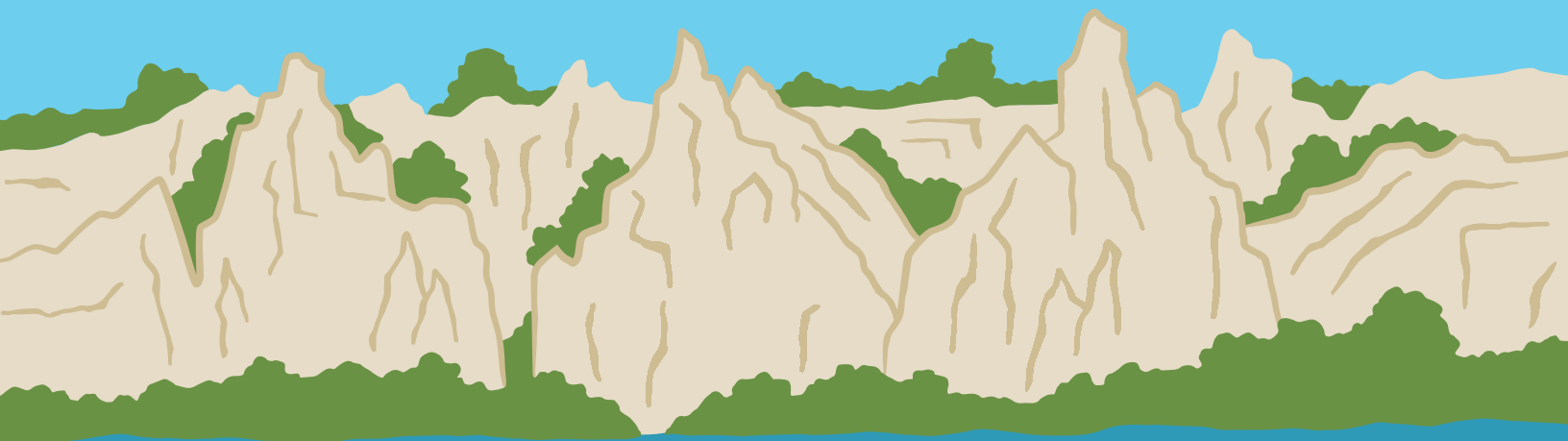




61st Annual Conference on
GREAT LAKES RESEARCH

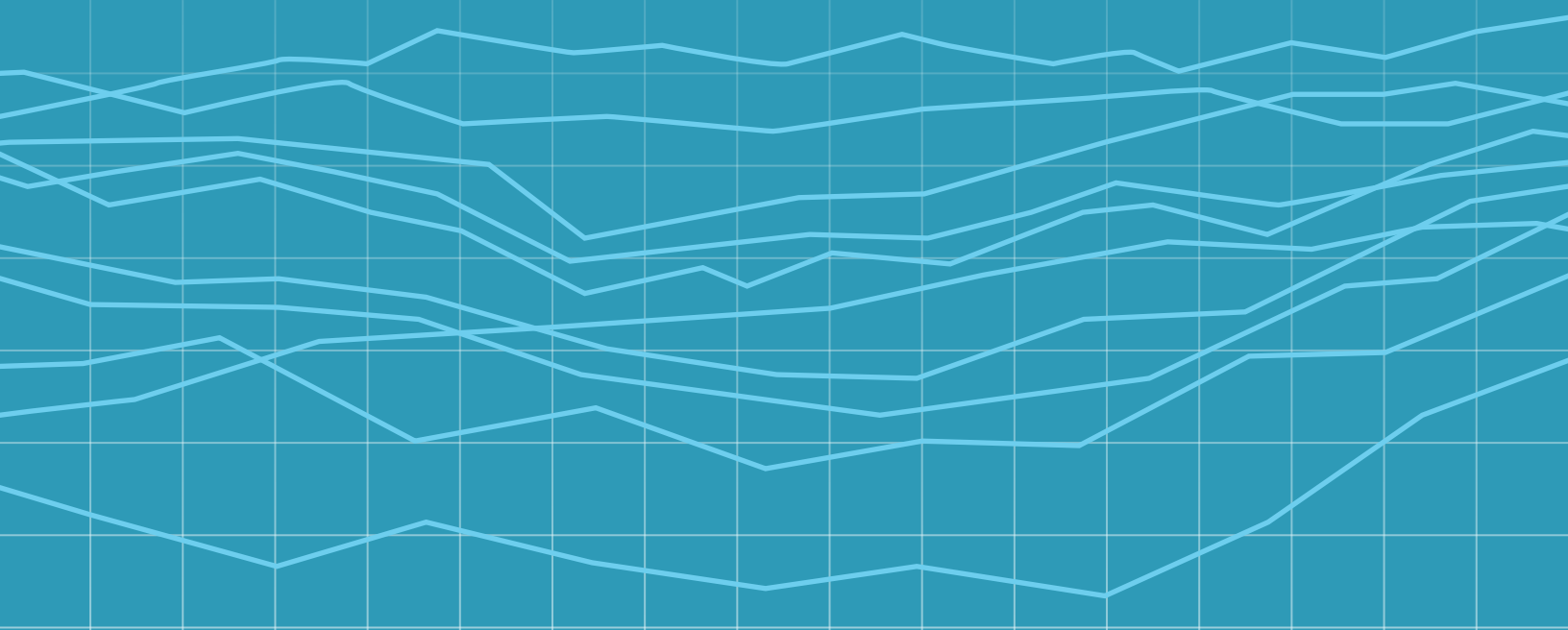


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TORONTO 2018

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JUNE 18-22



International Association for Great Lakes Research

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PROGRAM

61st Annual Conference on Great Lakes Research



Great Science for Tomorrow's Solutions

June 18–22, 2018
University of Toronto Scarborough

#IAGLR2018

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4840 South State Road
Ann Arbor, Michigan 48108
iaglr.org

Cover design and conference logo by Jenifer Thomas

<https://symposium.inra.fr/ells-iaglr-2018/>



HOLD THE DATE !

We are pleased to announce that *IAGLR* and the *European Large Lakes Symposium* will co-sponsor an international conference entitled “*Big Lakes - Small World*” during the week of September 23-28, 2018 at Lake Geneva (Evian, France).

**BIG
LAKES**

Small

World

2018

***SEPTEMBER 23-28
EVIAN - FRANCE***



Contact: ells-iaglr-2018@inra.fr



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EXHIBITORS

Welcome Conference Exhibitors!

Exhibits are open daily in The Meeting Place.

Aquatic Ecosystem Health & Management Society

Burlington, Ontario
aehms.org

Biosonics Inc.

Seattle, Washington
biosonicsinc.com

Chaoticwaters Inc.

Peterborough, Ontario
chaoticwatersinc.com

Cooperative Institute for Great Lakes Research

Ann Arbor, Michigan
cigl.seas.umich.edu

Diapharma Group, Inc.

West Chester, Ohio
diapharma.com

Elsevier

Amsterdam, Netherlands
elsevier.com

Fluid Imaging Technologies

Scarborough, Maine
fluidimaging.com

Global Quality Corp.

Covington, Kentucky
hydrotrek.com

Great Lakes Fishery Commission

Ann Arbor, Michigan
glfc.org

Great Lakes Observing System

Ann Arbor, Michigan
glos.us

Halltech Aquatic Research Inc.

Guelph, Ontario
halltechaquatic.com

Hoskin Scientific

Burlington, Ontario
hoskin.ca

International Joint Commission

Washington, District of Columbia
ijc.org

LimnoTech

Ann Arbor, Michigan
limno.com

McLane Research Labs

East Falmouth, Massachusetts
mclanelabs.com

NOAA in the Great Lakes

NOAA Great Lakes Environmental Research Laboratory
Ann Arbor, Michigan
glerl.noaa.gov

Precision Measurement Engineering, Inc.

Vista, California
pme.com

RBR

Ottawa, Ontario
rbr-global.com

Rockland Scientific Inc.

Victoria, British Columbia
rocklandscientific.com

ROMOR

Mount Uniacke, Nova Scotia
romor.ca

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A special thanks to the following, whose support is vital in our efforts to advance Great Lakes science.

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Publisher of the *Journal of Great Lakes Research*

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Student Judging Coordinator

Theresa Qualls
NEW Water, Green Bay Metropolitan Sewerage District


Student Activity Coordinators

Rowshyra Castaneda, Bryan Flood, and Yuko Shimoda


UTSC Conference Services




Frank Villiva, Deborah Hahn, and Cindy Insley

PLAN TO ATTEND
the IAGLR 2018 session #23,
"The IJC's Science Advisory Board Review of Current Priorities and Projects"
(Friday 8:40 am - 3:00 pm)



*More than 100 years of cooperation
protecting the shared waters
of the United States and Canada*



www.ijc.org    credit: Adobe Stock

IAGLR BOARD & COMMITTEES

Thank you to all who have served the IAGLR Board of Directors and our committees this year. These individuals help keep our organization strong, and we couldn't do it without their help. If you'd like to get involved, please contact Wendy Foster, IAGLR Business Manager, at office@iaglr.org.

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YOUR VOICE FOR GREAT LAKES RESEARCH

Informing public policy with sound science is vital for effective management and protection of the world's large lakes. With its mission to promote all aspects of large lakes research and communicate research findings, IAGLR is uniquely positioned to foster the connection between science and policy. Visit the IAGLR website to learn more about current initiatives:

- Evaluating Great Lakes Area of Concern Restoration
- Membership in the Consortium of Aquatic Science Societies
- State of Lake Conferences

JOIN IAGLR

Your membership supports the scientific community in the exploration, discussion, and resolution of Great Lakes issues. IAGLR members enjoy the following benefits:

- Subscription to the *Journal of Great Lakes Research*
- Registration discounts for the Conference on Great Lakes Research, the ELLS-IAGLR conference in France, and the State of Lake Conference
- *IAGLR E-Notes*, an email news service
- Free *Contents Direct* email alerting service, additional discounts from Elsevier
- Eligibility for election to serve on the IAGLR Board of Directors
- Opportunity to work on IAGLR committees
- Recognition through prestigious IAGLR awards
- Support and recognition through IAGLR scholarships
- Networking opportunities
- Job board to advertise or explore employment opportunities
- Ability to post news and events on our website

SUSTAINING MEMBERS

We extend our deepest appreciation to our sustaining members. Their annual contributions over the years provide a valuable foundation for IAGLR.

- **Great Lakes Fishery Commission**
Since 1979
- **Great Lakes Protection Fund**
Since 1992

We invite your organization to join their ranks in supporting Great Lakes research.

Learn more at iaglr.org

AWARDS & SCHOLARSHIPS

Congratulations to all recipients!

Awards and scholarships will be given out throughout the conference. Note times indicated for each. Thanks to all who served on our selection committees* as well as those who nominated candidates for the awards.



LIFETIME ACHIEVEMENT AWARD

For important and continued contributions to Great Lakes research

William D. Taylor

University of Waterloo

Awarded at Tuesday's plenary



JOHN R. (JACK) VALLENTYNE AWARD

For important and sustained efforts to inform and educate the public and policymakers on large lakes issues

Helen M. Domske

New York Sea Grant

Awarded at Wednesday's plenary



ANDERSON-EVERETT AWARD

For outstanding contributions to the association

Timothy Johnson

Ontario Ministry of Natural Resources and Forestry

Awarded at Friday's plenary

* Joseph Atkinson, Marty Auer, Lyubov Burlakova, Steven Chapra, Susan Daniel, Erin Dunlop, Mary Ginnebaugh, GLFC Staff, Stephanie Guildford, Robert Hecky, Julie Mida Hinderer, Tomas Höök, Jessica Ives, Tim Johnston, Alexander Karatayev, Francine McCarthy, Scott McNaught, Trefor Reynoldson, Lars Rudstam, Paul Sibley, Michael Sierszen, Laura Tessier, Michael Twiss, Anett Trebitz, Anthony Vodacek, Ram Yerubandi, Allison Vogelsong Zejnati

AWARDS & SCHOLARSHIPS

The following IAGLR Appreciation Awards will be presented at the business lunch on Wednesday.

IAGLR 2018 CONFERENCE APPRECIATION AWARD



George Arhonditsis
University of Toronto
Scarborough

IAGLR 2018 Conference Site
Chair



Mathew Wells
University of Toronto
Scarborough

IAGLR 2018 Program Chair

IAGLR BOARD OF DIRECTORS APPRECIATION AWARD



Susan Daniel
SUNY Buffalo State Great
Lakes Center

Outgoing Student Board
Member



Tomas Höök
Purdue University

Outgoing Past President,
Board Member



Elizabeth Hinchey Malloy
U.S. EPA, Great Lakes
National Program Office

Outgoing Board Member



Lars Rudstam
Cornell University

Outgoing Board Member

JGLR OUTGOING ASSOCIATE EDITORS APPRECIATION AWARD



George Leshkevich
NOAA Great Lakes
Environmental Research
Laboratory



Michael Sierszen
U.S. EPA, Office of Research
and Development

AWARDS & SCHOLARSHIPS



BEST ASSOCIATE EDITOR 2017 AWARD

For outstanding support of the review process for the *Journal of Great Lakes Research*

Lee Grapentine

Environment and Climate Change Canada

Awarded at Thursday's plenary



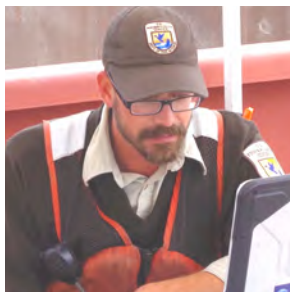
BEST REVIEWER 2017 AWARD

For outstanding support of the review process for the *Journal of Great Lakes Research*

Mark Rowe

University of Michigan, Cooperative Institute for Great Lakes Research

Awarded at Thursday's plenary



ELSEVIER EARLY CAREER SCIENTIST AWARD

Jeremiah Davis

U.S. Fish and Wildlife Service

For article titled *Effects of tow transit on the efficacy of the Chicago Sanitary and Ship Canal Electric Dispersal Barrier System*, *Journal of Great Lakes Research* 43, 1119-1131. Co-authors include Jessica LeRoy, Matthew Shanks, Ryan Jackson, Frank Engel, Elizabeth Murphy, Carey Baxter, Jonathan Trovillion, Michael McInerney, Nicholas Barkowski

Awarded at Thursday's banquet



ELSEVIER STUDENT AUTHOR AWARD

Larry Bowman Jr.

East Tennessee State University

For article titled *A capital breeder in a heterogeneous environment: Lipid reserves and RNA:DNA ratio in Lake Baikal's endemic *Epischura**, *Journal of Great Lakes Research* 43, 280-288. Co-authors include Elizaveta Kondrateva, Eugene Silow, Paul Wilburn, and Lev Yampolsky

Awarded at Thursday's banquet

AWARDS & SCHOLARSHIPS

CHANDLER-MISENER AWARD

For outstanding article in the *Journal of Great Lakes Research*

Anne Scofield, James Watkins, Brian Weidel, Frederick Luckey, and Lars Rudstam

For their paper titled *The deep chlorophyll layer in Lake Ontario: extent, mechanisms of formation, and abiotic predictors*, published in *Journal of Great Lakes Research* 43, 782-794.

Awarded at Thursday's plenary



Anne Scofield
Cornell University



James Watkins
Cornell University



Brian Weidel
USGS, Great Lakes
Science Center



Frederick Luckey
U.S. EPA, Region 2



Lars Rudstam
Cornell University

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SINCE 1975, the multidisciplinary *Journal of Great Lakes Research* has been a trusted source for research on the world's large lakes and their watersheds.

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UPCOMING SPECIAL SECTIONS & ISSUES

- U.S. EPA GLNPO Long-Term Monitoring of the Laurentian Great Lakes: approaches, achievements and lessons learned
- Green Bay Ecosystem
- African Great Lakes
- Recent Advances in Remote Sensing of CyanoHABs in the Western Basin of Lake Erie



sciencedirect.com/journal/journal-of-great-lakes-research

AWARDS & SCHOLARSHIPS

The following student awards will be presented at the banquet on Thursday evening.



IAGLR BEST STUDENT PAPER AWARD (2017)

Timothy Malinich

Purdue University

For paper titled *Factors Leading to Plastic Expression of Morphological variation of Perca flavescens* presented at the IAGLR 2017 Conference on Great Lakes Research

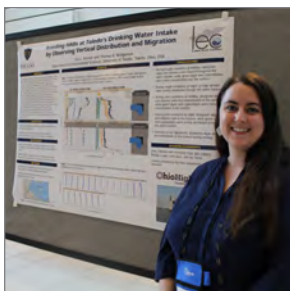


IAGLR BEST STUDENT PAPER AWARD (2017)

Joshua Stough

University of Tennessee

For paper titled *Discrimination of temperate vs lytic phage activity in Microcystis blooms using systems biology* presented at the IAGLR 2017 Conference on Great Lakes Research



IAGLR BEST STUDENT POSTER AWARD (2017)

Eva Kramer

University of Toledo

For poster titled *Avoiding HABs at Toledo's Drinking Water Intake by Observing Vertical Distribution and Migration* presented at the IAGLR 2017 Conference on Great Lakes Research



IAGLR BEST STUDENT POSTER AWARD (2017)

Xuewen Jiang

Ohio State University

For paper titled *Characterization of cyanophages from Lake Erie that suppress Microcystis growth* presented at the IAGLR 2017 Conference on Great Lakes Research



INTERNATIONAL TRAVEL AWARD

Kevin Obiero

University of Natural Resources and Life Sciences, Vienna, Austria; Centre Director, Kenya Marine Fisheries Research Institute

For research on *Aquaculture, innovation and rural development: examining the role of extension systems in facilitating technology adoption for improved livelihoods in Kenya, Eastern Africa*

AWARDS & SCHOLARSHIPS

The following student scholarships will be presented at the banquet on Thursday evening.

IAGLR SCHOLARSHIP

Sarah Larocque

University of Windsor

For research on *Spatial and trophic niches through ontogeny and the influence on restoration of a native species in Lake Ontario*

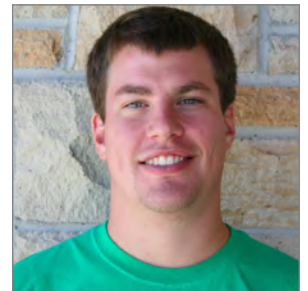


IAGLR SCHOLARSHIP

Nathaniel Marshal

University of Toledo

For research on *Environmental DNA High-Throughput Assays for Invasive Invertebrate Species Detection and Habitat Quality Assessment in the Great Lakes*



DAVID M. DOLAN SCHOLARSHIP

Kaitlin Reinl

University of Minnesota

For research on *Assessing future risk of cyanobacteria blooms in western Lake Superior: a modeling approach*



NORMAN S. BALDWIN SCHOLARSHIP

Corey Krabbenhoft

Wayne State University

For research on *Round Goby Invasion and the Impact on Native Michigan Fishes*



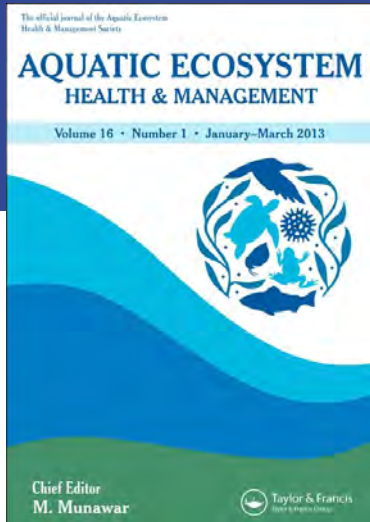
NORMAN S. BALDWIN SCHOLARSHIP

Hannah Lachance

University of Vermont

For research on *Climate Change, Cisco (Coregonus artedii) & Gene Expression*





Aquatic Ecosystem Health & Management

Call for Papers!

As the official journal of the *Aquatic Ecosystem Health and Management Society*, AEHM promotes understanding of the structure, function, and performance of aquatic ecosystems from integrated, multi-disciplinary, and sustainable perspectives. This peer-reviewed journal publishes articles on investigations and management practices designed to analyse, protect, and remediate the the health of aquatic ecosystems. AEHM seeks to foster international and cross-sectorial communications of important findings.

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- Application of ecosystem approach to fisheries and good governance in **Lake Malawi** and other Great Lakes
- Marine & Freshwater **Invasive Species** research with emphasis on South America
- State of **Hamilton Harbour** ecosystem: Health, remediation and restoration
- A Rare Glimpse of the Freshwater Fishes of **Central Asia**
- State of Lake Vänern **Ecosystem**
- Ecosystem Health and Recovery of the **Bay of Quinte**, Lake Ontario
- Ecology and Health of Major **Rivers of India**

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- » Reviews on state of the art issues, strategies, techniques and models
- » Ecosystem science based holistic treatments including physical, chemical and biological components and their interactions
- » Invited essays from established scientists and experts on timely and emerging topics
- » Special issues organized around unified themes, topics and ecosystems/habitats

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SCHEDULE OVERVIEW

MONDAY

8:15 a.m.–5:30 p.m.

IAGLR Board Meeting

ECSB Building, Rm. EV140

4–7 p.m.

Registration

UTSC Meeting Place

5–7:30 p.m.

Welcome Reception

ECSB Building

TUESDAY

7:30 a.m.–5 p.m.

Registration

UTSC Meeting Place

8:40–11:40 a.m.

Concurrent Sessions

Across UTSC

11:40 a.m.–1 p.m.

Welcome & Plenary:

Howard Wheeler

AC223 (AA112 for overflow)

1:40–5:20 p.m.

Concurrent Sessions

Across UTSC

5:20–6:30 p.m.

Elsevier Editors' Reception

AC227

6–8 p.m.

Poster Session & Social

Science Wing

8–11 p.m.

Student Social

The Rex's Den

WEDNESDAY

7:30 a.m.–5 p.m.

Registration

UTSC Meeting Place

8:40–11:40 a.m.

Concurrent Sessions

Across UTSC

11:40 a.m.–1 p.m.

Plenary: Dianne Saxe

AC223 (AA112 for overflow)

1–2:20 p.m.

Business Lunch

Toronto Pan Am Sports Centre

2:20–5:20 p.m.

Concurrent Sessions

Across UTSC

6–8 p.m.

BBQ

Patio between HW & MW buildings

8:15–9:45 p.m.

IAGLR Defy Cup Hockey

Canlan Ice Sport Complex

3552 Victoria Park Ave., Toronto

THURSDAY

7:30 a.m.–5 p.m.

Registration

UTSC Meeting Place

8:40–11:40 a.m.

Concurrent Sessions

Across UTSC

11:40 a.m.–1 p.m.

Plenary: Robert Costanza

AC223 (AA112 for overflow)

1:40–5:20 p.m.

Concurrent Sessions

Across UTSC

6:30–9:30 p.m.

Banquet

The Guild Inn Estate

FRIDAY

8 a.m.–3 p.m.

Registration

UTSC Meeting Place

8:40–11:40 a.m.

Concurrent Sessions

Across UTSC

11:40 a.m.–1 p.m.

Plenary: Yves Praire

AC223 (AA112 for overflow)

1:40–3:40 p.m.

