

# The 2020 Atlantic Salmon Ecosystems Forum

*Time flies – Atlantic salmon as an endangered species  
twenty years later...*

January 14-15, 2020

Orono, Maine USA

University of Maine, Wells Conference Center



*Illustration Credit: Jack Horvath*

*Recognizing the International Year of the Salmon (focus) in 2019, watch for  
activities extending into 2020*



# 2020 Atlantic Salmon Ecosystems Forum

## *Schedule At A Glance*

<b>Begin</b>	<b>End</b>	<b>January 14, 2020</b>
7:00	8:00	<b>REGISTRATION</b> - <i>Refreshments provided</i>
8:00	8:05	<b>Housekeeping</b> <i>Rory Saunders, NOAA Fisheries</i>
8:05	8:25	<b>Welcome to the 2020 ASEF</b> <i>Sam Rauch, Deputy Assistant Administrator for Regulatory Programs, NOAA Fisheries</i>
8:25	9:00	<b>Sustainability as a framework for rethinking approaches to salmon, society and solutions.</b> <i>David Hart, Director, Senator George J. Mitchell Center for Sustainability Solutions</i>
9:00	9:05	<b>Session I: 20 Years of Experience Guiding our Future (Part 1 of 2)</b> <i>Joshua Royte, The Nature Conservancy, Moderator</i>
9:05	9:25	<b>Reflections on Penobscot River Atlantic Salmon: Before and After Listing as an Endangered Species</b> <i>Edward T Baum, Maine Atlantic Sea-Run Salmon Commission (Retired)</i>
9:25	9:45	<b>From North America to West Greenland and Beyond: management of Atlantic salmon in the North Atlantic</b> <i>Martha Jean Robertson, Fisheries and Oceans Canada, Newfoundland and Labrador, Canada</i>
9:45	10:15	<b>BREAK</b> - <i>refreshments provided</i>
10:15	10:25	<b>Science for comfort or conservation- how do we inform and avoid action on fish passage?</b> <i>Joseph D Zydlewski, U.S. Geological Survey, Maine Cooperative Fish and Wildlife Research</i>
10:25	10:35	<b>Using decision support tools to plan for salmon restoration</b> <i>Erik H Martin, The Nature Conservancy</i>
10:35	10:45	<b>6 ½ &amp; 19 years Maintaining and Perfecting SHARE's Mission Focus</b> <i>Steven D. Koenig, Project SHARE</i>
10:45	10:55	<b>Two Decades on the Front Line of Salmon Protection in Maine: A Perspective by the Atlantic Salmon Federation's Andrew Goode</b> <i>Andrew Goode, The Atlantic Salmon Federation</i>
10:55	11:05	<b>Private forest landowners and aquatic partners getting things done</b> <i>Patrick Thomas Sirois, Maine's Sustainable Forestry Initiative Implementation Committee</i>
<b>Begin</b>	<b>End</b>	<b>January 14, 2020</b>

