



MARCH 8<sup>th</sup>-10<sup>th</sup>

Science  Atlantic  
Environment Conference



ST. FRANCIS XAVIER  
UNIVERSITY



Science Atlantic  
Environment  
Conference

Science Atlantique  
Conférence sur  
L'environnement

# SPONSORS

## Platinum Level



## Gold Level



Eastern Region  
Solid Waste  
Management

## Silver Level



## Bronze Level

Envirosphere Consultants Ltd.  
 University of Toronto Press  
 Scott & Stewart Forestry  
 The Canadian Society of Environmental Biologists  
 Kenny's Pizza  
 St. FX Campus Store  
 Antigonish Victorian Inn  
 FinalStraw  
 Antigonish Evergreen Inn

Many thanks to our sponsors for their contributions!



## Hello from the Conference Co-Chairs!

Welcome to St. Francis Xavier University and the 2019 Science Atlantic Environmental Conference! We are the co-chairs of this year's planning committee, and we can't wait for you to see what this weekend has in store! We are very excited to meet the environmental students and faculty from universities around Atlantic Canada. The environmental science field is becoming increasingly important and prevalent in the world we live in, and we believe that students in this field of study show a high level of commitment, enthusiasm and dedication to their studies. We cannot wait to hear the undergraduate and graduate research presentations, to learn new and innovative ideas, and to make connections with peers and professionals.

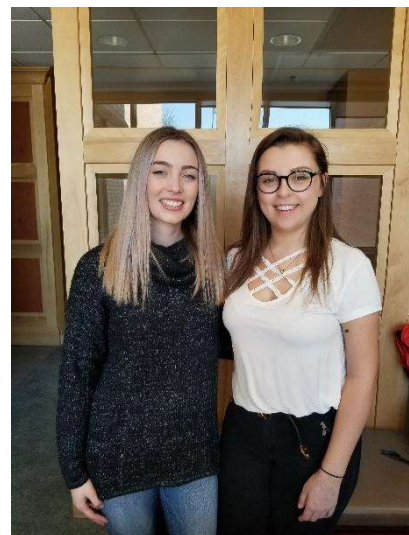
Our theme this year is "Environmental Remediation and Mitigation: Our Responsibility". To best represent this theme, we have planned two engaging and educational field trips. The first is a trip to Boat Harbour, Pictou County. Here, leader and professor Jim Williams will educate attendees of the multi-stakeholder issue that surrounds the future reclamation of Boat Harbour, and the future production of Northern Pulp. Our second field trip is to the Colchester County Materials Recovery Centre where students will learn about the future of waste disposal and recycling in Nova Scotia, through an environmentally sustainable management approach.

Continuing with the theme, we are thrilled to welcome a well-rounded group of professionals and representatives to our panel discussion to provide a multifaceted perspective on Boat Harbour and Northern Pulp. This has been an on-going environmental pollutant issue for many years and is finally coming to the forefront as the Northern Pulp facility has agreed to make changes to the effluent discharge methods by 2020. We hope that by hearing a range of perspectives on this issue, it will give students and faculty a chance to reflect and recognize the complexity of environmental issues. Be sure to read through the case study the organizing committee has put together on the website.

We look forward to meeting everyone, to building new connections, and making meaningful relationships within our industry. We hope students take advantage of this opportunity to learn and grow in the environmental field.

Have a great conference!

Conference Co-Chairs,  
*Clare Henderson & Carley Ross*  
St. Francis Xavier University