Concurrent Sessions

Across UTSC

IAGLR Defy Cup Challenge



The hockey tradition lives on! Team Canada and Team USA will face off in the IAGLR Defy Cup Challenge to raise funds for the IAGLR Scholarship. Game time is 8:15-9:45 p.m. Wednesday at the Canlan Ice Sport Complex. Root for your favorite team while supporting young scientists and the future of Great Lakes research!

PLANNER

	MONDAY	TUESDAY	WEDNESDAY
8:40			
9:00			
9:20			
9:40			
10:00		Break	Break
10:20			
10:40			
11:00			
11:20			
11:40		Welcome and Plenary: Howard Wheeler AC223 (AA112 overflow) 11:40-1	Plenary: Dianne Saxe AC223 (AA112 overflow) 11:40-1
12:00			
12:20			
12:40			
1:00		Lunch (on your own)	IAGLR Business Lunch Toronto Pan Am Sports Centre
1:20			
1:40			
2:00			
2:20			
2:40			
3:00			
3:20			
3:40		Break	Break
4:00			
4:20			
4:40			
5:00			
EVENING ACTIVITIES			
	Welcome Reception ECSB Building 5–7:30	Elsevier Editors' Reception AC227 / 5:20–6:30 Poster Social Science Wing / 6-8 Student Social The Rex's Den / 8–11	BBQ Humanities Wing Patio 6-8 IAGLR Defy Cup Hockey Canlan Ice Sport Complex 3552 Victoria Park Ave., Toronto 8:15-9:45

PLANNER

THURSDAY	FRIDAY	
		8:40
		9:00
		9:20
		9:40
Break	Break	10:00
		10:20
		10:40
		11:00
		11:20
Plenary: Robert Costanza AC223 (AA112 overflow) 11:40-1	Plenary: Yves Prairie AC223 (AA112 overflow) 11:40-1	11:40
		12:00
		12:20
		12:40
Lunch (on your own)	Lunch (on your own)	1:00
		1:20
		1:40
		2:00
		2:20
		2:40
		3:00
		3:20
Break	Conclusion of Conference	3:40
		4:00
		4:20
		4:40
		5:00
EVENING ACTIVITIES		
Banquet The Guild Inn Estate 6:30–9:30		

TUESDAY PLENARY

11:40 a.m.–1 p.m.

Academic Resource Centre, AC223

Arts & Administration, AA112 for overflow



@GWFutures

Water Security and the Science Agenda Featuring Howard Wheeler

Global Institute for Water Security, University of Saskatchewan

The freshwater environment is facing unprecedented pressures in Canada and globally. Unsustainable use of surface and groundwater is widespread, nutrient pollution is a global threat, and there are increasing concerns for emerging contaminants, including endocrine disruptors. Extreme events such as flood and drought have severe local consequences, but social and economic effects can be global and risks to life and infrastructure are increasing with increasing development in vulnerable areas. Current pressures are set in the context of rapid environmental change, and will likely increase in the face of socioeconomic development and population growth. In the face of these critical societal challenges, what can the water science community contribute? Clearly there is an increasing need for deep understanding of aquatic and terrestrial environments and their interactions with the climate system, and further, analysis of their vulnerabilities to environmental and societal change. But for science to provide information relevant to societal challenges, there is also a need for effective engagement with users to ensure that research is salient, credible, and usable. And in the face of the evident non-stationarity of the earth system, new approaches to the management of risk are required. There are however, unique opportunities to harness new sensor technologies and platforms, and the power of Big Data, to inform new science, support improved modeling and forecasting systems, and provide new ways to engage users and the public. This plenary reports on Canada's Global Water Futures program, a \$143 million federal/university partnership, which integrates expertise from 18 universities and 8 federal agencies. Designed with diverse user communities to meet their needs, GWF aims to build on the opportunities offered in an era of Big Data to provide the science, models and decision support tools needed to address the challenges of Canada and other rapidly changing cold regions.

ABOUT

HOWARD WHEELER is Canada Excellence Research Chair in Water Security, founding director of the Global Institute for Water Security at the University of Saskatchewan, and distinguished research fellow and emeritus professor of hydrology at Imperial College London. An expert in hydrological science and modeling, he has published more than 200 refereed articles and 6 books. He is a fellow of the Royal Academy of Engineering and the American Geophysical Union and winner of the LAHS-UNESCO-WMO International Hydrology Prize and the Prince Sultan bin Abdulaziz International Prize for Water. He has initiated and led national and international research programs in the UK and Canada, and has advised states, provinces, and national governments on flood, water resource, and water quality issues. He represented Hungary and Argentina at the International Court of Justice, and

recently sat on an International Court of Arbitration concerning the Indus Waters Treaty. He was vice-chair of the World Climate Research Programme's Global Energy and Water Cycle Exchange project and leads UNESCO's GWADI arid zone water program. He led the Changing Cold Regions Network, focused on the analysis and prediction of hydrological change in western Canada, and initiated the Global Water Futures Programme, focused on managing water futures in Canada and other cold regions. He served as chair of the Council of Canadian Academies Expert Panel on Sustainable Management of Water in the Agricultural Landscapes of Canada. Most recently, he was appointed as a member of the National Academies of Science, Engineering, and Medicine Committee on Future Water Resource Needs for the Nation: Water Science and Research at the U.S. Geological Survey.

WEDNESDAY PLENARY

11:40 a.m.–1 p.m.

Academic Resource Centre, AC223
Arts & Administration, AA112 for overflow

A Growing Problem: Addressing Algae Blooms in the Great Lakes

Featuring Dianne Saxe

Environmental Commissioner of Ontario

The Environmental Commissioner of Ontario is a provincial oversight agency with the advantage of a very broad mandate and a unique perspective on the Great Lakes ecosystem. Dr. Saxe will use the history of algal blooms in the Great Lakes region to illustrate and illuminate some dynamics of the science/policy interface. She will share her observations on chronic challenges faced by the research and policy communities, and will offer her perspectives on opportunities for Great Lakes science.

DIANNE SAXE *is the Environmental Commissioner of Ontario, a tough but fair watchdog over Ontario's environmental, energy and climate performance, and guardian of the Environmental Bill of Rights, 1993. Prior to her appointment, Dr. Saxe was one of Canada's most respected environmental lawyers. She has 40 years' unparalleled experience writing, interpreting, and litigating Ontario's energy and environmental laws. Her career began with the Ontario Public Service and two major Bay Street law firms. She then established one of Canada's top environmental law boutiques.*



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ABOUT

THURSDAY PLENARY

11:40 a.m.–1 p.m.

Academic Resource Centre, AC223

Arts & Administration, AA112 for overflow



@Robert_Costanza

Valuing and Managing Aquatic Ecosystem Services

Featuring Robert Costanza

Australian National University

Ecosystems are connected to human well-being in complex ways at multiple time and space scales. These benefits are known as ecosystem services, and aquatic ecosystems are among the most valuable in providing these services to humans. How best to understand and model these connections presents a great challenge for ecosystem services science (ESS). Successfully tackling this challenge can raise awareness and provide information to better manage our natural capital (natural ecosystems and their products that do not require human activity to build or maintain). For ecosystem services to occur, this natural capital must be combined with other forms of capital that do require human intervention to build and maintain. These include built or manufactured capital, human capital (e.g., human labor and knowledge), and social capital (e.g., communities and cultures). Thus ESS is inherently an integrated, transdisciplinary science that is concerned with the way these four forms of capital contribute to human well-being and the synergies and trade-offs among them. The process of valuation of ecosystem services is about quantifying and modeling these synergies and trade-offs to allow better management. It requires a deeper understanding of the interconnections among human psychology and decision processes, ecosystem processes and functions, and economic production and consumption processes at multiple time and space scales. The challenges of ESS are huge and will require a significantly more transdisciplinary approach than our current academic institutions are comfortable with. But the payoffs are also huge. Our future depends on making rapid progress in this area.

ABOUT

ROBERT COSTANZA is a vice chancellor's chair in public policy at the Crawford School of Public Policy at the Australian National University. He is also currently a senior fellow at the National Council on Science and the Environment in the U.S., a senior research fellow at the Stockholm Resilience Center, an affiliate fellow at the Gund Institute for Ecological Economics, a deTao master of ecological economics at the deTao Masters Academy, China, and a fellow of the Royal Society of Arts (UK). Professor Costanza's transdisciplinary research integrates the study of humans and the rest of nature to address research, policy, and management issues at multiple time and space scales, from small watersheds to the

global system. He is co-founder and past-president of the International Society for Ecological Economics, and founding editor of the society's journal, *Ecological Economics*. He currently serves on the editorial board of ten other international academic journals. He is also founding co-editor in chief of *Solutions* a unique hybrid academic/popular journal. Professor Costanza is the author or co-author of more than 600 scientific papers and 27 books. His work has been cited more than 75,000 times in Google Scholar with an h-index of 108. More than 300 interviews and reports on his work have appeared in various popular media and he has written more than 70 articles for the popular press.

The Carbon Footprint of Lakes: From Transformation Processes to Large-Scale Patterns

Featuring Yves Prairie

Université du Québec à Montréal



@Y_Prairie

Lakes are known to be highly active reactors of carbon. Their collective fluxes to the atmosphere as CO₂ and CH₄ are large enough that it becomes urgent to be able to predict how inland aquatic systems will react in the face of global change. In this talk, he will argue that while carbocentric limnology has made great progress over the past decade, the links between small-scale processes and large-scale patterns are still elusive and difficult to quantify, and are at the heart of our ability to predict the future role of lakes at local, regional, and global spatial scales. Drawing from experience on small lakes, he will attempt to identify some of the major bottlenecks in achieving a more integrative limnology.

YVES PRAIRIE is professor of biology at the Université du Québec à Montréal. A founding member of the GRIL research center (a multi-university research center in limnology since the early 1990s), he was its director for 9 years. His main research focus is on all aspects of carbon cycling. He initiated and co-led the NCEAS working group on the role of lakes and reservoirs in the global carbon budget. He holds a UNESCO Chair in Global Environmental Change and currently is the president of the International Society of Limnology. His research interests combine carbon and nutrient biogeochemistry, statistical modelling of ecosystem processes and, more recently, tries to dabble in physical limnology.

ABOUT

WORKSHOPS & DISCUSSIONS

TUESDAY

Using GLOS for your Data Sharing Plan Workshop

1:40–3:40 p.m. / Humanities Wing, Room HW214

This workshop will provide researchers with an overview of the Great Lakes Observing System (GLOS) and the GLOS services available to support data management and sharing activities like those required by government grants and open data policies. The GLOS data management team will present an introduction to GLOS's data management infrastructure, instructions on how to create and publish metadata to the GEO Great Lakes Metadata Catalog and the steps needed to publish and archive data with GLOS for others' access. The workshop will include a hands-on activity in developing metadata. Attendees may bring their own examples to use in the activity or samples will be provided. Chaired by Rebecca Pearson, Great Lakes Observing System; Theodore Slawecki, LimnoTech; Kathy Koch, LimnoTech/GLOS contractor.

Elsevier Editors' Reception (*Invitation only*)

5:20–6:30 p.m. / Academic Resource Centre, Room AC227

Each year the *Journal of Great Lakes Research* is supported by a group of dedicated associate editors and the ongoing efforts of the IAGLR Publication Committee. We want to take this time to thank you for your efforts and get your feedback on how the journal is doing and what we can do better. If you're one of these hardworking folks, please join us for the Editors' Reception.

WEDNESDAY

Town Hall on an International Decade of Great Lakes Exploration and Research

4–5:20 p.m. / Humanities Wing, Room HW214

The Laurentian Great Lakes are valuable, fascinating systems that are undergoing significant change, but challenges to scientific progress are significant. Recent publications argue that support for scientific research on the Great Lakes has not kept pace with the current and future need for fundamental, process-oriented investigation and exploration. Consequently, we too often lack basic information and the understanding required to document and forecast change, mitigate impacts, and restore and preserve the Laurentian Great Lakes ecosystem. New and ongoing pressures are affecting the region, including climate change, novel chemical pollutants, urbanization, rapidly evolving agricultural practices and land uses, eutrophication, HABs, and invasive species. Enhancement of Great Lakes science is needed but what are the highest scientific and social priorities? This town hall session is directed at formulating a coordinated, binational, decadal program of fundamental and strategic science under the concept of an "International Decade of Great Lakes Research and Exploration" to generate new knowledge and understanding to match our commitment to Great Lakes restoration and ensure the greatest return on investment for lasting social and ecological impact. Chaired by J. Val Klump, Robert Sterner, Michael Twiss, and Nancy Langston.



WORKSHOPS & DISCUSSIONS

THURSDAY

Fostering International Research and Collaboration on African Great Lakes

4–4:40 p.m. / Science Wing, SW319

The session Emerging Partnerships, Research, and Capacity in the African Great Lakes will conclude with a 40-minute facilitated discussion among key participants focusing on how ACARE can facilitate international research and collaborations on the African Great Lakes. Interested parties are strongly encouraged to attend and provide insight. Chaired by Theodore Lawrence, Robert Hecky, and Jessica Ives.

FRIDAY

Looking into the Future: Exploring Opportunities for the IJC's Science Advisory Board

2:20–3 p.m. / AC223

The International Joint Commission's Great Lakes Science Advisory Board (SAB) has been providing advice on research and scientific matters to the Commission and the Great Lakes Water Quality Board since 1978. The rejuvenation of the Board following the 2013 Protocol to the Great Lakes Water Quality Agreement has resulted in a substantial and diverse suite of recent and ongoing projects. Building off of the project overviews provided earlier in The IJC's Science Advisory Board Review of Current Priorities and Projects session, this facilitated discussion is intended to identify future science topics for SAB focus, and additional opportunities for SAB collaboration. It is our hope this discussion will generate a list of priority topics and opportunities for the SAB to increase the relevance of its science advice to governments. Chaired by Carol Miller, Jeff Ridal, Deborah Lee, and Gavin Christie.



Save the date!
October 9-12, 2018

**Hosted by IAGLR &
Michigan Technological University
in Houghton, Michigan**

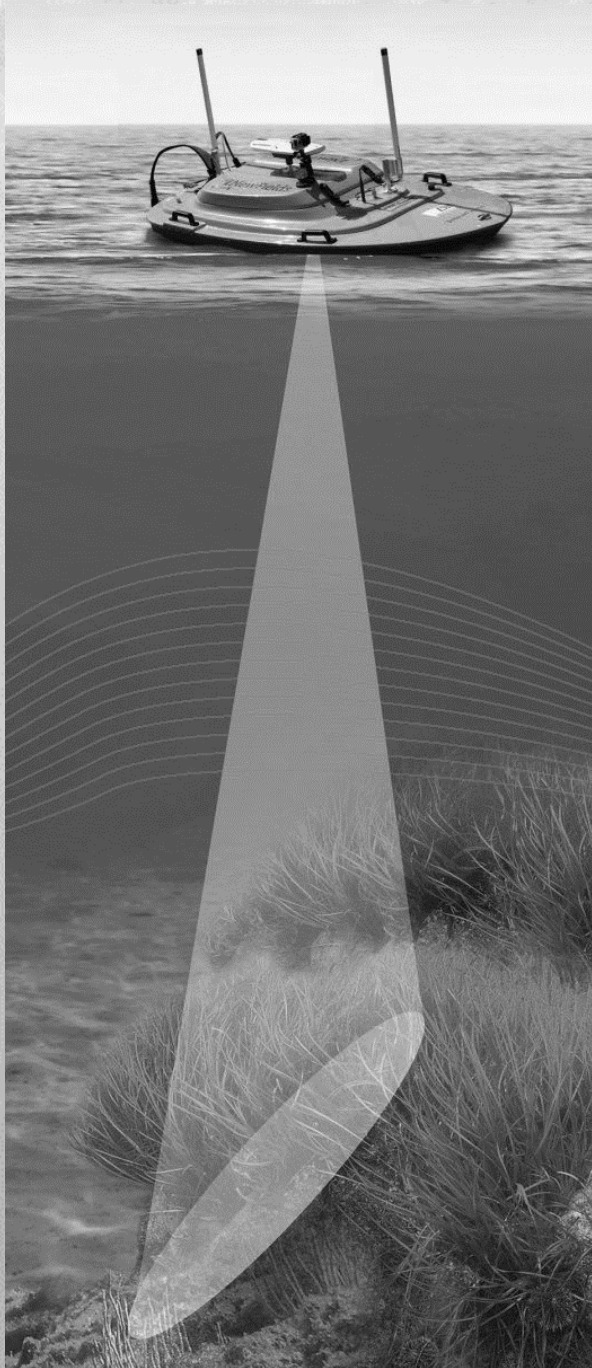
iaglr.org/sol/sols18

The graphic features a circular logo on the left with a map of the Great Lakes region and the text "STATE OF LAKE SUPERIOR CONFERENCE". The background consists of wavy, layered bands of teal, light green, and yellow.

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Tuesday Morning Sessions

8:40–11:40	Harmful Algal Blooms (HABs) and their Toxicity: Remote Sensing and Modeling Approaches <i>Chaired by Homa Kheyrollab Pour, Serghei Bocanion, Philippe Van Cappellen</i>	AA112
8:40–11:20	Great Lakes Water Level Fluctuations and Water Management <i>Chaired by Vincent Cheng, Aisha Javed, Agnes Richards, Dong-Kyun Kim</i>	HW215
8:40–11:40	Disease, Parasites, and Pathogens of the Great Lakes and Freshwater Ecosystems <i>Chaired by Kevin Strychar</i>	MW160
8:40–11:40	Great Lakes Outreach and Education <i>Chaired by Kristin TePas, Rochelle Sturtevant, Helen Domske</i>	MW170
8:40–11:40	Science for a Healthy Lake Simcoe <i>Chaired by Erin Dunlop, Justin Trumpickas</i>	SW128
8:40–11:40	Preliminary Results from the 2017 CSMI Intensive Field Year on Lake Huron <i>Chaired by Paris Collingsworth, David Bunnell</i>	SW143
8:40–11:40	Plastics in the Great Lakes: Characterizing the Problem and Finding Solutions <i>Chaired by Paul Helm, Sara Belontz</i>	SW309
8:40–11:40	Seeing Below the Surface: Quantifying the Underwater Environment with Image Analysis <i>Chaired by Knut Mehler, Peter Esselman, Molly Wick, Ted Angradi</i>	SW319
8:40–11:40	Restoration of Native Fishes <i>Chaired by Timothy Johnson, Dimitry Gorsky</i>	SY110
10:20–11:40	History of Great Lakes Fish, Fisheries & Governance: Dr. Henry Regier's Legacy <i>Chaired by Nicholas Mandrak, William Taylor, Mohiuddin Munawar</i>	HW216

A Note on Intellectual Property

Presentations and posters are the property of the presenter. We do not encourage any recording of oral or poster presentations, and we urge you to respect intellectual property by seeking permission of the presenter and by providing due credit if you wish to record images. We encourage the sharing of science on social media, and many attendees post items of interest during the conference. **If you do NOT want your presentation shared on social media, please verbally indicate at the start of your presentation, or on your poster.** If you're okay with sharing your work on social media, please share your social media handles to facilitate attributing your work. Share the excellent work of people who have opted in with the hashtag #IAGLR2018.

DAILY SESSION OVERVIEW

Tuesday Afternoon Sessions

1:40–3:00	Harmful Algal Blooms (HABs) and their Toxicity: Remote Sensing and Modeling Approaches <i>cont'd</i> <i>Chaired by Homa Kheyrollah Pour, Serghei Bocanion, Philippe Van Cappellen</i>	AA112
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1:40–3:40	History of Great Lakes Fish, Fisheries & Governance: Dr. Henry Regier's Legacy <i>cont'd</i> <i>Chaired by Nicholas Mandrak, William Taylor, Mobiuddin Munawar</i>	HW216
1:40–5:20	Physical Ecology in Large Lakes and their Watersheds <i>Chaired by Josef Ackerman, Shaylah Tuttle-Raycraft, Lakshika Girihagama</i>	HW215
1:40–5:20	Evaluation of the Current State of Ecological Modeling and Future Perspectives <i>Chaired by Alex Neumann, Dong-Kyun Kim, Yuko Shimoda, George Arhonditsis</i>	SW143
1:40–5:20	Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes <i>Chaired by Robert Shuchman, George Leshkevich</i>	SW319
4:00–5:20	Unrefined Hydrocarbon Transport in the Great Lakes Basin <i>Chaired by Rochelle Sturtevant, Matthew Child, Katherine Bunting-Howarth</i>	AA112
4:00–5:20	Ecosystem Impacts of the Lake Ontario-St Lawrence River Flood of 2017 <i>Chaired by Michael Twiss, Jeff Ridal</i>	HW216
4:00–5:20	Research-Driven Educational Initiatives to Improve Watershed Health <i>Chaired by Erin Argyilan, Laurie Eberhardt, Julie Peller</i>	MW170
4:00–5:00	Climate Change Impacts on Ecohydrology of Urbanized Watersheds Draining into Large Lakes <i>Chaired by Mahyar Shafii, Mohamed Mohamed, Stephen Braun, Philippe Van Cappellen</i>	SW309

Wednesday Morning Sessions

8:40–11:40	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications <i>Chaired by Chris Parsons, Maria Dittrich, Kimberly Van Meter, Agnes Richards</i>	AA112
8:40–11:40	Improving Model Predictions through Coupled System and Data Assimilation <i>Chaired by Pengfei Xue, Philip Chu, Matthew Hoffman, Vincent Fortin</i>	HW215
8:40–10:00	Microbial Dynamics and Human Health Risks in the Beach Sand <i>Chaired by Joao Brandão, Richard Whitman, Tom Edge</i>	MW160
8:40–11:40	The Science-Policy Interface in Great Lakes Research <i>Chaired by Nicole Klenk, Maria Lemos, Katherine Browne, Brian Pentz</i>	MW170
8:40–11:40	Science and Policy for Management of Invasive Crayfish <i>Chaired by Patrice Charlebois, Reuben Keller</i>	SW128
8:40–11:40	Cities on the Shore: Urbanization as a Growing Threat to Nearshore Ecosystem Health <i>Chaired by Andrea Kirkwood, Claire Oswald</i>	SW143
8:40–11:40	Restoring Hamilton Harbour: Tilting at Windmills or a Possible Dream? <i>Chaired by Kristin O'Connor, Chris Marvin, Julie Vanden Byllaardt</i>	SW309
8:40–11:40	Climate Interactions with Large Lakes Physical Systems <i>Chaired by Brent Lofgren, Jia Wang</i>	SW319
8:40–11:40	Restoration of Native Fishes <i>Chaired by Timothy Johnson, Dimitry Gorsky</i>	SY110
9:00–11:40	Modeling, Detecting, and Managing Rarity <i>Chaired by Fielding Montgomery, Ronsyra Castaneda</i>	HW216
10:20–11:40	Food Web Ecology and Dynamics of Lake Ontario: Nearshore Pelagic Linkages <i>Chaired by Mohiuddin Munawar, Mark Fitzpatrick, James Watkins</i>	MW160