11:05	11:55	<b>Facilitated Discussion</b> <i>Joshua Royte, The Nature Conservancy</i>
11:55	12:00	<b>Jed Wright Memorial Fund</b> <i>Andy Goode, The Atlantic Salmon Federation</i> <i>Kate Dempsey, The Nature Conservancy</i>
12:00	13:00	<b>LUNCH</b> - lunch at the Student Union (not provided)
13:00	13:05	<b>Session II: 20 Years of Experience Guiding our Future (Part 2 of 2)</b> <i>Christopher Meaney, US Fish and Wildlife Service, Moderator</i>
13:05	13:20	<b>Evaluation of genetic diversity in Maine Atlantic salmon</b> <i>Meredith L. Bartron, USFWS Northeast Fishery Center</i>
13:20	13:35	<b>20 Years of the Atlantic Salmon Stocking Program</b> <i>Ernie Atkinson, Maine Department of Marine Resources</i>
13:35	13:45	<b>Marine-phase Atlantic salmon</b> <i>Timothy F. Sheehan, NOAA Fisheries Service, Northeast Fisheries Science Center</i>
13:45	13:55	<b>Opportunities for More Salmon - Let's Do Some Numbers</b> <i>John Kocik, NOAA Fisheries Service, Northeast Fisheries Science Center</i>
13:55	14:05	<b>Lost &amp; Found: Communicating the Science of Endangered Species</b> <i>Catherine Schmitt, Schoodic Institute, Acadia National Park</i>
14:05	14:35	<b>Facilitated Discussion</b> <i>Christopher Meaney, US Fish and Wildlife Service</i>
14:35	15:05	<b>BREAK</b> - refreshments provided
15:05	15:10	<b>Session III: Age, Growth, Environmental Stressors</b> <i>Daniel McCaw, Fisheries Program Manager, Penobscot Indian Nation</i>
15:10	15:25	<b>Linking ocean temperature phenology to migration timing of Atlantic salmon in the Penobscot River</b> <i>Katherine Mills, Gulf of Maine Research Institute</i>
15:25	15:40	<b>Growing faster but dying younger? Scale analysis of North American Atlantic salmon captured in Greenland suggests increased growth at sea despite declining marine survival.</b> <i>Michael D. Tillotson, Gulf of Maine Research Institute</i>
<b>Begin</b>	<b>End</b>	<b>January 14, 2020</b>
15:40	15:55	<b>Linking Ecosystem Change, Growth, and Survival of Penobscot River Atlantic Salmon</b> <i>Miguel F Barajas, Gulf of Maine Research Institute</i>

- 15:55 16:10 **Marine migration of Atlantic salmon smolt and kelt from a Canadian River (Western Arm Brook, Newfoundland and Labrador).**  
*Nicholas I. Kelly, Fisheries and Oceans Canada, St. John's, NL, Canada*
- 16:10 16:25 **Assessing the effects of multiple stressors on the estuarine and early marine survival of Atlantic salmon postsmolts**  
*Brent Wilson, Fisheries and Oceans Canada*
- 16:25 16:40 **Natural transmission routes at sea and influences of coastal aquaculture on infection profiles of wild Atlantic salmon**  
*Jonathan Carr, Atlantic Salmon Federation, Chamcook, NB*
- 16:40 16:55 **Age structure of non-reproductive, partial migratory populations of sturgeon species in the Penobscot River, Maine**  
*Catlin Ames, School of Marine Sciences, University of Maine*
- 16:55 17:10 **Aquaculture as a part of the Salmon Ecosystem: NOAA and Sea Grant projects in Maine**  
*Gayle Zydlewski, Maine Sea Grant*
- 17:10 19:00 **Poster Session and Social - refreshments provided, beer and wine are available**
- 19:00 **An informal gathering at a local brewery to socialize with friends and colleagues from around New England and, Quebec and Atlantic Canada**  
[\*Black Bear Brewing Co., 19 Mill St. Orono, ME 04469\*](#)

### Poster Presentations

**Distribution and abundance of zooplankton in the Penobscot River estuary**

*Cody T. Dillingham, School of Biology and Ecology, University of Maine*

**Working Together For Healthy Streams: the US FWS National Fish Passage Program**

*Cathy Bozek, US Fish and Wildlife Service*

**Cost Effective Fish Passage Improvement Tools and Techniques for Community Groups**

*Amy Weston, Nova Scotia Salmon Association's Adopt a Stream Program*

**Movements of radio-tagged Atlantic salmon (*Salmo salar*) in the Penobscot River, Maine**

*Erin Peterson, University of Maine*

**Science communication: methods, importance, and impact of community engagement during the International Year of the Salmon**

*Nicole J. Beauchamp, Ocean Tracking Network, Dalhousie University*

**Growth and habitat use of juvenile alewife in Highland Lake, Windham, Maine**

*Emma Dennison, University of Southern Maine*

**Can Clam Shells Reduce the Impacts of Stream Acidification in Eastern Maine?**

*Emily Zimmermann, Maine DOT*

**The Maine Water Temperature Working Group: *Working collaboratively to identify thermal refugia for cold water species***  
*Graham Goulette, NOAA Fisheries*

**Restoring Stream, Wetland, and Riparian Processes in Third Lake Stream**  
*Steven D Koenig, Project SHARE*

**Acid rain and salmon recovery: success and expansion of the West River Acid Rain Mitigation Project**  
*Jillian A. Leonard, Nova Scotia Salmon Association*

