



23rd Annual International River Symposium

St. Lawrence River Institute of Environmental Sciences



Great Nations, Great River

**Collective Efforts to Engage Communities
Through Science and Action**

PROGRAM

(Subject to minor changes)

May 25 - 26, 2016

St. Lawrence Power Development Visitor Centre

2500B 2nd Street West, Cornwall, ON K6H 5R6

2016 River Symposium
Great Nations, Great River:

*Collective Efforts to Engage Communities Through
Science and Action*

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INTRODUCTION

2016 River Symposium

St. Lawrence Power Development Visitor Centre

The **2016 Great Nations, Great River Symposium** provides a platform to share knowledge about the status of the St. Lawrence River/Great Lakes and other freshwater ecosystems and their responses to changing conditions. A focus this year will be sharing knowledge about how the research and environmental community can empower communities to protect water, restore wetlands, improve beaches, enhance understanding and consider adaptive management practices.

Made up of both scientific and community outreach oriented sessions, the Symposium will discuss issues of critical concern for the St. Lawrence River/Great Lakes, including climate change and adaptation, sewage discharge, emergency response, nuisance and harmful algae, invasive species, water quality and contamination. The underlying themes of community engagement, public education, awareness, communications and citizen involvement will weave through all sessions and exhibits, with plenty of opportunity for networking, discussion and collaborative planning.

BIOGRAPHIES

2016 River Symposium

St. Lawrence Power Development Visitor Centre

Special Guest Chair and Guest Speaker



Yves de Lafontaine, Ph.D., Director, Sciences regional directorate, Fisheries and Oceans Canada / Government of Canada

Mr. de Lafontaine has over 25 years of experience in scientific management and research. He began his career as an associate research professor at Université du Québec à Rimouski and has since occupied various scientific positions with progressively more responsibilities at Fisheries and Oceans Canada and Environment Canada. He recently co-chaired the St. Lawrence Action Plan's "Water Quality Improvement" committee. Mr. de Lafontaine has been honoured with an International Joint Commission Certificate of Appreciation and an Environment Canada Excellence Award. He has also written or co-written over 100 scientific publications and communications. He has a master's degree in oceanography from the Université du Québec à Rimouski and a doctorate in marine biology from McGill.

May 25th, Keynote Presentation— 8:45 am

From green to blue waters: the impact of a large river on the Estuary and Gulf of St. Lawrence ecosystem

The St. Lawrence River (SLR) is the largest freshwater input to the Estuary and Gulf St. Lawrence (EGSL) ecosystem. Water quality and water quantity are major issues for the freshwater stretch of the St. Lawrence River, but have different implications for the downstream marine ecosystem from both ecological and management perspectives. Stressors affecting both the quantity and quality of the SLR ecosystem are reviewed to assess their impacts on the downstream marine ecosystem. Examination of recent research and monitoring programs in both freshwater and marine systems revealed different environmental priorities along the upstream-downstream gradient of this interconnected ecosystem. Various indicators to inform about the state of ecosystems reveal little spatial continuity in data acquisition and response between freshwater and saltwater ecosystems, making it difficult to fully assess the impact of the SLR on the EGSL. Given the increasing importance of large-scale anthropogenic stressors on aquatic ecosystems such as global climatic change, invasive species and diffuse pollution, research and monitoring approaches need to be coordinated to better understand the functional links and impacts of the freshwater input on coastal waters. This represents an essential step for implementing an ecosystem approach to resources management in the entire SLR-EGSL ecosystem.

May 25th Public Presentation—6:45pm River Institute

The state of the St. Lawrence marine ecosystem: indicators and trends

Located at the downstream end of the St. Lawrence River, the Estuary and Gulf of St. Lawrence ecosystem (EGSL) is an internal sea subjected to various environmental stressors, some of which are intrinsically linked to the freshwater input. Based on various indicators derived from various research and monitoring programs, an overview of the trends in the state of various compartments of the ecosystem is presented. The decline in abundance and the non-recovery of many marine fish and marine mammals in the EGSL ecosystem are of major concern despite management schemes to protect and restore populations. The influence and relative impact of climate change on both the physical and ecological parameters reveal significant ecosystem shift which results in some changes in exploited resources sustainability. While still in its infancy, the development of an ecosystem approach to resource assessment and management represents a new scientific challenge for protecting this internal sea.