DAILY SESSION OVERVIEW

Wednesday Afternoon Sessions

2:20–5:20	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications <i>cont'd</i> <i>Chaired by Chris Parsons, Maria Dittrich, Kimberly Van Meter, Agnes Richards</i>	AA112
2:20–4:40	Modeling, Detecting, and Managing Rarity <i>cont'd</i> <i>Chaired by Fielding Montgomery, Rowshyra Castaneda</i>	HW216
2:20–3:00	Restoring Hamilton Harbour: Tilting at Windmills or a Possible Dream? <i>cont'd</i> <i>Chaired by Kristin O'Connor, Chris Marvin, Julie Vanden Byllaardt</i>	SW309
2:20–2:40	Climate Interactions with Large Lakes Physical Systems <i>cont'd</i> <i>Chaired by Brent Lofgren, Jia Wang</i>	SW319
2:20–3:20	Restoration of Native Fishes <i>cont'd</i> <i>Chaired by Timothy Johnson, Dmitry Gorsky</i>	SY110
2:20–5:00	Food Web Ecology and Dynamics of Lake Ontario: Nearshore Pelagic Linkages <i>cont'd</i> <i>Chaired by Mohiuddin Munawar, Mark Fitzpatrick, James Watkins</i>	MW160
2:20–5:20	How to Talk Science so Policy will Listen, and Listen so Science will Talk? <i>Chaired by Rachel Melzer, Jennifer Winter</i>	MW170
2:20–5:20	Solutions for Lake Ontario: Addressing the Human Footprint on Regional Water Quality <i>Chaired by Shari Dahmer, Todd Howell, Nadine Benoit, Gary Bowen</i>	SW128
2:20–5:20	Advances in Understanding Nearshore Ecosystems in Great Lakes and Connecting Channels <i>Chaired by Elizabeth Hinchey Malloy, Janette Anderson, Mari Nord, Pete Zuzek</i>	SW143
2:40–4:40	Managing Water Use in the Great Lakes-St. Lawrence River Basin <i>Chaired by John Dungavell, Mike Piskur</i>	HW215
3:00–5:20	Within Reach: The Path to De-listing Toronto and Region as a Great Lakes Area of Concern <i>Chaired by Valerie Francella, Susan Doka</i>	SW309
3:00–5:20	Big Lakes–Small World: IAGLR Teams with the European Large Lakes Symposium in 2018 <i>Chaired by John Lenters, Lars Rudstam, Robert (Mike) McKay, Orlane Anneville</i>	SW319
4:00–5:20	Physiology and Conservation of Sturgeon in the Great Lakes <i>Chaired by Oana Birceanu, Laura Tessier, Michael Wilkie</i>	SY110

DAILY SESSION OVERVIEW

Thursday Morning Sessions

8:40–11:40	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects <i>Chaired by Kenneth Gibbons, Christopher Winslow, Michelle Selzer, Michael Murray</i>	AA112
8:40– 11:40	Innovative Monitoring across the Great Lakes <i>Chaired by Ed Verhamme, Bryan Stubbs</i>	HW215
8:40–11:40	Multi-Watershed Nutrient Study: Establishing a Monitoring Network in Agricultural Regions <i>Chaired by Ryan Sorichetti, Mohamed Mohamed, Grace Arabian, Laura Benakoun</i>	HW216
8:40–11:40	Physical Processes in Lakes <i>Chaired by Leon Boegman, Mathew Wells, Reza Valipour, Marek Stastna</i>	MW160
8:40–10:00	Status and Management of Invasive Carps in the Great Lakes <i>Chaired by Patrick Kocovsky, Becky Cudmore, Nicole King, Christine Mayer</i>	MW170
8:40– 11:40	Long-Term Monitoring: Achievements, Challenges, and Solutions <i>Chaired by Alexander Karatayev, Lyubov Burlakova, James Watkins, Elizabeth Hinchey Malloy</i>	SW128
8:40–11:40	Ecosystem Health and Recovery of the Bay of Quinte, Lake Ontario <i>Chaired by Andrew Morley, Shan Mugalingam, Dong-Kyun Kim, Yuko Shimoda</i>	SW143
8:40–11:40	Emerging Partnerships, Research, and Capacity in the African Great Lakes <i>Chaired by Theodore Lawrence, Robert Hecky, Jessica Ives</i>	SW319
8:40–11:40	Effects of Environmental Contamination on Fish Communities <i>Chaired by Ariola Visha, Nilima Gandhi, George Arhonditsis</i>	SY110
9:00–11:20	Valuing Great Lakes Coastal Sand Dunes: New Science and Approaches <i>Chaired by Brad Garmon</i>	SW309
10:20–11:40	Distilling a Career: A Tribute to Doug Haffner’s Contributions to Environmental Research on Large Lakes <i>Chaired by Aaron Fisk, Craig Hebert</i>	MW170

DAILY SESSION OVERVIEW

Thursday Afternoon Sessions

1:40–5:20	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects <i>cont'd</i> <i>Chaired by Kenneth Gibbons, Christopher Winslow, Michelle Selzer, Michael Murray</i>	AA112
1:40–5:20	Innovative Monitoring across the Great Lakes <i>cont'd</i> <i>Chaired by Ed Verhamme, Bryan Stubbs</i>	HW215
1:40–2:40	Multi-Watershed Nutrient Study: Establishing a Monitoring Network in Agricultural Regions <i>cont'd</i> <i>Chaired by Ryan Sorichetti, Mohamed Mohamed, Grace Arabian, Laura Benakoun</i>	HW216
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1:40–5:20	Long-Term Monitoring: Achievements, Challenges, and Solutions <i>cont'd</i> <i>Chaired by Alexander Karatayev, Lyubov Burlakova, James Watkins, Elizabeth Hinchey Malloy</i>	SW128
1:40–4:40	Emerging Partnerships, Research, and Capacity in the African Great Lakes <i>cont'd</i> <i>Chaired by Theodore Lawrence, Robert Hecky, Jessica Ives</i>	SW319
1:40–3:00	Effects of Environmental Contamination on Fish Communities <i>cont'd</i> <i>Chaired by Ariola Visba, Nilima Gandhi, George Arhonditsis</i>	SY110
1:40–5:00	Distilling a Career: A Tribute to Doug Haffner's Contributions to Environmental Research on Large Lakes <i>cont'd</i> <i>Chaired by Aaron Fisk, Craig Hebert</i>	MW170
1:40–4:40	How can Microbial Metagenomics Inform Management of Great Lakes Ecosystems? <i>Chaired by Janis Thomas, Tom Edge</i>	SW143
1:40–5:00	Pilot Projects and Future Visions: Transdisciplinary Collaboration for Applied Research <i>Chaired by Justine Holzman, Sandra Cook</i>	SW309
3:00–5:20	Building Relationships of Anglers and Scientists toward Sustainable Fisheries <i>Chaired by James Watkins, Jesse Lepak</i>	SY110

Friday Morning Sessions

8:40–11:40	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects <i>Chaired by Kenneth Gibbons, Christopher Winslow, Michelle Selzer, Michael Murray</i>	AA112
8:40–11:40	The IJC’s Science Advisory Board Review of Current Priorities and Projects <i>Chaired by Carol Miller, Jeff Ridal, Deborah Lee, Gavin Christie</i>	AC223
8:40–11:20	Hypoxia: Causes, Impacts, and Management <i>Chaired by Mark Rowe, Hongyan Zhang, J. Val Klump, Reza Valipour</i>	HW215
8:40–11:40	Managing Agriculture Water and Nutrients—Science Solutions for Tomorrow’s BMPs <i>Chaired by Donna Speranzini, Pamela Joosse</i>	HW216
8:40–11:40	Coastal Resilience <i>Chaired by Ali Farhadzadeh, Joseph Atkinson, Henry Bokuniewicz, Sean Burkholder</i>	MW160
8:40–11:40	Status and Management of Invasive Carps in the Great Lakes <i>Chaired by Patrick Kocovsky, Becky Cudmore, Nicole King, Christine Mayer</i>	MW170
8:40–11:40	Aquatic Habitat Evaluation and Assessment <i>Chaired by Susan Doka, Jeff Buckley, Catherine Riseng</i>	SW128
8:40–11:40	Environmental ’omics: New Tools for Aquatic Ecosystem Science and Management <i>Chaired by Felicity Ni, Maryam Tabatabaei Anaraki, Tae-Yong Jeong</i>	SW143
8:40–11:40	Watershed Modeling across all Scales from Small to Large <i>Chaired by Agnes Richards, Dale Robertson, Glenn Benoy, George Arhonditsis</i>	SW309
8:40–11:40	Acoustic Telemetry Applications in the Great Lakes <i>Chaired by Jill Brooks, Jonathan Midwood, Andrew Rous</i>	SY110

DAILY SESSION OVERVIEW

Friday Afternoon Sessions

1:40–3:00	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects <i>cont'd</i> <i>Chaired by Kenneth Gibbons, Christopher Winslow, Michelle Selzer, Michael Murray</i>	AA112
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1:40–3:00	Acoustic Telemetry Applications in the Great Lakes <i>cont'd</i> <i>Chaired by Jill Brooks, Jonathan Midwood, Andrew Rous</i>	SY110

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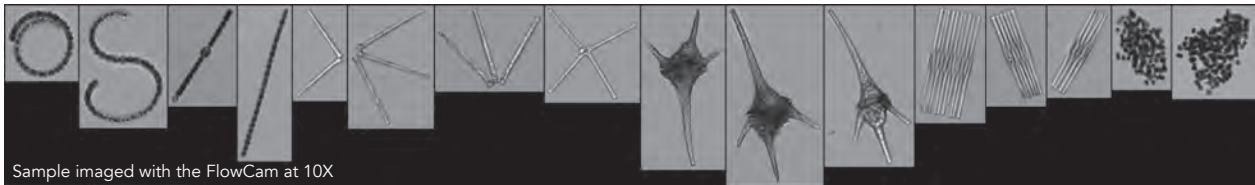
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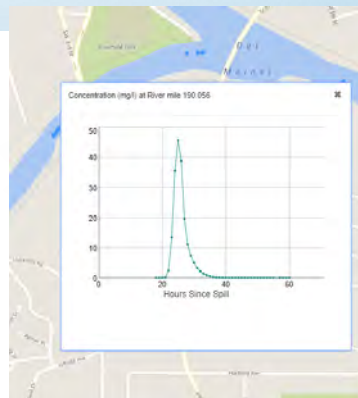
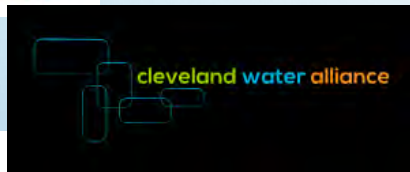


Sample imaged with the FlowCam at 10X

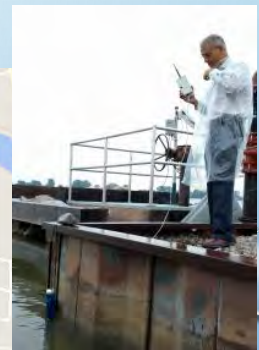
SMART REPLICABLE SOLUTIONS TO WATER-ENERGY NEXUS CHALLENGES



Internet of Things (IoT) Sensor Networks
Artificial Intelligence for Water Quality Predictions
Big Data and Cloud-based Analytics
Innovative Lake Monitoring



River Spill Travel Modeling



Harmful Algal Bloom Monitoring

TUESDAY, JUNE 19

	AA112	HW215	MW160	MW170	SW128
	Harmful Algal Blooms and their Toxicity: Remote Sensing and Modeling Approaches	Great Lakes Water Level Fluctuations and Water Management	Disease, Parasites, and Pathogens of the Great Lakes and Freshwater Ecosystems	Great Lakes Outreach and Education	Science for a Healthy Lake Simcoe
8:40	<u>A. Zastepa</u> Distribution and flux of microcystin congeners in lake sediments	<u>A. Javed</u> Drivers of water level fluctuations and hydro-meteorological trends in Great Lakes	<u>G. Whelan</u> A tale of three established pathogens: Lessons learned from trials of dealing with Mcer, Rsal and VHS in Michigan waters	<u>E. Everhardus</u> Generation Great Lakes: Helping students connect with their Lake through experiential learning	<u>J. Trumpickas</u> Lake Simcoe: Case study for putting science into action on a stressed ecosystem
9:00	<u>F. Buerkens</u> Semi-automated method for detecting and counting cells of cyanobacterial colonies and filaments	<u>V. Cheng</u> Connecting the long-term water level fluctuations in Great Lakes to large scale climate variability	<u>A. Hashemi Shahraki</u> Spatial and Temporal Dynamics of Microbial Community Composition of Recreational Water	<u>H. Domske</u> A Basin-wide Approach to Great Lakes Education: The Center for GL Literacy	<u>E. Dunlop</u> Are We Fishing Down the Food Web in Lake Simcoe?
9:20	<u>J. Westrick</u> Detection & Monitoring of HABs in Theory & Practice	<u>J. Smith</u> Capturing the Great Lakes water balance in a Bayesian Network	<u>C. Marshall</u> Parasitic Copepods of the Laurentian Great Lakes: Genetic Barcoding of Ergasilidae	<u>J. Chadde</u> Educating Educators and their Students Everywhere to Prevent New Invaders	<u>M. Shapiera</u> A review of Implementation of the Lake Simcoe Fish Community Objectives
9:40	<u>M. Bambach</u> Understanding the frequency, distribution, and regulating mechanisms of HABs in Minnesota lakes	<u>L. Fry</u> Advances in Operational Seasonal to Inter-annual Great Lakes Water Level Forecasting	<u>J. Kvistad</u> Network Centrality for Identifying High Priority Ports for Aquatic Invasive Species Management	<u>E. Dreelin</u> Engaging Education: Using Service Learning to Connect Students and Stakeholders	<u>C. Chu</u> Understanding Habitat and Connectivity in Lake Simcoe Tributaries to Protect Brook Trout
10:00	BREAK				

SW143	SW309	SW319	SY110	
Preliminary Results from the 2017 CSMI Intensive Field Year on Lake Huron	Plastics in the Great Lakes: Characterizing the Problem and Finding Solutions	Seeing Below the Surface: Quantifying the Underwater Environment with Image Analysis	Restoration of Native Fishes	
<u>P. Collingsworth</u> Spatial variation in environmental conditions for larval fish in Lake Huron	<u>A. Crew</u> Diversity, abundance and distribution of microplastics in the St. Lawrence River	<u>M. Wick</u> Deep Lake Explorer: Using Citizen Science to Analyze Underwater Video from the Great Lakes	<u>K. Loftus</u> Enhancing Relevance and Conservation Benefits of Ontario’s Fish Culture Program	8:40
<u>J. Cavaletto</u> Spatio-Temporal Organization of the Pelagic Food Web in Northern and Central Lake Huron in 2017	<u>S. Belontz</u> Distribution of Microplastics in Benthic Sediment of the Thames River, Ontario	<u>J. Bright</u> Pushing the Boundaries: Technology-Driven Exploration of Thunder Bay National Marine Sanctuary	<u>C. Wilson</u> Another Tool in Ontario’s Recovery Toolbox: Developing Expertise in the Culture of “At Risk” Mussels	9:00
<u>P. Armenio</u> Space, Time, and Tiny Animals: Spatial patterns of Lake Huron zooplankton from 2010-2017	<u>S. Debreceeni</u> Digging into litter data – From Shoreline Cleanups to Solutions	<u>S. Sethi</u> Characterizing the ecological niche of invasive round goby in inland lakes	<u>J. Shute</u> Thirty Years of Lessons Learned in Recovering Non-Game Native Fishes	9:20
<u>L. Eaton</u> Larval fish community dynamics during 2017 Lake Huron CSMI	<u>P. Semcesen</u> Investigating the effects of particle shape and biofilm growth on microplastics settling velocity	<u>L. McCaffrey</u> Preliminary Results of Underwater Video Surveys in the Finger Lakes of New York	<u>T. Treska</u> Lake Trout Restoration in Lake Michigan	9:40
BREAK				10:00

TUESDAY, JUNE 19

	AA112	HW215	HW216	MW160	MW170
	Harmful Algal Blooms and their Toxicity: Remote Sensing and Modeling Approaches	Great Lakes Water Level Fluctuations and Water Management	History of Great Lakes Fish, Fisheries & Governance: Dr. Henry Regier's Legacy	Disease, Parasites, and Pathogens of the Great Lakes and Freshwater Ecosystems	Great Lakes Outreach and Education
10:20	<u>D. Obenour</u> Characterizing Lake Erie HAB dynamics through geostatistical synthesis of multiple sampling programs	<u>J. Bruxer</u> Lake Ontario - St. Lawrence River high water event 2017: unprecedented weather, impacts & challenges	<u>B. Knuth</u> Politically-relevant Fisheries Science: Reflections on the Work of Henry Regier	<u>M. Balaban</u> Seasonal Variation in Bacterial Community Structure in Water Treatment Plants	<u>K. Tully</u> The Great Lakes Guide Web Platform
10:40	<u>N. Manning</u> Extending the forecast model: Predicting the spatial distribution of HABs in western Lake Erie	<u>Z. Curtis</u> Natural and anthropogenic controls of groundwater salinity in Michigan	<u>T. Whillans</u> University curiosity and government strategy: 150 years of creative tension in Canadian Great Lakes	<u>L. Iwanowicz</u> Discovery of novel viruses that infect the white sucker (<i>Catostomus commersonii</i>)	<u>S. Winterton</u> 25 years of shoreline cleanups in Canada, what's next?
11:00	<u>A. Grimm</u> Satellite monitoring of harmful algal blooms in the Western Basin of Lake Erie: a 20-Year History	<u>S. Sima</u> Developing a Dynamic Model to Simulate Water, Energy and Salt Balance of Saline Lakes	<u>A. Guthrie</u> The Origins of Ecosystem-based Management in the Great Lakes Basin	<u>R. Sturtevant</u> Diseases, Parasites and Pathogens as Invasive Species: A Brief History from GLANSIS	<u>S. Chaganti</u> Citizen scientists for large-scale water quality testing in the Great Lakes: Metabarcoding Microbes
11:20	<u>R. Ford</u> Monitoring cyanobacteria blooms from drone based imaging systems		<u>J. Bence</u> Fish Community Objectives: A look back and forward	<u>S. Avlijas</u> Identifying impacts of Tench (<i>Tinca tinca</i>) in the St. Lawrence River and Lake Champlain CANCELLED	<u>E. Lower</u> GLANSIS: an invasive species information source for scientists, citizens, and stakeholders
11:40	HOWARD WHEATER PLENARY, AC223 (AA112 for overflow)				
1:00	LUNCH				

SW128	SW143	SW309	SW319	SY110	
Science for a Healthy Lake Simcoe	Preliminary Results from the 2017 CSMI Intensive Field Year on Lake Huron	Plastics in the Great Lakes: Characterizing the Problem and Finding Solutions	Seeing Below the Surface: Quantifying the Underwater Environment with Image Analysis	Restoration of Native Fishes	
<u>K. Wozney</u> Genetic assessment of historical and contemporary Muskellunge in Lake Simcoe	<u>D. Wells</u> Spatio-temporal variation in Coregonid larvae growth and density in Thunder Bay Lake Huron in 2017	<u>L. Erdle</u> Microfibers in the Great Lakes: a prominent contaminant in fish	<u>K. Mehler</u> Using underwater imagery to monitor invasive species in the Great Lakes	<u>I. Hebert</u> Effects of Temperature on Physiological Performance of Lake Trout Stocked in the Great Lakes	10:20
<u>T. Gunn</u> The impact of shifting cisco population age-structure on the characteristics of pelagic fish schools	<u>L. Rudstam</u> Why are there so few mysids in Lake Huron?	<u>J. Crossman</u> Quantifying and characterizing microplastics in farmed soils and stream environments	<u>T. Angradi</u> Preliminary Results from a Benthic Video Survey of the Lake Huron Nearshore	<u>J. Rinchard</u> Thiamine Deficiency Complex in Salmonines from Lake Ontario	10:40
<u>B. Ginn</u> Trends in the Nearshore and Profundal Benthic Invertebrate Communities of Lake Simcoe: 2005-2016	<u>P. Esselman</u> Loose habitat affiliations and divergent winter distributions in round goby population of Thunder Bay, Lake Huron	<u>J. Grbic</u> How land-use and hydrology characteristics effect microplastic contamination in Lake Ontario	<u>C. Menza</u> Pairing side scan sonar imagery and ground-truth videos to characterize western Lake Michigan	<u>M. Futia</u> Influence of Egg Nutritional Content on Salmonine Offspring Survival in Lake Ontario	11:00
<u>J. Li</u> What sets the timing and duration of the spring overturn in Lake Simcoe?	<u>K. Kierczynski</u> Lake Huron predator diet study update	<u>R. Knauff</u> Contextualizing count data using computational transport modeling	<u>C. Brooks</u> Demonstrating Unmanned Aerial System multispectral analysis of Eurasian watermilfoil treatments	<u>E. Wimmer</u> Feeding and growth of lake trout fry on a diet of Hemimysis anomala	11:20
HOWARD WHEATER PLENARY, AC223 (AA112 for overflow)					11:40
LUNCH					1:00

TUESDAY, JUNE 19

	AA112	HW215	HW216	MW170	SW128
	Harmful Algal Blooms and their Toxicity: Remote Sensing and Modeling Approaches	Physical Ecology in Large Lakes and their Watersheds	History of Great Lakes Fish, Fisheries & Governance: Dr. Henry Regier's Legacy	Great Lakes Outreach and Education	Science for a Healthy Lake Simcoe
1:40	C. Farrow The effect of river-borne phosphorus loading on the phytoplankton community of Nottawasaga Bay	J. Ackerman Mussels blow rings -- exhalant jet behavior influences mixing	K. Reid Pragmatic “solutions” to wicked fisheries management problems: when clumsy is good	N. Wood #GreatLakesSci: How to be a successful science communicator in the modern age of social media	F. McCarthy “Monitoring” Water Quality in Lake Simcoe Since Deglaciation Using Palynomorphs
2:00	Q. Wang Coupled hydrodynamic and biogeochemical simulation of long-term trends in western Lake Erie HABs	H. Bravo Assimilation of Phosphorus from a Point Source in the Lake Michigan Nearshore Zone	S. Campbell Historical changes in the fish communities of the Great Lakes	K. TePas Sharing CSMI Field Year Findings with a Broader Audience	H. Jarjanazi Lake Simcoe Water Quality, 1980-2016
2:20	S. Bocaniov Understanding the Role of Physical Processes in Algal Bloom Formation in Lake St. Clair	R. MacLellan-Hurd Offshore Nutrient Dynamic Change with Profunda Quagga Mussels	O. Gorman Lake Superior Fish Community, 1953-2017: reflecting a history of change and an uncertain future	J. Ciborowski Relative Importance of Prevailing Research & Management Issues in Lake Erie	M. MacDougall Remote Sensing as a tool for identifying non-point sources of nutrients in the Lake Simcoe Basin
2:40	H. Diz Modeling cyanobacterial blooms in Presque Isle Bay, Erie, PA, using the EPA model AQUATOX	L. Girihaagama Dreissenid mussel distribution in Georgian Bay is limited by lateral mixing of chemical gradients	E. Holm The history of the Atlantic Salmon in Lake Ontario	M. Bohling Michigan Water School: Essential Resources for Local Officials	S. MacKay Periphyton Response Across a Land-Use Gradient in the Lake Simcoe Watershed
3:00		S. Tuttle-Raycraft The response to increased total suspended solids is plastic in juvenile unionids	N. Mandrak Historical changes in the fish communities of the Credit River watershed	S. Jetoo Governance at the local level: The Turku process	H. Wallace Application of Rn-222 for Identification and Quantification of Groundwater Discharge to Lake Simcoe
3:20		V. Fung The effect of algal flux in surface vs. pore water on the feeding of juvenile unionids	W. Taylor The Future of the Great Lakes Fisheries Ecosystem - Sustainability or Collapse		B. Longstaff Reducing urban phosphorus loads to Lake Simcoe through an innovative new offsetting program
3:40	BREAK				