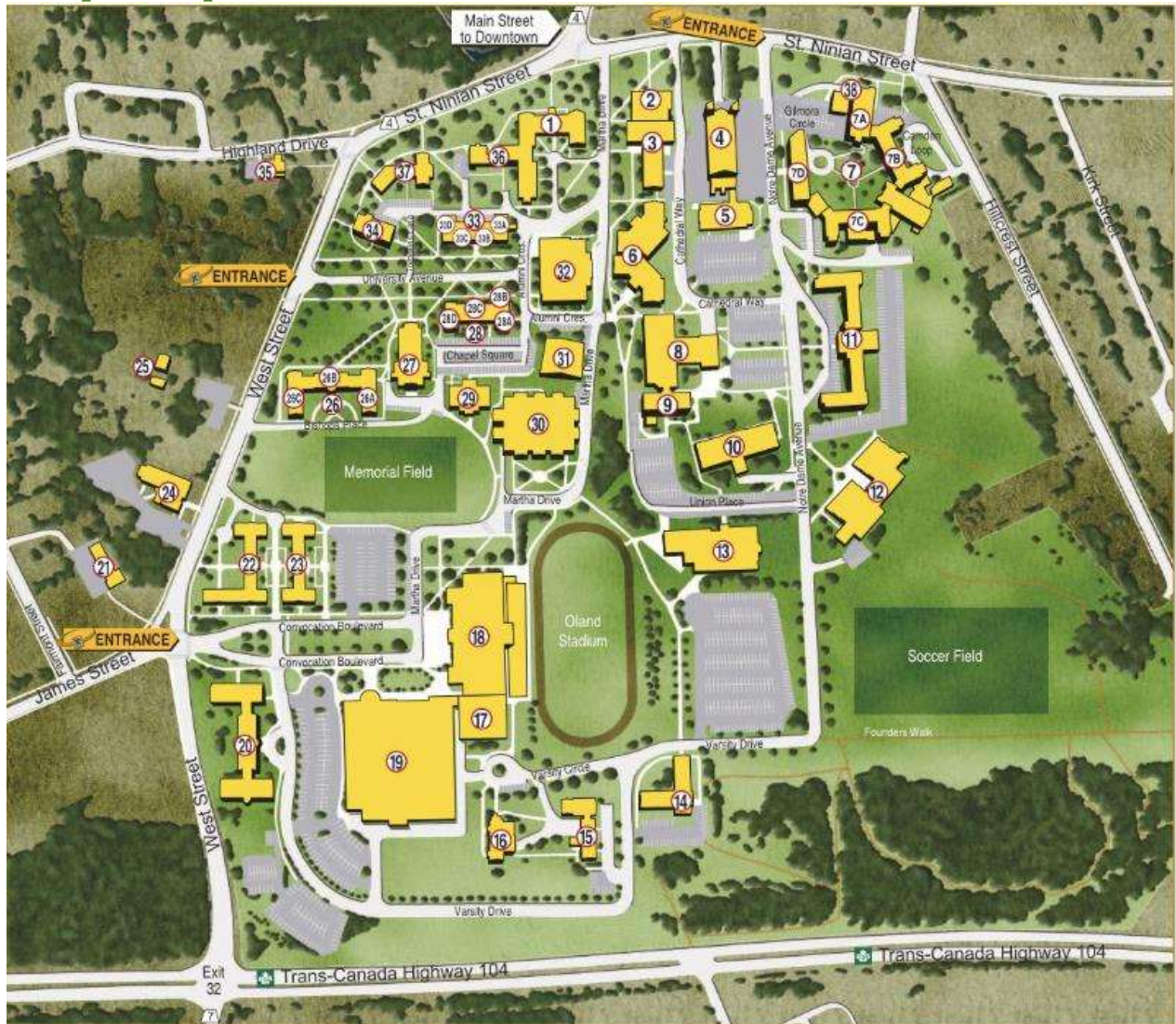
(PSC = Physical Sciences Centre)

## Conference Schedule

Day	Time	Event	Location
<b>Thursday March 7</b>	5:00pm - 9:00pm	Registration	PSC Foyer
<b>Friday March 8</b>	8:00am- 11:30am	Registration	PSC Foyer
	12:00pm-12:30pm	Field Trip Pre-talk, board busses	PSC Foyer, Charles V. Keating Centre
	12:00pm – 5:00 pm	Field Trips	
	7:00pm – 10:00 pm	Welcome Social Night	Coady, Marjorie Desmond Hall
<b>Saturday March 9</b>	8:30am-9:00am	Poster set-up	PSC Foyer
	9:00am – 9:25am	Welcome remarks	PSC 1072
	9:30am – 10:30am	Undergrad Oral presentations	PSC 1072 & PSC 3046
	10:30am – 11:00am	Coffee Break	PSC Foyer
	11:00am – 11:45pm	Undergrad Oral Presentations	PSC 1072 & PSC 3046
	12:00pm – 12:45pm	Lunch	3 <sup>rd</sup> floor outside 3046
	12:45pm – 2:00pm	Grad Oral Presentations	PSC 1072
	2:00pm – 4:00 pm	Posters	PSC Foyer
	4:00pm – 5:30pm	Panel Discussion	PSC 1072
	5:30pm – 7:00pm	Break & Adjudication meeting	Reading Room (4 <sup>th</sup> floor PSC)
	7:00pm – 9:00pm	Keynote Speaker & Banquet Dinner	MacKay Room in Bloomfield Centre
<b>Sunday March 10</b>	9:15am – 10:45 am	Grad Oral presentations	PSC 1072
	10:45am – 11:30am	Coffee Break Adjudication meeting	PSC Foyer Reading Room (4 <sup>th</sup> floor PSC)
	11:30am – 12:00pm	Closing Remarks	PSC 1072
	12:00pm – 1:30pm	Science Atlantic Committee Meeting	PSC 4001