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Gilbert Cabana, Ph.D. Gilbert Cabana is professor at the Département des Sciences de l'Environnement at l'Université du Québec à Trois-Rivières (Québec, Canada). He is a member of the RIVE Research Centre at UQTR, which is dedicated to the study of the interactions between terrestrial and aquatic ecosystems.

Dr. Cabana has been conducting research on lake, stream, and river food webs combining the use of stable isotopes of various elements (C,N,S) with data on contaminants in fish and invertebrates. He is interested in broad patterns in food web structures and ecological subsidies, as well as applications of this approach to bioenergetics at the level of individual organisms. One of his current interests involves the ecological role of the floodplain of Lac Saint-Pierre, a threatened hot spot of biological diversity and potentially a keystone component of the functioning of the St-Lawrence River ecosystem.

May 25th Presentation 9:15am

Where do fish from the St-Lawrence come from?

From its source at the outlet of Lake Ontario to the start of brackish waters near Quebec City, the St-Lawrence River is comprised of a series of constrained segments interspaced with wider fluvial lakes connected to major tributaries. How do these habitats contribute to the productivity of this major river? Can we identify fish species trophically connected to specific water masses or tributaries? Does the floodplain contribute to fish productivity? Does the output of nutrients from the effluent of the City of Montreal play an important role in the food web? Using a biogeochemical approach to the study of riverine food webs, students in my lab and collaborators have been investigating these questions.



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Jérôme Marty, Ph.D. Science Advisor, Environmental Science, Ecosystem Science, Fisheries and Oceans Canada / Government of Canada

Dr. Marty has worked for the last 15 years on his favorite topic: water and the creatures living in it. He has explored the response of food webs to flow perturbations in northern Quebec reservoirs and in rivers affected by dam operations. At the River Institute, he studied the influence of nutrient inputs on the water quality of the St Lawrence River and also studied a newly discovered invasive species (Hemimysis – small shrimp) to understand its effects in the Great Lakes and in the St Lawrence River. Over the last couple of years, he developed methods to be applied in risk assessments of aquatic systems. His latest work evaluated the risk of spills associated with marine shipping in Canada.

Jerome is currently a science advisor in the Department of Fisheries and Oceans in Ottawa, and teaches at the University of Ottawa. He is the President of the Canadian Society of Limnology, promoting science and awareness of Freshwater in Canada.

May 25th Plenary Presentation - 10:00 am

Marine Shipping and Spills in the St Lawrence River: trends, probability and impacts.

May 26th Public Presentation - 10:30 am

Taking Care of the St Lawrence River: A Job for Everyone - not Just Scientists

BIOGRAPHIES

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Regina Jacobs, *Emergency Response Officer, Mohawk Council of Akwesasne*

Ms. Regina M. Jacobs is a registered First Nation member of the Mohawk Council of Akwesasne (MCA – Canada) & the St. Regis Mohawk Tribe (SRMT- Unites States). The Mohawks of Akwesasne are part of the Iroquois Confederacy and its community lies on the border of both Canada (Quebec & Ontario) and the United States (New York State). Ms. Jacobs began her career in Emergency Management in 2004 as a hobby and it bloomed into a career after meeting her predecessor, Mr. Lawrence “Larry” White who was the Emergency Manager for the Mohawk Council of Akwesasne for 18 years. Mr. White retired from MCA in 2010 and Ms. Jacobs became his successor that same year. She currently chairs the Akwesasne & Local Emergency Planning Committee (ALECP) and sits on the International Association of Emergency Managers (IAEM) Standards and Practices committee – representing First Nations. She is also a co-researcher/ consultant for the Applied Research in Environmental Sciences NonProfit, Inc. (ARIES) which is organized and operated for charitable, scientific, and educational purposes. ARIES is a research association in which multidisciplinary/interdisciplinary projects such as USC Center for Risk and Economic Analysis of Terrorism Events (CREATE) whose mission is to improve the Nation’s security through the development of advanced models and tools for the evaluation of the risks, costs and consequences of terrorism and to guide economically viable investments in homeland security. However, she shares all of her success with the MCA’s Chief and Council who are strong supporters of Emergency Management in Akwesasne as it addresses the various obstacles with being a multi-jurisdictional community.