SW143	SW309	SW319	SY110	
Evaluation of the Current State of Ecological Modeling and Future Perspectives	Plastics in the Great Lakes: Characterizing the Problem and Finding Solutions	Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes	Restoration of Native Fishes	
<u>A. Kuczynski</u> Phosphorus Provenance and <i>Cladophora</i> in the Northern Lake Ontario Nearshore	<u>C. Hellquist</u> Microplastic particulates in Lake Ontario spawning salmon compared to prey fish	<u>M. Sayers</u> Seasonal Patterns of Lake Michigan Inherent Optical Properties with Implications for Remote Sensing	<u>A. McCarthy</u> Restoring Atlantic Salmon to Lake Ontario: genetic tracking of reintroductions and wild performance	1:40
<u>C. McDonald</u> Modeling the Efficacy of Phosphorus Treatment Options for the Control of <i>Cladophora</i> in Lake Ontario	<u>K. Munno</u> Microplastics in Fish: A comparison of Microplastic Ingestion in Two Great Lakes	<u>S. Aden</u> Unmanned Aircraft Systems (UAS) Based Radiometry for Monitoring Water Quality	<u>C. Therrien</u> Atlantic salmon reintroduction into Lake Ontario: Strategies for enhancing stocking outcomes	2:00
<u>Z. Xu</u> Modelling the relationships among nutrient loading, harmful algal blooms, and hypoxia in Lake Erie	<u>B. Scales</u> Habitat drives gene content of Great Lakes plastic-dwelling microbial communities	<u>K. Bosse</u> Cyanobacteria Vertical Structure Variability in Western Lake Erie and its Impacts On Remote Sensing	<u>P. Euclide</u> Population genetics of lake whitefish over 100 years after commercial harvest closure	2:20
<u>M. Brady</u> Modelling the impact of dreissenids and internal phosphorus loading in Lake Erie	<u>K. Bucci</u> Investigating the Effects of a Range of Microplastics to Fathead Minnows	<u>C. Binding</u> Analysis of remote sensing algal bloom indices on three turbid eutrophic lakes	<u>E. George</u> Development of Species Diagnostic RFLP Markers for Cisco and Lake Whitefish	2:40
<u>N. Boucher</u> Investigating the Effects of Climate Change in Lake Michigan Using the Atlantis Ecosystem Model	<u>S. Grigorakis</u> Examining the relative contribution of PCBs assimilated from microplastic beads and food in goldfish	<u>G. Leshkevich</u> Operational Ice Type Classification and Water Quality Satellite Retrievals for the Great Lakes	<u>J. McKenna</u> More than a decade of Coregonid production in Chaumont Bay, Lake Ontario	3:00
<u>G. Onandia Bieco</u> Understanding the biogeochemical functioning of natural ponds in the agricultural landscape	<u>X. Zhang</u> Analyzing plastics using thermal desorption/pyrolysis-direct analysis in real time mass spectrometry	<u>M. Billmire</u> Implementing multi-portal sharing of Great Lakes remote sensing data	<u>M. Paufve</u> Characterizing the Spawning and Incubation Habitat of Cisco (<i>Coregonus artedii</i>) in the Great Lakes	3:20
BREAK				3:40

TUESDAY, JUNE 19

	AA112	HW215	HW216	MW170	SW128
	Unrefined Hydrocarbon Transport in the Great Lakes Basin	Physical Ecology in Large Lakes and their Watersheds	Ecosystem Impacts of the Lake Ontario-St. Lawrence River Flood of 2017	Research-Driven Educational Initiatives to Improve Watershed Health	Science for a Healthy Lake Simcoe
4:00	<u>R. Sturtevant</u> Crude Oil Transport in the Great Lakes Region: A Wicked Problem	<u>H. Siersma</u> Effects of Saginaw Bay Sediment Structure on Hexagenia Spp. Nymphal Development	<u>M. Twiss</u> Water Quality Impact of the 2017 St. Lawrence River Flood Compared to Years 2014-2016	<u>D. Balika</u> Bridging the data gap in Conservation Authorities using Citizen Science	<u>M. Bennet</u> Adapting Lake Simcoe Conservation Authority's actions to an emerging climate
4:20	<u>M. Malchoff</u> Collective Efforts to Understand Oil Transportation Issues in the Great Lakes Region	<u>M. Harvey</u> The Effect of Morphology on Submerged Aquatic Macrophytes	<u>M. Windle</u> Assessing coastal wetlands of the Upper St. Lawrence River using an unmanned aerial vehicle (UAV)	<u>M. Kubalewski</u> Microplastics and macroinvertebrates: leveraging student ingenuity for research discovery	<u>K. Baird</u> Floristic Quality Assessment for natural areas monitoring in Lake Simcoe watershed
4:40	<u>J. Marty</u> Framework to define most probable oil spills in the Great Lakes basin	<u>K. Reinl</u> Response of the Deep Chlorophyll Maximum in Lake Superior to Changing Temperatures	<u>E. Brahmstedt</u> Water Levels May Impact Mercury Cycling in Upper St. Lawrence River Riparian Wetlands	<u>J. Peller</u> Educational partnerships to study, protect and embrace the health of a local watershed	<u>D. Puric-Mladenovic</u> Baseline condition of natural cover in the Lake Simcoe Watershed
5:00	<u>J. Daley</u> Assessment of Impacts of Unrefined Liquid Hydrocarbons on Aquatic Ecosystems of the Great Lakes		<u>K. Schwartz</u> Effects of extreme water levels on fish communities of the Upper St. Lawrence River	<u>L. Eberhardt</u> Cooperating to monitor the impacts of terrestrial restoration on associated headwater streams	
6:00	POSTER SESSION, SW Wing				

SW143	SW309	SW319	SY110	
Evaluation of the Current State of Ecological Modeling and Future Perspectives	Climate Change Impacts on Ecohydrology of Urbanized Watersheds Draining into Large Lakes	Remote Sensing, Visualization, and Spatial Data Applications for the Great Lakes	Restoration of Native Fishes	
<u>T. Brown</u> Who messed up my lake?	<u>E. Passeport</u> Bioretention cells under cold climate conditions	<u>M. Naber</u> Digital Shoreline Analysis 4.4 used to evaluate bluff recession rates in Erie, PA, using LiDAR data.	<u>H. Lachance</u> Climate Change Impact on Cisco (<i>Coregonus artedii</i>) Egg + Larva Development at the Molecular Level	4:00
<u>P. Xue</u> Hydrodynamics and Its Impact on Water Quality Management in the Northern Nearshore of Lake Ontario	<u>A. Erler</u> The Impact of Climate Change on Surface and Groundwater Resources in Southern Ontario	<u>J. Guerrein</u> Shoreline change of Presque Isle State Park from 1937 to 2015	<u>C. Audet</u> Differences in quality between hatchery-reared and wild-origin bloater (<i>Coregonus hoyi</i>) eggs	4:20
<u>J. Pauer</u> Great Lakes modeling: Are the mathematics outpacing the data and our understanding of the system?	<u>M. Shafii</u> Ecohydrological impacts on receiving waters induced by stormwater management infrastructure	<u>L. Bourgeau-Chavez</u> Developing a Framework for Monitoring Coastal Wetlands with High Resolution Satellite Imagery in 4D	<u>N. Klinard</u> Movement, Habitat Use & Survival of a Re-Introduced Fish: Bloater (<i>Coregonus hoyi</i>) in Lake Ontario	4:40
<u>M. Brett</u> Useless Arithmetic? Lessons Learned From Aquatic Biogeochemical Modelling		<u>R. Dinehart</u> Spatial and Temporal Effects of Fragmentation on Marsh Bird Communities within Saginaw Bay, Michigan		5:00
POSTER SESSION, SW Wing				6:00

WEDNESDAY, JUNE 20

	AA112	HW215	HW216	MW160	MW170
	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications	Improving Model Predictions through Coupled System and Data Assimilation	Modeling, Detecting, and Managing Rarity	Microbial Dynamics and Human Health Risks in the Beach Sand	The Science-Policy Interface in Great Lakes Research
8:40	<u>O. Al-Dabbagh</u> The Effects of Nitrogen Dynamics on Toxic, Non-Diazotrophic Microcystis spp. in Eutrophic Lakes	<u>L. Fitzpatrick</u> An Annual Comparison of Turbulent Heat Fluxes with Numerical Models across the Great Lakes			<u>G. Krantzberg</u> If we really aren't sure can we take action?
9:00	<u>S. Simoliunas</u> Inadequate Sampling and Analysis at Detroit Wastewater Treatment Plant	<u>E. Persaud</u> Integrated modelling of groundwater-surface water interactions in the Great Lakes basin	<u>A. Dextrase</u> Sampling Effort Required to Detect Rare Fishes	<u>C. Weiskerger</u> Effects of a Changing Earth on Microbial Dynamics and Human Health Risks in the Water/Sand Continuum	<u>K. Browne</u> Is all co-production created equal? Understanding drivers and outcomes
9:20	<u>S. Rakhimbekova</u> Effect of Hot Phenomena on Groundwater Derived Nutrients in the Nearshore Aquifer in the Great Lakes	<u>X. Ye</u> Modeling the Impact of Water Mixing and Ice on Deep, Inland Lake Warming	<u>R. Castaneda</u> A novel detection technique for fishes at risk	<u>A. Shrestha</u> Optimal threshold criteria for E. coli qPCR using ROC analyses	<u>K. Siman</u> Social-Ecological Network Structures of Lake Erie Water Quality Management
9:40	<u>S. Rixon</u> Effects of agricultural practices and climate on nutrient transport through various water pathways	<u>J. Kessler</u> Improving Seasonal Ice Forecasts Using a Coupled Lake-Ice System	<u>D. Tozer</u> Detecting and monitoring elusive marsh breeding birds in the Great Lakes	<u>L. Sassoubre</u> Applying Microbial Community Analysis to Identify Fecal Pollution in Surface and Groundwater Flowing	<u>C. Delle Palme</u> From Fish Movement to Knowledge Movement
10:00	BREAK				

SW128	SW143	SW309	SW319	SY110	
Science and Policy for Management of Invasive Crayfish	Cities on the Shore: Urbanization as a Growing Threat to Nearshore Ecosystem Health	Restoring Hamilton Harbour: Tilting at Windmills or a Possible Dream?	Climate Interactions with Large Lakes' Physical Systems	Restoration of Native Fishes	
G. Kang The Controversies Regarding the Native Range and Impact of the Rusty Crayfish	S. Whorley Effects of Multiple Anthropogenic Stressors on Lake Erie and Associate Streams' Algal Assemblages	D. Depew A status update on the eutrophication of Hamilton Harbour: Is recovery within reach?	F. Xie Uncertainty in WRF Regional Model Climate Change Projections For the Great Lakes Basin	D. Stanley Impact of a large-scale translocation program as a way to increase American eel spawners production	8:40
R. Keller Invasive Crayfishes in the Great Lakes: Current Status and Management Options	E. Hayward Impacts of wastewater discharges on freshwater mussels in a tributary of the Grand River, Ontario	J. Vanden Byllaardt New approaches to tracking sources of contaminant loadings to Hamilton Harbour	B. Lofgren Using 2-Way Embedding of Fine Grids in Global Models to Enhance Regional Climate Projection	A. Mathers Tracking American Eel Movements in the Bay of Quinte and the St. Lawrence River	9:00
A. Tucker Control of invasive Rusty Crayfish on Lake Michigan spawning reefs	B. Kielstra Cumulative Effects of Headwater Degradation on Downstream Ecosystems in Urbanizing Landscapes	J. Milne Today's challenges of urban beach management	K. Channell Annual Climate Trends and Impacts Summary for the Great Lakes Basin	M. Boothroyd Assessment of an adult lake sturgeon reintroduction effort in a fragmented river system	9:20
E. Larson Predicting the potential distribution of the invasive red swamp crayfish in the Great Lakes	A. Parajulee Comparing Herbicide Behaviour and Exports in Contrasting Toronto Watersheds	Z. Parhizgari Keeping urban beaches open- A municipal odyssey	G. Milner Assessing Climate Science Knowledge Gaps to support the Great Lakes Water Quality Agreement	J. Withers Population status of Lake Sturgeon in eastern Lake Erie	9:40
BREAK					10:00

WEDNESDAY, JUNE 20

	AA112	HW215	HW216	MW160	MW170
	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications	Improving Model Predictions through Coupled System and Data Assimilation	Modeling, Detecting, and Managing Rarity	Food Web Ecology and Dynamics of Lake Ontario: Nearshore Pelagic Linkages	The Science-Policy Interface in Great Lakes Research
10:20	<u>T. Chandrakumaran</u> Spatial and Temporal Trends in Phosphorus and Suspended Solids Yields along an Urban River Reach	<u>R. Kibler</u> Using a Property-carrying Particle Model for Ecosystem Simulation: A Case Study of Sandusky Bay	<u>C. Hayer</u> Aquatic Invasive Species Early Detection and Monitoring Program for Lake Michigan: A Summary	<u>F. Luckey</u> CSMI 2018 - Unravelling Lake Ontario's Nutrient Conundrum	<u>N. Mandrak</u> The science-policy interface in Great Lakes biodiversity research: a researcher's perspective
10:40	<u>C. Wolfanger</u> Nitrogen and Phosphorus Processing in Restored Versus Degraded Riverine Coastal Wetlands	<u>J. Daily</u> Ensemble Kalman Filter Data Assimilation Development for Lake Erie	<u>F. Montgomery</u> Identifying extinction debt in Great Lakes wetland fishes	<u>M. Fitzpatrick</u> Assessing Microbial-Planktonic Food Web Dynamics in Nearshore and Offshore Habitats of Lake Ontario	<u>N. Stratton</u> Science-policy and the influence of stakeholder perceptions on early detection and rapid response
11:00	<u>J. Herrin</u> Identifying Nutrient Pollution Sources with Stable Isotopes to Improve Water Quality	<u>Y. Chao</u> Development of a 3DVAR Data Assimilation System for Lake Erie Operational Forecast System	<u>L. Elliott</u> Hierarchical modeling to identify habitat associations of secretive marsh birds in the Great Lakes	<u>M. Munawar</u> Ecological Linkages of Nearshore-Pelagic Gradients of Phytoplankton Dynamics in Lake Ontario	<u>C. Irvine</u> Lessons learned from cumulative effects development monitoring in the Grand River Watershed
11:20	<u>T. Maguire</u> Riverine nutrient concentrations respond to upgradient greenhouse agriculture	<u>Y. Jia</u> Feasibility Studies to Use Contemporary Satellite Geodetic Observations Towards the Improvement of Great Lakes Monitoring and Forecasting via Assimilative Modeling	<u>C. Jolls</u> Pitcher's Thistle: a Great Lakes Endemic as a Model System	<u>H. Niblock</u> Seasonal Variation in Phytoplankton Communities of Western and Eastern Lake Ontario	<u>D. VanNijnatten</u> Knowledge Indicators for Great Lakes Environmental Governance
11:40	DIANNE SAXE PLENARY, AC223 (AA112 for overflow)				
1:00	BUSINESS LUNCH				

SW128	SW143	SW309	SW319	SY110	
Science and Policy for Management of Invasive Crayfish	Cities on the Shore: Urbanization as a Growing Threat to Nearshore Ecosystem Health	Restoring Hamilton Harbour: Tilting at Windmills or a Possible Dream?	Climate Interactions with Large Lakes Physical Systems	Restoration of Native Fishes	
<u>B. Roth</u> Coordinated response efforts to the red swamp crayfish invasion in Michigan	<u>D. Lembcke</u> Monitoring Winter Salt use in Commercial Parking Lots to Understand the Source and Find Solutions	<u>T. Long</u> Decades of tilting at Hamilton Harbour's PCBs	<u>B. Qin</u> A Record-setting of Cyanobacterial Bloom in 2017 in Lake Taihu, China	<u>S. Diller</u> Functional Assessment of Great Lakes Coastal Wetlands: Insights from Fish Diversity	10:20
<u>V. Prescott</u> Climate Change and Ecological Risk Assessment For Predicting Future Great Lakes Crayfish Invasions	<u>L. Murison</u> Real-Time Chloride in the Credit River and Impacts on Nearshore Lake Ontario	<u>K. Stevack</u> Assessing toxicity and bioaccumulation of Hamilton Harbour sediments	<u>B. Hewitt</u> Effects of climate change on lake ice freeze up: historical patterns and future predictions	<u>J. Schaeffer</u> Gap Analysis as a Planning Tool to Restore Stream Diversity	10:40
<u>A. Allert</u> Potential Chemical Control for Invasive Crayfish Infestations	<u>S. Melles</u> Identifying Seasonal Road Salt Hotspots in Three Urban to Urbanizing Tributaries	<u>B. Flood</u> Anoxic water upwelling potentially limits fish habitat in Hamilton Harbour: 3D hydrodynamic modeling	<u>L. Lopez</u> The effects of climate change on lake ice breakup across the Northern Hemisphere	<u>S. Volkel</u> Slimy sculpin and round goby spatial overlap in the Great Lakes following round goby invasion	11:00
<u>G. Hitzroth</u> Great Lakes Invasive Crayfish – Results of a Stakeholder Needs Assessment Using the Delphi Method	<u>A. Kayembe</u> The Influence of Channel Complexity on Trace Metal Distribution in Salt Impacted Urban Streams	<u>C. Yang</u> Predicting the likelihood of a regime shift in Cootes Paradise with statistical & mechanistic models	<u>J. Lenters</u> Decadal variability of Lake Superior ice cover and water temperature: An ecosystem in transition?	<u>M. Kindree</u> Examining the interactive effects of climate change and invasive species on a native fish	11:20
DIANNE SAXE PLENARY, AC223 (AA112 for overflow)					11:40
BUSINESS LUNCH					1:00

WEDNESDAY, JUNE 20

	AA112	HW215	HW216	MW160	MW170
	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications	Managing Water Use in the Great Lakes-St. Lawrence River Basin	Modeling, Detecting, and Managing Rarity	Food Web Ecology and Dynamics of Lake Ontario: Nearshore – Pelagic Linkages	How to Talk Science so Policy will Listen, and Listen so Science will Talk?
2:20	H. Yao Spatial-Temporal Changes of Nutrients in Muskoka River, an Example of Undeveloped Area		L. Nguyen-Dang Behavioural and Gene Transcriptional Phenotypes of Round Goby During the Invasion Spread	K. Bowen Nearshore-Offshore Planktonic Food Web Dynamics in Lake Ontario	D. Saxe Communicating Your Message to Policy Makers
2:40	M. Digaletos Characterization of Non-point Source Contamination from Septic Systems in Rural Hamlets, Ontario	S. Cole Understanding Uses of Great Lakes - St. Lawrence Water: Trends and Opportunities	K. Wozney Tracking ghosts: harnessing environmental DNA for detecting elusive aquatic species	G. Doud Invertebrate Predator Effects on Daphnia and Other Zooplankton Species	R. Melzer Beyond the journal article: How scientists can influence policy decisions

SW128	SW143	SW309	SW319	SY110	
Solutions for Lake Ontario: Addressing the Human Footprint on Regional Water Quality	Advances in Understanding Nearshore Ecosystems in Great Lakes and Connecting Channels	Restoring Hamilton Harbour: Tilting at Windmills or a Possible Dream?	Climate Interactions with Large Lakes' Physical Systems	Restoration of Native Fishes	
<u>P. Goel</u> Designing an urban stream monitoring network to estimate phosphorus loads from non-point sources	<u>P. Zuzek</u> Application of the Nearshore Framework Assessment to Lake Erie and the Huron-Erie Corridor in Canada	<u>J. Li</u> Seasonal and spatial variability of polyphosphate in the water column of Hamilton Harbour	<u>J. Wang</u> Analysis of Interannual Variability of Great Lakes Ice Cover, 2012-2017	<u>C. Higgins</u> Evaluating Mate Preference in Adult Female Sea Lampreys	2:20
<u>L. Del Giudice</u> Exploring land to lake connections through new approaches in watershed planning	<u>J. Simard</u> Great Lakes Shoreline Ecosystem (GLSE) Inventory and Monitoring Project	<u>È. Gilroy</u> Status assessment of the BUI "Degradation of Wildlife Populations" for the Hamilton Harbour AOC		<u>H. Dawson</u> Using Management Strategy Evaluation to optimize a trapping strategy to control invasive sea lamprey	2:40

WEDNESDAY, JUNE 20

	AA112	HW215	HW216	MW160	MW170
	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications	Managing Water Use in the Great Lakes-St. Lawrence River Basin	Modeling, Detecting, and Managing Rarity	Food Web Ecology and Dynamics of Lake Ontario: Nearshore – Pelagic Linkages	How to Talk Science so Policy will Listen, and Listen so Science will Talk?
3:00	<u>J. White</u> Concentration-Discharge Relationship Controls on Phosphorus for a River in a Cold Temperate Climate	<u>S. Cole</u> Measuring Progress Towards Desired Outcomes for Great Lakes Water – The Blue Accounting Approach	<u>S. Crookes</u> On Site eDNA Assessment of Species-at-Risk (SAR): Implications for Aquatic Resource Management	<u>T. Holda</u> Metagenomic Analysis of Mysis Gut Contents	<u>N. Diep</u> Farming in the Great Lakes: Science to inform decisions on the management of cage aquaculture
3:20	<u>W. Richardson</u> Land use effects on nutrient cycling and loss from headwaters to Great Lakes in the Fox River Basin	<u>A. Wrobel</u> Using Traditional Ecological Knowledge for Water Management	<u>E. Whitmore</u> How Improving DNA Barcoding Libraries Can Improve Zooplankton Monitoring in the Great Lakes.	<u>M. Hanley</u> Comparing Alewife (Alosa pseudoharengus) Diets to Zooplankton Community Composition in Lake Ontario	<u>P. Sibley</u> Teaching tools to help students understand the reciprocal relationship between science and policy
3:40	BREAK				