**Evaluating the Efficiency of a Hydropower Bypass for Atlantic Salmon (*Salmo salar*) in the Tobique River, New Brunswick**  
*Hilary OJ MacLean, Canadian Rivers Institute, University of New Brunswick*

**Assessment of flow dynamics and fish habitat conditions in Togus Stream in relation to the ongoing restoration of anadromous fish passage into Togus Pond, Chelsea/Augusta, ME.**  
*Carl Merrill, Suffolk University*

**Baseline Sampling of Penobscot River Sturgeon for Mercury**  
*A. Dianne Kopeck, Senator George J. Mitchell Center for Sustainability Solutions, University of Maine*

**Development of environmental DNA tools for sustainable monitoring of northeast sea-run fishes**  
*Samantha J Silverbrand, University of Maine*

**Tracking Changes in Atlantic Salmon Habitat Availability using GIS**  
*Christopher M Federico, Project SHARE*

**Fish Community Assessment 6 years following dam removal in the Penobscot River, Maine**  
*Kory A Whittum, University of Maine*

**Beyond Connectivity: Restoring the Upper Narraguagus River Smolt Output Using a Collaborative Process-Based Approach**  
*Joan G. Trial, Project SHARE, Eastport ME*

**Effects of ocean currents on the migration of Atlantic salmon post-smolts in a semi-enclosed bay**  
*Brady, K, Quinn, Fisheries and Oceans Canada*  
**Integrated conservation planning for priority watersheds within the NS Southern Upland Priority Areas**  
*Fielding A Montgomery, Nova Scotia Salmon Association*

**Characterization of in-river plus growth in Atlantic salmon smolt scales**  
*Rachel, Y, Kim, NOAA Fisheries*

## 50 years of sampling at West Greenland

*Tim Sheehan, NOAA Fisheries*

<b>Begin</b>	<b>End</b>	<b>January 15, 2020</b>
7:00	8:00	<b>REGISTRATION</b> – refreshments provided
8:00	8:05	<b>Session IV: Movement Barriers, Fish Passage, and Ecosystem Response</b> <i>Joseph Zydlewski, US Geological Survey and Department of Wildlife, Fisheries, and Conservation Biology, University of Maine, Moderator</i>
8:05	8:20	<b>Examining dispersal of point stocked Atlantic salmon (<i>Salmo salar</i>) fry relative to habitat qualities in streams in eastern Maine, USA</b> <i>Ernest Atkinson, Maine DMR and University of Maine</i>
8:20	8:35	<b>Forecasting the downstream migration of adult silver phase American eels</b> <i>Dan Weaver, University of Maine</i>
8:35	8:50	<b>Establishing criteria to identify Ecologically Significant Areas in freshwater</b> <i>Alicia Cassidy, Fisheries and Oceans Canada, Gulf Fisheries Centre, Moncton, New Brunswick</i>
8:50	9:05	<b>Penobscot Estuary research, a decade of monitoring restoration and finding surprises</b> <i>Justin Stevens, Maine Sea Grant</i>
9:05	9:20	<b>Participatory mapping for knowledge co-production and application in Downeast Maine</b> <i>Gabriella Marafino, University of Maine</i>
9:20	9:35	<b>Dams, death, and delay in the Penobscot River - the complex and cumulative influence of hydropower dams on migrating American eels</b> <i>Matthew Mensinger, University of Maine</i>
9:35	9:50	<b>Energetic impacts of passage delays in migrating adult Atlantic salmon</b> <i>Sarah Rubenstein, University of Maine</i>
9:50	10:05	<b>Movement and survival of Atlantic salmon <i>Salmo salar</i> in the Piscataquis River</b> <i>Alejandro, Molina-Moctezuma, University of Maine, Department of Wildlife, Fisheries, and Conservation Biology</i>
10:05	10:35	<b>BREAK</b> - refreshments provided
10:35	10:50	<b>Governance of the Atlantic salmon program</b> <i>Julie Crocker, Greater Atlantic Regional Fisheries Office, NOAA Fisheries</i>
10:50	11:05	<b>Does leadership have a role in collaborative environmental governance?</b> <i>Melissa Flye, University of Maine</i>
11:05	11:20	<b>Fish passage decision-making during hydropower relicensing in the Kennebec and</b>