## Campus Map



- 13 – Bloomfield Centre, Mackay Room
- 16 - MacNeil hall (Accomodations)
- 19 – Charles V. Keating Centre
- 30 – Physical Sciences Centre (PSC)
- 32 – Morrison Hall & Mini Moes Cafe
- 37 – Coady Institute (west), Marjorie Desmond Hall



## Schedule of Presentations – Saturday March 9

Session 1	Time	Title	Presenter
Animals & Ecosystems <b>PSC 1072</b>	9:30am	Habitat and carcass availability affect scavenging rates in an island setting: implications for bird-window collision mortality estimates	Megan Clarke, Grenfell
	9:45am	Modeling movement of juvenile Blanding's turtles ( <i>Emydoidea blandingii</i> ) across a fragmented landscape in Rouge National Urban Park, Ontario, Canada	Amy Frost-Wicks, Dal
	10:00am	Running on empty: Determining the presence of feeding behaviour in anadromous alewife in Jolecure Lake, NB	Sarah Stewart, Acadia
Industry, Health, & Society <b>PSC 3046</b>	9:30am	Income Polarization over a 15-Year Period (2001-2016) and its Correlation with Existing Green Space in Urban Halifax, Nova Scotia	Megan Fong, Dal
	9:45am	Development and testing of glacial sediment as a growth medium for vegetable production	Zachary Harvey, Grenfell
	10:00am	Investigating the impacts of mink farming on cladocera in eutrophic lakes of southwestern Nova Scotia	Abbie Gail Jones, MtA
	10:15am	Antifouling Performance of Siloxanes and Netminder	Emmerson Wilson, StFX

Session 2	Time	Title	Presenter(s)
Animals & Ecosystems <b>PSC 1072</b>	11:00am	Winter Distribution of the Black Guillemot ( <i>Cepphus grylle</i> ) in Atlantic Canada	Julia Baak, Dal
	11:15am	Wolves: Friend or Foe? A solution to the hyper abundance of Moose in the Cape Breton Highlands National Park.	Brady Doucette, CBU
	11:30am	Effects of inert granite dust treatment on lily volatile emissions and subsequent herbivore response	Megan MacIsaac, Acadia
Flora <b>PSC 3046</b>	11:00am	Identifying the fungal associates of the endangered plant <i>Crocianthemum canadense</i> in Nova Scotia	Philicity Byers, Acadia
	11:15am	Observing plant reactions from mimicking florivory from <i>Mompha capella</i> larvae on populations of <i>Crocianthemum canadense</i> (L.) Britt. (Rockrose) in Kings County, Nova Scotia	Hannah Machat, Acadia
	11:30am	Recent radial productivity and periods of suppressed growth in sugar maples of Fundy National Park	Kindy Houinato & Emilie Noel, MtA

Session 3	Time	Title	Presenter
Environment <b>PSC 1072</b>	12:45pm	Selective High Surface Area Pollutant Scrubbers: Metal-Organic Frameworks for Sequestration of Atmospheric Nitrous Acid	Devon McGrath, MUN
	1:00pm	Mobile surveying to assess arctic and boreal forest greenhouse gas fluxes	Daniel Wesley, MUN
	1:15pm	Evaluating the association between Cancer and Arsenic Exposure Using Toenail Speciation Biomarkers in the Atlantic PATH Cohort Study: Towards an Evidence-based Cancer Prevention and Control Strategy	Kalli Hood, Dal
	1:30pm	Influence of salinity on mercury photochemistry in estuarine rivers in Minas Basin, Canada	Rachel Clarke, Acadia
	1:45pm	Methods for the analysis of upland catchment liming in Mooseland, Nova Scotia	Caitlin McCavour, Dal