SW128	SW143	SW309	SW319	SY110	
Solutions for Lake Ontario: Addressing the Human Footprint on Regional Water Quality	Advances in Understanding Nearshore Ecosystems in Great Lakes and Connecting Channels	Within Reach: The Path to De-listing Toronto and Region as a Great Lakes Area of Concern	Big Lakes - Small World: IAGLR Teams with the European Large Lakes Symposium in 2018	Restoration of Native Fishes	
<u>M. Eastman & L. Murison</u> Identifying non-point sediment source areas to prioritize land management and restoration activities	<u>M. Nord</u> U.S. EPA's National Coastal Condition Assessment in the Great Lakes	<u>L. Cartwright</u> Evaluation of TRCA's Natural Heritage System Strategy and wildlife populations in the Toronto AOC	<u>J. Lenters</u> IAGLR joins the European Large Lakes Symposium in 2018: A preview of the inaugural meeting in France	<u>A. Huddleston</u> The influence of winter severity on the coupling between Lake Erie walleye and their prey	3:00
<u>M. DeBues</u> Agricultural land-use change and nutrient export in Lake Ontario tributaries	<u>M. Hudson</u> Tributary Influences on Nearshore Water Quality in Lake Superior's Chequamegon Bay	<u>A. Chreston</u> Managing Double-crested Cormorants at Tommy Thompson Park	<u>P. Blanken</u> Vessel-based Observations of Meteorological and Evaporation Gradients on the Laurentian Great Lakes		3:20
BREAK					3:40

WEDNESDAY, JUNE 20

	AA112	HW215	HW216	MW160	MW170
	Nutrient Sources, Transport and Retention in Great Lakes Watersheds: Field Measurements, Modeling and Management Implications	Managing Water Use in the Great Lakes-St. Lawrence River Basin	Modeling, Detecting, and Managing Rarity	Food Web Ecology and Dynamics of Lake Ontario: Nearshore – Pelagic Linkages	How to Talk Science so Policy will Listen, and Listen so Science will Talk?
4:00	<u>K. Van Meter</u> Food, Fodder and Phosphorus: A Quantification of Nutrient Legacies in Human-Impacted Watersheds	<u>T. Bruno</u> Water conservation and efficiency training and education under the Great Lakes Compact	<u>A. Drake</u> Thermal and Physical Reproductive Cues for Spotted Gar in a Lake Erie Coastal Wetland	<u>E. Brown</u> Migration and Spatial Ecology of Walleye: Linkages Between a Nearshore Predator and Offshore Prey	<u>D. Ruck</u> Communicating science: how to create a short video about your research in a day CANCELLED
4:20	<u>M. Verschoor</u> Trends in AVS and acid extractable iron in sediment cores from Lake Erie	<u>J. Staples</u> Reporting Ontario's Water Use under the Sustainable Water Resources Agreement	<u>L. Potts</u> Effects of dual stressors on Pugnose shiner, <i>Notropis anogenus</i>	<u>K. Drouillard</u> Ecological tracers reveal resource convergence among Lake Ontario prey fishes	<u>D. Walters</u> The science-policy interface in the context of source water protection: lessons from Callander, ON
4:40	<u>R. Shukla</u> Application of Modelling Approach in Flat Land Watersheds of Canadian Lake Erie Basin			<u>G. Arhonditsis</u> Guiding risk assessment and adaptive management implementation in Lake Ontario	<u>K. Friedman</u> Bridging the Science-Policy Gap: Rethinking the Nexus
5:00	<u>N. Basu</u> Biogeochemical Asynchrony: Ecosystem Drivers of Concentration-Discharge Dynamics Across Scales				<u>J. Winter</u> Science in action: examples from Lake Simcoe and the Great Lakes

SW128	SW143	SW309	SW319	SY110	
Solutions for Lake Ontario: Addressing the Human Footprint on Regional Water Quality	Advances in Understanding Nearshore Ecosystems in Great Lakes and Connecting Channels	Within Reach: The Path to De-listing Toronto and Region as a Great Lakes Area of Concern	Big Lakes - Small World: IAGLR Teams with the European Large Lakes Symposium in 2018	Physiology and Conservation of Sturgeon in the Great Lakes	
<u>R. Sorichetti</u> Chloride Trends In Ontario Lakes And Streams	<u>P. McKinney</u> Evaluating Lake Superior nearshore offshore gradients using autonomous gliders	<u>L. Matos</u> Assessing Fish Consumption BUI at Great Lakes Areas of Concern: Toronto case study	<u>T. Wood</u> Change in the frequency of deep ventilation of a caldera lake in a future climate	<u>M. McCabe</u> Scent Enhancement in Juvenile Huron-Erie Corridor Lake Sturgeon	4:00
<u>T. Watson-Leung</u> Changes in the Humber Bay benthic macroinvertebrate community structure: 1990 to 2012	<u>D. Bunnell</u> Spatial variability in energetic condition of Lake Michigan preyfishes	<u>R. Rozon</u> Zooplankton community, size distribution and production in the Toronto and Region Area of Concern	<u>S. Sharma</u> Losing lake ice: Extreme no-freeze ice events in Northern Hemisphere lakes	<u>L. Tessier</u> Relationship between Water chemistry, the Gill Microenvironment, and TFM toxicity in Non-Target Fish	4:20
<u>B. Laverick</u> Responsible phosphorus limits at the Duffin Creek Plant	<u>B. Leonhardt</u> Diet Complexity of Lake Michigan Salmonids: Contrasting Trophic Indicators	<u>J. Stille</u> Integrated Restoration Prioritization: A Strategic Tool for Improving Toronto Area Natural Systems	<u>M. McCarthy</u> Measuring nitrogen transformation rates in large lakes: challenges, solutions, and future needs	<u>O. Birceanu</u> Investigation of alternative lampricide treatments offers insights into lake sturgeon physiology	4:40
<u>B. Snodgrass</u> Forecasting and monitoring improvements in the Ashbridges Bay Coastal Zone from the ABTP Project	<u>C. Foley</u> Species identity matters when interpreting trophic markers in nearshore aquatic food webs	<u>G. MacPherson</u> Urban Resiliency through Ecosystem Habitat Restoration	<u>J. Lenters</u> Big Lake - Big Waves: A historical climatology of offshore wave heights on Lake Superior	<u>M. Wilkie</u> Effects of the Lampricide, TFM, on Juvenile Lake Sturgeon: Implications for Sea Lamprey Control	5:00

THURSDAY, JUNE 21

	AA112	HW215	HW216	MW160	MW170
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	Innovative Monitoring across the Great Lakes	Multi-Watershed Nutrient Study: Establishing a Monitoring Network in Agricultural Regions	Physical Processes in Lakes	Status and Management of Invasive Carps in the Great Lakes
8:40	<u>T. Harrow-Lyle</u> Emergence of Algal Blooms in a Large Macrophyte-Dominated Lake	<u>M. Herzog</u> Smart Lake Erie: The Future of Real-Time Water Monitoring	<u>M. Mohamed</u> The Multi-Watershed Nutrient Study: Background, Context and Session Introduction	<u>M. Wells</u> The influence of thermal stratification upon acoustic propagation: Impacts on fish detection	<u>K. Irons</u> Protecting Our Waters: Multi-jurisdictional Approach to Asian Carp Presence in the Illinois Waterway
9:00	<u>J. Harrison</u> Drivers of Spatiotemporal Patterns in Cyanobacterial Fluorescence in Callander Bay, Lake Nipissing	<u>S. Kshirsagar</u> Lessons Learnt in Hackathons for Lake Monitoring Innovation	<u>M. Rosamond</u> Representing a Large Region with Few Sites: The Quality Index Approach for Field Studies	<u>K. Lamb</u> Idealized Numerical Simulations of Ontario's Grand River Plume	<u>A. Casper</u> Response of Native Fish and Plankton to the Arrival and Subsequent Reduction of Asian Carp
9:20	<u>G. Boyer</u> Harmful Algal Blooms in New York's Finger Lakes – A Harbinger of Change to Come?	<u>K. Tountas</u> Software-defined Wireless Networking for Smart Water Monitoring	<u>J. Thomas</u> Enhanced Partnership Development to Expand and Achieve Common Study Goals	<u>S. Davarpanah Jazi</u> Settling-driven convection limits the spatial scale of deposition beneath buoyant flows	<u>L. Galin-Corini</u> Is the common carp (Cyprinus carpio) one of the world's worst invasive species?
9:40	<u>E. Crafton</u> The Impact of Aqueous and Particulate Phosphorous on Cyanobacteria Associated with HABs	<u>E. Verhamme</u> Development of a Lake-wide Operational Observing System: Lake Erie Case Study	<u>D. Smith</u> Logistical Considerations for the Development and Operation of an Automated Monitoring Network	<u>M. Stastna</u> Convection Near the Temperature-Induced Density Maximum in Water	<u>P. Alsip</u> Habitat Suitability Assessment for Bigheaded Carp using 3D Water Quality Data from Lake Michigan
10:00	BREAK				

SW128	SW143	SW309	SW319	SY110	
Long-Term Monitoring: Achievements, Challenges, and Solutions	Ecosystem Health and Recovery of the Bay of Quinte, Lake Ontario	Valuing Great Lakes Coastal Sand Dunes: New Science and Approaches	Emerging Partnerships, Research, and Capacity in the African Great Lakes	Effects of Environmental Contamination on Fish Communities	
<u>R. Shuchman</u> Satellite Observed Water Quality Changes in the Great Lakes Due to Multiple Human-Induced Drivers	<u>J. Ridal</u> Assessing Progress on the Restoration of Fish Consumption Beneficial Use in the Bay of Quinte		<u>K. Obiero</u> Strengthening Capacity in Research and Training through Transboundary Partnership and Collaboration	<u>S. Rafferty</u> Evaluation of hepatic and orocutaneous tumors in fishes in Presque Isle Bay, Pa post-delisting	8:40
<u>A. Karatayev</u> Population Dynamics of Zebra and Quagga Mussels in the Great Lakes: Cross-Lakes Comparison	<u>J. Sherry</u> Improved body burdens and health measures in Brown Bullhead from the Bay of Quinte: 2004 to 2014	<u>B. Garmon</u> Placemaking, Talent and the Evolving Role of Recreation in Managing Great Lakes Coastal Dunes	<u>P. Doran</u> Building upon the 2017 African Great Lakes Conference - Advancements and Investments	<u>V. Blazer</u> Evidence of Exposure to Estrogenic Compounds in Fishes Collected at Great Lakes Areas of Concern	9:00
<u>R. Sturtevant</u> An Updated History of Nonindigenous Species in the Great Lakes	<u>J. Meyer</u> Automated Tool for Early Warning of Chlorophyll Blooms in Bay of Quinte	<u>A. Arbogast</u> The Reconstructed Chronology of Coastal Dune Evolution in Michigan	<u>R. Hecky</u> The African Great Lakes Conference and the Future of Great Lakes Science in Africa	<u>H. Walsh</u> Tumors of White Suckers from Areas of Concern in the Great Lakes	9:20
<u>S. Grelik</u> Comparing wetland field protocols for practical, informative monitoring of invasive species	<u>Y. Shimoda</u> A modelling framework for setting criteria of Microcystin violations in the Bay of Quinte	<u>C. Queen</u> Comprehensive Mapping of Michigan's Coastal Sand Dunes	<u>A. Vodacek</u> Wind Driven Circulation Triggering Whiting Events in Lake Kivu	<u>D. Lapointe</u> Assessing the effects of contaminated sediment on fish of the St. Lawrence River (Cornwall) AOC	9:40
BREAK					10:00

THURSDAY, JUNE 21

	AA112	HW215	HW216	MW160	MW170
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	Innovative Monitoring across the Great Lakes	Multi-Watershed Nutrient Study: Establishing a Monitoring Network in Agricultural Regions	Physical Processes in Lakes	Distilling a Career: A Tribute to Doug Haffner's Contributions to Environmental Research on Large Lakes
10:20	<u>S. Mishra</u> Algal Bloom Severity Index for Lake Erie Sub-basins	<u>H. King</u> Open-source spectrometer for citizen science monitoring of nutrient loading	<u>L. Benakoun</u> Maintaining Consistent Sampling Regimes in Broad-Scale, Multi-Partner Stream Monitoring Projects	<u>D. Cannon</u> Observations of Hypolimnetic Turbulence in Lake Michigan and Implications for Mussel Filtration	<u>C. Hebert</u> Distilling A Career: A Tribute to Doug Haffner's Contributions to Environmental Research on Large Lakes
10:40	<u>J. Campbell</u> Zooplankton interaction with summer cyanobacteria blooms in Lake Erie's Presque Isle Bay, 2016-17	<u>K. Danielsen</u> Real-time nutrient monitoring system and data analysis offers insight into stream dynamics	<u>G. Arabian</u> Collecting, Maintaining and Sharing Large Environmental Datasets	<u>B. Yang</u> Velocity Measurements from a 5-Beam ADCP Reveals Varying Benthic Turbulence in Hamilton Harbour	<u>K. Drouillard</u> Detroit River Modelling and Management Framework and its use a Decision Support Tool for A Great Lak
11:00	<u>E. Kramer</u> They Go High, We Pump Low: Can the Diel Vertical Migration of HABs Protect Drinking Water Sources?	<u>J. Hortness</u> Innovative Monitoring and Load Estimation Techniques in Watersheds of the Great Lakes Basin	<u>M. Luymes</u> Engaging Farmers in Watershed Research: Lessons Learned and Future Perspectives	<u>S. Lin</u> Distribution of Turbulent Kinetic Energy Dissipation in Lake Erie	<u>R. Letcher</u> New Contaminants in Sediment and Biota from Lake Erie & Detroit River: Doug Haffner's Contributions
11:20	<u>R. Stumpf</u> A Mechanistic Phosphorus-Based Model for the Western Lake Erie Cyanobacteria Bloom	<u>F. Fitzpatrick</u> Experimental Approach for Estimating Daily Water Residence Time in Great Lakes Rivermouths	<u>M. Yousif</u> Nutrient Export from Agricultural Watersheds in Ontario Then and Now - A Comparison Across 40 Years	<u>H. Hu</u> Wind Wave Modeling in the Lake Erie	<u>G. Paterson</u> The bioenergetics of persistent organic pollutant bioaccumulation in freshwater fishes
11:40	ROBERT COSTANZA PLENARY, AC223 (AA112 for overflow)				
1:00	LUNCH				

SW128	SW143	SW309	SW319	SY110	
Long-Term Monitoring: Achievements, Challenges, and Solutions	Ecosystem Health and Recovery of the Bay of Quinte, Lake Ontario	Valuing Great Lakes Coastal Sand Dunes: New Science and Approaches	Emerging Partnerships, Research, and Capacity in the African Great Lakes	Effects of Environmental Contamination on Fish Communities	
<u>M. Battaglia</u> Updating the Map of Invasive Phragmites for the Great Lakes Coast	<u>J. Shore</u> Observations of surface drift in the Bay of Quinte in the summer of 2017	<u>L. Booth</u> Recreational Use Studies: Involving Communities in Determining the Benefits of Recreational Areas	<u>M. Ngochera</u> Spatial and Temporal Dynamics of pCO ₂ and CO ₂ Flux in Tropical Lake Malawi	<u>N. Urban</u> Recovery of Lake Superior from historical PCB pollution	10:20
<u>J. Jung</u> Spatial analysis of Phragmites australis at Long Point Peninsula	<u>M. Narini</u> That's a RAP!: Long-term database creation for the Bay of Quinte RAP and its role post de-listing	<u>E. Isely</u> Engagement of Coastal Dune Stakeholders: Innovative Methods to Improve Outcomes	<u>E. Tyner</u> Factors Determining E. coli Distribution in Nearshore Lake Malawi	<u>T. Hollenhorst</u> Modeling Biota-Sediment Accumulation Factors in Fish for AOC Habitat Restoration Projects	10:40
<u>A. Scofield</u> Do deep chlorophyll layers have bottom-up effects on zooplankton communities?	<u>F. Ouellet</u> Nutrient loading estimates during extreme rain events in the Bay of Quinte	<u>R. Richardson</u> Characterizing the Uses and Values of Freshwater Coastal Sand Dunes	<u>S. Guildford</u> Fv/Fm as an Indicator of Phytoplankton Nutrient Status in Lake Malawi	<u>S. Baskaran</u> Model-based explorations of the variability in Lake Trout bioaccumulation factors	11:00
<u>G. Parent-Doliner</u> Open Data Standard for Recreational Water Quality	<u>A. Richards</u> Nutrient loading comparisons across multiple watersheds in Lake Ontario		<u>H. Bootsma</u> Internal Controls of Carbon Dynamics in Lake Malawi	<u>J. Li</u> Application of a Spatially Explicit Bioaccumulation Model for Sport Fish in the Detroit River AOC	11:20
ROBERT COSTANZA PLENARY, AC223 (AA112 for overflow)					11:40
LUNCH					1:00

THURSDAY, JUNE 21

	AA112	HW215	HW216	MW160	MW170
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	Innovative Monitoring across the Great Lakes	Multi-Watershed Nutrient Study: Establishing a Monitoring Network in Agricultural Regions	Physical Processes in Lakes	Distilling a Career: A Tribute to Doug Haffner's Contributions to Environmental Research on Large Lakes
1:40	<u>S. Newell</u> Reduced forms of nitrogen are a driver of non-nitrogen-fixing cyanoHABs and toxicity in Lake Erie	<u>H. Roth</u> Weather and Waves on Lake Superior: An Intercomparison of Data from Two Buoy Designs	<u>C. Parsons</u> Phosphorus Export from Headwater Streams in the Lake Erie Basin: Storms, Snow-Melt and Speciation	<u>R. Valipour</u> Numerical Modeling of Hydrodynamics, Water quality and Sediment Transport in Lake of the Woods	<u>A. McLeod</u> Making Lemonade from Lemons: The use of contaminants in answering ecological questions
2:00	<u>I. Mrdjen</u> The Role of Microcystins as Liver Cancer Promoters in a Two-Stage Model of Liver Cancer Promotion	<u>W. Currie</u> A New Real-time Ecosystem Buoy for Toronto Region	<u>C. Wellen</u> Modeling Phosphorus Loading in Agricultural Watersheds Across Southern Ontario	<u>B. Hlevca</u> Field Observations and Hydrodynamic and Water Quality Modelling of Trout Lake, Ontario	<u>A. Bramburger</u> The Rules of Assembly, according to benthic freshwater diatoms
2:20	<u>M. Manubolu</u> Are fish harvested in Lake Erie during the harmful algal bloom season safe to eat?	<u>D. Schwab</u> Simulating Spill Scenarios for Public Health Protection in the Huron to Erie Corridor	<u>K. Zolfaghari</u> A Comparison of Lab- and Field-Based Water Quality Measurements for Agricultural Surface Waters	<u>M. Madani</u> Developing Three Dimensional Hydrodynamic and Water Quality Model for Lake St. Clair	<u>L. Zhang</u> Microbial Succession and Its Mechanism during an Algal Bloom Event in Three Gorges Reservoir
2:40	<u>T. Bridgeman</u> Comparing western Lake Erie Microcystin Congeners Between Small-HAB and Large-HAB Years.	<u>N. Pasch</u> The Intelligent Utility: Monitoring for Infrastructure Optimization and Ecosystem Health		<u>H. Zhou</u> Hydrodynamic Modeling of HABs in Western Basin of Lake Erie	<u>C. Fasching</u> A carbon mass balance for Lake Erie: sources and composition

SW128	SW143	SW309	SW319	SY110	
Long-Term Monitoring: Achievements, Challenges, and Solutions	How can Microbial Metagenomics Inform Management of Great Lakes Ecosystems?	Pilot Projects and Future Visions: Transdisciplinary Collaboration for Applied Research	Emerging Partnerships, Research, and Capacity in the African Great Lakes	Effects of Environmental Contamination on Fish Communities	
A. Point Perfluoroalkyl Acids: Updating Basin-Wide Temporal Trends and Biomagnification Insights	T. Edge Opportunities and Challenges for Metagenomics in Management of Great Lakes Ecosystems	E. Burbacher Lake Erie Area Research Network: The Advancement of LEARN	F. Njaya Collaborative Research for Sustainable Development: Challenges and Opportunities from Lake Malawi	U. Strandberg Risk-benefit of consuming fish from the Canadian waters of the Great Lakes	1:40
C. Winter Trends in total phosphorus and chlorophyll in Lake Erie: insights from two monitoring programs.	J. Podowski Microbial Genomic Diversity across the Laurentian Great Lakes	B. Gilvesy ALUS Canada: Connecting Landowners, Researchers, and Decision-makers to Achieve Results	A. Otieno Harnessing African Capacity for Improved Training on Fisheries and Aquaculture in Africa	A. Visha A Bayesian framework for assessing contamination trends in fish communities in the Great Lakes	2:00
L. Burlakova Trends in Lake Erie benthos: 1930-2014	C. Greer Genomic Characterization of Toxic Cyanobacterial Community Dynamics in Missisquoi Bay, Quebec	F. Lipschitz Learning from the City: Rethinking Green Infrastructure for Production Agriculture	N. Nagabhatla Water Security Agenda as Research and Capacity Framework for Sustainable Water Futures	G. Tetreault Recovery of fish populations after infrastructure investments at municipal wastewater plants	2:20
L. Grapentine Long-term Monitoring Improves Characterization of Reference Conditions for Assessment and Management	T. Davis Spatiotemporal Survey of the 2016 Lake Okeechobee and St. Lucie River Cyanobacterial Bloom	M. Schollen Cross-Disciplinary Collaboration-Toronto Green Streets Technical Guidelines	I. Nyameke An Account of GAFNET Activities in Ghana and Future Partnerships and Collaborations with ACARE	A. McLean Does proximity to wastewater effluent alter bluegill sunfish behaviour?	2:40

THURSDAY, JUNE 21

	AA112	HW215	MW160	MW170
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	Innovative Monitoring across the Great Lakes	Physical Processes in Lakes	Distilling a Career: A Tribute to Doug Haffner's Contributions to Environmental Research on Large Lakes
3:00	<u>S. Bartlett</u> Cyanobacterial toxins in lower Green Bay, Lake Michigan	<u>E. Mimouni</u> Multiscale Assessment of Freshwater Water Quality Sensor Data of the St. Lawrence River	<u>L. Amorim</u> Hydrodynamic and Ecological 3D Modeling in Tropical Lakes	<u>C. Heuvel</u> Resource Partitioning Across Ontogeny and Feeding Strategy for Three Lake Erie Fishes
3:20	<u>R. Shahmohamadloo</u> Microcystis aeruginosa adversely impacts Daphnia spp.: Posing risks to food webs of the Great Lakes	<u>M. Miller</u> Hydrological Connectivity Modeling to Distinguish Coastal and Non-Coastal Wetlands	<u>R. Cossu</u> Drivers for Lagoon Stratification in Manihiki Atoll, Cook Islands	<u>M. Ageli</u> Diatom communities and their patterns in paleocores from ancient Lake Towuti
3:40	BREAK			

