating countries:</i> Norway, USA,</p>	<p>Louis Bernatchez, Louis.Bernatchez@bio.ulaval.ca Mélanie Dionne, Melanie.Dionne@mrnf.gov.qc.ca Patrick O'Reilly, OReillyP@mar.dfo-mpo.gc.ca Vincent Bourret, vincent.bourret.1@ulaval.ca</p>	<p>£64,500</p>	<p>Genetic analyses.</p>