## Schedule of Presentations – Sunday March 10

Session 1	Time	Title	Presenter
Organisms & Ecosystems <b>PSC 1072</b>	9:15am	Diversity of fungi from marine wood from the Bay of Fundy, Nova Scotia, Canada	Sarah Adams, Acadia
	9:30am	Using Subfossil Midges to Assess the Potential Impacts of Mink Farming on Lake Water Quality in Southwestern Nova Scotia	Julia Campbell, MTA
	9:45am	Using Arbuscular Mycorrhizal Fungi to Save Nova Scotia's Declining Saltmarshes	Tyler d'Entremont, Acadia
	10:00am	Aquatic Ecosystem Senescence of Wetland Impoundments in the Upper Bay of Fundy, Canada	Jacob Demers, MTA
	10:15am	The protein kinase CK2 catalytic domain from Plasmodium falciparum: crystal structure, tyrosine kinase activity and inhibition	David (YanJun) Dong, CBU
	10:30am	Assessing the feasibility of two systems to handle household organic waste: The dirt on compost	Brittany MacNaughton, UNB

## Posters

	No.	Title	Presenter(s)
Undergraduate	1	Optimal alpha – Validating a better method for making decisions	Milia Aidemouni, UNB
	2	A Geospatial Analysis of Land Use and Cover Change in PEI, 1969-2010	Choyce Chappell, UPEI
	3	Bring Back the Boreal: Maintaining Ecological Integrity Through Conservation and Restoration	Shane Cormier, CBU
	4	Exploring Arbuscular Mycorrhizal Fungi of <i>Ex Situ</i> Eastern Mountain Avens, <i>Geum peckii</i> Pursh (Rosaceae) in Digby County and Kings County, Nova Scotia.	Rebecca Dodge, Acadia
	5	Using peg- line methodology to determine annual rates of shoreline erosion across Prince Edward Island	Juliana Fernandes Granzoti & Catherine Kennedy, UPEI
	6	Caribou ( <i>Rangifer tarandus tarandus</i> ) jawbone length in relation to prenatal weather conditions	Julia Halfyard, Felicia Hillier & Kelsey White, Grenfell
	7	Commotion in the Ocean: Exploring Youth Volunteerism in Ocean Health and Literacy Coast to Coast to Coast	Hannah Kosick, CBU
	8	Development and validation of an autonomous measurement system for CO <sub>2</sub> and CH <sub>4</sub> from discontinuous permafrost	Renée McDonald, StFX
	9	Identification and characterization of protease activity and potential protein biomarkers of stress in the epidermal mucus of the Atlantic sturgeon ( <i>Acipenser oxyrinchus oxyrinchus</i> )	Anna Murphy, Acadia
	10	Does land-use affect bird abundance?	Jake Prosser, UNB
	11	Characterization of Marine Fungal Diversity Associated with Tidal Mudflat Sediment and Wood from the Minas Basin, Nova Scotia	Jake Reicker, Acadia
	12	Characterization of a new obligate marine fungus <i>Lulworthia</i> nom. prov. fundyense from Nova Scotia	Victoria Taylor, Acadia
	13	A preliminary investigation into the remediation of oil spills using biodegradable ionic liquid oil dispersants	Katrina Turrie, SMU
Graduate	14	Effects of Invasive Fish Predators on Atlantic Salmon ( <i>Salmo salar</i> ) Smolt Survival	Shawn Feener, UNB

\*Poster session will be from 2:00pm to 4:00pm Saturday

**Even** numbered posters will be judged from 2:00pm-3:00pm

**Odd** numbered posters will be judged from 3:00pm-4:00pm





## **Field Trips**

### **Boat Harbour**

**Primary Leaders:** Jim Williams (Former Aquatic Resources Professor and Coordinator) & Andrea MacInnis (Aquatic Resources Department)

For 50 years, The Northern Pulp Mill in Pictou County has released effluent into Boat Harbor, neighboring Pictou Landing First Nation. The Province of NS has mandated that the current treatment facility be shut down by 2020 where reclamation will then ensue. Issues concerning the companies plan to relocate an effluent pipe into The Northumberland Strait, an economical fishery for NB, NS, and PEI has created uproar about the future of the pulp mill in the region. An estimated reclamation cost of 133 million dollars for Boat Harbor has created controversy concerning who is responsible between the Provincial and Federal governments, as well as the citizens of Pictou County and Paper Excellence, the owner of Northern Pulp. Through an Interdisciplinary approach, this field trip will inform attendees of the multi-stakeholder issue that surrounds the future reclamation of Boat Harbor, and the future production of the pulp mill in the area.