SW128	SW143	SW309	SW319	SY110	
Long-Term Monitoring: Achievements, Challenges, and Solutions	How can Microbial Metagenomics Inform Management of Great Lakes Ecosystems?	Pilot Projects and Future Visions: Transdisciplinary Collaboration for Applied Research	Emerging Partnerships, Research, and Capacity in the African Great Lakes	Building Relationships of Anglers and Scientists toward Sustainable Fisheries	
<u>N. Olsen</u> Decadal Trends in Lake Michigan Buoy-Measured Wind and Waves	<u>C. Weisener</u> Unraveling the Microcystis Mystery of Pelee Island “Magic Sand”	<u>B. Davis</u> Healthy Port Futures: Landscape Strategies for Passive Sediment Management	<u>M. Gaden</u> Governance of Great Lakes Fisheries: History, Rationale, and Lessons for the Great Lakes of Africa	<u>J. Watkins</u> Tracking diel foraging behavior of Chinook Salmon in Lake Ontario using pop-off archival tags	3:00
<u>K. Bockwoldt</u> Current and Historical Phytoplankton Productivity in Lake Michigan	<u>M. Sadowsky</u> Use of DNA Sequence Technology to Determine Sources and Sinks of Microbes in Waterways	<u>J. Boehme</u> Data Challenges for Environmental Factors and Gastrointestinal Illness in Great Lakes Cities	<u>T. Lawrence</u> Approaching Africa’s Future Fresh Water Challenges through Capacity Building and Collaboration	<u>J. Lepak</u> Communicating Research to Charter Captains: King Salmon Movement and Behavior in Lake Ontario	3:20
BREAK					3:40

THURSDAY, JUNE 21

	AA112	HW215	MW160	MW170	SW128
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	Innovative Monitoring across the Great Lakes	Physical Processes in Lakes	Distilling a Career: A Tribute to Doug Haffner's Contributions to Environmental Research on Large Lakes	Long-Term Monitoring: Achievements, Challenges, and Solutions
4:00	<u>D. Dionysiou</u> Destruction of Less-studied Microcystin Variants by UV/chlorine process	<u>T. Hansen</u> The feasibility of a subsurface float as a vortex-shedding current meter in open waters	<u>G. Nurnberg</u> Benefits and optimization of hypolimnetic withdrawal as a lake restoration technique	<u>E. Hillis</u> Spatial Variation of Primary Production and Chlorophyll a in the Three Basins of Lake Erie	<u>E. Reavie</u> Metagenomic and Isotopic Characterization of Epilimnetic and DCL Phytoplankton in Lake Superior
4:20	<u>D. Schlea</u> Assessment of Fertilizer and Manure Application and Impacts in the Western Lake Erie Basin	<u>S. Daniel</u> Great Lakes DNA Barcode Reference Library: Mollusca, Annelida, and Minor Phyla	<u>N. Sulewski</u> Hypolimnetic Upwelling in Coastal Embayments of Lake Ontario; Implications for Restoration	<u>J. Owen</u> Phytoplankton Dynamics in the western basin of Lake Erie with a focus on Harmful Algal Blooms (HABs)	<u>M. Pawlowski</u> Probability surveys as an approach for assessing zooplankton community and biomass trends in Lake Superior
4:40	<u>L. Johnson</u> Identifying how to reduce phosphorus loads from Lake Erie agricultural tributaries	<u>B. Alipour Parvizan</u> Determining HBCD and TBBPA concentration in fish tissues from great lakes using LC-HRMS	<u>A. Arif</u> Evaluating the Potential Effects of Benthic Currents in Lake Ontario Upon an Energy Storage Facility	<u>G. Haffner</u> The Elusive Ecosystem Approach: Progress and Challenges	<u>A. Chiandet</u> Long Term Trophic Trends – A Look at 45 Years of Monitoring in Severn Sound
5:00	<u>P. Joosse</u> Distribution and Magnitude of Legacy Agricultural Phosphorus in the Canadian Lake Erie Watershed				<u>E. Alexson</u> Paleolimnology Provides Early Warnings of Nutrient Stress in the St. Louis River Estuary AOC

SW143	SW309	SW319	SY110	
How can Microbial Metagenomics Inform Management of Great Lakes Ecosystems?	Pilot Projects and Future Visions: Transdisciplinary Collaboration for Applied Research	Emerging Partnerships, Research, and Capacity in the African Great Lakes	Building Relationships of Anglers and Scientists toward Sustainable Fisheries	
<u>E. Eggleston</u> Microbial Community Structure in St. Lawrence River Wetlands and Management of Mercury-Methylation	<u>E. Redding</u> Adaptive Management of Habitat Improvement Projects in the Niagara River	<i>Facilitated discussion</i>	<u>B. Schroeder</u> Engaging Stakeholders in their Fisheries Future: Lessons from Fisheries Workshops in Michigan	4:00
<u>J. Fisher</u> No Data Left Behind: Making the Most of Microbial Metagenomic Data	<u>A. Robinson</u> Lessons from Owens Lake: Examining the Integration of Ecological and Aesthetic Design on a Dry Lake	<i>Facilitated discussion</i>	<u>M. Zischke</u> Engaging Anglers, Managers and Scientists in Southern Lake Michigan	4:20
	<u>J. MacLellan</u> Examining Complex Interactions between Ecological and Socio-economic Processes as a Framing Problem		<u>E. Burkett</u> Recreational fishing trends in Michigan, Minnesota, and Wisconsin: a demographic analysis	4:40
			<u>S. Bhavsar</u> Fish consumption and advisory awareness in the Province of Ontario, Canada	5:00

FRIDAY, JUNE 22

	AA112	AC223	HW215	HW216	MW160
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	The IJC's Science Advisory Board Review of Current Priorities and Projects	Hypoxia: Causes, Impacts, and Management	Managing Agriculture Water and Nutrients - Science Solutions for Tomorrows BMPs	Coastal Resilience
8:40	<u>L. Molot</u> Hierarchy of Point Source Management Approaches to Mitigate Cyanobacteria Blooms	<u>M. Child</u> Whose board? The exciting work of the International Joint Commission's Science Advisory Board	<u>J. Klump</u> Physical and Biogeochemical Controls on Hypoxia in Green Bay	<u>Y. Jiang</u> Assessing the effects of fall vs. spring plowing of red clover on nitrate loss in potato rotations	<u>A. Hannes</u> Beneficial use of dredged material from the Buffalo River to restore coastal wetland habitat
9:00	<u>M. Evans</u> Seasonal phosphorus retention in the Lake Erie western basin	<u>M. Donahue</u> A Look Back and a Look Forward: The International Joint Commission's Science Advisory Board	<u>M. Rowe</u> Development of a Hypoxia Forecast Model for Lake Erie: Retrospective Analysis of the First Season	<u>S. Li</u> Black Brook Watershed: lessons from decades of research and a look into the future	<u>E. Johnson</u> Pragmatically Incorporating Coastal Resiliency in the Design of Ecosystem Restoration Projects
9:20	<u>F. Yuan</u> Increased Bioavailability of Anthropogenic Phosphorus in Lake Erie	<u>S. Sowa</u> Assessing barriers to information flow to decision makers in the Great Lakes	<u>D. Gill</u> Applying Natural and Social Science to Co-produce a Hypoxia Forecast with Public Water Systems	<u>J. Smudde</u> Transition from pilot to full-scale utility led ag based adaptive management watershed program	<u>R. Malburg</u> A Conceptual Framework for Shoreline Management: Balancing Objectives and Risks
9:40	<u>C. Stow</u> The Spurious Correlation Between Phosphorus Load and Eutrophication	<u>M. Burrows</u> Development of a Cloud-Based Great Lakes Research Inventory Portal	<u>R. Yerubandi</u> Development of Nearshore Hypoxia in Central Lake Erie; Field Observations and 3D Numerical Modelling	<u>R. Wilson</u> Building farmer efficacy to promote voluntary adoption of recommended 4R practices	<u>K. McDonald</u> Using engineered structures to restore coastal wetlands
10:00	BREAK				

MW170	SW128	SW143	SW309	SY110	
Status and Management of Invasive Carps in the Great Lakes	Aquatic Habitat Evaluation and Assessment	Environmental 'omics: New Tools for Aquatic Ecosystem Science and Management	Watershed Modeling across all Scales from Small to Large	Acoustic Telemetry Applications in the Great Lakes	
<u>S. Qian</u> What's in a Name? The Case for Discontinuing the Term "Asian Carp"	<u>H. Schaefer</u> Habitat Suitability Modeling of Coregonines in Lake Erie and Lake Ontario	<u>A. Skoyles</u> Assessing the Microbial Community and Function of BioCord Bioreactors in Lagoon Wastewater Treatment	<u>D. Robertson</u> Modeling Phosphorus and Nitrogen Loading throughout the Entire Great Lakes Basin using SPARROW	<u>L. Davis</u> Listening in on Lake Sturgeon in eastern Lake Erie	8:40
<u>D. Chapman</u> Status of the Major Aquaculture Carps of China in the Great Lakes Basin	<u>M. Wegher</u> Evaluating Spatial Variation in Lake Superior Food Web Connectivity	<u>M. Neudeck</u> Metatranscriptomics of Lake Erie Planktothrix blooms	<u>A. Neumann</u> A Bayesian SPARROW modeling framework to support adaptive management in Georgian Bay watershed	<u>S. Colborne</u> Periodicity and Timing of Lake Sturgeon (Acipenser fulvescens) Movement in the Huron-Erie Corridor	9:00
<u>E. Monroe</u> eDNA Surveillance for Invasive Carps in the Great Lakes – An Overview of Bi-national Efforts	<u>G. Peterson</u> Improving non-native fish larvae detection based on temporal habitat use	<u>D. VanMensel</u> Metatranscriptomics to assess Great Lakes near shore sediment contribution to human pathogenicity	<u>A. Richards</u> A comparison of the Red Assiniboine Basin SPARROW with a Bayesian approach	<u>D. Isermann</u> Lake Sturgeon Movements after Upstream Passage of Two Dams on the Menominee River	9:20
<u>D. Marson</u> Asian Carp Early Detection Surveillance in the Canadian Waters of the Great Lakes	<u>N. Taylor</u> Enhancing wetland protection by defining eco-hydrological thresholds of disturbance	<u>A. Witham</u> Using Aptasensors for Point Source Detection of Priority Pollutants	<u>A. Russell</u> Assessing performance of best management practices in the Great Lakes Priority Watersheds using SWAT	<u>L. O'Connor</u> Home Range and Spatial Distribution of Juvenile Lake Sturgeon In Eastern Lake Superior	9:40
BREAK					10:00

FRIDAY, JUNE 22

	AA112	AC223	HW215	HW216	MW160
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	The IJC's Science Advisory Board Review of Current Priorities and Projects	Hypoxia: Causes, Impacts, and Management	Managing Agriculture Water and Nutrients - Science Solutions for Tomorrows BMPs	Coastal Resilience
10:20	C. Long Improving Watershed Model Inputs with Data from Concentrated Animal Feeding Operations	L. Johnson Emerging Great Lakes Threats and Stressors: the Need for an Early Warning System	N. Beigzali Simulation of Dynamic Hypoxic Zone Movement in Lake Erie and Associated Impacts on Walleye Habitat	D. Speranzini Using Agricultural Production Systems to Analyze and Prioritize Agri-Environmental Efforts	J. Selegean Rising Water Levels, Reduced Sand Supplies and Coastal Erosion
10:40	J. Martin Evaluating Options to Reduce Lake Erie HABs with Watershed Models, Stakeholders and Surveys	M. Murray Potential Ecological Impacts of Unrefined Liquid Hydrocarbons in the Great Lakes	A. Jabbari Episodic Hypoxia in the Western Basin of Lake Erie	S. Bittman Semi-virtual farmlets – new research tool for conserving nutrients on dairy farms	M. Austerman Characterizing the Impacts of the 2017 High Water Event on Lake Ontario
11:00	Y. Liu Watershed Modelling of BMP Effects on Water Quality in Three Southern Ontario Watersheds	S. Eberts Options toward Development of an Integrated Surface-Groundwater Model for the Great Lakes Basin	B. Biddanda Blooms to Hypoxia: Muskegon Lake Observatory Tracks Ecosystem Changes in a Model Great Lakes Estuary	D. Lapen Contaminant fate and transport in soil following direct injection of dewatered biosolids	E. Nordman Phragmites Removal Increases Property Values in Michigan's Lower Grand River Watershed
11:20	M. Veliz What to believe? Understanding approaches to evaluating agricultural best management practices	J. Bratton Understanding Declining Offshore Productivity in the Great Lakes		J. Nshimiyimana Regional variations of cow and pig fecal pollution as a function of nutrients & hydrological factors	A. Bechle Building Coastal Resilience in Southeastern Wisconsin through Research, Outreach, and Collaboration
11:40	YVES PRAIRIE PLENARY, AC223 (AA112 for overflow)				
1:00	LUNCH				

MW170	SW128	SW143	SW309	SY110	
Status and Management of Invasive Carps in the Great Lakes	Aquatic Habitat Evaluation and Assessment	Environmental 'omics: New Tools for Aquatic Ecosystem Science and Management	Watershed Modeling across all Scales from Small to Large	Acoustic Telemetry Applications in the Great Lakes	
<u>F. Lecomte</u> Surviving the Aquatic Invasive Species Onslaught: Quantifying Threats to Québec's Aquatic Ecosystems	<u>G. Braoudakis</u> A meta-analysis of the relationship between habitat condition and mortality in freshwater fishes	<u>B. Sansom</u> Environmental DNA (eDNA) shedding and decay rates to model downstream transport of mussel eDNA	<u>I. Rashid</u> Modelling of Road Salt Influences on Surface Waters: Application of SWAT to Harp Lake, Ontario	<u>S. Larocque</u> Salmonid movements and interactions in Lake Ontario using acoustic telemetry	10:20
<u>M. Hossain</u> Predicting Potential Food Web Impacts of a Black Carp Invasion in the Great Lakes	<u>J. Gardner Costa</u> Ranking Habitat Restoration Actions in Areas of Concern using an Ecological Decision Matrix	<u>D. Simmons</u> A Multi-omic Study of Biota Responses to Great Lakes Sediment, Effluent and Surface Waters	<u>A. Dagnew</u> Exploring the St-Clair-Detroit River System Watershed using the SWAT model	<u>A. Weinz</u> Habitat Use and Fine-Scale Residence Patterns of Two Forage Fish Species in a Large Temperate River	10:40
<u>J. Miner</u> Diploid Grass Carp in the Great Lakes: Tracking Origins through Otolith Chemistry	<u>L. Walters</u> Quality Assurance Best Practices to Ensure the Reliability of Ecological Restoration Monitoring Data	<u>F. Ni</u> The effects of prey profitability on a toxicity-dependent eco-physiological Daphnia model	<u>G. O'Neil</u> Groundwater Recharge Modeling with SWAT	<u>A. Fisk</u> Fish movement in urban rivers: habitat use of bowfin and largemouth bass in the Detroit River	11:00
<u>T. Heer</u> Using a hydrodynamic model to predict Asian carp spawning success	<u>S. Doka</u> A Case Study in Ecological Accounting for use in Landscape Management and Aquatic Habitat Banking	<u>P. Wilburn</u> Environmental drivers define contrasting microbial habitats in first spatial survey of Lake Baikal	<u>Y. Wang</u> Flow and Water Quality Calibration and Validation of the Huron River Watershed SWAT Model	<u>M. Wagner</u> Unraveling 'big behaviors' with hypothesis-driven telemetry experiments: the sea lamprey migration	11:20
YVES PRAIRIE PLENARY, AC223 (AA112 for overflow)					11:40
LUNCH					1:00

FRIDAY, JUNE 22

	AA112	AC223	HW216	MW160
	Great Lakes Harmful Algal Blooms Research from Watershed Influence to Ecosystem Effects	The IJC's Science Advisory Board Review of Current Priorities and Projects	Managing Agriculture Water and Nutrients - Science Solutions for Tomorrows BMPs	Coastal Resilience
1:40	<u>L. Vaccaro</u> Analyzing stakeholder perceptions of uncertainty to guide Lake Erie watershed modeling	<u>D. Allan</u> Fertilizer Application in the Western Lake Erie Basin: Implications for Water Quality	<u>X. Liu</u> Shallow Surface Ditches on Managing Agriculture Water and Nutrient	<u>C. Troy</u> Decadal Trends in Lake Michigan Nearshore Waves and Alongshore Sediment Transport
2:00	<u>L. Heyming</u> An Evolution of Outreach in the Grand River Watershed	<u>D. Lee</u> Using Modeling to Guide Eutrophication Risk Assessment and Adaptive Management in Lake Erie	<u>G. Grenon</u> Controlled Drainage to Improve Water Quality in the Holland Marsh, Ontario	<u>E. Sogut</u> Climate Change Impact on Storm Frequency and Intensity and Its Consequences for Lake Erie Shorelines
2:20	<u>S. Gasteyer</u> A journey through networks: An assessment of who influences on-farm conservation decisions	<u>C. Miller</u> Looking into the Future: Exploring Opportunities for the IJC's Science Advisory Board. <i>A facilitated discussion.</i>	<u>C. Sheedy</u> Adaptation of On-farm Pesticide Rinsate Biobeds to Protect Water Resources from Pesticides	<u>G. Lei</u> Beach Nourishment and Restoration in China
2:40	<u>S. Miller</u> What an Agricultural Community Can Do to Reduce HABs when Phosphorus Application is Already Low	<i>Facilitated discussion</i>	<u>R. Carlow</u> The use of Geotextiles as a Filter for Phosphorus in Overland Flow in Southern Ontario	<u>D. Rucinski</u> Hydrodynamic Modeling to Assess Effectiveness of Shoreline Restoration in Sandusky Bay.
3:00			<u>A. Huber</u> Hybrid treatment systems for water management in the greenhouse and container nursery sectors	<u>H. Bolkhari</u> SWASH modelling of wave run-up in the Kingston Basin of Lake Ontario
3:20			<u>B. Mutus</u> Point source-specific design and performance of biopolymer-based phosphate filtration systems.	
3:40	CONFERENCE ENDS			

MW170	SW128	SW143	SW309	SY110	
Status and Management of Invasive Carps in the Great Lakes	Aquatic Habitat Evaluation and Assessment	Environmental 'omics: New Tools for Aquatic Ecosystem Science and Management	Watershed Modeling across all Scales from Small to Large	Acoustic Telemetry Applications in the Great Lakes	
C. Harris Lake Erie Grass Carp Movement and Tributary Use	M. McKenzie Spatial patterns of productivity and stable isotope ratios of C and N in Great Lakes tributaries	N. Falk Microbial Metatranscriptomic Investigations Across Contamination Gradients within the Detroit River	V. Chilkoti Climate vulnerability of a hydropower rich Great Lakes watershed	D. Isermann Spawning Site Contribution and Movements of Lake Whitefish in Northwestern Lake Michigan	1:40
C. Mayer Grass Carp Spawning in Lake Erie Tributaries: When and Where?	Y. Bhagat Factors Contributing to the Growth of Nuisance Biofilm in Two Tributaries of Lake Erie	J. Littlefair Monitoring with molecules: validating environmental DNA to survey nature	P. Daggupati Impact of climate change on hydrologic budgets and stream-flows in northern Lake Erie Basin in Ontario	C. Boston Invasive cyprinid ecology in Hamilton Harbour, Lake Ontario	2:00
P. Bzonek Investigating the role of individual variation in the responses of invasive fish to aversive stimuli	A. Wynia Fish in Phrag: Quantifying habitat use of freshwater fishes in native and non-native emergent stands	T. Krabbenhoft Epigenetics as a Tool for Fish and Fisheries Management: Promise and Limitations	F. Dong A flow-based ensemble strategy to assess the impact of climate change on watershed hydrology	J. Brooks Spatial ecology of a reintroduced fish (Sander vitreus) in an Area of Concern, Hamilton Harbour, Lake Ontario	2:20
N. Lujan A population genomics test of Niagara Falls' effectiveness as a barrier to fish dispersal		B. Chandramouli Metabolomics for connecting exposure and effect in Mussel Watch	S. Jeyalakshmi Food Security in Changing Climate – A Hydrologic Modelling Approach	A. Rous Ecological energetics of habitat use in a coastal embayment of the Laurentian Great Lakes	2:40
S. Herbst Multi-jurisdictional Response to Grass Carp in Lake Erie			A. Hamlet An Updated Meteorological Driving Data for the Midwest and Great Lakes Basin		3:00
K. Robinson Using adaptive management to combat Lake Erie grass carp					3:20
CONFERENCE ENDS					3:40



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POSTERS BY THEME

Aquatic Invasive and Nuisance Species in the Great Lakes (ANS)

Areas of Concern in the Great Lakes (AOC)

Fisheries and Fishery Management (FFM)

Genomics, Microbiology, and Emerging Technologies (GME)

Governance, Education, and Outreach (GEO)

Linkages between Nearshore and Offshore Zones (NOZ)

Monitoring, Modeling, and Analysis (MMA)

Nutrients, HABS, & Emerging Contaminant Stressors (NHE)

Physical Processes and Limnology (PPL)

Remote Sensing and Detection Techniques (RST)

POSTERS BY THEME

Aquatic Invasive and Nuisance Species in the Great Lakes (ANS)

- ANS-1 CÔTÉ, G.
Asian Carp Detection in the Québec St. Lawrence River Using eDNA Surveys
- ANS-2 JOLLEY, J.
Grass Carp Thermal Maturation and Proximal Cues for Spawning in Ponds
- ANS-3 KING, N.
Salad. It's What's for Dinner: Mapping Grass Carp Food Resources in Lake Erie
- ANS-4 MONROE, E.
Optimization of eDNA Early Monitoring Tool for Bigheaded Carp in the Upper Mississippi River
- ANS-5 POULIOT, R.
Dispersal Potential of Asian Carps in the Québec St. Lawrence River Network Based on Barrier Mapping
- ANS-6 RUTHERFORD, E.
Predicted Biomass and Food Web Impacts of Bigheaded Carp across Great Lakes Habitats
- ANS-7 STROMBERG, L.
Laguna Bacalar Coliform Count

Areas of Concern in the Great Lakes (AOC)

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Biogeochemical processes controlling sedimentary phosphorus recycling in the Bay of Quinte
- AOC-2 GAFFNEY, N.
Toronto and Region Remedial Action Plan (RAP) Status Update
- AOC-3 KUAI, Y.
Internal seiches drive variation of temperature and DO in Hamilton Harbour, likely impacting fish
- AOC-4 NEUMANN, A.
Evaluation of the best management practices on phosphorus loading from the Napanee River watershed

- AOC-5 TANG, R.
A macrophyte modelling approach for identifying water quality delisting targets in Cootes Paradise

Fisheries and Fishery Management (FFM)

- FFM-1 ABRAM, A.
Growth and Diet of Larval White Sucker (*Catostomus commersonii*) in the St Clair Detroit River System
- FFM-2 FUTIA, M.
Influence of Diet on Lake Trout Fatty Acid and Thiamine Concentrations Following Controlled Feeding
- FFM-3 GANDHI, N.
PBDEs in Great Lakes fish: Levels, patterns, trends and implications for human exposure
- FFM-4 GEWURTZ, S.
Polychlorinated naphthalenes (PCNs) in Great Lakes fish
- FFM-5 HAO, C.
Perfluoroalkyl Acids (PFAAs) in Large-Bodied Fish of the Great Lakes
- FFM-6 JACKSON, D.
Assessing Fish Consumption BUI at Thunder Bay and St. Marys River Areas of Concern
- FFM-7 LAPOINTE, D.
Northern Pike condition and habitat quality within the St. Lawrence River (Cornwall) AOC
- FFM-8 LEPAK, J.
Barotrauma in Lake Erie Yellow Perch: Take Pride in your Perch
- FFM-9 METCALFE, B.
Spatial and Temporal Variability of Lake Trout Diets in Lake Ontario
- FFM-10 NEWSTED, J.
An Evaluation of Perfluoroalkyl substances based Fish Consumption Advisories in the Great Lakes