May 25th Presentation - 10:30 am

Emergency Management in the Territory of Akwesasne: A Multi-Jurisdictional Response Effort.



WEDNESDAY, MAY 25, 2016

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	MAIN HALL
8:00 am	Registration—Lobby—St. Lawrence Power Development Visitor Centre
8:30 am	Welcome —Traditional Native Opening Jeff Ridal , Executive Director, River Institute Walter Oeggerli , Chair, River Institute
8:45 am	Yves de Lafontaine, Ph.D. , Director, Sciences regional directorate, Fisheries and Oceans Canada / Government of Canada <i>From green to blue waters: the impact of a large river on the Estuary and Gulf of St. Lawrence ecosystem</i>
9:15 am	Gilbert Cabana, Ph.D. , Département des Sciences de l'environnement, Université du Québec à Trois-Rivières <i>Where do fish from the St. Lawrence come from?</i>
9:45 am	BREAK (Coffee service)
10:00 am	Jérôme Marty, Ph.D. Science Advisor, Environmental Science, Ecosystem Science, Fisheries and Oceans Canada / Government of Canada <i>Marine Shipping and Spills in the St. Lawrence River: Trends, probability and impacts</i>
10:30 am	Regina Jacobs , Emergency Response Officer, Mohawk Council of Akwesasne <i>Emergency Management in the Territory of Akwesasne: A Multi-Jurisdictional Response Effort</i>
11:00 am	TRANSITION BREAK

WEDNESDAY, MAY 25, 2016

2016 River Symposium St. Lawrence Power Development Visitor Centre

	Main Hall	Downstairs Room
	<p>Blooming Algae in Lakes, Rivers and Wetlands</p> <p><i>Chaired by: Frances Pick PhD, Professor, University of Ottawa</i></p>	<p>Fish Populations and Ecosystem Health</p> <p><i>Chaired by: Dominique Lapointe PhD, Research Scientist, River Institute</i></p>
11:10 am	<p>Frances Pick, University of Ottawa Pal, Shinjini, I. Gregory-Eaves</p> <p><i>Histories of cyanobacteria in lakes inside and outside Gatineau Park, based on sediment DNA</i></p>	<p>Peter Levick, Muskies Canada</p> <p><i>Going Wild - The Path to Sustainability for Canada's Muskellunge</i></p>
11:30 am	<p>Matt Brown and Jesse Vermaire Ph.D. Carleton University</p> <p><i>The relationship between zebra mussel (dreissena polymorpha) presence and submerged macrophyte abundance in Eastern Ontario Lakes</i></p>	<p>Matt Windle, River Institute</p> <p><i>Minnows as Indicators of Ecosystem Health?</i></p>
11:50 am	<p>Mackenzie Waller, Queen's University</p>	<p>David Browne, Ph.D., Conservation at Canadian Wildlife Federation</p>
12:10 pm	LUNCH/ POSTER SESSION	
POSTER SESSION (PLEASE TAKE THE TIME TO SEE THE POSTERS)		
<ul style="list-style-type: none"> • Steve Watts—Education about Hamilton Harbour Remediation: Art, Science, and Hands on Experiences • Morgan Zyzik—Beginning Basics for Restoring Aquatic and Riparian Habitat in the St. Lawrence River at Massena Area of Concern • Luc Farly—Contribution de la plaine inondable à productivité d'un lac fluvial • Katherine Moir—Assessing the Success of the St. Lawrence River Remedial Action Plan through a Paleolimnological Investigation of the Nearshore Areas of Lake St. Francis 		