### **Colchester Material Recovery Facility**

**Primary Leaders:** Colchester Waste Resource Management Personnel

Built in 1996, the Colchester Solid Waste Facilities are responsible for the disposal and storage of solid and compostable waste for Colchester County, while the Colchester Recycling Facility processes the Municipal recyclables from Antigonish, Guysborough, Pictou, East Hants, and Windsor Counties. This field trip will offer a tour of the Colchester County Waste Management Facilities to provide attendee's with on-site exposure of the processes involved in waste management in adherence with provincial regulations. This tour will feature a historical review of Nova Scotia's recycling programs, as well as the future of waste disposal and recycling in Nova Scotia, through an environmentally sustainable management approach.



## Panel Discussion on Boat Harbour

The panel discussion will be featuring professionals from a variety of fields of study to discuss a case study on Boat Harbour and the environmental concerns regarding the discharge of pulp effluent into the community's surrounding environment. The panel will provide insight on the scientific, legal, political and economic factors involved. Solutions to environmental issues are typically not an easy fix; they require input from groups and people to create a holistic viewpoint. This situation provides a local experience to provoke critical thinking among conference attendees. Speakers on the panel include:



### Dr. Linda Campbell

Dr. Campbell is an expert on aquatic ecosystem health based at St. Mary's University in Halifax, Nova Scotia. Her research with the Dynamic Ecology and Environmental Research Group draws from the fields of environmental chemistry, ecology and biology to determine the impacts of both anthropogenic and natural contamination of aquatic environments.

### Bethany Dugas

Bethany Dugas operates an environmental management consulting business and holds both a degree in Engineering Technology, Environmental Studies from Cape Breton University as well a diploma in Natural Resources Environmental Technology. Prior to consulting, Bethany worked in forestry, as well as the Health and Social Services sector.



### Sean Fraser

Sean Fraser is the current Member of Parliament for Central Nova and the Ministerial Secretary to the Minister of Environment and Climate Change. Before entering politics, Sean Fraser had a successful career with one of Canada's top law firms. He holds a law degree from Dalhousie University, a Master's degree in Public International Law from the Netherlands' Leiden University, and a Bachelor of Science from St. Francis Xavier University.

### Friends of the Northumberland Strait: Nicole Mackenzie & Krista Fulton

Friends of the Northumberland Strait is a community group which came together because of their concerns about Northern Pulp's proposed wastewater treatment facility, especially the plan to continuously discharge treated effluent directly into the Strait. Their goal is to create a better future together by protecting the water, air, land and resources of the region, so that they can thrive for many generations. The Group, formed in November 2017, come from all corners of the community and includes business owners, entrepreneurs, tourism operators, fisher folks, cottagers, boaters, and outdoor enthusiasts. The group is volunteer run, by those who want to help people become more informed about this issue, which has the potential to affect our future in so many ways.



## Keynote Speaker

### **Being an Environmental Lawyer: How Earth Science metamorphosed my career into something “gneiss”!**



Jacquelyn Stevens B.Sc. (Hons.), M.Sc., M.E.S.L., LL.B., is a Partner at Willms & Shier Environmental Lawyers LLP and is a Certified Specialist in Environmental Law by the Law Society of Ontario. Jacquie has significant expertise representing a wide range of clients in environmental civil litigation, defence of quasi-criminal prosecutions by environmental regulators, and at administrative appeals and hearings. Jacquie also provides effective advice and solutions for environmental due diligence and compliance, brownfields/contaminated site remediation, and environmental approvals for air, odour, noise and waste. Jacquie advises on cross-boundary migration of contamination and remediation options during civil litigation and has significant expertise litigating contamination issues at dry cleaning operations and gas stations. Jacquie appears before the Courts, including the Ontario Court of Appeal. Jacquie is called to the Bar in Ontario and Alberta.

**Jacquie will also participating in the panel discussion to provide a perspective on the legal concerns.**



Science Atlantic  
Environment  
Conference

Science Atlantique  
Conférence sur  
L'environnement

A huge thank you to the hardworking student organizing committee:

Clare Henderson  
Kerstin Landry  
Tiffany MacLennan  
Katie Robinson  
Kaelin Barry

Carley Ross  
Mark Argento  
Sam Fromm  
Jamie Gould  
Melissa Pacheco

Renée McDonald  
Sarah Kennedy  
Alison Barkhouse  
Mitchill Brown  
Zoe Brewer

Justin Laforest  
Gilles Perrine  
Dayne Holodniuk  
Mary Caplice  
Izabella Poziomka

And Dr. Andrew MacDougall!