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Size differences in swimming behavior of the round goby from a core and an invasion front area.
- FFM-12 PERLINGER, J.
Factors Contributing to Elevated PCB Compound Concentrations in Lake Superior Lake Trout
- FFM-13 REINER, E.
Dioxins in Great Lakes fish: Past, present and future
- FFM-14 SHAW, E.
Hazardous legacies in the Great Lakes basin
- FFM-15 UZARSKI, D.
Lake Whitefish Nursery Habitat Characteristics in Sand Bay, Beaver Island, Lake Michigan
- FFM-16 VERREAULT, G.
Changes in American eel age structure and length at silvering in the St. Lawrence Estuary since 45yrs
- FFM-17 VISHA, A.
A Bayesian framework for assessing fish tumour occurrence across all the Canadian AOCs
- FFM-18 WALLER, M.E.
Natural Recovery of Contaminated Nearshore Sediments of the St. Lawrence River at Cornwall, ON
- FFM-19 WELNINSKI, A.
Functional Assessment of Great Lakes Coastal Wetlands: Insights from Seasonal Fish Diets

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- GME-2 FULTHORPE, R.
Metagenomic Analyses of the Microflora of Hamilton Harbour

- GME-3 JEONG, T.
Time-dependent Daphnia magna metabolomics and potential bioaccumulation with PFOS
- GME-4 JORDAO, M.L.
Pathogens in Ornamental and Recreational Waters: A Risk Assessment Study
- GME-5 KIM, W.
Patterns of Gene Expression in Daphnia Experiencing Calcium and Dietary Phosphorus Stress
- GME-6 KOVACEVIC, V.
NMR-based metabolomics of sub-lethal organophosphate ester exposures to Daphnia magna
- GME-7 MCKINDLES, K.
Recent Dreissenid Mussel Colonization may make Lake Winnipeg the Next Lake Erie
- GME-8 NEVERS, M.
An ecosystem of epiphytes in Cladophora
- GME-9 PHANIKUMAR, M.
Modeling the contributions of birds and beach sand to FIB levels at a Great Lakes beach
- GME-10 PONTE CABRAL, S.
Carbon-based nanomaterials shift nutrient cycling and microbial communities in freshwater sediments
- GME-11 TABATABAEI ANARAKI, M.
Development and application of a low volume flow system for in vivo solution-state NMR
- GME-12 WOLLER-SKAR, M.
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Governance, Education, and Outreach (GEO)

- GEO-1 ALOTAIBI, A.
Environmental disaster management in the Great Lakes Basin

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- | | | | |
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| GEO-3 | FIETSCH, C.
Design guidance of fish impingement and entrainment programs at nuclear facilities, a case study | MMA-4 | DYBIEC, J.
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| GEO-8 | MACCUBBIN, A.
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An integrative framework dynamically linking socioeconomic values with environmental concerns | MMA-11 | KRUEGER, A.
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MMA-16	PERDEAUX, S. Approaches to Conducting Vulnerability Assessments in the Great Lakes Basin: A Literature Review		
MMA-17	SMITH, J. New map explorer for research and analysis of non-indigenous species in the Laurentian Great Lakes		
MMA-18	TETREAULT, G. Body burdens of heavy metals in fish from the St. Clair River AOC: 2002/3 vs. 2014		
MMA-19	TRUMPICKAS, J. Effects of vessel noise on fish density estimates from hydroacoustic surveying		
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MMA-21	VOGIAZI, V. Advanced biosensors for monitoring cyanotoxins in freshwaters		
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MMA-23	ZHOU, C. “Long-tail” concentration trend patterns: how long will the legacy contaminants impact the GLs?		
MMA-24	ZYZIK, M. Compilation of Wet-to-Dry Weight Ratios of Great Lakes Benthic Organisms for Long-Term Monitoring		
			Nutrients, HABs, and Emerging Contaminant Stressors in the Great Lakes (NHE)
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		NHE-3	BENAKOUN, L. Effects of Methods & Time-to-Filtration on Soluble Reactive Phosphorus Concentration in Stream Water
		NHE-4	BRAMAN, P. Urban and Rural Phosphorus Contributions of the Pinnebog River Watershed to Saginaw Bay
		NHE-5	COLLIS, L. Responses of Lake Erie phytoplankton communities to P, N, and Si loading from the Maumee River
		NHE-6	DE SENA, A. Characterizing phosphorus lability pools through sequential fractionation of muck soils in Ontario
		NHE-7	DERMINIO, D. Effects of light intensity on pigments, cell migration, and toxin levels in <i>Microcystis aeruginosa</i>
		NHE-8	FEISTHAUER, N. Relating Changes in Soil Health to the Reduction of Nutrient and Soil Loss from Agricultural Fields
		NHE-9	GARNER, C. Natural perturbation or anthropogenic impact? Non-pollen palynomorph assemblages as bio-monitors in L
		NHE-10	HELM, P. Microplastic Particle Morphology Helps to Track Sources and Guide Management in the Great Lakes

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- NHE-12 JONES, R.
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- NHE-13 KIM, J.
Translocation of Microplastics in Local Sport-fish from Canadian Freshwater Lakes
- NHE-14 KUNTZ, K.
Bioturbating Invertebrates Enhance Nitrogen Cycling in Lake Ontario Coastal Stormwater Ponds
- NHE-15 LIU, X.
An Evaluation on Nitrates and Phosphates removal from Small Floodplains of Two Stage Channel Systems
- NHE-16 MANZ, R.
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- NHE-17 MARKOVIC, S.
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- NHE-18 MILLER, M.
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- NHE-23 SHIMODA, Y.
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- NHE-24 SINGH, B.
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The role of groundwater discharge fluxes on Si:P ratios in a major tributary to Lake Erie
- NHE-26 TYLER, A.
Grazer Exclusion Enhances Nitrogen Removal in Created Wetlands of the Great Lakes Watershed
- NHE-27 ULMAN, M.
Quantifying the distribution of phosphorus fractions in sediment of Chequamegon Bay, Lake Superior
- NHE-28 WYNNE, T.
Comparing the Interannual Variability of the Annual Cyanobacteria Bloom in Western Lake Erie with Saginaw Bay
- NHE-29 ZHANG, Y.
Soil Cyanobacteria Diversity and Cyanotoxin Production in Agroecosystems of South-Central Quebec

Physical Processes and Limnology (PPL)

- PPL-1 AFSHARIAN, S.
Potential Impact of Wind Farms on Great Lakes Water Temperatures
- PPL-2 FENELON, R.
Physical Hydrology of Laguna Bacalar, Mexico
- PPL-3 GAIBISELS, K.
Algal Community Response to Multiple Stressors in North Temperate Lakes Over the Past Three Decades

POSTERS BY THEME

- PPL-4 HUI, Y.
Mass Balance Analysis and Calculation of Wind Effects on Heat Fluxes in Large Lakes
- PPL-5 KARAMIGOLBAGHI, M.
Bloom Dynamics in Sodus Bay: Physical Processes and Interaction with Lake Ontario
- PPL-6 LEI, G.
The Tectonic Geneses of Regional Differential Distribution of Chinese Sandy Beaches
- PPL-7 LUCAS, H.
Community Metabolism of Microbialite Oncoids in Laguna Bacalar, Mexico
- PPL-8 MAILHOT, E.
Assessing Impacts of Climate Change on Great Lakes Water Supply using Regional Climate Models
- PPL-9 SAHARIA, A.M.
Modeling the fate and transport of nanoparticles from combined sewer overflows in the Buffalo River
- NOZ-5 DUVAL, T.
Comparative Heavy Metal Transport along Streams Draining Headwater Urban and Urbanizing Watersheds
- NOZ-6 GOTO, D.
A rewired food web impedes rebuilding of collapsed fishery populations in an invaded lake
- NOZ-7 GRAHAM, L.
The status of coldwater fishes in Lake Simcoe
- NOZ-8 HOLLOWAY, L.
Benthic and Pelagic Primary Production in Laguna Bacalar, Mexico
- NOZ-9 HOWELL, T.
Deciphering water quality drivers on the urban shores of Lake Ontario
- NOZ-10 KIRKWOOD, A.
Assessing Stormsewer Impacts to In-Stream Water Quality along an Urbanization Gradient
- NOZ-11 KOVALENKO, K.
Nearshore-offshore trends in Lake Superior phytoplankton
- NOZ-12 LIU, F.
Urban Land Cover Effects on Groundwater Chloride and Sodium Concentrations
- NOZ-13 NEMECZEK, C.
Using environmental DNA to assess muskellunge (*Esox masquinongy*) stocking efforts in Lake Simcoe
- NOZ-14 PINDER, M.
Trawl Performance and Catchability of Acoustic Targets in Lake Simcoe
- NOZ-15 SENEGAL, T.
Morphological variation in Yellow Perch in Lake Michigan and Drowned River Mouth Lakes
- NOZ-16 TETREAU, G.
Trophic biomagnification or biodilution of Antioxidants in the Great Lakes foodweb
- Linkages between Nearshore and Offshore Zones (NOZ)**
- NOZ-1 BOLTON, R.
Urbanization impacts on stream benthos of the Lake Simcoe Watershed
- NOZ-2 BOWEN, G.
The case for collaboration: Moving from problem identification to solution while nearshore water quality monitoring is underway
- NOZ-3 DAHMER, S.
Exploring a partnership initiative for Western Lake Ontario
- NOZ-4 DIEP, N.
Lake St. Clair – Thames River Water Quality and Harmful Algal Bloom (HABs) Assessment

POSTERS BY THEME

- NOZ-17 TITHOF, G.
Analysis of Nutrient Movement from Human-Impacted Coastal Areas in Northern Lake Michigan
- NOZ-18 VORENKAMP, K.
Quantifying the Ability of the Emerald Shiner Minnow to Swim for Urban Seawall Design
- NOZ-19 WICK, M.
Using water quality to assess ecological condition in the St. Marys River and Huron-Erie Corridor

- RST-4 LONG, C.
Using Remote Sensing to Identify Locations of Large Animal Operations in the Maumee River Watershed
- RST-5 RENAGULI, A.
Identification of Novel Halogenated Organic Contaminants in the Great Lakes Fish by GCxGC-HR-ToF MS
- RST-6 WARDELL, J.
Inferring benthic fish weights from photographic pixel areas to support automated biomass estimation

Remote Sensing and Detection Techniques (RST)

- RST-1 AKBARI, M.
Hydrography of shrinking Urmia Lake bed and studying its change from 2014 to 2018
- RST-2 FAKOURI BAYGI, S.
The Search for Novel Halogenated Contaminants in the Great Lakes Trout
- RST-3 KUCZYNSKI, A.
Using red-green-blue and multispectral camera imagery for stream periphyton monitoring





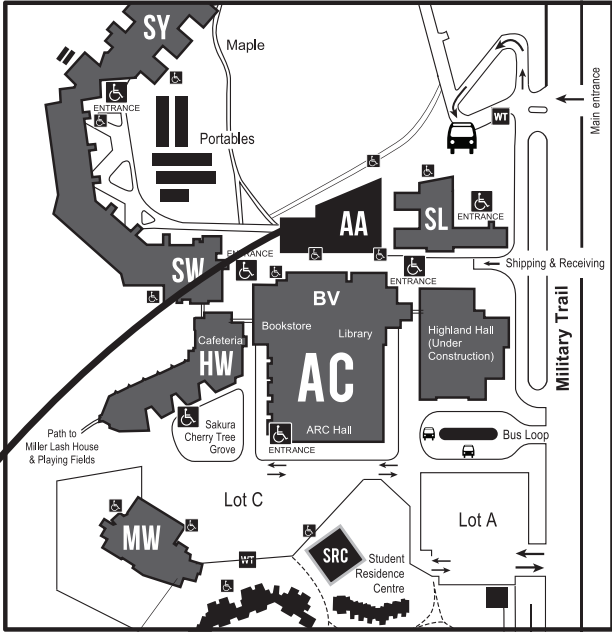
LEGEND

- AA - Arts & Administration Building
Admissions & Student Recruitment
Registrar's Office
Financial Aid & Awards
Welcome Hall
- AC - Academic Resource Centre (ARC)
Academic Advising & Career Centre (AA&CC)
Centre for Teaching & Learning (CTL)

- BV - Bladen Wing
Bookstore
Doris McCarthy Gallery (DMG)
- HW - Humanities Wing
- MW - Management Wing
- RC - Recreation Centre

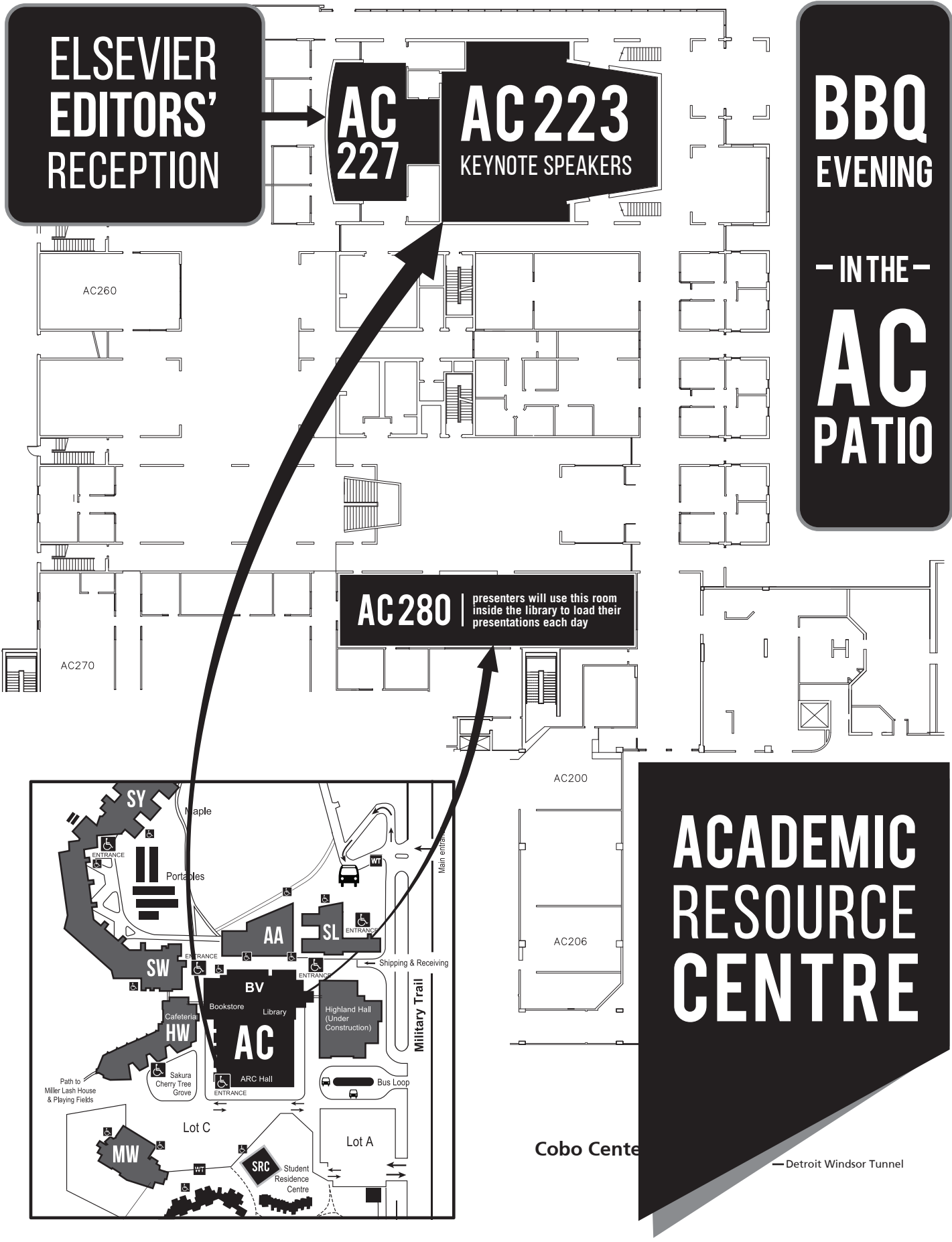
- SL - Student Centre
International Student Centre
Student Affairs & Services
SCSU - Student's Union
Health & Wellness
Variety Store - TTC Tokens
SRC - Student Residence Centre

- Accessible Entrance
- SW - Science Wing
AccessAbility Services
Police & Parking Services
Leigha Lee Browne Theatre
- SY - Science Research Building



ARTS & ADMINISTRATION BUILDING

AA 112 | **SPEAKER**
 Will be used as **Live Streaming**
 Overflow Room **as well as some**
 for AC223 **other sessions**
 during the week



**ELSEVIER
EDITORS'
RECEPTION**

**AC
227**

AC 223
KEYNOTE SPEAKERS

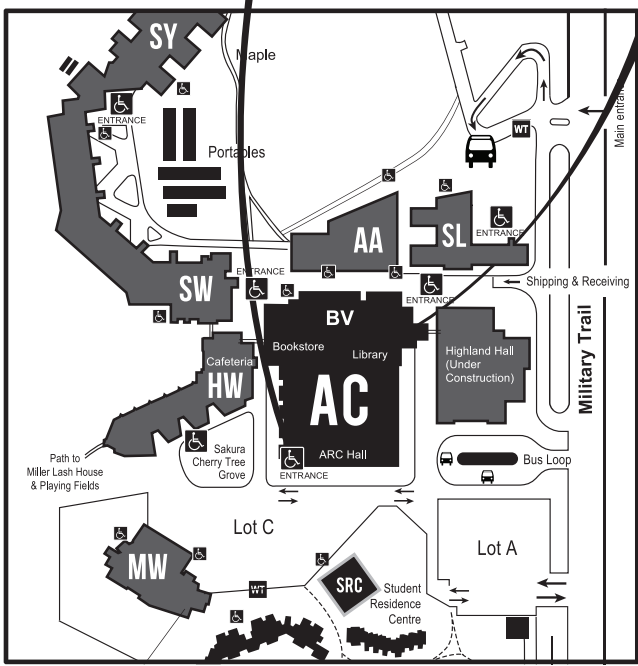
**BBQ
EVENING**

— IN THE —

**AC
PATIO**

AC 280 | presenters will use this room
inside the library to load their
presentations each day

**ACADEMIC
RESOURCE
CENTRE**



Cobo Centre

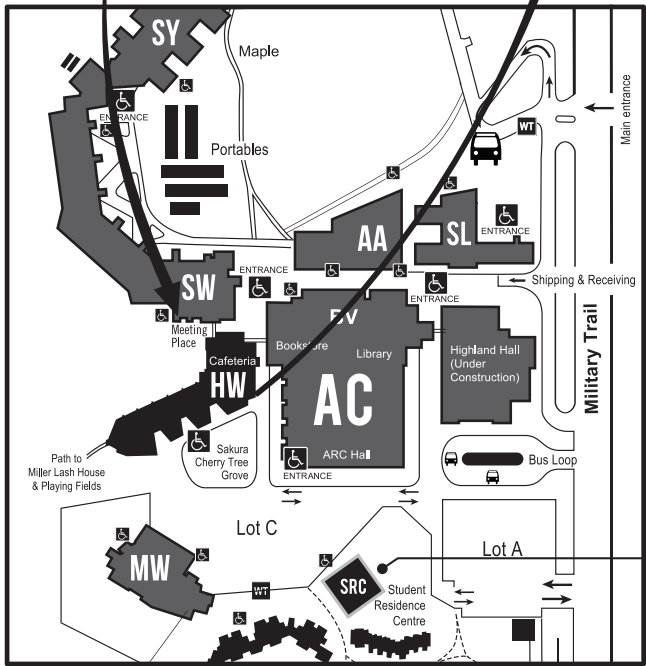
— Detroit Windsor Tunnel

HUMANITIES WING BUILDING



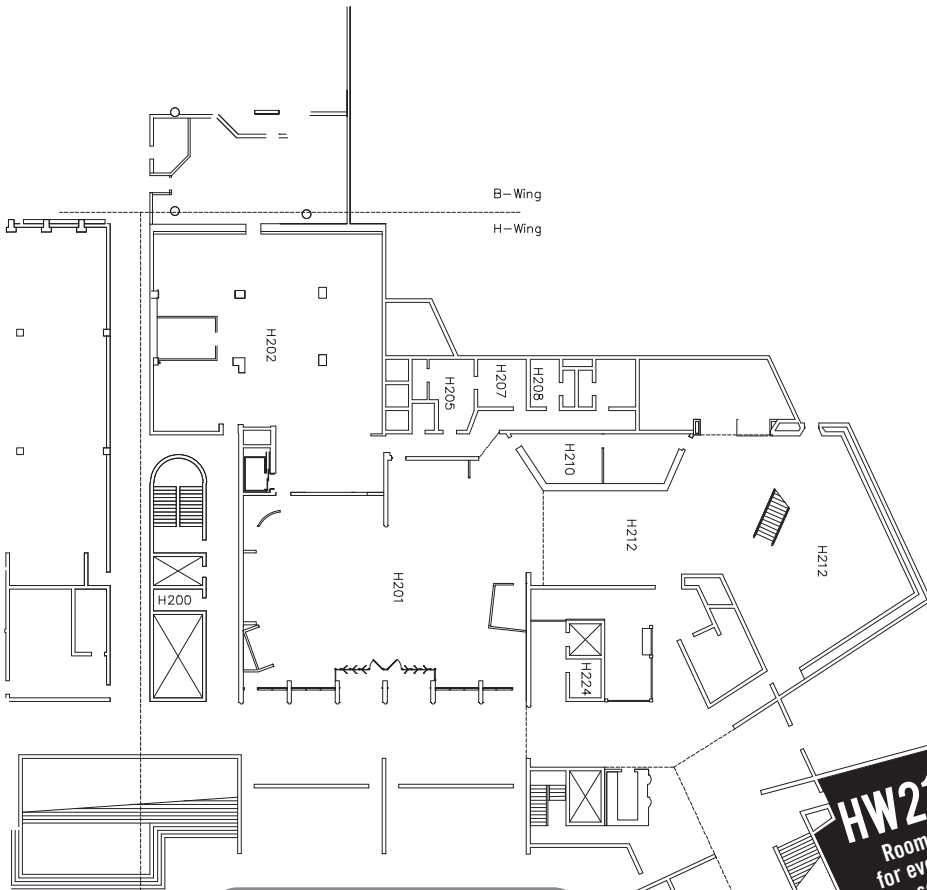
EXHIBITOR TRADE SHOW
in The Meeting Place

REGISTRATION AREA
in the centre of excellence area that is in the south east section of the meeting place