WEDNESDAY, MAY 25, 2016

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	Main Hall	Downstairs Room
	Monitored Watersheds <i>Chaired by: Geof Hall, Ph.D, Professor, Queen's University, Water Centre</i>	Species at Risk, Invasive Species and Regulations When Working Around Water <i>Chaired by: Naomi Langlois-Anderson, Senior Fish & Wildlife Technician, South Nation Conservation Authority</i>
1:10 pm	Michael Twiss , Clarkson University <i>Water quality monitoring in the St Lawrence River using a novel approach of sensors located inside of hydroelectric power dams: 2014 to 2016</i> Michael R. Twiss, Anthony M. Russo, Faith C. Neff, Joseph D. Skufca	Justin White , Ducks Unlimited <i>Early Detection & Rapid Response to Invasive European Water Chestnut in Eastern Lake Ontario and the Upper St. Lawrence River</i>
1:30 pm	Stefanie Kring , Clarkson University <i>Chromophoric dissolved organic matter (CDOM), total mercury (THg), methyl mercury (meHg) and water quality along the 2 m isopleth in fluvial Lake St. Francis, St Lawrence River</i>	Naomi - Langlois Anderson , South Nation Conservation Authority <i>Shoreline restoration project and stream restoration adjacent to a wetland</i>
1:50 pm	Mark MacDougall , River Institute <i>Variable exposure: the ability for periphytic diatoms to track nutrient concentrations over both short and long time scales in tributaries of northern Lake Erie</i>	Erin Seabert , Ontario Ministry of Natural Resources and Forestry <i>The Endangered Species Act, a brief overview</i>
2:10 pm	BREAK	
2:30 pm	Geof Hall , Professor, Queen's University <i>Monitored Watersheds</i>	Geoff Owens , South Nation Conservation Authority <i>South Nation, Development, Interference with Wetlands and Alteration to Shorelines and Watercourses (Conservation Authorities Act)</i>
2:50 pm	David Lean , Fomer Senior Scientist River Institute, Universidad Nacional, Central American Institute of Environmental Toxicology (IRET), <i>Working together for better "management" of watersheds</i>	Alain Painter , Service canadien de la faune, Environnement Canada <i>An overview of the Species at Risk Act and how it can impact projects</i>
3:10 pm	BREAK/ POSTERS	

WEDNESDAY, MAY 25, 2016

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	<p style="text-align: center;">Main Hall</p> <p style="text-align: center;">Progress on Remedial Action Plans</p> <p style="text-align: center;">Chaired by Andrew Morley, Ontario Ministry of the Environment and Climate Change</p>
3:30 pm	<p style="text-align: center;">Erin O'Hare, Comité ZIP du Haut Saint-Laurent</p> <p style="text-align: center;">From Concerted Action to Improving the Saint-Lawrence Ecosystem</p>
3:50 pm	<p style="text-align: center;">Karen Cooper, St. Lawrence RAP, River Institute</p> <p style="text-align: center;"><i>Next Steps: The Upper St. Lawrence River Protection Network and the Cycle of Change</i></p>
4:10 pm	<p style="text-align: center;">Jessica Jock, Saint Regis Mohawk Tribe</p> <p style="text-align: center;"><i>Beginning Basics for Restoring Aquatic and Riparian Habitat in the St. Lawrence River at Massena Area of Concern</i></p>
4:30 pm	<p style="text-align: center;">Alison Fraser, Shared Value Solutions Ltd.</p> <p style="text-align: center;"><i>Working with First Nations at Remediation Sites</i></p>
4:50 pm	<p style="text-align: center;">Native Closing</p>
5:15 pm 6:45 pm	<p style="text-align: center;">Reception at River Institute 2 St. Lawrence Drive, Cornwall, ON Canada K6H 4Z1 (St. Lawrence College Campus)</p> <p style="text-align: center;">Keynote Speaker:</p> <p style="text-align: center;">Yves de Lafontaine, Ph.D., Director, Sciences regional directorate, Fisheries and Oceans Canada / Government of Canada</p> <p style="text-align: center;">"The state of the St. Lawrence marine ecosystem: indicators and trends".</p>



St. Lawrence River Institute of Environmental Sciences



GREAT NATIONS, GREAT RIVER

ENVIRONMENTAL SCIENCE DAY

Free of Charge * All Welcome * No Registration

Thursday, MAY 26th 2016 (9 am-noon)

St. Lawrence Power Development Visitor Centre

2500 B Second St. West , Cornwall, Ontario



Dr. Jerome Marty
Science Advisor, Department of Fisheries and Oceans Canada & President of the Canadian Society of Limnology

9:00 am Science & Nature River Partner Displays & Exhibits

10:30 am Guest Speaker- **Dr. Jerome Marty** "Taking Care of the St Lawrence River: A Job for Everyone - not Just Scientists"

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The St. Lawrence Seaway Management Corporation

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Raisin Region Conservation Authority
Office de protection de la nature de la région Raisin



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DE LA NATION SUD