**Penobscot Rivers, Maine**

*Sarah K Vogel, University of Maine, Dept of Wildlife, Fisheries, and Conservation*

- 11:20 11:35 **Maine DOTs Part in Atlantic Salmon Recovery**  
*Charlie Hebson, Maine DOT*
- 11:35 11:50 **Ecosystem implications of restoration evaluated through modeling**  
*Adrian Jordaan, University of Massachusetts Amherst*
- 11:50 12:05 **NRCS Aquatic Connectivity Project**  
*Juan Hernandez, Natural Resources Conservation Service*  
*Judy Camuso, Maine Department of Inland Fisheries and Wildlife*  
*Patrick Keliher, Maine Department of Marine Resources*
- 12:05 13:05 **LUNCH - lunch at the Student Union (not provided)**
- 13:05 13:10 **Session VI: Watershed Restoration and Emerging Recovery Tools**  
*Carl Wilson, Maine Department of Marine Research, Moderator*
- 13:10 13:25 **The Anatomy of Watershed Scale Restoration**  
*Molly Payne Wynne, The Nature Conservancy*  
*Benjamin Mathews, The Nature Conservancy*
- 13:25 13:40 **Narraguagus River Conservation Plan: Ecosystem based co-management for the next 20 years?**  
*Jacob van de Sande, Maine Coast Heritage Trust*
- 13:40 13:45 **Upper Narraguagus Watershed: Restoring habitat and managing expectations (Part I)**  
*Joan G. Trial, Project SHARE*
- 13:45 14:00 **Evaluation of bed mobility using PIT-tagged tracer particles on the Narraguagus River, Maine**  
*Douglas M. Thompson, Environmental Studies Program, Connecticut College*
- 14:00 14:15 **Strategic Habitat Conservation in the Upper Narraguagus River: Using best available science to identify high priority restoration areas-actions intended to improve juvenile Atlantic salmon production in a catchment with ideal channel gradients and overall adequate summer time thermal conditions.**  
*Scott D. Craig, U.S. Fish and Wildlife Service*
- 14:15 14:30 **Managing for More Productive and Resilient Atlantic Salmon Habitat in the Narraguagus River, Maine**  
*Christopher M Federico, Project SHARE*
- 14:30 14:40 **Upper Narraguagus Watershed: Restoring habitat and managing expectations (Conclusion)**  
*Joan G. Trial, Project SHARE*

- 14:40 15:10 **BREAK** – refreshments provided
- 15:10 15:25 **The Maine-eDNA EPSCoR program and its ties to Maine’s salmon ecosystems**  
*Michael Kinnison, University of Maine, School of Biology and Ecology, Orono, ME, USA*
- 15:25 15:40 **Comparative assessment of environmental DNA and backpack electrofishing methods for estimating Atlantic salmon occupancy and abundance**  
*Bradley F. Erdman, University of Maine*
- 15:40 15:55 **Experimental assessment of optimal lotic eDNA sampling and assay multiplexing for Atlantic salmon**  
*Zachary T. Wood, University of Maine*
- 15:55 16:10 **Untying a Gordian knot: Collective salmon recovery on the East Machias**  
*Dwayne P. Shaw, Downeast Salmon Federation*
- 16:10 16:25 **Fort Folly First Nation's ambitious plan to restore endangered inner Bay of Fundy Atlantic salmon to the Petitcodiac River**  
*Tim Robinson, Fort Folly Habitat Recovery program Fort Folly First Nation*
- 16:25 16:40 **Salmon for Maine’s Rivers: A New Partnership for Recovery**  
*Danielle Frechette, MDMR*
- 16:40 16:55 **Using a Keystone Management Species to support Ecosystem Based Management?**  
*Sean Hayes, Chief, Protected Species Branch, NOAA Fisheries*
- 16:55 17:00 **Student Awards, Species in the Spotlight Award, Closing Remarks, and Adjourn**  
*Jen Anderson, Assistant Regional Administrator for Protected Resources, NOAA Fisheries*

**ADJOURN**