ACCOMMODATION SITE
The Residence Centre

HUMANITIES WING BUILDING



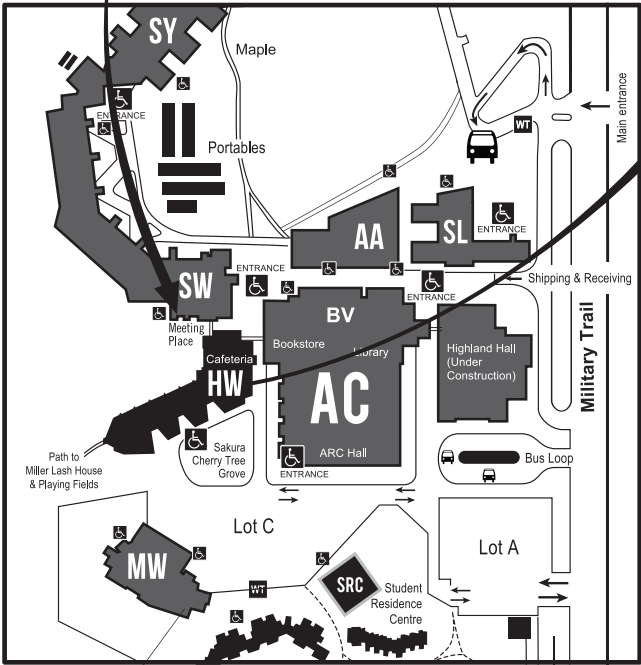
EXHIBITOR TRADE SHOW
in The Meeting Place

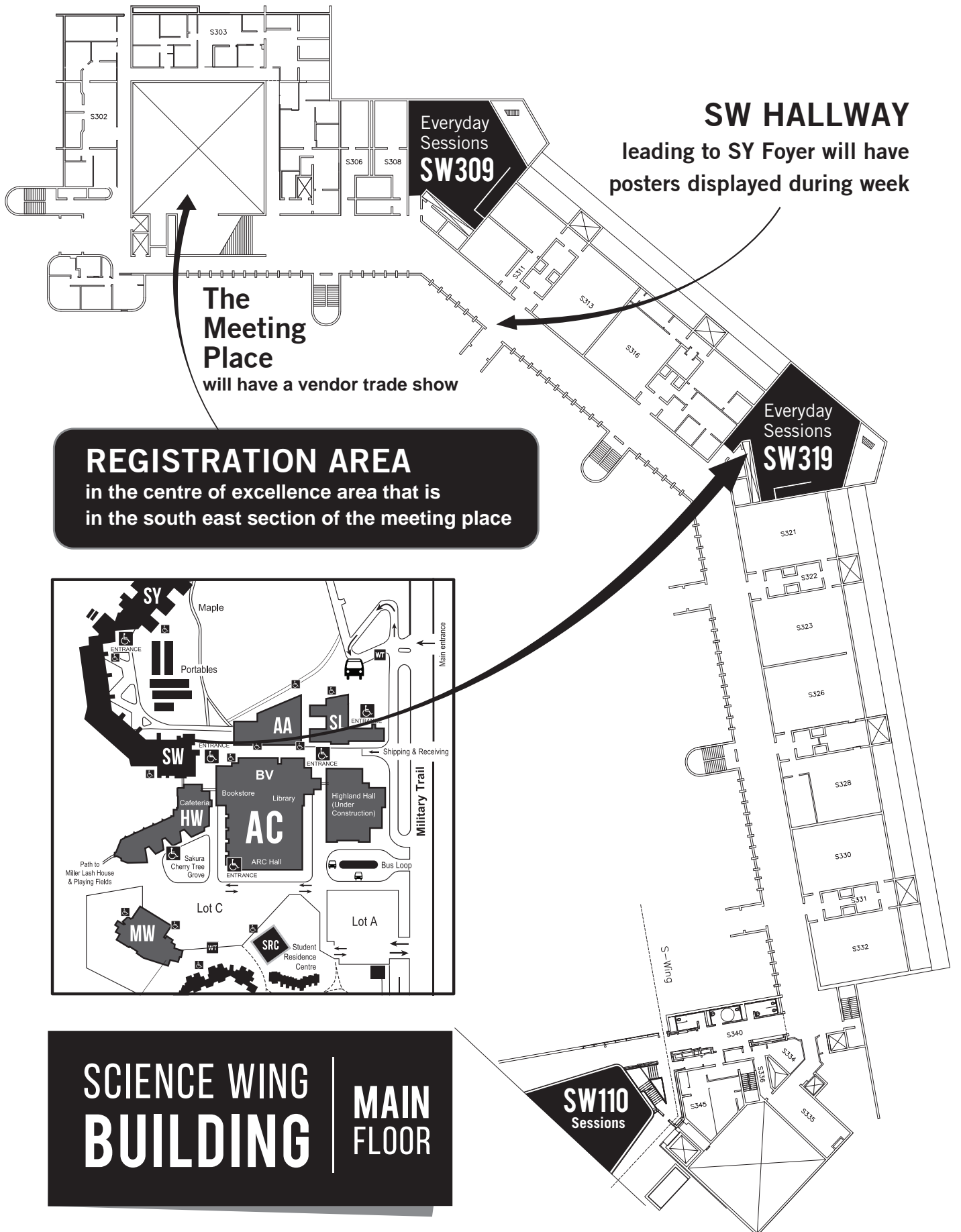
REGISTRATION AREA
in the centre of excellence area
that is in the south east section
of the meeting place

HW214
Room used
for everyday
sessions

HW215
Room used
for everyday
sessions

HW216
Room used
for everyday
sessions





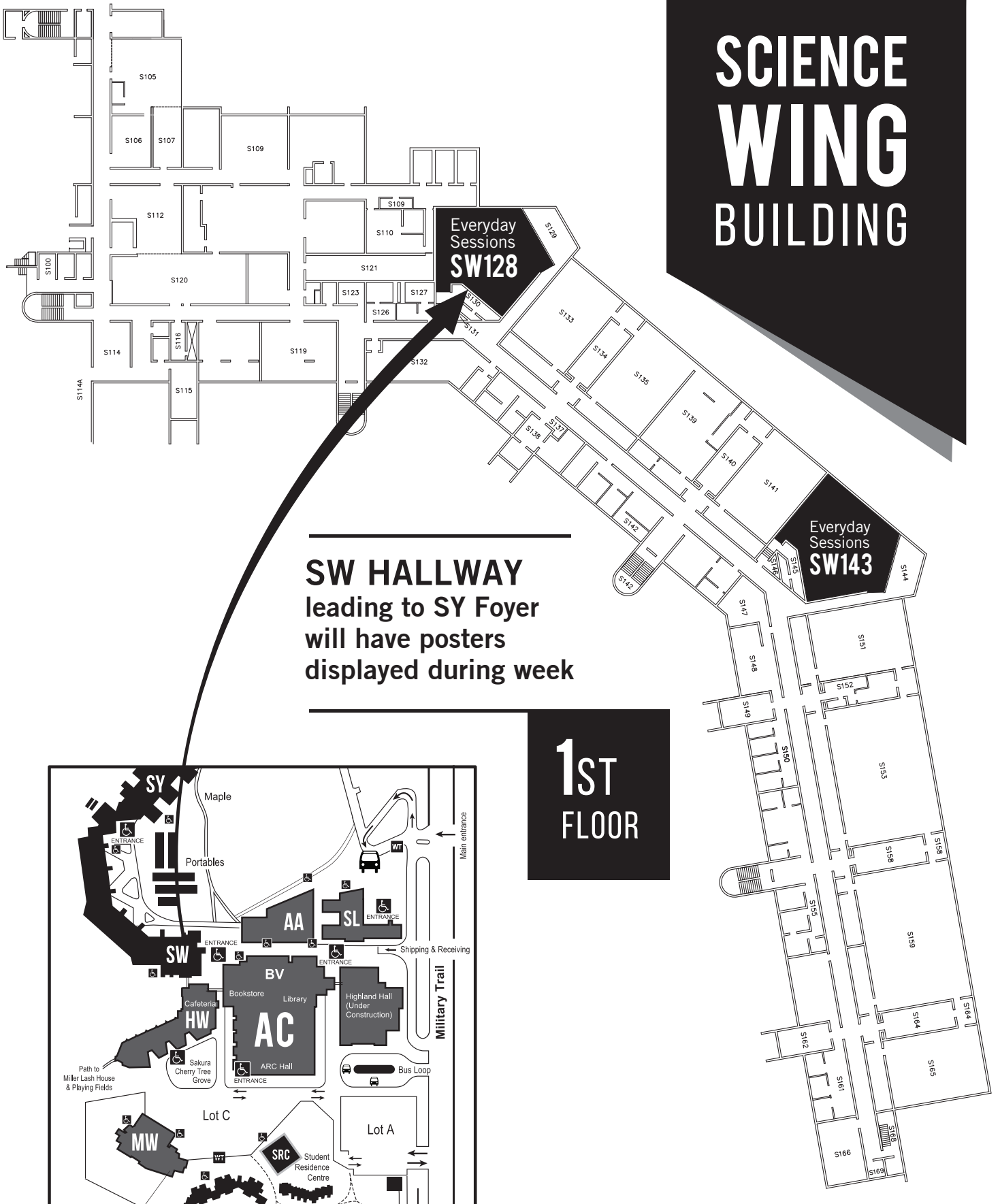
REGISTRATION AREA
 in the centre of excellence area that is
 in the south east section of the meeting place

SW HALLWAY
 leading to SY Foyer will have
 posters displayed during week

The Meeting Place
 will have a vendor trade show

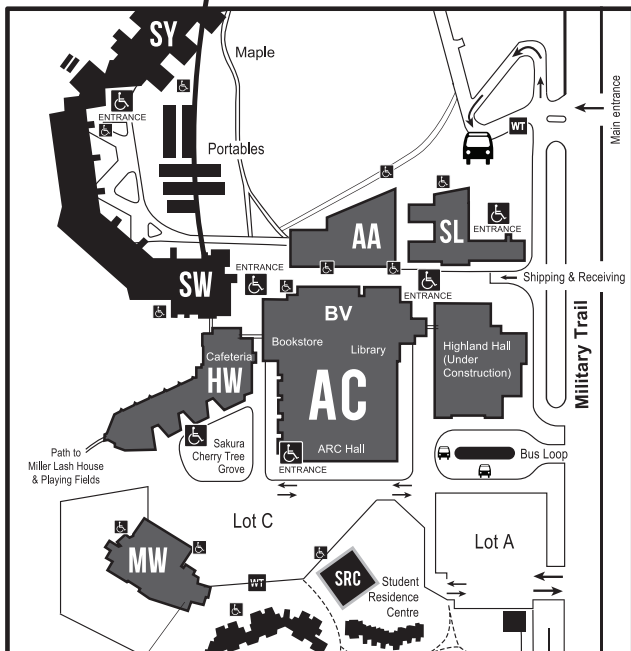
SCIENCE WING BUILDING | **MAIN FLOOR**

SCIENCE WING BUILDING

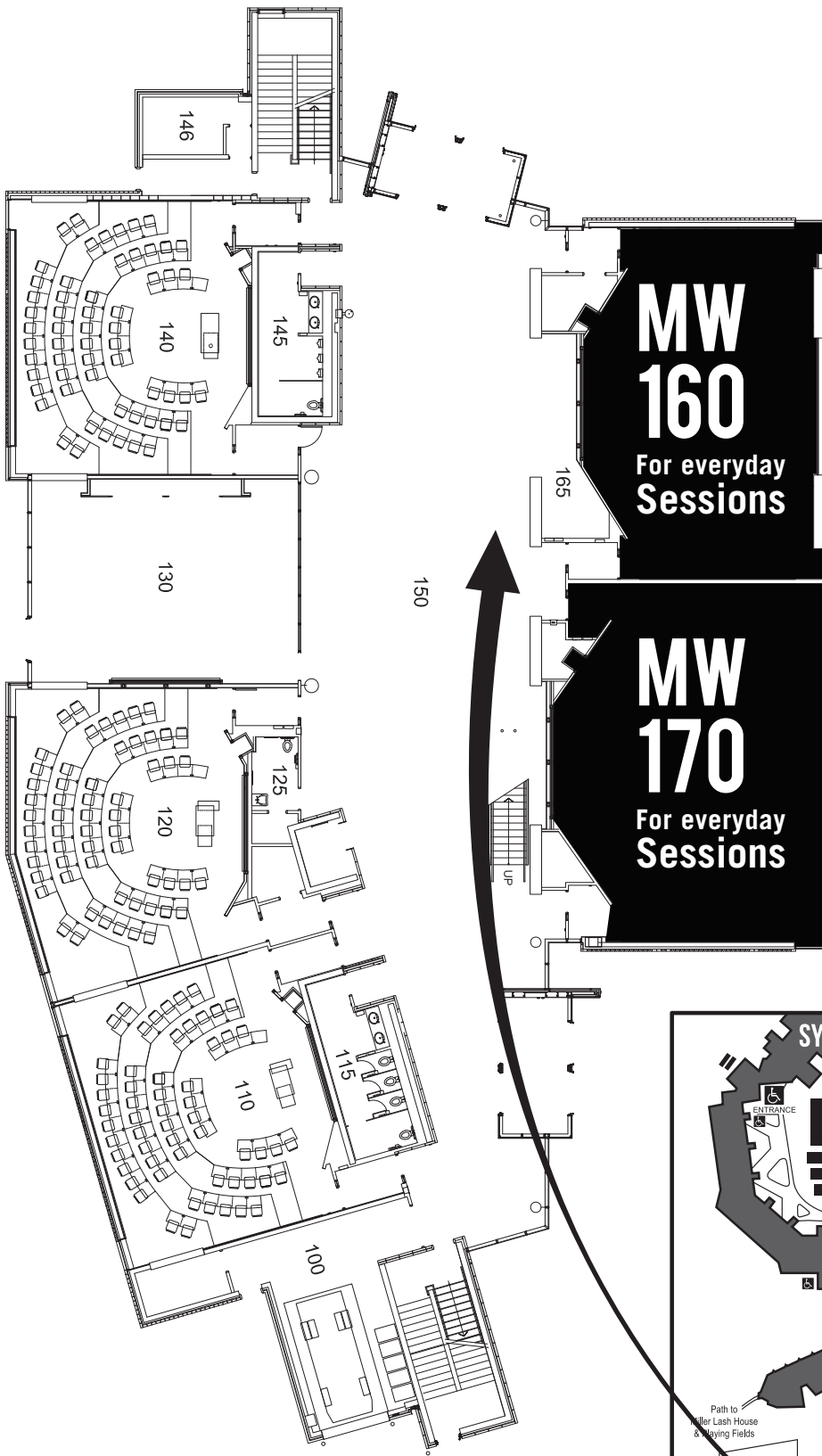


SW HALLWAY
leading to SY Foyer
will have posters
displayed during week

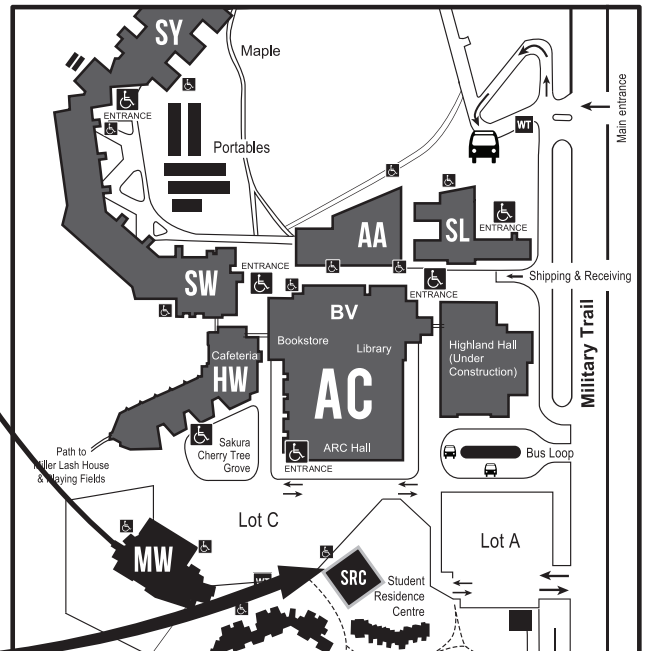
**1ST
FLOOR**



SOCIAL SCIENCES BUILDING



ACCOMMODATION SITE
The Residence Centre



Nestled on the green edge of Toronto, Scarborough offers plenty of opportunities to get outside and enjoy beautiful surroundings. Read on for some options, and be sure to check out www.todocanada.ca/things-to-do-in-scarborough-toronto-ontario/ for more.

Enjoy the many **scenic trails** that take you through wooded ravines and skirt along Lake Ontario. Just south of campus you can walk or bike along a 6 km path through the forests in Highland Creek below campus to Lake Ontario.

Visit the majestic **Scarborough Bluffs**, one of the most scenic sites in Toronto. Formed by wind and water erosion from Lake Ontario, the bluffs can be viewed from one of the many parks in this 15 km stretch along the Lake Ontario shore.

The **Toronto Zoo**, located just 6 km from campus, is one of the largest zoos in the world. The zoo has more than 5,000 animals representing more than 450 species, a large botanical collection, and more than 10 km of walking trails.

The **Rouge National Urban Park** is the largest urban park in North America. Just 6 km from campus, the park is home to amazing biodiversity, some of the last remaining working farms in the Greater Toronto Area, Carolinian ecosystems, Toronto's only campground, one of the region's largest marshes, unspoiled beaches, hiking trails, and human history dating back over 10,000 years.

Nearby Pubs & Restaurants

Fossil & Haggis Pub and Grub
790 Military Trail (1 km)

You'll find several options on Old Kingston Road, which is a pleasant 2 km walk from campus:

Fratelli Village Pizzeria
384 Old Kingston Rd.

Louis Souvlaki & Grill
371 Old Kingston Rd. #13

North of Mexico
360 Old Kingston Rd.

Not Just Patties
396 Old Kingston Rd.

Shamrock Burger's
6109 Kingston Rd.

Sofi's Mexican Bar and Grill
360 Old Kingston Rd.

Ted's Restaurant
404 Old Kingston Rd.

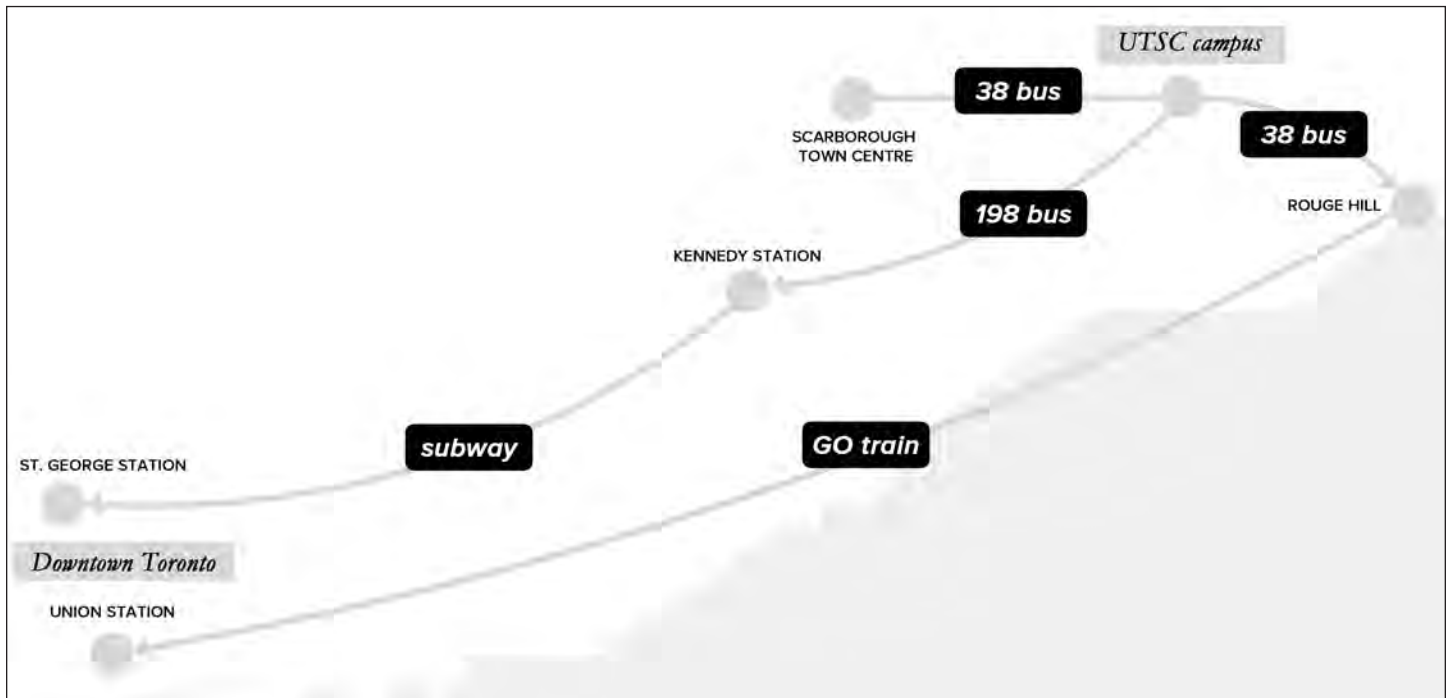
Black Dog Pub
87 Island Rd. (6 km)

Approximate distance from campus noted.

GETTING AROUND TORONTO

PUBLIC TRANSPORTATION TO DOWNTOWN TORONTO

The Toronto Transit Commission (TTC) runs several buses with stops on or close to the UTSC campus. The 198 U of T Scarborough Rocket provides service to Kennedy Station; from there, take the subway to St. George Station. The 38/38A Highland Creek bus connects campus to the Scarborough Centre RT Station and the Rouge Hill GO Station. GO Trains depart every 30 minutes to Union Station in downtown Toronto. Subway/bus tokens are available at one of shops in the Student Centre, otherwise it is a \$3.50 cash fare for TTC. A GO train ticket is \$7.25.



TAXI SERVICE

Lyft

Uber

Beck Taxi

416-751-5555

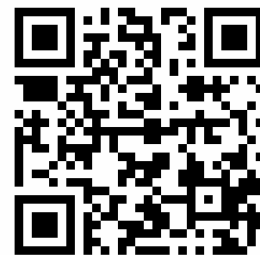
Diamond Taxi

416-366-6868

Maple Leaf Taxi

416-465-5555

For a detailed public transportation map, view the TTC System Map at ttc.ca/PDF/Maps/TTC_SystemMap.pdf



NOTES

What you don't see matters

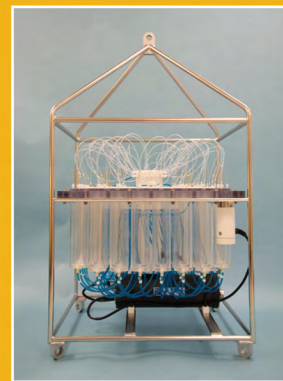
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62nd Annual Conference on Great Lakes Research



IAGLR 2019

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State University of **NEW YORK**

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